BC Hydro
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Acid Rock Drainage and Metal Leachate Management Plan – Water Quality Annual Report: January 1 to December 31, 2018

Site C Clean Energy Project

March 29, 2019

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Acronyms

AFDE	Aecon, Flatiron, Dragados, and EBC
ARD/ML	acid rock drainage/metal leaching (or leachate)
CEMP	construction environmental management plan
DIC	diversion inlet cofferdam
DOC	diversion outlet cofferdam
DTIP	diversion tunnel inlet portal
DTOP	diversion tunnel outlet portal
EAC	Environmental Assessment Certificate
EPP	environmental protection plan
GSS	generating station and spillways
IDZ	initial dilution zone
IEM	Independent Environmental Monitor
LBDT	left bank drainage tunnel
LBex	left bank excavation
LC50	lethal concentration 50
MCW	main civil works
MWTF	mobile water treatment facility
Non-PAG/NPAG	non-potentially acid generating
PAG	potentially acid generating
PRHP	Peace River Hydro Partners
RBDT	right bank drainage tunnel
RCC	roller compacted concrete
RSEM	relocated surplus excavated materials (area)
SBIAR	south bank initial access road
TPSA	temporary PAG storage area/facility
TSS	total suspended solids
QP	Qualified Professional

1. Acid Rock Drainage and Metal Leachate Management Plan

1.1 Background and Reporting Requirements

The Acid Rock Drainage and Metal Leachate Monitoring Plan has been developed in accordance with the following regulatory conditions:

1. Condition 7 of the Site C Project's Federal Decision Statement, issued to BC Hydro on October 14, 2014 and re-issued November 25, 2014, which requires BC Hydro to: "*…develop, in consultation with Environment Canada and Natural Resources Canada, a water quality management plan to address environmental effects to the aquatic environment from the Designated Project, including acid rock drainage and metal leaching."*

2. Condition 3 of the Site C Project's Environmental Assessment Certificate, (EAC #E14-02), issued to BC Hydro on October 14, 2014, which requires BC Hydro to: *"…develop a water quality monitoring program, [which] must be detailed in the Acid Rock Drainage and Metal Leachate Management Plan."*

The Site C Project's Construction Environmental Management Plan (CEMP; Revision 4 - July 26, 2016), Appendix E – Acid Rock Drainage and Metal Leachate Management Plan fulfills the requirements of the water quality management plan referenced in the above conditions.

This update satisfies the annual reporting requirements specified by these conditions, covering the reporting period from January 1 to December 31, 2018.

2. Overview of Site Activities in 2018

2.1 General Description of Site Activities

Major construction activities conducted in part of the Site C Clean Energy Project in 2018 involving ground disturbance included earthworks in preparation for the dam site foundations, construction of additional relocated surplus excavated materials (RSEM) management facilities, off-site quarry operations, and construction of water conveyance and containment structures.

The water quality monitoring programs that have been implemented on site by BC Hydro and their contractors have been developed to fulfill requirements of the CEMP within the RSEM facilities, water conveyance structures and within the Peace River.

Bedrock material underlying the Dam Site is characterized to be potentially acid generating (PAG). Environmental management protocols are implemented in all construction areas by BC Hydro to prevent or mitigate the development of acid rock drainage and metal leaching (ARD/ML) conditions. Overburden and soil materials are not potentially acid generating (Non-PAG) and are not managed the same as excavated PAG materials at the Dam Site.

Each construction area is required to have a BC Hydro approved environmental protection plan (EPP) which describes ARD/ML mitigation and management plans relevant to the site work as per the CEMP Appendix E. Where exposure or disturbance of bedrock is not anticipated as part of the construction activities, a chance find procedure is included in the EPP document. As of

December 31, 2018 (cumulatively since the start of project construction), 720 EPPs (including revisions) have been reviewed by BC Hydro. In the calendar year 2018, over 266 EPPs (including revisions) were submitted to and reviewed by BC Hydro). Implementation of these plans is the responsibility of site contractors, and is overseen by BC Hydro, the Independent Environmental Monitor (IEM) and ARD/ML Qualified Professionals (QPs).

2.2 Dam Site Activities Related to PAG Material Management

The location of construction areas and water management structures relevant to ARD/ML material management are described below and are shown on Figure 1. The areas are categorized per their location on the Right (south) Bank or Left (north) Bank of the Peace River, and are listed by excavation site, followed by either the temporary or permanent storage facility.

The water management system is continuously adapted as earthworks are undertaken. The Left Bank is divided into two main areas to describe water management: the L5 catchment area, which includes the Left Bank Excavation (LBEX) area, and the Diversion Inlet, Central and Diversion Outlet Cofferdams; and, the L3 catchment area which includes RSEM L3, L4 Creek, Gully Road, River Road, and Howe Pit. Construction of the foundation and sediment ponds in the future RSEM Area L6 was completed in late 2018; this facility was not receiving water at the end of 2018.

The Right Bank is divided into four areas to describe water management; Area A, the RSEM Area R6 catchment, the RSEM Area R5a catchment and the RSEM Area R5b catchment.

Right Bank – Excavations

Excavation conducted on the Right Bank during 2018 amounted to a total of 586,466 m^3 of PAG bedrock being disturbed and relocated. Most of this material was produced from excavations in the Approach Channel area (511,157 m^3), the Roller Compacted Concrete (RCC) Buttress area (50,298 m^3), and the Right Bank Drainage Tunnel (RBDT) (21,487 m^3). The RCC Buttress area covers all excavation activity within the RCC Buttress excavation, the Tail Race, the RCC West Access Road, and the Laydown 32B area. Relatively minor excavations were also undertaken in the RSEM Area R5a non-contact ditch (2,414 m^3) and Area 23 (1,110 m^3).

All of the material excavated on the Right Bank was deposited in RSEM Area R5a.

Right Bank Drainage Tunnel Portal

The Right Bank Drainage Tunnel (RBDT) is being constructed to control groundwater conditions underlying the foundation of the southern dam abutment. The RBDT portal was covered with shotcrete and completed in October, 2016, allowing for advancement of the tunnel in 2017 and 2018. Tunnel excavation by road header generated approximately 21,487 m^3 of bedrock material which was transported to the temporary storage area in RSEM R6 prior to being relocated to RSEM R5a.

Surface runoff and seepage water collected from within the tunnel was collected and conveyed to the pond within RSEM R6.

Spillway Approach Channel

Bedrock excavation forming the foundation for the Spillway Approach Channel area constitutes a major earthworks project on the Dam Site. In 2018, approximately 511,157 m^3 of bedrock was

excavated and transported to RSEM R5a. A summary of bedrock geochemical monitoring, and inventory of material volumes by month are included in the Annual Report by Lorax Environmental in Appendix A. Runoff from the spillway channel is being directed to the mobile water treatment facility (MWTF) for PAG-contact, metals-laden water prior to being diverted to the RSEM R5b pond, which was brought to site in mid-2018. Monitoring of the bedrock geochemistry and water quality in this area was completed by Lorax on behalf of the project's main civil works (MCW) contractor, Peace River Hydro Partners (PRHP) (refer to Appendix A).

RCC Buttress Excavation Area

Downstream of the Approach Channel within the RSEM R6 area, bedrock excavations were completed within the RCC Buttress Excavation Area. Work in this area included construction and surfacing of the RCC Buttress, and initiation of work on the powerhouse and related structures and equipment. Material volumes from these excavations totalled approximately 50,298 m^3 of material which was hauled to RSEM R5a. Runoff water from these areas is contained within the RCC cofferdam, and is pumped to the RSEM R6 sediment pond.

Monitoring of the bedrock geochemistry and water quality of the RCC Excavation itself was completed by Lorax on behalf of PRHP (refer to Appendix A). Monitoring of the bedrock geochemistry and water quality of the powerhouse and related structures are completed by the Generating Station and Spillways (GSS) contractor, Aecon, Flatiron, Dragados, and EBC (AFDE).

South Bank Initial Access Road (SBIAR)

Between February and March of 2017, a road cut was constructed on the Right Bank to enable two-way haulage and site vehicle access from the upper terrace near Area A and Area 21 down to the floodplain level in RSEM R6. This excavation involved removal of approximately 139,000 m^3 of bedrock, and placement of approximately 206,000 m^3 of embankment fill material. The bedrock material was transported to RSEM R5a and runoff water was channelled to RSEM R6. No additional excavation has occurred at SBIAR during 2018.

Routine monitoring of runoff water quality from approximately 12,500 m^2 of exposed bedrock was completed by Tetra Tech on behalf of BC Hydro (Appendix D). Monitoring of the bedrock geochemistry was completed by Lorax on behalf of PRHP (Appendix A) and Tetra Tech on behalf of BC Hydro (Appendix C).

Pre-Existing Bedrock Exposures

Monitoring of bedrock that was exposed in 2016 continued at the Moberly Bridge and small Dam Site road cuts on the right bank. Surface and seepage water contacting these exposures are collected and conveyed to the RSEM R5b pond. A summary of the routine bedrock and water monitoring activities for this area are described by Lorax in Appendix A.

Right Bank RSEMs

There are four catchment areas within the construction site on the Right Bank, including three RSEMs, as noted above:

- Area A is a large area to the east of the SBIAR in which aggregates are being extracted for use at the construction site; this area has not and is not anticipated to expose or disturb bedrock and is therefore PAG management has not been implemented;

- RSEMR5a catchment area includes the area where the majority of excavated PAG material will be deposited on the west side of the Moberly River;
- RSEM R5b catchment area includes the Approach Channel and Area 23; and
- RSEM R6 catchment area includes Area 20/21, the Right Bank Drainage Tunnel (RBDT) and associated facilities to the south, and RCC Buttress Excavation to the west.

RSEM R5a

Construction of the RSEM R5a facility commenced in December 2016 and it began receiving material in January 2017. The facility will be upstream from the dam and is permitted for permanent storage of up to approximately 9,300,000 m^3 of PAG material. Material resulting from excavation activities within the RCC Cofferdam Excavation and the Spillway Approach channel was transported into the facility. By the end of 2018, RSEM R5a contained a total volume of 4,165,734 m^3.

Surface water runoff from the RSEM Area R5a catchment drains to a series of four long sediment pond cells constructed adjacent to the perimeter dike. A non-contact intercept ditch upgradient of the RSEM area was completed in 2018. There has generally been little accumulation of surface water and no discharge from these ponds as of December 31, 2018.

Monitoring of the bedrock geochemistry was completed by Lorax on behalf of PRHP (Appendix A). Monitoring of the groundwater quality at RSEM R5a is referenced below in Section 3.1.3.

RSEM R5b

The RSEM R5b facility was approved for PAG placement as of July 2016. Construction of the RSEM R5b facility was completed and began receiving PAG in early October. The facility will be located upstream of the dam.

The RSEM storage capacity was reached by the end of 2016, and the facility received only approximately 3,500 m^3 in 2017, with total stored volume of approximately 357,000 m^3. No additional material was stored in this facility in 2018. A compacted low permeability cover was installed to isolate the RSEM material from moisture and oxygen.

Surface water runoff from the ultimate footprint of the Approach Channel (approximately 40 ha in area) and from the surface of the relatively small RSEM Area R5b are conveyed to the RSEM R5B sediment pond. Water from the partly excavated Approach Channel (approximately 8 ha) is normally directed to the pre-treatment pond, located adjacent to the MWTF, and once treated is released into the sludge and polishing pond which is then diverted to RSEM R5b.

Monitoring of the water in the RSEM R5b sediment pond is conducted by daily water quality sampling and through use of continuous data logger probes (pH, turbidity, temperature and conductivity) and instantaneous discharge flow meters.

The pond remains active and receives upgradient runoff water conveyed from the Spillway Approach Channel, site haul roads, the upper terrace near Area 23, the Moberly Bridge bedrock exposures and other PAG contact water transported by hydrovac truck from other various areas.

The water quality monitoring with the RSEM R5b pond catchment is described by Lorax (Appendix A). Monitoring of the water in the RSEM R5b pond is referenced in Section 3.1.1 and 3.1.2.

RSEM R6

The RSEM R6 facility is not permitted for long term storage of PAG material and has only a small short term storage area for stockpiling of surplus excavated bedrock material from RBDT development. Bedrock material placed in the facility is relocated to RSEM R5a.

The long term RSEM R6 sediment was constructed and completed in April 2017 and is permitted to receive some PAG contact water, into one of an eastern or western pond cell depending on water levels and water quality within each cell. Surface water runoff from the south (Area 20/21, SBIAR, and RBDT) and west (RCC Buttress Excavation) is conveyed to the RSEM Area R6 sediment ponds (east and west ponds). Water is pumped between the east and west ponds to provide additional retention time for particulate settling, when needed. Monitoring of the water in the RSEM R6 sediment pond is conducted by daily water quality sampling and through use of continuous data logger probes (pH, turbidity, temperature and conductivity) and instantaneous discharge flow meters. The work was completed by Lorax and is referenced in Section 3.1.1 and 3.1.2.

The water quality monitoring with the RSEM R6 pond catchment is described by Lorax (Appendix A). Monitoring of the water in the RSEM R6 pond is referenced in Section 3.1.1 and 3.1.2.

Left Bank – Excavations

Excavation on the Left Bank during 2018 amounted to a total of 464,189 m^3 of PAG rock being disturbed and relocated. These construction activities were mainly conducted around the Diversion Tunnel Inlet Portal (DTIP) and the Diversion Tunnel Outlet Portal (DTOP), in additional to portions of the Diversion Tunnels; 308,504 m^3 of bedrock material was excavated from the DTIP and 155,685 m^3 of material was excavated from the DTOP. Excavation of material from the Inlet Portal occurred throughout the year, whereas most of the material from the DTOP was excavated in Q4. Contact water from within the DTIP work area was retained and trucked to either the concrete sump in RSEM Area R5a, or to the MWTF. Contact water from the DTOP work area flows by gravity into a sump in the northwest corner of the Diversion Outlet Cofferdam (DOC). From here it was pumped to LBEX-SP or trucked to the MWTF.

PAG bedrock was also excavated from several other locations on the Left Bank. These included the Outlet Cofferdam (11,220 m^3), the LBEX (5,085 m^3), the Left Bank Haul Road (4,725 m^3, the Inlet Cofferdam (3,750 m^3), the L5 Garbage Creek Diversion (180 m^3), and the Central Cofferdam (120 m^3). PAG exposed in these areas were covered with NPAG or had ongoing construction activities at the end of 2018.

In total, 489,269 m^3 of PAG material was stockpiled in the RSEM L5 and L6 areas. Material was placed in RSEM Area L5 throughout 2018. The first material was deposited in RSEM Area L6 December 2018.

Left Bank Excavation and Haul Road

Excavation activities on the LBEX were completed in 2018 and no PAG bedrock was exposed. A small PAG exposure on Bench 1 and 2 remains exposed from excavation conducted in 2017 and is being monitored. PAG contact water was conveyed to a temporary pond in RSEM L5 (L5-TPSP) until November when the temporary pond was decommissioned and runoff from LBEX was contained in sumps on the LBEX benches that were dewatered by truck to the MWTF for treatment through to the end of 2018.

The LBEx temporary catchment pond at the base of the LBEx was decommissioned as a discharging facility. The pond is used to collect PAG contact water from the natural PAG slopes along the Left Bank. The water is then transported to the MWTF.

Description of the PAG material geochemical monitoring and water quality monitoring are included in the PRHP Annual Report (Appendix A).

Diversion Tunnels

Pre-construction of the Left Bank Diversion Tunnels (LBDT) commenced in 2017 and portal construction was completed in 2018. Two parallel 12 m diameter tunnels will divert river water during construction of the dam core. Bedrock excavated at the tunnel inlet and outlet portals was relocated to RSEM L5 and the exposed bedrock faces have been covered with shotcrete. Three isolated cofferdams have been constructed outboard of the DTIP, DTOP and the Dam Core excavation area to isolate these construction areas from having hydraulic connectivity with the Peace River and to permit excavation below river levels. Sumps within the cofferdam areas are used to collect PAG contact water which was then transported to RSEM R6 pond or to the MWTF.

River Road

River Road was constructed by the early works contractor, Morgan Construction and Environmental Ltd., in 2015 to serve as the main access route between the upper and lower benches along the right bank. The road remains active as the main site access road along the Left Bank.

The area of bedrock which remains exposed from excavation activities required during road construction down through the Left Bank bluff is referred to as Blind Corner. Surface runoff from bedrock outcrop at Blind Corner and from the upper cut-off ditch in the Howe Pit bench is captured within a limestone rip-rap lined ditch which conveys water along River Road and is diverted to a broad expanse of ditch between culverts RR-8 and RR-9, and is not directly discharged to the Peace River. Routine monitoring of water quality within this catchment, as per CEMP Appendix E, S.5.2.1.7, is described by Tetra Tech in Appendix D.

Howe Pit

The Howe Pit area comprises an area which was previously disturbed by extraction of soil and bedrock material for use as construction aggregate. Bedrock remains exposed in the area. No additional disturbance of the site has been conducted as part of the Site C construction activities.

Surface runoff from the Howe Pit area drains into the L3 Creek via a pond and drainage channels. Water quality within the L3 Creek is being monitored by BC Hydro and is described by Tetra Tech (Appendix D).

Future management options for this area are being considered by BC Hydro.

Left Bank RSEMs

There are four main catchment areas within the construction site on the Left Bank, including three RSEMs, as noted above:

- RSEM L3 catchment includes L3 Creek, L4 Creek, RSEM L3, Gully Road, and Howe Pit;
- RSEM L5 catchment includes Garbage Creek, Garbage Creek TPSA, LBEx, DTIP, and RSEM L5
- RSEM L6 catchment includes DTOP, RSEM L6
- Left Bank Cofferdam includes DTIP, LBEx, Left Bank Cofferdam excavation.

RSEM L3

Water management and monitoring in the L3 catchment were undertaken by BC Hydro and its consultants, starting in early 2018. The RSEM L3 facility was constructed to contain Non-PAG surplus material from the LBEx and reached capacity (as per the original design) in mid-2016. L3 Creek channel was subsequently re-contoured to allow for drainage of the natural watercourse. L3 Creek drains into the Peace River approximately 1.5 km from RSEM L3. L4 Creek is a small tributary with naturally-occurring PAG contact water which flows into L3 Creek. This watercourse is not subject to ARD/ML monitoring requirements as no construction related activities have exposed bedrock or caused PAG contact water to flow into L3 Creek; however, BC Hydro is maintaining records of water quality within the drainage system as described by Tetra Tech (Appendix D).

RSEM L5

Construction of the RSEM L5 area commenced in late 2016 and began receiving bedrock material excavated from the Left Bank (Left Bank Drainage Tunnel, LBex, and Left Bank Temporary Storage Area) at the end of June 2017. At the end of 2018, RSEM Area L5 contained a total of 756,614 m^3 of PAG material, approximately to capacity. The facility will be upstream from the dam and is permitted for long term storage of PAG material. Construction of the Phase 1 of the long term RSEM ponds was complete at the end of 2018, however, did not have monitoring instrumentation installed and was not receiving or discharging water.

No material was added to the L5 Garbage Creek stockpile in 2018; however, 24,225 m^3 of PAG material remains stockpiled and covered with NPAG at this location.

Four ponds were used to contain contact water from the LBEX and RSEM Area L5 in 2018 as interim measure until the long term pond is commissioned for use. These were:

- L5-TNCP – received NPAG contact water for the first half of 2018, then was infilled.
- L5-TPSP –received PAG contact water for the first half of 2018, then both PAG and NPAG contact water for the second half of 2018 until it was infilled late in 2018.
- LBEX-SP –receives PAG contact water from the natural PAG bluff located below the LBEX.

There was no discharge from any of these ponds in 2018. Some water from the LBEX-SP was trucked to the mobile water treatment facility.

The Garbage Creek diversion channel was constructed in late September 2016 and was operational for spring freshet of 2017 and 2018[1] to divert non-contact waters around RSEM L5 and into the Peace River via a lined channel. Diverted Garbage Creek water is impacted by natural bedrock exposures in upstream waters. The Garbage Creek diversion is located at the east end of RSEM Area L5. During freshet, surface water runoff overtopped the diversion and accumulated in RSEM Area L5. This water was pumped into the lower diversion channel and flowed out to the Peace River. Construction activities were in progress at the end of 2018 in order to reconfigure the Garbage Creek head pond and diversion channel in order to accommodate future freshet surge flows.

Description of bedrock material geochemical monitoring and water quality monitoring within the RSEM L5 facility is included in the Lorax Annual Report (Appendix A).

RSEM L6

The RSEM Area L6 starter dyke and sediment pond were completed in December 2018. A total of 16,530 m^3 of PAG was placed in RSEM Area L6. The facility will be downstream of the dam and permitted for long term storage of PAG and NPAG material subject to covering and isolation of the PAG from air. The RSEM Pond was under construction at the end of 2018 and was not receiving water.

Left Bank Cofferdams

The areas behind the Left Bank Cofferdams, the Diversion Inlet Cofferdam (DIC), the Central Cofferdam and Diversion Outlet Cofferdam (DOC), were largely dewatered in Q2 and early Q3. Sumps were established in each cell and surface water was pumped to the Peace River. Placement of the dam core was initiated in the central cofferdam.

Work on the Left Bank in Q3 was focused on the excavation of the Diversion Tunnel Inlet Portal (DTIP), Diversion Tunnel Outlet Portal (DTOP), and the start of tunneling. Contact water from within the DTIP work area was retained and trucked to either the concrete sump in RSEM Area R5A, or to the MWTF. Contact water from the DTOP work area flows by gravity into a sump in the northwest corner of the DOC. From here it was pumped to LBEX-SP or trucked to the MWTF.

Offsite Locations

West Pine Quarry

PRHP estimates that 98,140 m^3 of NPAG material was blasted at the West Pine Quarry for use at Site C. The material is periodically transported by rail to Site C to be used as feedstock for the roller compacted concrete (RCC).

Portage Mountain Quarry

Pre-production development continued at Portage Mountain Quarry through 2018; the area is not yet an active quarry operation. Work activities included installation of erosion and sediment

[1] The freshet period is somewhat variable, but occurred from April through to mid-June in 2018 (similar to 2017) in the Peace River in the vicinity of the Site C dam construction.

control systems, construction of the quarry access road, and a trial blast program in August 2018 within the quarry which included excavation of approximately 14,000 m^3 of rock. The material was stockpiled on site.

3. Overview of Water Quality Monitoring Programs related to Acid Rock Drainage and Metal Leachate Management

The CEMP Appendix E identifies responsibilities specific to BC Hydro and the contractor. In 2018, BC Hydro, as owner, and Peace River Hydro Partners, as MCW contractor, engaged qualified professionals in ARD/ML to assist with implementation of the various water quality monitoring programs identified in Table 1.

In addition to overseeing these water quality monitoring programs, Peace River Hydro Partners' qualified professional, Lorax Environmental, provided general materials management and professional advice on the topic of ARD/ML, and BC Hydro's qualified professional, Tetra Tech Canada Inc., acted in the capacity of auditor of contractor compliance with CEMP Appendix E, while also providing professional advice on the topic of ARD/ML to BC Hydro. These roles were filled in accordance with CEMP Appendix E, S.6.1.2.

Table 1 Individual Water Quality Monitoring Programs related to the ARD/ML Management Plan (CEMP Appendix E)

	Program Description	CEMP Appendix E Reference	Frequency	Duration	Geographic Extent	Program Responsibility	Monitoring Program Qualified Professional (QP), 2018
Monitoring associated with PAG-contact RSEM Sediment Ponds	**Collected/Contained Water**						
	PAG-contact RSEM Sediment Pond Water Quality Water quality sampling, and installation and operation of data loggers for measurement of pH, turbidity and electrical conductivity from PAG containing RSEM sediment ponds.	7.3.2	Hourly (*in situ* measurements) Daily (water quality sampling)	Ongoing from December 2016	Permitted PAG containing RSEM sediment ponds	Contractor (Peace River Hydro Partners)	Lorax Environmental
	RSEM Sediment Pond Toxicity Collection of acute toxicity tests (96hr LC50) from water in PAG-contact RSEM sediment ponds	7.2.1, 7.3.1	Bi-weekly (3), then monthly (12), then quarterly	Ongoing from November 2016	Permitted PAG containing RSEM sediment ponds	BC Hydro	Ecofish Research Ltd. and Ecofor Consulting Ltd.
	Groundwater						
	Groundwater Monitoring Install groundwater monitoring wells upgradient and downgradient of RSEM R5a and R5b, and water quality monitoring of groundwater.	7.2.5, 7.3.3	Quarterly	Ongoing from October 2016	RSEM R5a and RSEM R5b	Contractor (Peace River Hydro Partners)	Lorax Environmental
	Peace River Surface Water						
	Peace River Mixing Dynamics and Water Quality Monitoring Field verification of modelled river mixing dynamics for the RSEM discharge sites, assessment of appropriateness of Initial Dilution Zone (IDZ) sample sites through discharge plume characterization, and collection of surface water quality samples at established upstream, far-field downstream and IDZ locations in the Peace River.	6.1.1, 7.2.3, 7.3.4	Monthly and during RSEM discharge events.	Ongoing from December 2016	Peace River at locations upstream and downstream of PAG containing RSEM areas	BC Hydro	Ecofish Research Ltd. and Ecofor Consulting Ltd.
Other Monitoring	**Surface Water**						
	Dam Site Road Cut Water Quality Monitoring Water quality monitoring at construction-related road cuts into PAG material.	5.2.1.7	Monthly (except while dry/frozen) for 1st year of observation, then quarterly thereafter	Ongoing from fall 2016	Throughout the dam site (left and right Peace River banks)	BC Hydro & Contractor (Peace River Hydro Partners), in their respective work areas	Tetra Tech Canada Inc. (on behalf of BC Hydro) Lorax Environmental (on behalf of Peace River Hydro Partners)
	Highway 29 Realignment Segments and Hudson's Hope Shoreline Protection *Water quality monitoring at excavations into PAG or potentially ML material during construction of these project components.*	*5.2.2*	*Monthly (except while dry/frozen) for 1st year of observation, then quarterly thereafter*	*N/A in 2018 (construction not yet begun)*	*N/A in 2018 (construction not yet begun)*	*BC Hydro (or the Contractor)*	*N/A in 2018 (construction not yet begun)*

3.1 Summary of Implementation Status: Monitoring Programs associated with PAG-contact RSEM Sediment Ponds

A summary of RSEMs that are designated to contain PAG material and/or PAG-contact water, and an indication of those that were operational with sediment ponds in 2018, is provided in Table 2.

Table 2 Summary of PAG-contact RSEM Sediment Pond Operational Status in 2018

RSEM	Status in 2018
Right Bank	
RSEM R5a[1]	Operational
RSEM R5b	Operational
RSEM R6[2]	Operational
Left Bank	
RSEM L5 - TPSP	Operational until infilled late 2018
RSEM L5 (Phase 1)	Constructed; not operational yet
LBEX-SP[3]	*Operational*
RSEM L6	Completed Dec 2018; not operational yet

NOTES:
[1] RSEM R5a sediment ponds were constructed in 2017, but have not discharged any water to date
[2] RSEM R6 does not receive PAG material, but its sediment ponds receive PAG-contact water
[3] LBEX-SP is not a true RSEM sediment pond

The focus of the monitoring programs described below is on those PAG-contact RSEMs with operational sediment ponds in 2018 only.

3.1.1 PAG-contact RSEM Sediment Pond Water Quality

A brief summary of monitoring undertaken at PAG-contact RSEM sediment ponds is provided below; a detailed description is included in Appendix A.

In general, operational PAG-contact RSEM sediment ponds are subject to the following monitoring regime:

- Continuous (minimum hourly) measurements of pH, turbidity, and electrical conductivity via *in situ* sonde
- Continuous measurements of discharge to the Peace River
- Daily collection of water quality samples for laboratory analysis of total and dissolved metals, pH, total suspended solids (TSS), turbidity, sulphate, nitrates, conductivity, temperatures, conductivity, and hardness (plus hydrocarbons, if applicable due to a spill event)

These monitoring measures are undertaken except when the pond is dry or frozen.

PAG-contact RSEM sediment pond water quality is subject to end-of-pipe discharge limits, as described in the CEMP Appendix E (Table 2), for the following parameters: total metals (cadmium, cobalt, copper, zinc), TSS, and pH.

Water quality and flow data are used to calculate metals loading of each PAG-contact RSEM sediment pond to the Peace River on a daily basis.

RSEM R5a

The RSEM R5a facility construction was completed in early 2017. A temporary sediment pond was commissioned in May, which was replaced by two permanent, linear ponds (each with two cells divided by a berm) in mid-July 2017. These ponds receive water from direct precipitation and runoff from the RSEM footprint only. An intercept ditch upgradient of the RSEM area was largely completed in 2018. Given that the large volume of shale material placed in this area retained the majority of snowmelt and precipitation, there was very little water that accumulated in the ponds, and consequently, no installation of sondes for *in situ* water quality measurements, or continuous flow meters, and only occasional water quality sampling for laboratory analysis (three occasions in mid-July, and one occasion in late October, from the east pond only).

Pond levels remained below the overflow culvert elevations, and no discharges occurred from the RSEM R5a sediment ponds in 2018. As such, there were no reportable exceedances of end-of-pipe limits, nor metal loading associated with discharges to the Peace River from RSEM R5a in 2018.

RSEM R5b

RSEM R5b sediment pond was operational as of early December 2016. In 2018, water reporting to the RSEM R5b sediment pond was conveyed from intercepted groundwater above the Approach Channel, runoff from the Approach Channel itself, treated effluent from the newly-installed mobile water treatment facility, from a sump on the south side of the Moberly River bride that collects water from a PAG rock cut, and from the former RCC trial dome area (via pumping to the upper Approach Channel diversion ditch). There was more or less continuous discharge from this sediment pond during the year, except during frozen conditions.

A mobile water treatment facility (MWTF) for metals-laden, PAG-contact water was installed upgradient of RSEM R5b and operational as of July 2018. Water from the partly excavated Approach Channel (approximately 8 ha) was normally directed to the pre-treatment pond, located adjacent to the MWTF, and once treated, was released into the sludge pond which discharges into the Approach Channel Diversion Channel and flows by gravity to the RSEM R5b sediment pond.

The following monitoring was undertaken in RSEM R5b in 2018 (except when pond frozen):

- Continuous *in situ* measurements of pH, turbidity, and electrical conductivity with a sonde device
- Continuous measurements of flow rates to the Peace River with an ultrasonic area velocity flow meter
- Daily collection of water quality samples for laboratory analysis of total and dissolved metals, pH, TSS, turbidity, sulphate, nitrates, conductivity, temperatures, conductivity, and hardness

Exceedances of end-of-pipe limits (for metals, including Cd, Cu, Zn, and, rarely, pH) associated with discharges from the RSEM R5b pond occurred periodically throughout the year, particularly in association with snowmelt (late March/ April) and heavy precipitation events in late June, late July, and early September. On September 9 and 10, a discharge of approximately four million litres of low pH, PAG-contact water discharged to the Peace River following a 55 mm rain event. The discharge was a relatively small flow of approximately 34 L/s over a 26-hour period into a flow in the Peace River of up to 1.2 million L/s. As such, the water was immediately diluted (within 100 m of the discharge point), with no harmful effects observed. Following this event, the Comptroller of Water Rights requested a review of the capacity of the care of water system on

the right bank approach channel. Environment Canada is also investigating the incident. BC Hydro is taking action to increase the holding capacity and effectiveness of the care of water system, and to remove the weathered acidic rock to reduce the potential for a similar reoccurrence.

Further details on these events are described in Appendix A.

Metal loading calculations indicate that monthly loadings contributed from discharges of water from RSEM R5b represent only a minor fraction relative to overall metal loads in the Peace River, as measured a short distance upstream of the construction site (see Appendix A, Table 4.6-3 for further detail).

RSEM R6

RSEM R6 sediment pond is comprised of an east and west pond (separated by a berm), each with a separate discharge outfall to the Peace River. These ponds were operational as of spring 2017, concurrent with completion of the RSEM facility construction, and continued operation throughout 2018. The RSEM R6 facility receives only Non-PAG material, hence, the runoff from this facility is non PAG-contact water, although other water reporting to the pond is PAG-contact, and thus, the pond is managed in accordance with the monitoring requirements of CEMP Appendix E. Water reporting to the RSEM R6 sediment ponds in 2018 originated from construction areas to the west (roller compacted concrete excavation), south (right bank drainage tunnel (RBDT), Area 20, Area 21, substation laydown, South Bank Initial Access Road), and east (Area A). Water is pumped between the pond cells to provide additional retention time for particulate settling, when needed. Discharge from the ponds (the east and west ponds discharge through separate culverts onto a shared rip rap protected outfall) was nearly continuous throughout 2018, except during frozen conditions.

The following monitoring was undertaken in RSEM R6 in 2018 (except when pond frozen):

- Continuous *in situ* measurements of pH, turbidity, and electrical conductivity with a sonde device
- Continuous measurements of flow rates to the Peace River with an ultrasonic area velocity flow meter
- Daily collection of water quality samples for laboratory analysis of total and dissolved metals, pH, TSS, turbidity, sulphate, nitrates, conductivity, temperatures, conductivity, and hardness

Exceedances of end-of-pipe limits associated with discharges from the RSEM R6 ponds (for metals, primarily Zn and occasionally Cu) were relatively infrequent throughout the year. There were no exceedances of the pH associated with any discharge from either of the RSEM R6 ponds in 2018.

As described for RSEM R5b, metal loading calculations indicate that monthly loadings contributed from discharges of water from RSEM R6 represent only a minor fraction relative to overall metal loads in the Peace River, as measured a short distance upstream of the construction site (see Appendix A, Table 4.6-3 for further detail).

3.1.2 RSEM Sediment Pond Toxicity

A brief summary of toxicity testing undertaken at PAG-contact RSEM sediment ponds is provided below; a detailed description is included in Appendix B.

In general, acute toxicity of RSEM pond water was monitored before initial pond discharge, and at regular intervals thereafter (bi-weekly, monthly, and quarterly, depending on discharge frequency). Acute toxicity was evaluated using a standard laboratory assay (Rainbow trout 96-h LC50 test) performed on water samples collected directly from the outflow of each RSEM pond (or the pond itself when not discharging).

RSEM R5a

Toxicity testing was initiated in the RSEM R5a temporary sediment pond in May/June 2017, until it was decommissioned. In mid-July 2017, the more permanent ponds were subsequently constructed, with design consisting of four individual cells (A, B, C, and D). Since completion, these cells have contained little water and have not discharged to the Peace River. Snowmelt in spring 2018 allowed for the collection of one toxicity sample from three of the cells (A, C, and D). Further sampling has not been conducted as discharge is not expected under normal operating conditions.

In 2018, all three toxicity samples collected from the RSEM R5a ponds (cells A, C, and D) passed the acute toxicity test.

RSEM R5b

Toxicity testing was initiated in the RSEM R5b sediment pond on November 30, 2016 and continued at the prescribed frequency throughout 2017 and 2018. In 2018, a total of 13 acute toxicity samples were collected from this pond: quarterly samples, three bi-weekly samples after a period of 30 days with no discharge, three bi-weekly samples as mandated in May 2018 by the Deputy Comptroller of Water Rights to address concerns with elevated metals (cadmium and zinc) in the pond water, an opportunistic sample on September 9 in anticipation of poor water quality following a heavy rain event, and three bi-weekly samples following the failure of the sample collected on September 9.

In 2018, 12 of the 13 samples collected from the RSEM R5b pond passed the acute toxicity test, with one failure associated with pond water collected on September 9 (in conjunction with the event described in section 3.1.1 above). Further details on this event are provided in Appendix B.

RSEM R6

Toxicity testing was initiated in the RSEM R6 sediment ponds (west and east cells) in March and April 2017, respectively, and continued at the prescribed frequency throughout 2017 and 2018.

In 2018, all 18 toxicity samples (9 samples from the east pond and 9 samples from the west pond) collected from the RSEM R6 sediment ponds passed the acute toxicity test.

RSEM L5

Construction of the RSEM L5 ponds (two cells, east and west, divided by a berm) was completed in December 2018. No discharge from these ponds has occurred to date.

A single sampling event at both pond cells (L5E and L5W) was conducted on July 26, 2018, when the ponds were partially constructed and holding water; these samples passed the acute toxicity test.

3.1.3 Groundwater Monitoring

A brief summary of groundwater monitoring undertaken at PAG-contact RSEMs is provided below.

RSEM R5a and RSEM R5b

Groundwater monitoring wells were installed in advance of the operation of RSEM areas R5b and R5a to monitor and characterize potential effects to groundwater due to seepage from the RSEM facility. Groundwater is monitored in four wells installed at RSEM R5a: three are installed downgradient of the RSEM (GW-1, GW-2, GW-3), and one is installed upgradient (GW-4). Similarly, at RSEM R5b, four groundwater wells have been installed for monitoring: three downgradient (GW-6, GW-7, GW-8), and one upgradient (GW-10b). Baseline sampling was undertaken in 2016, and each well was sampled quarterly in 2017 (4 to 5 times) and 2018 (10 to 11 times to account for additional monitoring requirements that were triggered based on previous results). The installation of wells prior to RSEM operations allows for temporal comparison of monitoring results, while the location of wells upgradient and downgradient of the RSEM facilities allows for spatial comparison at a particular point in time.

In accordance with the requirements of the CEMP Appendix E (S.7.2.5), groundwater quality is to be compared spatially (upgradient vs. downgradient) during each monitoring event. In response to baseline monitoring data indicating that concentrations of indicator parameters exceeded upgradient concentrations at both RSEM areas R5a and R5b, a *Groundwater Quality Mitigation Plan for RSEM Areas R5a and R5b* was prepared by the MCW Contractor's QP, Lorax Environmental, in June 2017. This mitigation plan presents a decision matrix with a series of compliance targets relative to baseline (2016) groundwater quality results for each RSEM, which, if exceeded, trigger additional actions, and mitigations if warranted.

At RSEM R5a, groundwater had circumneutral pH and the major ion compositions at all four wells remained within the range previously characterized in 2016/2017, except at the upgradient well (GW-4A), where slightly higher concentrations of sulphate relative to previous sampling was observed. Sulphate concentrations in this well ranged widely in baseline sampling conducted in 2016, and in samples collected during monitoring in 2017.

At RSEM R5b, groundwater also had circumneutral pH. Downgradient groundwater quality was found to have changed as of Q4 2017 in relation to background (baseline) water quality, exceeding certain compliance triggers (as developed through the preparation of the *Groundwater Quality Mitigation Plan for RSEM Areas R5a and R5b, "the Plan"*) for PAG seepage indicator parameters (conductivity, total dissolved solids, sulphate, sodium, chloride, and cobalt or cadmium (depending on the well). These results triggered additional monitoring events (above just quarterly sampling) throughout 2018. Conductivity showed an increasing trend through 2018, which appeared to stabilize in Q4. Groundwater major ion concentrations in

2018 were consistent with late 2017, when this shift in groundwater quality was observed, and thus, groundwater quality seems to have stabilized at these wells. In accordance with the Plan, these results also triggered the development of a conceptual groundwater model for RSEM Area R5b (in May 2018), and a geochemical loading model for RSEM Area R5b to assess loading rates to the Peace River and define critical groundwater loading values (currently underway).
Groundwater quality is reported on a quarterly basis under separate cover, with a compilation of annual data available in the 2018 Q4 report[2].

3.1.4 Peace River Mixing Dynamics and Water Quality Monitoring

A brief summary of Peace River mixing dynamics and water quality monitoring work undertaken in relation to discharge from PAG-contact RSEM sediment ponds is provided below; a detailed description is included in Appendix B.

Initial Dilution Zone Mixing Study

Prior to the construction of RSEM sediment ponds and any associated discharges, water quality modelling was undertaken by the project to examine the predicted mixing capacity of the Peace River through a 100 m initial dilution zone (IDZ). To confirm this predicted mixing, and the suitability of the IDZ approach for discharges from PAG-contact RSEM sediment ponds, actual mixing was evaluated through a field study undertaken in January 2017. For comparison to modelling results, field-verified mixing coefficients were obtained at the IDZ for RSEM R5b using natural tracers from the Moberly River inflow.

This study demonstrated ample mixing through the 100 m IDZ and confirmed the appropriateness of the IDZ compliance location that was recommended based on modelling results. These conclusions remained valid throughout 2018 and are expected to be valid over the range of RSEM pond water quality, discharge rates, and Peace River flow scenarios that were modelled for the project.

RSEM Discharge Plume Characterization

To further confirm that the proposed IDZ sampling locations (100 m downstream from the RSEM discharge points, 1 m from shore, 10-15 cm water depth) were appropriate, the discharge plume for each active RSEM pond was characterized using *in situ* specific conductivity. Measurements of specific conductivity, which is elevated in RSEM pond water relative to the Peace River, were taken along the IDZ at regular depths and distances from shore under various Peace River flow/RSEM discharge combinations between January and August 2017.

This study demonstrated that the RSEM discharge plume is generally fully mixed with the Peace River 20 m to 40 m downstream of the pond discharge location, but when present at the 100 m IDZ, is detectable at the proposed 10-15 cm depth 1 m from shore.

These conclusions remained valid in 2018.

[2] Peace River Hydro Partners. 2018. Site C Clean Energy Project: 2018 Q4 Groundwater Quality – Monitoring Report for RSEM Areas R5a and R5b (Rev 0). PRHP Document No. SCCEP-PRHP-EN-RPT-000680. Submitted to BC Hydro on January 21, 2019.

RSEM Discharge/Peace River Surface Water Quality Monitoring

To evaluate compliance with water quality limits applicable at the IDZ locations downstream of each PAG-contact RSEM sediment pond discharge location (CEMP Appendix E, Table 2), a full suite of water quality parameters (including physical parameters, nutrients, anions, total metals and dissolved metals) was measured *in situ* and/or sampled for laboratory analysis. Sampling was undertaken on a monthly basis throughout the year for those ponds that were discharging in that month, and on a 5 in 30-day schedule during a period of high and a period of low flow in the year. Sampling was conducted at the IDZ locations, and also at a site upstream (upstream of all Site C construction influences), immediately upstream (just upstream of individual RSEM discharge locations), and far-field downstream (downstream of all Site C construction influences). TSS discharge limits at end-of-pipe, which are prescribed as the BC water quality guidelines for freshwater aquatic life (CEMP Appendix E, Table 2) and thus, are dependent upon background Peace River water clarity conditions, were determined through measurements collected by automated turbidity gauges located on either bank of the Peace River, upstream of the confluence with the Moberly River. A site-specific TSS:turbidity relationship was determined through frequent sampling through a range of Peace River and tributary flow conditions.

Overall, water quality criteria were commonly exceeded at all monitoring locations due to naturally occurring Peace River conditions. There were no water quality exceedances at IDZ locations that were attributable to discharge of water from RSEM sediment ponds. The range in water quality parameter concentrations measured in 2018 were similar to those measured in 2017 and were within historical water quality data ranges observed in the Peace River.

3.2 Summary of Implementation Status: Other Monitoring Programs

3.2.1 Dam Site Road Cut Water Quality Monitoring

Two large double lane Dam Site road cuts referred to as River Road (2015) on the Right Bank between Howe Pit and the Peace River, and the SBIAR (early 2017) on the Right Bank between Area A and RSEM R6 have been constructed to allow site vehicle access from the upper terrace to the lower flood plain. Excavation and continued exposure of bedrock materials from both of these road cuts requires that routine water quality monitoring be conducted by BC Hydro in reference the CEMP Appendix E S.5.2.1.7. Surface runoff along River Road, which contacts bedrock at Bind Corner, discharges to the Peace River through culvert RR-11. Surface runoff which contacts the bedrock at SBIAR is channelled via a lined ditch to RSEM R6 pond and does not have a direct downstream receptor.

Water quality monitoring was conducted monthly, except when frozen, at five locations along River Road and quarterly at four locations along SBIAR. Results of laboratory analyses were screened against the BC Approved Water Quality Guidelines for freshwater aquatic life. Upstream and midstream in situ water quality measurements were included as part of the monitoring program.

The monitoring program concluded that ARD/ML processes are active on exposed bedrock at both the River Road and SBIAR locations. Water quality measured at River Road at Blind Corner revealed some minor impacts from these ARD/ML and continued monthly monitoring was recommended in this drainage in order to determine required mitigation and the effectiveness of any mitigation efforts. Water quality measured at SBIAR indicated that water quality remains within the water quality criteria, however, some trends indicate that monthly

sampling should be undertaken to help evaluate whether mitigation is required. BC Hydro is considering mitigation options for bedrock exposures in both drainages.

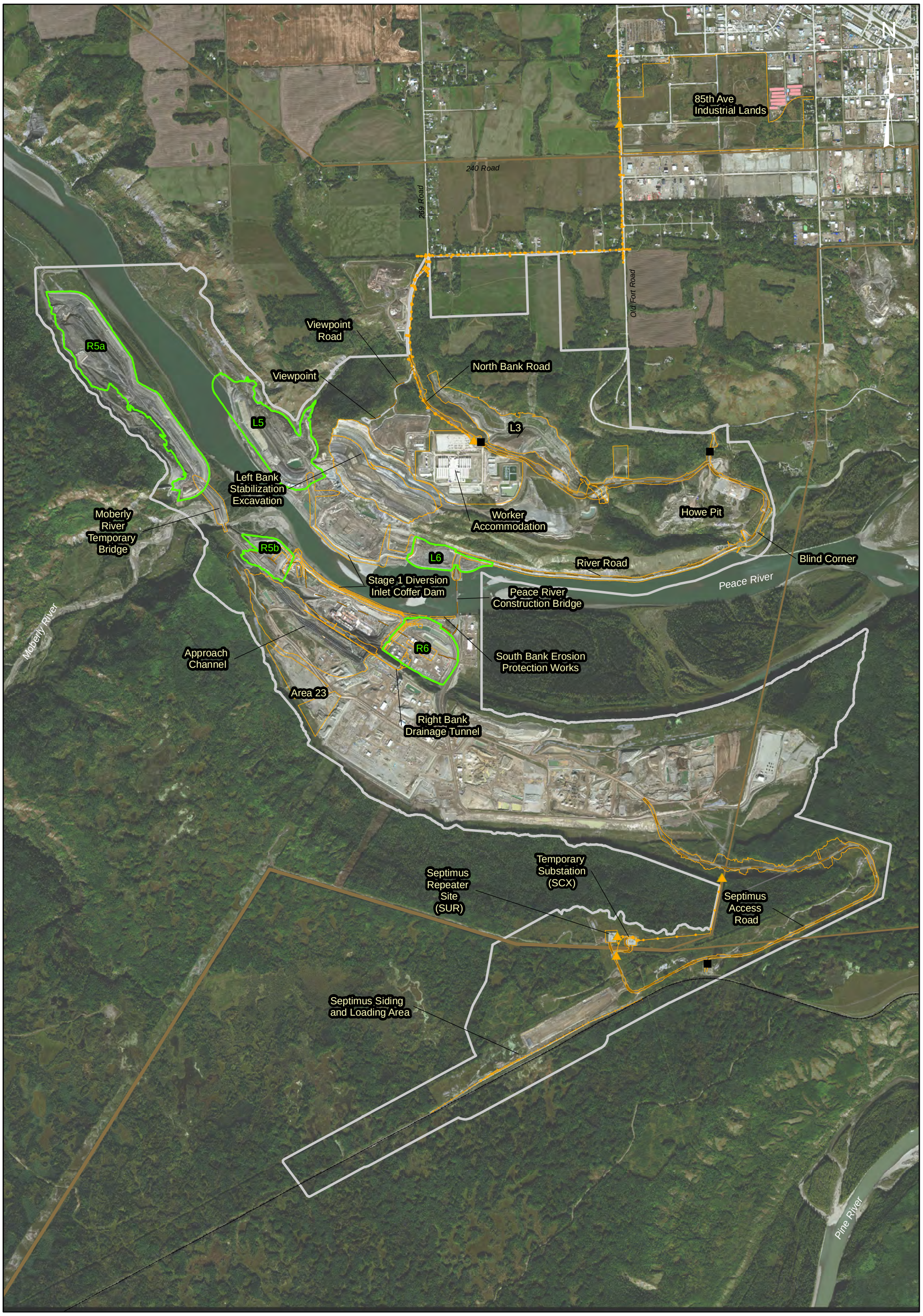
Further description of the water quality monitoring program is included in Appendix D.

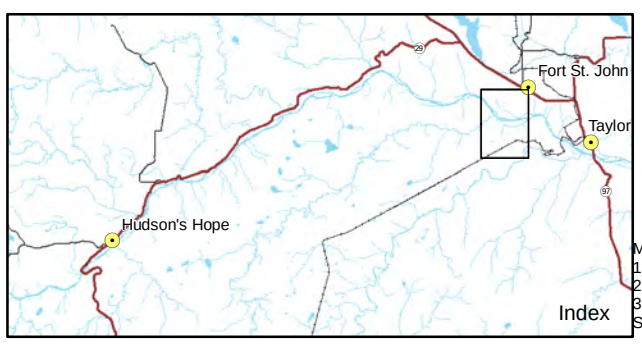
4. Site Audits

BC Hydro has engaged Tetra Tech as QP(ARD), in accordance with the CEMP Appendix E S. 6.1.2, to inspect and monitor various construction areas with potential for ARD/ML since June 2016. Similar to 2017, Tetra Tech completed four site audits in 2018 (March 26-27, May 29-31, July 24-25, and September 26, 2018). Tetra Tech's summary of the audit findings is included as Appendix C.

The site audits included visual observation of the ARD/ML mitigation and PAG material management practices being conducted on site, review of the practices in accordance with the construction area Environmental Protection Plans (EPPs), and observation of any chance find bedrock exposures on site.

Limited independent verification sampling of ditch sediment and outcrop located at the Portage Mountain Quarry was conducted to identify potential for onset of acid generating conditions, and *in situ* water testing (pH, alkalinity) was conducted at various locations around the Main Civil Works area. Off-site audits were conducted at the Portage Mountain Quarry. Results of these tests are included in Appendix C.





Legend

- PAG-contact RSEMs
- Components
- Dam Site Area

1:30,000

0 0.5 1 km

Map Notes:
1. Datum: NAD83
2. Projection: UTM Zone 10N
3. Dam Site Imagery © Digital Globe Sep. 19, 2018.

BC Hydro

Overview Figure

Date	Feb. 22, 2019	DWG NO	1016-N11-00362	R 0

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Construction of the Site C Clean Energy Project is subject to required regulatory and permitting approvals.

Path: X:\ArcGISProjects\MonitoringWaterQuality\2018AnnRep_ARD_1016_N11_00362.mxd

Appendix A

Site C Clean Energy Project
Document Control
21MARCH2019
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PEACE RIVER HYDRO PARTNERS

Site C Clean Energy Project

Acid Rock Drainage and Metal Leachate

2018 Annual Report

PRHP Document No.	SCCEP-PRHP-EN-RPT-000698
BC Hydro Document No.	# 1016.Z.05.003.PRH01.CMO.03455.RPT
Contract Ref No.	Schedule 7 [Environmental Obligations]
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Table 1 – Document Revision History

Revision	Reason for Issue	Revision Date	Redline	Description of Revision
0	IFI	2019-02-01	N	Issued for Information
1	IFI	2019-03-20	N	Issued to address BC Hydro comments as outlined in letter *1016.Z.05.003.CMO.03205.LTR*

Table 2 – Document Approval

Name		Signature	Date
Prepared by:	Neil Mallen Lorax Environmental Services	*Original Signed By:* *Neil Mallen, M.Sc., EP Senior Environmental Scientist*	2019-03-20
Reviewed by:	Bruce Mattson Lorax Environmental Services	*Original Signed and Sealed By:* *Bruce Mattson, M.Sc., P.Geo. Senior Geochemist*	2019-03-20
Environmental Manager's Approval: Approved by:	Caroline Walmsley	C. Walmsley	2019-03-21
Construction Directors Approval Approval by:	Raquel Garcia		2019-03-21

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Appendix A Lorax ARD/ML Management - 2018 Annual Report

PEACE RIVER
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Site C Clean Energy Project
Acid Rock Drainage and Metal Leachate Management 2018 Annual Report



Project No. A416-1
20 March 2019

LORAX
ENVIRONMENTAL

Executive Summary

PEACE RIVER
HYDRO PARTNERS

Executive Summary

This report summarizes the results of acid rock drainage and metal leachate (ARD/ML) monitoring undertaken in 2018 as part of the Main Civil Works Contract for the Site C Clean Energy Project ('the Project'). This report has been prepared for Peace River Hydro Partners (PRHP), which holds the Main Civil Works Contract, by Lorax Environmental Services Ltd. (Lorax), PRHP's Qualified Professional (QP) for ARD/ML.

This report is intended to summarize the results of monitoring undertaken by PRHP to meet the requirements of the ARD/ML Management Plan prepared by BC Hydro for the Project (BC Hydro, 2016a), which is included as Appendix E of the Construction Environmental Management Plan (CEMP; BC Hydro, 2016b). This report has been prepared to address the annual reporting requirements, which are set out in Section 7.5 of the ARD/ML Management Plan associated with ARD/ML monitoring of the Main Civil works at the Dam Site and the West Pine Quarry. It describes monitoring from January 1st to December 31st, 2018.

This report summarizes:

- Observations and tests to assess the geochemical characteristics of bedrock that has been disturbed in the course of construction, including bedrock that has been exposed and excavated and relocated (Section 2);
- Monitoring of surface water quality within the construction site (Section 3);
- A summary of key findings, including onset of ARD/ML within the site, mitigation measures employed, a summary of exceedances of project-specific water quality discharge limits, and metal loads discharged to the Peace River (Section 4); and
- Conclusions and recommendations (Section 5).

Monitoring of groundwater wells installed at the site is reported under separate cover on a quarterly basis. Surface water quality monitoring for areas outside of PRHP's work areas, and in the Peace River, is undertaken by others on behalf of BC Hydro, and also reported under separate cover.

Excavations and Deposition

A total of more than one million m^3 of PAG material was excavated in 2018. This included roughly 490,000 m^3 on the Left Bank, mostly from the Diversion Inlet and Diversion Outlet Tunnel Portals (DITP and DOTP), and approximately 586,000 m^3 on the Right Bank, mostly from the Approach Channel. For comparison, just under 300,000 m^3 was excavated

from the Left Bank in 2017, and just under three million m^3 of material was excavated on the Right Bank in 2017.

PAG Bedrock Monitoring

ARD/ML monitoring is undertaken in areas where bedrock is excavated or where these materials are stored. Appropriate sampling locations are determined as construction activities proceed (rather than routinely sampling at fixed monitoring stations).

Geochemical analysis of samples collected during the monitoring program include onsite rinse pH measurements to determine surface pH, as well as offsite acid-base accounting (ABA) and metal analysis. In 2018, a total of 272 samples were collected for rinse pH analysis from various locations on the Left and Right Banks. Of these, 42 samples underwent more extensive geochemical testing including ABA and metals analysis. In addition, a total of 21 samples were submitted in 2018 from the West Pine Quarry for the same suite of analyses. The program was effective at identifying the onset of ARD/ML, and identification of areas where mitigation is needed, or is likely to be required.

Any bedrock exposed or excavated as part of the Main Civil Works Contract was expected to be PAG, with most units expected to become acidic within one year of disturbance. Geochemical monitoring undertaken to date has confirmed that this is the case in several locations on both the Left and Right Banks.

The majority of the PAG material excavated on the Left Bank in 2018 was from the DTIP (308,504 m^3) and DTOP (155,685 m^3) excavations. Samples collected from exposed surfaces in these areas were acidic. Shotcrete has been applied to stabilize the steep benches excavated into the slopes above the portals, which also serve to minimize contact with precipitation and neutralize most ARD/ML that may have otherwise resulted.

The majority of the PAG material excavated on the Left Bank was placed in RSEM Area L5. RSEM Area L5 contained 756,614 m^3 of PAG material at the end of 2018. The majority of RSEM Area L5 is covered with NPAG material; however, several AG samples were collected near the periphery of this stockpile in 2018. Material was also placed in RSEM Area L6 beginning in December 2018. RSEM Area L6 contained 16,530 m^3 of PAG material at the end of the year.

On the Right Bank, a relatively large area (approximately 8 ha) of weathered bedrock was exposed in the Approach Channel throughout much of 2018. The weathered material on the surface was generally acidic. In October 2018, re-excavation of the weathered surface material was initiated to mitigate generation of ARD/ML.

Additional major excavations on the Right Bank in 2018 included the Roller Compacted Concrete (RCC) Buttress area (50,298 m^3) and the Right Bank Drainage Tunnel (RBDT) area (21,487 m^3). The bedrock from these lower stratigraphic positions has a lower total S content and greater neutralization potential (NP) than bedrock exposed in the Approach Channel. As a result, PAG bedrock exposures in the RCC and the RBDT are not expected to become acidic for some time.

All material excavated on the Right Bank in 2018 was placed in RSEM Area R5A. This RSEM pile contained 4,165,734 m^3 of PAG material at the end of 2018. Samples collected in RSEM Area R5A had variable geochemical character. In general, recently placed material remains neutral while more weathered material has a lower rinse pH.

Surface Water Quality Monitoring

Surface water quality sampling was undertaken at a total of 61 stations in 2018, including 22 stations on the Left Bank, 36 stations on the Right Bank, and 3 stations at the West Pine Quarry. Laboratory results for a total of 1,728 surface water quality samples obtained in 2018 from these stations are summarized in this report, including 497 results from the Left Bank, 1,209 samples from the Right Bank, and 22 from the West Pine Quarry. The program was effective in identifying trends and anticipating areas where mitigation is required.

In addition, fixed instruments and dataloggers are installed and record *in situ* measurements of surface water quality (pH, conductivity and turbidity) in the RSEM Area R6 and R5B sediment ponds, and field measurements of these parameters were also obtained at other locations to provide insight into conditions across the site.

End-of-pipe discharge limits from RSEM sediment ponds for pH, TSS, Cd, Co, Cu and Zn are set out in Table 2 in the BC Hydro ARD/ML Management Plan (BC Hydro, 2016a). Any exceedance of these limits in water discharged from RSEM sediment ponds to the Peace River is reported within 24 hours of receiving analytical results from the laboratory, and all exceedances in RSEM sediment ponds, whether discharged or not, are noted in weekly reports. The project-specific discharge limits for TSS, Cd, Cu and Zn are based on an assumed hardness of 50 mg/L as $CaCO_3$. The hardness of water discharged from the RSEM ponds, and in the Peace River is generally higher. Consequently, minor exceedances of discharge limits for these parameters do not necessarily reflect any meaningful effect on aquatic community health.

On the Right Bank, there was discharge for much of the year from the RSEM Area R6 and R5B sediment ponds. There were exceedances of mainly T-Cd and T-Zn from the RSEM Area R5B sediment pond from March 18th to 30th, April 9th to May 4th, June 26th to July 3rd and from July 21st to 24th. These exceedances were associated with snowmelt and

precipitation rinsing ARD/ML products from the Approach Channel. These exceedances occurred before the MWTF was fully operational. In addition, there was an exceedance following a major rain event on September 8th. The MWTF was operational at this time. However, the water management system did not provide adequate capacity to retain all of the runoff that rinsed ARD/ML products from the Approach Channel, and some water was discharged without treatment. The pH of the discharge was quickly remedied (within 24 hours). T-Cd and T-Zn concentrations exceeded project-specific discharge limits from September 9th to 20th. In addition, there were minor exceedances of short duration from RSEM Area R6 sediment ponds on March 22nd (T-Cu from the R6W pond), April 2nd to 4th (T-Zn from the R6E pond), and November 30th (T-Zn from the R6W pond).

Recommendations

Mitigation measures that are being implemented to minimize exceedances of end-of-pipe discharge limits due to ARD/ML include material management (re-excavating exposed, weathered rock or covering it), water management to contain water that may be influenced by ARD/ML, and water treatment to remove total and dissolved metals.

Material management is the primary ARD/ML mitigation strategy. Weathered material (material that has been exposed for several months and is becoming acidic) is monitored and requires mitigation. In addition, material that is placed in RSEM disposal areas is monitored, and weathered material is covered with newly placed material (PAG bedrock or overburden).

Water management is a secondary mitigation strategy. Contact water is managed so that as much as possible is retained within the site. Water that must be released is directed to RSEM sediment ponds, from which it is discharged to the Peace River.

Water treatment is the tertiary management strategy. Contact water that is not anticipated to meet end-of-pipe discharge limits is conveyed to a water treatment facility. An MWTF was commissioned on the Right Bank near the west end of the Approach Channel in mid-2018. Water requiring treatment is transferred to a Pre-Treatment pond and treated by the MWTF prior to discharge via the RSEM Area R5B sediment pond. The process employed by the MWTF was effective at buffering pH and reducing metal concentrations within the project-specific discharge limits in the treated water.

Effective mitigation of ARD/ML and preventing exceedance of the project-specific discharge limits during snowmelt and storm events will require excavation or covering of weathered PAG material, and adequate water retention capacity. Excavation of weathered material in the Approach Channel was initiated in October 2018, and construction of

additional storm water retention capacity within or downgradient of the Approach Channel is planned to be undertaken in early 2019.

PAG-contact water from the LBEX, RSEM Area L5, and R5A was managed effectively in 2018, mainly by retaining it within the site and avoiding discharge. Minimal PAG-contact water was generated in RSEM R6. Water is transferred to the MWTF from these areas when necessary.

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EXECUTIVE SUMMARY I

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Acronyms

PEACE RIVER
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Acronyms

ABA	Acid-Base Accounting
ACA	Average Crustal Abundance
ACDC	Approach Channel Drainage Channel
AP	Acid Potential
ARD/ML	Acid Rock Drainage and Metal Leachate
asl	Above Sea Level
CALA	Canadian Association for Laboratory Accreditation
CBE	Charge Balance Error
CCME	Canadian Council of Ministers of the Environment
CEMP	Construction Environmental Management Plan
CoA	Certificate of Analysis
CSR	B.C. Contaminated Sites Regulation
CVC	Conventional Vibrated Concrete
DI	De-ionized Water
DIC	Diversion Inlet Cofferdam
DICC	Diversion Inlet Cofferdam Cell
DOC	Diversion Outlet Cofferdam
DOCC	Diversion Outlet Cofferdam Cell
DQO	Data Quality Objective
DTIP	Diversion Tunnel Inlet Portal
DTOP	Diversion Tunnel Outlet Portal
EoP	End-of-Pipe
FLNRO	B.C. Ministry of Forests, Lands and Natural Resource Operations
IDZ	Initial Dilution Zone
IEM	Independent Environmental Monitor
LBEX	Left Bank Excavation
MDL	Method Detection Limit
MOE	B.C. Ministry of Environment
MWTF	Mobile Water Treatment Facility

NP	Neutralization Potential
NPAG	Not Potentially Acid Generating
NPR	Net Potential Ratio
PAG	Potentially Acid Generating
PRHP	Peace River Hydro Partners
QA/QC	Quality Assurance / Quality Control
QP	Qualified Professional
RBCD	Right Bank Cofferdam
RBDT	Right Bank Drainage Tunnel
RCC	Roller Compacted Concrete
RDL	Reported Detection Limit
RPD	Relative Percent Difference
RSEM	Relocated Surplus Excavated Material
SBIAR	South Bank Initial Access Road
SC	Specific Conductance
SWE	Surface Water Equivalent
TPSA	Temporary Stockpile Area
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
WQG	B.C. short-term water quality guideline for the protection of aquatic life

Chemical elements are generally referred to using their one or two letter atomic symbol. Cd denotes cadmium, for example. A T- or D- preceding the symbol denotes the total or dissolved fraction, respectively (D-Cd, for example). Molecules, functional groups, or polyatomic ions may be referred to either by name (*e.g.*, sulphate) or chemical formula (*e.g.,* SO_4).

1. Introduction

PEACE RIVER
HYDRO PARTNERS

1. Introduction

This report summarizes the results of acid rock drainage and metal leachate (ARD/ML) monitoring undertaken in 2018 as part of the Main Civil Works Contract for the Site C Clean Energy Project ('the Project'). This report has been prepared for Peace River Hydro Partners (PRHP), which holds the Main Civil Works Contract, by Lorax Environmental Services Ltd. (Lorax). Lorax has been retained by PRHP to serve as its Qualified Professional (QP) for ARD/ML since September 2016.

1.1 Purpose

ARD/ML monitoring is undertaken in accordance with the requirements of the ARD/ML Management Plan for the Project. The ARD/ML Management Plan is documented in Appendix E (Revision 5.2, dated July 26, 2016; BC Hydro, 2016a) of BC Hydro's Construction Environmental Management Plan ('CEMP', BC Hydro, 2016b). In addition to the requirements outlined in the CEMP, this report is also intended to address information requirements that PRHP has received from BC Hydro to meet requests from the Independent Environmental Monitor (IEM) and B.C. Ministry of Forests, Lands and Natural Resources (FLNRO) Comptroller of Water Rights, since the last revision of the CEMP.

1.2 Scope and Outline

This report has been prepared to address the annual reporting requirements, which are set out in Section 7.5 of the ARD/ML Management Plan. It describes monitoring activities within the Main Civil Works contract work, as well as analytical results and interpretation, from January 1st to December 31st, 2018.

The ARD/ML monitoring program includes three main components:

- Observations and tests to assess the geochemical characteristics of bedrock that has been disturbed in the course of construction, including bedrock that has been exposed and excavated and relocated (Section 2);
- Monitoring of surface water quality within PRHP work areas (Section 3); and
- Compiling and reviewing this information to assess the onset of ARD/ML, the effectiveness of mitigation measures including water treatment, surface water quality exceedances, and metal loads discharged to the Peace River (Section 4).

Conclusions and recommendations are provided in Section 5.

More specifically, this report includes a summary of:

- Monitoring of rinse pH and acid-base accounting (ABA) in excavations and of placed acid generating (AG) and potentially acid generating (PAG) material in Relocated Surplus Excavated Material (RSEM) areas, in accordance with Section 5.2.1.2 of the BC Hydro ARD/ML Management Plan.
- Daily water quality monitoring results in RSEM Area sediment ponds, which receive water that has contacted PAG material. This monitoring is required pursuant to Sections 7.3.2 and 7.5.2 of the BC Hydro ARD/ML Management Plan (Appendix E of the CEMP).
- Monitoring at Dam Site road cuts, which is required monthly (except while frozen) for the first year of observation, and quarterly thereafter, in accordance with Section 5.2.1.7 of the BC Hydro ARD/ML Management Plan.
- Work conducted in 2018 in support of the planning, management, and implementation of a progressive water treatment program, based on the results of rinse pH testing and contact water quality monitoring, in accordance with Section 5.2.1.2 of the BC Hydro ARD/ML Management Plan.

This report does not include the results of monitoring undertaken in the Peace River, including monitoring in the Initial Dilution Zone (IDZ) downstream of RSEM sediment Area sediment pond discharges, or surface water quality monitoring that is undertaken for purposes other than ARD/ML management. The results of monitoring in the Peace River may be noted or summarized to provide context for exceedances and estimated metal loading from RSEM Area sediment ponds. Other monitoring programs and reporting for the Project are undertaken by PRHP, and by others, on behalf of BC Hydro. The results of groundwater monitoring are summarized quarterly under separate cover.

1.3 Site Conditions

Weather conditions affect the timing of release and volume of ARD/ML products that are generated and rinsed from bedrock, and the flow in the Peace River determines the available assimilative capacity. In general, there are four periods of relatively consistent conditions through the year:

- Winter - the site is predominantly frozen from December until mid-March, and a snowpack accumulates. Thick ice accumulates over open water. Intermittent thaws may occur (usually lasting only a few days) that diminish the snowpack. Energy demand largely determines the flow released from upstream dams (BC Hydro, 2009), and the long-term average flow in the Peace River slowly

declines from near peak levels early in the year (at roughly 1,500 m^3/s) as shown by daily discharge at the Peace River above Pine River (07FA004) BC hydrometric station, for example, although the flow may be variable for short periods.

- Spring – snow and ice melt from roughly mid-March to mid-April (with some variation in the timing from year to year), and turbidity in the Peace River rises. The flow in the Peace River is typically close to minimum levels, with the long-term average declining to roughly 1,000 m^3/s at this time (although it may be reduced to as little as about 300 m^3/s for short periods).
- Summer – Infrequent, relatively intense rain storms occur, often preceded by several days or more of warm, dry weather. June and July are the wettest months of the year, though most of the precipitation falls in a few, relatively large storm events. The flow in the Peace River generally remains low through summer.
- Autumn – Infrequent storms occur, but this season may include colder weather (with or without precipitation) that may result in the development of a thin snowpack, alternating with warmer weather (with or without precipitation), that may result in melting of accumulated snow. Surface water gradually freezes with the onset of winter in November and December. The flow in the Peace River gradually increases to higher levels through the autumn.

The area in which the Project is located is relatively dry, with average annual precipitation of 444.7 mm, based on Canadian Climate Normals from 1981-2010 (Government of Canada, 2018) at the Fort St. John Airport (FSJA) weather station. This station is located at an elevation of 695 m asl. A weather station has also been installed at Site C at an elevation of 583m asl.

Measurements of precipitation vary between the two stations, especially in the winter months, when significantly higher precipitation is recorded at FSJA. The difference is attributed mainly to differences in the methodology employed at the two stations. Snowfall is measured independently at the FSJA station, and the measurement of snowfall converted to precipitation at a ratio of 10:1, while snowfall is melted and converted to surface water equivalent (SWE) at the Site C weather station. The difference in elevation likely also accounts for some variation between the two sites.

1.3.1 Temperature

Daily temperature maximum and minimum values are recorded at the Site C weather station. The values for 2018 are shown in Figure 1.3-1 below.

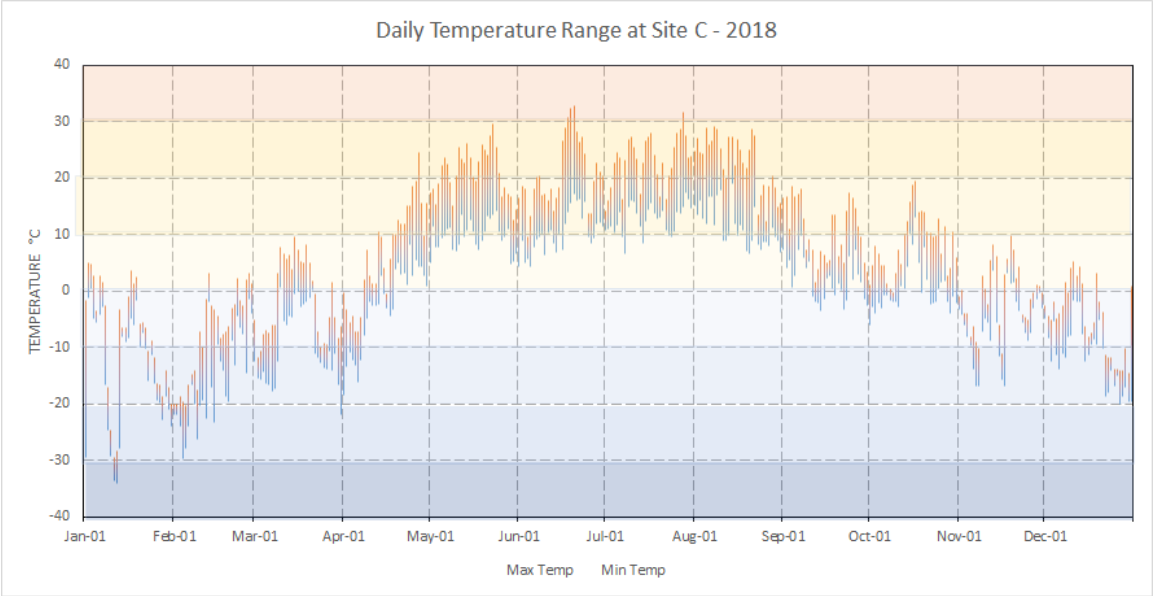


Figure 1.3-1: Daily Temperature Range at Site C in 2018

Temperatures were highly variable in the first quarter, ranging from peaks above freezing, to lows below -20°C, sometimes within a few days. Cold weather (sub-freezing conditions) persisted until early April. The weather was warm from early May through late August. Sub-freezing temperatures returned starting in mid-September, and cold weather prevailed from early November.

1.3.2 Precipitation

Precipitation affected the timing and magnitude of surface water runoff that rinsed ARD/ML products from acid-generating rock in 2018. Daily precipitation, as measured at both Fort St. John Airport and at Site C are shown in Figure 1.3-2 below.

Significant snowfall was recorded at FSJA on February 2nd, March 1st and 2nd, March 22nd and 23rd, and on November 4th, December 14th and December 29th. The snowpack was diminished by intermittent thaws, as noted above.

Heavy rain or a mixture of rain and snow (greater than 10 mm) fell on:

- June 25th and 26th (more than 50 mm recorded at Site C);
- July 1st (more than 14 mm);
- July 20th – 22nd (more than 50 mm recorded at Site C);
- September 8th, (more than 50 mm in one day);
- October 12th (more than 15 mm); and
- October 31st to November 5th (more than 25 mm).

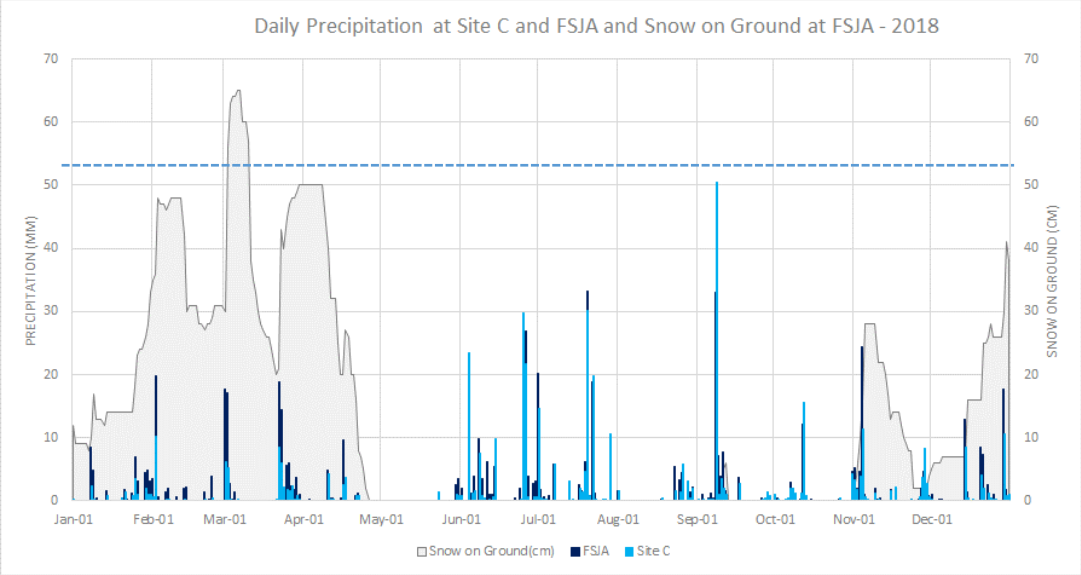


Figure 1.3-2: Daily Precipitation at FSJA and Site C and Snow on Ground at FSJA

Note: Dashed line indicates 1:10 year 24 Hour precipitation of 50.5 mm (KCB & SNC, 2014). Based on Rainfall Intensity Duration Frequency at Fort St. John Airport Climate Station (1973-2002), reproduced from Environment Canada, http://climate.weather.gc.ca_servs/engineering_e.html).

Monthly precipitation totals recorded at the FSJA and Site C are shown in Figure 1.3-3 below, along with the long-term monthly average precipitation (solid lines) from the 1981-2010 Canadian Climate Normals (Government of Canada, 2018).

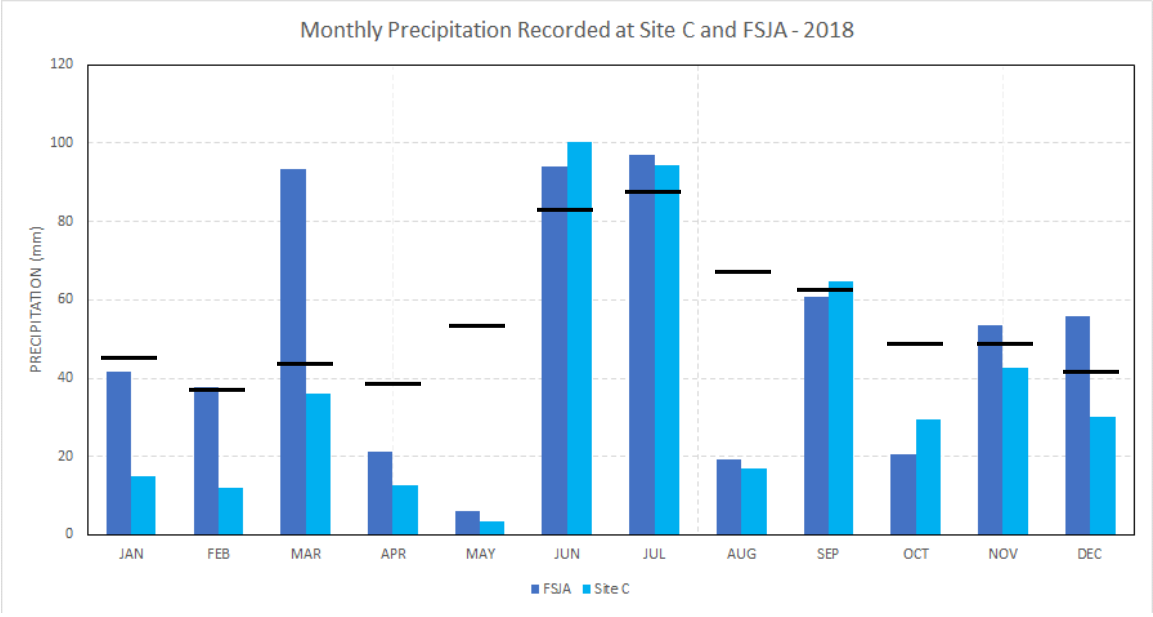


Figure 1.3-3: Monthly Precipitation at FSJA and Site C in 2018

1.3.3 Peace River Flow

The flow in the Peace River determines available assimilative capacity and is managed by BC Hydro primarily in response to energy demand (BC Hydro, 2009). The flow in the Peace River at the Water Survey of Canada Station on the Peace River near Taylor is shown in Figure 1.3-4 below.

Flows in the Peace River fluctuated within a relatively narrow range from 1,200 m^3/s to 1,800 m^3/s from January through March. The flow was more variable but generally declined through April to a minimum level below 600 m^3/s. It then increased quickly (coinciding with a rapid increase in air temperature) to a peak of over 2,400 m^3/s in late May. Flows then declined to lower levels between 800 and 1,400 m^3/s through June. July was more variable, and the highest flows of the year of up to 3,000 m^3/s occurred for a short period in late July. Flows then varied in a range between roughly 600 and 1,800 m^3/s in August and early September, dropping to less than 600 m^3/s for the second half of September, before returning to highly variable flows between approximately 600 and 1,800 m^3/s for the remainder of the year.

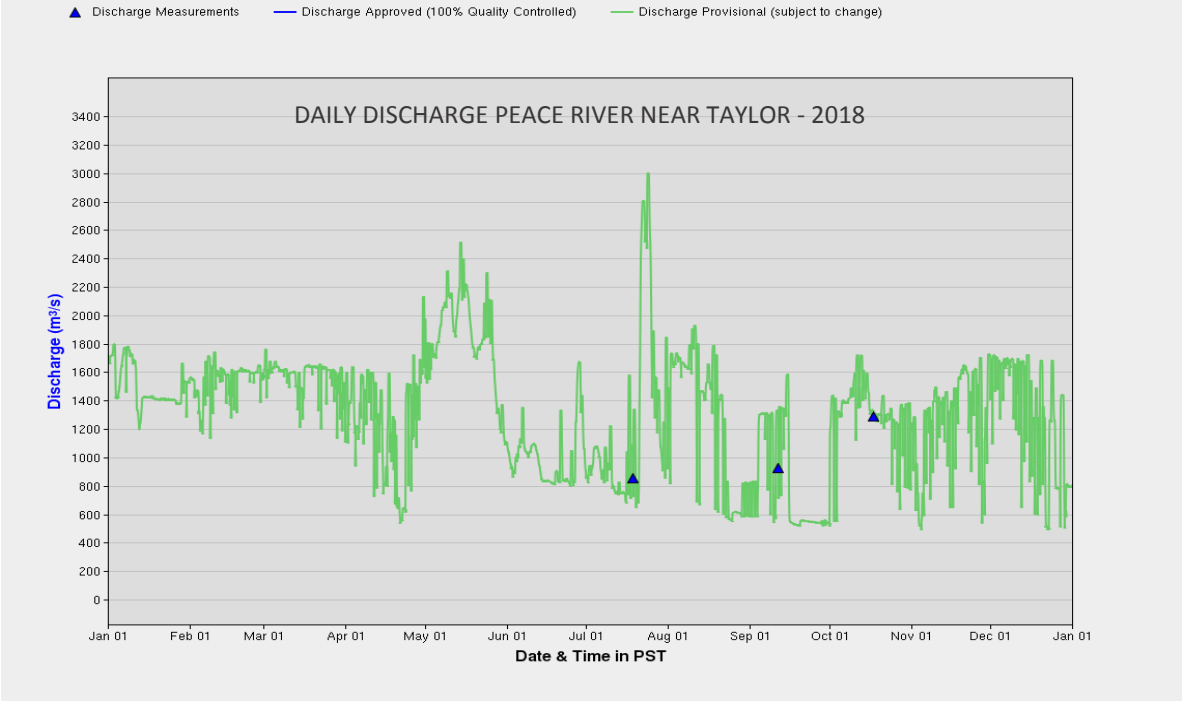


Figure 1.3-4: Hydrometric Data Graph for Peace River Near Taylor, Station 07FD002 (generated from Water Survey of Canada, 2018)

Mixing within the IDZ for each sediment pond discharge occurs with only a portion of the total flow in the River. Mixing in IDZs has been assessed by Ecofish Research Ltd. (Ecofish, 2017a, 2017b) on behalf of BC Hydro. Water quality monitoring in the Peace River is also undertaken by Ecofish and reported monthly (Ecofish, 2018a, 2018b, 2018c).

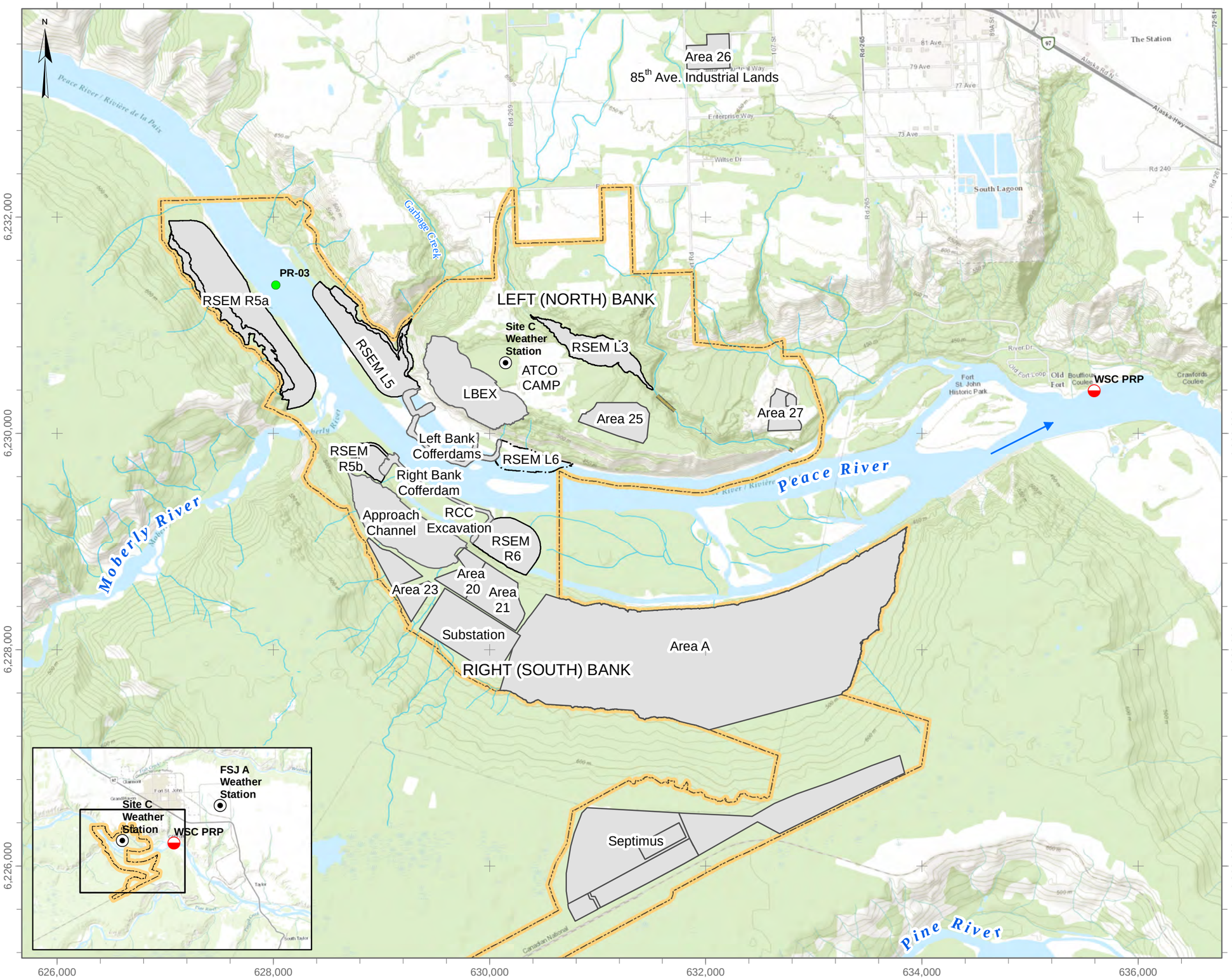
1.4 Construction Activity

Construction of the Site C Clean Energy Project was initiated by BC Hydro in July 2015 and is scheduled to be completed in 2024. BC Hydro retained others to provide geochemical monitoring and recommendations during the course of the initial work undertaken prior to the award of the Main Civil Works Contract to PRHP in December 2015. Lorax was retained by PRHP in September 2016, as noted above, and Lorax initiated its bedrock, surface water quality and groundwater monitoring programs in autumn 2016.

The general progression of construction has involved site preparation and construction of access roads, preparation of Relocated Surplus Excavated Material (RSEM) disposal areas and excavations on both banks of the river, and excavation of twin diversion tunnels on the left bank. Once the river is diverted through the diversion tunnels, the isolated section of the river channel will be dewatered, and the dam core will be placed and compacted. Finally, the dam, generating station, and spillways will be completed. More information is available from BC Hydro at https://www.sitecproject.com/construction-activities.

RSEM areas are designated for disposal of excavated materials that are unsuitable for use in construction. Minimizing potential ARD/ML from this material is an important environmental protection measure for the project, as discussed in Section 5.0 of the CEMP (BC Hydro, 2016b). During construction, sediment ponds stablished within each RSEM area will capture surface water runoff that contacts PAG or acid generating (AG) material. This water can then be sampled, and treated if necessary, prior to discharge. The majority of PAG and AG material will be stored within the future reservoir footprint, which will slow reaction rates, and ARD/ML to minimal levels, once the material is permanently submerged.

A plan showing the construction site and the main facilities and landmarks within it, is included as Figure 1.4-1. A brief summary of construction activity and ARD/ML monitoring since construction started is provided below.





Legend

- Site C Boundary
- Work Area
- Water Survey of Canada, Peace River @ Pine Hydrometric Station
- Weather Station
- Water Quality Station

0 0.5 1 1.5 Km

1:35,000

DATE SAVED: Mar 12, 2019 **REVIEWED:** NM

DRAWN BY: AL **VERSION:** 1

CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project ARD/ML 2018 Annual Report

TITLE:

Site Map of Site C Main Civil Works Area

PROJECT #: A416 *FIGURE:* 1.4-1

Coordinate System: *NAD 1983 UTM Zone 10N* **Datum:** *North American 1983* **Units:** *Meter*

Path: *P:\@Drafting\Site\Drafting Figures\MXD\2018AnnualReport\Fig 1_4_1_Overall_SiteMap_20190312.mxd*

1.4.1 Year 1 (2015) Construction

Construction activity in 2015 included site clearing, construction of on-site accommodation (the ATCO camp), and construction of access roads and bridges, and the first stage of the Left Bank Excavation (LBEX). The LBEX is a major excavation, which is required to prepare the ground surface for construction of the northern dam abutment. This work was undertaken by BC Hydro prior to awarding the Main Civil Works Contract, as noted above.

The construction activity, monitoring and ARD/ML management are summarized in the 2015 Annual Report (BC Hydro, 2016c). Some PAG bedrock was exposed along access roads, including River Road, the South Bank Construction Bridge Road, and the approach to the temporary Moberly River Bridge. PAG bedrock was excavated during construction of River Road and was stockpiled near the Howe Pit.

1.4.2 Year 2 (2016) Construction

Construction was advanced through 2016, and included ongoing site clearing and site preparation, completion of the camp, temporary construction bridge over the Peace River, and temporary bridge over the Moberly River, as well as ongoing earth-moving activities on both the left and right banks of the Peace River. ARD/ML monitoring and results are summarized in the 2016 Annual Report (BC Hydro, 2017).

A total of approximately 766,000 m^3 of PAG bedrock was excavated in 2016 from the Spillway Approach Channel on the right bank. Approximately 350,000 m^3 of this material was permanently disposed in RSEM Area R5B, which is located on the right bank upstream of the future dam, along with minor volumes of PAG bedrock excavated from other locations. The RSEM R5B disposal area was capped by the end of 2016. The remainder of the material excavated from the Spillway Approach Channel, roughly 400,000 m^3 of PAG bedrock, was placed in a temporary stockpile in Area 23, upgradient of the main area of construction activity on the right bank.

Overburden was excavated from the LBEX and placed in RSEM Area L3, which is allocated for permanent disposal of not potentially acid generating (NPAG) material only (and consequently is excluded from the ARD/ML monitoring requirements that apply to the PAG-containing RSEM areas and sediment ponds). Approximately 24,000 m^3 of PAG material excavated during construction of the North Bank Road and Garbage Creek Diversion access road was placed in a temporary stockpile in the Garbage Creek gully within the future RSEM Area L5 footprint.

1.4.3 Year 3 (2017) Construction

The LBEX, Spillway Approach Channel and Roller Compacted Concrete (RCC) Buttress excavations were advanced in 2017. The overburden excavated from the LBEX was placed in RSEM Area L3. Some PAG bedrock was encountered in the LBEX, and it was deemed necessary to distinguish overburden from underlying (PAG) colluvium and transitional material in the LBEX (see Lorax, 2017). A total of approximately 226,000 m^3 of PAG material was excavated from the LBEX. The LBEX PAG was placed in a temporary stockpile within the LBEX, which was relocated to RSEM Area L5 in June.

Approximately 2.20 million m^3 of PAG bedrock was excavated from the Approach Channel, and approximately 1.55 million m^3 of PAG bedrock was removed from the RCC Buttress excavation by the end of the year. PAG placement in RSEM Area R5A was initiated in January 2017. Approximately 90% of excavated PAG material will ultimately be disposed in this facility, which is located on the right bank upstream of the future dam and is accessed via the Moberly River Bridge. The PAG material excavated from the Spillway Approach Channel and RCC Buttress excavation was placed in RSEM Area R5A, as well as small volumes from other locations, for a total of approximately 4.2 million m^3, roughly 45% of its total capacity, by year end.

The construction of RSEM Area R6, on the right bank of the Peace River, downstream of the future dam, was completed in mid-2017. Work to prepare the foundations for RSEM Area L5, on the left bank, upstream of the future dam, was nearing completion at year end.

1.4.4 Year 4 (2018) Construction

Major earthworks were completed on both the Left and Right Banks in 2018. Large volumes of material were excavated on both banks and deposited in designated RSEM areas. Work was initiated on the diversion tunnels on the Left Bank, and on the power house and related infrastructure on the Right Bank.

On the Left Bank, the LBEX was essentially completed, and work was undertaken on the diversion tunnel inlet and outlet portals. The excavation of the tunnels was also initiated. RSEM Area L5 was filled to its approximate capacity with both PAG and NPAG excavated material.

On the Right Bank, the RCC Buttress was advanced, and work initiated on the power house and related structures and equipment. Additional excavation was undertaken in the Approach Channel. PAG material excavated from these areas was deposited in RSEM Area R5A.

1.5 Water Management

The water management system is continuously adapted as earthworks are undertaken. The Left Bank is divided into two main areas to describe water management, the L5 catchment area, which includes the LBEX area, and the Diversion Inlet, Central and Diversion Outlet Cofferdams. RSEM Area L3 is now managed by BC Hydro. Construction of the foundation and sediment ponds in the future RSEM Area L6 were completed in late 2018. The Right Bank is divided into four areas to describe water management; Area A, the RSEM Area R6 catchment, the RSEM Area R5B catchment, and the RSEM Area R5A catchment.

1.5.1 Left Bank

Both PAG and NPAG contact water from RSEM Area L5 and from the LBEX have been directed to RSEM Area L5 since mid-2017. The areas behind the Left Bank cofferdams are managed individually. These areas are discussed in more detail below and are shown in Figure 1.5-1.

1.5.1.1 RSEM Area L5 and LBEX

Four ponds were used to contain contact water from the LBEX and RSEM Area L5 in 2018. These were:

- L5-TNCP – which received NPAG contact water for the first half of the year, and was then infilled.
- L5-TPSP – which received PAG contact water for the first half of the year, and both PAG and NPAG contact water for the second half of the year, until it was infilled late in the year.
- L5 (Phase 1) sediment ponds (east and west cells) – which were completed late in the year. These ponds will receive surface water runoff from the LBEX and RSEM Area L5 in future.
- LBEX-SP – which receives PAG contact water from the natural PAG bluff located below the LBEX. The PAG bluff is shown in Photo 1.5-1 below. In addition, some groundwater that had accumulated in an old adit (Adit 4, developed as part of geotechnical investigations undertaken to support the dam design several decades ago) discharged from the base of the slope and was retained in this pond.

There was no discharge from any of these ponds in 2018. Some water from the LBEX-SP was trucked to the mobile water treatment facility (MWTF). The Garbage Creek diversion is located at the east end of RSEM Area L5. Surface water runoff overtopped the diversion and accumulated in RSEM Area L5 during spring freshet. This water was pumped into the lower diversion channel and flowed out to the Peace River.

628500 629000 629500 630000 630500 631000

6231000

6230500

6230000

N

Peace River

Moberly River

Cache Creek

L5-W

L5-E

L5-TNCP

L5-TPSP

RSEM L5

DTIP

DIC

LBEX

NATURAL PAG BLUFF

LBEX-SP

CENTRAL COFFER DAM

DTOP

DOC

ATCO CAMP

Legend

- RSEM-L5 NPAG Catchment
- RSEM-L5 NPAG/PAG Catchment
- L5-TPSP Catchment
- LBEX-SP Catchment
- DTOP Catchment
- Non-Contact Diversion Ditch

DATE SAVED:	Mar 12, 2019
DRAWN BY:	AL
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VERSION:	1

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

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0 100 200 300

Meters

CLIENT: PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project ARD/ML 2018 Annual Report

TITLE:

RSEM-L5 and LBEX Catchments

PROJECT #: A416-1

FIGURE: 1.5-1

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Photo 1.5-1: Photo Showing Natural PAG Bluff Below LBEX (Summer 2017)

1.5.1.1 Left Bank Cofferdams

The areas behind the Left Bank Cofferdams, the Diversion Inlet Cofferdam (DIC), the Central Cofferdam and Diversion Outlet Cofferdam (DOC), were largely dewatered in Q2 and early Q3. Sumps were established in each cell and surface water was pumped to the Peace River. Placement of the dam core was initiated in the central cofferdam.

Work on the Left Bank in Q3 was focused on the excavation of the Diversion Tunnel Inlet Portal (DTIP), Diversion Tunnel Outlet Portal (DTOP), and the start of tunneling. Contact water from within the DTIP work area was retained and trucked to either the concrete sump in RSEM Area R5A, or to the MWTF. Contact water from the DTOP work area flows by gravity into a sump in the northwest corner of the DOC. From here it was pumped to LBEX-SP or trucked to the MWTF.

1.5.1.1 RSEM Area L3

Water management and monitoring in the L3 catchment were undertaken by BC Hydro and its consultants, starting in April 2017.

1.5.1.2 RSEM Area L6

The RSEM Area L6 starter dyke and sediment pond were completed in December 2018. A small volume of PAG material was placed in this area. There was no discharge.

1.5.2 Right Bank

There are four catchment areas within the construction site on the Right Bank, as noted above:

- Area A is a large area to the east of the South Bank Initial Access Road (SBIAR) in which aggregates are being extracted for use at the construction site;
- RSEM Area R6 includes Area 20/21, the Right Bank Drainage Tunnel (RBDT) and associated facilities to the south, and RCC Buttress Excavation to the west;
- RSEM Area R5B includes the Approach Channel and Area 23; and
- RSEM Area R5A includes the area where the majority of excavated PAG material will be deposited on the west side of the Moberly River.

These areas, and water management within them, is described in more detail below. Water management in the Area A, RSEM Area R6 and RSEM Area R5B areas are shown in Figure 1.5-2 below.

1.5.2.1 Area A

Area A includes a large 'Phase 2' crusher plant, and extensive area from which aggregate is being extracted for use in construction. Water that is used in the crushing process is recycled and excess water retained in ponds on the north side of the crusher. Some surface water is ponding in low-lying areas where aggregates are being extracted. No formal ponds have been established in these areas, and no discharge is expected.

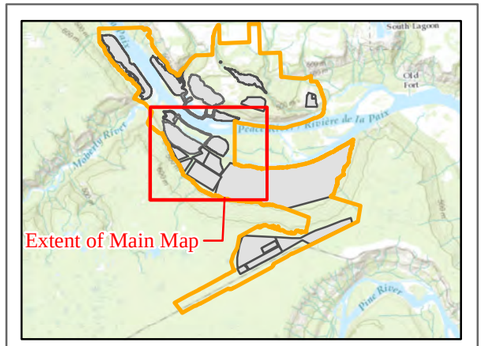
1.5.2.2 RSEM Area R6

Surface water runoff from the south (Area 20 / 21, SBIAR, and RBDT) and west (RCC Buttress Excavation) is conveyed to the RSEM Area R6 sediment ponds (east and west ponds). Water is pumped between the east and west ponds to provide additional retention time for particulate settling, when needed. Discharge from RSEM Area R6 sediment ponds through 2018 is shown in Figure 1.5-3 below.

1.5.2.3 RSEM Area R5B

Surface water runoff from the ultimate footprint of the Approach Channel (approximately 40 ha in area) and from the surface of the relatively small RSEM Area R5B are conveyed to the RSEM R5B sediment pond. Water from the partly excavated Approach Channel (approximately 8 ha) is normally directed to the pre-treatment pond, located adjacent to the MWTF, and once treated is released into the sludge pond which discharges into the Approach Channel Diversion Channel (ACDC). Discharge from the RSEM Area R5B sediment pond through 2018 is shown in Figure 1.5-4 below.





Legend

- RSEM-R5B Catchment
- RSEM-R6 Catchment
- Approach Channel (Final Extent)
- Non-Contact Diversion Ditch

0 100 200 300 Meters

1:10,000

DATE SAVED: Mar 13, 2019 **REVIEWED:** NM

DRAWN BY: AL **VERSION:** 1

CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE:

RSEM-R6 and RSEM-R5B Catchments

PROJECT #: A416-1 *FIGURE:* 1.5-2

Coordinate System: *NAD 1983 UTM Zone 10N* ***Datum:*** *North American 1983* ***Units:*** *Meter*

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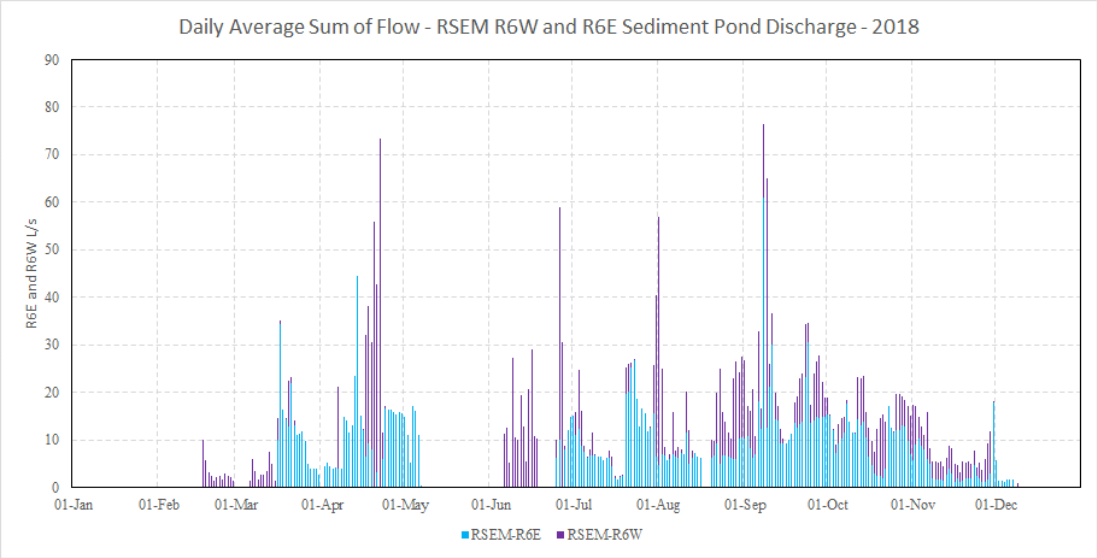


Figure 1.5-3: Discharge from RSEM-R6 Sediment Ponds – 2018

Note: Graph shows combined flow from R6W above R6E on days when there was discharge from both as stacked bars. Flow data was not available for either the R6E or R6W ponds from August 17 to 19.

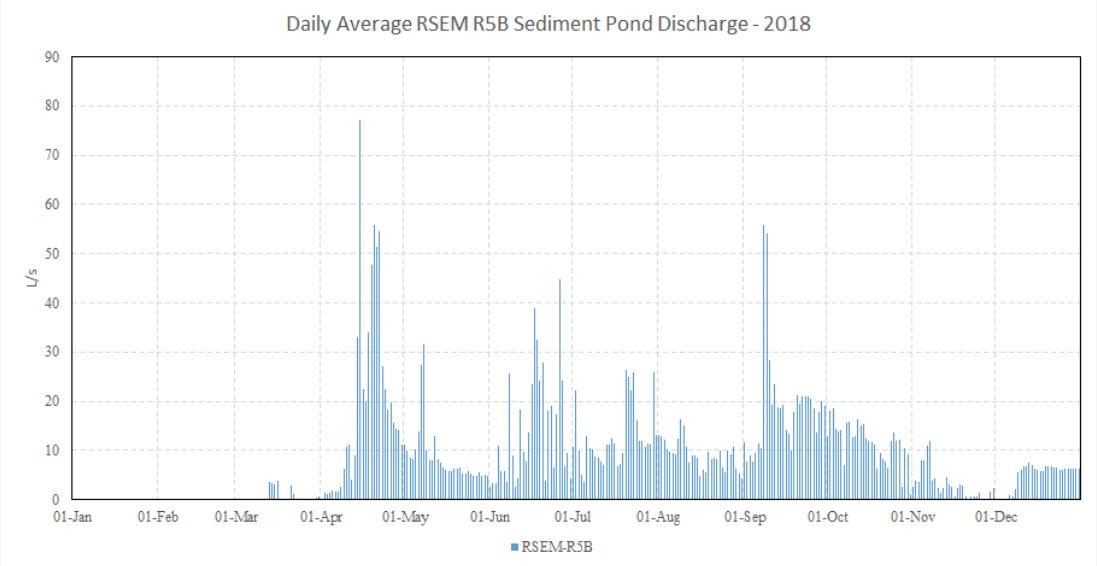


Figure 1.5-4: Discharge from RSEM-R5B Sediment Pond – 2018

1.5.2.4 RSEM Area R5A

Surface water runoff from the RSEM Area R5A catchment drains to a series of four long sediment control ponds constructed adjacent to the dike. An intercept ditch upgradient of the RSEM area was completed in 2018. There has generally been little accumulation of surface water and no discharge from these ponds to date.

1.6 Data Management

A large volume of monitoring data has been compiled since the ARD/ML monitoring program was initiated in autumn 2016. This information is stored in a proprietary database system that is capable of efficient data retrieval and reporting and erroneous or invalid data detection. Data from the Maxxam Analytics laboratory in Burnaby, B.C. is provided in database ready Electronic Data Deliverable (EDD) format to streamline data entry and minimize potential data entry errors. A customized data entry program called CERES, developed by Lorax using Microsoft Access software, allows PRHP staff to enter field data in to the database and CERES also scrutinizes the data for potential transcriptions errors. Both solid phase (ARD/ML analytical results, including the results of rinse pH, ABA and metals analyses) and surface water quality results (both field and laboratory measurements) are stored in the database.

2. PAG Bedrock Monitoring

PEACE RIVER
HYDRO PARTNERS

2. PAG Bedrock Monitoring

2.1 Purpose and Objectives

PRHP is required to monitor AG and PAG rock exposures and excavations in areas affected by work undertaken as part of the Main Civil Works Contract in accordance with the BC Hydro and PRHP Acid Rock Drainage and Metal Leaching Management Plans (Appendix E of the CEMP; BC Hydro, 2016b and Appendix A of EMP; Rev. 9, PRHP, 2017a, respectively). The specific objectives of this monitoring program are to:

- Confirm that the ARD/ML potential of bedrock is consistent with the assessment from the geochemical characterization work which was used as the basis for water quality predictions;
- Monitor PAG rock exposures to provide early warning of any that have become acidic; and
- Provide continuous geochemical characterization of excavated material disposed in various RSEM facilities.

ARD/ML monitoring is recommended for areas where bedrock is excavated and where these materials are stored. A summary of the material excavated and disposed in 2018 is included in Section 2.2.

2.2 Material Balance

Bedrock material excavation and disposal was tracked throughout 2018. A total of more than 1M m^3 was excavated in 2018. This included roughly 490,000 m^3 on the Left Bank, mostly from the Diversion Inlet and Diversion Outlet Portals, and approximately 586,000 m^3 on the Right Bank, mostly from the Approach Channel. Most of the material excavated on the Left Bank was placed in RSEM Area L5, and from the Right Bank was placed in RSEM Area R5A. Just under 100,000 m^3 of NPAG material was blasted at the West Pine Quarry in 2018.

The baseline geochemical characterization of bedrock determined that all bedrock units that will be disturbed by dam site construction activities are PAG (KCB, 2015). This report specifies that bedrock should be assumed to be PAG or AG, unless direct sampling and analyses determine otherwise. The locations of site facilities where excavation and monitoring have occurred are illustrated in Figure 2.2-1.

627,000 628,000 629,000 630,000 631,000

6,232,000 6,231,000 6,230,000 6,229,000

N

L5 Garbage Creek Diversion (180 m^3)
-Deposited in Area 25

Inlet Portal excavation (308,504 m^3)
-Deposited in RSEM-L5 and RSEM-L6

RSEM-R5A Non-Contact Ditch (2,414 m^3)
-Deposited in RSEM-R5A

Left Bank Haul Road (4,725 m^3)
-Deposited in RSEM-L5

Left Bank Excavation (5,085 m^3)
-Deposited in RSEM-L5 and RSEM-L6

Inlet Cofferdam (3,750 m^3)
-Deposited in RSEM-L5

Outlet Portal (155,685 m^3)
-Deposited in RSEM-L5 amd RSEM-L6

Central Cofferdam (120 m^3)
-Deposited in RSEM-L5 and RSEM-L6

Outlet Cofferdam (11,220 m^3)
-Deposited in RSEM-L5 and RSEM-L6

RCC (50,298 m^3)
-Deposited in RSEM-R5A

RBDT and Temporary PAG Stockpile (21,487 m^3)
-Deposited in RSEM-R5A

Approach Channel (511,157 m^3)
-Deposited in RSEM-R5A

Area-23 (1110 m^3)
-Deposited in RSEM-R5A

627,000 628,000 629,000 630,000 631,000

LEGEND

Excavation Area

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

1:15,000

0 200 400 Meters

DATE SAVED:	Jan 25, 2019
DRAWN BY:	AL
REVIEWED:	NM
VERSION:	1

CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE:

Site Facility Layout Map
Showing Excavation Areas

PROJECT #: A416-2

FIGURE: 2.2-1

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2.2.1 Left Bank

The largest excavations on the Left Bank in 2018 occurred as a result of the construction activities around the DTIP and DTOP. In 2018, 308,504 m^3 of bedrock material was excavated from the Inlet Portal and 155,685 m^3 of material was excavated from the Outlet Portal (Table 2.2-1). Excavation of material from the Inlet Portal occurred throughout 2018, whereas most of the material from the Outlet Portal was excavated in Q4 (Figure 2.2-2).

PAG bedrock was also excavated from a number of other locations on the Left Bank. These included the Outlet Cofferdam (11,220 m^3), the LBEX (5,085 m^3), the Left Bank Haul Road (4,725 m^3), the Inlet Cofferdam (3,750 m^3), the L5 Garbage Creek Diversion (180 m^3), and the Central Cofferdam (120 m^3).

In total, 489,269 m^3 of PAG material was stockpiled in the RSEM L5 and L6 areas. Material was placed in RSEM Area L5 throughout 2018. The first material was not deposited in RSEM Area L6 until December 2018 (Figure 2.2-3). At the end of 2018, RSEM Area L5 contained a total of 756,614 m^3 of PAG material, while RSEM Area L6 contained 16,530 m^3 of PAG (Table 2.2-2). No material was added to the L5 Garbage Creek stockpile in 2018; however, 24,225 m^3 of PAG material remains stockpiled at this location.

Table 2.2-1:
Summary of excavated PAG volumes on the Left Bank in 2018

Excavation	Material Excavated (m^3)				
	Q1	Q2	Q3	Q4	Total
Left Bank Excavation	0	0	3,420	1,665	5,085
Left Bank Haul Road	0	0	4,725	0	4,725
L5 Garbage Creek Diversion	0	0	180	0	180
Inlet Portal	39,971	128,385	106,263	33,885	308,504
Outlet Portal	0	0	9,735	145,950	155,685
Central Cofferdam	0	0	0	120	120
Outlet Cofferdam	0	10,095	0	1,125	11,220
Inlet Cofferdam	3,750	0	0	0	3,750
Total	*43,721*	*138,480*	*124,323*	*182,745*	*489,269*

Table 2.2-2:
Cumulative volume of PAG material in Left Bank stockpiles at the end of each quarter in 2018.

Stockpile	Cumulative Volume Stockpiled (m^3)			
	Q1	Q2	Q3	Q4
RSEM Area L5	327,686	466,166	590,489	756,614
RSEM Area L6	0	0	0	16,530
L5 Garbage Creek	24,225	24,225	24,225	24,225
Cumulative total				*797,369*

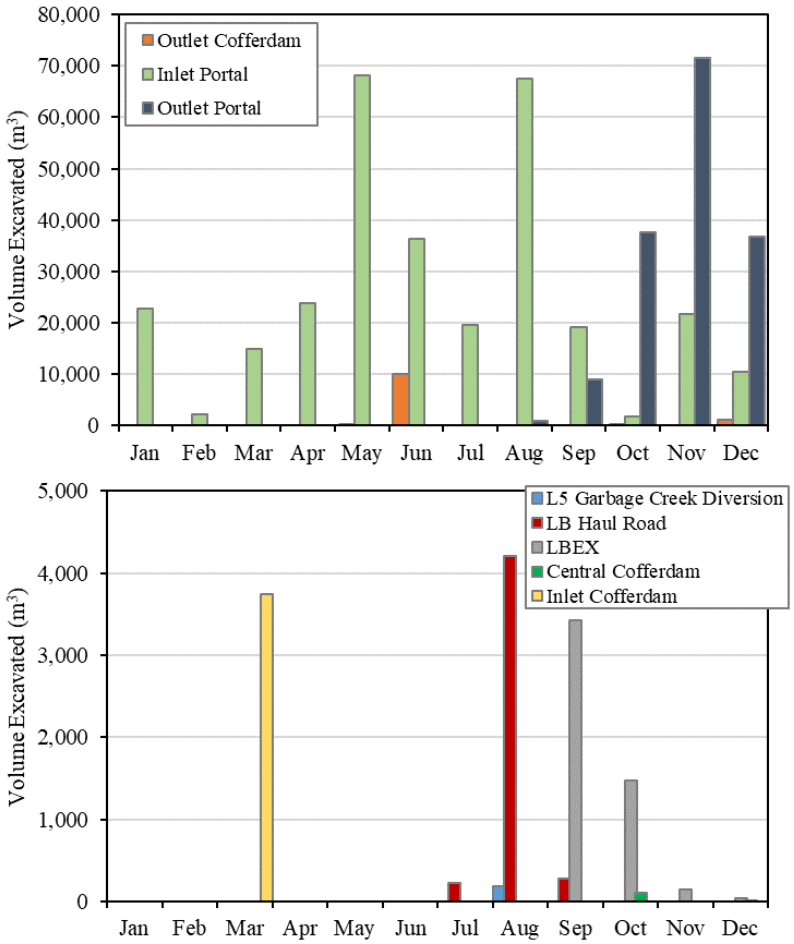


Figure 2.2-2: Overview of volumes excavated on the Left Bank in 2018

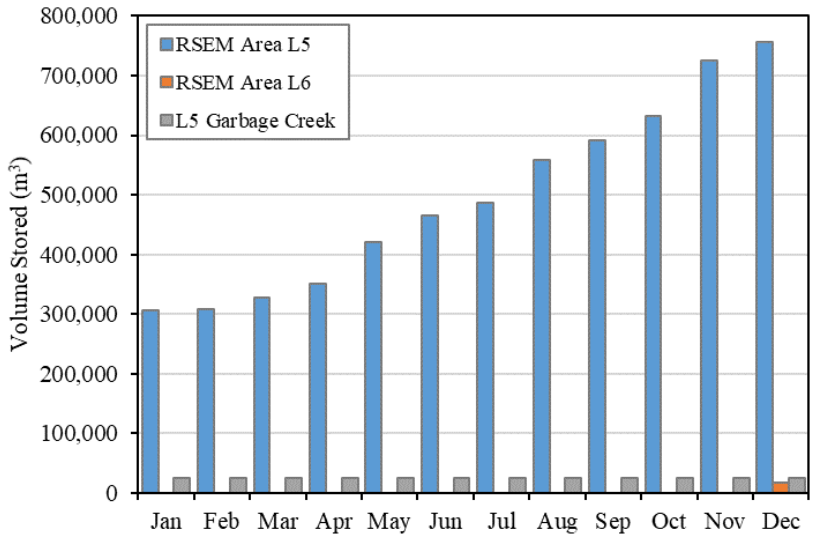


Figure 2.2-3: Overview of cumulative PAG material volumes stored on the Left Bank through 2018

2.2.2 Right Bank

Excavations conducted on the Right Bank of the Site C Project during 2018 amounted to a total of 586,466 m^3 of PAG bedrock. Most of this material was produced from excavations in the Approach Channel area (511,157 m^3), the RCC Buttress area (50,298 m^3), and the RBDT (21,487 m^3) (Table 2.2-3). The volume of the material reported for the Approach Channel area includes both the Approach Channel and the Spillway above the RCC excavation. The RCC Buttress area covers all excavation activity within the RCC Buttress excavation, the Tail Race, the RCC West Access Road, and the Laydown 32B area. Relatively minor excavations were also undertaken in the RSEM Area R5A non-contact ditch (2,414 m^3) and Area 23 (1,110 m^3). These small excavations occurred between August and October 2018. An overview of the PAG material movement from these individual locations is given in Figure 2.2-4.

All of the material excavated on the Right Bank was deposited in RSEM Area R5A which, at the end of 2018, contained 4,165,734 m^3 of PAG rock (Table 2.2-4; Figure 2.2-5). The PAG material previously deposited in RSEM Area R5B prior to 2018 remains covered by NPAG material. No additional PAG material was placed here in 2018.

Table 2.2-3:
Summary of excavated PAG volumes on the Right Bank in 2018

Excavation	Material Excavated (m^3)				
	Q1	Q2	Q3	Q4	Total
Approach Channel	1,275	130,945	224,861	154,076	511,157
RCC	735	1,230	37,212	11,121	50,298
RBDT & Temporary PAG Stockpile	7,438	6,889	4,668	2,492	21,487
Area 23	0	0	60	1,050	1,110
Non-contact ditch (RSEM Area R5A)	0	0	1,544	870	2,414
Total	*9,448*	*139,064*	*268,345*	*169,609*	*586,466*

Table 2.2-4:
Summary of cumulative volume of PAG material in the Right Bank stockpiles at the end of each quarter in 2018.

Stockpile	Cumulative volume stockpiled (m^3)			
	Q1	Q2	Q3	Q4
RSEM Area R5A	3,588,538	3,726,942	3,996,035	4,165,734
RSEM Area R5B	363,618	363,618	363,618	363,618
Cumulative total				*4,529,352*

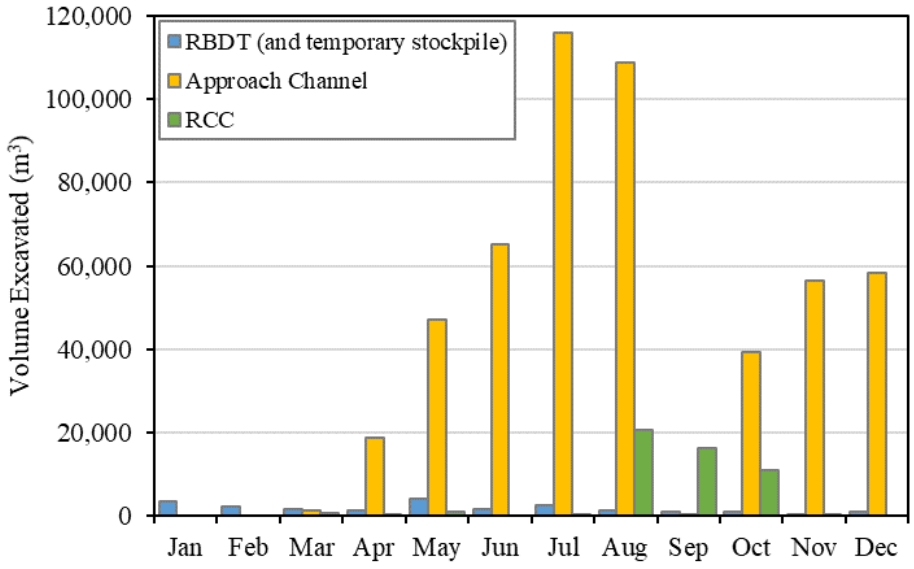


Figure 2.2-4: Overview of PAG bedrock excavations on the Right Bank in 2018 (Minor volumes excavated from the RSEM Area R5A non-contact ditch (2,414 m³) and Area 23 (1,110 m³) are not shown)

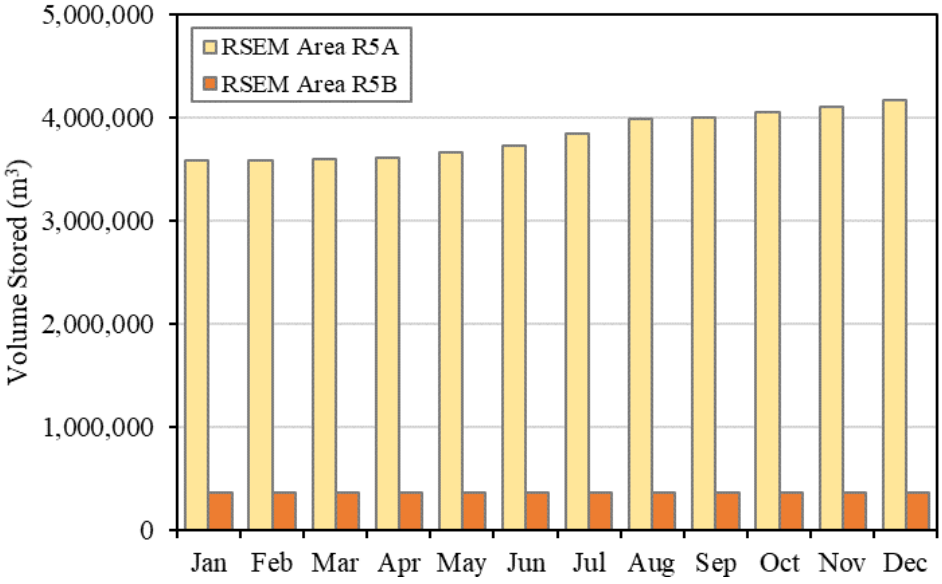


Figure 2.2-5: Overview of cumulative PAG material volumes stored in the RSEM R5A and RSEM R5B disposal areas in 2018.

2.2.3 West Pine Quarry

PRHP estimates that 211,594 m³ of NPAG material was blasted at the West Pine Quarry for use at Site C. A summary of the volume of material blasted at the West Pine Quarry in 2018 is provided in Table 2.2-5. The material is periodically transported by rail to Site C.

Table 2.2-5:
Summary of 2018 West Pine Quarry Blast Volumes

Quarter	Blast Volume (m^3)
Q1	0
Q2	133,774
Q3	59,900
Q4	17,920
Total	*211,594*

2.3 Monitoring Program Summary

ARD/ML monitoring is undertaken in areas where bedrock is excavated or where these materials are deposited. Appropriate sampling locations are determined as construction activities proceed (rather than routinely sampling at fixed monitoring stations).

Geochemical analysis of samples collected during the monitoring program include rinse pH measurements to determine surface pH, as well as acid-base accounting (ABA) and solid phase metals analysis. Rinse pH monitoring is generally only conducted where samples were previously identified to produce circumneutral to alkaline drainage (rinse pH > 5.5). Where acidic drainage is prevalent, ARD mitigation strategies are identified and recommended. The original monitoring framework is described in PRHP's Acid Rock Drainage and Metal Leachate Management Plan (PRHP, 2017b) which is Appendix A of PRHP's Environmental Management Plan (PRHP, 2017c). The monitoring guidelines laid out in this plan are summarized in Table 2.3-1.

Table 2.3-1:
Summary of PAG Monitoring Guidelines by Exposure Type

Facility	Sample Frequency	Sample Distribution	Sample type
RSEMs or Temporary PAG Stockpiles	Minimum 1 event per quarter of exposure except when frozen	1-2 samples per ha	grab sample
Active Excavation Site	N/A	Up to 1 sample per 5,000 m^3	drill cuttings/ grab sample
Inactive Excavation Site	Minimum 1 event per quarter of exposure except when frozen	1-2 samples per ha; minimum 3 per site	channel cut
PAG encounters outside of main excavation zones	upon encounter	3 samples initially, then up to 1 sample per 2,000 m^3	drill cuttings/ grab sample

Note: Monitoring exposed surfaces for rinse pH is not required when temperatures are below freezing; N/A: Not applicable

A proposed revision to this management plan is that an annual ARD/ML Sampling Plan be developed in the first quarter of each calendar year based on current site conditions and the additional operational experience gained in the previous year. The first of these plans was developed for 2018 (Lorax, 2018a). It requires that new and confirmatory samples are collected from the major active and inactive excavation sites, RSEM deposition areas and temporary PAG stockpiles. This sampling will direct material handling and storage strategies such as the placement of a cover or fresh PAG within RSEM areas.

In 2018, a total of 272 samples were collected for rinse pH analysis from various locations on the Left and Right Banks. Of these, 42 samples underwent more extensive geochemical testing including ABA and metals analysis. In addition, a total of 21 samples were submitted in 2018 from the West Pine Quarry for the same suite of analyses. The number of samples collected from various locations across the site are outlined in Table 2.3-2.

Table 2.3-2:
Overview of Sample Distribution and Analyses Conducted

Location	Rinse pH	ABA and Metals
Left Bank		
RSEM Area L5	32	4
Northwest Exposure	3	1
Garbage Creek	1	0
LBEX	7	1
LBEX-SP Bluff	4	2
Central Cofferdam	1	0
DTIP (including nearby exposure)	5	4
DTOP	5	1
Right Bank		
RSEM Area R5A	137	12
Approach Channel	37	6
RCC	27	5
Moberly Bridge	2	0
SBIAR	5	1
RBDT	3	3
Area A	3	1
Approach Channel Precipitate	0	1
Total	**272**	**42**
Other		
West Pine Quarry	21	21

2.3.1 Sample Collection

Sample collection methods varied depending on the type of material being sampled. Samples collected from road cuts and excavation sites were collected as linear trench samples, where a pick or hammer was used to excavate an approximately 1 m cut into the

excavation face perpendicular to the bedding plane. Samples collected from the surface of PAG stockpiles and other graded or compacted areas were collected from shallow trenches. Trenches of approximately 1–2 cm depth were dug with a pick. A sample was collected from the entire length of the trench (ranging from about 20–100 cm) at each location.

The West Pine Quarry samples are blast hole cuttings and each sample represents a composite from several blast holes from a single blast pattern. The minimum sampling frequency in BC Hydro's Mine's Act Permit is one sample for every 7,500 tonnes of material blasted. Assuming an average rock density of 2.5 tonnes/m^3, the sampling frequency by volume is one sample for every 3,000 m^3 of material blasted. The sampling frequency in Q2 through Q4 2018 was below the required frequency. No blasting occurred in Q1.

The geochemistry of samples from the NPAG West Pine Quarry has not varied and an amendment to the permit for a lower sampling frequency is recommended. Prior to an approval for a change in frequency, Lorax will work with PRHP to provide guidance on developing a plan for more consistent sampling from quarter to quarter as material is blasted.

2.3.2 Analytical Methods

The surface rinse pH is conducted on the <2 mm particle size fraction (sorted by dry sieve) with no particle comminution. The procedure is based on that described in the Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials (Price, 2009). The rinse pH analyses were conducted on site for samples collected in May 2018. Following this round of sampling, samples were sent to either Maxxam Analytics (June and August samples) or ALS Global – Geochemistry (October samples).

ABA and metals analyses are conducted at the external laboratories as follows:

- Neutralization potential (NP) is determined by both Maxxam and ALS using a Modified Neutralization Potential method. Maxxam follow the method outlined in Marchant and Lawrence (1991), while ALS uses the modified Sobek method (Lawrence and Wang, 1996). The primary difference between the methods is that the first method targets a pH between 1.5 and 2.0, while the second method targets a pH between 2.0 and 2.5. Both analyses are conducted for a duration of 24 hours.
- Total sulphur (S) is determined using a LECO furnace.
- Sulphate-S is determined by the procedure outlined in ASTM D2492-02, *Standard Test Method for Forms of Sulphur in Coal*. In this procedure, sulphate-S is dissolved with HCl.

- For samples sent to Maxxam, sulphide-S is quantified by leaching residue from the sulphate-S in a 1:7 nitric acid (HNO_3) to water ratio, according to the Sobek *et al.,* (1978) modification. The oxidized sulphide is then measured gravimetrically after precipitation of barium chloride ($BaCl_2$). For samples sent to ALS, sulphide S is measured from the residue remaining after a Na_2CO_3 leach using a LECO analyzer. NOTE: The samples collected in June 2018 and most West Pine Quarry samples have sulphide-S determined by difference (Total S – Sulphate S).
- Solid phase metals analyses are conducted on pulverized samples by digesting 0.50 g in *aqua regia* at 95°C for one hour. The extract is then diluted to 10.0 mL and analyzed for metals by inductively coupled plasma mass spectrometry (ICP- MS).

2.3.3 Classification of ARD Potential

The ARD potential of different geologic materials was defined prior to the start of construction, to facilitate effective material management. The criteria for determining the ARD potential of geologic materials that are excavated at the Project are defined by its Technical Specifications (IET, 2015). The acid generating potential of overburden and bedrock is also defined in Appendix E of BC Hydro's CEMP (BC Hydro, 2016a).

ABA criteria for classifying excavated material as AG, PAG, or NPAG were defined by the ratio of NP to acid potential (AP) as per IET, 2015. The NP/AP ratio, or net potential ratio (NPR), was used to identify PAG and NPAG mine rock. It is calculated from modified NP and either sulphide S or total S AP, and is defined as:

- PAG: Material with an NPR ≤ 2; and
- NPAG: Material with an NPR > 2.

In addition to the above ABA criteria, a sample is considered AG that has a pH < 5.5 when tested using traditional paste or rinse pH methods.

The potential for ARD from various geologic materials disturbed at the Project site has been assessed by a variety of geochemical test work (KCB, 2015). These initial analyses show that the shale bedrock units are PAG, while the overburden materials are NPAG. Since site excavations have been initiated, additional refinement was required for material types that cannot be readily classified as 'bedrock' or 'overburden'. These material types are largely restricted to the area around the Left Bank Excavation (LBEX) and include:

- bedrock colluvium;
- overburden colluvium;
- weathered bedrock; and

- the transition zone between bedrock and overburden.

The ARD/ML designation of these materials was not included in Appendix E of BC Hydro's CEMP (BC Hydro, 2016a) or geochemical baseline studies (KCB, 2015). Based on ARD/ML monitoring data, classifications have since been developed by Lorax, which are shown in Table 2.3-3 below. A more detailed description of the rationale and details of the classification system is provided in the *Field Classification of Potentially Acid Generating Materials* (Lorax, 2017).

Table 2.3-3:
Acid Rock Drainage Classification for Different Geologic Material Types

Material Type	ARD Classification
Overburden[1]	NPAG
Overburden Colluvium[2]	NPAG
Transition Zone (<15% shale)[1]	NPAG
Transition Zone (>15% shale)[1]	PAG or AG*
Bedrock Colluvium[2]	AG
Weathered Bedrock[2]	AG
Fresh Bedrock[2]	PAG

[1] Defined in CEMP (BC Hydro, 2016b)
[2] Defined in LBEX (Lorax, 2017)
*Classified as AG or NPAG depending on weathered shale content.

2.3.4 Quality Assurance and Quality Control

The quality assurance and quality control (QA/QC) program for ABA and metals analyses involves a variety of internal laboratory protocols. These protocols involve duplicate samples and analytical standard analysis. About one duplicate was measured for every 10 samples at Maxxam. ALS uses a frequency of one duplicate for every 20 samples, depending on batch size. Internal laboratory quality control at Maxxam adheres to a precision specification of ±20% for metals and ±30% for sulphur and carbon species, while ALS typically has a precision specification of ±10% for geochemical analyses.

Neutralization potential precision specifications at Maxxam vary depending on the mass of NP:

NP > 20 kg$CaCO_3$/t = ± 15%;

20 > NP > 10 kg$CaCO_3$/t = ± 20%; and

NP < 10 kg$CaCO_3$/t = ± 5 kg$CaCO_3$/t.

Any laboratory duplicate result or standard that does not adhere to the precision specifications triggers a re-analysis. Complete documentation of analytical QA/QC protocols are provided in Appendix 2-A.

2.4 Geochemical Results

2.4.1 Rinse pH

Rinse pH was identified as the primary geochemical parameter to assess whether a bedrock excavation or storage site is actively releasing net acidic drainage. Generally, where circumneutral rinse pH values were measured, geochemical monitoring is continued. Acidic rinse pH values, on the other hand, trigger the identification and implementation of ARD mitigation and management measures. The full database of rinse pH values for the 2018 samples is shown in Appendix 2-B, Table 1.

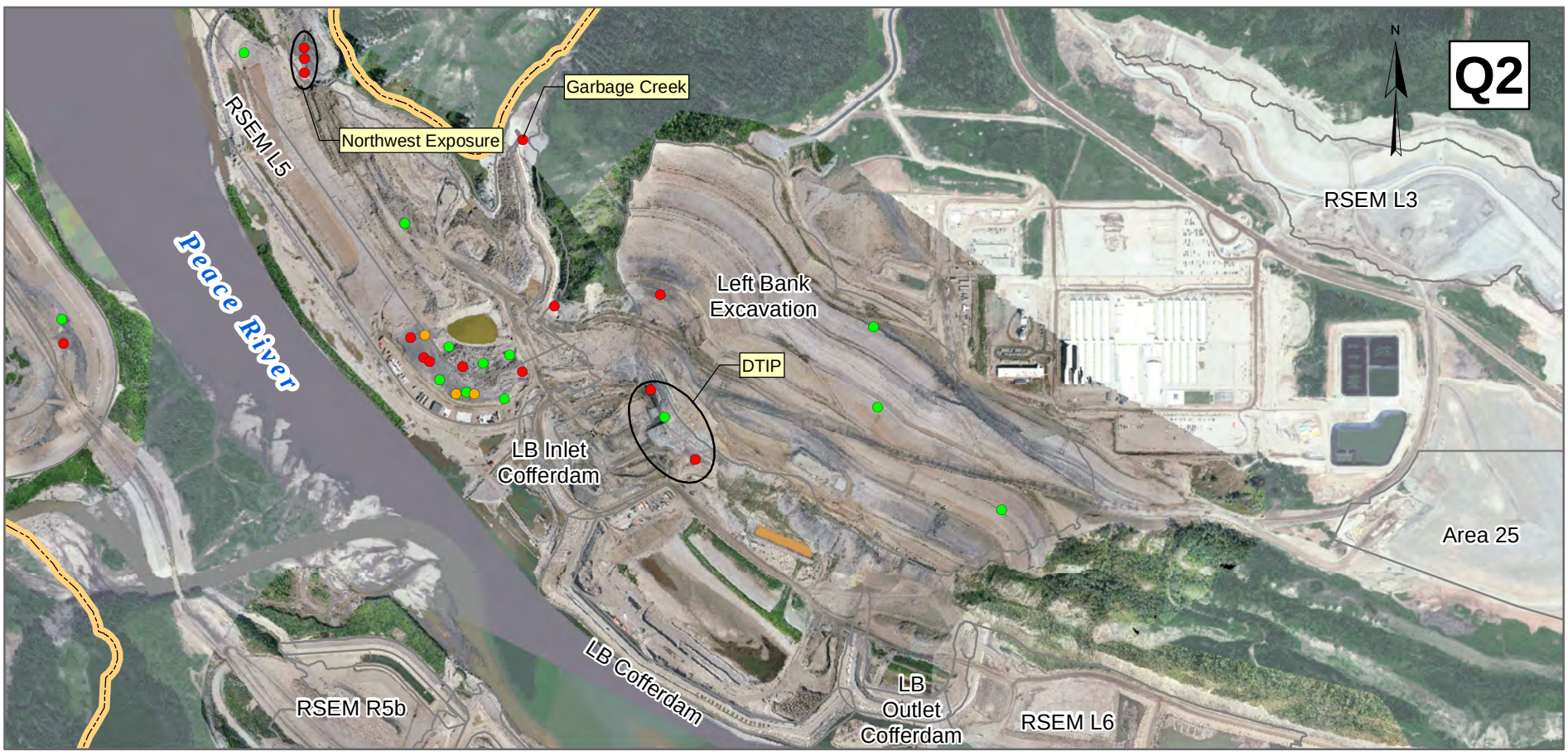
2.4.1.1 Left Bank

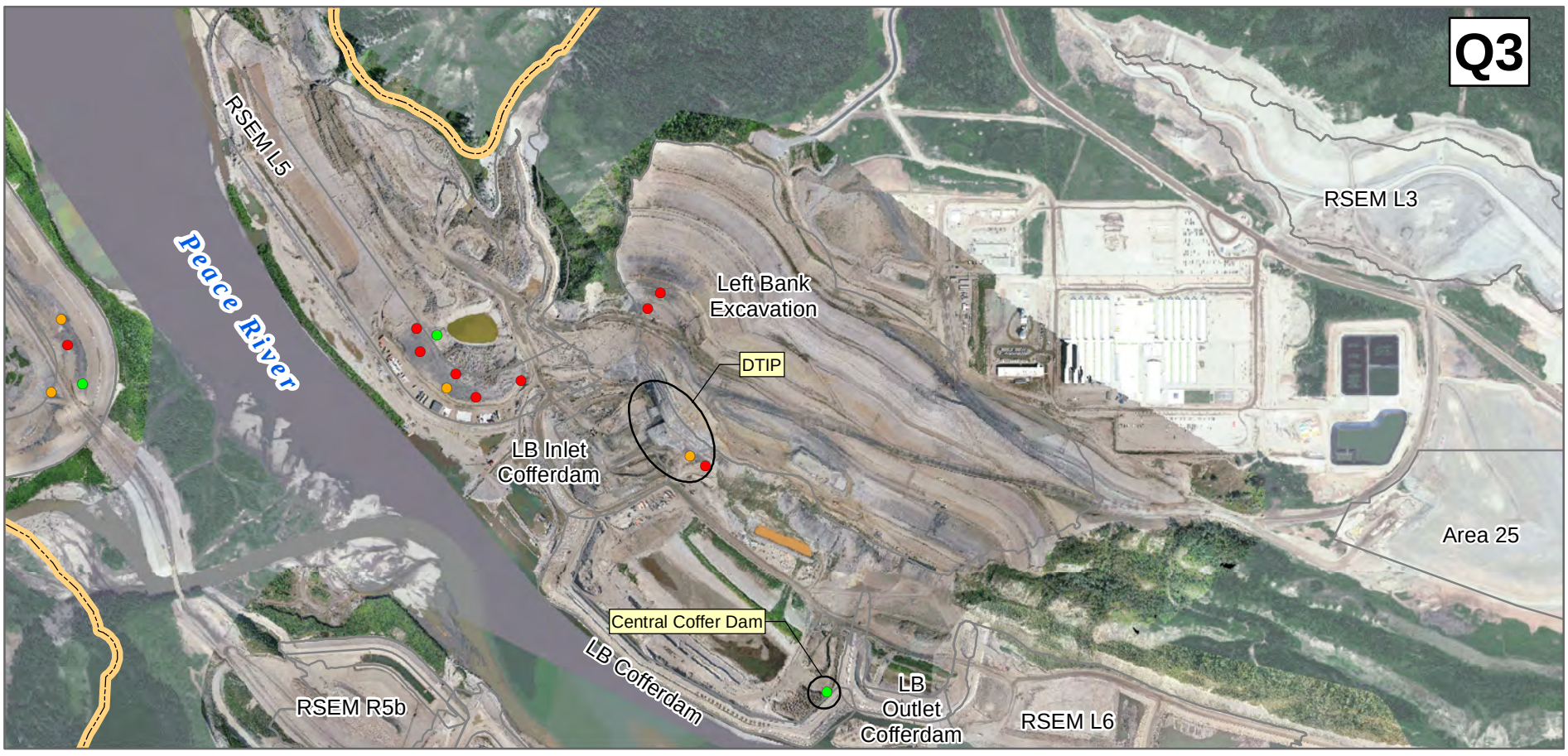
Samples on the Left Bank were collected at RSEM Area L5 (n=32), the Northwest Exposure (n=3), Garbage Creek (n=1), the LBEX (n=7), the PAG bluff below the LBEX (n=4), the Central Cofferdam (n=1), the DTIP area (n=5), and the DTOP area (n=5). The spatial distribution of samples submitted for rinse pH analysis on the Left Bank is shown in Figure 2.4-1. On this map, pH values are grouped into three categories representing neutral/alkaline (green), slightly-acidic/inert (yellow), and acidic (red) character.

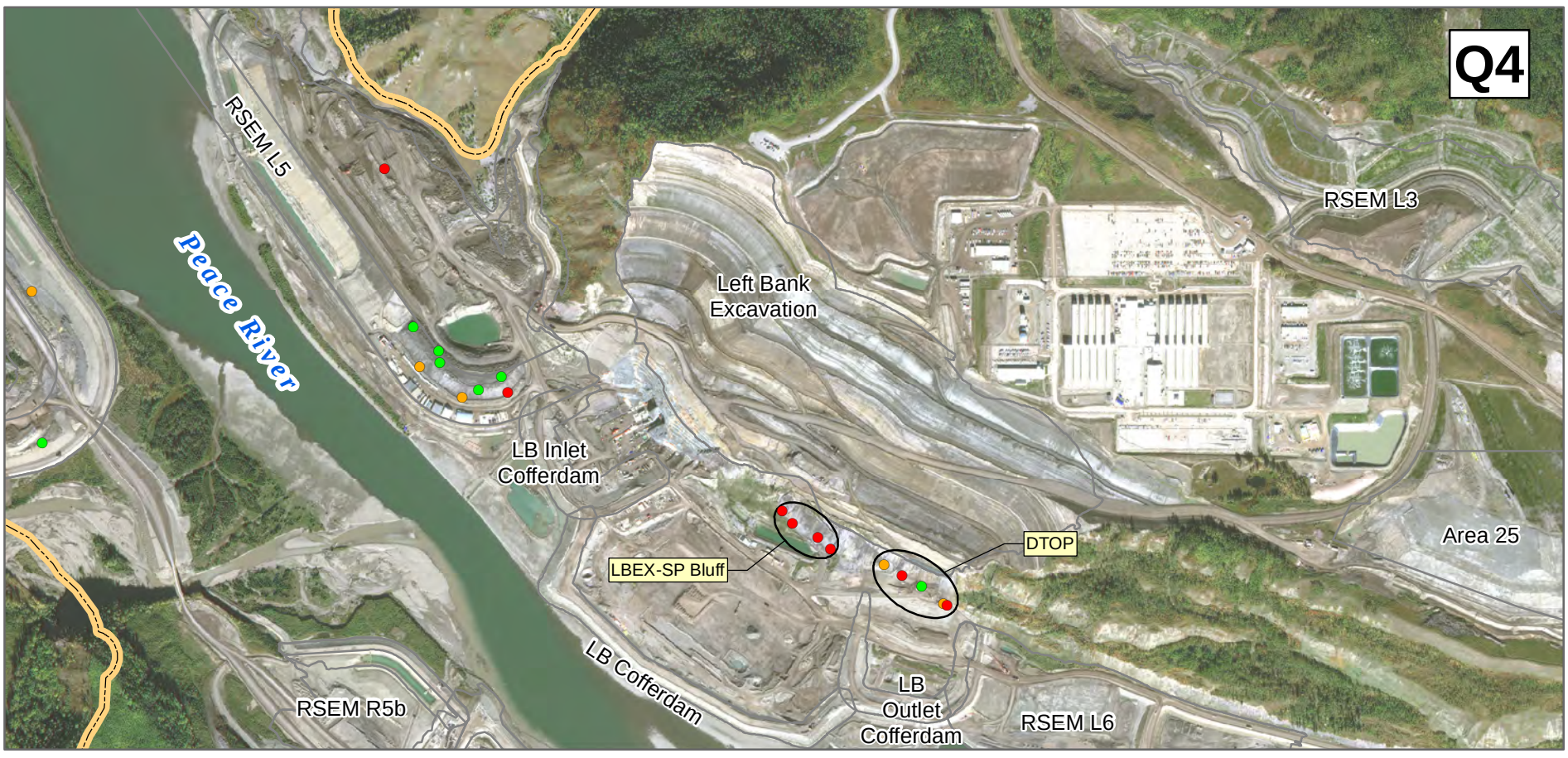
Permanent stockpiles in which acidic rock is identified require further mitigation such as covering with overburden. Management measures for excavation faces may include the collection and management of runoff, or application of shotcrete. Areas that are not currently AG require continued monitoring.

Sampling efforts around RSEM Area L5 were focused on PAG rock exposures. These were generally restricted to the southeastern portion of the facility due to the placement of an overburden cover over much of the RSEM area. An expansion to the northwest of RSEM Area L5 was started in Q4 and was still in progress at the end of the year. No samples were collected from this area. Rinse pH analysis of RSEM Area L5 samples were variable (range: 2.6 to 9.4, median: 6.3; Table 2.4-1, note that medians were only calculated for locations with four or more samples). Ten out of 32 samples (31%) produced a rinse pH of <5.5 and were therefore classified as AG. In general, the weathered shale samples have a lower rinse pH relative to the fresh shale samples. The two overburden samples collected in 2018 from this area had neutral rinse pH values, as expected.

PAG material is exposed along a slope at the southeastern limits of RSEM Area L5. It is recommended that PRHP temporarily isolate runoff at the base of the slope and transfer this runoff to the MWTF. When the RSEM is expanded, some of this material will be relocated, and remaining exposed PAG will be covered.







LEGEND

Rinse pH

- <5.5
- 5.5-7.0
- >7.0
- Site C Boundary

Notes:
1. *Imagery for Q2 and Q3 compiled from multiple UAV images taken between May-July 2018*
2. *Imagery for Q4 taken September 19, 2018*
3. *No Samples were collected in Q1*

DATE SAVED:	Mar 13, 2019
DRAWN BY:	GM
REVIEWED:	JO
VERSION:	1

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

1:12,500

0 200 400 Meters

CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE:

Left Bank 2018
Rinse pH Sampling Results

PROJECT #: A416-1

FIGURE: 2.4-1

P:\@Drafting\SiteC\Drafting Figures\MXD\2018AnnualReport\RinsepH_LB_Q2Q3Q4_20190304.mxd

In addition, an area of exposed PAG has been identified in the northwest part of RSEM Area L5. Three PAG monitoring samples were collected from this exposure on the northwest side of RSEM Area L5 (the "Northwest Exposure"). All monitoring samples returned acidic rinse pH values of 2.4 to 4.4 (Table 2.4-1). Runoff from this exposure will flow towards the RSEM L5 stockpile. However, due to the small size of this exposure the minimal runoff from this area did not have significant effects on the water quality in the L5 sediment ponds.

A visual inspection of the covered Garbage Creek PAG deposition area was undertaken in Q2 2018 following large-scale erosion below the Garbage Creek diversion, which resulted from overtopping of the culvert at the head pond during freshet high flows. It was found that the PAG cover is generally intact with only one minor PAG exposure (< 1 m^2) observed that seemed to be unrelated to the high flow event that occurred. A sample from this small area was taken yielding a rinse pH of 5.2.

The western side of the LBEX has previously been identified as a PAG bedrock exposure. Four confirmatory samples were collected from this area in 2018. All samples were AG (rinse pH range: 3.0 to 3.7; Table 2.4-1). Three overburden samples were also collected from within the LBEX, all of which produced neutral rinse pH.

For the construction of the DTIP, PAG rock is being excavated and moved to RSEM Area L5. Shotcrete has been applied to exposures in the wall above the portal for slope stability. Five samples (PAG) were collected from exposures immediately around the DTIP where shotcrete had not yet been applied. These samples range in rinse pH from 3.4 to 8.3 (median: 5.2). The shotcrete should mitigate the ARD/ML risk posed by the acidic rock. Periodic water quality monitoring is recommended to confirm this assumption.

In the DTOP area four samples were collected from freshly exposed bedrock, and one from a weathered area along the western edge of the DTOP area. The weathered material west of the DTOP and recently exposed friable bedrock east of the DTOP were acidic. The upper reach of the freshly exposed bedrock west of DTOP was slightly acidic (pH 6.7), whereas freshly exposed bedrock collected from the floor of the excavation was neutral. The DTOP face is being shored with shotcrete for geotechnical stability as the excavation of the portal area proceeds. As with the DTIP, the shotcrete should mitigate the ARD/ML risk posed by the acidic rock. Periodic water quality monitoring is recommended to confirm this assumption.

Samples were collected along the base of a natural bluff above the Central Cofferdam and below the LBEX (n=4). These samples confirmed that this bluff is acidic as demonstrated by rinse pH consistently < 4.5 (Table 2.4-1). Surface water runoff from the bluff is mostly conveyed to the sediment pond at the base of the bluff (LBEX-SP) and conveyed from the pond to the MWTF for treatment prior to discharge, when necessary.

Table 2.4-1:
Statistical Overview of Rinse pH for 2018 Sampling Locations

Location	Statistic	Q1	Q2	Q3	Q4	Overall
Left Bank						
RSEM Area L5 (n = 32)	Min	-	3.8	2.6	4.4	2.6
	Median	-	6.8	3.6	7.1	6.3
	Max	-	8.7	7.3	9.4	9.4
Northwest Exposure (n = 3)	Sample a	-	2.4	-	-	-
	Sample b	-	3.4	-	-	-
	Sample c	-	4.4	-	-	-
Garbage Creek (n = 1)	Sample a	-	5.2	-	-	-
LBEX (n = 7)	Min	-	3.1	2.6	-	2.6
	Median	-	7.5	-	-	3.7
	Max	-	7.6	3.0	-	7.6
LBEX-SP Bluff (n = 4)	Min	-	-	-	3.7	3.7
	Median	-	-	-	4.0	4.0
	Max	-	-	-	4.3	4.3
Central Cofferdam (n = 1)	Sample a	-		7.2	-	-
DTIP area (n = 5)	Min	-	3.4	4.5	-	3.4
	Median	-	5.2	-	-	5.2
	Max	-	8.3	6.5	-	8.3
DTOP area (n = 5)	Min	-	-	-	3.5	3.5
	Median	-	-	-	6.7	6.7
	Max	-	-	-	9.1	9.1
Right Bank						
RSEM Area R5A (n = 137)	Min	-	2.3	2.3	3.5	2.3
	Median	-	6.1	7.0	6.9	6.7
	Max	-	11	10	9.7	11
Approach Channel (n = 37)	Min	-	2.7	2.3	3.6	2.3
	Median	-	5.4	2.5	4.4	4.5
	Max	-	8.0	7.2	9.3	9.3
RCC (n = 27)	Min	-	7.3	7.3	6.5	6.5
	Median	-	9.1	8.8	8.2	8.7
	Max	-	9.9	9.3	9.3	9.9
Moberly Bridge (n =2)	Sample a	-	4.3	-	-	-
	Sample b	-	4.9	-	-	-
RBDT (n = 3)	Sample a	10	11	-	results pending	-
Area A (n = 3)	Sample a	-	-	-	6.6	-
	Sample b	-	-	-	6.6	-
	Sample c	-	-	-	7.1	-
SBIAR (n = 5)	Min	-	2.7	-		2.7
	Median	-	3.4	-		3.4
	Max	-	4.1	-		4.1
West Pine Quarry						
West Pine Quarry (n = 21)	Min	-	6.4	7.3	8.2	6.4
	Median	-	8.7	-	8.4	8.7
	Max	-	9.1	9.0	8.7	9.1

Overburden material stockpiled in the Central Cofferdam was sampled and had a neutral rinse pH (pH 7.2). No PAG material is to be placed behind the Left Bank Cofferdams. Ongoing monitoring is recommended to verify that no PAG material is used in the dam.

2.4.1.2 Right Bank

Right Bank sampling included RSEM Area R5A (n=137), the Approach Channel (n=37), RCC Buttress excavation (n=27), the Moberly Bridge area (n=2), the RBDT (n=3), Area A (n=3), and the SBIAR (n=5). The spatial distribution of samples submitted for rinse pH analysis on the Right Bank are shown in Figure 2.4-2 (Approach Channel and RCC area) and Figure 2.4-3 (RSEM Area R5A). PAG bedrock at RSEM Area R5A was collected with the use of a grid system, to ensure good spatial coverage and to better constrain zones that require ARD/ML mitigation (*i.e.*, covering). High priority zones were identified on maps produced following each round of sampling to guide material placement (Lorax, 2018b, c).

The majority (57%) of surface samples from the Approach Channel were AG with an additional 27% of samples with rinse pH between 5.5 and 7.0. These samples include the upper-most surface samples from the test pit study conducted in October 2018 (Lorax, 2018d). Only six of the 37 samples from the Approach Channel area had a neutral rinse pH and were generally collected from more recently exposed bedrock surfaces. Excavation of the weathered surfaces began in Q4 2018. Unweathered PAG bedrock has previously had a higher rinse pH (> 7.0), with runoff from this material having acceptable water quality. Management of the exposed Approach Channel surfaces is expected to limit the volume of acidic water runoff that would require treatment and is recommended as part of the Right Bank ARD management (Lorax, 2018e). This is discussed in more detail below.

The 27 samples collected from the RCC Buttress Excavation area in 2018 had circum-neutral to slightly basic rinse pH values ranging from 6.5 to 9.9 (median: 8.7). The two samples with rinse pH < 7.0 were collected from the western edge of the RCC excavation from bedrock in the upper portion of the Tailrace, and from weathered PAG material at the base of the access road ramp below hairpin corner. These results are consistent with lower sulphur content and the higher neutralization potential previously noted in shale samples from the lower stratigraphy exposed in the RCC excavation.

It was found that PAG rock exposed in RSEM Area R5A during 2018 is of mixed geochemical character with several AG samples identified (Table 2.4-1). Overall, 33% of the samples were shown to be AG, while 22% showed slightly acidic rinse pH values between 5.5 and 7.0. The remaining 45% of samples have rinse pH values above 7.0. The calculated median rinse pH value of all RSEM Area R5A samples was 6.7. In general, material that has been recently placed within the RSEM area has a higher rinse pH relative to older, more weathered material. Prioritizing cover of the AG areas with fresh material

was recommended (Lorax, 2018b, c). Placement of unweathered excavated material in the second half of 2018 has reduced the size of the AG areas identified following the Q2 sampling. After the last round of 2018 sampling in October, the majority of the uncovered acidic material remains at the berms and sides of the dumps located along the western edge of the RSEM area as well as in the stockpiles at the end of the non-contact ditch near the Moberly River at the southern end of RSEM Area R5A. Covering these areas with recently excavated material should be prioritized in early 2019.

Results from the other Right Bank areas sampled in 2018 are summarized as follows:

- In the Moberly Bridge area, two samples were collected along a PAG cut. Both samples were determined to have a rinse pH of <5 and are therefore AG. The runoff from this road cut collects in a ditch at the base of the slope and is conveyed to the RSEM R5B Sediment Pond.
- The two RBDT samples collected both had alkaline rinse pH values above pH 10. A third sample was collected in December. The results from this sample will be reported in 2019.
- Bedrock samples were collected for the first time from Area A (n=3) to determine if there is PAG bedrock in this part of the site. One sample was neutral (rinse pH = 7.1) and two of the samples were slightly acidic (rinse pH = 6.6), indicating that the exposed bedrock is transitioning to acidic conditions.
- Five samples were collected from both sides of the SBIAR, all of which produced acidic rinse pH ranging from 2.4 to 4.1. BC Hydro has assumed responsibility for the SBIAR. Consequently, it has now been excluded from the PRHP monitoring program. The water quality in this area is monitored by BC Hydro and is reported elsewhere.

2.4.1.3 West Pine Quarry

Twenty-three samples were collected from the West Pine Quarry in 2018. The samples were sent to the lab for all analyses, including rinse pH. The rinse pH values (n = 21) were circum-neutral to slightly basic with values of pH 6.4 and 9.1. Two additional samples were obtained in September 2018; however, they were not submitted to the laboratory until early 2019. Laboratory results from these two samples were not yet available at the time of writing and will be reported in 2019.



LEGEND

Rinse pH

- <5.5
- 5.5-7.0
- >7.0
- Site C Boundary

Notes:
1. *Imagery for Q2 and Q3 compiled from multiple UAV images taken between May-July 2018*
2. *Imagery for Q4 taken September 19, 2018*
3. *No Samples were collected in Q1*

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REVIEWED:	JO
VERSION:	1

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Projection: *Transverse Mercator*
Datum: *North American 1983*
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PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

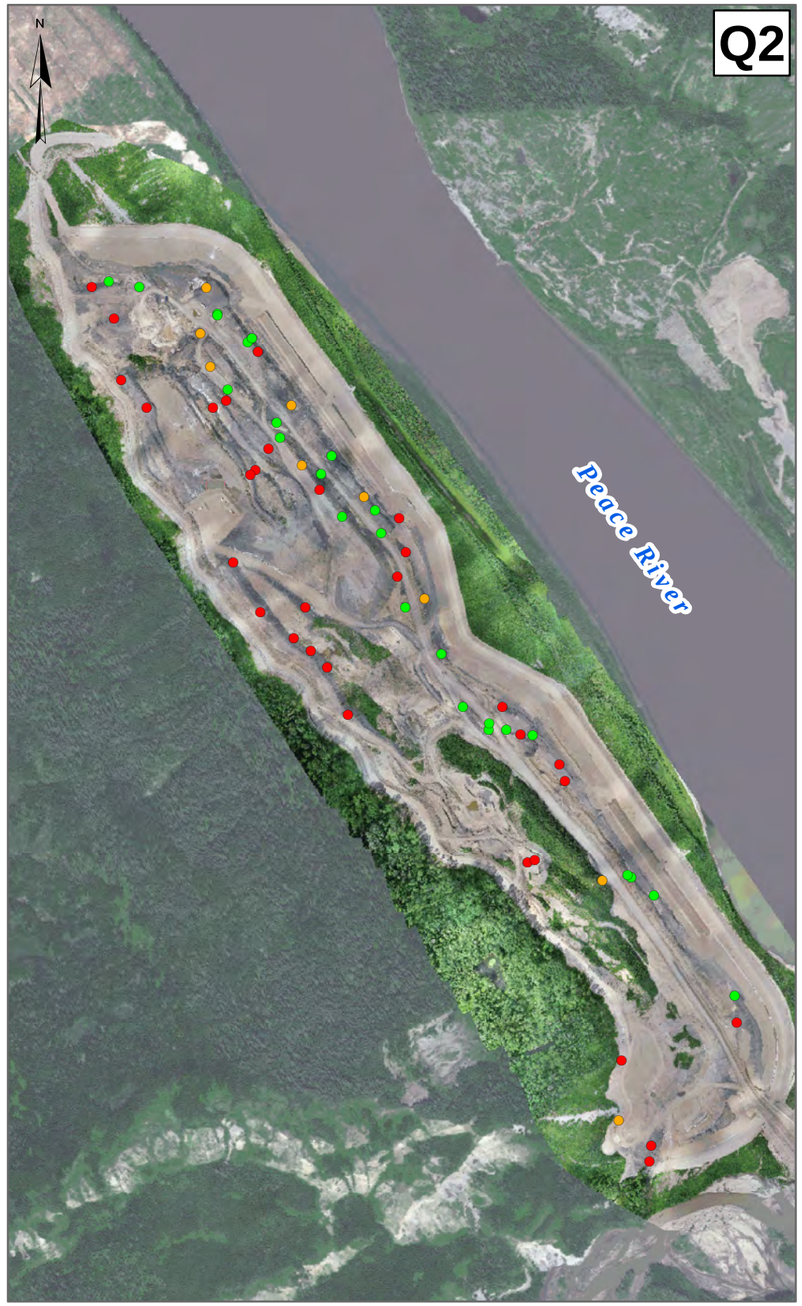
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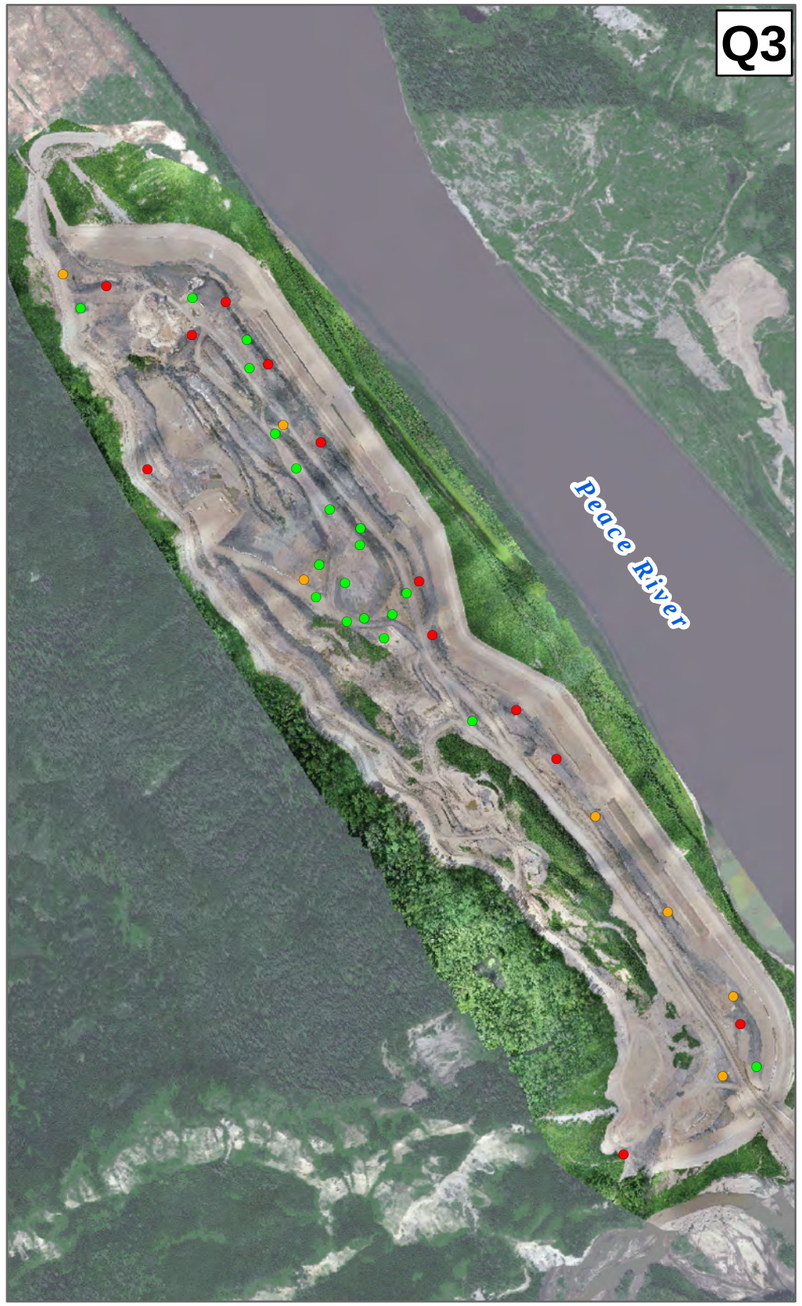
RSEM R5B Area, Approach Channel and RCC Excavation 2018 Rinse pH Sampling Results

PROJECT #: A416-1

FIGURE: 2.4-2

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LEGEND

Rinse pH

- <5.5
- 5.5-7.0
- >7.0

Notes:
1. *Imagery for Q2 and Q3 compiled from multiple UAV images taken between May-July 2018*
2. *Imagery for Q4 taken September 19, 2018*
3. *No Samples were collected in Q1*

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CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE:

RSEM R5A Area 2018
Rinse pH Sampling Results

PROJECT #: A416-1

FIGURE: 2.4-3

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2.4.2 Solid-Phase Geochemistry

This section presents the solid-phase geochemical results for the samples submitted for ABA and solid phase metals testing in 2018. Complete monitoring results are presented in Appendix 2-B. Total sulphur AP and modified NP are used to calculate NPR. All samples with NPR values <2 are classified as PAG, and samples with a rinse pH or paste pH <5.5 are classified as AG (Section 2.2.1). Metal enrichment is determined by comparing metal concentrations to average upper continental crustal abundance (ACA) as per Rudnick and Gao (2014) (Table 2.4-2).

Table 2.4-2:
Average upper continental crust abundance used to evaluate metal enrichment

Element	units	Average Continental Abundance
Ag	ppb	53
Al	%	8.15
As	ppm	4.8
Ba	ppm	628
Bi	ppm	0.16
Ca	%	2.57
Cd	ppm	0.09
Co	ppm	17.3
Cr	ppm	92
Cu	ppm	28
Fe	%	3.92
Hg	ppm	0.05
K	%	2.32
La	ppm	31
Mg	%	1.50
Mn	ppm	774
Mo	ppm	1.1
Na	%	2.43
Ni	ppm	47
P	%	0.065
Pb	ppm	17
Sb	ppm	0.4
Se	ppm	0.09
Sr	ppm	320
Th	ppm	10.5
U	ppm	2.7
Zn	ppm	67

2.4.2.1 Left Bank

Samples submitted for further geochemical analysis from the Left Bank include samples from RSEM Area L5 (n=4), the Northwest Exposure (n=1), the LBEX (n=1), the LBEX-SP bluff (n=2), the DTIP area (n=4), and the DTOP area (n=1). The paste pH values for the Left Bank samples are variable (3.5 to 9.1). In general, fresh bedrock samples have a higher paste pH relative to weathered bedrock samples. The paste pH and rinse pH for the Left Bank samples were generally similar (Table 2.4-3). However, the DTIP sample collected in August 2018 had a rinse pH of 6.5 and a paste pH of 3.9. This may indicate stored acidity in the centre of the particles that are pulverized for the paste pH measurement.

All bedrock samples from the Left Bank have >0.5% total S (up to 2.3%), while the overburden sample from the LBEX has low total S (0.060%). The total S is made up of a variable proportion of sulphide S and sulphate S (Figure 2.4-4). Samples from RSEM Area L5, two of four samples the DTIP area, and the sample from the DTOP area have a higher proportion of sulphide S. The total S content of the bedrock samples from the Northwest Exposure and the LBEX-SP bluff is composed almost entirely of sulphate S while two of the DTIP area samples have relatively high portions of sulphate S. The higher proportion of sulphate S indicates that the sample is more weathered. Modified NP is <20 kg $CaCO_3$/t in all samples, excluding the overburden sample which has a modified NP of 69 kg $CaCO_3$/t. All bedrock samples from the Left Bank have NPR < 2 (Figure 2.4-5). Half of the samples with NPR < 2 also have rinse pH < 5.5 and are currently AG. Only the overburden sample collected in the LBEX was NPAG.

Metals and metalloids generally exceeding 3x the ACA give an indication of metal enrichment, and include Ag, Cd, Mo, and Se (Table 2.4-4). Of these elements, Se contents were frequently greater than 10x the ACA, while Cd and Mo are greater than 10x the ACA in one sample each. The metal contents in the LBEX overburden sample were generally lower relative to the bedrock samples. Metal enrichment does not necessarily result in metal leaching. Water quality monitoring will continue to screen for these parameters and assess the relationship between solid-phase content of a species and its concentration in drainage.

Table 2.4-3:
Summary of 2018 ABA Results for the Left Bank Samples

Sample Location	Date Sampled	Material Type	Paste pH	Rinse pH	Total S	Sulphate S	Sulphide S[a]	TAP	Mod. NP	NPR[b]
			pH Units	pH Units	wt%	wt%	wt%	kg $CaCO_3$/t	kg $CaCO_3$/t	n/a
RSEM Area L5	27-Aug-18	Weathered Bedrock	4.0	4.0	1.5	0.27	0.98	47	-0.50	-0.011
	26-Jun-18	Weathered Bedrock	8.9	8.7	1.4	0.050	1.4	44	9.0	0.20
	16-May-18	Fresh Bedrock	7.1	7.3	2.3	0.040	1.1	72	9.8	0.14
	18-Oct-18	Fresh Bedrock	9.1	9.1	0.88	0.030	0.64	28	19	0.69
Northwest Exposure	16-May-18	Weathered Bedrock	3.5	3.4	0.99	0.97	0.030	31	-7.3	-0.24
LBEX	16-May-18	Overburden	7.7	7.6	0.060	0.030	0.030	1.9	69	37
LBEX-SP Bluff	17-Oct-18	Weathered Bedrock	4.4	4.3	0.83	0.78	0.050	26	-3.0	-0.12
	17-Oct-18	Weathered Bedrock	3.7	3.7	1.3	1.3	0.040	41	-13	-0.32
DTIP area	18-May-18	Fresh Bedrock	3.6	3.4	1.5	0.85	0.60	45	-9.3	-0.21
	18-May-18	Weathered Bedrock	8.3	8.3	1.8	0.090	1.7	55	7.0	0.13
	4-Jun-18	n/a	4.6	5.2	2.2	0.46	1.8	69	-10	-0.14
	27-Aug-18	Weathered Bedrock	3.9	6.5	0.66	0.45	0.080	21	-4.3	-0.21
DTOP area	18-Oct-18	Weathered Bedrock	6.9	7.0	1.7	0.23	1.1	52	13	0.25

Notes:
[a]Sulphide S measured as HNO_3 extractable S for all samples except for those collected in June 2018
[b]NPR is calculated as Mod. NP / TAP
SAP – Sulphide Acid Potential, TAP – Total S Acid Potential, Mod. NP – Modified Neutralization Potential, NPR – Net Potential Ratio
Grey shading indicates an NPR < 2.0

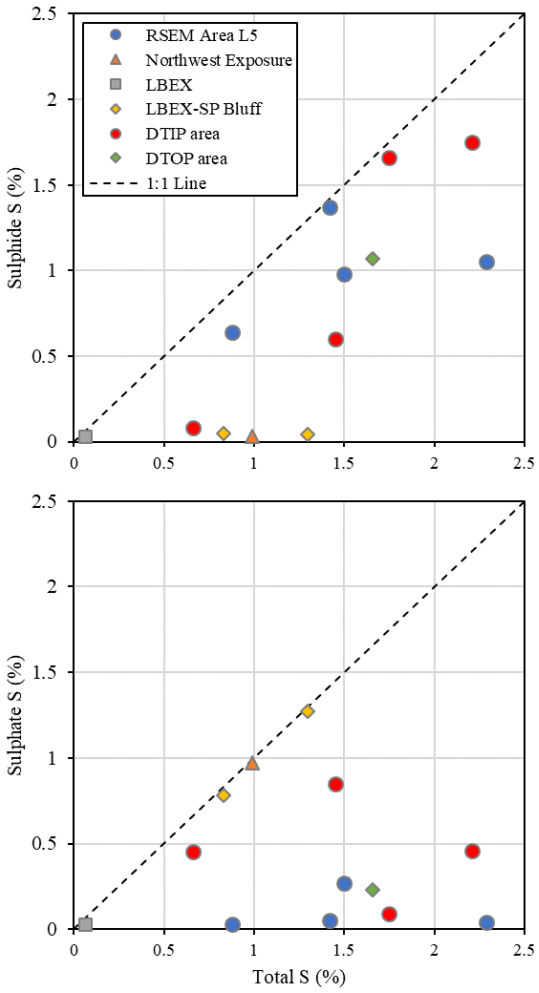


Figure 2.4-4: Sulphur species *versus* Total Sulphur for Left Bank 2018 samples

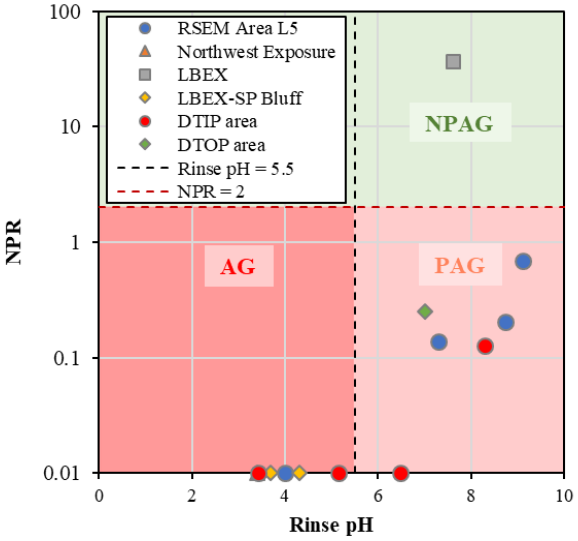


Figure 2.4-5: NPR *versus* Rinse pH for Left Bank 2018 samples

Note: for illustration purposes, all samples with a negative NP are set to an NPR of 0.01 in this plot. NPAG: NPR > 2; PAG: NPR ≤ 2; AG: NPR ≤ 2 and rinse pH < 5.5.

Table 2.4-4:
Summary of Left Bank 2018 Metals Results

Parameter	Units	RSEM Area L5 (n = 4)		Northwest Exposure	LBEX	LBEX-SP Bluff		DTIP area (n = 4)		DTOP area
		Median	Max	(n = 1)	(n = 1)	(n = 2)		Median	Max	(n = 1)
Ag	ppb	401	512	240	334	410	350	416	449	520
Al	%	0.83	0.94	0.60	1.8	0.63	0.87	0.73	0.91	1.1
As	ppm	13	19	14	8.3	16	12	18	25	12
B	ppm	*<20*	*<20*	*<20*	*<20*	20	20	*<20*	*<20*	20
Ba	ppm	242	303	435	375	340	210	260	454	110
Bi	ppm	0.30	0.31	0.35	0.38	0.24	0.23	0.31	0.32	0.30
Ca	%	0.39	0.76	0.26	3.0	0.34	0.41	0.37	0.58	0.90
Cd	ppm	0.54	0.91	0.72	0.89	0.070	0.45	0.70	0.75	0.86
Co	ppm	10	11	5.5	16	1.4	5.9	7.1	11	10
Cr	ppm	17	22	16	36	11	13	17	20	16
Cu	ppm	35	37	28	49	20	27	38	46	39
Fe	%	2.0	3.0	2.3	3.5	2.2	1.9	2.6	2.7	2.2
Ga	ppm	2.3	2.7	2.5	5.3	2.3	2.5	2.5	2.8	3.0
Hg	ppb	82	90	63	70	0.080	0.080	84	89	0.11
K	%	0.24	0.29	0.23	0.25	0.30	0.29	0.26	0.30	0.32
La	ppm	4.5	4.6	3.6	16	3.9	4.0	4.5	5.8	5.2
Mg	%	0.26	0.28	0.10	1.3	0.070	0.17	0.18	0.29	0.35
Mn	ppm	83	92	94	638	17	50	79	128	84
Mo	ppm	3.1	7.5	5.5	1.6	7.9	4.1	4.1	15	3.9
Na	%	0.20	0.24	0.11	0.017	0.12	0.16	0.10	0.19	0.12
Ni	ppm	36	40	15	50	3.6	19	23	36	35
P	%	0.064	0.074	0.046	0.082	0.066	0.063	0.072	0.092	0.079
Pb	ppm	16	25	16	20	14	13	17	17	16
Sb	ppm	0.24	0.45	0.22	0.66	0.28	0.19	0.16	0.30	0.33
Sc	ppm	4.2	4.6	3.7	6.1	2.5	3.5	4.4	4.9	4.8
Se	ppm	1.4	1.9	1.2	0.50	2.3	1.5	2.2	3.0	2.5
Sr	ppm	59	62	61	105	45	56	59	72	75
Th	ppm	6.1	6.6	6.3	9.0	5.2	5.1	6.5	7.1	6.8
Ti	%	0.0010	0.0050	0.0010	0.026	*<0.005*	*<0.005*	0.0010	0.0020	*<0.005*
Tl	ppm	0.13	0.16	0.21	0.20	0.24	0.19	0.21	0.25	0.15
U	ppm	1.2	1.9	2.0	1.4	0.78	1.03	1.7	2.3	1.3
V	ppm	26	27	20	55	31	30	27	29	35
W	ppm	*<0.05*	0.060	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*	*<0.05*
Zn	ppm	133	167	81	153	49	111	99	151	152

Notes:
Median and maximum values are shown for areas where four samples were collected
Values shaded in light grey exceed 3x the ACA
Values shaded in dark grey exceed 10x the ACA

2.4.2.2 Right Bank

A summary of the geochemical results for the Right Bank in 2018 are presented in Table 2.4-5 for samples from RSEM Area R5A, the Approach Channel, the RCC area, the RBDT, the SBIAR, and Area A. The paste pH values for RSEM Area R5A samples are variable and range from pH 3.0 to 9.0; however, the median is neutral (7.5). The Approach Channel samples have consistently acidic pH (2.5 to 5.8), while the RCC area and the RBDT samples have slightly basic paste pH values (8.0 to 9.9). The paste pH of the sample from the SBIAR is acidic (pH 3.9) and that of the Area A sample is circumneutral (pH 6.8). The rinse pH and paste pH values are generally similar; however, some of the samples have a rinse pH value that is over a pH unit lower than the corresponding paste pH value.

Total S is above 1.0% in all samples from the Approach Channel (1.0 to 2.3%) and the sample from Area A (2.0%). RSEM Area R5A samples have variable total S (0.43% to 1.2%). Samples from all other areas have lower total S (<1.0%). The sulphur balance is made up of variable proportions of sulphate S and sulphide S (Figure 2.4-6). The majority of samples are dominantly sulphide S. However, sulphate S is relatively high in several of the Approach Channel samples and four of the samples from RSEM Area R5A. The sulphate S is likely related to the presence of an acidic sulphate precipitate. A sample of the precipitate was collected in May 2018 (see discussion below).

To understand the relationship between PAG and currently acidic (AG) materials, rinse pH values are plotted against NPR (Figure 2.4-7). This plot illustrates that all of the samples collected on the Right Bank in 2018 are PAG (14 samples) or AG (13 samples). The number of AG samples is expected to increase with continued exposure given the relatively low modified NP measured in the majority of the samples.

Table 2.4-5:
Summary of 2018 ABA Results for the Right Bank Samples

Sample Location	Date Sampled	Material Type	Paste pH	Rinse pH	Total S	Sulphate S	Sulphide S	TAP	Mod. NP	NPR
			pH units	pH units	wt%	wt%	wt%	kg $CaCO_3$/t	kg $CaCO_3$/t	n/a
RSEM Area R5A	15-May-18	Weathered Bedrock	7.6	5.1	0.85	0.11	0.35	27	11	0.41
	16-May-18	Fresh Bedrock	8.4	9.5	1.1	0.050	0.46	33	9.0	0.27
	16-May-18	Weathered Bedrock	8.8	8.6	0.43	0.030	0.20	13	9.3	0.69
	26-Jun-18	Weathered Bedrock	3.0	2.5	1.2	0.62	0.62	39	-11	-0.28
	26-Jun-18	Weathered Bedrock	7.7	6.4	0.84	0.070	0.77	26	9.8	0.37
	26-Jun-18	Weathered Bedrock	7.5	6.3	0.88	0.12	0.76	28	7.8	0.28
	26-Jun-18	Weathered Bedrock	3.2	2.6	1.2	0.75	0.40	36	-12	-0.32
	26-Jun-18	Weathered Bedrock	3.2	2.6	1.1	0.55	0.54	34	-8.3	-0.24
	28-Aug-18	Weathered Bedrock	3.5	3.3	0.86	0.73	0.030	27	-6.0	-0.22
	28-Aug-18	Fresh Bedrock	8.8	9.4	0.80	0.020	0.53	25	8.8	0.35
	28-Aug-18	Weathered Bedrock	5.5	5.4	1.0	0.080	0.68	32	3.8	0.12
	17-Oct-18	Fresh Bedrock	9.0	9.0	0.63	0.020	0.52	20	6.0	0.30
Approach Channel	16-May-18	Weathered Bedrock	3.0	2.9	1.9	0.90	0.45	58	-6.8	-0.12
	26-Jun-18	Weathered Bedrock	5.8	4.0	1.3	0.26	1.1	42	2.5	0.060
	28-Aug-18	Weathered Bedrock	2.5	2.5	1.5	0.82	0.35	47	-14	-0.29
	16-Oct-18	Weathered Bedrock	4.4	4.4	1.0	0.43	0.45	33	-2.0	-0.062
	16-Oct-18	Weathered Bedrock	3.7	3.7	1.1	0.87	0.080	34	-8.0	-0.23
	16-Oct-18	Weathered Bedrock	3.6	3.6	2.3	1.7	0.35	71	-16	-0.23
RCC Excavation	15-May-18	Fresh Bedrock	8.6	7.3	0.62	0.070	0.27	19	5.3	0.27
	27-Aug-18	Fresh Bedrock	8.7	9.3	0.50	0.020	0.37	16	11	0.67
	17-Oct-18	Weathered Bedrock	9.3	9.3	0.34	0.010	0.29	11	7.0	0.66
	17-Oct-18	Fresh Bedrock	9.0	9.2	0.58	0.010	0.51	18	7.0	0.39
	17-Oct-18	Weathered Bedrock	8.0	7.8	0.95	0.070	0.72	30	12	0.40
RBDT	14-Mar-18	Drill cuttings	9.7	10	0.34	0.010	0.33	11	8.0	0.75
	25-Jun-18	Drill cuttings	9.9	11	0.47	0.010	0.46	15	11	0.71
	19-Dec-18	Drill cuttings	Results Pending							
SBIAR	16-May-18	Fresh Bedrock	3.9	4.1	0.82	0.16	0.31	26	-0.50	-0.020
Area A	11-Oct-18	n/a	6.8	6.6	2.0	0.13	1.5	62	6.0	0.10
Precipitate sample										
Approach Channel	16-May-18	Precipitate	2.0	-	11	10	0.27	337	-128	-0.38

Notes:
[a]Sulphide S measured as HNO_3 extractable S for all samples except for those collected in March and June 2018
[b]NPR is calculated as Mod. NP / TAP
SAP – Sulphide Acid Potential, TAP – Total S Acid Potential, Mod. NP – Modified Neutralization Potential, NPR – Net Potential Ratio
Grey shading indicates an NPR < 2.0

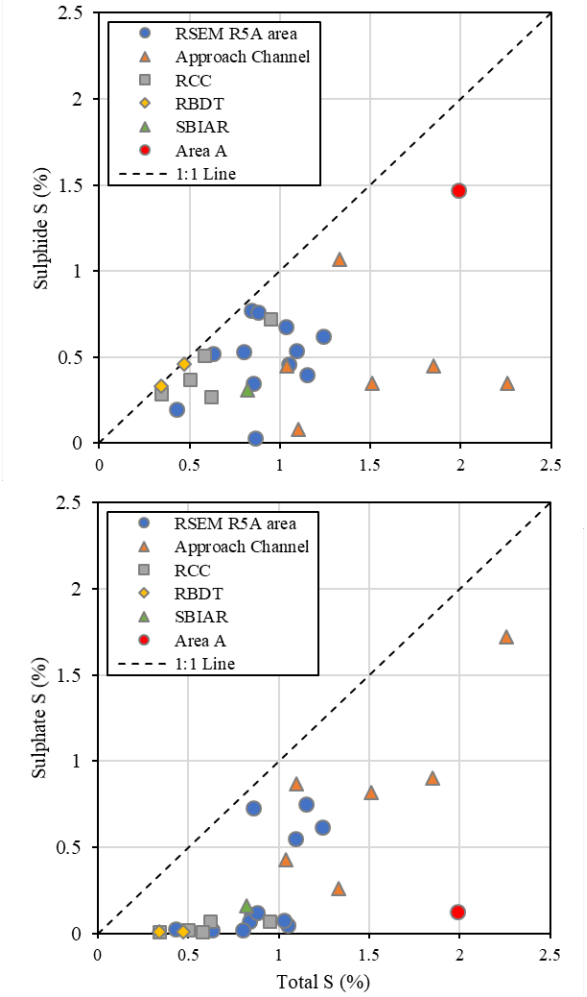


Figure 2.4-6: Sulphur species *versus* Total Sulphur for Right Bank 2018 samples

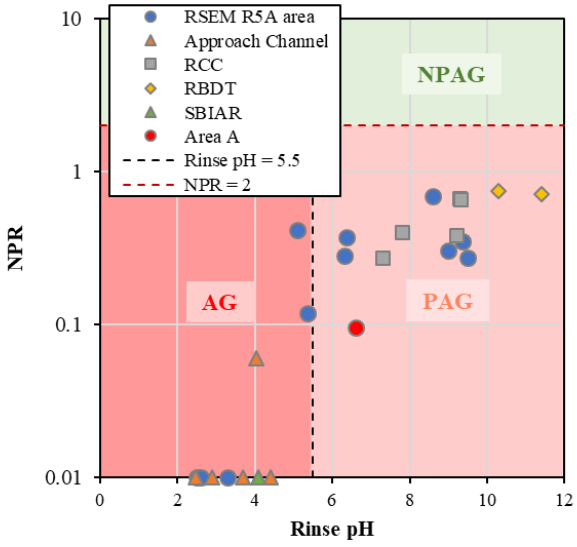


Figure 2.4-7: NPR *versus* Rinse pH for Right Bank 2018 samples

Note: for illustration purposes, all samples with a negative NP are set to an NPR of 0.01 in this plot. NPAG: NPR > 2; PAG: NPR ≤ 2; AG: NPR ≤ 2 and rinse pH < 5.5.

With respect to metal and metalloid contents:

- Ag and Se exceeded 3x the ACA in all 2018 samples from the Right Bank (Table 2.4-6). The Se contents were often found to be at least 10x the ACA in samples from the Approach Channel, RSEM Area R5A, and Area A. One sample from the RBDT also has Ag above 10x the ACA.
- Other elements above 3x the ACA include As, Cd, and Mo. The As value is above 3x the ACA in one sample from the Approach Channel, one from RSEM Area R5A and one from Area A. Several samples are above 3x the ACA value for Cd. The Mo value is above 3x the ACA in samples from the Approach Channel (4 of 5 samples), RSEM Area R5A (3 of 12 samples) and the sample from Area A. The Mo content in one of the RSEM Area R5A samples is also above 10x the ACA.

As stated in the discussion on the Left Bank samples, metal leaching is dependent on a number of factors and metal enrichment does not necessarily imply the potential for metal leaching. The concentrations of these parameters are monitored in the water quality program in order to detect any influence of the disturbed material on drainage water quality.

Amorphous, secondary yellow and white sulphate salts commonly form at the AG rock surfaces across the construction site during dry periods (Figure 2.4-8). These precipitates are especially common in the Approach Channel area where certain benches have been generating ARD for over a year. During rainfall events, these phases are rinsed from the bedrock surfaces, contributing to the acid and metal release in these construction sites.

To understand the chemistry of these secondary precipitates and their impact on contact water quality, a sample was scraped of the surface in of one of the exposed benches in the Approach Channel and submitted for geochemical testing including solid-phase ABA and metals analysis as well as a short-term leach test (shake flask extraction = SFE).

Table 2.4-6:
Summary of Right Bank 2018 Metals Results

Parameter	Units	Approach Channel (n = 6)		RSEM Area R5A (n = 12)		RBDT		RCC (n = 5)		SBIAR	Area A
		Med.	Max	Med.	Max	(n = 3*)		Med.	Max	n = 1	n = 1
Ag	ppb	433	488	357	473	262	8180	280	350	341	410
Al	%	0.92	1.2	0.82	1.2	1.2	1.0	0.90	1.1	0.74	0.97
As	ppm	14	15	12	22	11	7.8	8.2	13	11	15
B	ppm	*<20*	*<20*	*<20*	*<20*	ND	ND	*<20*	*<20*	*<20*	10
Ba	ppm	190	299	400	580	674	476	420	570	397	100
Bi	ppm	0.29	0.34	0.29	0.34	0.38	0.25	0.23	0.26	0.32	0.28
Ca	%	0.38	0.50	0.34	0.64	0.30	0.38	0.37	0.64	0.24	0.55
Cd	ppm	0.55	0.90	0.33	0.43	0.35	0.33	0.26	0.28	0.17	0.75
Co	ppm	7.6	13	8.9	13	14	9.6	8.5	10	4.8	8.7
Cr	ppm	14	26	19	29	21	84	16	27	18	14
Cu	ppm	31	40	29	35	35	32	25	29	23	36
Fe	%	2.2	2.4	1.9	2.3	2.4	1.6	1.6	2.3	1.6	2.1
Ga	ppm	2.6	2.8	2.5	3.4	3.4	3.0	2.5	3.2	2.2	2.7
Hg	ppb	43	91	83	107	55	57	0.090	50	75	0.090
K	%	0.29	0.33	0.27	0.34	0.30	0.27	0.24	0.29	0.24	0.28
La	ppm	4.3	4.5	4.3	5.5	5.4	4.1	5.2	5.5	3.6	4.5
Mg	%	0.27	0.40	0.24	0.31	0.34	0.27	0.23	0.30	0.21	0.26
Mn	ppm	75	130	87	154	386	133	135	279	48	91
Mo	ppm	3.7	4.0	1.3	14	0.44	0.74	0.60	1.2	1.2	4.6
Na	%	0.17	0.39	0.086	0.30	0.35	0.27	0.18	0.27	0.049	0.010
Ni	ppm	27	46	25	39	31	26	23	25	18	32
P	%	0.063	0.098	0.071	0.097	0.087	0.059	0.083	0.093	0.059	0.068
Pb	ppm	16	18	16	29	19	13	12	12	16	15
Sb	ppm	0.18	0.27	0.17	0.27	0.20	0.20	0.19	0.27	0.10	0.36
Sc	ppm	4.0	5.4	4.1	5.0	4.9	4.3	4.1	4.9	3.5	4.6
Se	ppm	1.6	1.7	1.0	2.3	0.90	0.80	1.1	1.5	0.60	1.6
Sr	ppm	64	82	59	74	86	65	60	71	57	32
Th	ppm	6.4	6.5	6.7	7.5	7.8	5.7	6.4	6.7	7.3	5.6
Ti	%	0.0030	*<0.0050*	0.0010	0.0050	0.0020	0.0010	*<0.0050*	*<0.0050*	0.0010	*<0.0050*
Tl	ppm	0.13	0.13	0.090	0.31	0.10	0.070	0.060	0.090	0.080	0.10
U	ppm	1.0	1.7	1.2	1.6	1.3	1.1	1.3	1.5	0.90	1.1
V	ppm	28	35	26	31	25	24	27	30	21	30
W	ppm	*<0.050*	*<0.050*	*<0.050*	*<0.050*	ND	ND	*<0.050*	*<0.050*	*<0.050*	*<0.050*
Zn	ppm	115	193	112	155	140	122	94	118	69	140

Notes:
Results from 3rd sample from RBDT are pending and will be reported in 2019.
Median (Med.) and maximum values are shown for areas where four or more samples were collected
Values shaded in light grey exceed 3x the ACA
Values shaded in dark grey exceed 10x the ACA



Figure 2.4-8: Secondary sulphate salt precipitate

The collected sample is made up of 11% total sulphur and 10% sulphate sulphur (Appendix 2-B, Table 2) indicating that the precipitate represents a secondary sulphate phase. The paste pH of 1.99 and the strongly negative modified NP further identify this sample as an acidic sulphate salt that precipitated out of an acidic solution caused by sulphide oxidation in the PAG bedrock. Table 2.4-7 provides an overview of the solid phase metal and the SFE results for selected species. The full results are provided in Appendix 2-B, Tables 3 and 4.

These results give more insight into the nature of the secondary precipitate and its leaching capacity. The major elemental composition of the studied phase is dominated by sulphate, Na, and Fe with lesser Mg, Al, and Ca suggesting an amorphous sulphate salt. The data also reveals significant minor and trace elemental uptake into the solid-phase structure with relatively high abundances of Zn, Ni, and Se. Concentrations in the SFE eluate demonstrate that some species are highly mobile upon contact of the secondary precipitate with water. As an example, for As, Cd, Cr, Co, Cu, and Zn, more than 50% of the elemental mass contained in the solid phase becomes solubilized during the SFE test which utilizes a 3:1 water/rock ratio (250 g solid and 750 mL of water). This shows that heavy rainfall events are capable of mobilizing significant chemical loads during the flushing of PAG exposures dissolving these secondary precipitates after dry periods.

Table 2.4-7:
Metals and SFE Results for the Secondary Precipitate Sample

	Solid-Phase Metals	SFE
Unit	*% or ppm*	*mg/kg*
Al	***0.86***	2,964
Sb	0.15	<0.00006
As	33	12.3
Ba	17	0.33
Cd	7.6	4.2
Ca	***0.51***	1,308
Cr	11	2.4
Co	101	60
Cu	167	69
Fe	***4.6***	10,140
Pb	7.6	0.276
Mg	***2.4***	15,780
Mn	701	423
Mo	3.2	0.57
Ni	352	216
K	***0.15***	114
Se	4.6	1.35
Si	-	<0.3
Na	***>5.0***	23,430
Sr	103	29.7
S	***>10***	50,100
U	8.9	3.9
V	20	2.97
Zn	1,560	1,032

Note:
Bold italic underlined values indicate the units are %. Values for all other solid-phase metals are ppm.

In order to manage the ARD produced from the Approach Channel surfaces, excavation of the weathered bedrock on the surfaces was initiated in Q4 2018. Lorax conducted an ARD sampling excursion in October 2018 which included digging seven test pits within the Approach Channel Excavation to determine the depth of acidic rock (Figure 2.4-9); Lorax, 2018d). The test pit results indicate that the weathered surface layer is strongly AG and its depth varies from 0.15 m to >3 m (Table 2.4-8). In this layer, the majority of the total S is in the form of sulphate S and all NP has been depleted (modified NP < 0 kg $CaCO_3$/t; Appendix 2-B, Table 2). The transition layer is 0.15 m to 0.60 m thick and has not become fully AG although it often has a rinse pH < 7.0. Conversely, the unweathered bedrock is consistently pH neutral. This unweathered bedrock layer contains the majority of total S in the form of sulphide S and contains approximately 10 kg $CaCO_3$/t of NP. This trend is consistent with the oxidation and transformation of sulphide minerals to sulphate minerals and the dissolution of carbonate NP by the acid produced by the oxidation process during weathering of the surface layer.



Legend

- Approach Channel East – Not excavated Oct 16
- Approach Channel East -Excavated by November 7 per comms. PRHP
- Approach Channel Wast – Excavated Oct 16
- Rinse pH >7
- Rinse pH 5.5 - 7
- Rinse pH <5.5

DATE SAVED:	Mar 06, 2019
DRAWN BY:	AL
REVIEWED:	BM
VERSION:	1

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

0 50 100
Meters

CLIENT: PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:
Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE: Test Pit Locations and Approach Channel Excavation (October/November 2018)

PROJECT #: A416-1 FIGURE: 2.4-9

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The solid phase metal contents are consistent between the different layers. All samples were above 3x the ACA for Ag and 10x the ACA for Se (Appendix 2-B, Table 3). In addition, nine of ten samples are above 3x the ACA for Cd and three samples are above 3x the ACA for Mo. Approximately 75% of the Approach Channel had been excavated to unweathered bedrock by the end of 2018 (Figure 2.4-9). Sampling of the Approach Channel benches in 2019 is recommended to monitor the rinse pH of the surface material. When the rinse pH shows slightly acidic values, further excavation of the Approach Channel surfaces will be recommended for ARD management in this area.

Table 2.4-8:
Approach Channel Test Pit Sample Intervals and Rinse pH Test Results

Sample ID	Material	Interval (cm)	Rinse pH
TP 1	weathered	0 - 40	4.4
	transitional	40 - 70	6.6
	bedrock	70 - 110	8.2
TP 2	weathered	0 - 20	3.7
	transitional	20 - 50	6.0
	bedrock	50 - 120	8.3
TP 3	weathered	0 - 50	-
	transitional	50 -110	-
	bedrock	> 110	-
TP 4	weathered	0 - 10	3.6
	weathered	10 - 30	4.6
	transitional	30 - 55	8.8
	bedrock	55 - 70	8.9
TP 5	weathered	0 - 15	-
	transitional	15 - 30	-
	bedrock	30 - 65	-
TP 6	weathered	> 240	-
TP 7	weathered	> 300	-

Note: Samples collected from the weathered surface layer were included in the discussion of rinse pH (Section 2.4.1.1).

2.4.2.3 West Pine Quarry

The West Pine Quarry samples have slightly basic paste pH values (range: 8.1 to 9.1; Table 2.4-9). The total S content in these samples is relatively low (range: 0.050 to 1.0 wt.%) which is dominantly sulphide S based on the low sulphate S content in these samples (≤0.12 wt. %). The sulphide S for these samples was not determined experimentally and is based on the difference between total S and sulphate S, except for two of the samples collected in October 2018 which were sent to ALS. The sulphide S for these samples was determined by LECO analyzer following a Na_2CO_3 leach. The AP

calculated using sulphide S varies from 0.90 to 31 kg $CaCO_3$/t. Since these samples have sufficiently high modified NP (600 to 855 kg $CaCO_3$/t) any acid generated will be buffered. The 2018 West Pine Quarry samples are all classified as NPAG based on the high NPR (>20; Figure 2.4-10).

Table 2.4-9:
Summary of 2018 West Pine Quarry ABA Results

Parameter	Units	Min	Median	Max
Paste pH	pH Units	8.1	8.3	9.1
Rinse pH (on <2mm)	pH Units	6.4	8.7	9.1
Total S	wt%	0.050	0.29	1.0
Sulphate S	wt%	0.010	0.030	0.12
Sulphide S	wt%	0.030	0.25	0.98
AP	kg $CaCO_3$/t	0.90	7.8	31
Mod. NP	kg $CaCO_3$/t	600	665	855
NPR	n/a	21	101	888

Notes:
This summary includes the results for 21 samples. Results are pending for two additional samples.
Sulphide S = Total S – Sulphate S for all except two samples (the sulphide S for these samples were measured by LECO analyzer following a Na_2CO_3 leach
AP = Acid Generation Potential = 31.25 x Sulphide S
NP = Neutralization Potential
NPR = Net Potential Ratio = Modified ABA NP / Acid Generation Potential

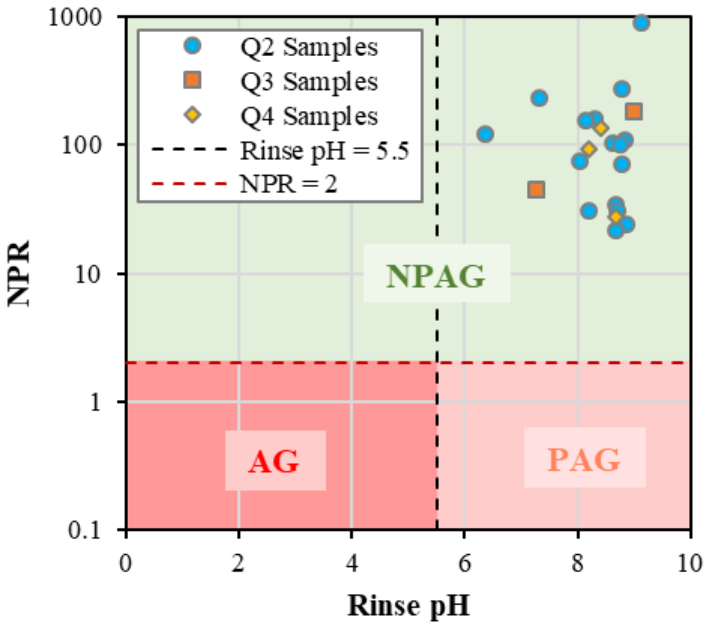


Figure 2.4-10: NPR *versus* rinse pH in the various sample populations from the West Pine Quarry. NPAG: NPR > 2; PAG: NPR ≤ 2; AG: NPR ≤ 2 and rinse pH < 5.5.

Although the West Pine Quarry rock is NPAG, the potential for leaching of elevated metals and metalloids was evaluated by examining the solid-phase metal content. When compared to the ACA, the median Ca and Se contents of these limestone samples exceed 3x the ACA (Table 2.4-10). The maximum values in the dataset exceed 10x the ACA for Ca, Cd, and Se values and 3x the ACA for Ag, Mg, and Sr values. Elevated Ca, Mg, and Sr concentrations are expected in limestones and are not parameters of concern for leaching. Se, Ag, and Cd are potential elements of concern in leachate from the quarry and are included in the water quality monitoring program for the Pine River.

Table 2.4-10:
2018 West Pine Quarry Solid Phase Metal Results

Parameter	Units	Min	Median	Max
Ag	ppb	40	72	247
Al	%	0.070	0.17	0.29
As	ppm	0.50	1.8	6.2
B	ppm	10	<20	<20
Ba	ppm	20	95	406
Bi	ppm	<0.002	0.040	0.060
Ca	%	23	25	34
Cd	ppm	0.090	0.26	1.7
Co	ppm	0.60	1.4	3.9
Cr	ppm	6.0	12	47
Cu	ppm	1.8	3.9	41
Fe	%	0.12	0.42	1.1
Ga	ppm	0.20	0.40	0.70
Hg	ppb	<5.0	11	24
K	%	0.040	0.10	0.17
La	ppm	3.0	4.1	6.6
Mg	%	0.31	0.76	4.7
Mn	ppm	33	69	139
Mo	ppm	0.39	0.98	3.3
Na	%	0.0070	0.010	0.026
Ni	ppm	3.2	11	20
P	%	0.010	0.017	0.031
Pb	ppm	0.98	2.7	6.6
Sb	ppm	0.040	0.12	0.26
Sc	ppm	0.60	1.6	3.2
Se	ppm	0.20	0.40	1.0
Sr	ppm	130	342	>2000
Th	ppm	0.40	1.0	1.9
Ti	%	<0.001	<0.001	<0.005
Tl	ppm	<0.02	<0.02	0.080
U	ppm	0.40	0.70	2.2
V	ppm	5.0	8.0	15
W	ppm	<0.05	0.095	0.50
Zn	ppm	10	24	154

Notes:
This summary includes the results for 21 samples. Results are pending for two additional samples.
Values shaded in light grey exceed 3x the ACA.
Values shaded in dark grey exceed 10x the ACA.

3. Surface Water Quality Monitoring

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3. Surface Water Quality Monitoring

3.1 Purpose and Objectives

The purpose of the surface water quality monitoring program is to meet PRHP's water quality monitoring requirements for PAG-contact water, which are stated in the BC Hydro and PRHP ARD/ML Management Plans. The specific objectives of the program are:

- To verify water quality predictions;
- To assess water quality within the construction site, including RSEM ponds and upgradient areas that affect them;
- To guide water management and verify the effectiveness of sediment pond operation; and
- To analyze water quality in RSEM PAG-contact sediment ponds that discharge to the Peace River, so as to assess compliance with end-of-pipe discharge limits.

3.2 Monitoring Program and Results

Monitoring and compliance requirements are set out in Sections 7.2, 7.3 and 7.4.2 of the BC Hydro ARD/ML Management Plan. This report addresses the requirements noted in Section 7.2.2 (RSEM end of pipe water quality), 7.3.2 (PAG containing RSEM material and contact water monitoring) and 7.4.2 (Exceedance Response Plan).

Other requirements are addressed separately. These include requirements related to toxicity (Sections 7.2.1 and 7.3.1), Peace River water quality downstream of each RSEM (7.2.3), groundwater below PAG contact RSEMs (7.2.5 and 7.3.3), and Peace River water quality monitoring (7.3.4). These requirements are addressed by others, with the exception of groundwater. The requirements of Section 7.2.4 related to PAG contact RSEM sediment have not yet been triggered, as PRHP has not removed sediment from any PAG contact sediment pond.

The aspects of the monitoring program that are addressed in this report are:

- Hourly collection of *in situ* measurements of pH, turbidity and electrical conductivity in each PAG-contact sediment pond;
- Current turbidity and TSS relationships for PAG containing RSEM ponds;
- Daily monitoring of water quality in each PAG containing RSEM (when there is sufficient water in the pond and/or when not frozen); and

- Continuous monitoring of discharge flow from each RSEM sediment pond discharge pipe.

This report also addresses some field water quality monitoring in PAG-contact areas and in RSEM ponds, using hand-held instruments to obtain real time data. These data were used to inform water management. However, field turbidity readings are not consistent with laboratory results. This is likely due to environmental variability (spatial and temporal variability within the body of water in which measurements are taken and samples obtained) or instrument accuracy at low turbidity levels.

The network of monitoring stations has been adapted as site conditions change. Some stations that were established early in the construction phase are no longer in use. Some new stations have been added. The network of monitoring stations where samples were obtained in 2018 is discussed in Section 3.2.1 (Left Bank) and Section 3.2.2 (Right Bank).

Field measurements and laboratory sample results are described by station. Laboratory analyses included general water chemistry and total and dissolved metals. All analyses were completed by Maxxam Analytics at their laboratory in Burnaby, B.C., which is certified by the Canadian Association for Laboratory Accreditation (CALA).

Results from PAG-containing RSEM sediment ponds have been compared against the End-of-Pipe (EOP) discharge limits specified in BC Hydro's ARD/ML Management Plan (in the CEMP, Appendix E Rev. 5.2, Section 7, Table 2, page 23). The information from this table is reproduced as Table 3.2-1 for reference.

Table 3.2-1:
End-of-Pipe Discharge Limits for PAG-containing RSEM Sediment Ponds

Parameter	Units	End-of-Pipe Discharge Limit
TSS	mg/L	BC Water Quality Guidelines[1]
pH	pH units	6.0 – 9.0
Cadmium	mg/L	0.00029
Cobalt		0.55
Copper		0.011
Zinc		0.033

1. Approved British Columbia Water Quality Guidelines for the Protection of Aquatic Life (2017)

Analytical results of samples from other construction areas are compared against the applicable limits shown in the CEMP Rev. 4, Section 4.14 (Surface Water Quality Management), Table 3 (page 62). The information from this table is reproduced in Table 3.2-2 for reference.

Table 3.2-2:
Limits for Construction Areas
Not Specified in Environmental Requirements

Parameter	Maximum Allowable
Suspended solids	• Change from background[1] of 25 mg/L at any one time for a duration of 24 hours in all waters during clear flows or in clear waters • Change from background[1] of 5 mg/L at any one time for a duration of 30 days in all waters during clear flows or in clear waters • Change from background[1] of 10 mg/L at any time when background is 25-100 mg/L during high flows or in turbid waters • Change from background[1] of 10% when background is >100 mg/L at any time during high flows or in turbid waters
Turbidity	• Change from background[1] of 8 NTU at any one time for a duration of 24 hours in all waters during clear flows or in clear waters • Change from background[1] of 2 NTU at any one time for a duration of 30 days in all waters during clear flows or in clear waters • Change from background[1] of 5 NTU at any time when background is 8-50 NTU during high flows or in turbid waters • Change from background[1] of 10% when background is >50 NTU at any time during high flows or in turbid waters
Streambed Substrate Composition	• % fines not to exceed: 10% < 2 mm, 19% <3 mm, 28% < 6.35 mm at salmonid spawning sites • Geometric mean diameter not less than 12 mm (minimum 30-day intra-gravel dissolved oxygen of 6 mg/L) • Fredle number not less than 5 mm (minimum 30-day intra-gravel dissolved oxygen of 8 mg/L)
pH	• 6.5 – 9.0
Oil and Grease	• The surface water should be virtually free of petroleum, animal or vegetable oils

1. Background is the measured concentration for specified parameters in the Peace River

Any analytical results from samples of non-construction contact surface water are compared against approved B.C. water quality guidelines (BC WQGs) for the protection of aquatic life (BC MOE 2017), in accordance with Section 5.2.1.7 of BC Hydro's ARD/ML Management Plan. Water quality guideline values that are calculated as a function of pH, temperature, and/or hardness were derived using average values per station for 2018.

Water quality results are provided in:

- Appendix 3-A – 2018 Water Quality Analytical Results (tabulated); (including results for RSEM pond discharges);

- Appendix 3-B – 2018 Water Quality Field Data
- Appendix 3-C – 2018 Water Quality Field Blank Data.

In-situ field data is collected for the RSEM-R5B, RSEM-R6-EP, and RSEM-R6-WP sediment pond stations at approximately 15-minute intervals and includes temperature, specific conductance, pH, and turbidity. These results are available from PRHP on request.

3.2.1 Left Bank

Surface water quality monitoring stations on the Left Bank are listed in Table 3.2-3 below and the locations are shown on Figure 3.2-1. Some previously established stations were not sampled, and some new stations added in 2018 (Table 3.2-4). Temporary sumps in RSEM Area L5 (L5-TNCP and L5-TPSP) were decommissioned in Q3 and Q4 and runoff from RSEM Area L5 was re-directed to the new RSEM Area L5 East and West sediment ponds completed in Q4. Water quality samples were collected from each sediment pond.

New stations were added in the DTIP and DTOP areas. Temporary sumps were established in RSEM Area L6 area as construction of the permanent RSEM Area L6 sediment pond continued though Q4. The Main Cofferdam (LBEX-CC, LBCD-EOP) and Diversion Outlet Cofferdam (LBEX-DOCC, DOC-Out) were dewatered to Peace River throughout 2018 Q2 to Q4. The Diversion Inlet Cofferdam (LBEX-DICC, DIC-Out) was dewatered to Peace River Q2 and Q3, dewatering ceased in Q4 due to limited residual water during this period.

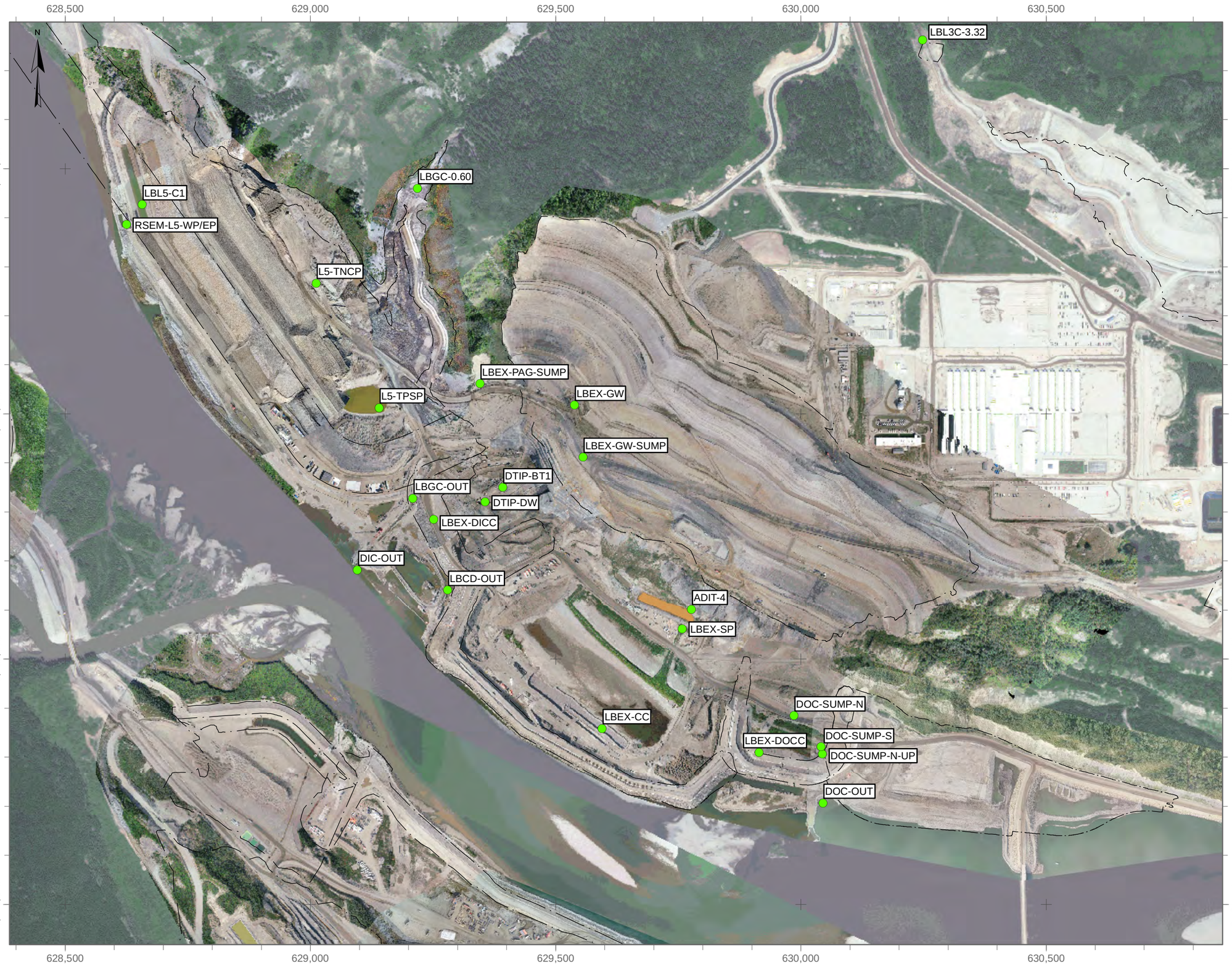
3.2.1.1 RSEM Area L5

The stations sampled in RSEM Area L5 include L5-TNCP, L5-TCSP, RSEM L5 EP and RSEM L5 WP. Garbage Creek had variable flows and was generally dry in Q3. Samples from the Garbage Creek sub-catchment are described further below.

Residual water behind the L5 starter dike Cell 1 (LBL5-C1) was monitored for PAG influence and was not discharged. The cell was infilled in April. Surface water runoff from both RSEM Area L5 and the LBEX Area was directed to temporary ponds (L5-TNCP and L5-TPSP) until they were decommissioned in 2018 Q3 and Q4 respectively. NPAG-contact water was conveyed to L5-TNCP, a temporary non-contact sediment pond, which remained open through July, and was then infilled. PAG-contact water was conveyed to L5-TPSP, a temporary PAG-contact sediment pond, in Q2. In Q4 the permanent RSEM L5 sediment ponds were completed and runoff from the RSEM Area L5 catchment was directed to these ponds. The RSEM L5 sediment ponds did not discharge in 2018.

Table 3.2-3:
Water Quality Monitoring Stations (Left Bank)

Station ID	Easting	Northing	Description
RSEM Area L5			
LBL5-C1	628657	6230927	Westernmost isolated "cell" (pond) in RSEM Area L5
L5-TNCP	629012	6230767	Temporary Non-PAG contact pond
L5-TPSP	629140	6230513	L5 Temporary PAG-contact Sediment Pond
RSEM-L5-EP/WP	628625	6230886	RSEM L5 sediment pond – end of pipe
RSEM L5 SUBCATCHMENT – GARBAGE CREEK			
LBGC-0.60	629218	6230960	Garbage Creek at sump above diversion
LBGC-OUT	629209	6230328	Garbage Creek diversion culvert outlet
LEFT BANK EXCAVATION (LBEX)			
LBEX-GW-SUMP	629556	6230412	LBEX Groundwater seepage in PAG area
LBEX-GW	629538	6230518	LBEX Groundwater seepage E of PAG area
ADIT-4	629777	6230102	Base of slope where Adit 4 water discharged
LBEX-SP	629758	6230062	LBEX sediment pond below natural PAG bluff
LEFT BANK DIVERSION COFFERDAMS			
DIVERSION INLET COFFERDAM			
LBEX-DICC	629251	6230285	LBEX Diversion Inlet Cofferdam Cell
DTIP-BT1	629392	6230350	Green tank at DTIP work area (drilling water)
DTIP-DW	629356	6230321	Dewatering well (groundwater infiltrating tunnels)
DIC-OUT	630045	6229707	Diversion Inlet Cofferdam discharge point
CENTRAL COFFERDAM			
LBEX-CC	629595	6229859	Left Bank Central Cofferdam Cell
LBCD-OUT	629280	6230141	Left Bank Central Cofferdam discharge point
DIVERSION OUTLET COFFERDAM			
LBEX-DOCC	629915	6229810	LBEX Diversion Outlet Cofferdam Cell
DOC-SUMP-N	629986	6229885	Sump in northern part of area behind DOC
DOC-SUMP-S	630041	6229821	Original sump in southern part of area behind DOC
DOC-SUMP-N-UP	630044	6229807	New sump in southern part of area behind DOC
DOC-OUT	630045	6229707	Diversion Outlet Cofferdam discharge point
RSEM Area L3 (NOT PAG CONTAINING)			
LBL3C-3.32	630248	6231262	L3 Creek at sump at upstream end of diversion



LEGEND

- Monitoring Location

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

1:7,500

0 200 400
Meters

DATE SAVED:	Feb 01, 2019
DRAWN BY:	AL
REVIEWED:	NM
VERSION:	1

CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE:

Left Bank Water
Quality Sampling Locations

PROJECT #: A416-1 *FIGURE:* 3.2-1

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Table 3.2-4:
Summary of Water Quality Monitoring (Left Bank) - 2018

Station ID	*In situ* Monitoring? (Y / N / P*))	Lab Analyses (No.)	Grab Sample Quarter (No.)
RSEM Area L5			
LBL5-C1	N	3	Q1 (2); Q2 (1)
L5-TNCP	N	72	Q2 (69); Q3 (3)
L5-TPSP	N	151	Q1 (5); Q2 (64); Q3 (77); Q4 (5)
RSEM-L5-EP/WP	P	9 / 6	Q4 (9 / 6)
RSEM L5 SUBCATCHMENT – GARBAGE CREEK			
LBGC-0.60	N	68	Q1 (1); Q2 (67)
LBGC-OUT	N	66	Q1 (1): Q2 (65)
LEFT BANK EXCAVATION (LBEX)			
LBEX-GW	N	2	Q1 (1); Q4 (1)
LBEX-GW-SUMP	N	5	Q1 (2); Q2 (3)
ADIT-4	N	12	Q3 (4); Q4 (8)
LBEX-SP	N	18	Q1 (3); Q2 (3); Q3 (3); Q4 (9)
LEFT BANK COFFERDAMS			
DIVERSION TUNNEL INLET COFFERDAM			
LBEX-DICC	N	5	Q1 (2); Q2 (3)
DTIP-BT1	N	5	Q3 (1); Q4 (4)
DTIP-DW	N	9	Q4 (9)
DIC-OUT	N	1	Q3 (1)
CENTRAL COFFERDAM			
LBEX-CC	N	8	Q1 (3); Q2 (3); Q3 (2)
LBCD-OUT	N	35	Q2 (1); Q4 (34)
DIVERSION TUNNEL OUTLET COFFERDAM			
LBEX-DOCC	N	8	Q1 (3); Q2 (3); Q3 (2)
DOC-SUMP-N-UP	N	1	Q4 (1)
DOC-SUMP-N	N	4	Q4 (4)
DOC-SUMP-S	N	6	Q4 (6)
DOC-OUT	N	2	Q3 (2); Q4(4)
RSEM Area L3 (NOT PAG CONTAINING)			
LBL3C-3.32	N	1	Q2 (1)

n/a Not Applicable
P Pending

LBL5-C1

The LBL5-C1 station monitored river water isolated behind the starter dike in L5 Cell 1. The cell was infilled in mid-April, with no surface discharge. The 2018 monitoring data indicated that the pH was circumneutral, conductivity and sulphate were low (below 1,100 µS/cm, and less than 390 mg/L, respectively), and metal concentrations remained low. The laboratory pH and conductivity results are in good agreement with the field measurements. The LBL5-C1 station has been obsolete since mid-April 2018.

L5-TNCP

Non-PAG contact waters from both RSEM Area L5 and the LBEX were conveyed to a temporary pond (L5-TNCP) at the base of the slope on the south side of the L5 area through July. In late 2018 Q2 heavy precipitation caused PAG influenced runoff to enter an isolated section of the L5-TNCP. Subsequent water quality in the isolated cell was acidic and increased to circumneutral through the month of July as water was gradually transported to the MWTF, and fresh surface runoff entered the isolated cell.

The pond water was consistently circumneutral. Field pH and conductivity measurements are generally consistent with the laboratory values. Sulphate ranged from 80 to 3,400 mg/L, with the elevated values associated with surface runoff isolated from the main pond during late Q2 and early Q3. Total metals were elevated in the PAG influenced surface runoff, however the pond water quality met short term BC WQG at all times.

L5-TPSP

A temporary PAG-contact sediment control pond was constructed in the eastern part of RSEM Area L5 in 2017. It received PAG-contact water that was pumped from the western benches of the LBEX and other nearby locations on the Left Bank where bedrock had been exposed. There was no surface discharge from the pond in 2018.

The pond was sampled approximately daily from late March through September, and approximately weekly from October until it was decommissioned in November 2018. A total of 153 samples were obtained. The pond water was consistently circum-neutral with pH ranging from 7.1 to 8.5. Sulphate ranged from 140 to 2,500 mg/L, with the elevated values associated with surface runoff during mid-Q2. The water quality generally met short term BC WQG at all times except during 2018 July when it was likely influenced by the water in the isolation cell.

No field measurements were recorded in Q1. The Q2 and Q3 field pH measurements are consistently higher than the laboratory measurements, occasionally by greater than 1 pH unit. The Q4 field and laboratory pH measurements were in good agreement. The field conductivity values were significantly lower than the laboratory conductivity values in

early April and late August to early September; however, outside of these periods the field and lab values are generally in agreement.

RSEM L5 WP/EP

The RSEM Area L5 sediment ponds were completed in early Q4 and to store water from the RSEM Area L5 catchment during this quarter. These ponds did not discharge in 2018. The RSEM L5 EP was sampled weekly November and December, while the RSEM L5 WP was sampled weekly October through December.

RSEM Area L5 sediment pond water quality was circum-neutral with low conductivity and sulphate. The field and laboratory pH and conductivity values are generally in good agreement, excluding the sample collected in early December where a field conductivity of 4,200 µS/cm was recorded in contrast to a laboratory value of 305 µS/cm. The ponds discharge pipes were equipped with flow meters; however, the ponds did not discharge in 2018 and water levels were low at the end of 2018 Q4.

3.2.1.2 Garbage Creek

Garbage Creek diversion runs between RSEM Area L5 and the LBEX area. The creek water has a natural ARD/ML signature from contact with PAG bedrock as it descends through a small valley to the Peace River. The creek is conveyed by a pipeline from the inlet culvert upgradient of RSEM Area L5 to the down gradient rip-rap channel that discharges to the Peace River. Garbage Creek had variable flows driven primarily by snow melt and rainfall. Samples from the Garbage Creek sub-catchment are described further below.

LBGC-0.60

Garbage Creek is routinely sampled where it flows into the construction site. It has been previously noted that it is typically somewhat acidic (pH of 5 to 7) in the spring months, due to a natural ARD/ML influence where the channel cuts into PAG bedrock as it descends into the Peace River valley. This influence was not observed at LBGC-0.60 in 2018.

The inlet to the Garbage Creek diversion channel was obstructed by erosion debris in late April. A large volume of very turbid water flowed into RSEM Area L5 and was sampled April 25 through May 12.

In 2018 TSS averaged 10,800 mg/L and peaked at 50,000 mg/L on April 27 during the upgradient erosion event. LBGC-0.60 was circumneutral (pH 7.9) from mid-March to late May, with conductivity averaging 1,000 µS/cm and peaking at 3,100 µS/cm on May 26. During this period D-SO_4 averaged 400 mg/L, however levels climbed from 100 to

1,800 mg/L by mid-May. Q1 samples had higher field readings for pH and conductivity in comparison to laboratory results. Field and laboratory pH and conductivity measurements were generally consistent in Q2. The increase in conductivity and sulphate through May likely reflect increasing PAG influence from the upgradient surface runoff during the monitoring period. Flow ceased in June.

LBGC-OUT

Garbage Creek flowed into RSEM Area L5 while the inlet to the diversion channel was obstructed, as noted above. The water that accumulated in RSEM Area L5 was pumped into the rip rap lined channel below the diversion, through which Garbage Creek normally reaches the Peace River.

Water quality was sampled just below the point where the water was discharged, just below the point where the diversion channel normally exits a culvert and flows into the low gradient lined channel that leads to the river. Samples were obtained daily late Q1 through mid Q2. The last sample was obtained on May 12.

LBGC-OUT was circum-neutral mid-March to mid-May with pH averaging 7.9. Sampling ceased mid-May. TSS averaged 6,900 mg/L and peaked at 32,000 mg/L on April 27 during the upgradient erosion of the stream channel. Conductivity increased from a low of 380 to 2,000 µS/cm by mid-May, averaging 830 µS/cm. During the sampling period D-SO_4 followed the same trend as conductivity increasing from 100 to 1,000 mg/L by mid-May, and averaging 320 mg/L. The increase in conductivity and sulphate through May likely reflect increasing PAG influence from the upgradient surface runoff during the monitoring period. The field and laboratory pH and conductivity values are in good agreement.

3.2.1.3 Left Bank Excavation

Surface water runoff from the LBEX includes both NPAG and PAG contact water. The majority of the LBEX is in overburden and does not expose bedrock. NPAG surface water runoff (from the eastern and upper benches) is collected and conveyed via a pipe that has been laid on the north side of the main haul road to the western half of RSEM Area L5, to the L5-TNCP pond. PAG-contact water from the lower western benches was conveyed to the L5-TPSP pond. Once the L5-TNCP pond was infilled in early August, both PAG and NPAG water was conveyed to L5-TPSP until November when the L5-TPSP was decommissioned and runoff from LBEX was contained in sumps on the LBEX benches that were dewatered by truck to the MWTF for treatment.

LBEX-GW

LBEX-GW was sampled twice in 2018 once early Q1 and once at the end of Q4. The pH was 8 in both samples. Conductivity was elevated, with the Q1 sample at 1,690 µS/cm and the Q4 sample at 1,990 µS/cm. Sulphate remained low at 248 and 457 mg/L. Total and dissolved metals were low, although TSS was elevated at 311 mg/L in the Q4 sample. Surplus water from LBEX-GW was directed to L5-TPSP for storage in Q1 to Q3, and the MWTF in Q4. No field readings were available for this station.

LBEX-GW-SUMP

LBEX-GW-SUMP was sampled in Q1 and Q2. The pH ranged from 8 to 8.3. Conductivity was elevated, ranging from 1,280 to 1,680 µS/cm. The laboratory and field pH measurements are generally consistent. The conductivity values show some variability and field values can be higher or lower than laboratory values by approximately 20%. Sulphate remained relatively stable, ranging from 240 to 320 mg/L. Total and dissolved metals were low and TSS peaked Q1 at 220 mg/L. Surplus water from LBEX-GW-SUMP was directed to L5-TPSP for storage in Q1 to Q3, and the MWTF in Q4.

3.2.1.4 Natural PAG Bluff at Base of LBEX and Adit 4

There is a natural PAG bluff at the base of the LBEX. It extends laterally over a distance of approximately 650 m and is up to approximately 70 m in height. Surface water runoff along the majority of the linear length of this bluff is conveyed to the LBEX-SP sediment pond.

Adit 4 was developed into the bluff as part of a geotechnical investigation undertaken several decades ago. The adit is located directly above the eastern end of the LBEX-SP. Groundwater began to discharge from Adit 4 in August and discharged intermittently through the remainder of Q3 and Q4. The flow or water may have resulted from grading and other earthworks that were undertaken on the lower benches of the LBEX, above the bluff. Adit 4 discharged to the LBEX-SP, and this pond was intermittently dewatered by truck to the MWTF for treatment due to the low pH and elevated metals observed during the spring and summer.

ADIT 4

Adit 4 discharge was sampled in Q3 and Q4. The pH was circumneutral, ranging from a minimum of 7.82 to a maximum of 10.0. The elevated pH is suspected to be from cement grout influence on drainage from Adit 4 during grouting operations. The pH was elevated from late November through mid-December. Conductivity was relatively high in all samples, ranging from 2,450 to 6,500 µS/cm. TSS was generally low (<50 mg/L) with an

elevated value (4,710 mg/L) observed August 26th. Field pH was generally higher than laboratory pH by up to 2 pH units. The field and laboratory conductivity values are in good agreement. Sulphate was elevated, potentially indicating an ARD/ML influence, ranging from 900 to 3,200 mg/L. Dissolved metal concentrations remained low in all samples.

LBEX-SP

Water in the LBEX-SP was acidic in 2018 Q1 through early Q3. The outlet of the pond was plugged to avoid discharge into water isolated behind the Diversion Outlet Cofferdam. Over 2018 the pH ranged from 4.2 to 9.0, with low pH values observed Q1 through early Q3. In mid-Q3 the pH increased to circum-neutral and by mid-Q4 pH peaked possibly due to influence from Adit 4 grout contact water. Conductivity was relatively high ranging from 560 to 5,100 µS/cm, however TSS remained consistently low ranging from 5 to 60 mg/L and averaging 19 mg/L for 2018. Sulphate was consistently elevated averaging 1,600 mg/L and ranging from an anomalous low of 250 to 2,100 mg/L. Total and dissolved metals including Cd, Cu and Zn were somewhat elevated Q1 through Q3, however levels dropped in Q4 and remained low throughout the quarter.

In Q1, both the field pH and conductivity values were higher than the laboratory readings by approximately 15 to 25%. Field measurements of pH and conductivity for the rest of the year were generally consistent with laboratory results, although in December 2018 an anomalously low field conductivity value of 518 µS/cm was measured (lab value: 4,840 µS/cm).

3.2.1.5 Left Bank Cofferdams

Three cofferdams have been constructed on the left bank between the RSEM Area L5 and RSEM Area L6 dikes. The cofferdam dikes were completed in 2017 and resulted in isolation of river water behind each. The three dikes are:

- The Diversion Inlet Cofferdam (DIC), which isolates the work area in which the river diversion inlet is being constructed;
- The Left Bank Cofferdam (LBCD), or Central Cofferdam (LBEX-CC) which isolates the area in which the dam will extend from the left bank into the river; and
- The Diversion Outlet Cofferdam (DOC), which isolates the area in which the diversion outlet is being constructed.

The full analytical results indicate that there was minimal ARD/ML influence in the cofferdam cells in 2018 (Table 3.2-5). However, in Q4 a sample was collected that contained the highest sulphate (1,280 mg/L in DOC-OUT, October 25th) but very low concentrations of total and dissolved Cd, Cu, and Zn.

Table 3.2-5:
Summary of Water Quality Monitoring in Left Bank Cofferdams
Samples Obtained in 2018

Station ID	*n*	pH	Specific Conductivity (µS/cm)	Sulphate (mg/L)
LBEX-DICC/ DIC-OUT	6	8.1 – 8.3	790 – 1,010	260 – 380
LBEX-CC / LBCD-OUT	22	7.7 – 8.3	230 – 1,020	50 - 360
LBEX-DOCC / DOC-OUT	14	7.9 – 8.3	670 – 2,700	200 – 1,280

The Q1 field pH measurements agree with the laboratory results, while the field conductivity values are consistently 10 to 20% higher than the lab readings. In Q2 and Q3, the field and laboratory results were generally in agreement, although for both parameters the laboratory values were consistently lower than the field measurements. In Q4, field and laboratory pH and conductivity measurements show good agreement with occasional differences of over 20%.

Diversion Tunnel Inlet Cofferdam

The Diversion Tunnel Inlet Portal (DTIP) was completed in Q3 and work was initiated on the tunnel itself. The Diversion Inlet Cofferdam (LBEX-DICC) residual water was pumped to Peace River in Q3. Near the end of dewatering a sump was established in the DIC area and water continued to be discharged from this sump to the Peace River (DIC-OUT). The dewatering crew monitored TSS during all discharges and ARD/ML water quality samples were collected monthly. A groundwater sump (DTIP-DW) and water supply baker tanks (DTIP-BT1) were placed near the portal in late Q3 when the tunnelling operation began to provide settling and storage for tunnelling water supply. Both locations were sampled monthly in Q3 and Q4.

LBEX-DICC and DIC-OUT

Residual water within the Diversion Tunnel Inlet Cofferdam. This water was pumped to the Peace River in Q3 and Q4 with high frequency TSS monitoring and monthly ARD/ML water quality monitoring. Although PAG influence is not expected in the residual water, nearby construction activity could influence water retained in the cofferdam. The water quality was always circum-neutral and met short term BC WQG.

DTIP-BT1

One of 5 baker tanks used to store water needed for tunnelling purposes. The tanks receive water recirculated from the underground or sourced from Peace River. Surplus water spills to DTIP-BT, and this tank was intermittently dewatered to the MWTF in Q4.

Water quality was generally good at this location. The pH was circum-neutral, conductivity and sulphate peak values were low (460 µS/cm and 80 mg/L, respectively) with T-Cu and T-Zn periodically elevated due to elevated TSS. Dissolved Cd, Cu and Zn were non-detect or at low concentrations.

DTIP-DW

A groundwater sump on the floor of the DTIP area. The sump is lined with Zn plated corrugated metal culvert approximately 5' in diameter, the depth is unknown. Sump was excavated in PAG bedrock, and groundwater inflows from PAG strata are expected in this sump. This sump was dewatered to the MWTF in 2018 Q4.

The water quality was poor in this sump. Conductivity ranged from 1,800 to 5,200 µS/cm. Sulphate was similarly elevated ranging from 930 to 3,600 mg/L. The pH ranged from 3.2 to 7.7. TSS was generally below 100 mg/L but spiked as high as 140 mg/L. Total Fe, Mn Cd and Zn were elevated indicating possible ARD influence. Dissolved metals were also elevated at low pH values but remained at low concentration when pH was circum-neutral.

Central Cofferdam

The central cofferdam was intermittently dewatered to the Peace River through Q3 and Q4. The dewatering crew monitored TSS. The surface water was sampled and submitted for laboratory analysis of the full suite of water quality parameters monthly. The station was referred to as LBEX-CC in July and August, and LBCD-OUT from September onwards.

LBEX-CC and LBCD-OUT

Residual water within the cofferdam. This water was pumped to the Peace River in Q3 and Q4 with high frequency TSS monitoring and monthly ARD/ML water quality monitoring. Although PAG influence is not expected in the residual water, nearby construction activity could influence water retained in the cofferdam. The water quality was circum-neutral and TSS was generally low with a peak value of 65 mg/L. Sulphate and total and dissolved metals were low, discharge water quality always met short term BC WQG.

Diversion Tunnel Outlet Cofferdam

The Diversion Tunnel Outlet Cofferdam (DOC) was dewatered to the Peace River periodically through Q3 and Q4. The portal was competed in Q4. The dewatering crew

monitored TSS in the discharge. Surface water in the DOC was sampled monthly. The station was referred to as LBEX-DOCC in July and August and DOC-OUT from mid-August onwards. Additional sumps were established closer to the outlet portal to capture PAG contact water arising from construction activities.

LBEX-DOCC and DOC-OUT

LBEX-DOCC and DOC-OUT are the same station, renamed during the year, which was established to sample residual water within the cofferdam. This water was intermittently pumped to the Peace River with high frequency TSS monitoring and monthly ARD/ML water quality monitoring. Although PAG influence is not expected in the residual water, nearby construction activity could influence water retained in the cofferdam. The pH ranged from 7.9 to 8.3 and though generally low, TSS reached as high as 80 mg/L early Q4. Sulphate and total and dissolved metals were low, discharge water quality always met short term BC WQG.

DOC-SUMP-N

Sump located in the DTOP area that collects groundwater, PAG and shotcrete influenced waters. This sump was dewatered to the MWTF late Q4. Although the water was circum-neutral, conductivity and sulphate were as high as 7,500 µS/cm and 4,800 mg/L, respectively. Although total and dissolved metals were generally low, total metals were elevated in mid-Q4 largely due to elevated dissolved metals in the sample collected that day.

DOC-SUMP-S

Located in the southwest corner of the DOC, the DOC-SUMP-S collects residual groundwater and contact water from the DOC working area. The sump was dewatered to the MWTF in Q4 to provide additional influent water to maintain the minimum influent flows required to operate the MWTF. TSS was below 50 mg/L in Q1 and Q4, with pH ranging from 8.1 to 8.3. Conductivity ranged from 650 to 2,200 µS/cm. Total and dissolved metals were generally at low concentrations.

DOC-SUMP-N-UP

Located in a non-excavated area of the DOC the DOC-SUMP-N-UP collects groundwater and surface runoff from the immediate area. A sample was collected late Q4 and the pH was circum-neutral. Conductivity was 3,800 µS/cm largely due to the elevated sulphate (1,800 mg/L). Total and dissolved metals were at low concentrations and TSS was < 25 mg/L.

3.2.1.6 Future RSEM Area L6

The RSEM Area L6 starter dike was completed in 2018 and placement of PAG in this area began late Q4. The RSEM L6 sediment pond was constructed in Q4 and completion of conveyance structures was underway at the end of Q4. No samples were obtained in this area in Q4. Sampling will be initiated once surface runoff accumulates within the RSEM Area L6 catchment in the temporary sumps or in the RSEM L6 sediment pond.

3.2.1.7 RSEM Area L3

RSEM Area L3 receives NPAG overburden material, primarily from the LBEX. It is situated along the original course of an unnamed stream (now referred to as L3 Creek). A sample was obtained by PRHP in Q2. BC Hydro assumed responsibility for this area in mid-2018.

LBL3C-3.32

A sample obtained on June 12th had circumneutral pH (8.20), relatively low conductivity and sulphate (1,291 µS/cm and 391 mg/L, respectively). Metal concentrations were low.

3.2.2 Right Bank

The monitoring network that was utilized on the Right Bank in 2018 included several stations in Area A, RSEM Area R6 and R5B catchments, and at the RSEM R6, R5B and R5A sediment ponds. The station locations are listed in Table 3.2-6 and are described in more detail below. The locations of monitoring stations are shown in Figure 3.2-2 (RSEM Area R5B and RSEM Area R6 catchments) and Figure 3.2-3 (RSEM Area R5A catchment). Sampling within the catchment areas (Table 3.2-7) was as follows:

- Area A – samples were obtained from ponded water in Area A. Block G, E, F and the N ditches were sampled. Samples were also collected from the Phase 2 Crusher and Thickener.
- RSEM Area R6 – samples were obtained from the Right Bank Drainage Tunnel North Sediment Pond, Treatment Centre and Baker Tank (RBDT-NSP, RBDT-TC and RDBT-BT). Note that the Treatment Centre differs from the MWTF in that it is used to settle solids and reduce the elevated pH in water produced during tunnel construction. Samples were collected from various sumps within the RCC (RCC-SUMP-1 to -5) and from the final sump (RCC-RSEM-R6-WP-IN). Responsibility for the South Bank Initial Access Road has been assumed by others. Nonetheless some samples of the SBIAR ditch inflow to RSEM R6 EP were collected (RSEM-R6-EP-US-SD). Samples were routinely obtained from RSEM-R6-WP and RSEM-R6-EP, or from end-of-pipe when the ponds were discharging.

- RSEM Area R5B - a few samples were obtained from the RCC Trial Dome (while it was being pumped down and discharged to the upper Approach Channel Diversion Channel in preparation for backfilling), the RBAC Seep and Sump, the RB East Conveyor and the RB-MWTF-SLP. Daily end-of-pipe samples were obtained from the sediment pond (RSEM-R5B-EOP) discharge. A seep near the RSEM R5B sediment pond was also sampled, as further described below.
- RSEM Area R5A –Samples were obtained from each of the four RSEM sediment pond cells in RSEM Area R5A.

3.2.2.1 AREA A

Large volumes of NPAG overburden and aggregate were excavated in Area A, east of the SBIAR, in 2018. This material was transported to the Phase 2 crusher to produce aggregate for use at the construction site. The area to be excavated has been subdivided for reference purposes using a grid, and areas are referred to by the corresponding letter, from Block A on the west side, to Block H at the far east end of the planned excavation.

Ponded water in part of Block G where overburden was removed down to bedrock was sampled in Q3 along with wash water stored in a pond at the Phase 2 crusher. Water at both locations was circumneutral (pH 7.93 and 8.00 respectively) with relatively low conductivity (587 and 577 µS/cm respectively), and sulphate (41.7 and 56.9 mg/L respectively) and low metal concentrations. Nitrogen species concentrations were also low.

AREA-A-1, 2, 3, 4 and 5

Water quality was monitored in 2018 Q3 and Q4 and was circum-neutral, with conductivity ranging from 390 to 740 µS/cm and sulphate generally present at or below 50 mg/L. TSS was below 25 mg/L in all samples as were total metal concentrations for Cd, Cu and Zn.

PHASE-2-CRUSHER / THICKENER

Water quality was circum-neutral, with conductivity ranging from 387 to 389 µS/cm and sulphate generally present at or below 50 mg/L. TSS was elevated in Q3 at 7,400 mg/L, accounting for all the elevated T-Zn (0.076 mg/L) measured for that sample.

Table 3.2-6:
Water Quality Monitoring Stations in 2018 (Right Bank)

Station ID	Easting	Northing	Description
AREA A			
AREA-A-1 (BLOCK G)	632435	6228174	Ponded water in Area A, Block G
AREA-A-2 (BLOCK E)	632073	6227850	Ponded water in Area A, Block E
AREA-A-3 (BLOCK F – MID)	632273	6227919	Ponded water in Area A, Block F
AREA-A-4 (BLOCK F – NE)	632420	6228041	Ponded water in Area A, Block F
AREA-A-5 (N DITCH)	630779	6228394	Ponded water in Ditch in NW part of Area A
PHASE-2-CRUSHER	631313	6228046	Large pond N of Phase 2 Crusher facility
PHASE-2-THICKENER	631359	6227837	Thickener tank in Phase 2 Crusher facility
RSEM AREA R6			
RSEM R6 SUBCATCHMENT – RIGHT BANK DRAINAGE TUNNEL (RBDT)			
RBDT-BT	629972	6228895	RBDT-Baker Tank
RBDT-NSP	629958	6228995	RBDT North Sediment Pond
RBDT-TC	629955	6228905	RBDT Treatment Centre Baker Tank
RSEM R6 SUBCATCHMENT – RCC			
RCC-SUMP-1	629845	6229177	Sump in NE corner of RCC buttress area
RCC-SUMP-2 (WASHPND-E)	629552	6229199	Sump in E-central part of RCC buttress area
RCC-SUMP-3 (WASHPND-M)	629520	6229241	Sump in E-central part of RCC buttress area
RCC-SUMP-4 (WASHPND-W)	629496	6229254	Sump in E-central part of RCC buttress area
RCC-SUMP-5 (MID-PWR-HS)	629556	6229216	Sump in E-central part of RCC buttress area
RCC-RSEM-R6-WP-IN	630119	6229148	RCC area discharge to ditch S of R6W pond
RSEM R6 SEDIMENT POND			
RSEM-R6-EP-US-SD	630427	6228904	RCC discharge into W end of RSEM R6W
RSEM-R6E-SP	630250	6229153	RSEM R6 East sediment pond
RSEM-R6E-EOP	630274	6229218	Discharge pipe
RSEM-R6W-SP	630240	6229161	RSEM R6 West sediment pond
RSEM-R6W-EOP	630273	6229219	Discharge pipe
RSEM AREA R5B			
RSEM R5B SUBCATCHMENT – APPROACH CHANNEL			
TRIAL DOME	630132	6228604	Former RCC trial dome excavation
RBAC-EAST-CONVEYOR	629618	6228930	Pooled water N of conveyor
RBAC-SEEP	629594	6228841	Upgradient seepage at approach channel
RBAC-SUMP	629675	6228870	Sump collecting runoff
RB-R5B-ACDC	628944	6229643	Approach Channel ditch
RB-MWTF-SLP	628921	6229604	Sludge Pond (treated water)
RSEM R5B SEDIMENT POND			
R5B-EAST-SEEP	629046	6229763	Seep on east side of RSEM sediment pond
R5B-WEST-SEEP	628794	6229911	Pooled water at GW-6
RSEM-R5B-SP	629010	6229803	RESM R5B sediment pond near pond outlet
RSEM-R5B-EOP	629024	6229796	End-of-pipe at RSEM R5B
RSEM AREA R5A			
RSEM-R5A-A	628158	6230787	Southeast Pond
RSEM-R5A-B	628146	6230801	South-central Pond
RSEM-R5A-C	627544	6231637	North-central Pond
RSEM-R5A-D	627535	6231664	Northwest Pond

Table 3.2-7:
Summary of Water Quality Monitoring in 2018 (Right Bank)

Station ID	*In situ* (Continuous) Monitoring? (Y / N)	Lab Analyses (No.)	Grab Sample Date(s)
AREA A			
AREA-A-1 (G)	N	1	Q3 (1)
AREA-A-2 (E)		1	Q4 (1)
AREA-A-3 (F – MID)		1	Q4 (1)
AREA-A-4 (F – NE)		1	Q4 (1)
AREA-A-5 (N DTCH)		1	Q4 (1)
PHASE-2-CRUSHER	N	1	Q4 (1)
PHASE-2-THICKENR		1	Q3 (1)
RSEM Area R6			
RSEM R6 SUBCATCHMENT – RIGHT BANK DRAINAGE TUNNEL			
RBDT-BT	N	1	Q4 (1)
RBDT-NSP		10	Q1 (2); Q2 (3); Q3 (3); Q4 (2)
RBDT-TC		17	Q1 (6); Q2 (5); Q3 (3); Q4 (3)
RSEM R6 SUBCATCHMENT – RCC EXCAVATION AREA			
RCC-SUMP-1	N	1	Q3 (1)
RCC-SUMP-2		1	Q4 (1)
RCC-SUMP-3		1	Q4 (1)
RCC-SUMP-4		1	Q4 (1)
RCC-SUMP-5		1	Q4 (1)
RCC-RSEM-R6-WP-IN		2	Q4 (2)
RSEM R6 SEDIMENT PONDS			
RSEM-R6-EP-US-SD	N	1	Q3 (1)
RSEM-R6E-SP	Y	157	Q1 (76); Q2 (54); Q4 (27)
RSEM-R6E-EOP		229	Q1(14); Q2(37); Q3(92); Q4(86)
RSEM-R6W-SP	Y	209	Q1(65); Q2(71); Q3(31); Q4(42)
RSEM-R6W-EOP		160	Q1(25); Q2(21); Q3(61); Q4(53)
RSEM Area R5B			
RSEM R5B SUBCATCHMENT – APPROACH CHANNEL			
TRIAL DOME	N	7	Q3 (6); Q4 (1)
RBAC-E-CONVEYR	N	1	Q4 (1)
RBAC-SEEP	N	11	Q1 (1); Q2 (5); Q3 (3); Q4 (2)
RBAC-SUMP		10	Q1 (2); Q2 (3); Q3 (3); Q4 (2)
RB-R5B-ACDC		12	Q1 (3); Q2 (3); Q3 (3); Q4 (3)
RB-MWTF-SLP		1	Q4(1)
RSEM R5B SEDIMENT POND			
RSEM-R5B-SP	Y	43	Q1 (41); Q2 (1); Q4 (1)
RSEM-R5B-EOP		289	Q1 (6); Q2 (91); Q3 (92); Q4 (100)
R5B-EAST-SEEP	N	6	Q2 (4); Q3 (2)
R5B-WEST-SEEP		1	Q2 (1)
RSEM Area R5A			
RSEM-R5A-A	N	12	Q2 (7); Q3 (4); Q4 (1)
RSEM-R5A-B		6	Q2 (1); Q3 (4); Q4 (1)
RSEM-R5A-C		7	Q2 (2); Q3(4); Q4 (1)
RSEM-R5A-D		6	Q2 (1); Q3 (4); Q4 (1)

* Measurements obtained by PRHP Environmental Monitors using hand held instruments

1. Pond was sampled daily when water present and not frozen, and when there is no discharge
2. End-of-pipe is sampled daily when discharging, otherwise pond is sampled



LEGEND

- Monitoring Location

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

1:14,000

0 200 400 Meters

DATE SAVED:	Feb 01, 2019
DRAWN BY:	AL
REVIEWED:	NM
VERSION:	1

CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE:

RSEM R5B, RSEM R6 and Area A Water Quality Sampling Locations

PROJECT #: A416-1

FIGURE: 3.2-2

P:\@Drafting\Site C\Drafting Figures\MXD\2018AnnualReport\Fig_3.1_2_RB_WQ_Sampling_20190201.mxd

627,000 627,500 628,000 628,500 629,000

6,232,000 6,231,500 6,231,000 6,230,500

N

RSEM-R5A-D

RSEM-R5A-C

RSEM-R5A-B

RSEM-R5A-A

Peace River

LEGEND

- Monitoring Location (Sampled in 2018 Q3)
- Monitoring Location (Not Sampled in 2018 Q3)

Coordinate System: *NAD 1983 UTM Zone 10N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

1:7,500

0 200 400

Meters

DATE SAVED:	Jan 08, 2019
DRAWN BY:	AL
REVIEWED:	NM
VERSION:	1

CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE: RSEM-R5A Water Quality Sampling Locations

PROJECT #: A416-1 *FIGURE:* 3.2-3

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3.2.2.2 RSEM Area R6

The RSEM Area R6 sediment ponds received water from SBIAR, RCC Excavation and RBDT in 2018. In late Q3 RCC water was directed to RSEM R6W sediment pond. Water was conveyed from SBIAR to the RSEM R6E sediment pond in 2018. This was the primary source of water to the RSEM R6E pond.

Right Bank Drainage Tunnel (RBDT-NSP, RBDT-TC and RBDT-BT)

The RBDT North Sediment Pond (RBDT-NSP), the Treatment Centre (RBDT-TC) and the Baker Tank (RBDT-BT) were sampled in 2018. The pH ranged from 7.3 to 11.4 with elevated pH recorded in Q4. Conductivity ranged from 220 to 2700 µS/cm. Field pH and laboratory readings are generally in good agreement with the laboratory values. TSS ranged from 6 to 5400 mg/L. T-Zn was generally below 0.033 mg/L with a maximum value of 0.53 mg/L in the Baker Tank when TSS was elevated, otherwise metal concentrations were generally low. The water from the NSP, BT and TC was not discharged.

Analytical results from the Treatment Centre may indicate some influence from blasting residue with elevated nitrate consistently detected late in Q4 (maximum of 20.4 mg/L NO_3). One sample had a relatively high concentrations of N-NH_3, of 3.9 mg/L, while others had relatively high concentrations of N-NO_2 (one sample from the Baker Tank had 4.7 mg/L), and several had relatively high concentrations of N-NO_3 (one from the Baker Tank had 20.3 mg/L).

RCC

Water that accumulated in the RCC excavation was conveyed to the RSEM R6 sediment ponds in 2018. It was collected in sumps and was pumped to the RSEM R6 sediment ponds via heat-traced lay flat hose, typically at a rate of approximately 1 L/s until mid-March, and at variable rates thereafter. It was also trucked at times. It was pumped to the RSEM R6W sediment pond most of Q1 and was then diverted to the RSEM R6E sediment pond until late Q3 when it was re-directed back to the RSEM R6W sediment pond. The water from the RCC sumps and the final sump were periodically sampled for water quality.

RCC-SUMP-1, 2, 3, 4, 5 and RCC-RSEM-R6-WP-IN

These are sumps on the floor of the RCC excavation that are created by placement of pumps as well as an intermediate sump (RCC-SUMP-1) that is pumped to R6, injected in-line with carbon dioxide to reduce pH, and discharged to RSEM R6W sediment pond at the RSEM-R6-WP-IN station. The water quality for RCC water varied depending on activity in the RCC and was circum-neutral to alkaline (pH 8.0 to 10.2). Conductivity ranged from 230 to 2000 µS/cm and sulphate was generally below 250 mg/L. TSS ranged from 4 to 14,000 mg/L. Elevated TSS accounted for total metals detected at elevated levels in Q3.

Dissolved Cd, Co, Cu and Zn were not detected or well below RSEM discharge limits in all samples.

Nitrogen species were present at moderate concentrations with a maximum of 1.5 mg-N/L nitrite detected in RCC Sump 1 in Q3. Other N species were generally well below 1 mg-N/L in all samples.

SBIAR Ditch (RSEM-R6-EP-US-SD)

The SBIAR ditch was periodically sampled at the inlet to the RSEM R6E sediment pond catchment (RSEM-R6-EP-SD). The water quality was circum-neutral, and conductivity was 770 µS/cm. Sulphate was 130 mg/L and total metals were detected with T-Cd, T-Cu and T-Zn exceeding the discharge limit in this sample. Dissolved metals were not detected and TSS was low, it is unclear why total metals were elevated relative to dissolved.

RSEM R6 Sediment Ponds

The RSEM R6 sediment pond includes east and west ponds, which are divided by a berm which isolates the two ponds from each other. The berm was designed to allow the cells to merge in a large (greater than 1 in 10 year 24-hour) storm event. The east and west ponds discharge through separate culverts onto a shared rip rap protected outfall, which descends the bank to the Peace River. Two stations have been established in each pond, one station within the pond itself (the SP station), and another for sampling discharge from the end-of-pipe (the EOP station). In general, the EOP station is sampled when the pond is discharging.

The CEMP discharge limits are applied to the sediment pond water during periods of discharge. The TSS discharge limit changes based on the upstream background in the Peace River. Turbidity is continuously monitored at an upstream location by Ecofish and is converted to TSS using a turbidity-TSS relationship. A proposal for revised End-of-Pipe discharge limits was prepared by Lorax and was submitted by BC Hydro to the Comptroller of Water Rights in May 2018. These new proposed discharge limits have not yet been approved and are not included in this report.

RSEM-R6E-SP and RSEM-R6E-EOP

The RSEM R6E sediment pond exceeded the RSEM end-of-pipe discharge limit for T-Zn in Q1 and early Q2. However, the sediment pond only discharged during the early Q2 exceedance. The Q4 exceedances are attributed to D-Zn. The source of the D-Zn is not obvious and still under investigation. The RSEM R6E sediment pond water quality was circum-neutral throughout 2018 and conductivity ranged from 370 to 2,200 µS/cm. Sulphate ranged from 40 to 570 mg/L.

Nitrogen concentrations were somewhat elevated at the RSEM-R6E-SP and RSEM-R6E-EOP stations early in Q3 ($N\text{-}NO_3$ concentrations maximum = 5.7 mg/L). Ammonia and nitrite were at considerably lower concentrations than nitrate.

The laboratory and field pH, conductivity and turbidity values for both of the RSEM R6 sediment ponds were generally in good agreement throughout 2018 although the lab values were sometimes slightly lower than the field readings.

RSEM-R6W-SP and RSEM-R6W-EOP

The RSEM R6W sediment pond exceeded RSEM end-of-pipe discharge limits for T-Zn and T-Cu in late Q1/early Q2 and again in Late Q4 (T-Zn only). The Q4 exceedances are attributed to D-Zn, however the source of the D-Zn is under investigation. The RSEM R6W sediment pond did not discharge during the exceedances. Overall the water quality was circum-neutral throughout 2018 and conductivity ranged from 210 to 1,900 µS/cm. Sulphate ranged from 30 to 610 mg/L.

There was discharge from the RSEM R6W and R6E ponds on 169 and 261 days, respectively, in 2018. The end-of-pipe was sampled on these days, and the ponds were sampled directly on days when there was no discharge.

Time series plots for TSS, T-Cd, T-Cu and T-Zn in the RSEM-R6W and RSEM-R6E stations are shown in Figure 3.2-4 to Figure 3.2-11 below. There was little or no indication of any influence from ARD/ML in either pond. The lowest measured laboratory pH was 7.9 at RSEM-R6W-EOP. The highest conductivity was 2200 µS/cm at RSEM-R6E-SP and highest sulphate concentration was 610 mg/L in RSEM-R6E-EOP, in Q1 and Q4, respectively.

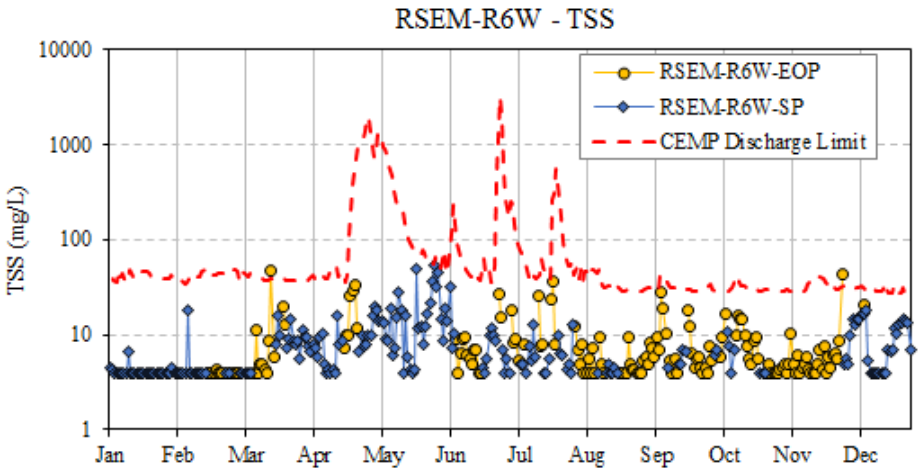


Figure 3.2-4: Time series profile for total suspended solids (TSS) in RSEM-R6 West compared to Construction Environmental Management Plan (CEMP) Discharge Limits. EOP – End of Pipe; SP- Sediment Pond.

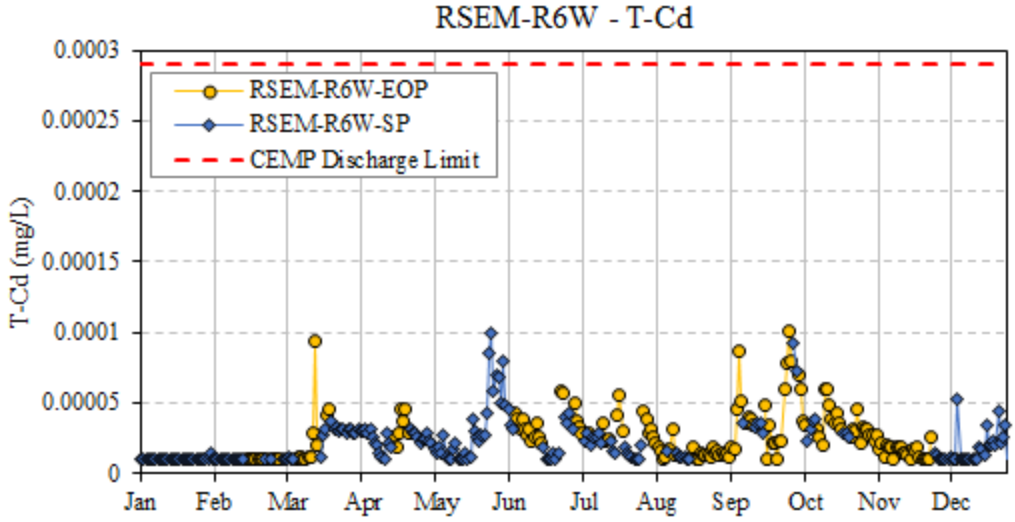


Figure 3.2-5: Concentrations of cadmium (Cd) for RSEM-R6 West compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

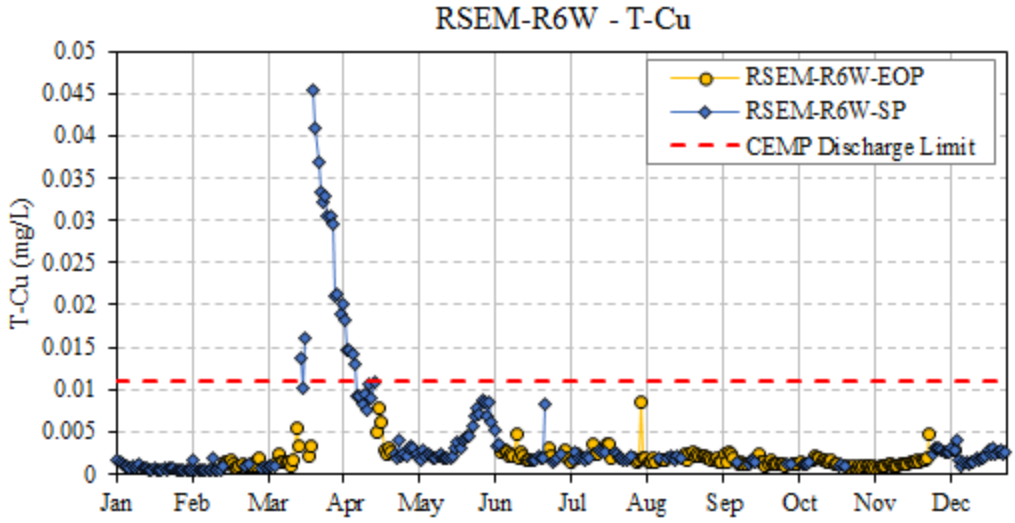


Figure 3.2-6: Concentrations of Copper (Cu) for RSEM-R6 West compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

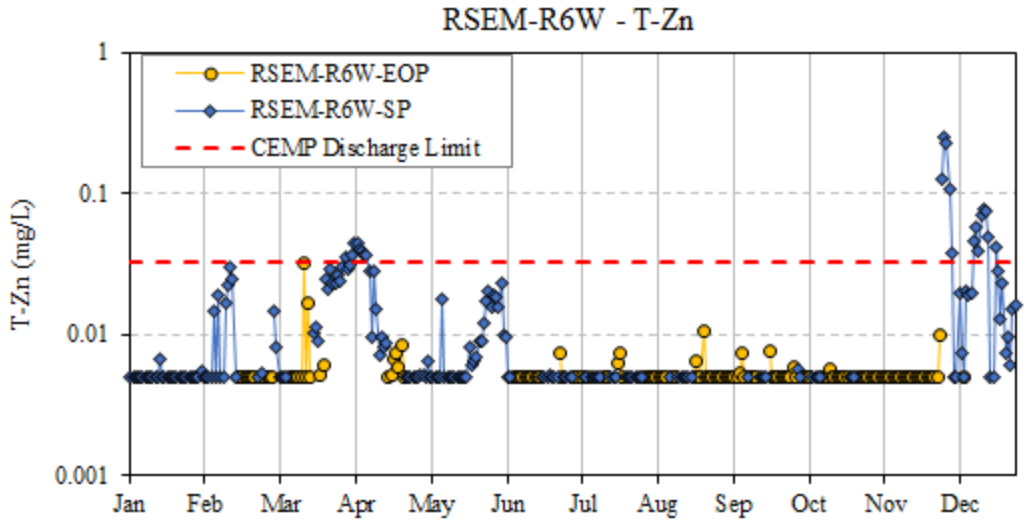


Figure 3.2-7: Concentrations of Zinc (Zn) for RSEM-R6 West compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

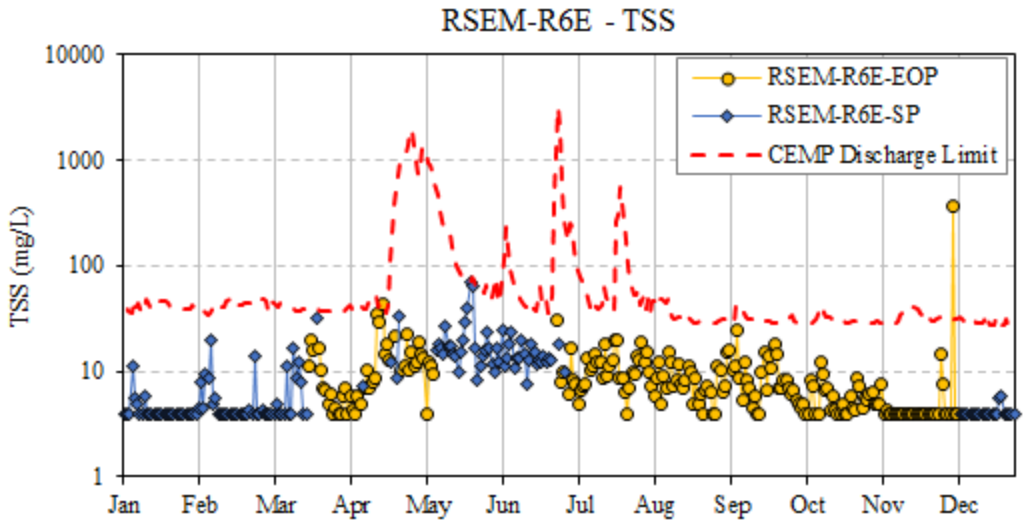


Figure 3.2-8: Time series profile for total suspended solids (TSS) in RSEM-R6 East compared to CEMP Discharge Limits. EOP – End of Pipe; SP-Sediment Pond.

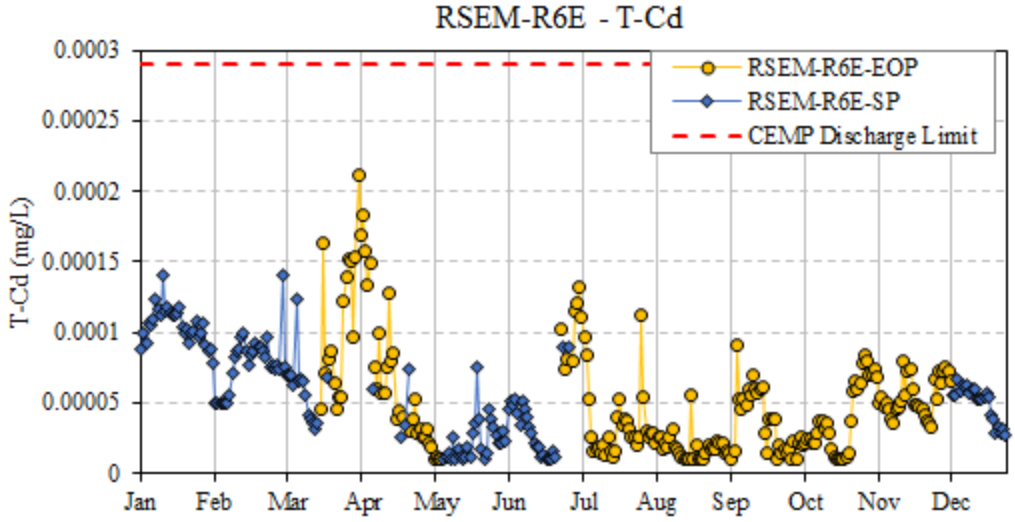


Figure 3.2-9: Time series profile for Cadmium (Cd) in RSEM-R6 East compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

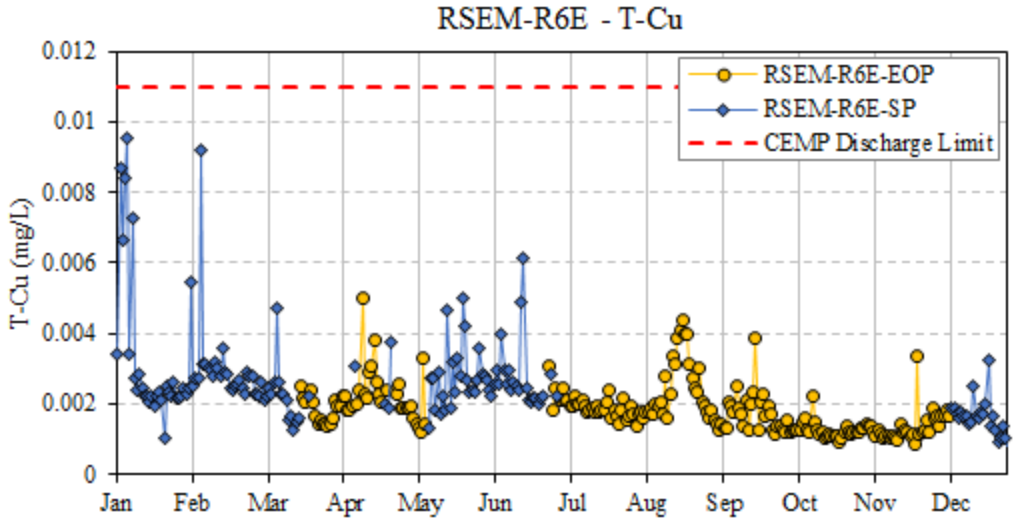


Figure 3.2-10: Time series profile for Copper (Cu) in RSEM-R6 East compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

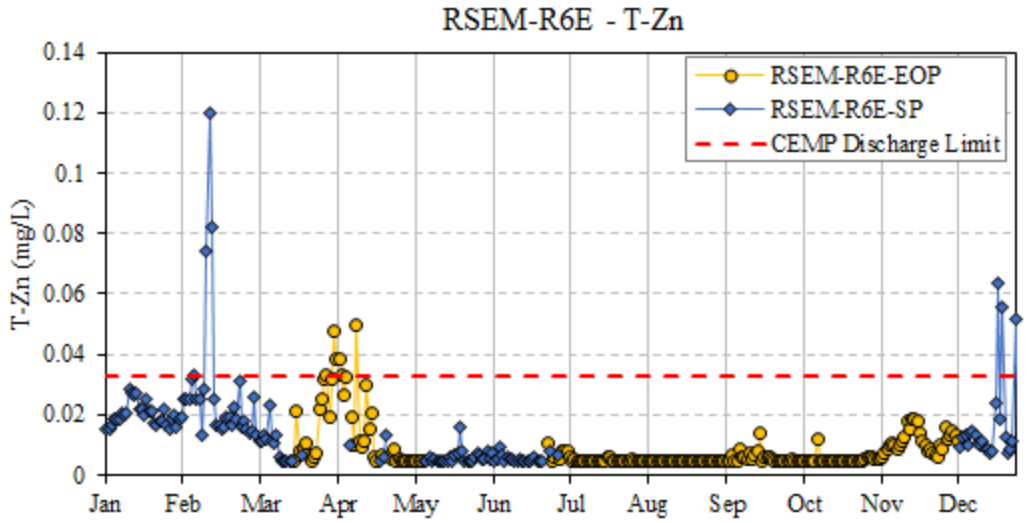


Figure 3.2-11: Time series profile for Zinc (Zn) in RSEM-R6 East compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

3.2.2.3 RSEM Area R5B

The RSEM R5B sediment pond receives surface water runoff from several sources. These include a steady flow of groundwater that is intercepted above the Approach Channel (sampled at RBAC-SEEP and RBAC-SUMP), runoff from the Approach Channel itself (sampled in the Diversion Channel at RBAC-ACDC), treated effluent from the MWTF and from a sump on the south side of the Moberly River bridge that collects water from a PAG rock cut (RBMRB). Water from the former RCC Trial Dome area was also pumped into the upper Approach Channel Diversion Channel in 2018 Q3. During Q4 water was directed to the MWTF from the Approach Channel, and RSEM R6 WP, both to remove dissolved metals and to maintain minimum flows required for MWTF operation (3 – 4 L/s).

TRIAL DOME

An excavation that was previously covered and used to test RCC production is referred to as the RCC Trial Dome. This excavation was dewatered in 2018 Q3 by pumping accumulated surface water to the upper Approach Channel Diversion Channel to allow it to discharge via the RSEM R5B sediment pond.

This water was sampled six times in Q3. The pH was circumneutral, ranging from 7.78 to 8.25. Conductivity was moderate (up to 1050 µS/cm) and sulphate was relatively low (up to 312 mg/L). Nitrogen species and metal concentrations were low.

RBAC-EAST-CONVEYOR

Groundwater seepage collects at the base of the East Conveyor located above the spillway in the Approach Channel benches. In 2018 the seepage was collected in a sump and trucked to the MWTF for treatment. A sample was collected in Q4 and the water quality met discharge limits with pH 8.24, TSS < 4 mg/L and conductivity 1,440 µS/cm. Sulphate was 327 mg/L, and overall the total and dissolved Cd, Co, and Cu concentrations were low. T-Zn was detected at moderate levels (0.0193 mg/L) and was entirely attributable to D-Zn.

Approach Channel (RBAC-SEEP, RBAC-SUMP and RB-R5B-ACDC)

Groundwater discharging into the southeast end of the Approach Channel excavation is sampled at two locations, RBAC-SUMP and RBAC-SEEP. Water is also sampled below the Approach Channel, in the lower section of the Approach Channel Diversion Channel (RB-R5B-ACDC) which runs across RSEM Area R5B and into the RSEM Area R5B sediment pond.

Each of these stations was sampled monthly in 2018. The pH at all three stations was circum-neutral when sampled ranging from pH 7.8 to 8.6 over the year. The RBAC-SEEP sulphate concentrations remained below 40 mg/L through 2018, however conductivity ranged from 500 to 3,300 µS/cm and was likely associated with elevated Na, Cl and alkalinity in the seep samples. The RBAC-SUMP sulphate concentrations averaged 250 mg/L and ranged as high as 480 mg/L. Conductivity ranged from 940 to 1,800 µS/cm. A single RB-R5B-ACDC sample collected in Q3 had anomalously elevated sulphate and conductivity. Sulphate and conductivity at RB-R5B-ACDC averaged 350 mg/L and 1300 µS/cm, respectively.

Total Cd, Cu and Zn concentrations were elevated in RBAC-SUMP and RB-R5B-ACDC relative to RBAC-SEEP. The Cd and Zn concentrations are attributable to dissolved forms of these metals, whereas the Cu arises from TSS. The RBAC-SEEP water has low concentrations of total and dissolved metals.

Nitrogen compounds were detected in all samples. Maximum values for ammonia and nitrate were 0.4 and 1.4 mg-N/L, respectively.

The field and laboratory pH and conductivity measurements are generally in agreement with the laboratory measurements for the stations in the Approach Channel. However, the field conductivity readings are consistently slightly higher than the lab values.

RB-MWTF-SLP, R5B-EAST-SEEP and R5B-WEST-SEEP

The MWTF treated effluent was discharged to the settling pond (RB-MWTF-SLP), and sparged with carbon dioxide to reduce pH. The clarified water was discharged to the RB-

R5B-ACDC channel which flowed to RSEM R5B sediment pond prior to discharge. The RB-MWTF-SLP Q4 sample was neutral at pH 8.2, and elevated conductivity of 1440 µS/cm. The sulphate concentration was moderate (458 mg/L). Total and dissolved metal concentrations were low.

The R5B-EAST-SEEP station was established to assess whether surface water that accumulated in a swale to the east of RSEM Area R5B was influenced by ARD. It was sampled monthly in Q2 and Q3. Overall the pH was circum-neutral ranging from 7.0 to 8.2 and conductivity ranged from 660 to 2,800 µS/cm. Dissolved Cd, Cu and Zn were elevated in this water and the corresponding total metals generally exceeded the RSEM end-of-pipe discharge limits. It was likely influenced by water originating upgradient or infiltrating from the ACDC channel where the liner was damaged. The liner was repaired in Q3.

A single sample was collected at R5B-WEST-SEEP in Q2. This station was established to assess whether surface water that accumulated in a low-lying area west of RSEM Area R5B (where groundwater well GW-6 was installed) was influenced by ARD. The water quality was circum-neutral pH 8.25, alkalinity was 348 mg/L and conductivity was 2,470 µS/cm. Total and dissolved Cd, Co, Cu and Zn were present at low concentrations, suggesting little or no ARD influence.

RSEM R5B SP and RSEM R5B EOP

There was continuous discharge from the RSEM R5B sediment pond for most of 2018 excluding most of Q1 when the pond did not discharge. The end-of-pipe discharge was sampled for 311 days.

In late Q1 snowmelt runoff entered the RSEM R5B sediment pond entraining sulphate and metals from oxidized surfaces of exposed bedrock. The water was elevated in sulphate, 940 mg/L and 931 mg/L on March 19th and 21st respectively. T-Cd and T-Zn both exceeded discharge limits from March 19th through the 22nd. TSS was elevated and approached the discharge limit at its peak on March 21st (35.5 mg/L).

An ARD/ML signature was observed following snowmelt and rainfall in early and late Q2. During the spring thaw in mid-April, there was a slight decrease in pH of approximately 0.5 pH units. Maximum TSS and sulphate values were 245 and 1,110 mg/L, respectively. Total metals were elevated with maxima for T-Cd, T-Cu and T-Zn of 0.0046, 0.12 and 1.1 mg/L, respectively. These elevated concentrations are likely associated with a combination of high TSS due to the freshet and rinsing of ARD products from weathered PAG surfaces.

The heavy rainfall in late June resulted in a greater decrease in pH, down to a minimum of pH 4.3 on June 27th (laboratory value), and a significant increase in metal concentrations.

A spike in concentrations of sulphate (1,040 mg/L), T-Cd (0.013 mg/L), T-Co (0.17 mg/L), T-Cu (0.20 mg/L) and T-Zn (2.3 mg/L) was observed on June 27th. The concentrations decreased following this spike; however, the concentrations remained above the RSEM end-of-pipe discharge limits into early Q3. These results are indicative of a flush of ARD/ML in the catchment caused by the heavy rainfall entraining sulphate and metals from oxidized surfaces of weathered PAG bedrock.

The pH remained circumneutral throughout Q3 with the exception of September 9th and 10th, when it decreased after a major rainfall event on September 8th, during which untreated contact water from the Approach Channel bypassed the MWTF and was discharged from the RSEM R5B sediment pond. The laboratory pH was measured at 5.25 at 7 am on September 9th and 6.02 at 6:10 am on September 10th. It was 7.45 on 11:45 am on September 11th and returned to typical levels (between about 7.8 and 8.3) from the following day to the end of September.

A comparison of the in-situ logger readings, the field pH and the laboratory pH for the period when low pH values were measured is provided in Figure 3.2-12. The in-situ logger records the pH at 15-minute intervals. The readings are generally in good agreement over this period, although the field and laboratory readings on September 11th were higher than the in-situ logger measured pH. The in-situ logger pH measurements and flow measurements were used to estimate the volume of water with a pH < 6 that was discharged from the RSEM R5B sediment pond. The in-situ pH measurements indicate that the pH dropped below 6 around 6:00 am on September 9th and increased the morning of September 10th, with readings consistently above pH 6 after 11 am.

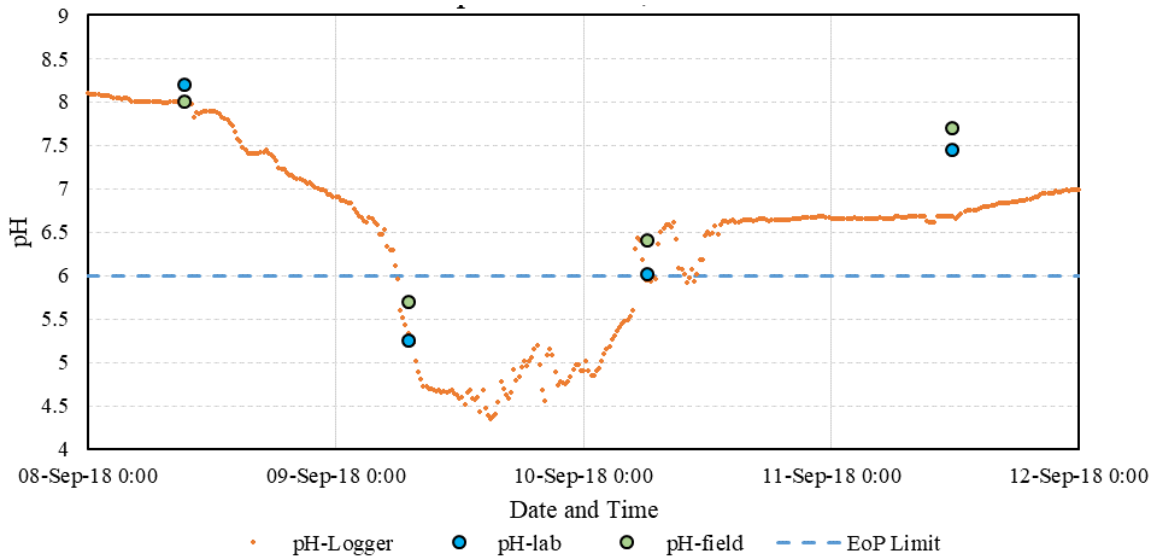


Figure 3.2-12: Logger, Field and Laboratory pH at RSEM R5B EOP – September 8th to 11th, 2018. EOP – End of Pipe.

Conductivity, sulphate and metal concentrations peaked on September 9th, and were elevated in samples obtained on the following days. These peak concentrations exceeded RSEM end-of-pipe discharge limits. The poor water quality from the Approach Channel is attributable to rinsing of weathered PAG bedrock in the Approach Channel benches.

Subsequent to the September event through to the end of Q4 the RSEM R5B sediment pond end-of-pipe water quality was consistently circum-neutral at pH 8.2 and conductivity of 1,300µS/cm (approximate values). Sulphate was generally below 250 mg/L, and T-Cd, T-Co, T-Cu and T-Zn were at low concentrations or not detected. Time series plots for TSS, T-Cd, T-Cu and T-Zn in the RSEM-R5B station are shown in Figure 3.2-13 to Figure 3.2-16 below.

The field and laboratory pH values are generally in good agreement in 2018, although field measurements are occasionally higher than the lab values. Field conductivity measurements were generally in good agreement, excluding Q1 when the field conductivity readings were consistently higher than the laboratory values and the period from late August to early September 2018 when the field conductivity measurements were significantly lower than lab values.

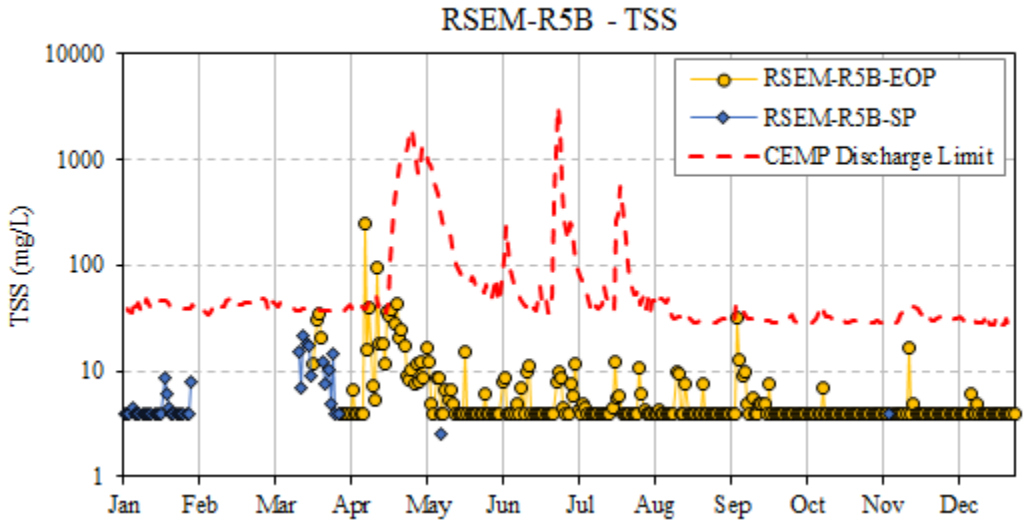


Figure 3.2-13: Time series profile for total suspended solids (TSS) in RSEM-R5B compared to CEMP Discharge Limits. EOP – End of Pipe; SP-Sediment Pond.

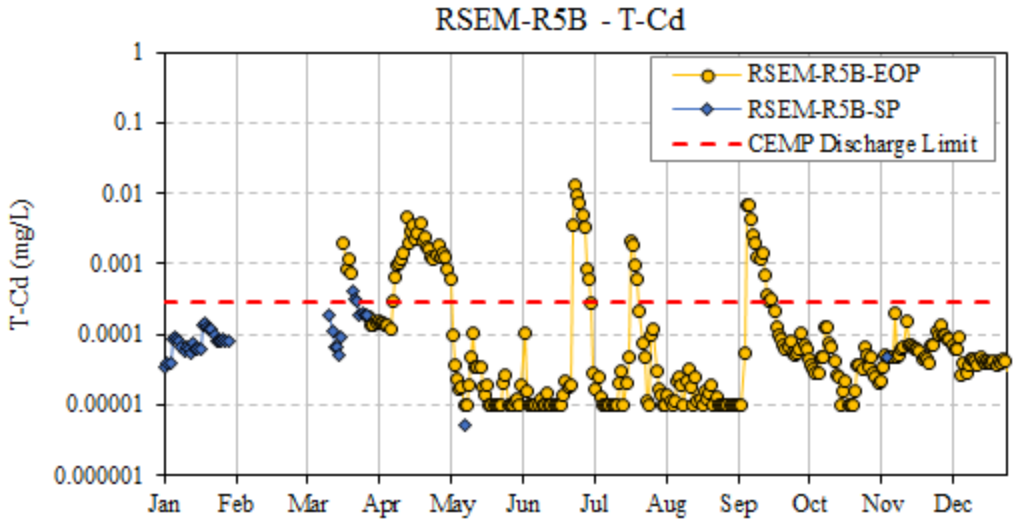


Figure 3.2-14: Concentrations of cadmium (Cd) for RSEM-R5B compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

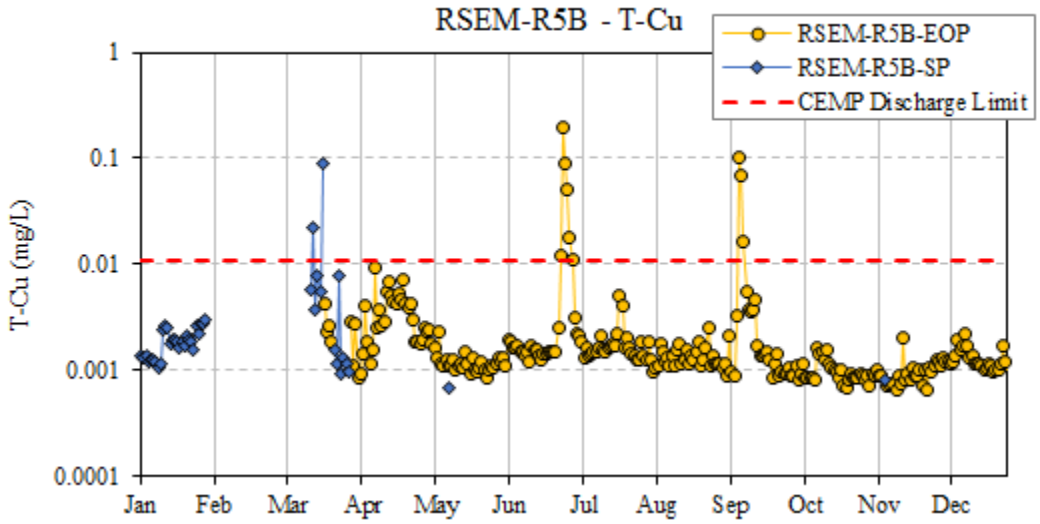


Figure 3.2-15: Concentration of copper (Cu) for RSEM-R5B compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

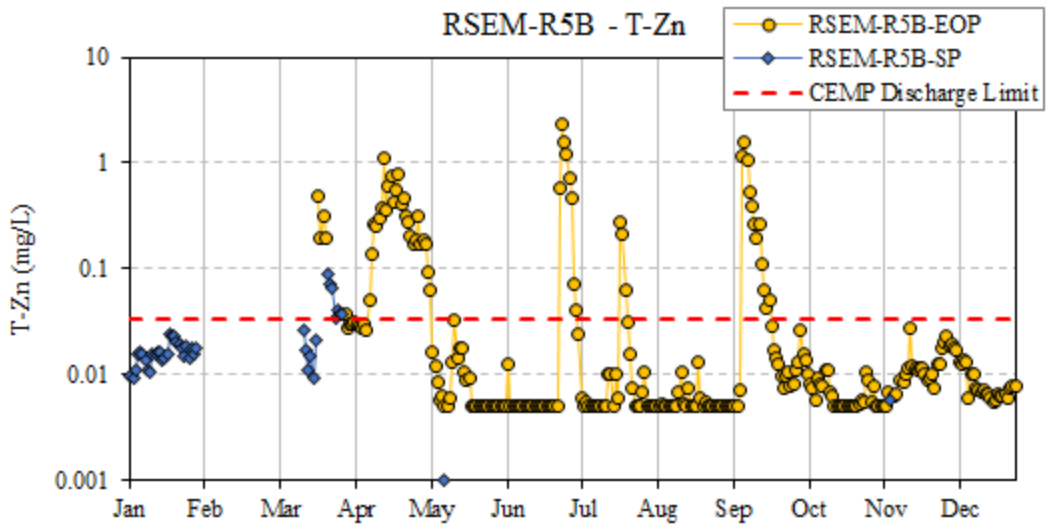


Figure 3.2-16: Concentration of zinc (Zn) for RSEM-R5B compared to CEMP Discharge Limits. EOP – End of Pipe; SP- Sediment Pond; T – Total Concentrations.

3.2.2.4 RSEM Area R5A

RSEM Area R5A extends roughly 2 km from northwest to southeast. The RSEM Area R5A facility continues to receive PAG material. A diversion ditch was constructed to intercept non-contact water that originates upgradient of the RSEM Area R5A and convey this water to the Peace River. The four sediment ponds associated with this RSEM Area were constructed in 2017 and were in use in 2018.

Two ponds extend over the length of the southeastern half (ponds A and B) of the RSEM area and two run the length of the northwestern half of the RSEM area (ponds C and D). Outfalls have been constructed that will convey future discharge from the southeast ponds into a riparian area adjacent to the river (ponds A / B) and from the northwest ponds to a side channel of the Peace River (ponds C / D). The ponds did not discharge in 2018, however pond water samples were collected Q2 through Q4.

RSEM-R5A Ponds A, B, C and D

The pH remained circumneutral in all samples and ranged from pH 7.7 to 8.2. Conductivity ranged from 350 to 6,300 µS/cm. Sulphate concentrations were moderate, ranging from 100 to 2800 mg/L, averaging 650 mg/L, likely indicating some influence of ARD/ML in the ponds. N-NO_3 levels were also somewhat elevated in ponds A and B, with maximum concentrations of 13.7 and 14.3 mg/L respectively, likely indicating the influence of blasting residues in the waste rock deposited in the southeastern half of RSEM Area R5A. N-NO3 concentrations were lower in Pond C (ranging from 2.58 to 3.68 mg/L), and much

lower in Pond D (where the maximum concentration was 1.62 mg/L). Key metal concentrations were highest in the July 20th sample from Pond A. This was the only RSEM R5A pond sampled during a major rainfall event that occurred on this day. Field pH and conductivity were generally in agreement with laboratory values for RSEM Area R5A samples.

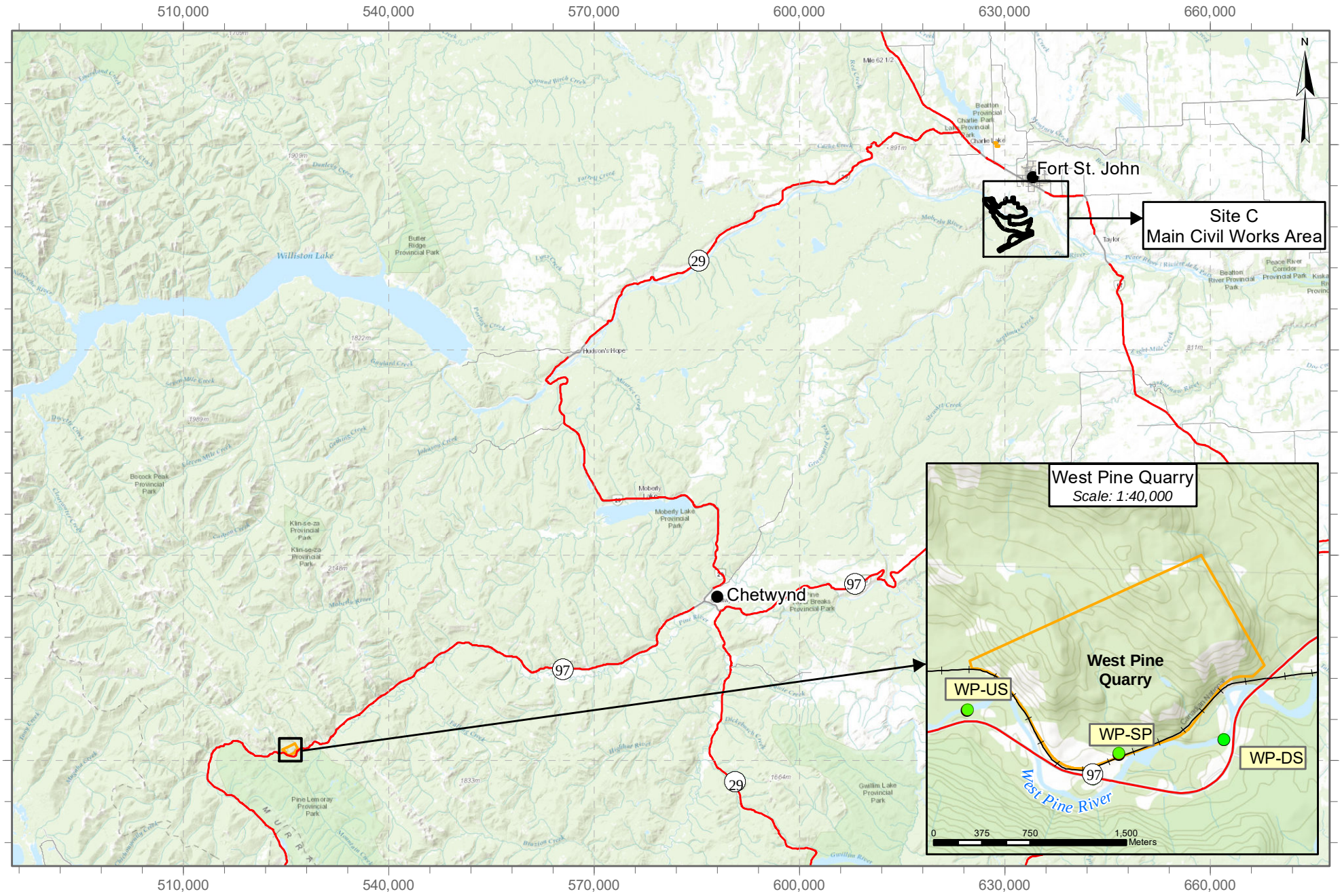
3.2.3 West Pine Quarry

The development of the West Pine quarry was initiated in late 2016. Sampling was initiated on the West Pine River in 2016, upstream and downstream of the quarry, in accordance with Section 4.14 of the CEMP (which requires water quality monitoring upstream and downstream of construction areas). The quarry was further developed in the second half of 2017. The locations of the three monitoring stations (upstream, the sediment pond within the quarry, and downstream) are listed in Table 3.2-8, shown on Figure 3.2-17, and sampling summary in Table 3.2-9.

Samples are generally taken at both the upstream and downstream station on a monthly basis and had circum-neutral pH (pH 7.9 to 8.2), low conductivity (164 to 336 µS/cm), and low sulphate (7.1 to 18.7 mg/L). Metal concentrations are low and comparable between the upstream and downstream stations. However, there is a minor but consistent increase in the metal concentrations between the upstream and the downstream stations. This trend has been noted previously and suggests that surface water runoff from the quarry has a minor effect on the West Pine River.

Station WP-SP was circum-neutral at pH 8.1. Conductivity was 350 and 410 µS/cm, and sulphate concentrations were low at 9.2 and 108 mg/L. Metals were low relative to the West Pine River.

Overall, the field pH and conductivity measurements for all three West Pine Quarry monitoring stations (WP-US, WP-DS, and WP-SP) were comparable to laboratory measurements.



LEGEND

- Monitoring Location (Sampled in 2018 Q3)
- Monitoring Location (Not Sampled in 2018 Q3)

DATE SAVED:	Jan 08, 2019
DRAWN BY:	AL
REVIEWED:	NM
VERSION:	1

Coordinate System: NAD 1983 UTM Zone 10N
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter

1:750,000

0 10 20 Kilometers

CLIENT: PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project ARD/ML 2018 Annual Report

TITLE: West Pine Quarry – Water Quality MonitoringStations

PROJECT #: A416-1

FIGURE: 3.2-17

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Table 3.2-8:
Summary of Water Quality Monitoring Stations at West Pine Quarry - 2018

Station ID	Easting	Northing	Description
West Pine Quarry			
WP-US	524435	6151245	West Pine River, upstream of quarry
WP-SP	525616	6150898	Sediment pond in West Pine Quarry
WP-DS	525639	6150706	West Pine River, downstream of quarry

Table 3.2-9:
Summary of Water Quality Monitoring at West Pine Quarry - 2018

Station ID	*In situ* (Continuous) Monitoring? (Y / N / P*))	Lab Analyses (No.)	Grab Sample Quarter (No.)
WP-US	N	9	Q2 (3); Q3 (3); Q4 (3)
WP-SP		3	Q2 (2); Q3 (1)
WP-DS		10	Q1 (1); Q2 (3); Q3 (3); Q4 (3)

3.2.4 Quality Assurance and Quality Control

A quality assurance / quality control (QA/QC) program has been developed and implemented for surface water quality monitoring within the construction site. It is intended to validate monitoring data, and to identify potential deficiencies of the monitoring program. The QA/QC program is described in Appendix 3-D.

This section summarizes the results of the QA/QC program for 2018. The program included an evaluation of field blanks, replicate samples, total *vs*. dissolved metal concentrations, and hold time exceedances, further described below. General industry practice suggests QA/QC samples (*e.g*., blanks and duplicates) should constitute 10% of water quality samples obtained as part of the monitoring program. A total of 228 QA/QC samples were obtained (105 blanks and 121 duplicates) in 2018 out of a total set of 1832 samples collected as part of the ARD water quality monitoring program (including blanks or duplicates). QA/QC samples therefore represented approximately 12% of total samples collected, exceeding the 10% target.

Maxxam was instructed to screen water quality data against RSEM pond discharge limits starting in Q1 of 2017, where applicable. This approach has been useful to ensure rapid detection of potential exceedances in site or discharged water, particularly as the number of discharge locations is projected to increase as construction extends over a greater area.

3.2.4.1 Blanks

A total of 105 field blanks were collected as part of the 2018 surface water quality monitoring program (Appendix 3-C). These data indicate good overall contamination control, with the majority of parameter values (98%, not including pH, which is always detectable) in blank samples falling below the laboratory reported detection limit (RDL) as shown in Table 3.2-10. Certain field blanks had a small number of dissolved parameters that measured slightly above their RDL. This result is considered reasonable given almost all values fell below the analytical laboratory's acceptability criteria for trip blanks (*i.e.*, ≤2- times RDLs).

One blank collected on February 3, 2018, appears to have been contaminated, as described in the January to March 2018 quarterly ARD report (Lorax 2018f). In this sample, 31 parameters were detected at concentrations well above the 2×RDL Data Quality Objective (DQO), and certain parameters occurred at environmentally-relevant concentrations. For example, the T-Zn concentration was 56.2 ug/L, well above the end-of-pipe discharge limit for PAG-containing RSEM sediment ponds, while the T-Zn concentrations measured in other ARD samples measured on the same day were below the RDL. This and other comparable results for this dataset suggest the field blank collected on February 3, 2018, but not other samples, was compromised.

Excluding the field blank collected on February 3, 2018, a total of 44 parameter values out of the 9,400 measured (*i.e.*, 0.5%, which does not include pH) in field blanks collected in 2018 were greater than 2-times the RDL. The majority of these detects were for major ion-related parameters (*e.g.*, conductivity, SO_4, and Ca). These anomalies may be attributed to minor contributions of environmental Ca and other major ions to deionized (DI) water and laboratory bottles during the sampling procedure.

This result could also be related to the use of a lower RDL for Cl at the request of Lorax in 2017, resulting in occasional Cl hits in field blanks. Since August 8, 2017, a low-level Cl RDL has remained in place to ensure Cl concentrations less than 2 mg/L were being evaluated. This is because the BC water quality guideline for nitrite is Cl-dependent. Sulphate and Cl analytical methods are related, so low-level RDLs are also being used for SO_4 by default. This approach may have resulted in a higher number of detects for Cl and SO_4 in 2018 blanks, as observed in 2017. In general, these measurements do not measurably alter the interpretation of environmental monitoring data.

Overall, parameters detected in field blanks rarely occurred at concentrations observed in ARD monitoring samples. Parameters for which end-of-pipe discharge limits exist were rarely detected in field blanks. Therefore, 2018 results for field blanks are not suggestive of measurable or systemic contamination that could affect the interpretation of environmental monitoring data.

Table 3.2-10:
Comparison of number and type of detected parameters in field blanks in 2018

Quarter	Number of Field Blanks collected	Number of parameters analyzed in Field Blanks	Number of detected parameters > RDL	Number of detected parameters > 2× RDL	Top three parameters with the highest number of parameters > RDL[a]
1	21	1854	88	46[b]	1) T-Al (7) 2) Alk-T, Cl, D-Ca, and Bicarbonate (HCO_3) (5 each)
2	30	2687	37	8	1) Cl (6) 2) D-Cu, TOC (5 each)
3	30	2702	68	13	1) SO4, T-Hg (7 each) 2) T-Al, turbidity-lab (6 each)
4	24	2157	34	8	1) Turbidity-lab (13) 2) T-Hg (5) 3) D-Hg, DOC, and T-Hg (3 each)

RDL = Reported Detection Limit.
[a]Values in brackets represent the number of field blanks in which the parameter was above the RDL.
[b] Includes 31 detected parameters > 2× RDL in February 3, 2018, sample.

3.2.4.2 Replicates

A total of 121 field duplicates were collected as part of the 2018 surface water quality sampling program. In general, water quality results were generally similar between field duplicates. Table 3.2-11 shows the number of duplicates that had parameters with Relative Percent Difference (RPD) greater than the acceptability criteria of 20% and 50% (calculated only if the reported parameter value was greater than five-times the RDL in at least one of the sample duplicates). Table 3.2-11 also shows the total number of analytes for which the RPD between duplicates was higher than 20% or 50%. Overall, the relative proportion of analyte pairs with RPDs greater than 50% was low throughout the program, ranging from 0.2% in Q4 to 1.0% in Q1. The parameters that show the highest variability between samples (inferred from the number of RPD values greater than 50%) include nitrogen species, carbonate, T-Al, T-Zr and turbidity. In general, these parameters are similar to those flagged in previous quarterly and annual reports.

With respect to nitrogen species and particulate-phase parameters including T-Al, T-Zr, and turbidity, variability in concentrations between field duplicates may be attributed to environmental heterogeneity at the pond sampling location, minor changes to sample composition after collection, or potential sample contamination. In particular, spatial variability of suspended solid material, and organic colloids and complexes is a typical source of heterogeneity. While these results do not indicate measurable sample contamination over the course of the sampling program, they may suggest a degree of environmental variability. Such variability is not expected to measurably alter the interpretation of the data.

Table 3.2-11:
Comparison of duplicate and parameter counts with RPDs greater than 20% and 50% by quarter

Quarter	Total number of duplicates	Total number of parameters analyzed in duplicates	Number of parameters with RPD >20%	Number of parameters with RPD >50%
1	22	1,964	42	19
2	33	2,988	57	15
3	35	3,185	76	25
4	31	2,820	38	5

Of the parameters for which end-of-pipe discharge limits are approved (Cd, Co, Cu, TSS, Zn, and pH), two duplicate pairs for T-Cu and three duplicate pairs for T-Cd had RPDs greater than 50% in 2018 (Table 3.2-12). In all cases, the measured concentrations of each parameter fell below the RSEM end-of-pipe discharge limit except T-Cu in the RSEM-R5B-SP duplicate collected on January 3, 2018. The RSEM R5B pond was not discharging at the time. The results for that duplicate were reviewed and considered spurious, given: 1) the low T-Cu concentration in the original sample, 2) the low D-Cu concentrations in both the original and duplicate samples for January 3, and 3) the T-Cu concentrations measured in RSEM R5B samples in the weeks before and after January 3, 2018, all of which fell well below the T-Cu end-of-pipe discharge limit.

Table 3.2-12:
Comparison of 2018 duplicate RPDs greater than 50% for parameters with end-of-pipe discharge limits

Sample ID	Sample date	Parameter	Concentration (mg/L)		RPD (%)
			Original sample	Duplicate	
RSEM-R5B-SP	1/3/2018	T-Cu	0.00137	0.0146	166
RSEM-R6W-EOP	2/27/2018	T-Cu	0.00108	0.00257	82
RSEM-R6E-EOP	8/20/2018	T-Cd	0.000055	0.00001	136
RSEM-R5B-EOP	10/28/2018	T-Cd	0.000037	0.000074	67
RSEM-R6E-SP	12/18/2018	T-Cd	0.000052	0.000136	89

3.2.4.3 Total versus Dissolved Metals

Out of 58,913 total and dissolved parameter pairs compared in the 2018 dataset, only 114 dissolved metal values were flagged as being higher than their corresponding total metal value (0.19%). This represents a decrease from the previous year's rate of 0.35%, suggesting a general improvement in data quality between years. The parameters showing

the highest frequency of dissolved being greater than total were Cu (10 samples), Li (20 samples), Mo (19 samples) and Sb (11 samples). These parameters are consistent with those reported in previous quarterly and annual reports.

Quarterly statistics presented in Table 3.2-13 below show the total number of analyte pairs with dissolved metal values greater than 120% and 150% of the corresponding total. In general, the highest number of incidents occurred in Q4. The drivers behind this increase in Q4 are uncertain, but are largely attributed to Mo and Li, which collectively accounted for two-thirds of the flagged values in Q4 2018. Neither Mo nor Li have an approved RSEM sediment pond end-of-pipe discharge limit.

Table 3.2-13:
Quarterly comparison of samples in which a dissolved metal was higher than total

Quarter	Total number of samples collected	Number of parameters with D >120% T	Number of parameters with D >150% T
1	340	24	7
2	510	28	9
3	495	23	10
4	489	39	19

D = dissolved metal fraction
T = total metal fraction

When a dissolved parameter was measurably higher than total, the event was typically isolated to one to three parameters in a single sample. An exception to this trend occurred in samples collected on August 25, 2018, in which eight dissolved metal flags occurred across samples collected from RSEM-R5B-EOP, RSEM-R6W-EOP, RSEM-R6E-EOP, and L5-TPSP. Contributing factors to this event are uncertain, but the event appears to have been isolated to a single day and to a small number of parameters. The parameters affected (Al, B, Sb, Si) do not have RSEM sediment pond end-of-pipe discharge limits.

Overall, the results comparing dissolved metal values to total for 2018 reflect a reasonable confidence in the data. The reported values for certain parameters (Cu, Li, Mo and Sb) may be associated with higher uncertainty, as noted in previous reports. This conclusion reflects the ongoing effectiveness of the surface water quality QA/QC program to identify and mitigate where possible potential data issues and uncertainties.

3.2.4.4 Hold Time Exceedances

PRHP makes every effort to have samples delivered to Maxxam within recommended hold times, and in 2018 all samples met this criterion. Once delivered to the laboratory, samples enter a queue for processing and analysis, and may be analyzed marginally outside of recommended hold times (*e.g.,* by one day). The parameters most commonly analyzed by the laboratory outside the recommended hold times were orthophosphate, turbidity, nitrate,

nitrite, nitrite+nitrate, and DOC. Analysis outside of the recommended hold time does not mean than the sample is compromised but may increase the uncertainty of the sample results.

pH has the shortest hold time of all parameters (15 minutes), making it impossible to submit the samples to the analytical laboratory within the recommended time frame. This limitation is mitigated by PRHP by monitoring pH in the field. Field measurements for pH show a high degree of consistency with corresponding same-day samples collected for laboratory analysis. For example, the mean RPD between all corresponding field and laboratory pH measurements from RSEM R5B, R6 east, and R6 west sediment ponds was 3% in 2018.

3.2.4.5 Data Import Screening

A data import screening system was developed for water quality monitoring data entered into the EQWIN database in 2017 Q1. Lorax and PRHP asked Maxxam to implement a system by which laboratory flags or notes are included as EDD comments with each water sample CoA in 2017 Q2. These comments include screening notes for the following flags:

- Dissolved metals measurably higher than totals;
- Nitrite higher than nitrate;
- Calculated charge balance greater than 5%;
- Hold time exceedances; and
- Raised detection limits.

These notes are imported into EQWIN as part of the data import screening process for further review.

Weekly ARD reporting has included summaries of the first four flags listed since mid- 2017. This process has been a useful tool to provide high-level data QAQC on a weekly basis and complements the more-detailed QAQC analysis conducted on a quarterly basis. This approach has proven to be an effective way to address QAQC concerns in reported water quality data in a timely and expedient manner.

In addition to QAQC flags reported weekly, a data screening step was implemented for *in situ* data reported by data loggers installed in active RSEM ponds. As part of weekly ARD reporting, Lorax and PRHP review conductivity, turbidity and pH statistics collected over the weekly reporting period and compare results to corresponding laboratory analytical data. Comparison of *in situ* data to laboratory analytical data for the same time period serves as a reasonable check for logger values. A logger value that is measurably higher or lower than the analytical value may indicate the logger requires servicing or may provide

an indication of an issue related to data representativeness (*e.g.*, based on logger's deployment location in pond).

3.2.4.6 Conclusions

Overall, the QA/QC results for the 2018 sampling program provide a reasonable level of confidence in the water quality data sample set. Minor issues associated with sample representativeness are noted but are not expected to measurably alter the interpretation of sampling data. Trends noted in the sections above will continue to be monitored and appropriate action will be taken to minimize potential sample contamination and data variability.

4. Key Findings

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4. Key Findings

The purpose of this section is to provide additional information that is required by the BC Hydro ARD/ML Management Plan or has been specifically requested by BC Hydro. It includes the updated relationship between turbidity and TSS, an assessment of the onset of ARD/ML, a summary of mitigation measures that were employed in 2018, a summary of exceedances of project-specific discharge limits that occurred in 2018, and an estimation of metal loads discharged to the Peace River.

4.1 Turbidity – TSS Relationship

The preliminary TSS-Turbidity relationship for all RSEM Area sediment ponds was derived prior to the start of construction and is presented in the Environmental Protection Plans (EPPs) that were developed for each construction area. The preliminary relationship is:

$$\text{TSS (mg/L)} = 0.83 \times \text{Turbidity (NTU)}$$

PRHP maintains current turbidity – TSS relationships for each RSEM sediment pond where *in situ* monitoring equipment is installed and updates these relationships on a regular basis. The relationships in use throughout 2018 are summarized in Table 4.1-1 below. These conversions are unchanged since the beginning of the year.

Table 4.1-1:
Turbidity to TSS Conversion Relationships for In Situ Monitoring Equipment

Location	Conversion
RSEM-R5B-SP	TSS = 1 X (Turbidity) + 2.0
RSEM-R6-SP	TSS= 0.85 X (Turbidity) + 1.4
Peace River*	TSS: Turbidity of 0.73:1

* Calculated at PAM stations (Peace River, above Moberly River); Ganshorn and Durston (2019)

4.2 Onset of ARD/ML

Surface water quality and geochemical monitoring data are reviewed on a weekly and monthly basis, respectively, to identify trends in the onset of ARD/ML. Monitoring results confirm previous evidence of localized acidic rock on both the Left Bank and Right Bank.

4.2.1 Left Bank

Key observations with respect to the onset of ARD/ML on the Left Bank from 2018 are as follows:

- There is exposed PAG bedrock at the west end of the LBEX, above the main haul road that leads from the LBEX to RSEM Area L5. The four samples obtained from this area in 2018 were acidic, and the exposure has been acidic for at least one year, as most samples collected from this area in 2017 were also acidic.
- Acidic bedrock samples were collected in both the DTIP area (3 of 5 samples) and the DTOP area (2 of 5 samples) from areas that were not yet covered with shotcrete.
- The groundwater sump on the floor of the DTIP area was excavated in PAG bedrock and groundwater inflows from PAG strata are expected in this sump. Water quality is elevated in conductivity and sulphate as well as low pH (minimum pH of 3.2). Total Fe, Mn Cd and Zn were elevated indicating possible groundwater influence. Dissolved metals were also elevated at low pH values but remained at low concentration when pH was circum-neutral. This sump was dewatered to the MWTF in 2018 Q4.
- The LBEX-SP sediment pond became acidic midway through 2017. The acidic pH was attributed to a natural bluff containing exposed, weathered shale, located directly upslope of the pond. The pH remained below 6 until August 2018 when it increased to pH 7.1. After this time, the pH increased to a maximum of 9.0 in early December 2018 before decreasing slightly to 7.2 at the end of 2018. Sulphate concentrations increased slightly over 2018 whereas metal concentrations were low once the pH increased above 6. The conductivity continued to increase in 2018 due to an increase in Na and Cl concentrations. The change in water chemistry is possibly due to influence from the addition of the Adit 4 grout contact water. The weathered bedrock samples collected from the bluff in October 2018 indicate that the bluff remains acidic.
- The RSEM Area L5 and RSEM Area L6 stockpiles contain a total of approximately 773,000 m^3 of PAG material. The majority of this material had a relatively short exposure time due to the rapid placement of both overburden and PAG in RSEM Area L5. However, acidic samples were indentified in RSEM Area L5 in 2018 (12 of 32 samples). Only PAG was placed in RSEM Area L6. No samples were collected in RSEM Area L6 in 2018 as material was not placed in this area until December.
- The L5-TNCP pond became acidic at the end of Q2 following a period of heavy rain and remained acidic at the beginning of Q3. During this period, the conductivity, sulphate and metal concentrations were also elevated. The ARD/ML source to this pond is likely from rinsing of ARD/ML products from PAG rock in the LBEX. There may have also been some contribution from the upper part of RSEM Area L5. The two samples collected later in July had circum-neutral pH and did not show a significant indication of ARD/ML rinsing into the pond following

the heavy rainfall event from July 20th to 22nd. This pond was infilled at the end of Q3.

4.2.2 Right Bank

Water quality monitoring on the Right Bank led to the following key observations:

- PAG or AG bedrock is exposed over a large surface area in the Approach Channel. In 2018, 21 of 34 ARD monitoring samples collected in this area were acidic. The water quality at RBAC-SUMP and RB-R5B-ACDC indicates these sites are influenced by groundwater seepage through PAG shale, and by surface runoff during snowmelt or heavy rains. The RBAC-SEEP and RBAC-SUMP stations were circum-neutral throughout 2018 and were slightly elevated in sulphate and metal concentrations. The pH at station RB-R5B-ACDC remained cincum-neural throughout 2018 as well (it was sampled monthly and was not sampled during the major precipitation events). The Approach Channel benches were excavated in Q4, with 75% of the benches scraped to fresh bedrock. Excavated material was placed in RSEM Area R5A. The remaining Approach Channel excavation to scrape surficial weathered shale and expose fresh bedrock is planned for 2019 Q1. Prior to completing the excavation of weathered bedrock within the Approach Channel and diversion ditch, surface water runoff collected in RB-R5B-ACDC will likely require treatment to meet EoP discharge limits.
- The discharge from RSEM R5B sediment pond had elevated sulphate and metals following the snowmelt in late March and heavy rainfall events in June, July and September. A decrease in pH was temporarily observed on September 9th to 10th. The elevated sulphate and metal values are likely due to rinsing of ARD products from the exposed bedrock. Sulphate was also elevated in mid-August, which was not related to a rainfall event.
- Water quality from the RSEM R6 sediment ponds was generally good in 2018. An exceedance of the CEMP T-Zn discharge limit from RSEM R6 WP was observed November 30, susequently this pond was dewaterd to the MWTF Pre-Treatment Pond.
- A total of more than 4.1M m^3 of PAG material has been deposited in the RSEM Area R5A. Active management is required to cover this material in a timely fashion, to minimize potential degradation of surface water runoff in the RSEM R5A catchment area. Fresh material was placed in RSEM Area R5A in 2018. However, there are areas that contained exposed acidic material throughout the year. In 2018, 53 of 137 samples collected in the RSEM Area R5A were acidic.

4.3 Mitigation

Given the onset of ARD/ML in exposed PAG material on both banks, mitigation has been implemented to minimize effects on surface water and groundwater quality. Potential environmental effects from ARD/ML are mitigated primarily through covering of weathered PAG material with fresh PAG or other material, water management and water treatment. These key mitigation measures that were employed in 2018 are summarized below.

4.3.1 Material Management

Weathered PAG material was excavated or covered to minimize potential ARD/ML on both the Left and Right Banks. The timely excavation or cover of weathered material is a key mitigation strategy in the RSEM Area L5 disposal area, in the Approach Channel, and in the RSEM Area R5A disposal area. Exposed shale in the Approach Channel has become acidic over a relatively extensive area and ARD/ML was generated from this area during storm events in 2018. Additional excavation and water management measures were recommended (Lorax, 2018e). Excavation of weathered material was initiated in late 2018 to mitigate this effect (Lorax, 2018d). Completion of the interim excavation, and construction of additional water retention capacity are recommended prior to the onset of warmer weather in spring 2019.

4.3.2 Water Management

PAG-contact surface water runoff was stored on both banks through 2018, and water requiring treatment was conveyed (by water truck or pumped from the Approach Channel) to the MWTF once operation of the facility started in July. The MWTF was operated continuously from that time through the end of the year.

On the Left Bank PAG-contact surface water runoff was managed to prevent direct discharge to the Peace River. PAG-contact water was held in several temporary ponds and was trucked to either the MWTF if treatment was deemed necessary or was trucked to the RSEM Area R6 sediment ponds otherwise. On the Left Bank water was collected from L5-TPSP, LBEX-SP, LBEX-GW, DTIP and DOC sumps and transferred to the MWTF Pre-Treatment Pond.

On the Right Bank, surface water runoff is conveyed to the RSEM Area R6, R5B or R5A sediment ponds. In general, surface water runoff in the RSEM Area R6 was managed so that it remained within project-specific discharge limits and was discharged via the RSEM Area R6 sediment ponds. In the RSEM Area R5B catchment, surface water runoff was directed to the MWTF once the facility was operational from mid-July. There were

exceedances of discharge limits during snowmelt and precipitation events prior to operation of the MWTF in late July. The water management system was not adequately robust to convey all storm water to the Pre-Treatment Pond in major rain events after the MWTF was operational. It was recommended that additional water retention capacity be constructed within or downgradient of the Approach Channel, as noted above (see Lorax, 2018c). Water was trucked from the Trial Dome, RSEM R6 WP, RBDT and the RSEM R5A ponds to the MWTF Pre-Treatment Pond.

4.3.3 Mobile Water Treatment Facility

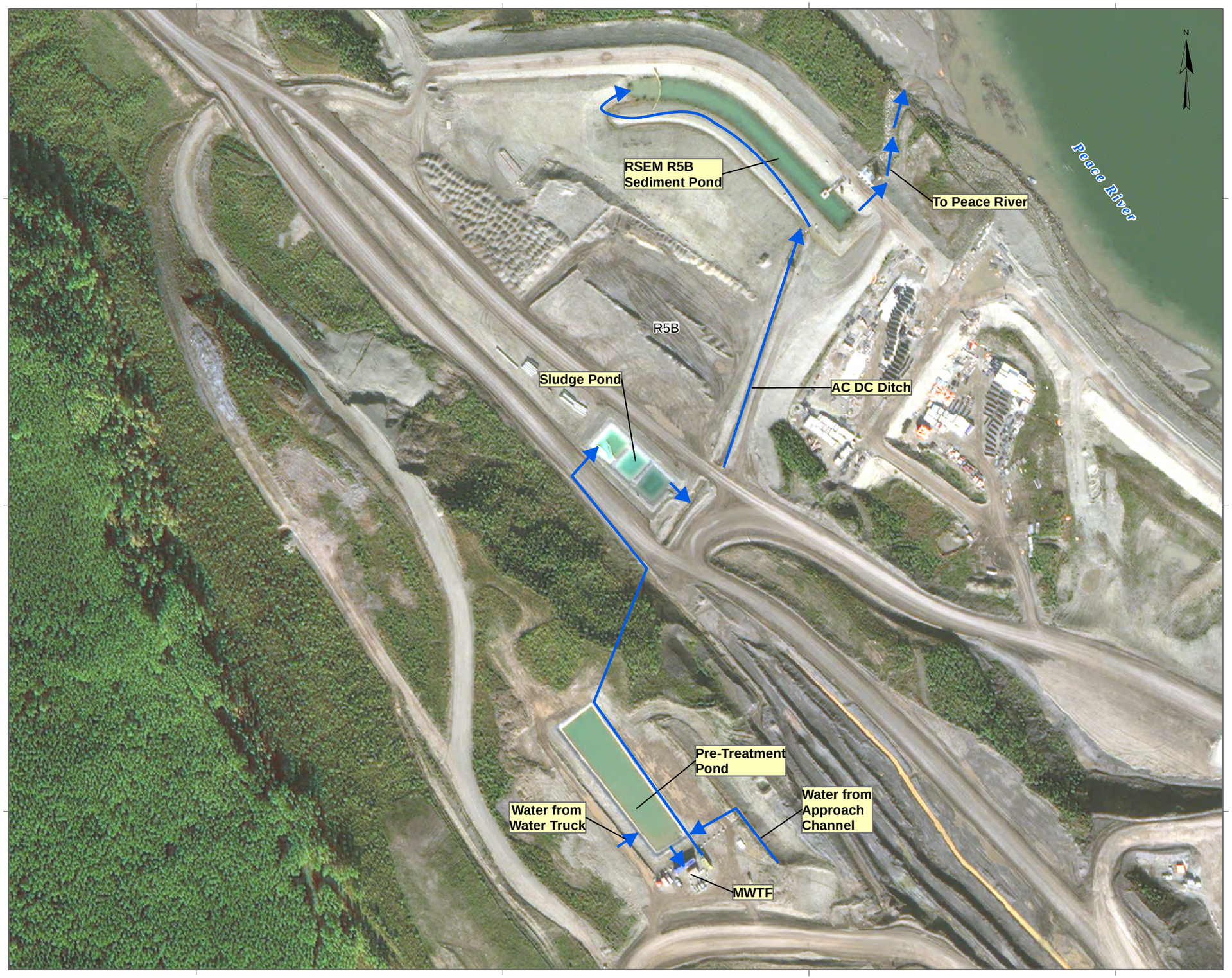
PRHP commissioned a Mobile Water Treatment Facility (MWTF) early in Q3. The MWTF is located on a pad located south of RSEM Area R5B. PAG-contact water is pumped to the Pre-Treatment Pond which is located adjacent to the MWTF. The MWTF effluent is discharged to a sludge pond, which is divided into three sequential cells by lined berms. Discharge from the final cell is directed to the RSEM R5B sediment pond through the AC DC ditch. This configuration is shown in Figure 4.3-1 below.

The MWTF was operated from mid-July through to the end of the year, treating influent flows ranging from approximately 6 L/s to the design flow of 10 L/s (AWT, 2018). Surface water runoff from the Approach Channel was treated throughout this period, and relatively small volumes of water from other parts of the site were trucked to the Pre-Treatment Pond if the water required treatment for dissolved metals, and also to supplement influent flows during the winter period when Approach Channel flows were insufficient to maintain operating levels within the Pre-Treatment Pond. Approach Channel water was collected in a long ditch at the base of the channel and pumped up to the Pre-Treatment Pond. Water from other locations (L5-TPSP, LBEX-SP, LBEX-GW, DTIP, DTOP, RSEM R6 WP, RBDT and East Conveyor) was trucked to the Pre-Treatment Pond during Q4.

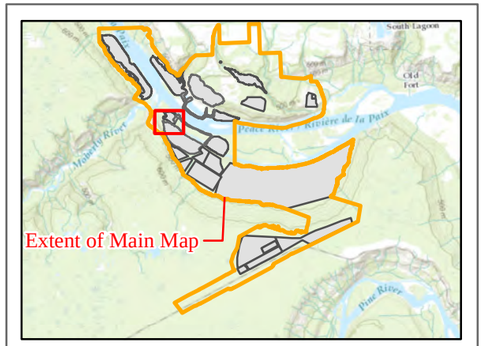
The treatment process adds a lime slurry to the influent to increase pH into the target range of 9.6 - 9.8, which precipitates metals as insoluble metal hydroxides. A flocculant is added to facilitate the coagulation and settling of the freshly precipitated solids. The process produces a gelatinous sludge with slow settling characteristics. A new flocculant was introduced in Q4 to improve sludge settling and solids content. The effluent pH is reduced to acceptable levels prior to discharge by sparging CO_2 into the settling pond final cell.

The treatment process effluent contains suspended particulates that are settled in the MWTF sludge pond. The accumulated sludge is periodically removed by Troyer using a vacuum truck for off-site disposal at the Tervita Treatment Recovery and Disposal Facility near Fort St. John. Sludge was removed on a monthly basis from August to December 2018. In total, 65 m^3 of sludge was shipped offsite in 2018.

629,000



629,000



Legend

Direction of Flow

0 50 100 Meters

1:2,500

DATE SAVED: Mar 14, 2019 **REVIEWED:** NM

DRAWN BY: AL **VERSION:** 1

CLIENT:

PEACE RIVER HYDRO PARTNERS

LORAX ENVIRONMENTAL

PROJECT:

Site C Clean Energy Project
ARD/ML 2018 Annual Report

TITLE:

MWTF Inflows and Outflows

PROJECT #: A416-1

FIGURE: 4.3-1

Coordinate System: *NAD 1983 UTM Zone 10N* ***Datum:*** *North American 1983* ***Units:*** *Meter*

Path: *P:\@Drafting\SiteC\Drafting Figures\MXD\2018AnnualReport\Fig 4_3_1_MWTF InflowsOutflow_20190313.mxd*

The MWTF process was effective at buffering pH and reducing metal concentrations to within the project-specific discharge limits in treated water. However, the treatment capacity was briefly overwhelmed during heavy rain events at which time excess non-treated water temporarily discharged to the RSEM R5B sediment pond, notably in July and September. Water management practices were modified in September to increase the Pre-Treatment Pond capacity by lowering the pond water level, and by reducing water directed to the Pre-Treatment Pond from other areas.

Additional water treatment capacity may be warranted should material management and water management measures be unable to sustain acceptable water quality in discharges from RSEM sediment ponds. Left Bank PAG water sources in 2019 include the additional 750,000 m^3 of PAG material may be deposited in RSEM Area L5, continued runoff from the natural PAG bluff above the LBEX-SP pond, and for contact water generated during construction of the Diversion Inlet and Diversion Outlet Tunnels. Future PAG water sources on the Right Bank may include runoff from increased surface area in the Approach Channel or weathered PAG exposures in RSEM R5A. Material management and water management are the primary and secondary mitigation strategies as noted above, and additional water treatment will only be considered as a contingency measure, if necessary.

4.4 Risk Ratings

An Exceedance Response Plan (PRHP, 2017a) was finalized in June 2017. It includes a risk rating matrix that is intended to facilitate the advanced planning and strategic implementation of water treatment, recognizing that procurement, construction and commissioning of a water treatment facility requires some lead time.

A water quality risk rating of low, moderate or high is assigned to each the water collection system on the left bank that includes the LBEX sediment pond. The LBEX sediment pond collects surface water runoff that has been affected by a natural acid generating exposure in the extensive bluff downgradient of the base of the LBEX, as noted above. In additional consideration has been given to active PAG-containing RSEM sediment ponds. These include the RSEM Area L5, R6W, R6E, R5B and R5A sediment ponds.

The rating system employed for the RSEM ponds reflects:

- The current geochemical risk in the catchment area upgradient of the sediment pond, as determined primarily from the proportion of exposed material with low (< 5.5) rinse pH values;
- The quality of the water that has accumulated in the pond, as determined primarily by the sulphate concentration, field pH and field conductivity; and
- Other information determined to be relevant.

The current risk ratings are summarized in Table 4.4-1 below. The general intent of the risk ratings is to trigger action when the onset of ARD/ML is evident (moderate rating) and when water treatment will soon be required to maintain compliance with end-of-pipe discharge limits (high rating).

The LBEX sediment pond is a special case, as it contains PAG-contact water affected by the extensive, natural PAG bluff above it, as noted above. In 2018 it was also affected by water that emanated from Adit 4 within the bluff. This is expected to continue until mid-2019. The rating remains high.

The RSEM Area L5 catchment has been added to the risk rating matrix. A total of more than 750,000 m^3 of PAG material was placed in RSEM Area L5 by the end of 2018. This material originated from the west end of the LBEX, and from the DTIP and DTOP areas. The PAG material is mixed with, and partly or completely covered by NPAG material, which may slow the onset of ARD/ML, and minimize the volume of ARD in the short-term. RSEM Area L5 was essentially at capacity at the end of 2018 and is expected to remain in place with only minor additional grading and recontouring until flooded in 2024. The area is currently rated as low risk. Surface water quality monitoring in RSEM Area L5 will be undertaken in 2019 and the risk rating will be re-evaluated on a quarterly basis.

The RSEM R6E and R6W sediment ponds are assigned a “low” risk rating. Monitoring data indicate the water quality of these ponds generally meet end-of-pipe discharge limits, this is consistent with the relatively small areas of acid generating bedrock exposed in the upgradient catchments of the RSEM R6E and R6W ponds.

The RSEM R5B sediment pond is rated as high risk. As described in the Q2 report, PAG influenced runoff from the Approach Channel excavation used to report directly to RSEM R5B pond, however since July 2018 these flows have been diverted to the MWTF for treatment prior to discharge to RSEM R5B pond, thereby mitigating the risk of RSEM discharge limit exceedances. The treatment process was effective. However, due to water management constraints RSEM R5B discharges exceeded end-of-pipe discharge limits during heavy rain events. The RSEM R5B exceedances reported in late July and September were associated with high surface flows caused by heavy rain events, with untreated PAG runoff bypassing the MWTF and reporting directly to the RSEM R5B pond. It is recommended that water management practices be modified to increase storage capacity for PAG runoff.

Table 4.4-1:
Risk Rating Matrix for PAG-Containing RSEM and LBEX Sediment Ponds
As of September 30, 2018

Factor	Sediment Pond(s)					
	L5	**LBEX[1]**	**R6W[3]**	**R6E[2]**	**R5B**	**R5A[3]**
% of exposed material with rinse pH < 5.5	< 10%	> 25%	< 10%	< 10%	> 25%	> 25%
pH (in sediment pond)	lab pH > 7.5 in all samples	Lab pH < 8 in 2 samples	lab pH > 7.8 in all samples	lab pH > 8 in all samples	Lab pH > 7.8 in all samples	Lab pH > 7.5 in all samples
Sulphate (in sediment pond)	sulphate < 300 mg/L in E pond	sulphate > 1,000 mg/L in all samples	sulphate < 400 mg/L in all samples	sulphate < 650 mg/L in all samples	sulphate ≤ 1,050 mg/L in X samples	sulphate > 390 mg/L in all samples
Conductivity (in sediment pond)	lab conductivity < 800 µS/cm in all E Pond samples	Laboratory conductivity > 3,000 µS/cm in all samples	lab conductivity < 1,800 µS/cm in all samples	lab conductivity > 1,450 µS/cm in all samples	Lab conductivity >2,600 µS/cm in all samples	Lab conductivity > 980 µS/cm in X samples
Risk Rating						
Rinse pH of exposed material in catchment	Low	High	Low	Low	High	High
pH (in sediment pond)	Low	Moderate	Low	Low	Low	Low
Sulphate (in sediment pond)	Low	Moderate	Low	Moderate	Moderate	Moderate
Conductivity (in sediment pond)	Low	High	Moderate	Low	Moderate	Moderate
Overall Risk Rating	**Low**	**High**	**Low**	**Low**	**High**	**Moderate**

Notes:
1. Water quality sampling of the LBEX is less frequent than other ponds (monthly)
2. It is understood that much of the Approach Channel runoff reported to R6 sediment ponds in early 2018, however, water management has redirected this water to the R5B sediment pond. The remaining R6 catchment is assigned a low risk rating due to bedrock exposure being limited to the RCC and SBIAR exposures.
3. Water quality sampling at RSEM R5A is less frequent than the R5B and R6 sediment ponds, as there is no discharge to the Peace River from this pond.

The RSEM R5A ponds are currently rated as moderate risk, indicating that the onset of ARD/ML is evident in the upgradient catchment. Sustained runoff from the RSEM area to the sediment ponds was not observed and these ponds did not discharge in 2018. Although sulphate and conductivity indicate a high-risk rating, the dissolved metal concentrations of Cd, Cu, Co and Zn were at non-detect or trace levels and well below end-of-pipe discharge limits. Surface water quality would have to meet BC WQG if the ponds did discharge with the current configuration (*i.e*. the outfalls are not completed to river). PRHP is closely monitoring the RSEM R5A sediment ponds, and intends to modify the discharge configuration, if and when necessary. Additional management measures to mitigate risk include: 1) minimizing exposures of acid generating surfaces by placement of fresh PAG and non-PAG material to cover weathered PAG materials, which will limit contact of surface runoff with acid generating materials; and, 2) active management of water levels in the RSEM R5A ponds to prevent discharges. Active management options could include adding additional temporary water storage, pumping water between the different RSEM R5A ponds or transporting water by truck to other sediment ponds on site.

4.5 Water Quality Exceedances

Any exceedance of end-of-pipe discharge limits in water discharged from PAG-containing RSEM sediment ponds to the Peace River is reported within 24 hours of receiving the analytical water quality results. Exceedances are also noted in weekly reports. Exceedances in surface water runoff discharged from the construction site in 2018 from the Left Bank and Right Bank are summarized below.

4.5.1 Left Bank

Contact water from the construction site was held in the L5-TNCP, L5-TPSP and LBEX-SP ponds, and within the DTIP and DTOP work areas. Some water from the LBEX-SP, DTIP and DTOP work areas was transferred to the MWTF or the RSEM R6 ponds.

4.5.2 Right Bank

There were several occasions when the concentrations of certain parameters in water discharged from PAG-containing RSEM sediment ponds exceeded end-of-pipe discharge limits. These events are summarized in Table 4.5-1, followed by a more detailed summary of each exceedance.

Table 4.5-1:
Summary of Exceedances in 2018

Date(s)	Station	Parameter(s)	Date Reported	Cause; Recommended Mitigation
March 18 – 30	RSEM-R5B-EOP	T-Cd T-Cu T-Zn	March 29, April 7, April 12	Runoff from AG surfaces; procure water treatment
March 22	RSEM-R6W-SP	T-Cu	April 3	Runoff from AG surfaces; investigate cause
April 2 – 4	RSEM-R6E-EOP	T-Zn	April 12	Runoff from AG surfaces; procure water treatment
April 9 – May 4	RSEM-R5B-EOP	T-Cd T-Zn	April 27, May 1,3,4, 7,9,11,14,16	Runoff from AG surfaces; procure water treatment
June 26 – July 3	RSEM-R5B-EOP	T-Cd T-Zn	July 5, 7, 10, 13, 16	Runoff from AG surfaces; procure water treatment
July 21 – 24	RSEM-R5B-EOP	T-Cd T-Zn	August 3	Runoff from AG surfaces; complete commissioning of MWTF
September 9 – 20	RSEM-R5B-EOP	T-Cd T-Zn	September 14,21,25,29, October 1	Runoff from AG surfaces; increase water retention capacity
November 30	RSEM-R6W- EOP	T-Zn	December 10	Runoff from AG surfaces; Restrict PAG-contact water trucked to RSEM-R6 ponds

4.5.2.1 March 18th – April 4th Exceedance at the RSEM R5B Sediment Pond

The concentration of T-Cd exceeded discharge limits at the RSEM-R5B-EOP station from March 19th to March 25th (excluding March 23rd). In addition, T-Zn exceeded the discharge limit at the RSEM-R5B-EOP station from March 19th through March 30th (excluding March 23rd). This was due to snowmelt rinsing ARD/ML products from exposed shale in the Approach Channel. It was recommended that PRHP expedite procurement of water treatment and consider whether additional stormwater retention could be provided within the Approach Channel. The exceedance event is summarized by day in Table 4.5-2. The concentrations and discharge volumes are shown in Figure 4.5-1.

The concentration of T-Cu exceeded the discharge limit at the RSEM-R5B-EOP station on March 18th. The measured concentration was suspected to be related to an unknown (environmental) source, or sampling or analytical error.

Table 4.5-2:
Summary of Exceedance for RSEM R5B – March 18th – 30th, 2018
(Snowmelt Induced Rinsing of Approach Channel During Thaw)

Sample No.	Date Sampled	Date Results Received	Parameter	Measured Concentration (mg/L)	Discharge Limit (mg/L)	Estimated Volume Discharged (m^3)
TD6170	3/18/2018	3/26/2018	T-Cu	0.0884	0.011	8.1
TD4114	3/19/2018	3/27/2018	T-Cd	0.002	0.00029	0.2
			T-Zn	0.493	0.033	
TD4117	3/20/2018	3/27/2018	T-Cd	0.000817	0.00029	5
			T-Zn	0.192	0.033	
TD7837	3/21/2018	3/29/2018	T-Cd	0.00116	0.00029	240.5
			T-Zn	0.315	0.033	
TD7855	3/22/2018	3/29/2018	T-Cd	0.00075	0.00029	108.8
			T-Zn	0.192	0.033	
TE2569	3/24/2018	4/3/2018	T-Cd	0.000315	0.00029	1.3
			T-Zn	0.0712	0.033	
TE2566	3/25/2018	4/3/2018	T-Cd	0.00030	0.00029	1.9
			T-Zn	0.0663	0.033	
TE2572	3/26/2018	4/3/2018	T-Zn	0.0349	0.033	6.4
TE6114	3/27/2018	4/6/2018		0.0406		22
TE7736	3/28/2018	4/6/2018		0.0369		13
TE7727	3/29/2018	4/5/2018		0.0372		16
TE9239	3/30/2018	4/10/2018		0.0374		27

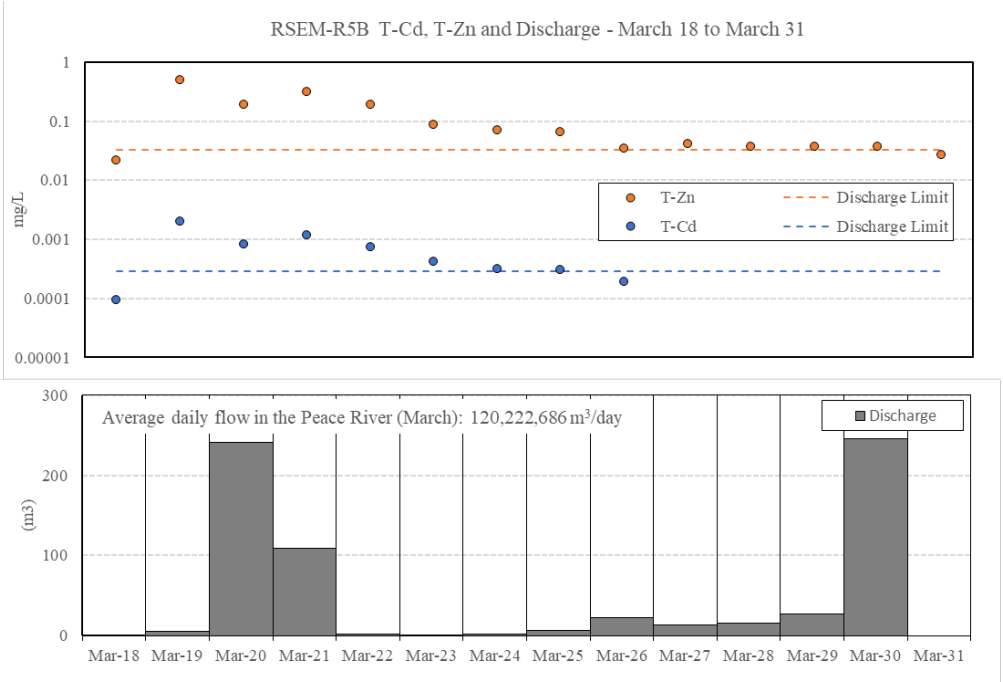


Figure 4.5-1: Time series profile for T-Cd and T-Zn concentrations (upper plot) and volume of water discharged (lower plot) at RSEM-R5B-EOP – March 18th – 30th, 2018

4.5.2.2 March 22nd Exceedance at RSEM R6W Sediment Pond

The concentration of T-Cu was measured to be 0.0455 mg/L in the RSEM-R6W sediment pond at 12:15 on March 22nd during a warm period when the snowpack was melting. There was discharge from the pond until approximately 04:00 that morning, at which point discharge from the pond ceased. A sample was obtained from the end-of-pipe at 06:45 the previous morning when there was discharge from the pond, at which point the concentration (0.00327 mg/L) was below the discharge limit (0.011 mg/L). Consequently, while uncertain, it is possible that the T-Cu concentration exceeded the discharge limit when there was discharge from the pond. The exceedance is summarized in Table 4.5-3.

Table 4.5-3:
Summary of Exceedances for RSEM R6W – March 22nd, 2018

Sample No.	Date Sampled	Date Results Received	Parameter	Measured Concentration (mg/L)	Discharge Limit (mg/L)	Estimated Volume Discharged (m^3)
TD7854	3/22/2018[A]	3/29/2018	T-Cu	0.0455	0.011	87.7

[A] This sample was collected in the pond when the pond was no longer discharging for that day.

4.5.2.3 April 2nd – 4th Exceedance at RSEM R6E Sediment Pond

The concentration of T-Zn exceeded the discharge limit at the RSEM-R6E-EOP station from April 2nd to 4th. This was caused by snowmelt rinsing ARD/ML products from exposed shale in the RCC excavation area. It was recommended that a water treatment system be procured, and this water directed to the water treatment facility in future, if necessary. The exceedance is summarized in Table 4.5-4.

Table 4.5-4:
Summary of Exceedances for RSEM R5B – April 2nd – 4th, 2018
(Snowmelt Induced Rinsing of Approach Channel)

Sample No.	Date Sampled	Date Results Received	Parameter	Measured Concentration (mg/L)	Discharge Limit (mg/L)	Estimated Volume Discharged (m^3)
TF2035	4/2/2018	4/11/2018	T-Zn	0.0479	0.033	385
TF4119	4/3/2018	4/11/2018		0.0386		447
TF4122	4/4/2018	4/11/2018		0.0386		396

4.5.2.4 April 9th – May 4th Exceedance at RSEM R5B Sediment Pond

The concentrations of T-Cd and T-Zn exceeded the discharge limits at the RSEM-R5B-EOP station from April 9th to May 4th. This was caused by snowmelt rinsing ARD/ML products from exposed shale in the Approach Channel. It was recommended that procurement of a water treatment system be completed. The exceedance is summarized in Table 4.5-5. The concentrations and discharge volumes are shown in Figure 4.5-2.

Table 4.5-5:
Summary of Exceedances for RSEM R5B – April 9th to May 4th, 2018
(Surface Water Runoff from Approach Channel - Spring Thaw)

Sample No.	Date Sampled	Date Results Received	Parameter	Measured Concentration (mg/L)	Discharge Limit (mg/L)	Est. Vol. Discharged (m^3)
TG2639	4/9/2018	4/18/2018	T-Cd	0.000295	0.00029	245
			T-Zn	0.0511	0.033	
TG4219	4/10/2018	4/19/2018	T-Cd	0.000626	0.00029	512
			T-Zn	0.137	0.033	
TG5969	4/11/2018	4/19/2018	T-Cd	0.000973	0.00029	815
			T-Zn	0.262	0.033	
TG7676	4/12/2018	4/23/2018	T-Cd	0.00102	0.00029	357
			T-Zn	0.256	0.033	
TG7680	4/13/2018	4/23/2018	T-Cd	0.00119	0.00029	788
			T-Zn	0.296	0.033	
TH0425	4/14/2018	4/24/2018	T-Cd	0.00144	0.00029	2846
			T-Zn	0.370	0.033	
TH0427	4/15/2018	4/24/2018	T-Cd	0.00455	0.00029	6671
			T-Zn	1.110	0.033	
TH3031	4/16/2018	4/26/2018	T-Cd	0.00201	0.00029	1933
			T-Zn	0.356	0.033	
TH3042	4/17/2018	4/27/2018	T-Cd	0.00288	0.00029	1727
			T-Zn	0.594	0.033	
TH5884	4/18/2018	4/30/2018	T-Cd	0.0358	0.00029	2932
			T-Zn	0.746	0.033	
TH5944	4/19/2018	2018/05/02	T-Cd	0.00218	0.00029	4114
			T-Zn	0.419	0.033	
TH5948	4/20/2018	2018/05/02	T-Cd	0.00265	0.00029	4825
			T-Zn	0.558	0.033	
TH8456	4/21/2018	4/30/2018	T-Cd	0.0381	0.00029	4436
			T-Zn	0.785	0.033	
TH8481	4/22/2018	5/1/2018	T-Cd	0.00207	0.00029	4565
			T-Zn	0.410	0.033	
TH9255	4/23/2018	5/2/2018	T-Cd	0.00237	0.00029	2352
			T-Zn	0.458	0.033	
TI1791	4/24/2018	5/4/2018	T-Cd	0.00169	0.00029	1950
			T-Zn	0.320	0.033	
TI3533	4/25/2018	5/4/2018	T-Cd	0.00158	0.00029	1582
			T-Zn	0.280	0.033	
TI3466	4/26/2018	5/5/2018	T-Cd	0.00128	0.00029	1710
			T-Zn	0.207	0.033	
TI4640	4/27/2018	5/5/2018	T-Cd	0.00118	0.00029	1349
			T-Zn	0.173	0.033	
TI5380	4/28/2018	5/5/2018	T-Cd	0.00131	0.00029	1241
			T-Zn	0.189	0.033	
TI7032	4/29/2018	5/4/2018	T-Cd	0.00188	0.00029	1223
			T-Zn	0.318	0.033	
TI8579	4/30/2018	5/7/2018	T-Cd	0.00122	0.00029	973
			T-Zn	0.174	0.033	
TJ1444	5/1/2018	5/9/2018	T-Cd	0.00139	0.00029	958
			T-Zn	0.189	0.033	
TJ1503	5/2/2018	5/10/2018	T-Cd	0.00126	0.00029	871
			T-Zn	0.168	0.033	
TJ4284	5/3/2018	5/11/2018	T-Cd	0.00085	0.00029	743
			T-Zn	0.0935	0.033	
TJ5493	5/4/2018	5/15/2018	T-Cd	0.00059	0.00029	722
			T-Zn	0.0623	0.033	

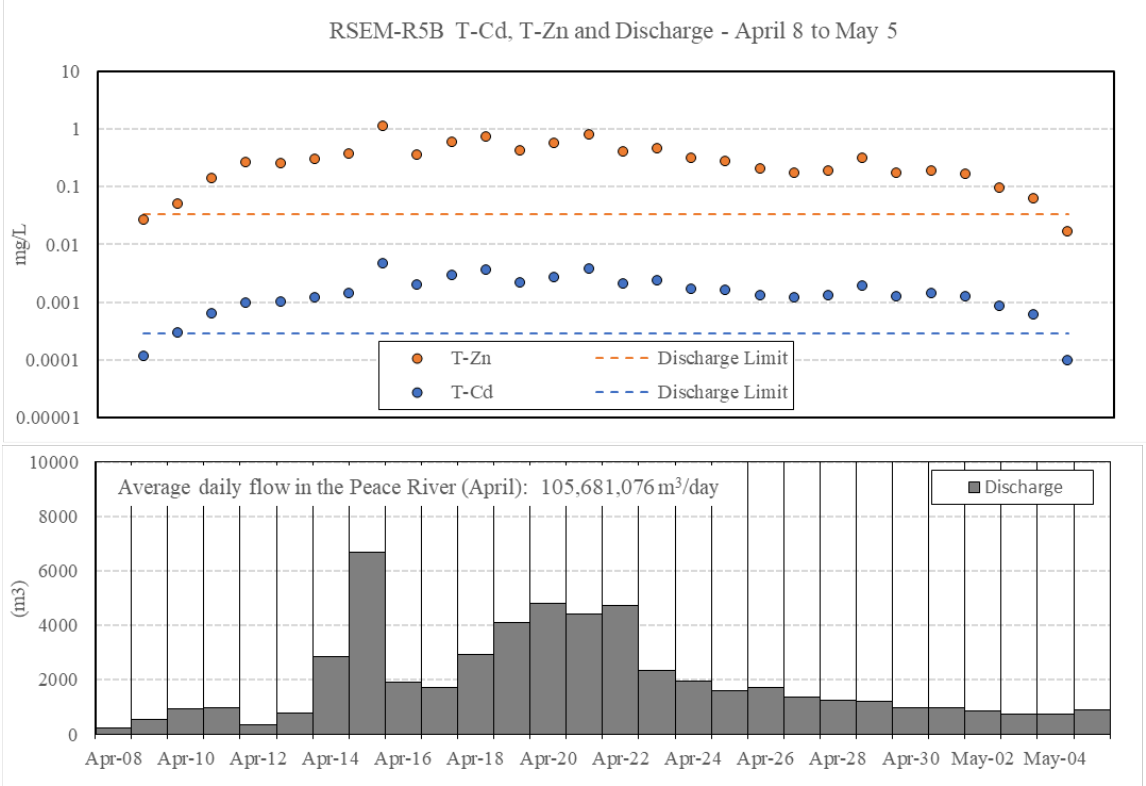


Figure 4.5-2: Time series profile for T-Cd and T-Zn concentrations (upper plot) and volume of water discharged (lower plot) at RSEM-R5B-EOP – April 9th – May 4th, 2018

4.5.2.5 June 26th – July 3rd Exceedance at RSEM-R5B Sediment Pond

The concentrations of T-Cd and T-Zn exceeded the discharge limits at the RSEM-R5B-EOP station from June 26th to July 3rd, following more than 50 mm of rainfall on June 25th and 26th. The exceedance was caused by precipitation rinsing ARD/ML products from exposed shale in the Approach Channel. It was recommended that procurement and commissioning of a water treatment system be completed. The exceedance is summarized in Table 4.5-6 The concentrations and discharge volumes are shown in Figure 4.5-3.

Table 4.5-6:
Summary of Exceedances for RSEM R5B – June 26th to July 3rd, 2018
(Surface Water Runoff from Approach Channel – Late June Rain Event)

Sample No.	Date Sampled	Date Results Received	Parameter	Measured Concentration (mg/L)	Discharge Limit (mg/L)	Estimated Volume Discharged (m^3)
TT0849	6/26/2018	7/6/2018	T-Cd	0.00346	0.00029	1551
			T-Cu	0.0119	0.011	
			T-Zn	0.59	0.033	
TT1140	6/27/2018	7/4/2018	pH (lab)	4.26	6-9	2088
			T-Cd	0.0130	0.00029	
			T-Cu	0.199	0.011	
			T-Zn	2.31	0.033	
TT3458	6/28/2018	7/5/2018	T-Cd	0.0092	0.00029	582
			T-Cu	0.0878	0.011	
			T-Zn	1.57	0.033	
TT6312	6/29/2018	7/6/2018	T-Cd	0.00744	0.00029	828
			T-Cu	0.0517	0.011	
			T-Zn	1.20	0.033	
TU0475	6/30/2018	7/9/2018	T-Cd	0.00479	0.00029	373
			T-Cu	0.0176	0.011	
			T-Zn	0.719	0.033	
TU0435	7/1/2018	7/10/2018	T-Cd	0.00335	0.00029	933
			T-Cu	0.0112	0.011	
			T-Zn	0.464	0.033	
TU1419	7/2/2018	7/11/2018	T-Cd	0.000847	0.00029	1912
			T-Zn	0.0702	0.033	
TU4428	7/3/2018	7/12/2018	T-Cd	0.000594	0.00029	856
			T-Zn	0.0414	0.033	

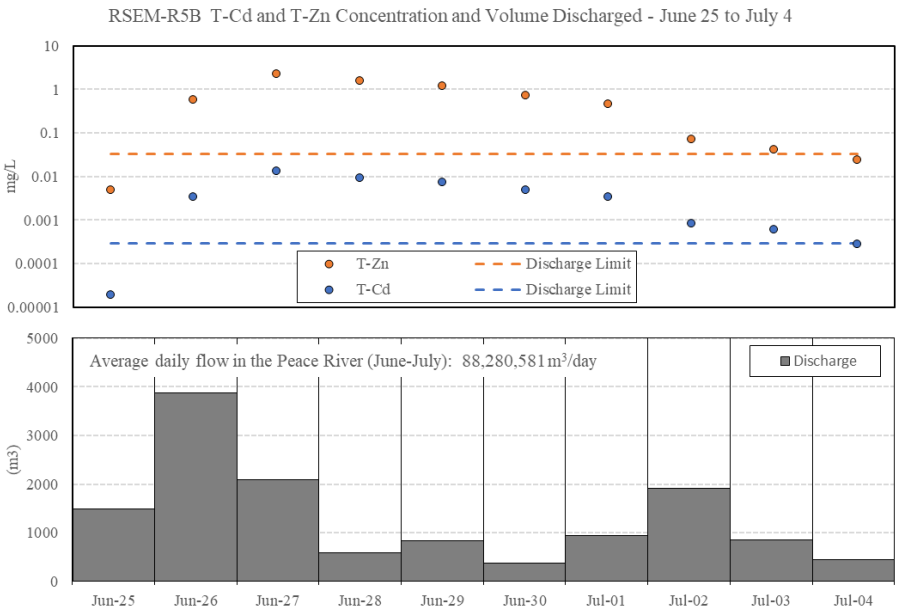


Figure 4.5-3: Time series profile for T-Cd and T-Zn concentrations (upper plot) and volume of water discharged (lower plot) at RSEM-R5B-EOP – June 26th – July 3rd, 2018

4.5.2.6 July 21st to 24th Exceedance at RSEM R5B Sediment Pond

The concentrations of T-Cd and T-Zn exceeded the discharge limits at the RSEM-R5B-EOP station from July 21st to 24th, following more than 50 mm of rainfall from July 20th to the 22nd. The exceedance was caused by precipitation rinsing ARD/ML products from exposed shale in the Approach Channel. The MWTF was procured in early July but was not yet fully commissioned at the time of the exceedance. The exceedance is summarized in Table 4.5-7. The concentrations and discharge volumes are shown in Figure 4.5-4.

Table 4.5-7:
Summary of Exceedances for RSEM R5B – July 21st to 24th, 2018
(Surface Water Runoff from the July 20th Rain Event)

Sample No.	Date Sampled	Date Results Reported	Parameter	Measured Concentration (mg/L)	Discharge Limit (mg/L)	Estimated Volume Discharged (m^3)
TU5553	7/21/2018	7/31/2018	T-Cd	0.00215	0.00029	2156
			T-Zn	0.278	0.033	
TU4428	7/22/2018	7/31/2018	T-Cd	0.00182	0.00029	1913
			T-Zn	0.212	0.033	
TY1080	7/23/2018	8/1/2018	T-Cd	0.000987	0.00029	2231
			T-Zn	0.0632	0.033	
TY1081	7/24/2018	8/1/2018	T-Cd	0.000589	0.00029	1384

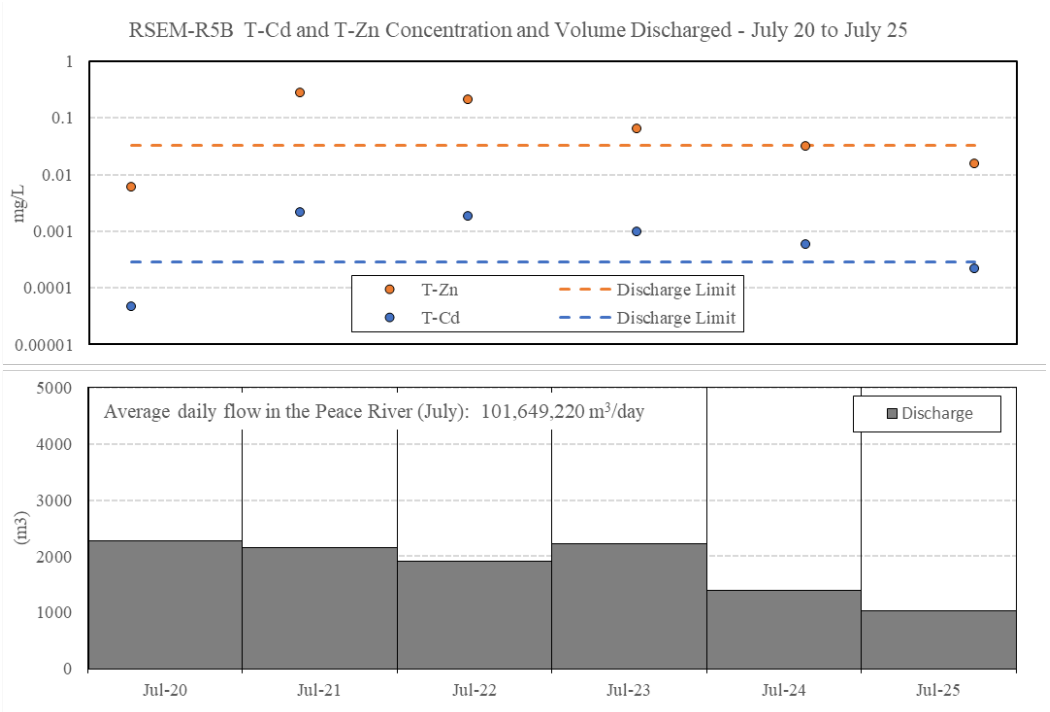


Figure 4.5-4: Time series profile for T-Cd and T-Zn concentrations (upper plot) and volume of water discharged (lower plot) at RSEM-R5B-EOP – July 21st -24th, 2018

4.5.2.7 September 9th to 20th Exceedance at RSEM R5B Sediment Pond

The concentrations of T-Cd and T-Zn exceeded the discharge limits at the RSEM-R5B-EOP station from September 9th to 20th, following more than 50 mm of rainfall on September 8th. The exceedance was caused by precipitation rinsing ARD/ML products from exposed shale in the Approach Channel. The MWTF was operational, but the volume of water that was generated exceeded the capacity of the water treatment system to store it so that it could be treated prior to discharge. The exceedance is summarized in Table 4.5-8. The concentrations and discharge volumes are shown in Figure 4.5-5.

Table 4.5-8:
Summary of Exceedances for RSEM R5B – September 9th to 20th, 2018
(Surface Water Runoff from the September 8th Rain Event)

Sample No.	Date Sampled	Date Results Reported	Parameter	Measured Concentration (mg/L)	Discharge Limit (mg/L)	Estimated Volume Discharged (m^3)
UG8730	9/09/2018	9/14/2018	pH (lab)	5.25	6-9	4665
			T-Cd	0.0068	0.00029	
			T-Cu	0.101	0.011	
			T-Zn	1.180	0.033	
UH0972	9/10/2018	9/20/2018	T-Cd	0.00692	0.00029	2456
			T-Cu	0.0695	0.011	
			T-Zn	1.580	0.033	
UH0967	9/11/2018	9/20/2018	T-Cd	0.00426	0.00029	1671
			T-Cu	0.0164	0.011	
			T-Zn	1.050	0.033	
UH7643	9/12/2018	9/21/2018	T-Cd	0.00258	0.00029	2026
			T-Zn	0.536	0.033	
UH7732	9/13/2018	9/21/2018	T-Cd	0.00196	0.00029	1616
			T-Zn	0.392	0.033	
UI0648	9/14/2018	9/25/2018	T-Cd	0.00122	0.00029	1601
			T-Zn	0.262	0.033	
UI5251	9/15/2018	9/24/2018	T-Cd	0.00115	0.00029	1666
			T-Zn	0.199	0.033	
UI5527	9/16/2018	9/24/2018	T-Cd	0.00146	0.00029	1213
			T-Zn	0.265	0.033	
UI5115	9/17/2018	9/25/2018	T-Cd	0.000673	0.00029	1157
			T-Zn	0.113	0.033	
UI9106	9/18/2018	9/28/2018	T-Cd	0.000361	0.00029	856
			T-Zn	0.0617	0.033	
UJ0841	9/19/2018	9/29/2018	T-Zn	0.0422	0.033	1530
UJ3870	9/20/2018	9/28/2018	T-Cd	0.000312	0.00029	1831
			T-Zn	0.0495	0.033	

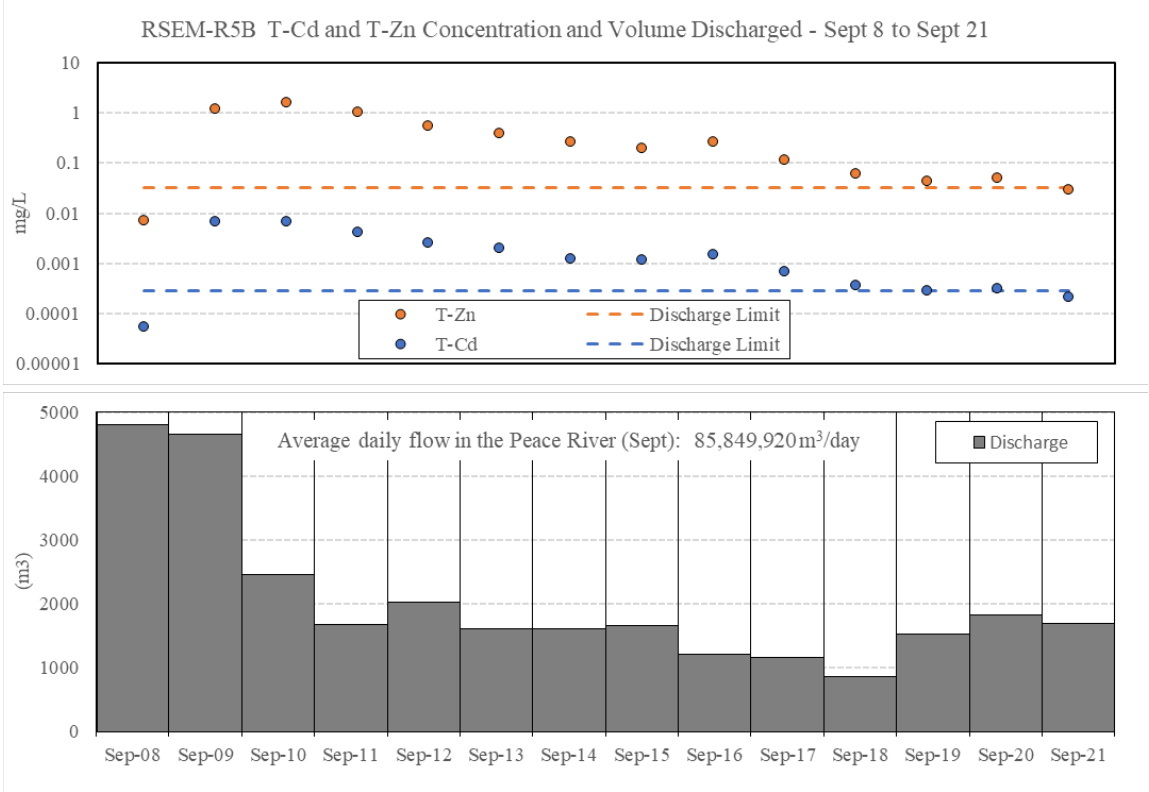


Figure 4.5-5: Time series profile for T-Cd and T-Zn concentrations (upper plot) and volume of water discharged (lower plot) at RSEM-R5B-EOP – September 9th – 20th, 2018

4.5.2.8 November 30th Exceedance at RSEM R6W Sediment Pond

A small volume of water was discharged from the RSEM-R6W pond on November 30th before the discharge ceased at 01:40 am. The concentration of T-Zn exceeded the discharge limits at the RSEM-R6W-SP station in a sample obtained at 11:35 am. Consequently, it is possible that the concentration exceeded the discharge limit for the brief period during which there was discharge. The T-Zn concentration was below the discharge limit in the sample obtained on November 29th. Water was trucked to the pond from the DIC, DOC and RCC West Klein Tank on November 29th, and one or more of these areas is inferred to be the source of elevated T-Zn. The exceedance is summarized in Table 4.5-9.

Table 4.5-9:
Summary of Exceedance(s) for RSEM R6W – November 30th, 2018

Sample No.	Date Sampled	Date Results Reported	Parameter	Measured Concentration (mg/L)	Discharge Limit (mg/L)	Estimated Volume Discharged (m^3)
UW6184	11/30/2018	12/10/2018	T-Zn	0.126	0.033	18.6

4.6 Metal Loads

Calculation of metal loading to the Peace River on a weekly basis is a requirement of section 7.3.2 of Appendix E of the CEMP. Table 4.6-1 and Table 4.6-2 summarize quarterly and annual loading to the Peace River from the RSEM R5B and RSEM R6 sediment ponds in 2018, respectively.

Table 4.6-1:
Summary of Quarterly Loading to Peace River
from RSEM R5B Sediment Pond 2018

Parameter	Estimated Load Discharged to Peace River(kg)				
	Q1	Q2	Q3	Q4	Annual Total (2018)
TSS	31.00	1948.09	715.00	213.28	2907.37
Cl	85.00	6006.46	5650.00	2270.22	14011.68
F	0.55	64.66	73.70	19.90	158.81
D-SO_4	628.00	60036.16	60200.00	19364.19	140228.35
N-NH_3	0.61	49.46	15.15	24.32	89.54
N-NO_2	0.03	1.55	1.16	1.33	4.07
N-NO_3	1.10	81.19	50.32	35.79	168.40
T-Sb	<0.01	0.06	0.06	0.03	0.15
T-As	<0.01	0.05	0.03	0.03	0.12
T-Cd	<0.01	0.18	0.09	<0.01	0.27
T-Co	0.02	4.97	2.02	0.08	7.09
T-Cu	0.01	0.88	0.87	0.06	1.82
T-Fe	0.94	68.81	26.41	3.14	99.30
T-Pb	<0.01	0.03	0.03	0.01	0.07
T-Mn	0.31	57.27	27.52	1.51	86.61
T-Mo	0.01	0.31	0.29	0.75	1.36
T-Se	0.01	0.64	0.37	0.15	1.17
T-Ag	<0.01	<0.01	<0.01	<0.01	<0.01
T-Zn	0.12	36.53	16.59	0.45	53.68
D-Al	0.01	24.61	21.50	2.12	48.24
D-Cd	<0.01	0.18	0.09	0.00	0.27
D-Co	0.02	4.79	1.99	0.08	6.88
D-Cu	0.01	0.70	0.77	0.05	1.53
D-Fe	0.02	2.96	1.85	0.57	5.40
D-Zn	0.10	31.90	15.35	0.35	47.70

Table 4.6-2:
Summary of Quarterly Loading to Peace River from RSEM R6 Sediment Pond 2018

Parameter	Metal Load (kg)				
	Q1	**Q2**	**Q3**	**Q4**	**Annual Total (2018)**
TSS	250.00	1386.04	1197.00	493.94	3326.98
Cl	1922.00	6366.37	9050.00	3166.76	20505.13
F	8.90	33.10	52.33	19.40	113.73
D-SO_4	4202.00	21825.76	26720.00	17448.35	70196.11
N-NH_3	8.40	25.04	17.64	9.49	60.57
N-NO_2	2.07	10.31	14.11	3.01	29.50
N-NO_3	14.40	129.20	193.20	51.58	388.38
T-Sb	0.03	0.13	0.14	0.05	0.36
T-As	0.05	0.17	0.18	0.07	0.48
T-Cd	<0.01	<0.01	<0.01	<0.01	0.01
T-Co	0.09	0.22	0.18	0.10	0.59
T-Cu	0.05	0.26	0.26	0.09	0.66
T-Fe	6.63	45.63	33.57	9.03	94.86
T-Pb	0.01	0.04	0.03	0.01	0.09
T-Mn	2.12	5.48	7.02	11.51	26.13
T-Mo	0.32	1.25	1.85	0.75	4.17
T-Se	0.09	0.72	0.64	0.15	1.61
T-Ag	<0.01	<0.01	<0.01	<0.01	<0.01
T-Zn	0.23	0.79	0.74	0.38	2.14
D-Al	1.96	2.69	7.13	1.97	13.75
D-Cd	<0.01	<0.01	<0.01	<0.01	0.01
D-Co	0.09	0.14	0.17	0.09	0.48
D-Cu	0.04	0.20	0.20	0.07	0.51
D-Fe	0.26	0.88	1.44	0.65	3.23
D-Zn	0.18	0.55	0.80	0.35	1.88

Daily loads for each RSEM sediment pond were calculated by applying the concentration measured in the daily end-of-pipe grab sample, to the total volume of water discharged on that day, as recorded by the pond's flow meter. Daily loading estimates were then summed for each month to obtain the total monthly load discharged to the Peace River, providing an estimate of the total load discharged from the Project site.

Average monthly metal loads in the Peace River were calculated using available information on Peace River flows and water quality at Station PR-03, and then added to provide quarterly estimates to which metal loading from Site C (above) can be compared. These loads are presented in Table 4.6-3. Flow data is available for all calendar months. Water quality analysis is available from the dataset for a total of 71 samples.

Table 4.6-3:
Estimated Mean Quarterly Load for Selected Metals from RSEM R5B and R6 and in Peace River (station PR-3)

Location	**Estimated Monthly Mean Loads (kg)**			
	Q1	**Q2**	Q3	**Q4**
	(PR-3 n=5)	(PR-3 n=28)	(PR-3 n=19)	(PR-3 n=19)
T-Cd				
RSEM R5B	< 0.01	0.18	0.09	< 0.01
RSEM-R6	< 0.01	< 0.01	< 0.01	< 0.01
PR-3	*87*	*281*	*158*	*112*
T-Cu				
RSEM R5B	0.01	0.88	0.87	0.06
RSEM-R6	0.05	0.26	0.26	0.09
PR-3	*6550*	*12,420*	*7,001*	*7,543*
T-Zn				
RSEM R5B	0.12	36.53	16.59	0.45
RSEM-R6	0.23	0.79	0.74	0.38
PR-3	*12,105*	*21,021*	*22,039*	*17,997*

Notes: 1) n = the number of water quality samples available at PR-3 for a given quarter;

The analysis is considered adequate to provide approximate 'order-of-magnitude' estimates of metal loads carried in the Peace River in the vicinity of the Site C Clean Energy Project, for the purpose of providing some preliminary context for the metal loads discharged from RSEM area sediment ponds. Overall, the metal load contributed from the ponds in 2018 was very minor relative to the metal loads carried by the Peace River.

5. Conclusions and Recommendations

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5. Conclusions and Recommendations

5.1 Geochemical Monitoring

Any bedrock exposed or excavated as part of the Main Civil Works Contract was expected to be PAG, with most units expected to become acidic within one year of disturbance. Geochemical monitoring undertaken to date has confirmed that this is the case. Bedrock has become acidic in several locations on both the Left Bank and Right Bank. General observations are noted below, followed by the conclusions from the monitoring undertaken on the Left and Right Banks, and West Pine Quarry.

5.1.1 General Observations

- All bedrock samples collected on both the Left Bank and the Right Bank in 2018 are AG or PAG, except for the LBEX overburden sample which is NPAG.
- Metals and metalloids exceeding 3x the ACA in the majority of samples include Ag, Cd, Mo, and Se. This provides an indication of metal enrichment in the excavated material; however, metal enrichment does not necessarily correspond to increased risk of metal leaching for these parameters.

5.1.2 Left Bank

- The majority of the PAG material excavated on the Left Bank in 2018 was from the DTIP (308,504 m^3) and DTOP (155,685 m^3) excavations. Samples collected from uncovered surfaces in these areas were acidic. Shotcrete has been applied to the exposed bedrock to stabilize the steep benches excavated into the slopes above the portals, which also serve to minimize contact with precipitation and neutralize most ARD that may have otherwise occurred.
- Only relatively small areas of bedrock have been exposed and material excavated at other locations on the Left Bank in 2018. These include the L5 Garbage Creek Diversion, LBEX, the Left Bank Haul Road, the Outlet Cofferdam, the Inlet Cofferdam, and the Left Bank Central Cofferdam.
- Several minor exposures that are currently acidic generating were identified on the Left Bank, including the bedrock exposure at the western end of the LBEX, a small exposure in RSEM Area L5 (referred to as the Northwest Exposure) and the natural PAG bluff below the LBEX.
- The majority of the PAG material excavated on the Left Bank was placed in RSEM Area L5. Material was placed in RSEM Area L6 beginning in December 2018. At

the end of 2018, RSEM Area L5 contained 756,614 m^3 of PAG material and RSEM Area L6 contained 16,530 m^3 of PAG material. The majority of RSEM Area L5 is covered with NPAG material; however, several AG samples were collected near the edges of this stockpile in 2018.

5.1.3 Right Bank

- A total of 511,157 m^3 of material was excavated from the Approach Channel in 2018. A relatively large area (approximately 8 ha) of weathered bedrock was exposed throughout much of 2018. The weathered material on the surface of the Approach Channel was generally acidic. In October 2018, excavation of the weathered surface material was initiated in order to expose fresh bedrock, which is expected to result in neutral drainge from the newly excavated faces of the Approach Channel.
- Additional major excavations on the Right Bank in 2018 included the RCC area (50,298 m^3) and the RBDT (21,487 m^3). The bedrock from these lower stratigraphic positions has a lower total S content and greater neutralization potential (NP) than bedrock exposed in the Approach Channel. As a result, PAG bedrock exposures in the RCC and the RBDT are not expected to become acidic for some time. Samples collected from these area had circumneutral to slightly basic rinse pH values.
- Relatively small areas of bedrock have been exposed, and material excavated from other locations on the Right Bank in 2018, including Area 23 and the non-contact ditch in RSEM Area R5A.
- All material excavated on the Right Bank in 2018 was placed in RSEM Area R5A. This RSEM pile contained 4,165,734 m^3 of PAG material at the end of 2018. Samples collected in RSEM Area R5A had variable geochemical character. In general, recently placed material remains neutral while more weathered material has a lower rinse pH.
- Bedrock samples from the Site C excavations on both the Left Bank and the Right Bank generally have total S >0.5%, while the single overburden sample collected in 2018 has low total S (0.060%). These samples have variable proportions of sulphide S and sulphate S. Sulphide S makes up a greater proportion of total S for the majority of samples. However, samples from the Northwest Exposure and the LBEX-SP bluff, as well as several of the Approach Channel samples, have a high proportion of sulphate S.

5.1.4 West Pine Quarry

- The geochemistry of the West Pine Quarry samples was consistent through 2018. All samples were NPAG. The primary parameter of concern based on the solid-phase content of this material is Se, which is consistently above 3x the ACA.
- The water quality samples collected upstream and downstream of the quarry are generally similar with circum-neutral pH, low conductivity, and low metal concentrations. However, there is a minor but consistent increase in the metal concentrations at the downstream station relative to the upstream station, suggesting that the runoff from the quarry has a minor effect on the West Pine River.

5.2 Surface Water Quality Monitoring

The results of surface water quality monitoring have been used to better understand and predict the timing, magnitude and duration of ARD/ML on surface water runoff from the construction site, to measure the effectiveness of mitigation measures, and to verify compliance with end-of-pipe discharge limits. The surface water quality monitoring program is intensive and includes sampling and analysis from a dynamic set of stations across the site, and analysis of daily samples from RSEM sediment ponds (from the RSEM R5B, and R6 ponds, to date).

The surface water quality monitoring program has generally been effective. Sampling and laboratory analyses are sufficiently frequent and reliable to allow trends in the RSEM area sediment ponds, and within upgradient catchments, to be identified, and the magnitude and duration of potential effects from ARD/ML to be verified.

5.3 Mitigation

Mitigation measures that are being implemented to minimize exceedances of end-of-pipe discharge limits due to ARD/ML include material management (excavating weathered rock in excavations and covering weathered rock in the RSEM R5B, RSEM R5A and RSEM L5 deposition areas), water management to contain water that may be influenced by ARD/ML, and water treatment to remove total and dissolved metals.

Material management is the primary ARD/ML mitigation strategy. Weathered material (material that has been exposed for several months and is becoming acidic) is monitored and periodically excavated from the major excavations. In addition, material that is placed in RSEM disposal areas is monitored, and weathered material is covered with newly placed material (PAG bedrock or overburden).

Water management is a secondary mitigation strategy. Surface water quality is monitored. Contact water is generally contained within the site, or directed to RSEM sediment ponds, from which it is discharged to the Peace River. Contact water that is not anticipated to meet end-of-pipe discharge limits is retained and transferred to the pre-treatment pond. Water from this pond is treated by the Mobile Water Treatment Facility (MWTF) prior to discharge.

The primary cause of exceedances has changed since the monitoring program was initiated in autumn 2016. Exceedances of discharge limits in the RSEM sediment ponds were attributed mainly to elevated TSS until mid-2017. PRHP has implemented various erosion and sediment control measures and water management strategies, including the use of flocculant, to maximize settling of suspended solids in RSEM ponds and to minimize TSS levels in discharged water. These strategies have proven to be effective, and TSS-related exceedances have been minimized. Exceedances of discharge limits from the RSEM R5B sediment pond since October 2017 (including exceedances in March 2018, during snowmelt in April and heavy rain in June, July and September) are attributed primarily to the onset of ARD/ML in exposed bedrock in the Approach Channel.

Effective mitigation of ARD/ML and prevention of recurring exceedance of the project-specific discharge limits during snowmelt and storm events will require more frequent excavation of weathered PAG material in the Approach Channel, and additional water retention capacity within or downgradient of the Approach Channel. A MWTF on the Left Bank would facilitate water management on the Left Bank and minimize the need to truck acidic water to the MWTF. Additional water treatment capacity may be warranted on the Right Bank as the area of exposed shale in the Approach Channel is expanded.

5.4 Recommendations

In its role as Qualified Professional for ARD/ML, Lorax provided a number of recommendations through 2018. These have been communicated in technical memorandums, weekly conference calls, and in email correspondence. Key recommendations are summarized for the Left Bank and Right Bank below and reflect ongoing ARD/ML management priorities.

- The geochemical monitoring program is effectively characterizing PAG rock exposures throughout the site. The program should continue with adjustments to sampling frequency and locations as site development proceeds.
- The water quality monitoring program should continue to adjust monitoring locations and frequency in tandem with site development and in response to monitoring data. In particular, the monitoring stations in the Approach Channel and

Left Bank should be reviewed and adjusted as development proceeds in these areas in Q4.

- The AG rock in RSEM Area L5 should continue to be covered with neutral PAG rock or NPAG overburden to limit the ingress of oxygen and water into the AG material. Temporary mitigation could include capture of runoff water at the base of the eastern end of RSEM Area L5 and trucking to the MWTF.
- Since PAG material is beginning to be placed in RSEM Area L6, geochemical monitoring samples should be collected from this stockpile in early 2019 and this area should be added to future rounds of sampling.
- Water has accumulated in the LBEX sediment pond that has been influenced runoff by extensive natural shale bluffs below the LBEX. It may be necessary to treat water that has accumulated in the LBEX sediment pond prior to discharge.
- The continued application of shotcrete to exposures in the DTIP and DTOP areas will help minimize exposed PAG bedrock in these areas, helping to mitigate generation of ARD.
- Upper lifts of material placed along the western edge of RSEM Area R5A have been exposed to the atmosphere for extended periods of time and hence are showing acidic rinse pH values. In addition, uncovered acidic material also remains at the southern end of the stockpile near the end of the non-contact ditch. Fresh overburden and PAG material were placed in RSEM Area R5A throughout 2018 and placement is expected to continue. These remaining areas should be prioritized for cover in early 2019 in order to limit the ingress of oxygen and water into the AG material. Sampling should continue in 2019 to monitor the rinse pH and identify areas where the material is becoming acidic. This monitoring will help direct material placement.
- Construction of a lined channel in the non-contact water diversion ditch was completed in 2018. The slope near the end of the ditch should be covered to mitigate acidic runoff from this area into the Moberly River and to stabilize the slope.
- By the end of 2018, the majority of the Approach Channel had been excavated to unweathered bedrock. It is recommended that the excavation be completed and that sampling continues in 2019 to monitor the rinse pH of the surface in order to determine when additional excavation of the surface material should be conducted to minimize acidic drainage from the surface of the Approach Channel.
- Samples were collected for the first time from Area A in Q4 of 2018. This area should be added to the geochemical monitoring sampling program as the rinse pH

results indicate that the exposed bedrock in this area is transitioning to acidic conditions.

- Although the RCC excavation has a significant area of PAG bedrock exposure, acidic drainage is not expected from this exposure immediately because baseline geochemistry indicated there is a lower concentration of sulphide-S and adequate quantities of NP in these strata to sustain neutral conditions for longer periods than the Approach Channel. In addition, the RCC excavation area has been partly covered with roller compacted concrete, and/or overburden, which will limit contact with runoff water. Rinse pH and contact water from the RCC should continue to be monitored (independently of the RSEM R6W and R6E sediment ponds when possible) to identify the onset of ARD/ML once the NP is depleted.
- The storage capacity of the MWTF Pre-Treatment pond was overwhelmed by high flows associated with heavy rains on September 8th. Mitigation to increase storage or treatment capacity for contact water is being investigated.
- In order to improve the efficiency of data transfer, remote transmission of flow and in-situ logger data from the RSEM sediment ponds is being undertaken by PRHP.

6. Closure

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6. Closure

This report was prepared for the use of PRHP, which has the right to reproduce, use and rely upon this report in planning and construction for the Site C Clean Energy Project. The report was prepared by the Lorax technical personnel listed below. Please contact the undersigned should you have any questions or concerns or require additional information in support of this work.

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List of Appendices

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Appendix 2-A: Analytical QA/QC Protocols

APPENDIX 2-A-1 MAXXAM ANALYTICS QA/QC PROTOCOL

APPENDIX 2-A-2 ALS GEOCHEMISTRY QA/QC PROTOCOL

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APPENDIX 2-A-1 MAXXAM ANALYTICS QA/QC PROTOCOL

CCME QA/QC INTERPRETATION GUIDE - ENVIRONMENTAL SERVICES

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QA/QC Sample Type	Frequency and Purpose	Application and Regulatory Criteria	Recommended Actions
LABORATORY			
Method Blank A laboratory control sample that is free of the target parameters and of any substance that may interfere with that analysis. A method blank is processed through the entire analytical method including any extraction, digestion or any other preparation procedure.	1 in 20 samples or 1 in batch (whichever is most frequent). Monitors laboratory background levels of target analytes and laboratory artifacts	Used for most analytical parameters. Target analytes should be less than (<) the reporting detection limit (RDL)	The laboratory will repeat the analysis for all samples in the batch, if unacceptable concentrations of target analytes are identified in the method blank. If re-runs are not available, the data is reported flagged.
Blank Spike (Laboratory Control Sample): A laboratory control sample free of the target analytes or interferences is fortified with a known concentration of all or selected target analytes. The blank spike is processed through the entire analytical method including any extraction, digestion or any other preparation procedure. Results are expressed as a percentage recovery.	1 in 20 samples or 1 in batch (whichever is most frequent). Monitors analyte recovery and potential loss during the preparation procedures (extraction efficiency). It also serves to validate the calibration of the instrumentation or technique.	Used for most parameters. EC, Salinity: 90% - 110% water; 80% - 120% soil Metals and Inorganics: 80% - 120%; HWS B 70% - 130% FOC, Methyl Mercury: 70% - 130% (all matrices) VOCs, THMs, BTEX except gases and ketones: 60% - 130% (water and soil) PHCs: 60% - 140% (water and soil) ABNs, CPs, PFOS, PAHs, OC Pest., Herb., PCBs, Volatile Gases & Ketones: 50% - 140% (water and soil); 30% - 130% for difficult compounds Dioxins & Furans: 70% - 140% (water and soil) 1,4-Dioxane: 70% - 130% waters; 60% - 140% soils	Re-extract/re-analyse all associated samples, if possible. If not, report the data flagged for all failing analytes. Re-analysis is performed if the LCS in a single analyte test or > 10% of the analytes in a multielement scan are outside the control limits by > 10% absolute.
Matrix Spike A second aliquot from a randomly chosen sample is fortified with a known concentration of target analytes. The sample is processed through the entire analytical method. Results are expressed as a percentage recovery.	1 in 20 samples or 1 in batch (whichever is most frequent). Evaluates any "matrix effects" that may exist in a sample due to its composition that may affect the recovery of analytes. An example is the presence of peat in soils, which tends to adsorb analytes such as benzene resulting in a poor matrix spike recovery.	Used for most analytical procedures. Matrix spike alert criteria apply when the MS targe concentration is ≥ the native analyte concentration. ABNs, CPs, PFOS, PAHs, 1,4-Dioxane, Pesticides & Herbicides, VOCs, THMs, BTEX,: 50% - 140%; 30% - 130% for difficult compounds PHCs, HWSB, Methyl Mercury: 60% - 140% Dioxins & Furans: 50% - 150% Metals and Inorganics, FOC: 70% - 130%	Re-analysis of the Matrix Spike is performed if the Matrix Spike for a single analyte test or 10% of the analytes in a multielement scan are outside the control limits by > 10% absolute. It should be noted that higher levels of uncertainty in the data are associated with situations when native analyte concentrations are >MS concentrations.
Laboratory Duplicates (RPD) A second aliquot from a randomly chosen sample within an analytical batch processed through the entire analytical method. Laboratory duplicates are expressed as the Relative Percent Difference (RPD) between the two results.	1 in 20 samples or 1 in batch (whichever is most frequent). Evaluates analytical precision and sample homogeneity.	Applicable for all analytical parameters. Acceptance criteria are either as tabulated below or < 2x RDL at low concentrations ABNs, CPs, PFOS, PAHs, 1,4-Dioxane, Ocs, PCBs, VOCs, BTEX: ≤30% waters and ≤50% soils PHCs: ≤30% (methanol extract); ≤40% (soil) Dioxins & Furans, Methyl-Hg: ≤30% waters and ≤40% solids FOC, NH4, Cr, Cr(VI), CN: ≤20% waters and ≤35% soils Metals & Inorganics: ≤20% waters and ≤30% soils HWSB, Ag, Al, Ba, Hg, K, Mo, Na, Pb, Sn, Sr, Ti: ≤40% soils; for waters, see above Salinity: ≤10% waters and <20% soils	**Laboratory duplicates collected from the same Methanol vial as the sample have a 30% RPD; if a second Methanol Vial is used, a RPD of 40% applies.** Re-analysis of affected samples may not necessarily be required, as these are subject to sampling and analytical variability. Data may be reported as flagged if samples are visibly non-homogenous. For organics whole-bottle tests, laboratory duplicates are essentially field duplicates.
Certified Reference Material (CRM) Purchased samples that have been certified by a recognized agency to contain specified levels of selected constituents, when measured by specified standard procedures. Results are expressed as a percentage of the design value.	During validation; optional otherwise. Used for validating the performance of a method including precision, extraction or digestion efficiency.	Applicable for all analytical parameters where CRMs are commercially available. Acceptable recovery ranges are provided by the supplier.	Repeat the analysis for all samples in the batch, if CRM % recovery is outside control limits.
Surrogate Recovery Surrogates are deuterated analogues or compounds not normally found in nature but have chemical and physical behaviour similar to the analytes of interest. Known surrogate concentrations are added to samples prior to analysis and recoveries are calculated and expressed as a percentage.	Every organic analysis, included in every sample. Monitors the efficiency of organic extractions, instrument performance and provides within-run quality control.	Applicable for all analytical parameters determined by Gas Chromatography or HPLC techniques. ABNs, CPs, PFOS, PAHs, 1,4-Dioxane, Ocs, PCBs, Herbicides, VOCs, BTEX: 50% - 140% (water and soil) PHCs (F2-F4): 60% - 140% (water and soil)	Repeat the analysis or qualify data, if interferences are suspected.
FIELD			
Blind Duplicates A second sample is collected at the same time and location in separate containers. Samples are homogenized where possible (ie alternate filling of sample and duplicate for waters and bowl mixing for soils). Samples are submitted to the laboratory without identifying them as duplicates. VOCs in soil should not be homogenized.	5% samples collected (ie. 1 in 20 samples); must be representative of all parameters. For programs with less than 20 samples, at least 1 field duplicate is required. Evaluates analytical precision, field precision and sample homogeneity. Has limited use for samples that cannot be homogenized (ie VOCs in soil).	These samples normally include higher variability due to the nature of the matrix, so field duplicates alert limits should be considerably broader than laboratory duplicates. Groundwater Samples: <40% Soil Samples: <60%	Evaluate sample homogeneity and field collection technique. Although specific regulatory guidance on field duplicate RPDs is provided, this parameter requires judgement on behalf of the QP to properly validate and apply project specific alert criteria for field duplicates.
Trip Blank A sample of analyte free media (supplied by the laboratory) taken to the site and returned to the laboratory unopened. The laboratory prepares the trip blank. A duplicate of the trip blank prepared at the same time is retained at the laboratory in a contaminant free location.	1 per VOC water submission. Identifies any potential cross-contamination that may occur from other samples, ambient conditions, or other sources that samples may be exposed.	Maxxam internal guideline and recommendation: Evaluate the impact on data for results >2x the RDL or that that approaches the concentration reported in the sample. Specifically for methanol vials: Travel methanol vial blank is reweighed at the laboratory and compared to tared weight to determine methanol loss. Prepared with every batch of pre-weighed vials.	Contact and engage the laboratory for assistance in qualifying the data. Analyze the laboratory trip blank duplicate retained by the laboratory. While the CCME guidelines list Trip Blanks as an acceptable QC parameter to include in analytical programs, specific alert criteria are not provided.
Trip Spike A sample prepared by the laboratory that is fortified with a known concentration of target analytes. This sample is shipped along with containers and is to be taken into the field, but returned unopened to the laboratory. Analysis is conducted and recoveries are reported expressed as a percentage.	1 per VOC water monitoring program. Monitors the breakdown or loss of analytes during the sampling process. Holding time, and temperature effects on concentration can be accessed.	Maxxam internal guidelines and recommendations: Usually volatile organics in water. May be applied to other analyses. Majority of VOCs: 60% - 130% Vinyl Chloride, Bomomethane, Chloromethane, Freon-12, Acetone, MIK & MIBK: 50% - 140%	Please note that in the absence of Regulatory prescribed warning or alert limits, Maxxam recommends these alert limits. Review storage conditions, temperatures of samples upon receipt.
Field Blank Supplied by the laboratory and prepared in the field by filling container with analyte free water.	1 per VOC monitoring program Determines if the field or transporting environments have contaminated the sample.	Applicable for most parameters. For methanol vials, a field blank should be used for every batch of methanol vials. Evaluate the impact on data for results >RDL or that that approach the concentration reported in the sample.	Evaluate any hits found in the sample that were also found in the trip blank. For methanol vials, also review the trip blank measurement to determine methanol loss.
Blind Known A purchased CRM (see above) or a sample previously analyzed by an accredited laboratory multiple times is submitted to the laboratory blind.	1 per remediation or large project. Evaluates laboratory accuracy and precision.	Ideal for long holding time tests such as metals in soil. Submission of the same blind known multiple times during a large project provides excellent monitoring of the laboratory precision and accuracy. Acceptable recovery ranges are provided by the supplier.	Contact the laboratory.

QC Protocols for samples (Whole Solids Analysis) – ARD Laboratory

Batch Sizes used:

Table 1: Static Testing (Solid Samples)

Method	Typical Batch Size*	CRM to use	QC
Soldis			
All NP Methods	40	KZK-1	1) Duplicate Split of Pulps every 10th sample (min. one duplicate split per set). These will be suffixed with "D". 2) CRMs inserted every 10th sample (min. one CRM per set).
Fizz	40	NA	
Paste pH	40	NA	
Rinse EC	40	NA	
Rinse pH	40	NA	
Sulphate (Acid Extraction)	40	ARG	

*This table represents typical batch sizes used in the ARD lab.

QC Requirements

Table 3. QC Assessment for Whole Solids Analysis

QC Test	Check	If Check Fails
Sulphur balance	Total Sulphur ≥ Sulphur as Sulphate	1) Re-analyze total and sulphate sulphur. 2) If both values are >10xRDL, and $\left[\frac{\text{Sulphate S - Total S}}{\text{Total S}} > 20\%\right]$ Re-analyse all samples in batch.
Carbon balance (if total carbon analysis requested)	Total Carbon ≥ Total Inorganic Carbon (TIC)	1) Re-analyze total and inorganic carbon. 2) If both values are >10xRDL, and $\left[\frac{\text{TIC - Total C}}{\text{Total C}} > 20\%\right]$ re-analyse all samples in batch*.
Sobek Neutralization potential consistent with fizz test.	NP does not exceed maximum NP indicated by acid strength and acid volume indicated by fizz	Re-analyze NP or provide explanation for discrepancy.
Modified NP pH	Terminal pH of modified NP within method prescribed range.	If fizz rating not equal to "none", repeat test if outside range.
Neutralization Potential consistent with paste pH	Negative NP has paste pH below 5.	Re-analyse both NP and paste pH. If result is outside of 15%, re-analyse entire batch for failed parameter.
Laboratory Duplicates (except NP)	If result >5RDL, Relative percent difference (RPD) better than ±30%	Re-analyze both samples for failed parameter. If difference from re-analysis is within required tolerance, re-analyze all samples in batch for failed parameter.
NP Lab Duplicates	• Relative percent difference (RPD) better than ±15% for NP > 20 kg/t • Relative percent difference (RPD) better than ±20% for 20>NP>10 kg/t. • Difference within ±5 kg/t for NP<10 kg/t	Re-analyze both samples for failed parameter. If difference from re-analysis is within required tolerance, re-analyze all samples in batch.
Control reference materials (CRM)	Relative difference from certified value better than ±15%	Re-analyze all samples between last passed CRM and next passed CRM.

APPENDIX 2-A-2 ALS GEOCHEMISTRY QA/QC PROTOCOL

QUALITY ASSURANCE OVERVIEW

Laboratory Accreditation and Certification

ISO/IEC 17025

The North American analytical laboratories are accredited by the Standards Council of Canada (SCC) for specific tests listed in the Scopes of Accreditation to ISO/IEC 17025, the General Requirements for the Competence of Testing and Calibration Laboratories, and the PALCAN Handbook (CAN-P-1570).

Accreditation to this ISO standard involves detailed, on-site audits to evaluate our quality management system and verify the technical competence of our methods and personnel. This technical verification includes the requirement for successful participation in inter-laboratory proficiency testing programs and full method validation.

ALS has taken the additional step to list all sample preparation laboratories in North America as part of the Scopes of Accreditation for our analytical laboratories. By doing this ALS acknowledges that sample preparation is performed at locations that are monitored regularly for quality control practices.

The scope of accreditation for **ALS Geochemistry Vancouver** includes the following methods:

- **Au-AA**: Determination of Au by Lead Collection Fire Assay and AAS
- **Au/Ag-GRA**: Determination of Au and Ag by Lead Collection Fire Assay and Gravimetric Finish
- **PGM-ICP**: Determination of Au, Pt and Pd by Lead Collection Fire Assay and ICP-AES
- **ME-ICP41**: Multi-Element (Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Ti, Tl, U, V, W, Zn) Determination by Aqua Regia Digestion and ICP-AES

- **ME-MS41**: Multi-Element (Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, Hg, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, Zr) Determination by Aqua Regia Digestion and ICP-AES and ICP-MS
- **ME-ICP61**: Multi-Element (Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Sb, Sc, Se, Si, Sn, Sr, Ta, Te, Ti, Tl, U, V W, Y, Zn and Zr) Determination by 4-Acid Digestion and ICP-AES
- **ME-MS61**: Multi-Element (Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cs, Cu, Fe, Ga, Ge, Hf, In, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, Re, S, Sb, Sc, Se, Si, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, Zr) Determination by 4-Acid Digestion and ICP-AES and ICP-MS
- **ME-ICP81**: Al, Co, CU, Fe, Mg, Mn, Ni, Pb, S and Zn by Sodium Peroxide Fusion and ICP-AES
- **OG46**: Ag, Cu, Mo, Pb, and Zn – Determination of Ores and High Grade Material Using ICP-AES Following an Aqua Regia Digestion
- **OG62**: Ag, Cu, Mo, Pb and Zn – Determination of Ores and High Grade Material Using ICP-AES Following a Four-Acid Digestion
- **AA45**: Ag, Cu, Pb and Zn – Determination of Base Meals Using AAS Following an Aqua Regia Digestion
- **AA46**: Ag, Cu, Pb, Zn and Mo – Determination of Ores and High Grade materials Using AAS Following an Aqua Regia Digestion
- **AA61**: Ag, Co, Cu, Ni, Pb and Zn – Determination of Base Metals Using AAS Following a Four-Acid Digestion
- **AA62**: Ag, Co, CU, Mo, Ni, Pb and Zn – Determination of Ores and High Grade Materials Using AAS Following a Four-Acid Digestion
- **ME-ICP06**: SiO_2, Al_2O_3, Fe_2O_3, CaO, MgO, Na_2O, K_2O, Cr_2O_3, TiO_2, MnO, P_2O_5, SrO, BaO, Total – Determination of Major Oxides by Lithium Metaborate/Lithium Tetraborate Fusion and ICP-AES
- **OA-GRA05**: LOI – Loss on Ignition
- **ME-MS81**: Ba, Ce, Cr, Cs, Dy, Er, Eu, Ga, Gd, Hf, Ho, La, Lu, Nb, Nd, Pr, Rb, Sm, Sn, Sr, Ta, Tb, Th, Tl, Tm, U, V, W, Y, Yb, Zr – Determination of Rare Earth Elements by Lithium Borate Fusion and ICP-MS
- **ME-ICP41a**: Multi-Element (Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, Ga, Hf, Hg, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Sb, Sc, Se, Si, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn) – Determination of Low Grade Ores by Aqua Regia Digestion and ICP-AES
- **ME-ICP61a**: Multi-Element (Ag, Al, As, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, Ga, Hf, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Sb, Sc, Se, Sn, Sr, Ta, Te, Th, Ti, Tl, U, V, W, Y, Zn, Zr – Determination of Low Grade Ores by Four-Acid Digestion and ICP-AES
- **ME-XRF06**: SiO_2, Al_2O_3, Fe_2O_3, CaO, MgO, Na_2O, K_2O, Cr_2O_3, TiO_2, MnO, P_2O_5, SrO, BaO, Total – Determination of Major Oxides by Lithium Metaborate/Lithium Tetraborate Fusion and XRF
- **OA-GRA06**: LOI – Loss on Ignition
- **ME-XRF26**: SiO_2, Al_2O_3, Fe_2O_3, CaO, MgO, Na_2O, K_2O, Cr_2O_3, TiO_2, MnO, P_2O_5, SrO, BaO, Total – Determination of Major Oxides by Lithium Metaborate/Lithium Tetraborate Fusion and XRF
- **OA-GRA05x**: LOI – Loss on Ignition
- **S-IR08**: S – Determination of Total S by Leco Furnace and Infrared Spectroscopy
- **C-IR07**: C – Determination of Total C by Leco Furnace and Infrared Spectroscopy
- **OA-VOL08**: Fizz Rating, NP, MPA, NNP, Ratio (NP:MPA) – Acid Base Accounting

The scope of accreditation for **ALS Geochemistry Reno** includes the following methods:

- **Au-AA**: Determination of Au by Lead Collection Fire Assay and AAS
- **Au/Ag-GRA**: Determination of Au by Lead Collection Fire Assay and Gravimetric Finish

The scope of accreditation for **ALS Geochemistry Val d'Or** includes the following methods:

- **Au-AA**: Determination of Au by Lead Collection Fire Assay and AAS
- **Au-GRA**: Determination Au by Lead Collection Fire Assay and Gravimetric Finish

Aside from laboratory accreditation, ALS Geochemistry has been a leader in participating in, and sponsoring, the assayer certification program in British Columbia. Many of our analysts have completed this demanding program that includes extensive theoretical and practical examinations. Upon successful completion of these examinations, they are awarded the title of Registered Assayer.

Quality Assurance Program

The quality assurance program is an integral part of all day-to-day activities at ALS Geochemistry and involves all levels of staff. Responsibilities are formally assigned for all aspects of the quality assurance program.

As part of the program, checks are made to monitor quality at both sample preparation and analytical stages.

Quality Assurance Program	Overview
Sample Preparation Quality Control	*Quality Specifications* Fineness of crushing and pulverizing checked and monitored according to method specifications. *Sample Preparation Duplicates* Inserted every 50 samples. Split taken from coarse crushed material.
Analytical Quality Control	Blanks, reference materials and pulp duplicates are inserted into every analytical run. Frequency details can be found on page 6.

Sample Preparation Quality Specifications

Standard specifications for sample preparation are clearly defined and monitored. The specifications for our most common methods are as follows:

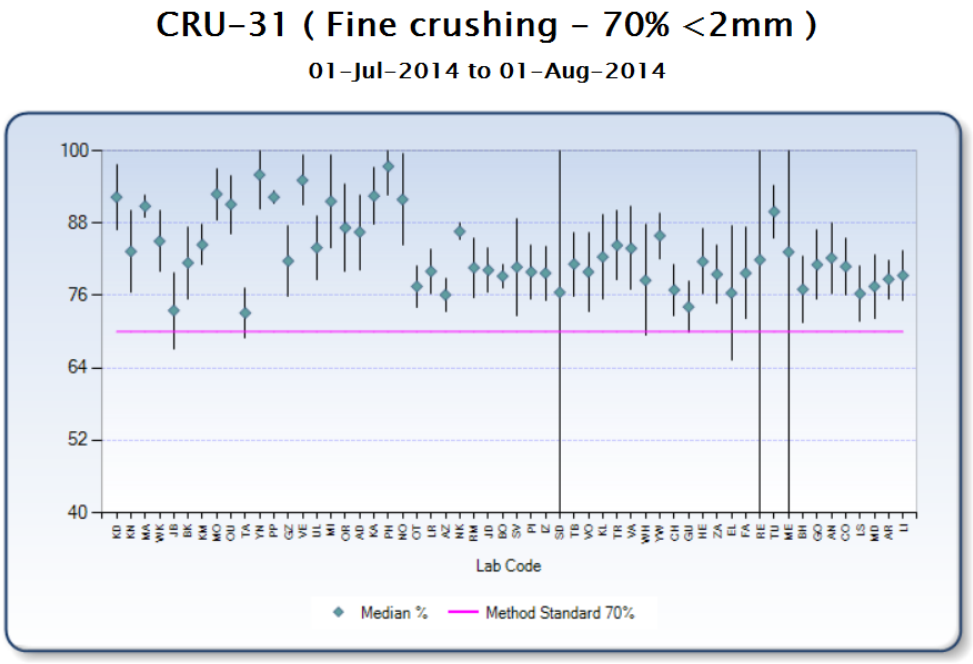
- Crushing (CRU-31)
  - > 70% of the crushed sample passes through a 2 mm screen
- Ringing (PUL-31)

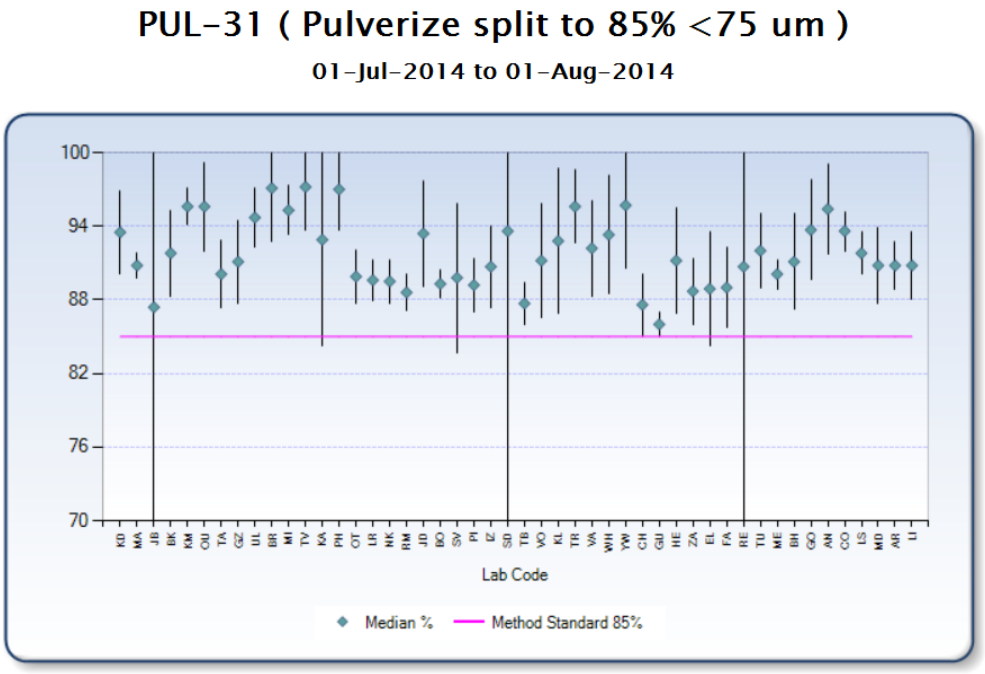
> 85% of the ring pulverized sample passes through a 75 micron screen (Tyler 200 mesh)

- Samples Received as Pulps
  >85% of the sample passes through a 75 micron screen (Tyler 200 mesh)

These characteristics are measured and results reported to verify the quality of sample preparation. Our standard operating procedures require that samples at every preparation station are tested regularly throughout each shift. Measurement of sample preparation quality allows the identification of equipment, operators and processes that are not operating within specifications.

QC results from all global sample preparation laboratories are captured by the LIM System and the QA Department compiles a monthly review report for senior management on the performance of each laboratory from this data.





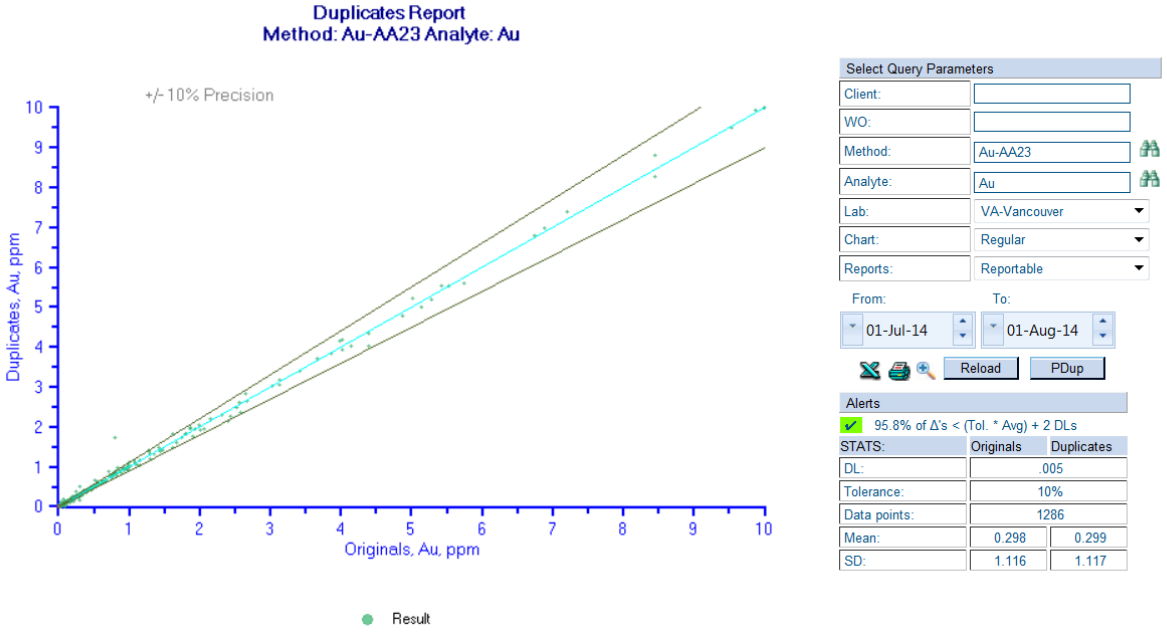
Other Sample Preparation Specifications

Sample preparation is a vital part of any analysis protocol. Many projects require sample preparation to other specifications, for instance >90% of the crushed sample to pass through a 2 mm screen. These procedures can easily be accommodated and the Prep QC monitoring system is essential in ensuring the required specifications are routinely met.

Sample Preparation Duplicates

In addition to routine screen tests, sample preparation quality is monitored at ALS Geochemistry through the insertion of sample preparation duplicates. For every 50 samples prepared, an additional split is taken from the coarse crushed material to create a pulverizing duplicate. The additional split is processed and analyzed in a similar manner to the other samples in the submission. The precision of the preparation duplicate results is highly dependent on the individual sample mineralogy, analytes of interest and procedures selected for sample preparation. Therefore the data is most relevant at the client /project level.

All preparation duplicate data is automatically captured, sorted and retained in the QC Database and available on Webtrieve™ for client review. The data is also available on the QC Data Certificates.


Duplicates Report
Method: Au-AA23 Analyte: Au
+/- 10% Precision
Duplicates, Au, ppm
Originals, Au, ppm
0
1
2
3
4
5
6
7
8
9
10
Result
Select Query Parameters
Client:
WO:
Method: Au-AA23
Analyte: Au
Lab: VA-Vancouver
Chart: Regular
Reports: Reportable
From: 01-Jul-14
To: 01-Aug-14
Reload
PDup
Alerts
95.8% of Δ's < (Tol. * Avg) + 2 DLs
STATS: Originals Duplicates
DL: .005
Tolerance: 10%
Data points: 1286
Mean: 0.298 0.299
SD: 1.116 1.117

Analytical Quality Control – Reference Materials, Blanks & Duplicates

The LIMS inserts quality control samples (reference materials, blanks and duplicates) on each analytical run, based on the rack sizes associated with the method. The rack size is the number of sample including QC samples included in a batch. The blank is inserted at the beginning, standards are inserted at random intervals, and duplicates are analysed at the end of the batch. Quality control samples are inserted based on the following rack sizes specific to the method:

Rack Size	Methods	Quality Control Sample Allocation
20	Specialty methods including specific gravity, bulk density, and acid insolubility	2 standards, 1 duplicate, 1 blank
28	Specialty fire assay, assay-grade, umpire and concentrate methods	1 standard, 1 duplicate, 1 blank
39	XRF methods	2 standards, 1 duplicate, 1 blank
40	Regular AAS, ICP-AES and ICP-MS methods	2 standards, 1 duplicate, 1 blank
84	Regular fire assay methods	2 standards, 3 duplicates, 1 blank

Laboratory staff analyse quality control samples at least at the frequency specified above. If necessary, they may include additional quality control samples above the minimum specifications.

All data gathered for quality control samples – blanks, duplicates and reference materials – are automatically captured, sorted and retained in the QC Database.

Quality Control Limits and Evaluation

Quality Control Limits for reference materials and duplicate analyses are established according to the precision and accuracy requirements of the particular method. Data outside control limits are identified and investigated and require corrective actions to be taken. Quality control data is scrutinised at a number of levels. Each analyst is responsible for ensuring the data submitted is within control specifications. In addition, there are a number of other checks.

Certificate Approval

If any data for reference materials, duplicates, or blanks falls beyond the control limits established, it is automatically flagged red by the computer system for serious failures, and yellow for borderline results. The Department Manager(s) conducting the final review of the Certificate is thus made aware that a problem may exist with the data set.

Precision Specifications and Definitions

Most geochemical procedures are specified to have a precision of ± 10%, and assay procedures ± 5%. The precision of Au analyses is dominated by the sampling precision.

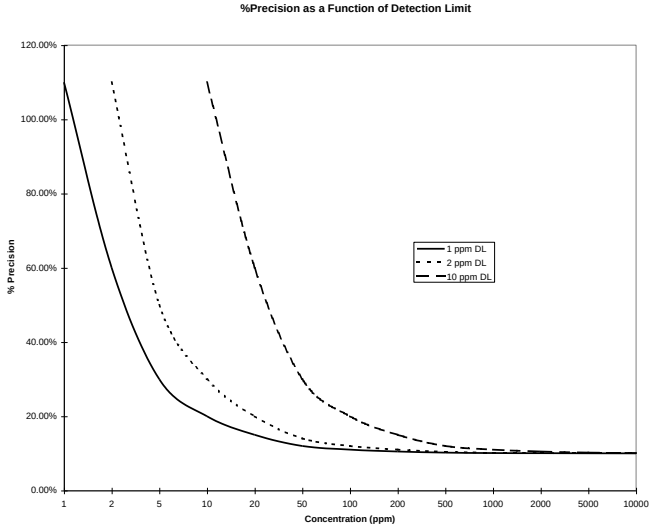
Precision can be expressed as a function of concentration:

$$P_c = \left(\frac{DetectionLimit}{c} + P\right) \times 100\%$$

where P_c – the precision at concentration c
c – concentration of the element
P – the "Precision Factor" of the element. This is the precision of the method at very high concentrations, i.e. 0.05 for 5%.

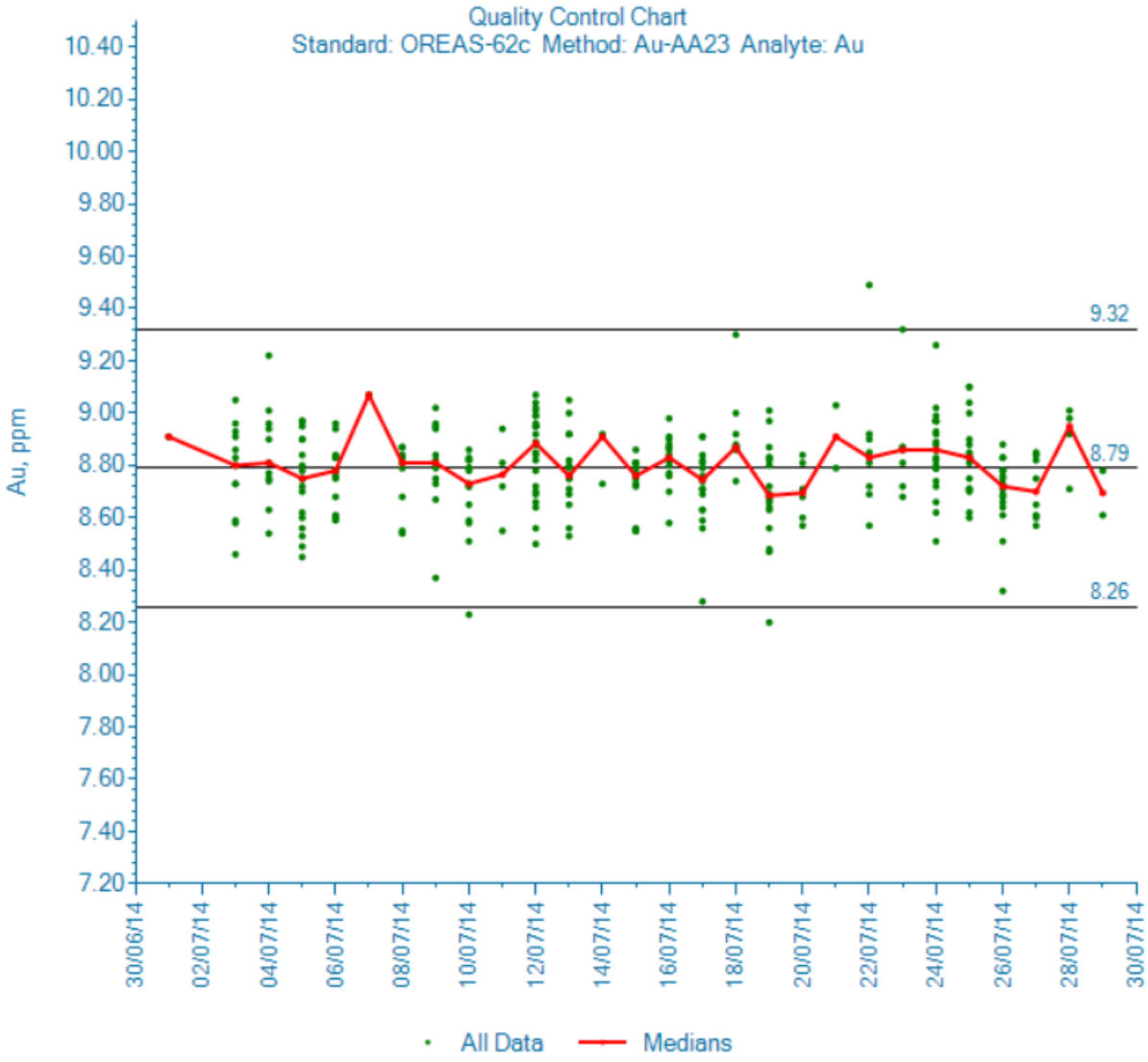
(M. Thompson, 1988. Variation of precision with concentration in an analytical system. Analyst, 113: 1579–1587.)

As an example, precision as a function of concentration (10% precision) is plotted for three different detection limits. The impact of detection limit on precision of results for low-level determinations can be dramatic.



Evaluation of Trends

Control charts for frequently used method codes are generated and evaluated by laboratory staff on a regular basis. The control charts are evaluated to ensure internal specifications for precision and accuracy are met. The data is also reviewed for any long-term trends and drifts.



External Proficiency Tests

Proficiency testing provides an independent assessment of laboratory performance by an outside agency. Test materials are regularly distributed to the participants and results are processed by a central agency. The results are usually converted to a Z-Score to rate the laboratory's result against the consensus value from all participating labs.

All ALS Geochemistry analytical facilities in North America participate in proficiency tests for the analytical procedures routinely done at each laboratory. ALS Geochemistry has participated for many years in proficiency tests organized by organizations such as Canadian Certified Reference Materials Projects, and Geostats as well as a number of independent studies organized by consultants for specific clients. We have participated also participated in several certification studies for new certified reference materials by CANMET and Rocklabs.

Feedback from these studies is invaluable in ensuring our continuing accuracy and validation of methods.

Quality Assurance Meetings

A review of quality assurance issues is held regularly at Technical and Quality Assurance Meetings. The meetings cover such topics as:

- Results of internal round robin exchanges, external proficiency tests and performance evaluation samples
- Monitoring of control charts for reference materials
- Review of quality system failures
- Incidents raised by clients
- Results of internal quality audits
- Other quality assurance issues

The Quality Assurance Department and senior laboratory management participate in these meetings.

Appendix 2-B: 2018 ARD Results

PEACE RIVER
HYDRO PARTNERS

Table 1: 2018 Rinse pH Results

Sample ID	Sample Location	Date Sampled	Easting (m)	Northing (m)	Elevation (m)	Sample Type	Material Type	Rinse pH	Notes
LBEX									
LBEX-2018-May-16-01	Left Bank Excavation	16-May-18	629913	6230373	n/a	Active excavation area	Overburden - silt/clay	7.5	Layered "soily" mudstone
LBEX-2018-May-16-02	Left Bank Excavation	16-May-18	629904	6230534	n/a	Active excavation area	Overburden - silt/clay	7.5	Layered "soily" mudstone
LBEX-2018-May-16-03	Left Bank Excavation	16-May-18	630160	6230169	n/a	Active excavation area	Overburden - silt/clay	7.6	Layered "soily" mudstone
LBEX-2018-May-16-04	Left Bank Excavation	16-May-18	629479	6230598	n/a	Active excavation area	Weathered Bedrock	3.1	-
LBEX-2018-May-16-05	Left Bank Excavation	16-May-18	629267	6230576	n/a	Active excavation area	Weathered Bedrock	3.7	pink-colored, by garbage creek
LBEX-2018-Aug-27-01	Left Bank Excavation	27-Aug-18	629479	6230601	487	Active excavation area	Weathered shale	2.6	outcrop
LBEX-2018-Aug-27-02	Left Bank Excavation	27-Aug-18	629453	6230569	478	Active excavation area	Weathered shale	3.0	-
Min								*2.6*	
Median								*3.7*	
Max								*7.6*	
LBEX-SP Bluff									
LBEX-SP-2018-OCT-17-1	Left Bank Excavation	17-Oct-18	629723	6230166	453	Grab sample	slope, weathered	4.2	W. side of bluff overlooking LBEX-SP
LBEX-SP-2018-OCT-17-2	Left Bank Excavation	17-Oct-18	629742	6230142	418	Grab sample	slope, weathered	4.3	base of bluff overlooking LBEX-SP
LBEX-SP-2018-OCT-17-3	Left Bank Excavation	17-Oct-18	629793	6230114	415	Grab sample	slope, weathered	3.7	base of bluff overlooking LBEX-SP
LBEX-SP-2018-OCT-17-4	Left Bank Excavation	17-Oct-18	629818	6230092	417	Grab sample	slope, weathered	3.7	E. side of E. collection ditch; sump pH 2.43; SPC 21,007 µS/cm
Min								*3.7*	
Median								*4.0*	
Max								*4.3*	
RSEM L5 Area									
L5-2018-May-16-01	RSEM L5	16-May-18	628969	6230740	n/a	RSEM Pile	Overburden - sand/gravel	8.0	in covered area
L5-2018-May-16-02	RSEM L5	16-May-18	628648	6231081	n/a	RSEM Pile	Overburden - sand/gravel	7.9	in covered area
L5-2018-May-16-03	RSEM L5	16-May-18	629125	6230461	n/a	RSEM Pile	Fresh Bedrock	7.8	-
L5-2018-May-16-04	RSEM L5	16-May-18	629084	6230455	n/a	RSEM Pile	Fresh Bedrock	3.8	-
L5-2018-May-16-05	RSEM L5	16-May-18	629092	6230403	n/a	RSEM Pile	Fresh Bedrock	7.3	-
L5-2018-May-16-06	RSEM L5	16-May-18	629071	6230400	n/a	RSEM Pile	Fresh Bedrock	6.5	-
L5-2018-May-16-07	RSEM L5	16-May-18	629039	6230429	n/a	RSEM Pile	Fresh Bedrock	7.3	-
L5-2018-May-16-08	RSEM L5	16-May-18	629007	6230473	n/a	RSEM Pile	Weathered Bedrock	4.6	Rusty surfaces
L5-2018-May-16-09	RSEM L5	16-May-18	628981	6230513	n/a	RSEM Pile	Transition (>50% shale)	5.2	-
L5-2018-JUN-26-01	RSEM L5	26-Jun-18	629204	6230445	423	RSEM Pile	Weathered Bedrock	4.8	-
L5-2018-JUN-26-02	RSEM L5	26-Jun-18	629179	6230477	425	RSEM Pile	Weathered Bedrock	7.8	-
L5-2018-JUN-26-03	RSEM L5	26-Jun-18	629057	6230494	427	RSEM Pile	Weathered Bedrock	8.7	-
L5-2018-JUN-26-04	RSEM L5	26-Jun-18	629019	6230465	430	RSEM Pile	Weathered Bedrock	3.9	-
L5-2018-JUN-26-05	RSEM L5	26-Jun-18	629009	6230518	433	RSEM Pile	Weathered Bedrock	5.8	-
L5-2018-JUN-26-06	RSEM L5	26-Jun-18	629107	6230399	430	RSEM Pile	Weathered Bedrock	6.2	-
L5-2018-JUN-26-07	RSEM L5	26-Jun-18	629168	6230391	419	RSEM Pile	Weathered Bedrock	7.1	-
L5-2018-Aug-27-01	RSEM L5	27-Aug-18	629071	6230438	429	RSEM Pile	Weathered shale/overburden mix	3.3	-
L5-2018-Aug-27-02	RSEM L5	27-Aug-18	629034	6230517	429	RSEM Pile	Fresh shale	7.3	-
L5-2018-Aug-27-03	RSEM L5	27-Aug-18	628992	6230529	430	RSEM Pile	Weathered shale	2.6	-
L5-2018-Aug-27-04	RSEM L5	27-Aug-18	628999	6230483	421	RSEM Pile	Weathered shale	3.1	-
L5-2018-Aug-27-05	RSEM L5	27-Aug-18	629052	6230410	419	RSEM Pile	Mixed overburden and shale fragments	5.8	-
L5-2018-Aug-27-06	RSEM L5	27-Aug-18	629110	6230393	420	RSEM Pile	Weathered shale	4.0	Submitted for ABA/metals
L5-2018-Aug-27-07	RSEM L5	27-Aug-18	629201	6230426	419	RSEM Pile	Weathered shale	3.6	Edge of L5
L5-2018-OCT-18-1	RSEM L5	18-Oct-18	628999	6230455	413	Grab sample	slope, loose	5.8	W. side base of L5 PAG dump
L5-2018-OCT-18-2	RSEM L5	18-Oct-18	629083	6230394	421	Grab sample	slope, loose	7.0	centre, base of L5 PAG dump; pond pH 4.98; SPC 817 µS/cm
L5-2018-OCT-18-3	RSEM L5	18-Oct-18	629174	6230403	415	Grab sample	slope, loose	4.4	E. side, base of L5 PAG dump
L5-2018-OCT-18-4	RSEM L5	18-Oct-18	629116	6230408	427	Grab sample	fresh pile	9.4	top of L5 PAG dump
L5-2018-OCT-18-5	RSEM L5	18-Oct-18	629039	6230463	429	Grab sample	fresh pile, DT excavation	9.1	top of L5 PAG dump
L5-2018-OCT-18-6	RSEM L5	18-Oct-18	628986	6230534	432	Grab sample	fresh pile, DT excavation	7.1	top of L5 PAG dump
L5-2018-OCT-18-7	RSEM L5	18-Oct-18	629037	6230486	428	Grab sample	fresh pile, DT excavation	9.3	top of L5 PAG dump
L5-2018-OCT-18-8	RSEM L5	18-Oct-18	629162	6230434	432	Grab sample	fresh pile, DT excavation	9.4	top of L5 PAG dump
L5-2018-OCT-18-9	RSEM L5	18-Oct-18	628928	6230849	452	Grab sample	slope, loose	5.0	W. end upper L5 NAG dump, visible patch of intermingled PAG
Min								*2.6*	
Median								*6.3*	
Max								*9.4*	

Table 1: 2018 Rinse pH Results

Sample ID	Sample Location	Date Sampled	Easting (m)	Northing (m)	Elevation (m)	Sample Type	Material Type	Rinse pH	Notes
Northwest Exposure									
WB-2018-May-16-01	RSEM L5	16-May-18	628769	6231042	n/a	Slope	Weathered Bedrock	2.4	West Borrow - Bedrock material pushed/cut onto slope
WB-2018-May-16-02	RSEM L5	16-May-18	628769	6231070	n/a	Slope	Weathered Bedrock	3.4	West Borrow - Bedrock material pushed/cut onto slope
WB-2018-May-16-03	RSEM L5	16-May-18	628768	6231091	n/a	Slope	Weathered Bedrock	4.4	West Borrow - Bedrock material pushed/cut onto slope
Central Cofferdam									
L6-2018-Aug-27-01	Central Cofferdam	27-Aug-18	629811	6229804	411	Grab sample	Overburden (alluvial material)	7.2	Located in Left Bank Central Cofferdam
Garbage Creek									
GC-2018-May-16-01	Garbage Creek	16-May-18	629205	6230907	n/a	covered pile	Weathered Bedrock	5.2	near edge of cover/fence
Diveresion Tunnel Inlet Portal (DTIP) area									
DTIP-2018-May-18-01	DTIP	18-May-18	629460	6230408	409	Active excavation area	Fresh Bedrock	3.4	-
DTIP-2018-May-18-02	DTIP	18-May-18	629487	6230354	417	Active excavation area	Weathered Bedrock	8.3	-
DTIP-2018-Jun-04-001	DTIP	4-Jun-18	629549	6230269	494	Active excavation area	Colluvium-Overburden	5.2	-
DT-2018-Aug-27-01	Exposure near DTIP	27-Aug-18	629538	6230275	418	Active excavation area	Weathered shale	6.5	outcrop, adjacent to tunnel, submitted for ABA/metals
DT-2018-Aug-27-02	Exposure near DTIP	27-Aug-18	629569	6230254	426	Active excavation area	Weathered shale	4.5	near tunnel
Min								*3.4*	
Median								*5.2*	
Max								*8.3*	
Diversion Tunnel Outlet Portal (DTOP) area									
DOT-2018-OCT-18-1	Diversion Outlet Tunnel	18-Oct-18	629961	6230037	424	Grab sample	slope, weathered	3.5	W. side of DOT, upper wall
DOT-2018-OCT-18-2	Diversion Outlet Tunnel	18-Oct-18	630001	6230016	398	Grab sample	wall, competent	9.1	W. side of DOT, excavation floor
DOT-2018-OCT-18-3	Diversion Outlet Tunnel	18-Oct-18	630044	6229981	411	Grab sample	wall, firable	7.0	E. side of DOT, excavation floor
DOT-2018-OCT-18-4	Diversion Outlet Tunnel	18-Oct-18	630052	6229978	414	Grab sample	wall, friable	4.0	E. side of DOT, bench 1
DOT-2018-OCT-18-5	Diversion Outlet Tunnel	18-Oct-18	629925	6230060	432	Grab sample	wall, competent	6.7	W. side of DOT, upper wall
Min								*3.5*	
Median								*6.7*	
Max								*9.1*	
Approach Channel									
AC-2018-May-16-01	Approach Channel	16-May-18	629101	6229311	439	Active excavation area	Weathered Bedrock	3.3	-
AC-2018-May-16-02	Approach Channel	16-May-18	629206	6229190	439	Active excavation area	Weathered Bedrock	2.9	-
AC-2018-May-16-03	Approach Channel	16-May-18	629321	6229124	434	Active excavation area	Weathered Bedrock	2.8	-
AC-2018-May-16-04	Approach Channel	16-May-18	629047	6229390	428	Active excavation area	Weathered Bedrock	5.4	-
AC-2018-May-16-05	Approach Channel	16-May-18	629058	6229398	426	Active excavation area	Weathered Bedrock	4.1	-
AC-2018-May-16-06	Approach Channel	16-May-18	629126	6229326	424	Active excavation area	Weathered Bedrock	6.2	compacted, by ditch
AC-2018-May-16-07	Approach Channel	16-May-18	629225	6229209	427	Active excavation area	Weathered Bedrock	3.0	-
AC-2018-May-16-08	Approach Channel	16-May-18	629391	6229087	423	Active excavation area	Weathered Bedrock	6.0	-
AC-2018-May-16-09	Approach Channel	16-May-18	629439	6229069	422	Active excavation area	Weathered Bedrock	5.8	by ditch
AC-2018-May-16-10	Approach Channel	16-May-18	629488	6229028	433	Active excavation area	Weathered Bedrock	3.1	-
AC-2018-May-16-11	Approach Channel	16-May-18	629545	6229001	431	Active excavation area	Weathered Bedrock	4.9	-
AC-2018-JUN-26-01	Approach Channel	26-Jun-18	628963	6229509	440	Active excavation area	Weathered Bedrock	5.4	-
AC-2018-JUN-26-02	Approach Channel	26-Jun-18	629004	6229454	438	Active excavation area	Weathered Bedrock	4.2	-
AC-2018-JUN-26-03	Approach Channel	26-Jun-18	629048	6229410	434	Active excavation area	Weathered Bedrock	7.7	-
AC-2018-JUN-26-04	Approach Channel	26-Jun-18	629080	6229349	434	Active excavation area	Weathered Bedrock	4.5	-
AC-2018-JUN-26-05	Approach Channel	26-Jun-18	629018	6229425	439	Active excavation area	Weathered Bedrock	4.0	-
AC-2018-JUN-26-06	Approach Channel	26-Jun-18	628934	6229507	436	Active excavation area	Weathered Bedrock	2.7	-
AC-2018-JUN-26-07	Approach Channel	26-Jun-18	629124	6229353	431	Active excavation area	Weathered Bedrock	6.5	-
AC-2018-JUN-26-08	Approach Channel	26-Jun-18	629623	6229013	430	Active excavation area	Weathered Bedrock	6.5	-
AC-2018-JUN-26-09	Approach Channel	26-Jun-18	629656	6228964	428	Active excavation area	Fresh Bedrock	8.0	-
AC-2018-JUN-26-10	Approach Channel	26-Jun-18	629657	6228934	428	Active excavation area	Fresh Bedrock	7.0	-
AC-2018-JUN-26-11	Approach Channel	26-Jun-18	629614	6228929	427	Active excavation area	Weathered Bedrock	6.2	-
AC-2018-JUN-26-12	Approach Channel	26-Jun-18	629576	6228965	433	Active excavation area	Weathered Bedrock	6.0	-
AC-2018-Aug-28-01	Approach Channel	28-Aug-18	629605	6228885	456	Active excavation area	Weathered shale	2.3	-
AC-2018-Aug-28-02	Approach Channel	28-Aug-18	629537	6228933	453	Active excavation area	Weathered shale	2.3	outcrop
AC-2018-Aug-28-03	Approach Channel	28-Aug-18	629446	6228995	455	Active excavation area	Weathered shale	2.4	outcrop
AC-2018-Aug-28-04	Approach Channel	28-Aug-18	629382	6229042	456	Active excavation area	Weathered shale	2.3	-
AC-2018-Aug-28-05	Approach Channel	28-Aug-18	629614	6228912	452	Active excavation area	Weathered shale	4.6	some white and yellow precipitate

Table 1: 2018 Rinse pH Results

Sample ID	Sample Location	Date Sampled	Easting (m)	Northing (m)	Elevation (m)	Sample Type	Material Type	Rinse pH	Notes
AC-2018-Aug-28-06	Approach Channel	28-Aug-18	629100	6229266	453	Active excavation area	Weathered shale	7.2	near hairpin corner
AC-2018-Aug-28-07	Approach Channel	28-Aug-18	629188	6229210	447	Active excavation area	Weathered shale	2.5	outcrop, submitted for ABA/metals
AC-2018-Aug-28-08	Approach Channel	28-Aug-18	629172	6229277	438	Active excavation area	Weathered shale	5.4	outcrop, white precipitate on surface
AC-2018-Aug-28-09	Approach Channel	28-Aug-18	628966	6229485	444	Active excavation area	Weathered shale	2.5	outcrop
AC-2018-OCT-16-11	Approach Channel	16-Oct-18	629134	6229294	437	Grab sample	competent	9.3	W. of hairpin, 2nd bench down, freshly scraped wall
AC-2018-OCT-16-12	Approach Channel	16-Oct-18	629023	6229402	439	Grab sample	weathered fines, cobbles	7.5	W. of hairpin, 1st bench down, freshly scraped floor
Min								*2.3*	
Median								*4.7*	
Max								*9.3*	
Approach Channel Test Pit Samples									
AC-2018-OCT-16-1	Approach Channel	16-Oct-18	629151	6229306	422	TP1-H1 - 0-40cm	weathered fines	4.4	W. of hairpin, lowest bench
AC-2018-OCT-16-2	Approach Channel	16-Oct-18				TP1-H2 - 40-70cm	friable	6.4	
AC-2018-OCT-16-3	Approach Channel	16-Oct-18				TP-1H3 - 70-110cm	competent, water	8.0	
AC-2018-OCT-16-4	Approach Channel	16-Oct-18	629201	6229215	462	TP2-H1 - 0-20cm	weathered fines	3.7	E. of hairpin, 3rd bench down
AC-2018-OCT-16-5	Approach Channel	16-Oct-18				TP2-H2 - 20-50cm	friable	6.0	
AC-2018-OCT-16-6	Approach Channel	16-Oct-18				TP2-H3 - 50-120cm	competent, sloped bedrock surface	8.0	
AC-2018-OCT-16-7	Approach Channel	16-Oct-18	629451	6229011	446	TP4-H1 - 0-10cm	weathered fines	3.6	E. of hairpin, 2nd bench down
AC-2018-OCT-16-8	Approach Channel	16-Oct-18				TP4-H2 - 10-30cm	friable (oxidized)	4.6	
AC-2018-OCT-16-9	Approach Channel	16-Oct-18				TP4-H3 - 30-55cm	broken, small pieces	8.7	
AC-2018-OCT-16-10	Approach Channel	16-Oct-18				TP4-H4 - 55-70cm	competent	8.7	
RCC Area									
RCC-2018-May-15-01	RCC Excavation	15-May-18	629426	6229304	406	Active excavation area	Weathered Bedrock	9.9	-
RCC-2018-May-15-02	RCC Excavation	15-May-18	629396	6229293	397	Active excavation area	Weathered Bedrock	9.9	soily texture
RCC-2018-May-15-03	RCC Excavation	15-May-18	629397	6229268	391	Active excavation area	Weathered Bedrock	9.0	-
RCC-2018-May-15-04	RCC Excavation	15-May-18	629380	6229232	394	Active excavation area	Weathered Bedrock	8.5	-
RCC-2018-May-15-05	RCC Excavation	15-May-18	629413	6229214	391	Active excavation area	Fresh Bedrock	7.3	-
RCC-2018-May-15-07	RCC Excavation	15-May-18	629537	6229258	381	Active excavation area	Fresh Bedrock	9.1	-
RCC-2018-May-15-08	RCC Excavation	15-May-18	629588	6229222	378	Active excavation area	Fresh Bedrock	9.9	-
RCC-2018-Aug-27-01	RCC Excavation	27-Aug-18	629304	6229388	417	Active excavation area	Weathered shale	8.7	-
RCC-2018-Aug-27-02	RCC Excavation	27-Aug-18	629302	6229413	414	Active excavation area	Weathered shale	7.3	-
RCC-2018-Aug-27-03	RCC Excavation	27-Aug-18	629740	6229040	405	Active excavation area	Fresh shale	8.9	-
RCC-2018-Aug-27-04	RCC Excavation	27-Aug-18	629671	6229082	394	Active excavation area	Fresh shale	9.3	Submitted for ABA/metals, outcrop
RCC-2018-OCT-17-1	RCC Excavation	17-Oct-18	629646	6229139	374	Grab sample	floor material, broken	8.7	floor of RCC
RCC-2018-OCT-17-2	RCC Excavation	17-Oct-18	629686	6229113	385	Grab sample	wall, friable	9.3	floor of RCC
RCC-2018-OCT-17-3	RCC Excavation	17-Oct-18	629661	6229112	385	Grab sample	wall, competent	8.7	bench 1 RCC
RCC-2018-OCT-17-4	RCC Excavation	17-Oct-18	629681	6229091	393	Grab sample	wall, competent	9.2	bench 2 RCC
RCC-2018-OCT-17-5	RCC Excavation	17-Oct-18	629680	6229071	393	Grab sample	wall, friable	9.0	bench 3, RCC
RCC-2018-OCT-17-6	RCC Excavation	17-Oct-18	629650	6229067	400	Grab sample	wall, friable	8.7	bench 4, RCC, wall drain pH 7.29; SPC 10,936 uS/cm
RCC-2018-OCT-17-7	RCC Excavation	17-Oct-18	629261	6229410	409	Grab sample	slope, weathered	6.8	bottom of access road to hairpin corner
RCC-2018-OCT-17-8	RCC Excavation	17-Oct-18	629149	6229452	403	Grab sample	slope, weathered	8.4	W. end of access road slope
RCC-2018-OCT-17-9	RCC Excavation	17-Oct-18	629294	6229278	409	Grab sample	wall, freshly scraped	6.5	RCC tailrace above access road
RCC-2018-OCT-17-10	RCC Excavation	17-Oct-18	629237	6229366	407	Grab sample	roadbed, weathered	7.0	RCC tailrace above access road
RCC-2018-OCT-17-11	RCC Excavation	17-Oct-18	629346	6229262	393	Grab sample	bluff	8.0	RCC tailrace, bluff below access rd to W. of butress
RCC-2018-OCT-17-12	RCC Excavation	17-Oct-18	629715	6229019	409	Grab sample	wall, competent	8.3	bench 5, RCC, above crane access road
RCC-2018-OCT-17-13	RCC Excavation	17-Oct-18	629661	6229040	412	Grab sample	wall, friable	7.8	bench 6, RCC
RCC-2018-OCT-17-14	RCC Excavation	17-Oct-18	629674	6229021	419	Grab sample	wall, friable and loose	7.2	bench 7, RCC
RCC-2018-OCT-17-15	RCC Excavation	17-Oct-18	629561	6229275	375	Grab sample	slope, friable	7.7	RCC Butress
RCC-2018-OCT-17-16	RCC Excavation	17-Oct-18	629611	6229238	384	Grab sample	wall, friable	8.1	RCC Butress
Min								*6.5*	
Median								*8.7*	
Max								*9.9*	
RSEM R5A Area									
R5a-2018-May-15-01	RSEM R5a	15-May-18	627331	6231804	422	RSEM Pile	Transition (>50% shale)	8.1	-
R5a-2018-May-15-02	RSEM R5a	15-May-18	627394	6231762	416	RSEM Pile	Weathered Bedrock	9.6	-
R5a-2018-May-15-03	RSEM R5a	15-May-18	627467	6231638	418	RSEM Pile	Weathered Bedrock	7.0	compacted

Table 1: 2018 Rinse pH Results

Sample ID	Sample Location	Date Sampled	Easting (m)	Northing (m)	Elevation (m)	Sample Type	Material Type	Rinse pH	Notes
R5a-2018-May-15-04	RSEM R5a	15-May-18	627130	6231867	420	RSEM Pile	Fresh Bedrock	9.3	-
R5a-2018-May-15-05	RSEM R5a	15-May-18	627349	6231667	426	RSEM Pile	Weathered Bedrock	9.5	compacted
R5a-2018-May-15-06	RSEM R5a	15-May-18	627322	6231634	434	RSEM Pile	Weathered Bedrock	2.6	-
R5a-2018-May-15-07	RSEM R5a	15-May-18	627391	6231510	438	RSEM Pile	Weathered Bedrock	5.1	fine, white precip
R5a-2018-May-15-08	RSEM R5a	15-May-18	627632	6231402	422	RSEM Pile	Weathered Bedrock	9.4	-
R5a-2018-May-15-09	RSEM R5a	15-May-18	627621	6231444	413	RSEM Pile	Weathered Bedrock	7.9	compacted, white precip
R5a-2018-May-15-10	RSEM R5a	15-May-18	627677	6231266	423	RSEM Pile	Weathered Bedrock	8.0	-
R5a-2018-May-15-11	RSEM R5a	15-May-18	627410	6231257	446	RSEM Pile	Weathered Bedrock	3.5	-
R5a-2018-May-15-12	RSEM R5a	15-May-18	627503	6231185	441	RSEM Pile	Weathered Bedrock	4.0	-
R5a-2018-May-15-13	RSEM R5a	15-May-18	627571	6231068	452	RSEM Pile	Weathered Bedrock	3.5	-
R5a-2018-May-15-14	RSEM R5a	15-May-18	628070	6230319	443	RSEM Pile	Transition (30-50% shale)	6.7	in diversion ditch
R5a-2018-May-15-15	RSEM R5a	15-May-18	628076	6230430	444	RSEM Pile	Weathered Bedrock	4.2	in diversion ditch
R5a-2018-May-16-01	RSEM R5a	16-May-18	627743	6231180	419	RSEM Pile	Fresh Bedrock	11	-
R5a-2018-May-16-02	RSEM R5a	16-May-18	627783	6231083	425	RSEM Pile	Fresh Bedrock	9.5	-
R5a-2018-May-16-03	RSEM R5a	16-May-18	627832	6231052	425	RSEM Pile	Fresh Bedrock	9.7	-
R5a-2018-May-16-04	RSEM R5a	16-May-18	627863	6231040	429	RSEM Pile	Fresh Bedrock	9.2	-
R5a-2018-May-16-05	RSEM R5a	16-May-18	627889	6231031	428	RSEM Pile	Weathered Bedrock	2.8	-
R5a-2018-May-16-06	RSEM R5a	16-May-18	627961	6230977	428	RSEM Pile	Weathered Bedrock	2.7	-
R5a-2018-May-16-07	RSEM R5a	16-May-18	628040	6230762	428	RSEM Pile	Weathered Bedrock	5.5	by bear's den
R5a-2018-May-16-08	RSEM R5a	16-May-18	628087	6230773	427	RSEM Pile	Weathered Bedrock	8.6	by cover (near river)
R5a-2018-May-16-09	RSEM R5a	16-May-18	628135	6230735	430	RSEM Pile	Weathered Bedrock	9.7	by cover (near river)
R5a-2018-May-16-10	RSEM R5a	16-May-18	628284	6230550	427	RSEM Pile	Weathered Bedrock	8.3	-
R5a-2018-May-16-11	RSEM R5a	16-May-18	628127	6230244	420	RSEM Pile	Transition (30-50% shale)	3.6	organic-rich slope by bridge
R5a-2018-May-16-12	RSEM R5a	16-May-18	628131	6230273	429	RSEM Pile	Weathered Bedrock	3.4	outcrop by bridge
R5A-2018-JUN-26-01	RSEM R5a	26-Jun-18	627098	6231856	420	RSEM Pile	Weathered Bedrock	2.4	-
R5A-2018-JUN-26-02	RSEM R5a	26-Jun-18	627186	6231856	421	RSEM Pile	Weathered Bedrock	7.0	-
R5A-2018-JUN-26-03	RSEM R5a	26-Jun-18	627140	6231798	427	RSEM Pile	Weathered Bedrock	2.5	-
R5A-2018-JUN-26-04	RSEM R5a	26-Jun-18	627153	6231684	443	RSEM Pile	Weathered Bedrock	2.5	-
R5A-2018-JUN-26-05	RSEM R5a	26-Jun-18	627200	6231634	443	RSEM Pile	Weathered Bedrock	2.7	-
R5A-2018-JUN-26-06	RSEM R5a	26-Jun-18	627318	6231710	427	RSEM Pile	Weathered Bedrock	6.8	-
R5A-2018-JUN-26-07	RSEM R5a	26-Jun-18	627346	6231647	424	RSEM Pile	Weathered Bedrock	2.6	-
R5A-2018-JUN-26-08	RSEM R5a	26-Jun-18	627425	6231558	431	RSEM Pile	Weathered Bedrock	3.7	-
R5A-2018-JUN-26-09	RSEM R5a	26-Jun-18	627400	6231519	438	RSEM Pile	Weathered Bedrock	2.3	-
R5A-2018-JUN-26-10	RSEM R5a	26-Jun-18	627359	6231350	441	RSEM Pile	Weathered Bedrock	2.6	-
R5A-2018-JUN-26-11	RSEM R5a	26-Jun-18	627486	6231528	433	RSEM Pile	Weathered Bedrock	6.4	-
R5A-2018-JUN-26-12	RSEM R5a	26-Jun-18	627518	6231483	427	RSEM Pile	Weathered Bedrock	5.0	-
R5A-2018-JUN-26-13	RSEM R5a	26-Jun-18	627561	6231433	427	RSEM Pile	Weathered Bedrock	9.2	-
R5A-2018-JUN-26-14	RSEM R5a	26-Jun-18	627446	6231579	427	RSEM Pile	Weathered Bedrock	7.8	-
R5A-2018-JUN-26-15	RSEM R5a	26-Jun-18	627386	6231754	429	RSEM Pile	Weathered Bedrock	10	-
R5A-2018-JUN-26-16	RSEM R5a	26-Jun-18	627331	6231807	430	RSEM Pile	Weathered Bedrock	7.7	-
R5A-2018-JUN-26-17	RSEM R5a	26-Jun-18	627310	6231855	428	RSEM Pile	Weathered Bedrock	6.9	-
R5A-2018-JUN-26-18	RSEM R5a	26-Jun-18	627299	6231772	426	RSEM Pile	Weathered Bedrock	6.9	-
R5A-2018-JUN-26-19	RSEM R5a	26-Jun-18	627440	6231606	424	RSEM Pile	Weathered Bedrock	8.5	-
R5A-2018-JUN-26-22	RSEM R5a	26-Jun-18	627405	6231736	432	RSEM Pile	Weathered Bedrock	4.9	-
R5A-2018-JUN-26-23	RSEM R5a	26-Jun-18	627522	6231513	428	RSEM Pile	Weathered Bedrock	8.2	-
R5A-2018-JUN-26-24	RSEM R5a	26-Jun-18	627541	6231545	429	RSEM Pile	Weathered Bedrock	8.1	-
R5A-2018-JUN-26-25	RSEM R5a	26-Jun-18	627601	6231469	428	RSEM Pile	Weathered Bedrock	6.3	-
R5A-2018-JUN-26-26	RSEM R5a	26-Jun-18	627666	6231430	422	RSEM Pile	Weathered Bedrock	4.0	-
R5A-2018-JUN-26-27	RSEM R5a	26-Jun-18	627678	6231368	426	RSEM Pile	Weathered Bedrock	5.1	-
R5A-2018-JUN-26-28	RSEM R5a	26-Jun-18	627663	6231323	432	RSEM Pile	Weathered Bedrock	5.2	-
R5A-2018-JUN-26-29	RSEM R5a	26-Jun-18	627713	6231282	428	RSEM Pile	Weathered Bedrock	6.1	-
R5A-2018-JUN-26-30	RSEM R5a	26-Jun-18	627492	6231267	440	RSEM Pile	Weathered Bedrock	3.6	-
R5A-2018-JUN-26-31	RSEM R5a	26-Jun-18	627472	6231209	449	RSEM Pile	Weathered Bedrock	2.6	-
R5A-2018-JUN-26-32	RSEM R5a	26-Jun-18	627533	6231155	447	RSEM Pile	Weathered Bedrock	2.6	-
R5A-2018-JUN-26-33	RSEM R5a	26-Jun-18	627902	6230795	455	RSEM Pile	Weathered Bedrock	3.5	-

Table 1: 2018 Rinse pH Results

Sample ID	Sample Location	Date Sampled	Easting (m)	Northing (m)	Elevation (m)	Sample Type	Material Type	Rinse pH	Notes
R5A-2018-JUN-26-34	RSEM R5a	26-Jun-18	627916	6230800	452	RSEM Pile	Weathered Bedrock	3.1	-
R5A-2018-JUN-26-35	RSEM R5a	26-Jun-18	627856	6231082	426	RSEM Pile	Weathered Bedrock	2.6	-
R5A-2018-JUN-26-36	RSEM R5a	26-Jun-18	627830	6231040	425	RSEM Pile	Weathered Bedrock	8.8	-
R5A-2018-JUN-26-37	RSEM R5a	26-Jun-18	627912	6231030	426	RSEM Pile	Weathered Bedrock	7.7	-
R5A-2018-JUN-26-38	RSEM R5a	26-Jun-18	627972	6230945	425	RSEM Pile	Weathered Bedrock	2.7	-
R5A-2018-JUN-26-39	RSEM R5a	26-Jun-18	628094	6230768	424	RSEM Pile	Weathered Bedrock	9.3	-
R5A-2018-JUN-26-40	RSEM R5a	26-Jun-18	628288	6230501	421	RSEM Pile	Weathered Bedrock	3.7	-
R5A-2018-Aug-28-01	RSEM R5A	28-Aug-18	627047	6231880	440	RSEM Pile	Mixed overburden and rock fragments	5.8	-
R5A-2018-Aug-28-02	RSEM R5A	28-Aug-18	627079	6231817	442	RSEM Pile	Weathered shale	7.1	-
R5A-2018-Aug-28-03	RSEM R5A	28-Aug-18	627127	6231859	436	RSEM Pile	Weathered shale	2.5	-
R5A-2018-Aug-28-04	RSEM R5A	28-Aug-18	627203	6231520	447	RSEM Pile	Weathered shale	2.6	-
R5A-2018-Aug-28-05	RSEM R5A	28-Aug-18	628081	6230258	430	RSEM Pile	Weathered shale	3.3	more competent, submitted for ABA/metals
R5A-2018-Aug-28-06	RSEM R5A	28-Aug-18	627492	6231316	434	RSEM Pile	Weathered shale	5.7	outcrop
R5A-2018-Aug-28-07	RSEM R5A	28-Aug-18	627513	6231284	431	RSEM Pile	Fresh shale	9.9	new PAG stockpile
R5A-2018-Aug-28-08	RSEM R5A	28-Aug-18	627570	6231240	429	RSEM Pile	Fresh shale	10	-
R5A-2018-Aug-28-09	RSEM R5A	28-Aug-18	627639	6231209	429	RSEM Pile	Fresh shale	10	-
R5A-2018-Aug-28-10	RSEM R5A	28-Aug-18	627519	6231344	436	RSEM Pile	Fresh shale	9.6	-
R5A-2018-Aug-28-11	RSEM R5A	28-Aug-18	627566	6231311	432	RSEM Pile	Fresh shale	9.9	-
R5A-2018-Aug-28-12	RSEM R5A	28-Aug-18	627654	6231252	433	RSEM Pile	Fresh shale	10	-
R5A-2018-Aug-28-13	RSEM R5A	28-Aug-18	627602	6231245	433	RSEM Pile	Fresh shale	10	-
R5A-2018-Aug-28-14	RSEM R5A	28-Aug-18	627438	6231586	434	RSEM Pile	Fresh shale	9.7	more competent
R5A-2018-Aug-28-15	RSEM R5A	28-Aug-18	627477	6231521	431	RSEM Pile	Fresh shale	9.7	-
R5A-2018-Aug-28-16	RSEM R5A	28-Aug-18	627539	6231446	434	RSEM Pile	Fresh shale	9.8	area contains PAG, overburden and concrete stockpiles
R5A-2018-Aug-28-17	RSEM R5A	28-Aug-18	627595	6231381	432	RSEM Pile	Fresh shale	9.6	-
R5A-2018-Aug-28-18	RSEM R5A	28-Aug-18	627681	6231291	423	RSEM Pile	Fresh shale	9.4	submitted for ABA/metals
R5A-2018-Aug-28-19	RSEM R5A	28-Aug-18	627728	6231215	422	RSEM Pile	Weathered shale	3.1	-
R5A-2018-Aug-28-20	RSEM R5A	28-Aug-18	627285	6231768	428	RSEM Pile	Fresh shale	5.0	-
R5A-2018-Aug-28-21	RSEM R5A	28-Aug-18	627285	6231837	427	RSEM Pile	weathered shale, some overburden	9.7	shale fragments are blocky
R5A-2018-Aug-28-22	RSEM R5A	28-Aug-18	627386	6231759	427	RSEM Pile	Weathered shale	9.5	-
R5A-2018-Aug-28-23	RSEM R5A	28-Aug-18	627391	6231707	426	RSEM Pile	Fresh shale	9.8	crumbly
R5A-2018-Aug-28-24	RSEM R5A	28-Aug-18	627453	6231602	421	RSEM Pile	Weathered shale	7.0	At base of slope below fresh shale
R5A-2018-Aug-28-25	RSEM R5A	28-Aug-18	627522	6231570	426	RSEM Pile	Weathered shale	4.6	-
R5A-2018-Aug-28-26	RSEM R5A	28-Aug-18	627347	6231829	429	RSEM Pile	Weathered shale	5.0	fresher material along the road, sample is older stockpile further off road
R5A-2018-Aug-28-27	RSEM R5A	28-Aug-18	627425	6231715	427	RSEM Pile	Weathered shale	5.4	submitted for ABA/metals
R5A-2018-Aug-28-28	RSEM R5A	28-Aug-18	627595	6231412	424	RSEM Pile	Fresh shale	9.7	blocky, crumbly
R5A-2018-Aug-28-29	RSEM R5A	28-Aug-18	627703	6231314	422	RSEM Pile	Weathered shale	3.0	-
R5A-2018-Aug-28-30	RSEM R5A	28-Aug-18	627801	6231057	426	RSEM Pile	Weathered shale	7.1	-
R5A-2018-Aug-28-31	RSEM R5A	28-Aug-18	627882	6231076	426	RSEM Pile	Weathered shale	2.3	-
R5A-2018-Aug-28-32	RSEM R5A	28-Aug-18	627957	6230986	424	RSEM Pile	Weathered shale	2.4	-
R5A-2018-Aug-28-33	RSEM R5A	28-Aug-18	628162	6230704	422	RSEM Pile	Weathered shale	6.9	-
R5A-2018-Aug-28-34	RSEM R5A	28-Aug-18	628029	6230880	416	RSEM Pile	Weathered shale	6.6	In spillway
R5A-2018-Aug-28-35	RSEM R5A	28-Aug-18	628283	6230548	418	RSEM Pile	Weathered shale	6.3	-
R5A-2018-Aug-28-36	RSEM R5A	28-Aug-18	628296	6230497	421	RSEM Pile	Weathered shale	2.4	-
R5A-2018-Aug-28-37	RSEM R5A	28-Aug-18	628326	6230419	421	RSEM Pile	Weathered shale	8.7	-
R5A-2018-Aug-28-38	RSEM R5A	28-Aug-18	628263	6230401	423	RSEM Pile	Weathered shale	6.2	-
R5A-2018-OCT-17-1	RSEM R5A	17-Oct-18	628245	6230303	421	Grab sample	older pile	7.5	-
R5A-2018-OCT-17-2	RSEM R5A	17-Oct-18	628149	6230341	431	Grab sample	older pile	6.8	-
R5A-2018-OCT-17-3	RSEM R5A	17-Oct-18	628112	6230272	435	Grab sample	graded surface	4.3	-
R5A-2018-OCT-17-4	RSEM R5A	17-Oct-18	628224	6230605	420	Grab sample	older pile	7.0	-
R5A-2018-OCT-17-5	RSEM R5A	17-Oct-18	628109	6230775	423	Grab sample	graded surface	8.2	-
R5A-2018-OCT-17-6	RSEM R5A	17-Oct-18	627777	6231155	429	Grab sample	graded surface	4.1	-
R5A-2018-OCT-17-7	RSEM R5A	17-Oct-18	627758	6231064	428	Grab sample	older pile	7.9	-
R5A-2018-OCT-17-8	RSEM R5A	17-Oct-18	627646	6231431	421	Grab sample	older pile	6.5	-
R5A-2018-OCT-17-9	RSEM R5A	17-Oct-18	627566	6231530	422	Grab sample	older pile	6.5	-
R5A-2018-OCT-17-10	RSEM R5A	17-Oct-18	627399	6231756	418	Grab sample	older pile	6.7	-

Table 1: 2018 Rinse pH Results

Sample ID	Sample Location	Date Sampled	Easting (m)	Northing (m)	Elevation (m)	Sample Type	Material Type	Rinse pH	Notes
R5A-2018-OCT-17-11	RSEM R5A	17-Oct-18	627459	6231687	418	Grab sample	older pile	7.6	-
R5A-2018-OCT-17-12	RSEM R5A	17-Oct-18	627298	6231859	420	Grab sample	older pile	8.8	water pH=7.8; SPC=10,800 uS/cm
R5A-2018-OCT-17-13	RSEM R5A	17-Oct-18	627162	6231843	425	Grab sample	older pile	7.7	-
R5A-2018-OCT-17-14	RSEM R5A	17-Oct-18	627145	6231732	437	Grab sample	graded surface	5.4	-
R5A-2018-OCT-17-15	RSEM R5A	17-Oct-18	627400	6231639	430	Grab sample	fresh pile	9.4	-
R5A-2018-OCT-17-16	RSEM R5A	17-Oct-18	627438	6231700	426	Grab sample	older pile	5.9	-
R5A-2018-OCT-17-17	RSEM R5A	17-Oct-18	627557	6231470	426	Grab sample	older pile	6.5	-
R5A-2018-OCT-17-18	RSEM R5A	17-Oct-18	627604	6231411	425	Grab sample	older pile	8.8	-
R5A-2018-OCT-17-19	RSEM R5A	17-Oct-18	627676	6231302	424	Grab sample	older pile	8.2	-
R5A-2018-OCT-17-20	RSEM R5A	17-Oct-18	627617	6231242	435	Grab sample	fresh pile	9.0	-
R5A-2018-OCT-17-21	RSEM R5A	17-Oct-18	627522	6231281	430	Grab sample	older pile	6.9	-
R5A-2018-OCT-17-22	RSEM R5A	17-Oct-18	627489	6231273	432	Grab sample	older pile	4.5	-
R5A-2018-OCT-17-23	RSEM R5A	17-Oct-18	627370	6231338	440	Grab sample	older pile	3.8	-
R5A-2018-OCT-17-24	RSEM R5A	17-Oct-18	627505	6231396	438	Grab sample	fresh pile	5.8	-
R5A-2018-OCT-17-25	RSEM R5A	17-Oct-18	627459	6231408	437	Grab sample	older pile	7.1	-
R5A-2018-OCT-17-26	RSEM R5A	17-Oct-18	627402	6231492	438	Grab sample	older pile	3.5	-
R5A-2018-OCT-17-27	RSEM R5A	17-Oct-18	627179	6231676	436	Grab sample	older pile	3.8	-
R5A-2018-OCT-17-28	RSEM R5A	17-Oct-18	627398	6231743	425	Grab sample	older pile	8.5	-
R5A-2018-OCT-17-29	RSEM R5A	17-Oct-18	627276	6231461	443	Grab sample	older pile	8.8	-
R5A-2018-OCT-17-30	RSEM R5A	17-Oct-18	627468	6231194	451	Grab sample	older pile	4.1	-
R5A-2018-OCT-17-31	RSEM R5A	17-Oct-18	627565	6231078	449	Grab sample	older pile	3.8	-
R5A-2018-OCT-17-32	RSEM R5A	17-Oct-18	627474	6231512	437	Grab sample	fresh pile	9.6	-
R5A-2018-OCT-17-33	RSEM R5A	17-Oct-18	627310	6231679	437	Grab sample	fresh pile	9.7	-
R5A-2018-OCT-17-34	RSEM R5A	17-Oct-18	627344	6231575	441	Grab sample	older pile	3.6	-
Min								*2.3*	
Median								*6.7*	
Max								*11*	
South Bank Initial Access Road (SBIAR)									
SBIAR-2018-May-16-01	SBIAR	16-May-18	630308	6228627	n/a	Exposed Surface	Weathered Bedrock	2.7	-
SBIAR-2018-May-16-02	SBIAR	16-May-18	630296	6228599	n/a	Exposed Surface	Weathered Bedrock	3.3	-
SBIAR-2018-May-16-03	SBIAR	16-May-18	630293	6228567	n/a	Exposed Surface	Fresh Bedrock	4.1	-
SBIAR-2018-May-17-01	SBIAR	17-May-18	630353	6228499	453	Exposed Surface	Weathered Bedrock	3.5	-
SBIAR-2018-May-17-02	SBIAR	17-May-18	630355	6228542	452	Exposed Surface	Fresh Bedrock	3.4	-
Min								*2.7*	
Median								*3.4*	
Max								*4.1*	
Moberly Bridge Area									
MOB-2018-May-17-01	Moberly Bridge	17-May-18	628716	6229631	461	Exposed Surface	Weathered Bedrock	4.9	-
MOB-2018-May-17-02	Moberly Bridge	17-May-18	628687	6229669	455	Exposed Surface	Weathered Bedrock	4.3	-
Right Bank Diversion Tunnel (RBDT)									
RBDT-388-123-01	RBDT	14-Mar-18	n/a	n/a	n/a	Drill Cuttings	n/a	10	-
RBDT-738-01	RBDT	25-Jun-18	n/a	n/a	n/a	Drill Cuttings	n/a	11	-
RBDT-01	RBDT	19-Dec-18	n/a	n/a	n/a	results pending			
Area A									
AA-2018-OCT-11-1	Area A	11-Oct-18	632435	6228174	-	Grab sample	-	7.1	collected by B.M., N.M.
AA-2018-OCT-11-2	Area A	11-Oct-18	632193	6228043	-	Grab sample	-	6.6	-
AA-2018-OCT-11-3	Area A	11-Oct-18	631993	6228005	-	Grab sample	-	6.6	-

Table 2: 2018 ABA Results, Left Bank and Right Bank

Sample ID	Date Sampled	Paste pH	Paste EC	Rinse pH (on <2mm)	Rinse EC (on <2mm)	Total Carbon	Total S	HCl Extractable Sulphur	HNO_3 Extractable Sulphur	Sulphide Sulphur (by diff.)	Non Extractable Sulphur (by diff.)
Units		**pH Units**	**µS/cm**	**pH Units**	**µS/cm**	**wt%**	**wt%**	**wt%**	**wt%**	**wt%**	**wt%**
Left Bank											
L5-2018-MAY-16-07	16-May-18	7.1	-	-	-	-	2.29	0.04	1.05	-	1.20
L5-2018-JUN-26-03	26-Jun-18	8.9	-	8.7	-	-	1.42	0.05	-	1.37	-
L5-2018-AUG 27-06	27-Aug-18	4.0	-	4.0	4300	-	1.50	0.27	0.98	-	0.25
L5-2018-OCT-18-5	18-Oct-18	9.1	-	9.1	-	-	0.88	0.03	0.64	-	0.21
WB-2018-MAY-16-02	16-May-18	3.5	-	-	-	-	0.99	0.97	0.03	-	<0.02
LBEX-2018-MAY-16-03	16-May-18	7.7	-	-	-	-	0.06	0.03	0.03	-	<0.02
LBEX-SP-2018-OCT-17-2	17-Oct-18	4.4	-	4.3	-	-	0.83	0.78	0.05	-	<0.01
LBEX-SP-2018-OCT-17-3	17-Oct-18	3.7	-	3.7	-	-	1.3	1.27	0.04	-	<0.01
DTIP-2018-MAY18-01	18-May-18	3.6	2210	3.4	3880	-	1.45	0.85	-	0.60	-
DTIP-2018-MAY-18-02	18-May-18	8.3	3540	8.3	3110	-	1.75	0.09	-	1.66	-
DTIP-2018-JUN-04-001	4-Jun-18	4.6	2420	5.2	-	<0.02	2.21	0.46	-	1.75	-
DT-2018-AUG 27-01	27-Aug-18	3.9	-	6.5	3100	-	0.66	0.45	0.08	-	0.13
DOT-2018-OCT-18-3	18-Oct-18	6.9	-	7.0	-	-	1.66	0.23	1.07	-	0.36
Right Bank											
AC-2018-MAY-16-02	16-May-18	3.0	-	-	-	-	1.85	0.90	0.45	-	0.50
AC-2018-JUN-26-05	26-Jun-18	5.8	-	4.0	-	-	1.33	0.26	-	1.07	-
AC-2018-AUG 28-07	28-Aug-18	2.5	-	2.5	7370	-	1.51	0.82	0.35	-	0.34
AC-2018-OCT-16-1	16-Oct-18	4.4	-	4.4	-	-	1.04	0.43	0.45	-	0.16
AC-2018-OCT-16-4	16-Oct-18	3.7	-	3.7	-	-	1.1	0.87	0.08	-	0.15
AC-2018-OCT-16-7	16-Oct-18	3.6	-	3.6	-	-	2.26	1.72	0.35	-	0.19
R5A-2018-MAY-15-07	15-May-18	7.6	-	-	-	-	0.85	0.11	0.35	-	0.39
R5A-2018-MAY-16-02	16-May-18	8.4	-	-	-	-	1.05	0.05	0.46	-	0.54
R5A-2018-MAY-16-08	16-May-18	8.8	-	-	-	-	0.43	0.03	0.20	-	0.20
R5A-2018-JUN-26-03	26-Jun-18	3.0	-	2.5	-	-	1.24	0.62	-	0.62	-
R5A-2018-JUN-26-11	26-Jun-18	7.7	-	6.4	-	-	0.84	0.07	-	0.77	-
R5A-2018-JUN-26-25	26-Jun-18	7.5	-	6.3	-	-	0.88	0.12	-	0.76	-
R5A-2018-JUN-26-32	26-Jun-18	3.2	-	2.6	-	-	1.15	0.75	-	0.40	-
R5A-2018-JUN-26-35	26-Jun-18	3.2	-	2.6	-	-	1.09	0.55	-	0.54	-
R5A-2018-AUG 28-05	28-Aug-18	3.5	-	3.3	2020	-	0.86	0.73	0.03	-	0.10
R5A-2018-AUG 28-18	28-Aug-18	8.8	-	9.4	1090	-	0.80	0.02	0.53	-	0.25
R5A-2018-AUG 28-27	28-Aug-18	5.5	-	5.4	2460	-	1.03	0.08	0.68	-	0.27
R5A-2018-OCT-17-20	17-Oct-18	9.0	-	9.0	-	-	0.63	0.02	0.52	-	0.09
RBDT-388-123-01	14-Mar-18	9.7	1840	10.3	1020	-	0.34	0.01	-	0.33	-
RBDT-738-01	25-Jun-18	9.9	-	11.4	1050	-	0.47	0.01	-	0.46	-
RBDT-01	19-Dec-18	results pending									
RCC-2018-MAY-15-05	15-May-18	8.6	-	7.3	3380	-	0.62	0.07	0.27	-	0.28
RCC-2018-AUG 27-04	27-Aug-18	8.7	-	9.3	974	-	0.50	0.02	0.37	-	0.11
RCC-2018-OCT-17-2	17-Oct-18	9.3	-	9.3	-	-	0.34	0.01	0.29	-	0.04
RCC-2018-OCT-17-4	17-Oct-18	9.0	-	9.2	-	-	0.58	0.01	0.51	-	0.06
RCC-2018-OCT-17-13	17-Oct-18	8.0	-	7.8	-	-	0.95	0.07	0.72	-	0.16
SBIAR-2018-MAY-16-03	16-May-18	3.9	-	-	-	-	0.82	0.16	0.31	-	0.35
AA-2018-OCT-11-2	11-Oct-18	6.8	-	6.6	-	-	1.99	0.13	1.47	-	0.39

Table 2: 2018 ABA Results, Left Bank and Right Bank

Sample ID	Date Sampled	Paste pH	Paste EC	Rinse pH (on <2mm)	Rinse EC (on <2mm)	Total Carbon	Total S	HCl Extractable Sulphur	HNO_3 Extractable Sulphur	Sulphide Sulphur (by diff.)	Non Extractable Sulphur (by diff.)
Units		**pH Units**	**µS/cm**	**pH Units**	**µS/cm**	**wt%**	**wt%**	**wt%**	**wt%**	**wt%**	**wt%**
Approach Channel Test Pit Samples											
AC-2018-OCT-16-2	16-Oct-18	6.4	-	6.6	-	-	1.11	0.12	0.74	-	0.25
AC-2018-OCT-16-3	16-Oct-18	8.0	-	8.2	-	-	1.2	0.05	0.94	-	0.21
AC-2018-OCT-16-5	16-Oct-18	6.0	-	6.0	-	-	1.67	0.14	1.29	-	0.24
AC-2018-OCT-16-6	16-Oct-18	8.0	-	8.3	-	-	1.51	0.04	1.14	-	0.33
AC-2018-OCT-16-8	16-Oct-18	4.6	-	4.6	-	-	1.67	0.34	1.09	-	0.24
AC-2018-OCT-16-9	16-Oct-18	8.7	-	8.8	-	-	1.58	0.01	1.27	-	0.3
AC-2018-OCT-16-10	16-Oct-18	8.7	-	8.9	-	-	1.51	<0.01	1.22	-	0.29
Precipitate sample											
AC-2018-MAY-16-02P	16-May-18	2.0	-	-	-	-	10.79	10.1	0.27	-	0.45

Note:

Samples collected in Q1 - Q3 were analyzed at Maxxam Laboratory, samples collected in Q4 were analyzed at ALS Laboratories

Paste pH - Field and Laboratory Methods Applicable to Overburdens and Minesoils, (EPA 600 / 2-78-054, March 1978).

Rinse EC (on <2mm) - Based on Rince pH Procedure, MEND PREDICTION MANUAL, (MEND Report 1.20.1, December 2009).

Rinse pH (on <2mm) - MEND PREDICTION MANUAL, (MEND Report 1.20.1, December 2009).

Total sulphur, total carbon & carbonate carbon (CO2; HCl direct method) by Leco.

HCl Extractable Sulphur and HNO3 Extractable Sulphur is based on a modified version of ASTM Method D 2492-02

HCl Extractable Sulphur is based on a modified version of ASTM Method D 2492-02

Non Extractable Sulphur = (Total Sulphur)-(HCl Extractable Sulphate Sulphur)-(HNO3 Extractable Sulphide Sulphur)

TAP = Total Acid Potential = Total S x 31.25

SAP = Sulphide Acid Potential = HNO_3 Extractable Sulphide S x 31.25

Mod. ABA Neutralization Potential - MEND Acid Rock Drainage Prediction Manual, MEND Project 1.16.1b (pages 6.2-11 to 17), March 1991.

Net Neutralization Potential = (Modified ABA Neutralization Potential)-(Acid Generation Potential (HNO3 Extr))

Neutralization Potential Ratio = (Neutralization Potential)/(Acid Generation Potential)

Grey shading indicates an NPR < 2.0

Fizz Rating - Reference method used is based on NP method. "1" is equivalent to none.

Table 2: 2018 ABA Results, Left Bank and Right Bank

Sample ID	Date Sampled	Na_2CO_3 Extractable Sulphur	SAP	TAP	Mod. ABA Neutralization Potential	Net Neutralization Potential	NPR (Mod. NP / SAP)	NPR (Mod. NP / TAP)	Fizz Rating
Units		**wt%**	**kg $CaCO_3$/t**	**kg $CaCO_3$/t**	**kg $CaCO_3$/t**	**kg $CaCO_3$/t**	**N/A**	**N/A**	**N/A**
Left Bank									
L5-2018-MAY-16-07	16-May-18	-	32.8	71.6	9.80	-23.0	0.30	0.14	NONE
L5-2018-JUN-26-03	26-Jun-18	0.09	42.8	44.4	9.00	-33.8	0.21	0.20	NONE
L5-2018-AUG 27-06	27-Aug-18	-	30.6	46.9	-0.50	-31.10	-0.02	-0.01	NONE
L5-2018-OCT-18-5	18-Oct-18	-	20.0	27.5	19	-9	0.95	0.69	1
WB-2018-MAY-16-02	16-May-18	-	0.9	30.9	-7.30	-8.20	-8.11	-0.24	NONE
LBEX-2018-MAY-16-03	16-May-18	-	0.9	1.9	69.3	68.4	77.0	37.0	SLIGHT
LBEX-SP-2018-OCT-17-2	17-Oct-18	-	1.6	25.9	-3	-29	-1.92	-0.12	1
LBEX-SP-2018-OCT-17-3	17-Oct-18	-	1.3	40.6	-13	-54	-10.40	-0.32	1
DTIP-2018-MAY18-01	18-May-18	-	18.8	45.3	-9.30	-28.1	-0.49	-0.21	NONE
DTIP-2018-MAY-18-02	18-May-18	-	51.9	54.7	7.00	-44.9	0.13	0.13	NONE
DTIP-2018-JUN-04-001	4-Jun-18	-	54.7	69.1	-10.0	-64.7	-0.18	-0.14	NONE
DT-2018-AUG 27-01	27-Aug-18	-	2.5	20.6	-4.30	-6.80	-1.72	-0.21	NONE
DOT-2018-OCT-18-3	18-Oct-18	-	33.4	51.9	13	-39	0.39	0.25	1
Right Bank									
AC-2018-MAY-16-02	16-May-18	-	14.1	57.8	-6.80	-20.9	-0.48	-0.12	NONE
AC-2018-JUN-26-05	26-Jun-18	0.26	33.4	41.6	2.50	-30.9	0.07	0.06	NONE
AC-2018-AUG 28-07	28-Aug-18	-	10.9	47.2	-13.8	-24.7	-1.26	-0.29	NONE
AC-2018-OCT-16-1	16-Oct-18	-	14.1	32.5	-2	-35	-0.14	-0.06	1
AC-2018-OCT-16-4	16-Oct-18	-	2.5	34.4	-8	-42	-3.20	-0.23	1
AC-2018-OCT-16-7	16-Oct-18	-	10.9	70.6	-16	-87	-1.46	-0.23	1
R5A-2018-MAY-15-07	15-May-18	-	10.9	26.6	11.0	0.10	1.01	0.41	SLIGHT
R5A-2018-MAY-16-02	16-May-18	-	14.4	32.8	9.00	-5.40	0.63	0.27	NONE
R5A-2018-MAY-16-08	16-May-18	-	6.3	13.4	9.30	3.00	1.48	0.69	NONE
R5A-2018-JUN-26-03	26-Jun-18	0.65	19.4	38.8	-10.8	-30.2	-0.56	-0.28	NONE
R5A-2018-JUN-26-11	26-Jun-18	0.10	24.1	26.3	9.80	-14.3	0.41	0.37	NONE
R5A-2018-JUN-26-25	26-Jun-18	0.10	23.8	27.5	7.80	-16.0	0.33	0.28	SLIGHT
R5A-2018-JUN-26-32	26-Jun-18	0.65	12.5	35.9	-11.5	-24.0	-0.92	-0.32	NONE
R5A-2018-JUN-26-35	26-Jun-18	0.60	16.9	34.1	-8.30	-25.2	-0.49	-0.24	NONE
R5A-2018-AUG 28-05	28-Aug-18	-	0.9	26.9	-6.00	-6.90	-6.40	-0.22	NONE
R5A-2018-AUG 28-18	28-Aug-18	-	16.6	25.0	8.80	-7.80	0.53	0.35	NONE
R5A-2018-AUG 28-27	28-Aug-18	-	21.3	32.2	3.80	-17.5	0.18	0.12	NONE
R5A-2018-OCT-17-20	17-Oct-18	-	16.3	19.7	6	-14	0.37	0.30	1
RBDT-388-123-01	14-Mar-18	-	10.3	10.6	8.00	-2.30	0.78	0.75	NONE
RBDT-738-01	25-Jun-18	0.04	14.4	14.7	10.5	-3.90	0.73	0.71	NONE
RBDT-01	19-Dec-18	results pending							
RCC-2018-MAY-15-05	15-May-18	-	8.4	19.4	5.30	-3.10	0.63	0.27	NONE
RCC-2018-AUG 27-04	27-Aug-18	-	11.6	15.6	10.5	-1.10	0.91	0.67	NONE
RCC-2018-OCT-17-2	17-Oct-18	-	9.1	10.6	7	-4	0.77	0.66	1
RCC-2018-OCT-17-4	17-Oct-18	-	15.9	18.1	7	-11	0.44	0.39	1
RCC-2018-OCT-17-13	17-Oct-18	-	22.5	29.7	12	-18	0.53	0.40	1
SBIAR-2018-MAY-16-03	16-May-18	-	9.7	25.6	-0.50	-10.2	-0.05	-0.02	NONE
AA-2018-OCT-11-2	11-Oct-18	-	45.9	62.2	6	-56	0.13	0.10	1

Table 2: 2018 ABA Results, Left Bank and Right Bank

Sample ID	Date Sampled	Na_2CO_3 Extractable Sulphur	SAP	TAP	Mod. ABA Neutralization Potential	Net Neutralization Potential	NPR (Mod. NP / SAP)	NPR (Mod. NP / TAP)	Fizz Rating
Units		**wt%**	**kg $CaCO_3$/t**	**kg $CaCO_3$/t**	**kg $CaCO_3$/t**	**kg $CaCO_3$/t**	**N/A**	**N/A**	**N/A**
Approach Channel Test Pit Samples									
AC-2018-OCT-16-2	16-Oct-18	-	23.1	34.7	6	-29	0.26	0.17	1
AC-2018-OCT-16-3	16-Oct-18	-	29.4	37.5	8	-30	0.27	0.21	1
AC-2018-OCT-16-5	16-Oct-18	-	40.3	52.2	5	-47	0.12	0.10	1
AC-2018-OCT-16-6	16-Oct-18	-	35.6	47.2	9	-38	0.25	0.19	1
AC-2018-OCT-16-8	16-Oct-18	-	34.1	52.2	-1	-53	-0.03	-0.02	1
AC-2018-OCT-16-9	16-Oct-18	-	39.7	49.4	8	-41	0.20	0.16	1
AC-2018-OCT-16-10	16-Oct-18	-	38.1	47.2	9	-38	0.24	0.19	1
Precipitate sample									
AC-2018-MAY-16-02P	16-May-18	-	8.4	337.2	-128	-136	-15.24	-0.38	NONE

Note:

Samples collected in Q1 - Q3 were analyzed at Maxxam Laboratory, samples collected in Q4 were analyzed at ALS Laboratories

Paste pH - Field and Laboratory Methods Applicable to Overburdens and Minesoils, (EPA 600 / 2-78-054, March 1978).

Rinse EC (on <2mm) - Based on Rince pH Procedure, MEND PREDICTION MANUAL, (MEND Report 1.20.1, December 2009).

Rinse pH (on <2mm) - MEND PREDICTION MANUAL, (MEND Report 1.20.1, December 2009).

Total sulphur, total carbon & carbonate carbon (CO2; HCl direct method) by Leco.

HCl Extractable Sulphur and HNO3 Extractable Sulphur is based on a modified version of ASTM Method D 2492-02

HCl Extractable Sulphur is based on a modified version of ASTM Method D 2492-02

Non Extractable Sulphur = (Total Sulphur)-(HCl Extractable Sulphate Sulphur)-(HNO3 Extractable Sulphide Sulphur)

TAP = Total Acid Potential = Total S x 31.25

SAP = Sulphide Acid Potential = HNO_3 Extractable Sulphide S x 31.25

Mod. ABA Neutralization Potential - MEND Acid Rock Drainage Prediction Manual, MEND Project 1.16.1b (pages 6.2-11 to 17), March 1991.

Net Neutralization Potential = (Modified ABA Neutralization Potential)-(Acid Generation Potential (HNO3 Extr))

Neutralization Potential Ratio = (Neutralization Potential)/(Acid Generation Potential)

Grey shading indicates an NPR < 2.0

Fizz Rating - Reference method used is based on NP method. "1" is equivalent to none.

Table 3: 2018 Solid-Phase Elemental Results, Left Bank and Right Bank

Sample ID	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
Units	ppb	%	ppm	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppb	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Left Bank																																																				
L5-2018-MAY-16-07	419	0.60	18.7	0.4	<20	126	-	0.31	0.35	0.91	-	11.4	12.9	-	35.5	2.98	1.7	-	-	90	-	0.21	3.3	-	0.28	92	7.54	0.244	-	37.8	0.059	17.0	-	-	2.31	0.28	4.5	1.9	-	56.1	-	0.06	6.5	0.001	0.16	1.9	26	<0.05	-	167	-
L5-2018-JUN-26-03	512	0.94	12.2	0.6	ND	303	-	0.30	0.42	0.44	-	10.2	20.8	-	36.7	1.96	2.7	-	-	75	-	0.29	4.6	-	0.27	85	1.53	0.217	-	33.5	0.063	24.7	-	-	1.32	0.19	4.6	0.8	-	61.5	-	0.08	6.6	0.001	0.11	1.0	27	ND	-	123	-
L5-2018-AUG 27-06	382	0.78	14.0	<0.2	<20	204	-	0.30	0.28	0.63	-	10.4	22.3	-	35.4	2.13	2.0	-	-	88	-	0.22	4.3	-	0.23	80	4.74	0.067	-	39.6	0.064	14.7	-	-	1.56	0.14	3.9	1.6	-	46.3	-	<0.02	5.6	0.001	0.14	1.3	22	<0.05	-	142.0	-
L5-2018-OCT-18-5	330	0.87	8.6	<200	20	280	0.54	0.2	0.76	0.25	12.4	6.7	13	1.32	24	1.56	2.53	<0.05	0.11	0.09	0.038	0.25	4.6	14.6	0.24	78	0.95	0.19	<0.05	22.2	0.074	11.7	18.8	0.003	0.87	0.45	3.8	1.1	0.5	61.3	<0.01	0.05	5.1	<0.005	0.08	0.93	26	0.06	12.4	95	3.2
WB-2018-MAY-16-02	240	0.60	13.5	<0.2	<20	435	-	0.35	0.26	0.72	-	5.5	16.1	-	28.0	2.30	2.5	-	-	63	-	0.23	3.6	-	0.10	94	5.50	0.112	-	14.6	0.046	16.0	-	-	1.00	0.22	3.7	1.2	-	61.2	-	0.05	6.3	0.001	0.21	2.0	20	<0.05	-	80.5	-
LBEX-2018-MAY-16-03	334	1.84	8.3	<0.2	<20	375	-	0.38	2.96	0.89	-	16.1	36.4	-	48.5	3.48	5.3	-	-	70	-	0.25	16.1	-	1.27	638	1.62	0.017	-	49.8	0.082	20.2	-	-	0.07	0.66	6.1	0.5	-	105	-	0.04	9.0	0.026	0.20	1.4	55	<0.05	-	153	-
LBEX-SP-2018-OCT-17-2	410	0.63	15.8	<200	20	340	0.36	0.24	0.34	0.07	9.21	1.4	11	1.17	20.3	2.17	2.29	<0.05	0.07	0.08	0.033	0.3	3.9	5	0.07	17	7.88	0.12	0.06	3.6	0.066	13.8	19.8	0.014	0.85	0.28	2.5	2.3	0.5	44.7	<0.01	0.07	5.2	<0.005	0.24	0.78	31	<0.05	2.51	49	1.8
LBEX-SP-2018-OCT-17-3	350	0.87	12.2	<200	20	210	0.59	0.23	0.41	0.45	9.98	5.9	13	1.19	27	1.92	2.49	<0.05	0.09	0.08	0.038	0.29	4	9.9	0.17	50	4.14	0.16	0.06	18.9	0.063	12.8	19.9	0.007	1.34	0.19	3.5	1.5	0.5	55.7	<0.01	0.06	5.1	<0.005	0.19	1.03	30	<0.05	8.93	111	2.2
DTIP-2018-MAY18-01	416	0.71	24.7	4.2	ND	228	-	0.32	0.31	0.70	-	6.1	16.0	-	46.0	2.60	2.7	-	-	78	-	0.30	5.8	-	0.11	52	3.85	0.106	-	15.9	0.092	16.2	-	-	1.49	0.13	4.4	3.0	-	41.1	-	0.24	7.1	0.001	0.18	1.9	25	ND	-	84.0	-
DTIP-2018-MAY-18-02	449	0.91	13.5	0.8	ND	291	-	0.32	0.42	0.70	-	10.5	18.4	-	38.3	2.65	2.8	-	-	89	-	0.28	4.8	-	0.29	128	4.25	0.191	-	35.7	0.064	17.3	-	-	1.76	0.13	4.9	1.5	-	71.5	-	0.10	6.6	0.001	0.25	1.4	29	ND	-	151	-
DTIP-2018-JUN-04-001	416	0.64	21.6	<0.2	<20	145	-	0.30	0.58	0.75	-	8.1	20.2	-	37.2	2.65	2.3	-	-	89	-	0.23	3.8	-	0.19	105	15.0	0.069	-	28.0	0.065	16.9	-	-	2.26	0.30	3.6	2.8	-	47.4	-	0.08	5.2	0.002	0.24	2.3	28	<0.05	-	107	-
DT-2018-AUG 27-01	342	0.74	9.3	<0.2	<20	454	-	0.29	0.31	0.27	-	5.9	16.2	-	26.3	1.40	1.9	-	-	78	-	0.23	4.1	-	0.17	44	1.12	0.093	-	17.8	0.079	15.0	-	-	0.65	0.18	4.3	0.9	-	70.9	-	0.04	6.4	0.001	0.09	1.0	21	<0.05	-	91.8	-
DOT-2018-OCT-18-3	520	1.08	12.2	<200	20	110	0.7	0.3	0.9	0.86	13.85	10.1	16	1.52	39.2	2.17	3.03	0.05	0.11	0.11	0.051	0.32	5.2	16.6	0.35	84	3.87	0.12	<0.05	34.9	0.079	15.8	22.7	0.007	1.73	0.33	4.8	2.5	0.6	74.6	<0.01	0.07	6.8	<0.005	0.15	1.31	35	<0.05	14.25	152	3.1
Right Bank																																																				
AC-2018-MAY-16-02	436	0.68	13.6	0.4	<20	121	-	0.33	0.38	0.65	-	9.0	13.2	-	31.5	2.14	2.0	-	-	85	-	0.22	3.6	-	0.30	84	3.91	0.369	-	34.4	0.062	16.9	-	-	1.94	0.17	3.7	1.4	-	82.4	-	0.06	6.5	0.001	0.13	1.1	22	<0.05	-	129	-
AC-2018-JUN-26-05	488	0.95	13.6	0.4	ND	299	-	0.29	0.49	0.73	-	7.9	26.1	-	39.8	2.27	2.7	-	-	91	-	0.30	4.5	-	0.29	86	3.61	0.033	-	30.2	0.076	18.1	-	-	1.24	0.11	4.8	1.1	-	53.6	-	0.10	6.4	0.001	0.13	1.3	29	ND	-	130	-
AC-2018-AUG 28-07	448	0.82	14.8	<0.2	<20	223	-	0.34	0.32	0.44	-	4.6	14.7	-	26.6	2.28	2.1	-	-	89	-	0.27	4.3	-	0.19	47	3.98	0.045	-	18.0	0.061	16.7	-	-	1.58	0.12	3.4	1.5	-	73.7	-	0.07	6.3	<0.001	0.13	0.7	24	<0.05	-	72.1	-
AC-2018-OCT-16-1	350	0.91	10.3	<200	20	190	0.64	0.29	0.32	0.34	10.85	7.3	13	1.31	29.6	1.76	2.55	<0.05	0.09	0.08	0.045	0.27	4.3	14.2	0.25	66	1.41	0.2	<0.05	24.3	0.063	15.2	19.1	0.003	1.08	0.27	4.2	1.6	0.6	65.1	<0.01	0.06	6.5	<0.005	0.1	0.94	26	<0.05	12.6	101	2.5
AC-2018-OCT-16-4	430	0.92	12.2	<200	20	190	0.52	0.29	0.38	0.22	9.84	3.5	13	1.26	21	1.9	2.65	<0.05	0.08	0.09	0.045	0.31	4.2	10.3	0.19	36	3.83	0.13	<0.05	13.5	0.05	15.5	20.7	0.008	1.18	0.18	3.3	1.6	0.6	55.7	<0.01	0.06	5.5	<0.005	0.12	0.51	32	<0.05	6.4	66	2
AC-2018-OCT-16-7	370	1.15	13.5	<200	20	80	0.79	0.25	0.5	0.9	11.85	12.8	17	1.21	39	2.44	2.75	<0.05	0.09	0.08	0.049	0.33	4.3	18.3	0.4	130	3.57	0.39	<0.05	46.3	0.098	13.5	19.1	0.006	2.32	0.2	5.4	1.7	0.6	63.7	<0.01	0.06	6	<0.005	0.11	1.67	35	<0.05	19.9	193	2.6
R5A-2018-MAY-15-07	318	0.74	11.3	0.2	<20	378	-	0.27	0.62	0.29	-	8.8	20.7	-	28.4	1.95	2.1	-	-	78	-	0.22	4.3	-	0.31	127	1.32	0.199	-	25.4	0.083	14.2	-	-	0.83	0.19	4.1	1.0	-	69.1	-	0.06	7.1	0.002	0.07	1.4	22	<0.05	-	114	-
R5A-2018-MAY-16-02	366	0.72	10.7	0.4	<20	342	-	0.31	0.30	0.33	-	8.3	17.7	-	31.9	1.71	2.2	-	-	98	-	0.23	3.9	-	0.24	102	1.29	0.227	-	28.6	0.071	16.6	-	-	1.03	0.23	4.3	1.0	-	63.4	-	0.07	7.1	0.001	0.09	1.4	22	<0.05	-	119	-
R5A-2018-MAY-16-08	347	0.75	10.0	<0.2	<20	579	-	0.29	0.35	0.28	-	8.9	17.3	-	29.7	1.32	2.1	-	-	52	-	0.23	4.3	-	0.23	70	0.68	0.219	-	25.2	0.079	15.5	-	-	0.42	0.17	4.1	0.8	-	68.2	-	0.06	7.5	0.002	0.05	1.3	22	<0.05	-	127	-
R5A-2018-JUN-26-03	464	0.86	13.7	0.9	ND	292	-	0.29	0.29	0.30	-	4.1	18.7	-	26.1	2.25	2.5	-	-	91	-	0.29	4.0	-	0.19	48	3.79	0.012	-	15.9	0.058	17.7	-	-	1.19	0.09	3.6	1.1	-	44.5	-	0.05	5.3	0.001	0.13	0.6	26	ND	-	64.5	-
R5A-2018-JUN-26-11	333	1.13	12.4	0.4	ND	429	-	0.25	0.64	0.39	-	13.4	29.0	-	32.2	2.12	3.1	-	-	65	-	0.31	5.5	-	0.30	134	1.05	0.027	-	38.6	0.097	15.2	-	-	0.75	0.15	5.0	0.7	-	55.7	-	0.05	6.7	0.002	0.06	1.6	29	ND	-	155	-
R5A-2018-JUN-26-25	346	0.92	11.5	1.0	ND	421	-	0.24	0.53	0.33	-	9.0	29.0	-	29.7	1.72	2.5	-	-	84	-	0.26	5.1	-	0.23	91	1.20	0.063	-	29.0	0.076	16.4	-	-	0.79	0.16	4.7	0.7	-	57.3	-	0.08	6.9	0.001	0.09	1.3	25	ND	-	109	-
R5A-2018-JUN-26-32	450	1.03	13.4	0.6	ND	350	-	0.29	0.32	0.43	-	5.8	22.3	-	28.4	2.08	2.9	-	-	86	-	0.34	4.2	-	0.23	53	3.16	0.017	-	21.9	0.070	17.3	-	-	1.13	0.11	4.1	0.8	-	52.4	-	0.06	6.1	0.001	0.14	1.0	31	ND	-	83.2	-
R5A-2018-JUN-26-35	473	0.98	14.1	0.5	ND	427	-	0.31	0.29	0.41	-	5.2	18.6	-	28.8	2.28	2.7	-	-	91	-	0.30	4.2	-	0.22	90	3.35	0.038	-	19.5	0.070	28.7	-	-	1.05	0.17	4.4	0.7	-	67.4	-	0.07	6.6	0.001	0.13	0.8	27	ND	-	90.1	-
R5A-2018-AUG 28-05	375	0.53	22.3	1.1	<20	421	-	0.31	0.16	0.15	-	1.0	12.4	-	14.9	2.34	2.5	-	-	107	-	0.28	4.2	-	0.05	10	14.40	0.108	-	3.9	0.057	15.1	-	-	0.86	0.27	2.0	2.3	-	58.7	-	0.04	4.8	<0.001	0.31	1.1	29	<0.05	-	18.6	-
R5A-2018-AUG 28-18	319	0.76	11.8	<0.2	<20	328	-	0.22	0.52	0.26	-	9.1	22.3	-	25.4	1.50	2.2	-	-	75	-	0.20	4.6	-	0.25	83	0.61	0.192	-	23.2	0.084	11.1	-	-	0.78	0.21	3.5	1.1	-	55.2	-	0.05	5.7	0.002	0.07	1.3	21	<0.05	-	84.1	-
R5A-2018-AUG 28-27	391	0.78	12.0	<0.2	<20	237	-	0.34	0.38	0.40	-	9.1	15.8	-	34.6	1.71	2.4	-	-	82	-	0.23	4.4	-	0.27	77	1.31	0.031	-	30.4	0.064	18.0	-	-	1.08	0.17	3.9	1.1	-	58.5	-	0.06	6.7	<0.001	0.11	1.0	20	<0.05	-	122.0	-
R5A-2018-OCT-17-20	280	1.17	9.2	<200	20	580	0.76	0.27	0.23	0.33	12.35	10	17	1.7	29.1	1.81	3.35	<0.05	0.12	0.06	0.049	0.3	5	21.3	0.28	154	0.46	0.3	<0.05	26.8	0.071	13	22.4	0.001	0.65	0.19	4.6	1.2	0.7	74.1	<0.01	0.06	6.9	<0.005	0.06	1.18	29	<0.05	12.25	123	2.8
RBDT-388-123-01	262	1.17	10.5	1.5	ND	674	-	0.38	0.30	0.35	-	13.7	20.5	-	34.9	2.40	3.4	-	-	55	-	0.30	5.4	-	0.34	386	0.44	0.348	-	31.2	0.087	18.9	-	-	0.36	0.20	4.9	0.9	-	86.4	-	0.06	7.8	0.002	0.10	1.3	25	ND	-	140	-
RBDT-738-01	8180	1.03	7.8	0.3	ND	476	-	0.25	0.38	0.33	-	9.6	84.2	-	32.2	1.63	3.0	-	-	57	-	0.27	4.1	-	0.27	133	0.74	0.271	-	26.3	0.059	13.0	-	-	0.49	0.20	4.3	0.8	-	65.3	-	0.06	5.7	0.001	0.07	1.1	24	ND	-	122	-
RBDT-01	results pending																																																			
RCC-2018-MAY-15-05	282	0.72	9.5	0.3	<20	361	-	0.24	0.31	0.26	-	9.5	26.9	-	24.5	1.61	2.3	-	-	50	-	0.21	3.7	-	0.23	158	0.60	0.267	-	22.4	0.075	11.7	-	-	0.60	0.19	3.9	0.7	-	57.4	-	0.04	6.4	0.002	0.05	1.4	21	<0.05	-	93.4	-
RCC-2018-AUG 27-04	241	0.91	12.7	<0.2	<20	486	-	0.26	0.45	0.21	-	10.2	20.7	-	27.9	1.60	2.5	-	-	48	-	0.24	5.2	-	0.25	109	0.53	0.179	-	23.0	0.089	11.2	-	-	0.47	0.12	4.2	0.7	-	71.0	-	0.05	6.6	0.002	0.05	1.5	23	<0.05	-	110.0	-
RCC-2018-OCT-17-2	260	1.12	7.2	<200	20	570	0.77	0.23	0.29	0.28	13.9	8.5	16	1.58	28.7	2.28	3.16	0.05	0.09	0.05	0.048	0.29	5.5	20.8	0.3	279	0.6	0.27	<0.05	23.8	0.083	12.3	21.1	0.001	0.35	0.19	4.9	1.5	0.6	70.8	<0.01	0.06	6.7	<0.005	0.06	1.26	30	<0.05	14.3	118	2.5
RCC-2018-OCT-17-4	280	0.86	6.9	<200	20	420	0.65	0.16	0.37	0.17	13.75	8	14	1.36	19.9	1.78	2.54	0.05	0.11	0.06	0.036	0.24	5.2	16.3	0.2	135	0.71	0.15	<0.05	22.1	0.093	8.9	18.1	0.001	0.6	0.27	3.8	1.1	0.5	54.3	<0.01	0.03	5.5	<0.005	0.09	1.3	27	<0.05	14.7	83	3.2
RCC-2018-OCT-17-13	350	0.9	8.2	<200	20	250	0.64	0.21	0.64	0.28	13.15	6.9	15	1.3	24.3	1.51	2.65	<0.05	0.09	0.09	0.04	0.27	5	13.3	0.22	65	1.19	0.16	<0.05	24.5	0.079	12.1	19.6	0.003	0.99	0.25	4.1	1.4	0.5	59.8	<0.01	0.05	5.8	<0.005	0.09	1.04	29	<0.05	13.65	94	2.7
SBIAR-2018-MAY-16-03	341	0.74	11.1	0.2	<20	397	-	0.32	0.24	0.17	-	4.8	17.9	-	22.6	1.64	2.2	-	-	75	-	0.24	3.6	-	0.21	48	1.19	0.049	-	17.7	0.059	15.8	-	-	0.84	0.10	3.5	0.6	-	56.8	-	0.06	7.3	0.001	0.08	0.9	21	<0.05	-	69.2	-
AA-2018-OCT-11-2	410	0.97	15.4	<200	10	100	0.56	0.28	0.55	0.75	12.15	8.7	14	1.51	35.9	2.11	2.71	<0.05	0.12	0.09	0.048	0.28	4.5	12.5	0.26	91	4.61	0.01	<0.05	32.4	0.068	15.1	22	0.005	1.92	0.36	4.6	1.6	0.6	31.7	<0.01	0.09	5.6	<0.005	0.1	1.1	30	<0.05	13.05	140	3.1
Approach Channel Test Pit Samples																																																			
AC-2018-OCT-16-2	350	0.99	10.3	<200	20	170	0.78	0.27	0.32	0.33	12.75	7.6	14	1.3	27.4	1.82	3.02	<0.05	0.09	0.08	0.045	0.3	5	14.6	0.27	72	1.23	0.29	<0.05	24.5	0.065	18.7	19.3	0.003	1.16	0.25	4.1	1.3	0.6	67.4	<0.01	0.05	6.4	<0.005	0.09	1	29	<0.05	13.85	111	2.5
AC-2018-OCT-16-3	380	0.99	11.9	<200	20	120	0.78	0.28	0.31	0.45	11.95	8.8	14	1.42	31.1	1.82	2.68	0.05	0.08	0.09	0.046	0.3	4.7	15.1	0.25	75	1.48	0.3	<0.05	29.6	0.066	15.5	20.9	0.002	1.26	0.28	4.6	1.5	0.6	67.6	<0.01	0.07	6.2	<0.005	0.09	0.93	30	<0.05	14.15	122	2.3
AC-2018-OCT-16-5	400	0.99	13.9	<200	20	100	0.76	0.31	0.38	0.54	14.05	9.2	15	1.5	34.8	2.18	2.66	0.05	0.1	0.08	0.05	0.29	5.3	14.5	0.26	66	3.14	0.2	<0.05	32.7	0.088	15.4	21.4	0.009	1.75	0.24	4.6	1.5	0.6	75.3	<0.01	0.06	6.8	<0.005	0.1	1.44	32	<0.05	16.5	124	2.6
AC-2018-OCT-16-6	380	0.98	12.3	<200	20	120	0.65	0.3	0.37	0.62	14.4	8.8	15	1.53	32.6	2.05	2.75	0.05	0.1	0.1	0.05	0.29	5.4	14.9	0.27	76	2.71	0.24	<0.05	31.3	0.081	16.3	21.7	0.006	1.52	0.21	4.8	1.5	0.6	77.8	<0.01	0.08	7	<0.005	0.12	1.25	31	<0.05	15.25	135	2.7
AC-2018-OCT-16-8	410	1.08	14.1	<200	20	80	0.74	0.29	0.38	0.77	13.2	10.3	16	1.44	39.7	2.24	2.85	<0.05	0.1	0.1	0.055	0.31	4.8	15.9	0.29	75	2.66	0.13	<0.05	37.3	0.077	15.6	21.8	0.006	1.72	0.23	5.3	1.7	0.6	73	<0.01	0.07	6.7	<0.005	0.11	1.47	33	<0.05	16.8	165	2.7
AC-2018-OCT-16-9	420	1.01	13.6	<200	20	130	0.76	0.3	0.35	0.58	12.3	9.4	15	1.59	34.4	2.1	2.77	0.05	0.12	0.1	0.05	0.31	4.8	15.1	0.27	63	3.74	0.22	<0.05	33.7	0.072	16.9	23.1	0.008	1.62	0.28	4.8	2	0.6	81	<0.01	0.07	6.8	<0.005	0.13	1.24	32	<0.05	14.35	111	3
AC-2018-OCT-16-10	400	0.94	11.4	<200	20	100	0.68	0.29	0.34	0.58	11.35	8.5	14	1.38	33.5	1.96	2.54	0.05	0.11	0.09	0.049	0.28	4.4	14	0.26	68	3.07	0.22	<0.05	29.9	0.066	15.8	20.1	0.006	1.48	0.28	4.4	1.7	0.6	74.9	<0.01	0.06	6.2	<0.005	0.11	1.13	30	<0.05	12.6	104	2.9
Precipitate sample																																																			
AC-2018-MAY-16-02P	160	0.86	33.2	<0.2	<20	17.4	-	0.15	0.51	7.55	-	101	10.9	-	167	4.59	1.4	-	-	28	-	0.15	7.5	-	2.37	701	3.23	>5.00	-	352	0.158	7.56	-	-	>10.0	0.15	15.5	4.6	-	103	-	0.09	22.7	0.001	0.12	8.9	20	<0.05	-	1560	-
ACA	*53*	*8.15*	*4.80*	-	*17*	*628*	*2.1*	*0.16*	*2.57*	*0.09*	*63*	*17.3*	*92*	*4.9*	*28.0*	*3.92*	*17.50*	*1.4*	*5.3*	*50*	*0.056*	*2.32*	*31.0*	*24*	*1.50*	*774*	*1.10*	*2.43*	*12*	*47.0*	*0.066*	*17.0*	*84*	-	*0.062*	*0.40*	*14*	*0.090*	*2.1*	*320*	*0.9*	-	*11*	*0.384*	*0.90*	*2.70*	*97*	*1.90*	*21*	*67.0*	*193*

Notes:
ACA: Average Crustal Abundance (Rudnick & Gao, 2014)
Values shaded in light grey exceed 3x the ACA
Values shaded in dark grey exceed 10x the ACA

Table 4: Approach Channel Precipitate SFE Results

Sample ID	Sample Weight	Volume Used	pH	EC	ORP	SO_4	Acidity to pH4.5	Acidity to pH8.3	Total Alkalinity	Bicarbonate	Carbonate	Hydroxide	Dissolved Chloride	Hardness $CaCO_3$	D-Al	D-Sb
Units	g	ml	pH Units	uS/cm	mV	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
AC-2018-MAY-16-02P	250	750	2.52	59000	577	52600	7051	14480	<0.5	<0.5	<0.5	<0.5	15	22800	988	<0.000020
Sample ID	**D-As**	**D-Ba**	**D-Be**	**D-Bi**	**D-B**	**D-Cs**	**D-Cd**	**D-Ca**	**D-Cr**	**D-Co**	**D-Cu**	**D-La**	**D-Fe**	**D-Pb**	**D-Li**	**D-Mg**
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
AC-2018-MAY-16-02P	4.08	0.107	0.343	0.0026	<0.050	<0.000050	1.35	436	0.797	19.9	22.6	0.740	3380	0.0919	11.4	5260
Sample ID	**D-Mn**	**D-P**	**D-Mo**	**D-Ni**	**D-K**	**D-Rb**	**D-Se**	**D-Si**	**D-Ag**	**D-Na**	**D-Sr**	**D-S**	**D-Te**	**D-Tl**	**D-Th**	**D-Sn**
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
AC-2018-MAY-16-02P	141	197	0.194	71.7	38	0.282	0.445	<0.10	<0.0000050	7810	9.89	16700	<0.000020	0.0092	2.86	<0.00020
Sample ID	**D-Ti**	**D-W**	**D-U**	**D-V**	**D-Zn**	**D-Zr**	**D-Hg**		**Anion Sum**	**Cation Sum**	**Balance %**					
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		N/A	N/A	N/A					
AC-2018-MAY-16-02P	0.64	<0.000010	1.32	0.99	344	0.129	<0.000050		1100	1050	2.30					

Table 5: 2018 ABA Results, West Pine Quarry

Sample ID	Sample Date	Date Received by Lab	Lab Report	Easting	Northing	Elevation	Paste pH	Paste EC	Rinse pH (on <2mm)	Rinse EC (on <2mm)	Total S	Sulphate S	Sulphide S[b]	Na_2CO_3 Extractable Sulphur	Acid Generation Potential	Mod. ABA Neutralization Potential	Net Neutralization Potential	NPR	Fizz Rating
Units				**m**	**m**	**m**	**pH Units**	**µS/cm**	**pH Units**	**µS/cm**	**wt%**	**wt%**	**wt%**	**wt%**	**kg $CaCO_3$/t**	**kg $CaCO_3$/t**	**kg $CaCO_3$/t**	**N/A**	**N/A**
802-003	Apr-18[a]	23-May-18	B839333	525470	6151324	806.3	8.31	-	8.86	302	0.91	0.05	0.86	0.08	26.9	644	617	23.9	STRONG
802-004	Apr-18[a]	23-May-18	B839333	525473	6151321	805.6	8.49	-	8.30	251	0.20	0.03	0.17	0.04	5.3	855	850	161.3	STRONG
802-005	Apr-18[a]	23-May-18	B839333	525471	6151318	805.9	8.36	-	8.78	194	0.37	0.04	0.33	0.06	10.3	738	727	71.6	STRONG
WP-802-005	Apr-18[a]	23-May-18	B839333	525439	6151303	804.1	8.38	-	8.62	276	0.29	0.04	0.25	0.05	7.8	810	802	103.8	STRONG
WP-802-006	Apr-18[a]	23-May-18	B839333	525475	6151317	804.8	8.27	-	8.68	325	1.02	0.04	0.98	0.07	30.6	656	626	21.4	STRONG
WP-802-007	Apr-18[a]	23-May-18	B839333	525474	6151316	804.8	8.28	-	7.32	208	0.14	0.03	0.11	0.02	3.4	784	780	230.5	STRONG
WP-802-008	Apr-18[a]	23-May-18	B839333	525476	6151313	804.1	8.49	-	8.69	271	0.62	0.03	0.59	0.08	18.4	629	610	34.2	STRONG
WP-802-008 EL 812.917	Apr/May-18[a]	23-May-18	B839333	525310	6151349	813.0	8.22	-	8.03	570	0.28	0.02	0.26	0.03	8.1	600	592	74.1	STRONG
WP-802-008 EL 816.448	Apr/May-18[a]	23-May-18	B839333	525473	6151311	816.4	8.31	-	8.84	340	0.21	0.02	0.19	0.03	5.9	644	638	109.1	STRONG
WP-802-010 EL 814.314	Apr/May-18[a]	23-May-18	B839333	525471	6151312	814.3	8.56	-	6.36	315	0.32	0.12	0.20	0.11	6.3	766	760	121.6	STRONG
WP-802-010 EL 814.616	Apr/May-18[a]	23-May-18	B839333	525417	6151406	814.6	8.53	-	8.15	150	0.17	0.03	0.14	0.02	4.4	676	672	153.7	STRONG
WP-802-010 EL 816.055	10-May-18	30-May-18	B841731	525401	6151388	816.6	8.27	554	8.21	730	0.73	0.04	0.69	-	21.6	664	642	30.7	STRONG
WP-802-010 EL 816.439	10-May-18	30-May-18	B841731	n/a	n/a	816.9	8.25	347	8.70	343	0.73	0.04	0.69	-	21.6	663	641	30.7	STRONG
WP-727-002	25/May/18	30-May-18	B841731	525148	6151041	738.2	8.34	325	8.76	235	0.27	0.02	0.25	-	7.8	786	779	100.8	STRONG
WP-725-001	10/Jun/18	5/Jul/18	B854525	525148	6150960	733.5	9.08	-	9.14	-	0.05	0.02	0.03	0.03	0.9	799	798	887.6	STRONG
WP-815-001	17/Jun/18	5/Jul/18	B854525	525367	6151381	n/a	8.45	-	8.79	-	0.12	0.02	0.10	0.03	3.1	855	852	275.8	STRONG
WP-802-009	9/Sep/18	19/Sep/18	B882456	525454	6151300	802.6	8.28	409	7.26	-	0.50	0.03	0.47	-	14.7	654	639	44.5	STRONG
WP-725-003	9/Sep/18	19/Sep/18	B882456	525132	6151065	727.3	8.79	233	8.99	-	0.15	0.01	0.14	-	4.4	809	804	184.0	STRONG
Sample 1	26/Sep/18	results pending		525429	6151298	801.6	results pending												
Sample 2	26/Sep/18			525430	6151300	800.6													
WP-789-003	12/Oct/18	n/a	B897385	525451	6151323	802.2	8.53	362	8.67	312	0.80	0.03	0.77	-	24.1	665	641	27.6	STRONG
WP-789-004[c]	14/Oct/18	1/Nov/18	VA18277633	525457	6151343	802.3	8.10	-	8.20	-	0.34	0.01	0.22	-	6.9	643	632	93.5	4
WP-789-005[c]	17/Oct/18	1/Nov/18	VA18277633	525435	6151359	802.4	8.30	-	8.40	-	0.25	0.01	0.15	-	4.7	631	623	134.6	4

Notes:

[a]Month of sampling given, exact date unknown

[b]Sulphide S = Total S - Sulphate S, except where noted

[c]These samples were analyzed at ALS Global - Geochemistry. Sulphide is measured by Leco analyzer following a Na_2CO_3 leach

Acid Generation Potential = 31.25 x Sulphide S

NPR = Modified ABA NP / Acid Generation Potential

A fizz rating of 4 is equivalent to strong

Table 6: 2018 ABA Results, West Pine Quarry

Sample ID	Sample Date	Ag	Al	As	Au	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	Hg	In	K	La	Li	Mg
Units		**ppb**	**%**	**ppm**	**ppb**	**ppm**	**ppm**	**ppm**	**ppm**	**%**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**%**	**ppm**	**ppm**	**ppm**	**ppb**	**ppm**	**%**	**ppm**	**ppm**	**%**
802-003	Apr-18[a]	60	0.23	2.9	<0.2	<20	303	-	0.06	24.9	0.14	-	2.4	9.7	-	5.18	0.91	0.5	-	-	19	-	0.16	4.1	-	0.80
802-004	Apr-18[a]	70	0.13	1.3	<0.2	<20	149	-	<0.002	33.9	0.42	-	0.7	12.5	-	6.38	0.18	0.4	-	-	11	-	0.08	4.2	-	0.48
802-005	Apr-18[a]	69	0.15	2.5	<0.2	<20	406	-	0.02	30.3	0.20	-	1.4	11.3	-	11.7	0.42	0.5	-	-	19	-	0.09	5.3	-	0.43
WP-802-005	Apr-18[a]	72	0.18	1.7	<0.2	<20	211	-	<0.002	32.5	1.47	-	0.6	11.7	-	2.60	0.24	0.7	-	-	11	-	0.10	3.0	-	0.77
WP-802-006	Apr-18[a]	46	0.23	4.2	<0.2	<20	224	-	0.06	25.8	0.09	-	3.1	8.7	-	5.27	1.11	0.6	-	-	11	-	0.17	3.9	-	0.78
WP-802-007	Apr-18[a]	60	0.10	1.5	0.4	<20	62.4	-	<0.002	31.2	0.26	-	0.9	11.5	-	2.95	0.21	0.3	-	-	15	-	0.06	4.0	-	0.31
WP-802-008	Apr-18[a]	93	0.20	3.4	0.3	<20	94.9	-	0.04	23.0	0.12	-	1.8	16.9	-	5.44	0.72	0.5	-	-	16	-	0.14	4.2	-	1.49
WP-802-008 EL 812.917	Apr/May-18[a]	73	0.24	3.1	<0.2	<20	101	-	0.05	22.8	0.68	-	3.0	28.1	-	5.54	0.81	0.7	-	-	12	-	0.15	6.6	-	0.72
WP-802-008 EL 816.448	Apr/May-18[a]	109	0.08	1.4	<0.2	<20	78.8	-	<0.002	24.8	0.25	-	0.9	17.7	-	2.49	0.28	0.2	-	-	11	-	0.06	4.8	-	0.80
WP-802-010 EL 814.314	Apr/May-18[a]	191	0.11	0.5	<0.2	<20	65.9	-	<0.002	27.6	0.24	-	0.6	22.1	-	2.76	0.20	0.3	-	-	9	-	0.08	3.2	-	1.16
WP-802-010 EL 814.616	Apr/May-18[a]	83	0.10	1.3	<0.2	<20	26.3	-	<0.002	27.5	0.21	-	0.7	18.6	-	1.75	0.19	0.4	-	-	<5	-	0.07	4.0	-	0.61
WP-802-010 EL 816.055	10-May-18	76	0.22	3.0	0.4	ND	149	-	0.05	23.6	0.59	-	2.5	9.0	-	10.2	0.81	0.4	-	-	9	-	0.13	5.1	-	0.70
WP-802-010 EL 816.439	10-May-18	71	0.19	2.4	0.7	ND	174	-	0.04	25.7	1.65	-	2.1	7.0	-	4.31	0.67	0.4	-	-	11	-	0.12	4.4	-	0.57
WP-727-002	25/May/18	40	0.20	1.4	0.6	ND	66.6	-	0.03	28.5	0.27	-	1.3	11.1	-	3.57	0.41	0.5	-	-	8	-	0.10	3.6	-	1.32
WP-725-001	10/Jun/18	177	0.14	0.6	ND	ND	85.6	-	ND	24.2	0.35	-	1.2	46.5	-	5.57	0.15	0.4	-	-	ND	-	0.06	4.1	-	4.66
WP-815-001	17/Jun/18	63	0.07	0.9	ND	ND	23.7	-	ND	33.2	0.22	-	1.0	11.9	-	1.78	0.12	0.2	-	-	ND	-	0.04	3.4	-	0.49
WP-802-009	9/Sep/18	72	0.16	1.8	0.6	<20	52.0	-	0.04	25.2	0.16	-	1.5	10.8	-	2.30	0.54	0.3	-	-	11	-	0.09	4.3	-	0.76
WP-725-003	9/Sep/18	58	0.09	0.9	<0.2	<20	20.0	-	<0.02	23.9	0.30	-	1.0	20.4	-	2.00	0.18	0.3	-	-	6	-	0.05	3.6	-	4.02
Sample 1	26/Sep/18	results pending																								
Sample 2	26/Sep/18																									
WP-789-003	12/Oct/18	247	0.17	6.2	4.9	<20	134.0	-	0.06	22.8	0.33	-	3.9	12.6	-	41.40	0.81	0.4	-	-	24	-	0.11	4.9	-	0.76
WP-789-004[b]	14/Oct/18	100	0.29	2.1	<200	10	330.0	0.3	0.04	>25.0	0.29	9.14	1.6	8.0	0.5	2.80	0.63	0.7	<0.05	0.0	10	0.008	0.15	4.8	4.5	0.54
WP-789-005[b]	17/Oct/18	60	0.24	2.5	<200	10	60.0	0.2	0.04	22.9	0.15	7.54	1.5	6.0	0.5	3.90	0.48	0.6	<0.05	0.1	10	0.007	0.12	3.9	2.9	0.65
ACA[c]		*53*	*8.15*	*4.80*	-	*17*	*628*	*2.1*	*0.16*	*2.57*	*0.09*	*63*	*17.3*	*92*	*4.9*	*28.0*	*3.92*	*17.50*	*1.4*	*5.3*	*50*	*0.056*	*2.32*	*31.0*	*24*	*1.50*

Notes:

[a]Month of sampling given, exact date unknown

[b]Samples are analyzed at ALS Global - Geochemistry

[c]ACA: Average Crustal Abundance (Rudnick & Gao, 2014)

Values shaded in light grey exceed 3x the ACA

Values shaded in dark grey exceed 10x the ACA

Table 6: 2018 ABA Results, West Pine Quarry

Sample ID	Sample Date	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn	Zr
Units		**ppm**	**ppm**	**%**	**ppm**	**ppm**	**%**	**ppm**	**ppm**	**ppm**	**%**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**%**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**	**ppm**
802-003	Apr-18[a]	116	0.72	0.013	-	12.4	0.018	4.38	-	-	0.79	0.04	2.6	0.2	-	413	-	0.04	1.6	<0.001	<0.02	0.5	9	<0.05	-	18.3	-
802-004	Apr-18[a]	48	1.34	0.019	-	10.0	0.011	1.31	-	-	0.18	0.16	1.1	0.8	-	>2000	-	0.27	0.6	<0.001	<0.02	2.2	9	<0.05	-	30.0	-
802-005	Apr-18[a]	118	1.99	0.016	-	11.4	0.023	2.23	-	-	0.33	0.13	1.6	0.5	-	647	-	0.07	1.0	<0.001	<0.02	1.0	8	<0.05	-	21.6	-
WP-802-005	Apr-18[a]	50	0.90	0.018	-	6.4	0.014	1.09	-	-	0.25	0.06	1.0	0.4	-	1080	-	0.10	0.5	<0.001	<0.02	0.7	8	<0.05	-	125	-
WP-802-006	Apr-18[a]	139	0.39	0.009	-	14.8	0.026	5.02	-	-	0.97	0.07	3.2	0.3	-	308	-	0.06	1.9	<0.001	<0.02	0.4	7	<0.05	-	10.2	-
WP-802-007	Apr-18[a]	56	0.92	0.015	-	9.1	0.014	1.35	-	-	0.09	0.12	1.2	0.3	-	644	-	0.05	0.6	<0.001	<0.02	1.1	7	0.1	-	19.5	-
WP-802-008	Apr-18[a]	91	2.97	0.009	-	12.5	0.019	4.08	-	-	0.52	0.08	2.4	0.7	-	223	-	0.05	1.3	<0.001	<0.02	0.5	11	<0.05	-	13.8	-
WP-802-008 EL 812.917	Apr/May-18[a]	134	1.21	0.009	-	20.0	0.022	3.82	-	-	0.19	0.26	2.7	0.3	-	256	-	0.03	1.7	<0.001	0.05	0.7	15	<0.05	-	55.5	-
WP-802-008 EL 816.448	Apr/May-18[a]	55	0.72	0.007	-	8.1	0.010	1.22	-	-	0.14	0.18	1.0	0.5	-	234	-	0.02	0.5	<0.001	<0.02	0.9	8	0.5	-	27.1	-
WP-802-010 EL 814.314	Apr/May-18[a]	37	0.88	0.010	-	10.2	0.011	0.98	-	-	0.21	0.10	0.8	0.3	-	>2000	-	0.19	0.4	<0.001	<0.02	0.8	9	0.3	-	20.8	-
WP-802-010 EL 814.616	Apr/May-18[a]	57	0.99	0.013	-	8.1	0.013	1.12	-	-	0.09	0.12	1.1	0.4	-	864	-	0.11	0.6	<0.001	<0.02	0.6	5	0.2	-	21.3	-
WP-802-010 EL 816.055	10-May-18	105	1.39	0.009	-	13.9	0.020	5.11	-	-	0.68	0.10	2.6	ND	-	241	-	0.06	1.7	ND	0.04	0.6	8	ND	-	81.8	-
WP-802-010 EL 816.439	10-May-18	113	0.56	0.009	-	11.6	0.018	3.41	-	-	0.63	0.11	2.0	0.3	-	254	-	0.04	1.2	ND	0.03	0.6	7	ND	-	154	-
WP-727-002	25/May/18	81	0.53	0.022	-	9.0	0.014	2.43	-	-	0.21	0.13	1.1	ND	-	346	-	0.06	0.8	ND	0.04	0.8	9	ND	-	17.5	-
WP-725-001	10/Jun/18	37	0.77	0.023	-	4.8	0.031	1.30	-	-	0.05	0.08	0.7	0.3	-	130	-	ND	0.4	ND	0.03	1.1	8	0.4	-	38.7	-
WP-815-001	17/Jun/18	35	0.70	0.026	-	3.2	0.011	0.98	-	-	0.10	0.12	0.6	0.4	-	986	-	0.05	0.4	ND	ND	1.2	7	0.2	-	16.4	-
WP-802-009	9/Sep/18	69	1.22	0.007	-	11.6	0.015	2.70	-	-	0.44	0.09	1.6	0.8	-	257	-	0.03	1.0	<0.001	<0.02	0.5	7	<0.1	-	19.0	-
WP-725-003	9/Sep/18	33	1.85	0.012	-	12.1	0.013	2.70	-	-	0.11	0.13	0.6	1.0	-	207	-	<0.02	0.4	<0.001	0.08	1.6	8	0.4	-	28.0	-
Sample 1	26/Sep/18	results pending																									
Sample 2	26/Sep/18																										
WP-789-003	12/Oct/18	93	1.01	0.009	-	15.9	0.018	6.30	-	-	0.73	0.12	2.5	0.9	-	1600	-	0.10	1.4	<0.001	0.04	0.5	7	<0.1	-	40.7	-
WP-789-004[b]	14/Oct/18	84	0.98	0.010	<0.05	12.2	0.023	6.60	5.0	0.002	0.37	0.19	2.0	0.9	<0.2	342	<0.01	0.02	1.3	<0.005	0.03	0.6	12	0.1	6.9	36.0	2.0
WP-789-005[b]	17/Oct/18	68	3.26	<0.01	<0.05	9.2	0.017	4.20	4.6	0.002	0.25	0.14	1.8	0.5	<0.2	276	<0.01	0.02	1.3	<0.005	0.03	0.6	9	0.1	5.7	24.0	2.0
ACA[c]		*774*	*1.10*	*2.43*	*12*	*47.0*	*0.066*	*17.0*	*84*	-	*0.062*	*0.40*	*14*	*0.090*	*2.1*	*320*	*0.9*	-	*11*	*0.384*	*0.90*	*2.70*	*97*	*1.90*	*21*	*67.0*	*193*

Notes:

[a]Month of sampling given, exact date unknown

[b]Samples are analyzed at ALS Global - Geochemistry

[c]ACA: Average Crustal Abundance (Rudnick & Gao, 2014)

Values shaded in light grey exceed 3x the ACA

Values shaded in dark grey exceed 10x the ACA

Appendix 3-A: 2018 Water Quality Analytical Results

PEACE RIVER
HYDRO PARTNERS

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADIT-4	8/12/2018 15:05	UB4441	7.89	2680	3.14	1940	6.8	769	713	544	<1.0	664	<1.0	<1.0	14.8	0.740	0.44	1130
ADIT-4	8/15/2018 0:00	UC1648	7.82	2650	4.70	1900	9.0	800	817	552	<1.0	674	<1.0	<1.0	13.9	0.730	0.43	1080
ADIT-4	8/26/2018 11:30	UE1800	8.17	2450	>4000	1780	4710	1370	703	500	<1.0	610	<1.0	<1.0	10.1	0.600	0.37	901
ADIT-4	9/8/2018 13:00	UG8770	8.50	5730	118	3590	122	277	234	844	19.9	981	23.9	<1.0	104	1.80	1.7	2270
ADIT-4	11/1/2018 9:30	UR8076	8.23	3090	1.43	2140	<4.0	602	591	564	<1.0	688	<1.0	<1.0	27.6	0.970	0.68	1090
ADIT-4	11/25/2018 14:20	UV7532	8.85	6470	8.52	4620	15.8	276	267	206	25.3	189	30.4	<1.0	107	2.40	19	3230
ADIT-4	11/26/2018 16:20	UV9442	10.0	6330	2.85	4610	21.3	166	157	315	172	<1.0	172	10.0	108	1.80	31	3110
ADIT-4	12/11/2018 13:20	UY3863	9.90	4510	0.97	3130	35.8	215	112	218	110	<1.0	130	<1.0	73.9	2.10	18	1840
ADIT-4	12/17/2018 17:40	UZ2666	9.38	4170	0.75	2880	11.5	286	207	229	69.5	109	83.4	<1.0	57.6	1.60	18	1790
ADIT-4	12/24/2018 13:27	UZ9966	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/28/2018 13:55	VA3065	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/31/2018 15:20	VA5856	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/10/2018 12:45	UH6591	-	-	33.3	658	28.3	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/12/2018 13:00	UI0656	-	-	60.6	714	128	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/14/2018 8:45	UI0652	-	-	22.5	731	39.0	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 2:40	UI5110	-	-	11.2	184	29.8	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 3:45	UI5294	-	-	9.36	712	<4.0	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/17/2018 9:00	UI9107	-	-	6.92	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/25/2018 12:00	UK8658	8.05	1010	8.02	722	4.5	527	537	161	<1.0	197	<1.0	<1.0	5.32	0.140	0.12	384
DIC-Out	9/25/2018 12:30	UK8660	-	-	-	-	-	-	466	-	-	-	-	-	-	-	-	-
DIC-Out	9/28/2018 10:30	UL0971	-	-	7.87	-	7.8	-	-	-	-	-	-	-	-	-	-	-
DOC-SUMP-N	11/2/2018 9:00	US0229	7.93	7190	82.0	8730	35.5	3120	2990	626	<1.0	763	<1.0	<1.0	25.1	0.450	1.3	4430
DOC-SUMP-N	11/6/2018 16:45	US9402	8.13	2530	79.8	1990	529	1050	1050	306	<1.0	373	<1.0	<1.0	20.4	0.120	0.48	1300
DOC-SUMP-N	11/13/2018 13:20	UT9230	7.90	7450	212	7510	69.0	3380	3140	597	<1.0	728	<1.0	<1.0	42.3	0.970	1.7	4750
DOC-SUMP-N	12/24/2018 14:00	UZ9968	8.76	5240	1660	3690	-	439	335	317	21.6	334	25.9	<1.0	114	0.540	2.6	2170
DOC-SUMP-S	10/30/2018 11:35	UR2640	8.09	2760	119	2320	155	1080	1190	340	<1.0	414	<1.0	<1.0	23.3	0.087	0.54	1270
DOC-SUMP-S	11/21/2018 15:00	UV2756	8.08	1150	16.4	792	36.8	473	444	209	<1.0	255	<1.0	<1.0	10.3	0.130	0.22	385
DOC-SUMP-S	12/3/2018 12:15	UW8506	8.10	780	4.76	526	12.5	290	294	181	<1.0	221	<1.0	<1.0	7.33	0.130	0.13	203
DOC-SUMP-S	12/8/2018 16:35	UX7497	8.19	742	1.28	456	<4.0	275	278	177	<1.0	216	<1.0	<1.0	6.05	0.120	0.12	195
DOC-SUMP-S	12/17/2018 11:00	UY7669	8.11	652	0.96	406	4.3	237	240	167	<1.0	204	<1.0	<1.0	5.55	0.130	0.11	158
DOC-SUMP-S	12/17/2018 14:50	UZ1475	8.25	2170	13.5	1440	38.5	307	277	382	<1.0	466	<1.0	<1.0	48.9	0.470	0.82	657
DOC-SUMP-S	12/28/2018 14:15	VA3071	8.22	1430	4.00	880	5.8	200	204	318	<1.0	388	<1.0	<1.0	34.9	0.470	0.54	353
DOC-SUMP-N-UP	12/28/2018 14:30	VA3072	8.02	3830	8.44	3220	23.8	1400	1450	566	<1.0	691	<1.0	<1.0	40.6	0.160	0.80	1820
DOC-OUT	7/6/2018 7:00	TV0772	-	-	8.20	1190	23.3	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/6/2018 11:00	TU8076	-	-	10.7	1190	20.0	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/7/2018 9:00	TV0773	-	-	8.42	1460	26.3	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/10/2018 12:15	UB1638	-	-	9.04	1000	9.3	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/11/2018 15:35	UB4075	-	1410	-	-	-	628	623	300	<1.0	366	<1.0	<1.0	18.4	-	0.30	-
DOC-OUT	9/6/2018 15:00	UG5297	-	-	10.1	-	43.3	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/10/2018 17:40	UH6593	-	-	7.13	1400	45.0	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/13/2018 10:00	UI0655	-	-	3.29	1060	4.3	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/14/2018 16:00	UI5250	-	-	8.16	1200	39.8	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/16/2018 12:00	UI5117	-	-	11.4	1190	53.5	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/30/2018 17:00	UL4215	8.04	1040	6.36	714	6.0	473	452	195	<1.0	238	<1.0	<1.0	12.4	0.084	0.23	330
DOC-OUT	10/10/2018 13:30	UN4655	8.30	1080	2.7	710	7.8	399	453	204	<1.0	249	<1.0	<1.0	11.5	0.100	0.23	313
DOC-OUT	10/10/2018 14:10	UN7467	-	-	27.2	-	7.0	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	10/22/2018 9:30	UP6073	7.88	2720	9130	2230	21800	2020	1190	349	<1.0	426	<1.0	<1.0	22.3	0.130	0.53	1140
DOC-OUT	10/25/2018 13:30	UQ3347	8.12	2700	91.3	2350	161	1090	1120	327	<1.0	399	<1.0	<1.0	22.8	0.084	0.56	1280
DTIP-BT1	9/29/2018 9:45	UL4211	8.15	444	-	-	-	237	216	169	<1.0	206	<1.0	<1.0	3.17	0.740	<0.010	62.5
DTIP-BT1	10/15/2018 10:00	UO4387	8.16	385	18.4	208	64.5	187	185	158	<1.0	193	<1.0	<1.0	2.36	0.750	<0.010	40.7
DTIP-BT1	11/13/2018 13:40	UT9232	7.77	1080	199	670	171	288	284	70.5	<1.0	86.0	<1.0	<1.0	26.4	0.990	0.45	381
DTIP-BT1	11/29/2018 10:40	UW6196	8.32	600	1190	396	920	174	101	114	<1.0	139	<1.0	<1.0	19.3	0.220	0.25	147
DTIP-BT1	12/28/2018 13:15	VA3070	8.05	267	237	162	171	125	119	112	<1.0	136	<1.0	<1.0	1.21	0.077	<0.010	26.1
DTIP-DW	10/26/2018 13:20	UQ5564	3.60	4600	103	4800	58.0	2080	2120	<1.0	<1.0	<1.0	<1.0	<1.0	25.1	12.0	0.88	3300
DTIP-DW	10/30/2018 10:25	UR2639	3.46	4850	165	4970	48.8	2000	2170	<1.0	<1.0	<1.0	<1.0	<1.0	27.9	11.0	0.89	3240
DTIP-DW	11/6/2018 16:26	US9401	3.20	5170	172	-	-	2290	2290	<1.0	<1.0	<1.0	<1.0	<1.0	26.5	4.70	0.95	3580
DTIP-DW	11/21/2018 14:10	UV2755	3.38	4200	270	3980	221	1810	1910	<1.0	<1.0	<1.0	<1.0	<1.0	28.3	9.00	0.85	2910
DTIP-DW	12/2/2018 15:20	UW8616	5.08	3020	79.1	2660	55.3	1270	1300	<1.0	<1.0	<1.0	<1.0	<1.0	34.3	2.90	0.88	1640
DTIP-DW	12/4/2018 15:20	UX4644	3.33	4450	304	4280	144	1860	1880	<1.0	<1.0	<1.0	<1.0	<1.0	29.9	4.10	0.89	2930
DTIP-DW	12/12/2018 11:15	UY7668	4.74	3970	13.4	3750	15.0	1820	1900	<1.0	<1.0	<1.0	<1.0	<1.0	40.8	3.30	0.92	2460
DTIP-DW	12/18/2018 15:50	UZ3638	4.48	4040	11.4	3990	14.0	1890	1830	<1.0	<1.0	<1.0	<1.0	<1.0	29.7	4.80	0.82	2780
DTIP-DW	12/28/2018 13:10	VA3069	7.70	1810	26.3	1340	87.0	740	736	114	<1.0	139	<1.0	<1.0	18.1	1.20	0.31	925
L5-TNCP	4/25/2018 13:30	TI3532	7.94	374	832	380	336	206	173	83.9	<1.0	102	<1.0	<1.0	4.88	0.220	0.029	100
L5-TNCP	4/26/2018 17:52	TI4637	7.84	408	765	304	1650	261	167	79.2	<1.0	96.6	<1.0	<1.0	5.74	0.220	0.023	111

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADIT-4	8/12/2018 15:05	UB4441	0.46	0.0173	0.329	0.347	<0.0050	1.28	1.46	0.673	0.0053	0.00553	0.0144	<0.0001	<0.001	0.332	0.000054	140	<0.001	0.0143	<0.0005
ADIT-4	8/15/2018 0:00	UC1648	0.38	0.0960	0.272	0.368	<0.0050	1.08	1.09	0.548	0.0043	0.00629	0.0086	<0.0005	<0.005	0.347	0.000088	142	<0.005	0.0148	<0.0025
ADIT-4	8/26/2018 11:30	UE1800	1.3	0.0073	0.059	0.066	0.353	3.24	0.85	31.3	0.00244	0.0328	1.05	0.00172	<0.001	0.339	0.00414	326	0.0623	0.0401	0.107
ADIT-4	9/8/2018 13:00	UG8770	3.1	<0.0050	<0.020	<0.020	<0.0050	1.3	1.7	6.12	<0.0025	0.00308	0.115	<0.0005	<0.005	0.737	0.000117	52.5	0.0088	0.0022	0.0048
ADIT-4	11/1/2018 9:30	UR8076	0.93	<0.0050	<0.020	<0.020	<0.0050	0.81	1.29	0.093	<0.0025	0.00357	0.0116	<0.0005	<0.005	0.425	<0.00005	115	<0.005	0.0021	<0.0025
ADIT-4	11/25/2018 14:20	UV7532	17	<0.0050	<0.020	<0.020	0.0175	3.6	3.0	0.351	<0.0025	0.0043	0.0119	<0.0005	<0.005	0.97	<0.00005	55.6	<0.005	<0.001	<0.0025
ADIT-4	11/26/2018 16:20	UV9442	41	<0.0050	<0.020	<0.020	0.0189	5.5	6.6	0.081	<0.0025	0.00594	0.0062	<0.0005	<0.005	1.55	<0.00005	40.9	<0.005	<0.001	<0.0025
ADIT-4	12/11/2018 13:20	UY3863	26	<0.0050	<0.020	<0.020	<0.0050	6.3	4.4	0.694	<0.0025	0.00479	0.0077	<0.0005	<0.005	0.732	<0.00005	52.4	0.0075	<0.001	<0.0025
ADIT-4	12/17/2018 17:40	UZ2666	22	0.0050	<0.020	<0.020	<0.0050	5.4	4.5	0.404	<0.0025	0.00462	0.006	<0.0005	<0.005	0.763	<0.00005	55.2	<0.005	<0.001	<0.0025
ADIT-4	12/24/2018 13:27	UZ9966	18	<0.0020	<0.020	<0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/28/2018 13:55	VA3065	15	-	-	<0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/31/2018 15:20	VA5856	13	-	-	<0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/10/2018 12:45	UH6591	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/12/2018 13:00	UI0656	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/14/2018 8:45	UI0652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 2:40	UI5110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 3:45	UI5294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/17/2018 9:00	UI9107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/25/2018 12:00	UK8658	0.36	<0.0050	0.043	0.043	<0.0050	1.47	0.72	0.0154	<0.0005	0.00132	0.104	<0.0001	<0.001	<0.05	0.00006	160	<0.001	0.00036	<0.0005
DIC-Out	9/25/2018 12:30	UK8660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/28/2018 10:30	UL0971	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-SUMP-N	11/2/2018 9:00	US0229	1.8	0.0114	0.099	0.110	<0.0050	4.06	3.05	0.301	0.0037	0.00142	0.0383	<0.0005	<0.005	0.307	0.000347	529	<0.005	0.0276	<0.0025
DOC-SUMP-N	11/6/2018 16:45	US9402	0.34	<0.0050	<0.020	<0.020	<0.0050	2.92	1.16	1.61	<0.0005	0.00374	0.13	0.00011	<0.001	0.081	0.000173	242	0.0033	0.00361	0.00851
DOC-SUMP-N	11/13/2018 13:20	UT9230	1.5	<0.0050	0.027	0.027	<0.0050	2.6	2.25	0.277	<0.005	<0.001	0.025	<0.001	<0.01	<0.5	0.00068	531	<0.01	0.109	<0.005
DOC-SUMP-N	12/24/2018 14:00	UZ9968	6.0	0.0532	0.033	0.087	0.0142	14	6.6	10.8	0.0066	0.0178	0.677	0.00062	<0.005	0.413	0.000257	72.2	0.0283	0.0092	0.0313
DOC-SUMP-S	10/30/2018 11:35	UR2640	0.44	<0.0050	<0.020	<0.020	<0.0050	0.80	0.64	2.01	<0.0025	0.00258	0.148	<0.0005	<0.005	<0.25	0.000169	252	<0.005	0.0033	0.0562
DOC-SUMP-S	11/21/2018 15:00	UV2756	0.18	<0.0050	<0.020	<0.020	<0.0050	0.63	0.73	2.36	<0.0005	0.00426	0.207	0.00026	<0.001	0.054	0.000365	124	0.0051	0.00451	0.163
DOC-SUMP-S	12/3/2018 12:15	UW8506	0.18	<0.0050	0.034	0.034	<0.0050	0.82	<0.50	0.0948	<0.0005	0.00055	0.0302	<0.0001	<0.001	<0.05	0.00003	78.1	<0.001	0.00034	0.00332
DOC-SUMP-S	12/8/2018 16:35	UX7497	0.11	<0.0050	0.044	0.044	<0.0050	<0.50	0.61	0.0194	<0.0005	0.00053	0.0266	<0.0001	<0.001	<0.05	0.000024	75.0	<0.001	0.00027	<0.0005
DOC-SUMP-S	12/17/2018 14:50	UZ1475	1.3	0.0104	0.076	0.086	0.0178	1.2	0.81	1.56	0.0031	0.00172	0.0824	<0.0002	<0.002	0.365	0.000046	63.2	0.0022	0.00167	0.0023
DOC-SUMP-S	12/28/2018 14:15	VA3071	0.89	<0.0050	<0.020	<0.020	0.0094	1.0	0.73	0.09	0.00117	0.00078	0.0206	<0.0001	<0.001	0.311	0.000025	43.3	<0.001	0.00214	0.00158
DOC-SUMP-N-UP	12/28/2018 14:30	VA3072	1.5	0.0078	<0.020	0.026	<0.0050	2.0	1.9	0.146	<0.0025	0.00164	0.0352	<0.0005	<0.005	0.277	0.00012	290	<0.005	0.0091	<0.0025
DOC-OUT	7/6/2018 7:00	TV0772	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/6/2018 11:00	TU8076	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/7/2018 9:00	TV0773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/10/2018 12:15	UB1638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/11/2018 15:35	UB4075	0.56	0.0089	<0.020	<0.020	-	3.79	3.94	0.348	<0.0005	0.00194	0.0927	<0.0001	<0.001	<0.05	0.000078	161	<0.001	0.00104	0.00208
DOC-OUT	9/6/2018 15:00	UG5297	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/10/2018 17:40	UH6593	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/13/2018 10:00	UI0655	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/14/2018 16:00	UI5250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/16/2018 12:00	UI5117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/30/2018 17:00	UL4215	0.13	<0.0050	<0.020	<0.020	<0.0050	<0.50	1.6	0.121	<0.0005	0.00041	0.0294	<0.0001	<0.001	<0.05	0.000062	133	<0.001	0.00044	0.00079
DOC-OUT	10/10/2018 13:30	UN4655	0.46	<0.0050	<0.020	<0.020	<0.0050	0.96	1.2	0.0625	<0.0005	0.00085	0.0201	<0.0001	<0.001	<0.05	0.00005	110	<0.001	0.00041	<0.0005
DOC-OUT	10/10/2018 14:10	UN7467	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	10/22/2018 9:30	UP6073	0.97	0.0324	<0.020	<0.020	<0.0050	4.8	1.8	61.9	<0.005	0.0854	10.6	0.0074	<0.01	<0.5	0.00788	499	0.117	0.118	0.384
DOC-OUT	10/25/2018 13:30	UQ3347	0.43	0.0109	<0.020	<0.020	<0.0050	1.8	1.1	2.24	<0.001	0.00386	0.21	<0.0002	<0.002	<0.1	0.000184	259	0.004	0.00345	0.0049
DTIP-BT1	9/29/2018 9:45	UL4211	0.91	0.0254	<0.020	0.043	<0.0050	1.1	1.3	2.02	<0.0005	0.00079	0.17	<0.0001	<0.001	<0.05	0.000034	71.4	0.0034	0.0006	0.00429
DTIP-BT1	10/15/2018 10:00	UO4387	0.56	0.0187	0.036	0.055	<0.0050	<1.0	<1.0	1.83	0.00063	0.00166	0.299	<0.0001	<0.001	<0.05	0.000046	57.4	0.0026	0.00101	0.00642
DTIP-BT1	11/13/2018 13:40	UT9232	0.84	0.0751	0.074	0.149	<0.0050	2.9	1.81	3.45	0.00064	0.00162	0.209	0.00042	<0.001	0.116	0.0001	65.5	0.0028	0.0116	0.00451
DTIP-BT1	11/29/2018 10:40	UW6196	0.81	0.132	0.140	0.272	0.0060	<5.0	<5.0	15.2	0.00117	0.0115	1.02	0.00084	<0.001	0.104	0.000357	51.0	0.0235	0.0106	0.0327
DTIP-BT1	12/28/2018 13:15	VA3070	1.6	0.161	0.117	0.277	<0.0050	5.2	<2.5	2.63	<0.0005	0.00259	0.283	0.00016	<0.001	<0.05	0.000049	35.7	0.0047	0.00225	0.00692
DTIP-DW	10/26/2018 13:20	UQ5564	4.2	<0.0050	0.048	0.048	0.0101	1.5	1.5	42	<0.005	<0.001	0.014	0.0104	<0.01	0.673	0.00082	376	<0.01	0.186	<0.005
DTIP-DW	10/30/2018 10:25	UR2639	3.9	<0.0050	0.067	0.067	0.0101	0.85	1.46	40.2	<0.005	<0.001	0.014	0.0091	<0.01	0.628	0.00084	361	<0.01	0.187	<0.005
DTIP-DW	11/6/2018 16:26	US9401	4.2	<0.0050	0.063	0.063	0.0116	4.73	1.24	50.8	<0.01	<0.002	<0.02	0.0127	<0.02	<1	0.00072	404	<0.02	0.218	<0.01
DTIP-DW	11/21/2018 14:10	UV2755	4.0	0.0062	0.148	0.154	0.0084	6.6	1.2	34.9	<0.0025	0.00123	0.0785	0.00906	<0.005	0.654	0.000954	332	<0.005	0.181	0.0084
DTIP-DW	12/2/2018 15:20	UW8616	2.9	0.0773	0.455	0.533	0.0083	2.7	3.0	4.64	<0.0025	<0.0005	0.0453	0.00175	<0.005	0.355	0.00496	267	<0.005	0.133	<0.0025
DTIP-DW	12/4/2018 15:20	UX4644	4.1	0.0070	0.311	0.318	0.0070	1.7	2.0	37	<0.0025	<0.0005	0.0092	0.00906	<0.005	0.616	0.000787	348	<0.005	0.219	0.0037
DTIP-DW	12/12/2018 11:15	UY7668	3.4	0.0473	0.618	0.665	0.0062	2.4	2.6	8.06	<0.0025	<0.0005	0.039	0.00238	<0.005	0.51	0.00176	385	<0.005	0.13	0.0028
DTIP-DW	12/18/2018 15:50	UZ3638	3.8	0.0209	0.546	0.567	0.0067	1.2	2.4	10.8	<0.0025	<0.0005	0.029	0.00298	<0.005	0.612	0.00168	372	<0.005	0.169	<0.0025
DTIP-DW	12/28/2018 13:10	VA3069	1.6	0.192	0.132	0.325	<0.0050	370	340	2.5	0.00092	0.0024	0.181	0.00024	<0.001	0.214	0.000339	167	0.0036	0.0173	0.00717
L5-TNCP	4/25/2018 13:30	TI3532	0.30	0.0130	0.435	0.448	0.0080	5.76	5.53	8.07	0.00067	0.00878	0.278	0.00051	<0.001	<0.05	0.000564	54.0	0.0127	0.00644	0.024
L5-TNCP	4/26/2018 17:52	TI4637	0.030	0.0166	0.534	0.551	<0.0050	8.01	5.80	9.67	0.00094	0.00847	0.307	0.0005	<0.001	<0.05	0.00101	72.6	0.0166	0.00923	0.0304

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADIT-4	8/12/2018 15:05	UB4441	0.905	<0.0002	0.141	102	0.133	<0.000002	0.0064	0.0618	-	4.71	0.0362	6.96	<0.00002	358	0.902	343	<0.00001	<0.005	<0.005	0.0246
ADIT-4	8/15/2018 0:00	UC1648	0.884	<0.001	0.135	108	0.138	<0.000002	0.0053	0.0592	-	4.52	0.0347	6.13	<0.0001	351	0.885	325	<0.00005	<0.025	<0.025	0.0214
ADIT-4	8/26/2018 11:30	UE1800	74.1	0.0477	0.162	136	1.69	<0.000002	0.0095	0.133	-	8.22	0.0217	48.9	0.00089	322	1.54	310	0.000679	<0.005	0.404	0.0284
ADIT-4	9/8/2018 13:00	UG8770	5.55	0.0023	0.321	35.4	0.313	<0.000002	<0.005	0.0069	-	5.09	0.00118	16.8	<0.0001	1430	0.942	782	0.000086	<0.025	0.239	0.00237
ADIT-4	11/1/2018 9:30	UR8076	0.422	<0.001	0.15	76.8	0.0982	0.0000034	0.0076	0.0109	-	4.02	<0.0005	6.59	<0.0001	511	0.793	404	<0.00005	<0.025	<0.025	0.0136
ADIT-4	11/25/2018 14:20	UV7532	0.479	<0.001	0.197	33.3	0.054	0.0000037	0.699	<0.005	-	3.75	0.0155	2.87	<0.0001	1450	1.05	1070	<0.00005	<0.025	<0.025	0.00304
ADIT-4	11/26/2018 16:20	UV9442	0.131	<0.001	0.128	15.6	0.0127	0.0000152	1.18	<0.005	-	3.24	0.0348	5.07	<0.0001	1450	0.841	1040	<0.00005	<0.025	<0.025	0.00223
ADIT-4	12/11/2018 13:20	UY3863	0.088	<0.001	0.106	20.3	0.0097	0.000007	0.657	<0.005	-	11.1	0.0146	5.72	<0.0001	1080	0.75	716	<0.00005	<0.025	<0.025	0.00326
ADIT-4	12/17/2018 17:40	UZ2666	0.116	<0.001	0.107	36.0	0.0195	0.0000058	0.562	<0.005	-	9.86	0.0138	5.98	<0.0001	906	0.585	667	<0.00005	<0.025	<0.025	0.00613
ADIT-4	12/24/2018 13:27	UZ9966	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/28/2018 13:55	VA3065	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/31/2018 15:20	VA5856	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/10/2018 12:45	UH6591	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/12/2018 13:00	UI0656	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/14/2018 8:45	UI0652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 2:40	UI5110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 3:45	UI5294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/17/2018 9:00	UI9107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/25/2018 12:00	UK8658	0.831	<0.0002	0.014	30.7	0.704	<0.000002	0.0025	0.0021	-	1.34	0.00034	3.74	<0.00002	19.3	0.455	134	<0.00001	<0.005	<0.005	0.00192
DIC-Out	9/25/2018 12:30	UK8660	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/28/2018 10:30	UL0971	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-SUMP-N	11/2/2018 9:00	US0229	0.826	<0.001	0.097	437	4.17	<0.000002	0.007	0.0431	-	9.31	0.0012	5.82	<0.0001	958	2.83	1540	0.000074	<0.025	<0.025	0.0159
DOC-SUMP-N	11/6/2018 16:45	US9402	7.51	0.00268	0.0356	107	1.85	<0.000002	0.0023	0.008	-	2.85	0.00046	8.68	0.00004	219	0.789	407	0.000058	<0.005	0.0388	0.00398
DOC-SUMP-N	11/13/2018 13:20	UT9230	25.9	<0.002	0.112	498	6.07	<0.000002	<0.01	0.234	-	6.34	0.0013	6.16	<0.0002	1030	2.73	1540	<0.0001	<0.05	<0.05	0.0091
DOC-SUMP-N	12/24/2018 14:00	UZ9968	16.7	0.0115	0.222	62.8	0.155	<0.000002	0.0674	0.0256	-	9.91	0.0229	25.2	0.00014	1170	1.5	819	0.000168	<0.025	0.163	0.0105
DOC-SUMP-S	10/30/2018 11:35	UR2640	5.23	0.0047	0.03	109	2.08	0.0000023	<0.005	0.0108	-	2.94	<0.0005	8.61	<0.0001	228	0.804	387	<0.00005	<0.025	0.074	0.0041
DOC-SUMP-S	11/21/2018 15:00	UV2756	10.1	0.019	0.0216	39.6	0.698	<0.000002	0.003	0.0137	-	2.06	0.0007	7.33	0.000065	85.2	0.412	129	0.000058	0.0061	0.0428	0.0022
DOC-SUMP-S	12/3/2018 12:15	UW8506	0.21	0.00044	0.0136	23.0	0.305	<0.000002	0.0025	0.0012	-	1.22	0.00087	4.12	<0.00002	57.8	0.253	75.9	<0.00001	<0.005	<0.005	0.00111
DOC-SUMP-S	12/8/2018 16:35	UX7497	0.108	<0.0002	0.0132	21.2	0.274	<0.000002	0.0027	<0.001	-	1.18	0.00061	4.25	<0.00002	55.1	0.24	68.6	<0.00001	<0.005	<0.005	0.00106
DOC-SUMP-S	12/12/2018 11:00	UY7669	0.51	0.0005	0.012	17.7	0.215	<0.000002	0.0027	0.0013	-	1.14	0.00059	4.13	<0.00002	48.7	0.212	54.6	<0.00001	<0.005	<0.005	0.00098
DOC-SUMP-S	12/17/2018 14:50	UZ1475	1.04	0.00075	0.0961	36.1	0.141	<0.000002	0.0128	0.0066	-	3.07	0.00435	6.15	<0.00004	406	1	234	0.000039	<0.01	0.081	0.00326
DOC-SUMP-S	12/28/2018 14:15	VA3071	0.158	<0.0002	0.0618	22.3	0.0906	<0.000002	0.0054	0.0069	-	1.69	0.00282	3.25	<0.00002	246	0.505	126	0.000012	<0.005	<0.005	0.00181
DOC-SUMP-N-UP	12/28/2018 14:30	VA3072	0.335	<0.001	0.091	164	1.11	<0.000002	0.006	0.031	-	4.51	0.00492	6.98	<0.0001	454	1.74	607	<0.00005	<0.025	<0.025	0.0078
DOC-OUT	7/6/2018 7:00	TV0772	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/6/2018 11:00	TU8076	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/7/2018 9:00	TV0773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/10/2018 12:15	UB1638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/11/2018 15:35	UB4075	0.959	0.00039	0.0223	55.0	1.31	<0.000002	0.0036	0.0053	-	4.05	0.0002	6.02	<0.00002	76.7	0.547	160	0.000029	<0.005	0.0134	0.00383
DOC-OUT	9/6/2018 15:00	UG5297	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/10/2018 17:40	UH6593	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/13/2018 10:00	UI0655	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/14/2018 16:00	UI5250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/16/2018 12:00	UI5117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/30/2018 17:00	UL4215	0.213	<0.0002	0.0127	34.2	0.523	0.0000043	0.0016	0.0013	-	1.65	0.0002	4.85	<0.00002	53.3	0.309	119	0.000019	<0.005	<0.005	0.00187
DOC-OUT	10/10/2018 13:30	UN4655	0.463	<0.0002	0.0144	30.5	0.556	0.0000028	0.0018	0.001	-	1.50	0.00018	4.77	<0.00002	57.4	0.289	119	0.000012	<0.005	<0.005	0.00144
DOC-OUT	10/10/2018 14:10	UN7467	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	10/22/2018 9:30	UP6073	244	0.134	0.184	188	5.78	0.0000072	<0.01	0.29	-	17.6	0.008	64.5	0.001	263	1.78	448	0.00083	<0.05	0.33	0.0304
DOC-OUT	10/25/2018 13:30	UQ3347	7.66	0.00269	0.038	108	1.95	0.000006	0.002	0.0084	-	3.26	0.00054	9.34	0.000047	233	0.822	400	0.000067	<0.01	0.057	0.00478
DTIP-BT1	9/29/2018 9:45	UL4211	1.11	0.00097	0.0078	14.2	0.0128	<0.000002	0.0015	0.0023	-	1.75	0.00025	8.64	<0.00002	6.93	0.217	20.0	0.000028	<0.005	0.0693	0.00094
DTIP-BT1	10/15/2018 10:00	UO4387	1.85	0.0017	0.0075	10.7	0.0182	0.0000036	0.0018	0.0031	-	1.97	0.00041	6.73	0.000031	6.64	0.225	12.2	0.000034	<0.005	0.0477	0.00102
DTIP-BT1	11/13/2018 13:40	UT9232	9.68	0.00193	0.0583	30.2	0.515	<0.000002	0.0043	0.0599	-	2.16	0.00069	5	<0.00002	113	0.322	143	0.000045	<0.005	0.0192	0.00047
DTIP-BT1	11/29/2018 10:40	UW6196	19	0.0149	0.0454	11.3	0.181	<0.000002	0.0056	0.0285	-	6.81	0.00193	34.1	0.000201	85.4	0.291	55.2	0.000237	<0.005	0.27	0.00231
DTIP-BT1	12/28/2018 13:15	VA3070	3.32	0.00283	0.0069	8.67	0.0319	<0.000002	0.0019	0.0062	-	1.82	0.00063	6.8	0.000036	4.15	0.186	8.7	0.000051	<0.005	0.0156	0.00095
DTIP-DW	10/26/2018 13:20	UQ5564	229	<0.002	0.432	277	6.71	0.0000027	<0.01	1.06	-	5.95	<0.001	1.83	<0.0002	272	1.23	1010	<0.0001	<0.05	<0.05	<0.001
DTIP-DW	10/30/2018 10:25	UR2639	222	<0.002	0.361	268	7.06	<0.000002	<0.01	1.07	-	6.02	<0.001	1.5	<0.0002	268	1.28	1000	<0.0001	<0.05	<0.05	<0.001
DTIP-DW	11/6/2018 16:26	US9401	276	<0.004	0.522	311	7.93	<0.000002	<0.02	1.21	-	6.7	<0.002	<2	<0.0004	293	1.39	1220	<0.0002	<0.1	<0.1	<0.002
DTIP-DW	11/21/2018 14:10	UV2755	189	0.0015	0.486	237	5.74	<0.000002	<0.005	0.95	-	5.87	0.00084	3.34	<0.0001	260	1.23	949	0.000058	<0.025	0.026	0.00091
DTIP-DW	12/2/2018 15:20	UW8616	62.3	<0.001	0.25	145	3.45	<0.000002	<0.005	0.549	-	7.28	0.00339	2.95	<0.0001	218	0.936	590	0.000067	<0.025	<0.025	0.00054
DTIP-DW	12/4/2018 15:20	UX4644	197	<0.001	0.471	239	5.95	<0.000002	<0.005	1.05	-	5.88	0.00089	2.03	<0.0001	275	1.16	973	<0.00005	<0.025	<0.025	0.00084
DTIP-DW	12/12/2018 11:15	UY7668	80.6	<0.001	0.253	210	4.82	<0.000002	<0.005	0.594	-	7.20	0.0018	2.62	<0.0001	284	1.27	865	0.000057	<0.025	<0.025	0.00081
DTIP-DW	12/18/2018 15:50	UZ3638	122	<0.001	0.303	233	5.69	<0.000002	<0.005	0.77	-	6.42	0.00086	2.35	<0.0001	295	1.17	911	0.000072	<0.025	<0.025	0.00065
DTIP-DW	12/28/2018 13:10	VA3069	8.83	0.00261	0.0503	78.4	1.47	<0.000002	0.005	0.0704	-	7.34	0.00269	5.86	0.000045	147	0.641	316	0.000077	<0.005	0.0315	0.00131
L5-TNCP	4/25/2018 13:30	TI3532	20.7	0.0122	0.0161	17.1	0.253	-	0.0158	0.025	-	8.87	0.00149	12.9	0.00022	10.5	0.183	37.4	0.000174	<0.005	0.0517	0.0031
L5-TNCP	4/26/2018 17:52	TI4637	19.3	0.0133	0.0187	19.2	0.405	<0.000002	0.0057	0.0314	-	8.19	0.00174	16.8	0.000265	9.11	0.24	34.1	0.000219	<0.005	0.203	0.00347

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADIT-4	8/12/2018 15:05	UB4441	<0.005	0.0385	0.00018	0.057	0.0047	0.0023	0.007	<0.0005	<0.005	0.34	<0.00005	130	<0.005	0.0141	<0.0025	<0.05	<0.001	0.129	94.5	0.124
ADIT-4	8/15/2018 0:00	UC1648	<0.025	0.039	<0.0005	0.176	0.0043	0.00352	0.0079	<0.0005	<0.005	0.342	0.000084	146	<0.005	0.0146	<0.0025	<0.05	<0.001	0.149	110	0.139
ADIT-4	8/26/2018 11:30	UE1800	0.11	0.364	0.00405	0.0692	0.0046	0.00325	0.1	<0.0002	<0.002	0.342	0.000029	131	<0.002	0.00227	<0.001	<0.02	<0.0004	0.129	91.2	0.0701
ADIT-4	9/8/2018 13:00	UG8770	<0.025	<0.025	0.00791	0.088	<0.005	<0.001	0.015	<0.001	<0.01	0.712	<0.0001	42.2	<0.01	<0.002	<0.005	<0.1	<0.002	0.307	31.3	0.247
ADIT-4	11/1/2018 9:30	UR8076	<0.025	<0.025	<0.0005	0.04	<0.0025	0.00275	0.0105	<0.0005	<0.005	0.414	<0.00005	108	<0.005	0.0019	<0.0025	<0.05	<0.001	0.161	77.9	0.0958
ADIT-4	11/25/2018 14:20	UV7532	<0.025	<0.025	<0.0005	0.238	<0.0025	0.00404	0.0066	<0.0005	<0.005	0.942	<0.00005	52.0	<0.005	<0.001	<0.0025	0.084	<0.001	0.189	33.4	0.0302
ADIT-4	11/26/2018 16:20	UV9442	<0.025	<0.025	<0.0005	<0.03	<0.005	0.0053	<0.01	<0.001	<0.01	1.53	<0.0001	38.6	<0.01	<0.002	<0.005	<0.1	<0.002	0.123	14.9	<0.01
ADIT-4	12/11/2018 13:20	UY3863	<0.025	<0.025	<0.0005	<0.015	<0.0025	0.00467	<0.005	<0.0005	<0.005	0.767	<0.00005	17.0	0.0077	<0.001	<0.0025	<0.05	<0.001	0.106	16.9	<0.005
ADIT-4	12/17/2018 17:40	UZ2666	<0.025	<0.025	<0.0005	0.313	<0.0025	0.00424	<0.005	<0.0005	<0.005	0.625	<0.00005	25.4	<0.005	<0.001	<0.0025	0.069	<0.001	0.099	34.8	<0.005
ADIT-4	12/24/2018 13:27	UZ9966	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/28/2018 13:55	VA3065	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/31/2018 15:20	VA5856	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/10/2018 12:45	UH6591	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/12/2018 13:00	UI0656	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/14/2018 8:45	UI0652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 2:40	UI5110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 3:45	UI5294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/17/2018 9:00	UI9107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/25/2018 12:00	UK8658	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.0007	0.0957	<0.0001	<0.001	<0.05	0.000048	163	<0.001	0.00039	<0.0005	<0.01	<0.0002	0.0147	31.6	0.712
DIC-Out	9/25/2018 12:30	UK8660	-	-	-	<0.003	<0.0005	0.0005	0.0506	<0.0001	<0.001	<0.05	0.000033	143	<0.001	0.00032	<0.0005	<0.01	<0.0002	0.0137	26.6	0.569
DIC-Out	9/28/2018 10:30	UL0971	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-SUMP-N	11/2/2018 9:00	US0229	<0.025	<0.025	0.00101	<0.015	0.0038	0.00116	0.0218	<0.0005	<0.005	0.314	0.000322	490	<0.005	0.0265	<0.0025	<0.05	<0.001	0.097	428	4.11
DOC-SUMP-N	11/6/2018 16:45	US9402	0.0063	0.0245	0.00053	<0.015	<0.0025	0.00062	0.0246	<0.0005	<0.005	<0.25	<0.00005	240	<0.005	0.0019	<0.0025	<0.05	<0.001	0.032	110	1.86
DOC-SUMP-N	11/13/2018 13:20	UT9230	<0.05	0.377	<0.001	<0.015	<0.0025	<0.0005	0.0094	<0.0005	<0.005	0.422	0.000539	490	<0.005	0.104	<0.0025	7.95	<0.001	0.108	466	5.88
DOC-SUMP-N	12/24/2018 14:00	UZ9968	0.036	0.089	0.00403	0.06	0.0107	0.0133	0.024	<0.001	<0.01	<0.5	<0.0001	32.7	0.013	<0.002	<0.005	<0.1	<0.002	0.209	61.6	<0.01
DOC-SUMP-S	10/30/2018 11:35	UR2640	<0.025	0.247	0.00131	<0.015	<0.0025	0.00065	0.0274	<0.0005	<0.005	<0.25	0.000073	267	<0.005	0.0019	0.0026	<0.05	<0.001	0.038	127	2.1
DOC-SUMP-S	11/21/2018 15:00	UV2756	0.0088	0.0651	0.0005	0.0106	<0.0005	0.00036	0.0232	<0.0001	<0.001	0.054	0.000018	112	<0.001	0.00063	0.00546	0.034	<0.0002	0.0195	39.9	0.553
DOC-SUMP-S	12/3/2018 12:15	UW8506	<0.005	0.0219	<0.0001	0.0034	<0.0005	0.00045	0.0242	<0.0001	<0.001	<0.05	0.000022	78.5	<0.001	0.00028	0.00087	<0.01	<0.0002	0.0145	23.8	0.299
DOC-SUMP-S	12/8/2018 16:35	UX7497	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00048	0.0222	<0.0001	<0.001	<0.05	0.000021	76.3	<0.001	0.00026	<0.0005	<0.01	<0.0002	0.0136	21.3	0.265
DOC-SUMP-S	12/12/2018 11:00	UY7669	<0.005	0.0126	<0.0001	<0.003	<0.0005	0.00047	0.0239	<0.0001	<0.001	<0.05	0.00002	66.8	<0.001	0.00021	0.001	<0.01	<0.0002	0.0127	17.7	0.198
DOC-SUMP-S	12/17/2018 14:50	UZ1475	<0.01	<0.01	0.00098	<0.006	0.0029	0.00123	0.0274	<0.0002	<0.002	0.357	<0.00002	57.6	<0.002	0.00119	<0.001	<0.02	<0.0004	0.0888	32.3	0.105
DOC-SUMP-S	12/28/2018 14:15	VA3071	<0.005	<0.005	0.0001	<0.003	0.0011	0.00069	0.0144	<0.0001	<0.001	0.297	0.00002	45.1	<0.001	0.00198	<0.0005	<0.01	<0.0002	0.0597	22.2	0.0863
DOC-SUMP-N-UP	12/28/2018 14:30	VA3072	<0.025	<0.025	<0.0005	0.022	<0.0025	0.0014	0.0186	<0.0005	<0.005	0.258	0.000103	308	<0.005	0.0086	0.003	<0.05	<0.001	0.094	165	1.1
DOC-OUT	7/6/2018 7:00	TV0772	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/6/2018 11:00	TU8076	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/7/2018 9:00	TV0773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/10/2018 12:15	UB1638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/11/2018 15:35	UB4075	<0.005	<0.005	0.00018	<0.003	<0.0005	0.00141	0.0774	<0.0001	<0.001	<0.05	0.000041	158	<0.001	0.00075	0.00099	0.017	<0.0002	0.022	55.6	1.28
DOC-OUT	9/6/2018 15:00	UG5297	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/10/2018 17:40	UH6593	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/13/2018 10:00	UI0655	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/14/2018 16:00	UI5250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/16/2018 12:00	UI5117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/30/2018 17:00	UL4215	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00032	0.0292	<0.0001	<0.001	<0.05	0.000055	125	<0.001	0.00039	0.00095	<0.01	<0.0002	0.0136	33.9	0.535
DOC-OUT	10/10/2018 13:30	UN4655	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00063	0.0167	<0.0001	<0.001	<0.05	0.000037	123	<0.001	0.00037	<0.0005	<0.01	<0.0002	0.0157	35.5	0.59
DOC-OUT	10/10/2018 14:10	UN7467	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	10/22/2018 9:30	UP6073	0.244	1.11	0.0074	<0.003	0.00175	0.00136	0.0328	<0.0001	<0.001	0.097	0.000169	280	<0.001	0.00278	0.00116	<0.01	<0.0002	0.0335	118	1.57
DOC-OUT	10/25/2018 13:30	UQ3347	<0.01	0.028	0.00113	0.0061	<0.001	0.00081	0.0268	<0.0002	<0.002	<0.1	0.000047	267	<0.002	0.00165	<0.001	<0.02	<0.0004	0.0342	109	1.89
DTIP-BT1	9/29/2018 9:45	UL4211	0.0065	0.0181	0.00128	0.102	<0.0005	0.00044	0.148	<0.0001	<0.001	<0.05	0.00001	63.9	<0.001	0.00024	0.00208	<0.01	<0.0002	0.0065	13.7	0.0082
DTIP-BT1	10/15/2018 10:00	UO4387	0.0058	0.0235	0.00131	0.0559	0.00052	0.00082	0.261	<0.0001	<0.001	<0.05	<0.00001	55.6	<0.001	0.0003	0.00229	<0.01	<0.0002	0.0062	11.3	0.0033
DTIP-BT1	11/13/2018 13:40	UT9232	0.0053	0.167	0.00077	0.0104	0.00055	<0.0001	0.0595	<0.0001	<0.001	0.113	0.000046	65.1	<0.001	0.00948	<0.0005	0.545	<0.0002	0.0533	29.5	0.491
DTIP-BT1	11/29/2018 10:40	UW6196	0.0413	0.12	0.00753	0.0476	0.00155	0.00371	0.123	<0.0001	<0.001	0.065	<0.00001	29.2	0.0018	<0.0002	0.00103	<0.01	<0.0002	0.0166	6.75	0.0045
DTIP-BT1	12/28/2018 13:15	VA3070	0.008	0.0307	0.00036	0.0438	<0.0005	0.00097	0.171	<0.0001	<0.001	<0.05	<0.00001	34.6	<0.001	0.00032	0.00118	<0.01	<0.0002	0.0036	7.96	0.0044
DTIP-DW	10/26/2018 13:20	UQ5564	<0.05	0.69	<0.001	41	<0.005	<0.001	0.012	0.0105	<0.01	0.697	0.00083	383	<0.01	0.196	<0.005	209	<0.002	0.43	283	6.97
DTIP-DW	10/30/2018 10:25	UR2639	<0.05	0.66	<0.001	41.9	<0.005	<0.001	0.011	0.0115	<0.01	0.824	0.0009	379	<0.01	0.187	<0.005	220	<0.002	0.452	298	7.32
DTIP-DW	11/6/2018 16:26	US9401	<0.1	0.915	<0.002	51.9	<0.0025	<0.0005	0.0089	0.0123	<0.005	0.812	0.000681	392	<0.005	0.222	<0.0025	246	<0.001	0.475	319	7.67
DTIP-DW	11/21/2018 14:10	UV2755	<0.025	0.931	0.00111	34	<0.0025	<0.0005	0.0147	0.00926	<0.005	0.651	0.000942	349	<0.005	0.178	0.0065	168	<0.001	0.528	252	5.96
DTIP-DW	12/2/2018 15:20	UW8616	<0.025	1.07	<0.0005	4.62	<0.0025	<0.0005	0.0448	0.00187	<0.005	0.391	0.00497	270	<0.005	0.132	<0.0025	60.7	<0.001	0.28	153	3.45
DTIP-DW	12/4/2018 15:20	UX4644	<0.025	1.27	<0.0005	35.5	<0.0025	<0.0005	0.0124	0.00858	<0.005	0.599	0.000828	342	<0.005	0.224	0.0047	152	<0.001	0.46	248	6.12
DTIP-DW	12/12/2018 11:15	UY7668	<0.025	0.666	<0.0005	8.01	<0.0025	<0.0005	0.0295	0.0024	<0.005	0.576	0.00169	391	<0.005	0.14	<0.0025	81.7	<0.001	0.268	223	4.78
DTIP-DW	12/18/2018 15:50	UZ3638	<0.025	1	<0.0005	10.1	<0.0025	<0.0005	0.0294	0.00296	<0.005	0.558	0.00165	355	<0.005	0.168	<0.0025	118	<0.001	0.29	228	5.93
DTIP-DW	12/28/2018 13:10	VA3069	0.0062	0.0852	0.00088	0.0033	0.0007	0.00028	0.0391	<0.0001	<0.001	0.208	0.000101	169	<0.001	0.0119	<0.0005	0.036	<0.0002	0.0453	76.1	1.38
L5-TNCP	4/25/2018 13:30	TI3532	0.0245	0.0739	0.00061	0.0106	<0.0005	0.00063	0.0324	<0.0001	<0.001	<0.05	0.000033	46.5	<0.001	0.00025	0.00216	0.015	<0.0002	0.0068	13.7	0.065
L5-TNCP	4/26/2018 17:52	TI4637	0.0323	0.0936	0.00385	0.0104	0.00067	0.0007	0.0443	<0.0001	<0.001	<0.05	0.000061	44.0	<0.001	0.00044	0.00313	0.031	<0.0002	0.0067	14.0	0.0765

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADIT-4	8/12/2018 15:05	UB4441	<0.000002	0.0052	0.0599	-	4.10	0.0325	5.65	<0.0001	338	0.802	306	<0.00005	<0.025	<0.025	0.0201	<0.025	0.027	<0.0005
ADIT-4	8/15/2018 0:00	UC1648	<0.000002	0.0053	0.0598	-	4.42	0.0334	6.44	<0.0001	361	0.895	334	<0.00005	<0.025	<0.025	0.0208	<0.025	0.029	<0.0005
ADIT-4	8/26/2018 11:30	UE1800	<0.000002	0.0099	0.0155	-	4.57	0.0207	6.14	<0.00004	319	0.853	308	0.000028	<0.01	<0.01	0.0235	<0.01	<0.01	0.00033
ADIT-4	9/8/2018 13:00	UG8770	<0.000002	<0.01	<0.01	-	3.23	0.001	2.95	<0.0002	1280	0.973	694	<0.0001	<0.05	<0.05	0.0018	<0.05	<0.05	<0.001
ADIT-4	11/1/2018 9:30	UR8076	<0.000002	0.0076	0.0109	-	4.06	<0.0005	6.09	<0.0001	510	0.808	399	<0.00005	<0.025	<0.025	0.0141	<0.025	<0.025	<0.0005
ADIT-4	11/25/2018 14:20	UV7532	<0.000002	0.696	<0.005	-	3.82	0.0159	2.79	<0.0001	1450	1.04	1070	<0.00005	<0.025	<0.025	0.00307	<0.025	<0.025	<0.0005
ADIT-4	11/26/2018 16:20	UV9442	0.000017	1.15	<0.01	-	3.13	0.034	4.4	<0.0002	1520	0.761	1010	<0.0001	<0.05	<0.05	0.002	<0.05	<0.05	<0.001
ADIT-4	12/11/2018 13:20	UY3863	0.0000053	0.667	<0.005	-	11.7	0.0151	5.42	<0.0001	1070	0.513	725	<0.00005	<0.025	<0.025	0.00243	<0.025	<0.025	<0.0005
ADIT-4	12/17/2018 17:40	UZ2666	0.0000052	0.566	<0.005	-	8.58	0.0137	4.96	<0.0001	864	0.39	591	<0.00005	<0.025	<0.025	0.0056	<0.025	<0.025	<0.0005
ADIT-4	12/24/2018 13:27	UZ9966	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/28/2018 13:55	VA3065	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ADIT-4	12/31/2018 15:20	VA5856	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/10/2018 12:45	UH6591	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/12/2018 13:00	UI0656	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/14/2018 8:45	UI0652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 2:40	UI5110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/16/2018 3:45	UI5294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/17/2018 9:00	UI9107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIC-Out	9/25/2018 12:00	UK8658	<0.000002	0.0023	0.002	-	1.29	0.00033	3.05	<0.00002	19.2	0.433	125	<0.00001	<0.005	<0.005	0.00198	<0.005	<0.005	<0.0001
DIC-Out	9/25/2018 12:30	UK8660	<0.000002	0.0023	0.0018	-	1.28	0.0003	3.07	<0.00002	16.8	0.437	125	<0.00001	<0.005	<0.005	0.00176	<0.005	<0.005	<0.0001
DIC-Out	9/28/2018 10:30	UL0971	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-SUMP-N	11/2/2018 9:00	US0229	<0.000002	0.007	0.0404	-	8.78	0.00117	4.96	<0.0001	900	3.05	1440	0.000058	<0.025	<0.025	0.017	<0.025	<0.025	0.00108
DOC-SUMP-N	11/6/2018 16:45	US9402	<0.000002	<0.005	<0.005	-	2.40	<0.0005	5.08	<0.0001	235	0.77	388	<0.00005	<0.025	<0.025	0.0036	<0.025	<0.025	<0.0005
DOC-SUMP-N	11/13/2018 13:20	UT9230	<0.000002	<0.005	0.223	-	5.82	0.00123	5.34	<0.0001	967	2.6	1530	0.000051	<0.025	<0.025	0.00915	<0.025	0.323	<0.0005
DOC-SUMP-N	12/24/2018 14:00	UZ9968	<0.000002	0.074	<0.01	-	7.16	0.0223	7.8	<0.0002	1260	1.27	813	<0.0001	<0.05	<0.05	0.0093	<0.05	<0.05	<0.001
DOC-SUMP-S	10/30/2018 11:35	UR2640	<0.000002	<0.005	<0.005	-	2.62	<0.0005	5.51	<0.0001	265	0.924	457	<0.00005	<0.025	<0.025	0.0041	<0.025	0.161	<0.0005
DOC-SUMP-S	11/21/2018 15:00	UV2756	<0.000002	0.0025	0.002	-	1.48	0.00046	4.39	<0.00002	91.8	0.383	136	<0.00001	<0.005	<0.005	0.00154	<0.005	<0.005	<0.0001
DOC-SUMP-S	12/3/2018 12:15	UW8506	<0.000002	0.0025	0.0011	-	1.22	0.00088	4.15	<0.00002	60.2	0.251	76.5	<0.00001	<0.005	<0.005	0.0011	<0.005	0.006	<0.0001
DOC-SUMP-S	12/8/2018 16:35	UX7497	<0.000002	0.0026	<0.001	-	1.26	0.00069	4.38	<0.00002	55.0	0.215	69.2	<0.00001	<0.005	<0.005	0.00106	<0.005	<0.005	<0.0001
DOC-SUMP-S	12/17/2018 14:50	UZ1475	<0.000002	0.0118	0.0051	-	2.49	0.00458	2.83	<0.00004	375	0.938	219	<0.00002	<0.01	<0.01	0.00294	<0.01	<0.01	<0.0002
DOC-SUMP-S	12/28/2018 14:15	VA3071	<0.000002	0.0056	0.0064	-	1.59	0.00243	2.91	<0.00002	249	0.512	124	<0.00001	<0.005	<0.005	0.0017	<0.005	<0.005	<0.0001
DOC-SUMP-N-UP	12/28/2018 14:30	VA3072	<0.000002	0.0062	0.0301	-	4.34	0.00483	6.59	<0.0001	451	1.83	594	<0.00005	<0.025	<0.025	0.00756	<0.025	<0.025	<0.0005
DOC-OUT	7/6/2018 7:00	TV0772	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/6/2018 11:00	TU8076	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	7/7/2018 9:00	TV0773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/10/2018 12:15	UB1638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	8/11/2018 15:35	UB4075	<0.000002	0.0037	0.0044	-	4.01	0.00018	5.35	<0.00002	78.2	0.531	167	0.000017	<0.005	<0.005	0.00368	<0.005	<0.005	<0.0001
DOC-OUT	9/6/2018 15:00	UG5297	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/10/2018 17:40	UH6593	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/13/2018 10:00	UI0655	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/14/2018 16:00	UI5250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/16/2018 12:00	UI5117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	9/30/2018 17:00	UL4215	<0.000002	0.0017	0.0013	-	1.72	0.00018	4.7	<0.00002	53.6	0.309	128	0.000018	<0.005	<0.005	0.00198	<0.005	<0.005	<0.0001
DOC-OUT	10/10/2018 13:30	UN4655	<0.000002	0.0018	<0.001	-	1.59	0.00015	4.74	<0.00002	65.6	0.32	125	0.000011	<0.005	<0.005	0.00155	<0.005	<0.005	<0.0001
DOC-OUT	10/10/2018 14:10	UN7467	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DOC-OUT	10/22/2018 9:30	UP6073	<0.000002	0.0048	0.0067	-	3.67	0.00074	5.08	<0.00002	244	0.952	438	0.000025	<0.005	<0.005	0.00683	<0.005	<0.005	0.00016
DOC-OUT	10/25/2018 13:30	UQ3347	0.0000034	<0.002	0.0032	-	2.61	0.00029	5.43	<0.00004	235	0.794	407	<0.00002	<0.01	<0.01	0.00433	<0.01	<0.01	<0.0002
DTIP-BT1	9/29/2018 9:45	UL4211	<0.000002	0.0015	0.001	-	1.32	0.00024	3.92	<0.00002	6.78	0.212	21.3	<0.00001	<0.005	<0.005	0.00088	<0.005	<0.005	<0.0001
DTIP-BT1	10/15/2018 10:00	UO4387	<0.000002	0.0018	0.001	-	1.61	0.00036	3.09	<0.00002	7.11	0.208	13.5	<0.00001	<0.005	<0.005	0.00089	<0.005	<0.005	<0.0001
DTIP-BT1	11/13/2018 13:40	UT9232	<0.000002	0.004	0.0514	-	1.79	0.00049	1.99	<0.00002	112	0.313	143	0.000013	<0.005	<0.005	0.00011	<0.005	0.0916	<0.0001
DTIP-BT1	11/29/2018 10:40	UW6196	<0.000002	0.0065	0.0014	-	2.41	0.00145	4.49	<0.00002	83.9	0.189	49.3	0.000013	<0.005	<0.005	0.00121	<0.005	<0.005	<0.0001
DTIP-BT1	12/28/2018 13:15	VA3070	<0.000002	0.0019	0.0016	-	1.12	0.00042	3.18	<0.00002	3.94	0.165	7.9	<0.00001	<0.005	<0.005	0.00068	<0.005	<0.005	<0.0001
DTIP-DW	10/26/2018 13:20	UQ5564	0.0000039	<0.01	1.11	-	6.32	<0.001	1.83	<0.0002	280	1.26	1070	<0.0001	<0.05	<0.05	<0.001	<0.05	0.714	<0.001
DTIP-DW	10/30/2018 10:25	UR2639	0.0000037	<0.01	1.07	-	6.24	<0.001	1.61	<0.0002	297	1.35	1100	<0.0001	<0.05	<0.05	<0.001	<0.05	0.67	<0.001
DTIP-DW	11/6/2018 16:26	US9401	<0.000002	<0.005	1.25	-	6.45	<0.0005	1.56	<0.0001	311	1.41	1210	<0.00005	<0.025	<0.025	0.00061	<0.025	0.871	<0.0005
DTIP-DW	11/21/2018 14:10	UV2755	<0.000002	<0.005	0.947	-	5.66	<0.0005	1.82	<0.0001	273	1.22	934	0.000117	<0.025	<0.025	0.00087	<0.025	0.907	<0.0005
DTIP-DW	12/2/2018 15:20	UW8616	<0.000002	<0.005	0.542	-	7.32	0.00334	3.02	<0.0001	228	0.946	609	0.000065	<0.025	<0.025	0.00055	<0.025	1.07	<0.0005
DTIP-DW	12/4/2018 15:20	UX4644	0.0000033	<0.005	1.09	-	5.86	0.0006	1.92	<0.0001	284	1.13	1020	<0.00005	<0.025	<0.025	0.00082	<0.025	1.32	<0.0005
DTIP-DW	12/12/2018 11:15	UY7668	<0.000002	<0.005	0.63	-	7.70	0.00225	2.32	<0.0001	312	1.17	922	0.000072	<0.025	<0.025	0.00082	<0.025	0.694	<0.0005
DTIP-DW	12/18/2018 15:50	UZ3638	<0.000002	<0.005	0.77	-	5.63	0.00085	2.12	<0.0001	290	1.24	864	<0.00005	<0.025	<0.025	0.00067	<0.025	1.01	<0.0005
DTIP-DW	12/28/2018 13:10	VA3069	<0.000002	0.0044	0.0504	-	7.07	0.00231	2.85	<0.00002	145	0.62	310	0.000031	<0.005	<0.005	0.00086	<0.005	0.0155	<0.0001
L5-TNCP	4/25/2018 13:30	TI3532	-	0.0039	0.0025	-	6.93	0.00095	1.38	<0.00002	9.69	0.128	34.6	0.000013	<0.005	<0.005	0.00217	<0.005	<0.005	<0.0001
L5-TNCP	4/26/2018 17:52	TI4637	0.0000028	0.0059	0.0038	-	7.13	0.00135	1.33	<0.00002	10.0	0.14	38.8	0.00002	<0.005	<0.005	0.00252	<0.005	<0.005	0.00015

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	4/27/2018 10:40	TI4641	7.80	385	296	306	85.5	168	157	79.0	<1.0	96.3	<1.0	<1.0	5.55	0.210	0.026	102
L5-TNCP	4/27/2018 21:01	TI5320	7.96	387	274	284	118	167	159	85.1	<1.0	104	<1.0	<1.0	5.74	0.220	0.028	96.8
L5-TNCP	4/28/2018 4:00	TI5325	7.99	387	262	304	394	169	158	85.9	<1.0	105	<1.0	<1.0	5.24	0.220	0.033	95.1
L5-TNCP	4/28/2018 12:00	TI5341	8.00	386	275	360	137	167	153	86.3	<1.0	105	<1.0	<1.0	6.27	0.210	0.028	96.0
L5-TNCP	4/28/2018 20:30	TI5408	7.88	380	319	308	114	158	159	84.7	<1.0	103	<1.0	<1.0	5.48	0.200	0.033	92.9
L5-TNCP	4/29/2018 1:38	TI5414	7.97	374	334	334	119	164	158	85.7	<1.0	105	<1.0	<1.0	5.52	0.200	0.027	85.3
L5-TNCP	4/29/2018 7:45	TI7037	7.99	375	324	304	134	163	150	86.2	<1.0	105	<1.0	<1.0	5.51	0.210	0.029	96.0
L5-TNCP	4/29/2018 13:36	TI7018	7.96	374	348	366	212	163	152	85.0	<1.0	104	<1.0	<1.0	5.31	0.220	0.039	88.0
L5-TNCP	4/29/2018 20:40	TI7026	7.99	377	376	360	133	158	149	85.9	<1.0	105	<1.0	<1.0	5.58	0.220	0.024	89.8
L5-TNCP	4/30/2018 2:41	TI7014	7.97	374	337	252	101	152	147	86.2	<1.0	105	<1.0	<1.0	5.68	0.210	0.035	86.4
L5-TNCP	4/30/2018 7:48	TI8565	7.91	380	354	434	130	181	153	83.3	<1.0	102	<1.0	<1.0	5.71	0.220	0.024	94.9
L5-TNCP	4/30/2018 13:45	TI8563	7.86	372	353	330	72	169	151	80.0	<1.0	97.5	<1.0	<1.0	98.2	0.210	0.024	91.2
L5-TNCP	4/30/2018 20:05	TJ0419	7.94	380	261	324	183	164	163	86.6	<1.0	106	<1.0	<1.0	5.68	0.220	0.021	89.2
L5-TNCP	5/1/2018 1:54	TJ0415	7.93	378	258	312	158	162	160	85.6	<1.0	104	<1.0	<1.0	5.99	0.220	0.024	91.1
L5-TNCP	5/1/2018 8:00	TJ0414	7.93	379	367	262	358	173	161	86.8	<1.0	106	<1.0	<1.0	5.98	0.220	0.021	80.9
L5-TNCP	5/1/2018 8:00	TJ0413	7.91	384	271	312	14100	165	160	86.6	<1.0	106	<1.0	<1.0	5.92	0.220	0.022	83.8
L5-TNCP	5/1/2018 13:55	TJ1216	7.95	382	363	302	144	175	154	87.6	<1.0	107	<1.0	<1.0	5.75	0.210	0.021	77.5
L5-TNCP	5/1/2018 20:03	TJ1202	7.90	387	356	340	122	174	160	88.6	<1.0	108	<1.0	<1.0	5.67	0.210	0.071	78.1
L5-TNCP	5/2/2018 2:12	TJ1212	7.94	384	560	306	126	173	158	86.9	<1.0	106	<1.0	<1.0	5.69	0.210	0.064	88.2
L5-TNCP	5/2/2018 2:12	TJ1213	7.95	383	348	252	132	166	156	86.8	<1.0	106	<1.0	<1.0	5.71	0.210	0.18	89.3
L5-TNCP	5/2/2018 7:55	TJ1205	7.92	390	408	338	167	187	164	88.6	<1.0	108	<1.0	<1.0	5.68	0.210	0.050	83.1
L5-TNCP	5/2/2018 13:50	TJ2151	7.93	393	443	390	366	189	165	84.0	<1.0	103	<1.0	<1.0	5.98	0.220	0.024	99.1
L5-TNCP	5/2/2018 20:03	TJ2684	7.97	401	669	324	407	198	168	86.2	<1.0	105	<1.0	<1.0	5.96	0.220	0.023	99.0
L5-TNCP	5/3/2018 2:13	TJ2685	7.87	404	561	292	281	181	171	86.2	<1.0	105	<1.0	<1.0	5.86	0.220	0.024	102
L5-TNCP	5/3/2018 7:45	TJ2677	7.95	413	575	248	326	201	174	91.0	<1.0	111	<1.0	<1.0	5.94	0.220	0.026	100
L5-TNCP	5/3/2018 13:45	TJ4224	7.96	405	563	312	317	192	277	93.7	<1.0	114	<1.0	<1.0	5.81	0.210	0.024	102
L5-TNCP	5/3/2018 20:14	TJ4750	7.94	429	468	366	243	201	185	99.6	<1.0	122	<1.0	<1.0	6.03	0.220	0.033	109
L5-TNCP	5/4/2018 2:12	TJ4756	7.90	461	932	390	457	239	195	108	<1.0	132	<1.0	<1.0	5.88	0.210	0.027	117
L5-TNCP	5/4/2018 7:45	TJ4762	7.93	483	906	362	395	258	196	116	<1.0	141	<1.0	<1.0	5.82	0.230	0.032	122
L5-TNCP	5/4/2018 13:45	TJ5500	7.95	643	510	408	297	307	284	144	<1.0	176	<1.0	<1.0	5.83	0.210	0.051	180
L5-TNCP	5/4/2018 13:45	TJ5499	8.03	641	509	458	322	300	290	146	<1.0	178	<1.0	<1.0	5.77	0.220	0.054	170
L5-TNCP	5/4/2018 19:30	TJ5486	8.02	641	482	512	289	321	283	145	<1.0	177	<1.0	<1.0	5.69	0.220	0.056	176
L5-TNCP	5/5/2018 2:11	TJ5476	7.98	682	169	476	94.5	312	304	158	<1.0	193	<1.0	<1.0	5.62	0.220	0.055	191
L5-TNCP	5/5/2018 8:00	TJ5487	8.00	672	142	506	75.8	313	294	154	<1.0	188	<1.0	<1.0	5.65	0.220	0.055	184
L5-TNCP	5/5/2018 13:45	TJ5672	7.97	659	222	302	141	309	300	148	<1.0	181	<1.0	<1.0	5.83	0.230	0.058	184
L5-TNCP	5/5/2018 20:00	TJ5692	8.07	692	246	530	166	328	308	157	<1.0	191	<1.0	<1.0	5.74	0.230	0.059	185
L5-TNCP	5/6/2018 2:12	TJ5684	8.15	690	121	354	84.8	329	310	158	<1.0	193	<1.0	<1.0	5.80	0.230	0.062	<1.0
L5-TNCP	5/6/2018 8:00	TJ5686	8.08	745	83.6	468	52.7	333	340	176	<1.0	215	<1.0	<1.0	6.13	0.230	0.068	191
L5-TNCP	5/6/2018 14:00	TJ7026	8.01	744	1730	512	1330	577	333	182	<1.0	222	<1.0	<1.0	5.92	0.240	0.065	197
L5-TNCP	5/6/2018 20:15	TJ7491	8.12	753	92.0	458	58.0	362	349	192	<1.0	235	<1.0	<1.0	5.64	0.240	1.4	208
L5-TNCP	5/7/2018 2:05	TJ7484	7.98	843	>4000	502	4520	744	345	221	<1.0	270	<1.0	<1.0	5.42	0.270	0.079	231
L5-TNCP	5/7/2018 8:00	TJ7477	8.03	537	1000	270	666	277	231	125	<1.0	153	<1.0	<1.0	5.85	0.230	0.049	139
L5-TNCP	5/7/2018 14:07	TJ9170	7.98	512	707	334	550	260	220	114	<1.0	139	<1.0	<1.0	5.93	0.220	0.035	139
L5-TNCP	5/7/2018 22:40	TJ9707	8.04	527	353	264	183	240	220	119	<1.0	145	<1.0	<1.0	5.92	0.240	0.035	140
L5-TNCP	5/8/2018 4:33	TJ9698	8.01	528	369	320	135	250	221	121	<1.0	147	<1.0	<1.0	5.87	0.250	0.034	142
L5-TNCP	5/8/2018 10:30	TJ9693	7.99	538	267	390	112	241	224	117	<1.0	143	<1.0	<1.0	5.86	0.270	0.040	145
L5-TNCP	5/8/2018 16:36	TK1903	8.02	555	261	362	137	234	240	132	<1.0	161	<1.0	<1.0	5.68	0.250	0.039	146
L5-TNCP	5/8/2018 22:36	TK1908	8.05	557	220	378	104	227	238	131	<1.0	160	<1.0	<1.0	5.50	0.250	0.041	150
L5-TNCP	5/9/2018	TK5298	8.06	605	1220	416	805	335	286	145	<1.0	177	<1.0	<1.0	5.45	0.270	0.036	163
L5-TNCP	5/9/2018 4:31	TK1911	8.01	543	172	264	76.8	239	229	134	<1.0	164	<1.0	<1.0	5.71	0.250	0.039	148
L5-TNCP	5/9/2018 10:42	TK1895	8.05	591	>4000	366	2160	415	243	140	<1.0	170	<1.0	<1.0	5.56	0.260	0.043	157
L5-TNCP	5/9/2018 22:40	TK5236	7.97	610	221	428	164	290	291	140	<1.0	171	<1.0	<1.0	5.44	0.280	0.043	167
L5-TNCP	5/10/2018 4:35	TK5241	8.07	622	141	448	89.3	283	296	143	<1.0	175	<1.0	<1.0	5.51	0.280	0.040	167
L5-TNCP	5/10/2018 10:40	TK5248	8.05	627	101	462	63.3	279	299	143	<1.0	174	<1.0	<1.0	5.68	0.280	0.044	167
L5-TNCP	5/10/2018 16:46	TK5254	8.07	631	100	1030	64.7	290	294	146	<1.0	179	<1.0	<1.0	5.54	0.290	0.043	168
L5-TNCP	5/10/2018 16:48	TK5255	8.10	631	119	420	86.4	304	286	147	<1.0	179	<1.0	<1.0	6.13	0.280	0.047	171
L5-TNCP	5/10/2018 22:35	TK5496	8.10	640	75.7	382	56.8	316	297	158	<1.0	192	<1.0	<1.0	5.35	0.290	0.044	170
L5-TNCP	5/11/2018 4:32	TK5501	8.05	639	85.1	408	60.5	310	300	155	<1.0	189	<1.0	<1.0	5.36	0.290	0.042	168
L5-TNCP	5/11/2018 10:30	TK6056	8.03	654	119	432	104	304	309	158	<1.0	193	<1.0	<1.0	5.30	0.280	0.040	228
L5-TNCP	5/11/2018 16:30	TK6049	8.04	660	119	386	110	323	317	157	<1.0	192	<1.0	<1.0	5.35	0.290	0.041	224
L5-TNCP	5/12/2018 13:17	TK6553	8.02	689	284	460	230	319	301	175	<1.0	213	<1.0	<1.0	5.61	0.270	0.046	176
L5-TNCP	5/26/2018 16:40	TM9443	8.25	940	653	652	814	470	444	232	<1.0	284	<1.0	<1.0	6.8	0.310	0.086	270
L5-TNCP	5/30/2018 6:40	TN9747	8.40	1010	89.3	690	70.0	455	480	254	5.0	298	6.0	<1.0	6.50	0.320	0.095	285
L5-TNCP	6/8/2018 10:56	TP6118	8.26	1050	150	692	149	469	497	251	<1.0	306	<1.0	<1.0	5.32	0.270	0.084	292

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	4/27/2018 10:40	TI4641	0.23	0.0140	0.458	0.472	0.0066	7.55	5.94	5.56	0.00059	0.00394	0.149	0.00026	<0.001	<0.05	0.000374	44.0	0.0082	0.00304	0.0104
L5-TNCP	4/27/2018 21:01	TI5320	0.19	0.0187	0.443	0.462	<0.0050	7.64	6.67	2.46	0.00056	0.00385	0.12	0.00019	<0.001	<0.05	0.00028	44.2	0.0044	0.00282	0.0108
L5-TNCP	4/28/2018 4:00	TI5325	0.26	0.0188	0.444	0.463	0.0333	19.5	19.5	2.68	0.00056	0.00381	0.128	0.00019	<0.001	<0.05	0.000278	44.4	0.0049	0.00307	0.0106
L5-TNCP	4/28/2018 12:00	TI5341	0.25	0.0181	0.442	0.460	0.154	5.83	6.78	2.55	0.00055	0.00352	0.118	0.00018	<0.001	<0.05	0.000274	43.6	0.0047	0.00285	0.0103
L5-TNCP	4/28/2018 20:30	TI5408	0.21	0.0167	0.444	0.461	0.0060	7.68	7.90	3.09	0.00056	0.00405	0.137	0.00021	<0.001	<0.05	0.000308	41.6	0.0054	0.00318	0.0112
L5-TNCP	4/29/2018 1:38	TI5414	0.25	0.0166	0.438	0.454	0.0085	8.11	6.89	3.03	0.00055	0.00426	0.132	0.00021	<0.001	<0.05	0.000298	42.3	0.0058	0.00331	0.0123
L5-TNCP	4/29/2018 7:45	TI7037	0.25	0.0175	0.437	0.454	<0.0050	8.61	6.69	4.81	0.00057	0.0043	0.144	0.00026	<0.001	<0.05	0.000295	44.0	0.0076	0.00322	0.0123
L5-TNCP	4/29/2018 13:36	TI7018	0.26	0.0224	0.436	0.458	0.0144	7.47	10.1	2.47	<0.0005	0.00256	0.113	0.00018	<0.001	<0.05	0.000288	43.1	0.0039	0.00197	0.00867
L5-TNCP	4/29/2018 20:40	TI7026	0.25	0.0298	0.435	0.465	0.0192	6.80	7.08	4.34	0.00059	0.00406	0.145	0.00025	<0.001	<0.05	0.000295	42.4	0.0073	0.00313	0.0121
L5-TNCP	4/30/2018 2:41	TI7014	0.24	0.0184	0.432	0.451	0.0088	7.28	6.26	3.89	0.00055	0.0036	0.129	0.00022	<0.001	<0.05	0.000275	40.8	0.0065	0.00273	0.0134
L5-TNCP	4/30/2018 7:48	TI8565	0.24	0.0210	0.480	0.501	0.0057	7.95	6.50	6.06	0.00077	0.00439	0.2	0.0003	<0.001	<0.05	0.000599	49.2	0.0109	0.00356	0.0183
L5-TNCP	4/30/2018 13:45	TI8563	0.26	0.0723	0.403	0.475	0.0053	7.17	5.83	6.3	0.00061	0.00446	0.164	0.0003	<0.001	<0.05	0.000313	45.0	0.0104	0.00363	0.014
L5-TNCP	4/30/2018 20:05	TJ0419	0.25	0.0344	0.269	0.303	0.0064	6.51	7.53	2.97	0.00052	0.00398	0.127	0.00021	<0.001	<0.05	0.000311	42.2	0.0054	0.003	0.0124
L5-TNCP	5/1/2018 1:54	TJ0415	0.26	0.0206	0.286	0.307	0.0067	7.28	5.81	3.66	0.00057	0.00446	0.134	0.00024	<0.001	<0.05	0.000294	42.0	0.0061	0.00314	0.0126
L5-TNCP	5/1/2018 8:00	TJ0414	0.28	0.0201	0.290	0.310	0.0074	8.55	8.03	3.55	0.00058	0.00442	0.146	0.00024	<0.001	<0.05	0.000369	45.2	0.0062	0.00348	0.0137
L5-TNCP	5/1/2018 8:00	TJ0413	0.28	0.0199	0.293	0.312	0.0055	7.40	12.1	3.9	0.00058	0.00437	0.145	0.00025	<0.001	<0.05	0.000362	43.1	0.0067	0.00365	0.0141
L5-TNCP	5/1/2018 13:55	TJ1216	0.30	0.0225	0.433	0.456	<0.0050	9.03	7.59	4.89	0.00063	0.00413	0.162	0.00028	<0.001	<0.05	0.000397	46.5	0.0086	0.00362	0.0175
L5-TNCP	5/1/2018 20:03	TJ1202	0.28	0.0245	0.434	0.458	0.0051	8.55	7.24	2.94	0.00054	0.00388	0.132	0.00021	<0.001	<0.05	0.000304	46.1	0.0055	0.00327	0.0135
L5-TNCP	5/2/2018 2:12	TJ1212	0.26	0.0230	0.439	0.462	<0.0050	7.56	6.98	3.21	0.00057	0.004	0.129	0.00022	<0.001	<0.05	0.000311	45.4	0.0059	0.00332	0.0135
L5-TNCP	5/2/2018 2:12	TJ1213	0.26	0.0224	0.430	0.452	0.0054	6.52	<0.50	3.21	0.00057	0.00404	0.128	0.00022	<0.001	<0.05	0.00029	43.0	0.0058	0.00321	0.0126
L5-TNCP	5/2/2018 7:55	TJ1205	0.28	0.0242	0.445	0.469	<0.0050	6.73	6.93	4.15	0.00064	0.00485	0.157	0.00025	<0.001	<0.05	0.000371	48.8	0.0077	0.00431	0.0164
L5-TNCP	5/2/2018 13:50	TJ2151	0.32	0.0351	0.439	0.475	0.0050	9.03	7.74	6.51	0.0007	0.00505	0.202	0.00036	<0.001	<0.05	0.000461	49.6	0.011	0.00471	0.018
L5-TNCP	5/2/2018 20:03	TJ2684	0.33	0.0174	0.410	0.428	<0.0050	7.47	7.55	9.14	0.00078	0.00607	0.24	0.00048	<0.001	<0.05	0.00054	51.8	0.0144	0.00567	0.021
L5-TNCP	5/3/2018 2:13	TJ2685	0.34	0.0627	0.442	0.505	<0.0050	8.16	7.09	8.06	0.00076	0.00544	0.216	0.00038	<0.001	<0.05	0.000437	46.5	0.0128	0.00492	0.019
L5-TNCP	5/3/2018 7:45	TJ2677	0.34	0.0719	0.209	0.281	<0.0050	6.24	6.24	7.69	0.00077	0.00531	0.213	0.00039	<0.001	<0.05	0.00044	53.2	0.0122	0.00469	0.0175
L5-TNCP	5/3/2018 13:45	TJ4224	0.36	0.0246	0.438	0.463	<0.0050	6.28	5.77	4.47	0.00072	0.00551	0.18	0.0003	<0.001	<0.05	0.000436	50.8	0.0086	0.00484	0.019
L5-TNCP	5/3/2018 20:14	TJ4750	0.35	0.0238	0.436	0.460	<0.0050	6.79	5.49	4.58	0.00073	0.00541	0.183	0.00028	<0.001	<0.05	0.00043	53.7	0.0083	0.00465	0.0179
L5-TNCP	5/4/2018 2:12	TJ4756	0.43	0.0325	0.441	0.473	<0.0050	6.23	5.77	8.68	0.00086	0.00908	0.313	0.00052	<0.001	<0.05	0.000734	63.3	0.0161	0.00836	0.0295
L5-TNCP	5/4/2018 7:45	TJ4762	0.47	0.0294	0.432	0.461	<0.0050	10.4	11.2	12.6	0.00081	0.013	0.489	0.00087	<0.001	<0.05	0.00101	67.7	0.0221	0.0122	0.0411
L5-TNCP	5/4/2018 13:45	TJ5500	0.41	0.0361	0.474	0.510	<0.0050	6.89	7.63	5.13	0.0008	0.00551	0.198	0.00032	<0.001	<0.05	0.00043	82.9	0.0094	0.00522	0.0181
L5-TNCP	5/4/2018 13:45	TJ5499	0.55	0.0367	0.474	0.511	<0.0050	<0.50	0.81	4.94	0.00078	0.00542	0.193	0.0003	<0.001	<0.05	0.000419	80.9	0.009	0.00508	0.0173
L5-TNCP	5/4/2018 19:30	TJ5486	0.50	0.0577	0.448	0.506	<0.0050	8.10	5.18	5.36	0.00089	0.00598	0.212	0.00037	<0.001	0.051	0.000438	86.8	0.0098	0.00545	0.019
L5-TNCP	5/5/2018 2:11	TJ5476	0.46	0.0353	0.456	0.491	<0.0050	6.40	5.79	1.9	0.00081	0.00255	0.111	0.00012	<0.001	0.05	0.000202	84.3	0.0037	0.00254	0.00883
L5-TNCP	5/5/2018 8:00	TJ5487	0.53	0.0333	0.454	0.487	<0.0050	7.11	8.20	1.42	0.00079	0.00197	0.0961	<0.0001	<0.001	<0.05	0.000174	84.8	0.0027	0.00207	0.00717
L5-TNCP	5/5/2018 13:45	TJ5672	0.56	0.0349	0.439	0.474	<0.0050	6.69	6.36	2.74	0.00092	0.00309	0.132	0.00016	<0.001	0.054	0.000264	83.1	0.0051	0.00303	0.0107
L5-TNCP	5/5/2018 20:00	TJ5692	0.57	0.0357	0.439	0.474	<0.0050	7.71	7.06	2.34	0.00097	0.0034	0.141	0.00016	<0.001	0.058	0.000266	88.5	0.0048	0.00327	0.0113
L5-TNCP	5/6/2018 2:12	TJ5684	0.60	0.0338	0.414	0.448	<0.0050	7.12	7.85	1.35	0.00091	0.00209	0.109	<0.0001	<0.001	0.055	0.000182	88.3	0.0028	0.00214	0.00807
L5-TNCP	5/6/2018 8:00	TJ5686	0.61	0.0331	0.464	0.498	<0.0050	6.79	7.27	0.811	0.00088	0.00162	0.0873	<0.0001	<0.001	0.065	0.00013	87.2	0.0018	0.00162	0.00606
L5-TNCP	5/6/2018 14:00	TJ7026	0.81	0.0283	0.455	0.483	<0.0050	10.5	7.67	30.5	0.00103	0.0266	1.22	0.00197	<0.001	0.075	0.00307	153	0.0604	0.034	0.103
L5-TNCP	5/6/2018 20:15	TJ7491	0.63	0.0331	0.494	0.528	<0.0050	7.54	7.42	0.757	0.00094	0.00166	0.0958	<0.0001	<0.001	0.064	0.000155	95.7	0.0017	0.00176	0.00653
L5-TNCP	5/7/2018 2:05	TJ7484	0.71	0.0339	0.565	0.599	0.0075	10.1	6.51	21.7	<0.0005	0.0132	1.26	0.00279	<0.001	0.093	0.00511	207	0.035	0.0363	0.104
L5-TNCP	5/7/2018 8:00	TJ7477	0.70	0.0329	0.430	0.462	4.78	8.35	5.55	6.11	0.00061	0.00483	0.327	0.00048	<0.001	<0.05	0.00069	74.6	0.011	0.00725	0.0244
L5-TNCP	5/7/2018 14:07	TJ9170	0.67	0.0301	0.429	0.460	<0.0050	7.16	6.12	8.89	0.00108	0.00817	0.281	0.00051	<0.001	0.06	0.000571	68.3	0.0151	0.00717	0.024
L5-TNCP	5/7/2018 22:40	TJ9707	0.60	0.0315	0.404	0.436	<0.0050	9.69	6.70	2.85	0.00086	0.00374	0.15	0.00023	<0.001	<0.05	0.000273	62.2	0.0051	0.00317	0.0118
L5-TNCP	5/8/2018 4:33	TJ9698	0.62	0.0317	0.398	0.430	0.0055	7.17	6.48	3.29	0.00094	0.00417	0.164	0.00023	<0.001	0.051	0.00034	65.9	0.0057	0.00343	0.0124
L5-TNCP	5/8/2018 10:30	TJ9693	0.56	0.0319	0.390	0.422	0.0053	7.42	6.89	2.83	0.00096	0.00375	0.147	0.00019	<0.001	0.053	0.000286	62.6	0.005	0.00301	0.011
L5-TNCP	5/8/2018 16:36	TK1903	0.45	0.0287	0.409	0.437	<0.0050	7.88	6.24	2.6	0.00093	0.00355	0.136	0.00015	<0.001	<0.05	0.000274	61.0	0.0049	0.00283	0.0105
L5-TNCP	5/8/2018 22:36	TK1908	0.55	0.0299	0.395	0.425	0.0058	8.23	7.67	1.88	0.00089	0.00274	0.114	0.00012	<0.001	<0.05	0.000207	58.5	0.0035	0.00223	0.00829
L5-TNCP	5/9/2018	TK5298	0.68	0.0580	0.361	0.419	0.0082	7.48	7.05	5.92	<0.0025	0.00668	0.248	<0.0005	<0.005	<0.25	0.000654	90.8	0.0098	0.0066	0.0217
L5-TNCP	5/9/2018 4:31	TK1911	0.54	0.0316	0.411	0.443	0.0055	6.95	6.49	1.99	0.00094	0.00278	0.111	0.00012	<0.001	<0.05	0.000208	62.0	0.0037	0.00225	0.00816
L5-TNCP	5/9/2018 10:42	TK1895	0.61	0.0328	0.424	0.457	0.0070	7.72	7.02	21.8	<0.0025	0.0251	0.81	0.00151	<0.005	<0.25	0.00223	109	0.0407	0.0237	0.0791
L5-TNCP	5/9/2018 22:40	TK5236	0.60	0.0669	0.348	0.415	0.0093	6.99	7.35	2.61	0.00098	0.00291	0.111	0.00015	<0.001	0.058	0.000234	75.9	0.0042	0.00287	0.00898
L5-TNCP	5/10/2018 4:35	TK5241	0.63	0.0686	0.353	0.422	0.0098	7.92	7.77	1.35	0.00102	0.00211	0.0798	<0.0001	<0.001	0.056	0.000159	73.5	0.0024	0.00196	0.00595
L5-TNCP	5/10/2018 10:40	TK5248	0.61	0.0293	0.359	0.389	0.0085	7.67	6.59	1.93	0.00102	0.00225	0.0787	<0.0001	<0.001	0.059	0.000145	72.2	0.0032	0.00203	0.0059
L5-TNCP	5/10/2018 16:46	TK5254	0.65	0.0312	0.365	0.396	0.0065	7.96	6.04	1.72	0.00106	0.00229	0.0841	<0.0001	<0.001	0.062	0.000171	74.8	0.003	0.00215	0.00652
L5-TNCP	5/10/2018 16:48	TK5255	0.55	0.0309	0.363	0.394	0.0072	6.81	9.43	1.75	0.00109	0.00247	0.0937	0.0001	<0.001	0.061	0.000194	78.7	0.0031	0.00235	0.00706
L5-TNCP	5/10/2018 22:35	TK5496	0.62	0.0294	0.338	0.367	0.0071	6.63	6.76	0.845	0.00112	0.00162	0.071	<0.0001	<0.001	0.066	0.000137	84.1	0.0014	0.00158	0.00459
L5-TNCP	5/11/2018 4:32	TK5501	0.64	0.0293	0.339	0.368	0.0073	7.07	7.33	1.1	0.00109	0.0019	0.0761	<0.0001	<0.001	0.067	0.000132	82.7	0.0018	0.00179	0.00512
L5-TNCP	5/11/2018 10:30	TK6056	0.46	0.0323	0.375	0.408	0.0063	3.37	3.28	1.05	0.00104	0.00198	0.0797	<0.0001	<0.001	0.066	0.000145	78.5	0.002	0.00192	0.00578
L5-TNCP	5/11/2018 16:30	TK6049	0.65	0.0321	0.373	0.405	0.0327	5.37	5.24	2.04	0.00111	0.00278	0.112	0.00013	<0.001	0.066	0.000222	82.9	0.0039	0.00289	0.00909
L5-TNCP	5/12/2018 13:17	TK6553	0.49	0.0313	0.342	0.374	<0.0050	7.80	7.40	3.02	0.0011	0.0048	0.154	0.00022	<0.001	0.065	0.000332	84.2	0.0061	0.00428	0.0131
L5-TNCP	5/26/2018 16:40	TM9443	0.12	<0.0050	0.230	0.230	<0.0050	11.1	9.40	4.6	<0.0025	0.00588	0.239	<0.0005	<0.005	<0.25	0.000611	120	0.0081	0.0057	0.0215
L5-TNCP	5/30/2018 6:40	TN9747	0.029	<0.0050	0.041	0.041	<0.0050	13.9	11.9	0.926	0.00087	0.00217	0.099	<0.0001	<0.001	0.113	0.00012	115	0.0019	0.00146	0.00645
L5-TNCP	6/8/2018 10:56	TP6118	0.13	0.0103	<0.020	<0.020	0.0034	11.1	11.7	0.595	0.00091	0.00187	0.0841	<0.0001	<0.001	0.122	0.000077	110	0.0011	0.00102	0.00521

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	4/27/2018 10:40	TI4641	7.2	0.00503	0.012	14.0	0.153	-	0.0044	0.0125	-	8.19	0.00103	12.3	0.000148	8.98	0.151	33.3	0.000127	<0.005	0.192	0.00293
L5-TNCP	4/27/2018 21:01	TI5320	6.41	0.00482	0.0102	13.8	0.141	0.0000025	0.004	0.0119	-	8.03	0.0011	4.86	0.000132	9.05	0.141	30.3	0.000097	<0.005	0.0339	0.00284
L5-TNCP	4/28/2018 4:00	TI5325	6.6	0.00459	0.0101	14.2	0.143	0.0000024	0.004	0.0126	-	7.71	0.00102	5.31	0.000129	9.02	0.139	32.7	0.000092	<0.005	0.035	0.00274
L5-TNCP	4/28/2018 12:00	TI5341	6.37	0.00445	0.0097	14.2	0.14	0.0000029	0.004	0.012	-	7.78	0.00101	5.31	0.000114	9.04	0.142	33.1	0.000089	<0.005	0.0399	0.00269
L5-TNCP	4/28/2018 20:30	TI5408	7.47	0.00523	0.01	13.3	0.14	0.0000031	0.0041	0.0127	-	7.09	0.00105	5.74	0.000145	8.22	0.136	27.0	0.000104	<0.005	0.038	0.00266
L5-TNCP	4/29/2018 1:38	TI5414	7.58	0.00531	0.0103	14.1	0.148	0.0000028	0.0039	0.0134	-	7.81	0.00102	5.88	0.000141	8.82	0.14	31.3	0.000104	<0.005	0.0434	0.00273
L5-TNCP	4/29/2018 7:45	TI7037	7.69	0.00552	0.0111	13.0	0.137	0.0000024	0.0039	0.0131	-	7.34	0.00097	10	0.000139	8.50	0.146	29.5	0.000123	<0.005	0.134	0.00281
L5-TNCP	4/29/2018 13:36	TI7018	3.39	0.00355	0.0083	13.4	0.119	0.0000023	0.0036	0.0083	-	7.15	0.00078	6.2	0.000067	8.48	0.135	29.6	0.000061	<0.005	0.0934	0.00261
L5-TNCP	4/29/2018 20:40	TI7026	7.67	0.00543	0.01	12.7	0.128	0.000003	0.0043	0.0126	-	7.34	0.00098	9.37	0.000126	8.20	0.137	27.5	0.000117	<0.005	0.115	0.00282
L5-TNCP	4/30/2018 2:41	TI7014	6.36	0.00475	0.0097	12.1	0.121	0.0000027	0.0038	0.0116	-	7.42	0.00098	8.5	0.000126	8.23	0.138	28.6	0.000096	<0.005	0.107	0.00263
L5-TNCP	4/30/2018 7:48	TI8565	7.91	0.00583	0.012	14.0	0.167	0.000016	0.0047	0.016	-	8.30	0.00172	15.1	0.000456	8.80	0.159	29.1	0.000139	<0.005	0.234	0.00392
L5-TNCP	4/30/2018 13:45	TI8563	9.21	0.00587	0.0122	13.7	0.148	0.0000026	0.004	0.0149	-	8.76	0.00106	15	0.000148	8.97	0.145	30.8	0.000142	<0.005	0.232	0.00292
L5-TNCP	4/30/2018 20:05	TJ0419	6.72	0.00497	0.0083	14.2	0.134	0.0000024	0.0038	0.0124	-	7.83	0.00091	5.77	0.0001	9.02	0.151	29.6	0.000085	<0.005	0.0512	0.00276
L5-TNCP	5/1/2018 1:54	TJ0415	7.83	0.00546	0.0094	13.9	0.13	0.0000027	0.0042	0.0135	-	7.83	0.001	7.56	0.000115	8.77	0.15	28.9	0.0001	<0.005	0.0566	0.00285
L5-TNCP	5/1/2018 8:00	TJ0414	7.85	0.00585	0.0094	14.5	0.154	0.000003	0.004	0.0139	-	7.80	0.00099	6.38	0.000107	9.04	0.159	29.5	0.000093	<0.005	0.059	0.003
L5-TNCP	5/1/2018 8:00	TJ0413	8.35	0.00595	0.0095	14.0	0.152	0.0000026	0.0039	0.0144	-	7.49	0.00099	6.79	0.00012	8.60	0.153	27.6	0.0001	<0.005	0.0655	0.00286
L5-TNCP	5/1/2018 13:55	TJ1216	9.37	0.00624	0.0112	14.3	0.151	0.0000023	0.0039	0.016	-	8.28	0.00103	10.9	0.000177	9.13	0.148	28.5	0.000125	<0.005	0.126	0.00311
L5-TNCP	5/1/2018 20:03	TJ1202	8.1	0.0054	0.0097	14.2	0.136	0.0000031	0.0039	0.0136	-	7.82	0.001	5.98	0.000142	9.78	0.143	31.3	0.000103	<0.005	0.0384	0.00286
L5-TNCP	5/2/2018 2:12	TJ1212	8.1	0.00536	0.0094	14.6	0.139	0.0000026	0.0039	0.0136	-	8.16	0.001	6.15	0.000134	9.69	0.145	32.4	0.000098	<0.005	0.0413	0.00287
L5-TNCP	5/2/2018 2:12	TJ1213	8.03	0.00545	0.0096	14.2	0.131	0.0000023	0.004	0.0135	-	7.44	0.00102	5.9	0.000141	9.01	0.144	29.1	0.000098	<0.005	0.0427	0.00286
L5-TNCP	5/2/2018 7:55	TJ1205	10.3	0.00662	0.0111	15.8	0.168	0.0000034	0.0044	0.0168	-	8.07	0.00111	7.67	0.000173	9.87	0.154	31.2	0.000118	<0.005	0.0583	0.00304
L5-TNCP	5/2/2018 13:50	TJ2151	11.5	0.00769	0.0127	15.7	0.194	0.000003	0.0041	0.0185	-	8.74	0.00113	13.3	0.000177	9.75	0.162	31.9	0.000149	<0.005	0.172	0.00317
L5-TNCP	5/2/2018 20:03	TJ2684	13.8	0.00958	0.0147	16.8	0.234	0.0000027	0.0047	0.0218	-	9.21	0.0012	17.7	0.000191	9.75	0.179	31.6	0.000188	<0.005	0.235	0.00352
L5-TNCP	5/3/2018 2:13	TJ2685	11.9	0.00809	0.015	15.8	0.198	0.0000026	0.0043	0.0193	-	9.06	0.00117	16.5	0.000173	9.76	0.162	31.5	0.000167	<0.005	0.213	0.00333
L5-TNCP	5/3/2018 7:45	TJ2677	11.6	0.00801	0.0141	16.6	0.199	0.0000025	0.0045	0.0184	-	9.27	0.0012	16.7	0.000173	10.3	0.181	31.4	0.000164	<0.005	0.217	0.00354
L5-TNCP	5/3/2018 13:45	TJ4224	11.9	0.00764	0.0116	15.7	0.209	0.0000022	0.0045	0.019	-	7.86	0.00118	7.89	0.000151	9.46	0.187	31.8	0.000098	<0.005	0.0538	0.00325
L5-TNCP	5/3/2018 20:14	TJ4750	11.7	0.00719	0.0113	16.3	0.216	0.0000022	0.0049	0.0191	-	8.01	0.00119	7.99	0.000152	10.1	0.196	34.7	0.000097	<0.005	0.0572	0.00326
L5-TNCP	5/4/2018 2:12	TJ4756	21.9	0.0125	0.0179	19.6	0.351	0.0000036	0.0055	0.0314	-	8.65	0.00157	14.2	0.000244	10.4	0.243	36.3	0.000144	<0.005	0.0861	0.00396
L5-TNCP	5/4/2018 7:45	TJ4762	33.5	0.0203	0.0242	21.6	0.509	0.0000025	0.0052	0.0444	-	9.67	0.0018	19.2	0.000381	11.2	0.282	38.8	0.000223	<0.005	0.068	0.00484
L5-TNCP	5/4/2018 13:45	TJ5500	11.8	0.00724	0.0128	24.2	0.388	0.0000023	0.006	0.02	-	8.77	0.00156	9.93	0.000135	17.1	0.27	58.5	0.000132	<0.005	0.0734	0.00508
L5-TNCP	5/4/2018 13:45	TJ5499	11.4	0.00696	0.0127	23.8	0.382	0.0000026	0.0059	0.0194	-	8.46	0.00152	9.42	0.000112	16.9	0.26	57.3	0.000126	<0.005	0.0702	0.00492
L5-TNCP	5/4/2018 19:30	TJ5486	13	0.00757	0.0139	25.4	0.401	0.0000028	0.0067	0.021	-	9.20	0.00165	10.4	0.00015	18.3	0.281	58.7	0.000145	<0.005	0.0708	0.00533
L5-TNCP	5/5/2018 2:11	TJ5476	4.52	0.00269	0.0099	24.8	0.313	0.0000031	0.0062	0.0108	-	8.28	0.00138	5.32	0.000055	20.2	0.256	60.0	0.000063	<0.005	0.0342	0.00502
L5-TNCP	5/5/2018 8:00	TJ5487	3.18	0.00192	0.0092	24.6	0.306	0.0000022	0.0063	0.0093	-	8.45	0.00134	4.39	0.000056	19.8	0.259	61.1	0.000054	<0.005	0.0348	0.00497
L5-TNCP	5/5/2018 13:45	TJ5672	5.73	0.00362	0.0112	24.7	0.328	0.0000028	0.0072	0.0126	-	8.65	0.00142	6.65	0.000079	20.2	0.269	58.5	0.000078	<0.005	0.0631	0.00509
L5-TNCP	5/5/2018 20:00	TJ5692	6.42	0.00402	0.0116	26.1	0.337	0.0000032	0.0068	0.0134	-	9.33	0.00154	5.81	0.000108	21.1	0.271	68.6	0.000073	<0.005	0.0347	0.00555
L5-TNCP	5/6/2018 2:12	TJ5684	3.58	0.00226	0.0107	26.4	0.303	0.0000039	0.0152	0.0095	-	9.26	0.00142	4.42	0.00007	21.3	0.252	69.8	0.00005	<0.005	0.0259	0.00541
L5-TNCP	5/6/2018 8:00	TJ5686	2.08	0.00139	0.0111	27.9	0.276	0.0000039	0.0074	0.0078	-	9.02	0.00143	3.72	0.000057	27.1	0.271	73.3	0.000038	<0.005	0.0154	0.00576
L5-TNCP	5/6/2018 14:00	TJ7026	77.4	0.0504	0.061	47.5	1.39	0.0000025	0.0066	0.116	-	12.4	0.00327	43.4	0.000993	24.7	0.515	62.5	0.000483	<0.005	0.135	0.00939
L5-TNCP	5/6/2018 20:15	TJ7491	2.05	0.00146	0.0118	29.8	0.285	0.0000037	0.0066	0.0085	-	9.13	0.00159	4.02	0.000039	29.5	0.293	74.0	0.000045	<0.005	0.011	0.00593
L5-TNCP	5/7/2018 2:05	TJ7484	40.7	0.0393	0.0597	55.4	1.93	0.0000047	0.0018	0.113	-	11.9	0.00218	29.3	0.00108	40.6	0.653	72.6	0.000496	<0.005	0.0171	0.0117
L5-TNCP	5/7/2018 8:00	TJ7477	14.8	0.0112	0.0177	21.9	0.423	<0.000002	0.0023	0.0266	-	8.88	0.00132	10.5	0.000219	15.1	0.24	46.5	0.000191	<0.005	0.0203	0.00498
L5-TNCP	5/7/2018 14:07	TJ9170	17.8	0.0105	0.0188	21.8	0.391	0.0000025	0.0082	0.0259	-	8.06	0.00169	15.4	0.000222	14.5	0.253	39.9	0.000208	<0.005	0.14	0.00494
L5-TNCP	5/7/2018 22:40	TJ9707	7.05	0.00483	0.0107	20.5	0.302	0.0000029	0.0071	0.013	-	8.20	0.00133	5.96	0.00008	15.5	0.23	44.5	0.000097	<0.005	0.0457	0.00465
L5-TNCP	5/8/2018 4:33	TJ9698	7.85	0.00549	0.011	20.9	0.379	0.0000038	0.0077	0.0134	-	8.52	0.00142	7.08	0.000141	16.3	0.235	45.6	0.000114	<0.005	0.0656	0.00488
L5-TNCP	5/8/2018 10:30	TJ9693	6.9	0.0045	0.0108	20.7	0.371	0.0000054	0.0082	0.0124	-	8.60	0.00143	6.38	0.000092	16.7	0.228	47.2	0.000101	<0.005	0.053	0.00484
L5-TNCP	5/8/2018 16:36	TK1903	6.23	0.00421	0.01	19.9	0.335	0.0000028	0.0077	0.0115	-	8.14	0.00134	5.77	0.000136	16.8	0.213	42.8	0.000098	<0.005	0.0539	0.0049
L5-TNCP	5/8/2018 22:36	TK1908	4.51	0.00298	0.0091	19.6	0.314	0.0000028	0.0075	0.0095	-	7.95	0.00129	4.8	0.000101	16.8	0.198	42.5	0.000073	<0.005	0.0428	0.00473
L5-TNCP	5/9/2018	TK5298	13.4	0.0102	0.016	26.3	0.572	0.0000034	0.0082	0.023	-	10.2	0.00146	12.8	0.00021	20.2	0.268	56	0.000172	<0.025	0.084	0.00615
L5-TNCP	5/9/2018 4:31	TK1911	4.5	0.00287	0.0097	20.5	0.324	0.000003	0.008	0.0094	-	8.26	0.00135	5.05	0.000106	18.2	0.215	44.7	0.000078	<0.005	0.0458	0.00493
L5-TNCP	5/9/2018 10:42	TK1895	59.8	0.0372	0.038	34.4	1.1	0.0000036	0.0099	0.0794	-	11.4	0.0032	31.9	0.00059	20.8	0.376	44	0.000594	<0.025	0.151	0.00796
L5-TNCP	5/9/2018 22:40	TK5236	5.78	0.00326	0.012	24.5	0.42	0.0000023	0.0081	0.0116	-	8.76	0.00123	6.73	0.000134	20.9	0.219	53.4	0.000089	<0.005	0.0435	0.0053
L5-TNCP	5/10/2018 4:35	TK5241	3.02	0.0018	0.0106	24.1	0.397	0.0000037	0.0084	0.0085	-	8.82	0.00119	4.87	0.0001	22.1	0.215	56.1	0.00006	<0.005	0.0259	0.00519
L5-TNCP	5/10/2018 10:40	TK5248	3.53	0.00188	0.0112	24.0	0.379	0.0000035	0.009	0.0087	-	8.61	0.00123	5.85	0.000129	22.1	0.22	52.4	0.000073	<0.005	0.038	0.00541
L5-TNCP	5/10/2018 16:46	TK5254	3.61	0.00208	0.011	25.1	0.399	0.0000034	0.0092	0.009	-	9.01	0.00125	5.2	0.000107	22.6	0.224	54.8	0.000068	<0.005	0.0311	0.00538
L5-TNCP	5/10/2018 16:48	TK5255	4.05	0.00232	0.0118	26.1	0.411	0.0000032	0.0091	0.0097	-	9.26	0.00123	5.57	0.000113	22.5	0.233	55.8	0.000071	<0.005	0.0405	0.0056
L5-TNCP	5/10/2018 22:35	TK5496	1.77	0.00123	0.0114	25.8	0.411	0.0000035	0.0092	0.0071	-	9.83	0.00123	4.26	0.000076	25.2	0.243	63.3	0.000045	<0.005	0.0171	0.00561
L5-TNCP	5/11/2018 4:32	TK5501	2.36	0.00146	0.0114	25.3	0.417	0.0000046	0.0094	0.0077	-	9.89	0.00131	5.08	0.000077	24.6	0.239	64.0	0.000052	<0.005	0.0232	0.00561
L5-TNCP	5/11/2018 10:30	TK6056	2.9	0.00167	0.0123	26.2	0.397	0.0000026	0.0092	0.0083	-	8.87	0.00131	4.22	0.00008	25.5	0.231	56.3	0.000047	<0.005	0.0168	0.00567
L5-TNCP	5/11/2018 16:30	TK6049	5.21	0.00301	0.0141	28.2	0.442	0.0000025	0.0096	0.0117	-	9.50	0.00127	5.71	0.000105	26.1	0.25	61.1	0.000065	<0.005	0.0397	0.00598
L5-TNCP	5/12/2018 13:17	TK6553	8.74	0.00564	0.0156	26.5	0.506	0.0000034	0.0087	0.0158	-	9.21	0.00138	7.31	0.000138	25.9	0.269	61.6	0.000093	<0.005	0.0419	0.00646
L5-TNCP	5/26/2018 16:40	TM9443	11.4	0.0094	0.021	41.4	0.366	0.0000021	0.0098	0.0226	-	11.7	0.00164	9.3	0.00018	33.0	0.403	89	0.00013	<0.025	0.077	0.00973
L5-TNCP	5/30/2018 6:40	TN9747	2.41	0.00149	0.0159	40.7	0.201	<0.000002	0.0108	0.009	-	11.0	0.00136	3.68	<0.00002	31.7	0.45	98.0	0.000039	<0.005	0.0162	0.00994
L5-TNCP	6/8/2018 10:56	TP6118	1.49	0.00081	0.0199	47.2	0.152	0.0000034	0.0097	0.0067	-	10.6	0.00206	3.8	0.000098	42.4	0.459	109	0.000032	<0.005	0.0144	0.0109

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	4/27/2018 10:40	TI4641	0.0183	0.0346	0.00473	0.0138	<0.0005	0.0006	0.0342	<0.0001	<0.001	<0.05	0.000054	42.9	<0.001	0.00044	0.00219	0.055	<0.0002	0.0066	12.1	0.0698
L5-TNCP	4/27/2018 21:01	TI5320	0.0095	0.0325	0.00075	0.0109	<0.0005	0.00061	0.0314	<0.0001	<0.001	<0.05	0.00006	43.4	<0.001	0.00049	0.00255	0.039	<0.0002	0.0068	12.4	0.0746
L5-TNCP	4/28/2018 4:00	TI5325	0.0101	0.0309	0.00093	0.0094	<0.0005	0.00057	0.0291	<0.0001	<0.001	<0.05	0.000045	42.4	<0.001	0.00053	0.00226	0.016	<0.0002	0.0066	12.6	0.0748
L5-TNCP	4/28/2018 12:00	TI5341	0.0096	0.0288	0.00091	0.0123	<0.0005	0.0006	0.0313	<0.0001	<0.001	<0.05	0.000047	41.5	<0.001	0.00052	0.0021	0.053	<0.0002	0.0062	12.1	0.0728
L5-TNCP	4/28/2018 20:30	TI5408	0.011	0.0368	0.00103	0.0089	<0.0005	0.00057	0.0295	<0.0001	<0.001	<0.05	0.000042	43.7	<0.001	0.00047	0.00203	0.019	<0.0002	0.0063	12.1	0.0687
L5-TNCP	4/29/2018 1:38	TI5414	0.0116	0.0348	0.00099	0.0151	<0.0005	0.00066	0.032	<0.0001	<0.001	<0.05	0.000041	42.6	<0.001	0.00044	0.00221	0.072	<0.0002	0.0065	12.6	0.0663
L5-TNCP	4/29/2018 7:45	TI7037	0.0159	0.0355	0.00323	0.016	<0.0005	0.00066	0.0289	<0.0001	<0.001	<0.05	0.000046	39.9	<0.001	0.00043	0.00276	0.128	<0.0002	0.0058	12.1	0.0602
L5-TNCP	4/29/2018 13:36	TI7018	0.0094	0.0201	0.00223	0.0138	<0.0005	0.0006	0.029	<0.0001	<0.001	<0.05	0.000045	41.4	<0.001	0.0004	0.00282	0.122	<0.0002	0.0059	11.7	0.0616
L5-TNCP	4/29/2018 20:40	TI7026	0.0153	0.033	0.00236	0.0159	<0.0005	0.00068	0.0278	<0.0001	<0.001	<0.05	0.000035	40.3	<0.001	0.00037	0.00281	0.136	<0.0002	0.0057	11.8	0.0508
L5-TNCP	4/30/2018 2:41	TI7014	0.0144	0.0368	0.00326	0.0177	<0.0005	0.0006	0.0278	<0.0001	<0.001	<0.05	0.000044	39.7	<0.001	0.00042	0.0035	0.148	0.00022	0.0058	11.7	0.0582
L5-TNCP	4/30/2018 7:48	TI8565	0.0211	0.0387	0.0051	0.0209	<0.0005	0.00066	0.0325	<0.0001	<0.001	<0.05	0.000039	40.2	<0.001	0.00031	0.00281	0.102	<0.0002	0.005	12.9	0.0349
L5-TNCP	4/30/2018 13:45	TI8563	0.0226	0.0398	0.00445	0.0143	<0.0005	0.00067	0.0316	<0.0001	<0.001	<0.05	0.000047	38.9	<0.001	0.00037	0.0027	0.103	<0.0002	0.0051	13.1	0.0512
L5-TNCP	4/30/2018 20:05	TJ0419	0.0113	0.0321	0.00189	0.0154	<0.0005	0.00064	0.0321	<0.0001	<0.001	<0.05	0.000052	42.8	<0.001	0.00034	0.00298	0.097	<0.0002	0.006	13.7	0.0513
L5-TNCP	5/1/2018 1:54	TJ0415	0.0129	0.0349	0.00157	0.0147	<0.0005	0.00063	0.0319	<0.0001	<0.001	<0.05	0.00005	42.3	<0.001	0.00034	0.00277	0.1	<0.0002	0.0058	13.2	0.0511
L5-TNCP	5/1/2018 8:00	TJ0414	0.0129	0.0374	0.00139	0.0136	<0.0005	0.00061	0.0316	<0.0001	<0.001	<0.05	0.000046	42.6	<0.001	0.00034	0.00321	0.091	<0.0002	0.0057	13.4	0.0521
L5-TNCP	5/1/2018 8:00	TJ0413	0.0137	0.0403	0.00144	0.018	<0.0005	0.00061	0.0327	<0.0001	<0.001	<0.05	0.00005	42.1	<0.001	0.00035	0.0031	0.107	0.00026	0.0057	13.2	0.0526
L5-TNCP	5/1/2018 13:55	TJ1216	0.0178	0.0415	0.00336	0.0124	<0.0005	0.00056	0.0308	<0.0001	<0.001	<0.05	0.000047	40.9	<0.001	0.00036	0.00286	0.1	<0.0002	0.0057	12.6	0.053
L5-TNCP	5/1/2018 20:03	TJ1202	0.0113	0.0356	0.00114	0.014	<0.0005	0.00057	0.0296	<0.0001	<0.001	<0.05	0.000051	42.2	<0.001	0.00036	0.00277	0.104	<0.0002	0.0062	13.2	0.0543
L5-TNCP	5/2/2018 2:12	TJ1212	0.0116	0.0371	0.00109	0.0126	<0.0005	0.00057	0.0312	<0.0001	<0.001	<0.05	0.00005	41.9	<0.001	0.00038	0.00297	0.093	<0.0002	0.006	13.0	0.0543
L5-TNCP	5/2/2018 2:12	TJ1213	0.0112	0.0356	0.00107	0.0317	<0.0005	0.0006	0.031	<0.0001	<0.001	<0.05	0.000054	41.5	<0.001	0.00038	0.00297	0.102	<0.0002	0.0058	12.7	0.0538
L5-TNCP	5/2/2018 7:55	TJ1205	0.0161	0.0455	0.00135	0.0142	<0.0005	0.0006	0.0326	<0.0001	<0.001	<0.05	0.000053	43.7	<0.001	0.0004	0.00335	0.118	<0.0002	0.0062	13.4	0.0576
L5-TNCP	5/2/2018 13:50	TJ2151	0.0233	0.0502	0.00501	0.0152	<0.0005	0.00061	0.0373	<0.0001	<0.001	<0.05	0.000052	44.4	<0.001	0.00035	0.00323	0.094	<0.0002	0.0058	13.2	0.0578
L5-TNCP	5/2/2018 20:03	TJ2684	0.0302	0.06	0.00546	0.0155	<0.0005	0.00056	0.0362	<0.0001	<0.001	<0.05	0.000042	44.8	<0.001	0.00036	0.00322	0.087	<0.0002	0.0058	13.6	0.0595
L5-TNCP	5/3/2018 2:13	TJ2685	0.0267	0.053	0.00422	0.0156	<0.0005	0.00058	0.037	<0.0001	<0.001	<0.05	0.00005	45.7	<0.001	0.00038	0.00336	0.107	<0.0002	0.0057	13.8	0.0621
L5-TNCP	5/3/2018 7:45	TJ2677	0.0268	0.0496	0.0132	0.0105	<0.0005	0.00052	0.037	<0.0001	<0.001	<0.05	0.000055	46.7	<0.001	0.00037	0.00351	0.067	0.00021	0.0058	13.9	0.0679
L5-TNCP	5/3/2018 13:45	TJ4224	0.0161	0.0531	0.00073	0.0159	<0.0005	0.00043	0.0177	<0.0001	<0.001	0.083	0.000067	71.1	<0.001	0.0012	0.00291	0.065	<0.0002	0.0122	24.0	0.227
L5-TNCP	5/3/2018 20:14	TJ4750	0.0161	0.0512	0.00071	0.0096	0.00053	0.00047	0.0423	<0.0001	<0.001	<0.05	0.000077	50.8	<0.001	0.00044	0.00356	0.054	<0.0002	0.0058	14.0	0.0845
L5-TNCP	5/4/2018 2:12	TJ4756	0.0299	0.0918	0.00085	0.0081	0.0006	0.00053	0.0452	<0.0001	<0.001	<0.05	0.000077	53.3	<0.001	0.00045	0.00328	0.051	<0.0002	0.0057	15.0	0.0971
L5-TNCP	5/4/2018 7:45	TJ4762	0.0405	0.136	0.00082	0.0099	0.00063	0.00057	0.0396	<0.0001	<0.001	<0.05	0.000045	53.3	<0.001	0.00054	0.00283	0.066	<0.0002	0.0054	15.4	0.16
L5-TNCP	5/4/2018 13:45	TJ5500	0.0183	0.0507	0.00174	0.0053	0.00069	0.00049	0.0541	<0.0001	<0.001	<0.05	0.000086	78.0	<0.001	0.00085	0.00316	0.033	<0.0002	0.0065	21.6	0.242
L5-TNCP	5/4/2018 13:45	TJ5499	0.0175	0.049	0.00212	0.0047	0.00069	0.00051	0.0544	<0.0001	<0.001	<0.05	0.000083	79.9	<0.001	0.00086	0.00318	0.026	<0.0002	0.0067	21.9	0.244
L5-TNCP	5/4/2018 19:30	TJ5486	0.019	0.0531	0.00149	0.0211	0.00078	0.00057	0.0538	<0.0001	<0.001	<0.05	0.000063	77.4	<0.001	0.00078	0.00308	0.026	<0.0002	0.0069	21.8	0.247
L5-TNCP	5/5/2018 2:11	TJ5476	0.007	0.0193	0.00091	0.0051	0.00075	0.00059	0.0569	<0.0001	<0.001	<0.05	0.000074	83.0	<0.001	0.0009	0.00306	0.02	<0.0002	0.0076	23.5	0.268
L5-TNCP	5/5/2018 8:00	TJ5487	0.0051	0.0143	0.00077	0.0042	0.00077	0.00057	0.0569	<0.0001	<0.001	<0.05	0.000075	80.4	<0.001	0.00087	0.00303	0.016	<0.0002	0.0072	22.7	0.267
L5-TNCP	5/5/2018 13:45	TJ5672	0.0101	0.0264	0.0017	0.0052	0.00081	0.00057	0.059	<0.0001	<0.001	0.053	0.000071	81.2	<0.001	0.00081	0.00335	0.016	<0.0002	0.0087	23.7	0.237
L5-TNCP	5/5/2018 20:00	TJ5692	0.0083	0.0299	0.00063	0.0049	0.00084	0.00057	0.0561	<0.0001	<0.001	0.053	0.000064	82.8	<0.001	0.0008	0.00331	0.021	<0.0002	0.0082	24.6	0.255
L5-TNCP	5/6/2018 2:12	TJ5684	<0.005	0.0163	0.00045	0.0045	0.00085	0.0006	0.0572	<0.0001	<0.001	0.054	0.00006	82.3	<0.001	0.00081	0.00337	0.014	<0.0002	0.0084	25.3	0.261
L5-TNCP	5/6/2018 8:00	TJ5686	<0.005	0.01	0.00033	0.0045	0.00083	0.00066	0.059	<0.0001	<0.001	0.062	0.00006	89.1	<0.001	0.00086	0.00323	0.011	<0.0002	0.0103	28.4	0.269
L5-TNCP	5/6/2018 14:00	TJ7026	0.0982	0.341	0.00191	0.0076	0.00098	0.00073	0.0575	<0.0001	<0.001	0.06	0.000051	88.1	<0.001	0.00075	0.00329	<0.01	<0.0002	0.0102	27.5	0.249
L5-TNCP	5/6/2018 20:15	TJ7491	<0.005	0.011	0.00026	0.006	0.00092	0.00063	0.0618	<0.0001	<0.001	0.069	0.000059	91.7	<0.001	0.00082	0.00361	0.01	<0.0002	0.0109	29.2	0.254
L5-TNCP	5/7/2018 2:05	TJ7484	0.0598	0.312	0.00059	0.0044	0.00086	0.00076	0.0543	<0.0001	<0.001	0.078	0.00004	87.9	<0.001	0.00108	0.00222	0.014	<0.0002	0.0135	30.4	0.402
L5-TNCP	5/7/2018 8:00	TJ7477	0.0177	0.0696	0.00028	0.0081	0.00084	0.00059	0.0457	<0.0001	<0.001	<0.05	0.000033	61.2	<0.001	0.00063	0.00311	0.051	<0.0002	0.0065	18.9	0.198
L5-TNCP	5/7/2018 14:07	TJ9170	0.0301	0.0724	0.00303	0.0073	0.00081	0.00063	0.0473	<0.0001	<0.001	<0.05	0.000031	55.0	<0.001	0.00045	0.00334	0.015	<0.0002	0.0069	20.0	0.142
L5-TNCP	5/7/2018 22:40	TJ9707	0.0104	0.0308	0.00102	0.0065	0.0008	0.00059	0.0423	<0.0001	<0.001	<0.05	0.000033	58.4	<0.001	0.00059	0.00303	0.118	<0.0002	0.0067	18.1	0.202
L5-TNCP	5/8/2018 4:33	TJ9698	0.0122	0.032	0.00129	0.0072	0.00089	0.00068	0.0387	<0.0001	<0.001	<0.05	0.000037	58.4	<0.001	0.00071	0.00258	0.048	<0.0002	0.0069	18.2	0.264
L5-TNCP	5/8/2018 10:30	TJ9693	0.0103	0.0282	0.00105	0.0061	0.00091	0.00066	0.0398	<0.0001	<0.001	<0.05	0.00005	59.5	<0.001	0.00078	0.00264	0.031	<0.0002	0.0071	18.2	0.28
L5-TNCP	5/8/2018 16:36	TK1903	0.0099	0.0261	0.00121	0.0072	0.00091	0.00064	0.0397	<0.0001	<0.001	0.054	0.000051	62.0	<0.001	0.00069	0.00279	0.041	<0.0002	0.008	20.6	0.28
L5-TNCP	5/8/2018 22:36	TK1908	0.0072	0.0186	0.00101	0.0093	0.00092	0.00065	0.0408	<0.0001	<0.001	0.054	0.000055	61.2	<0.001	0.00069	0.00259	0.037	<0.0002	0.0081	20.7	0.285
L5-TNCP	5/9/2018	TK5298	<0.025	0.061	0.00214	0.0067	0.00108	0.00079	0.0423	<0.0001	<0.001	0.061	0.000053	77.4	<0.001	0.00073	0.00252	0.024	<0.0002	0.0092	22.6	0.32
L5-TNCP	5/9/2018 4:31	TK1911	0.0075	0.0182	0.00223	0.0068	0.00097	0.00069	0.0406	<0.0001	<0.001	0.051	0.000051	60.1	<0.001	0.00069	0.00271	0.036	<0.0002	0.0073	19.3	0.282
L5-TNCP	5/9/2018 10:42	TK1895	0.077	0.261	0.00227	0.0099	0.00096	0.00068	0.0352	<0.0001	<0.001	0.056	0.000036	62.1	<0.001	0.00071	0.00239	0.058	<0.0002	0.0083	21.4	0.292
L5-TNCP	5/9/2018 22:40	TK5236	0.0087	0.0235	0.00073	0.0061	0.00107	0.00082	0.0421	<0.0001	<0.001	0.064	0.000049	77.1	<0.001	0.00084	0.00234	0.023	<0.0002	0.0092	24.0	0.344
L5-TNCP	5/10/2018 4:35	TK5241	<0.005	0.0128	0.00208	0.0053	0.00108	0.00085	0.0419	<0.0001	<0.001	0.066	0.000048	80.6	<0.001	0.00079	0.00222	0.015	<0.0002	0.0098	22.9	0.327
L5-TNCP	5/10/2018 10:40	TK5248	0.0063	0.0143	0.00083	0.0058	0.00108	0.00086	0.0427	<0.0001	<0.001	0.066	0.000055	79.3	<0.001	0.00086	0.00231	0.016	<0.0002	0.0095	24.4	0.353
L5-TNCP	5/10/2018 16:46	TK5254	0.0059	0.015	0.00077	0.0048	0.00111	0.00079	0.0423	<0.0001	<0.001	0.064	0.000058	77.0	<0.001	0.00084	0.00252	<0.01	<0.0002	0.0098	24.7	0.367
L5-TNCP	5/10/2018 16:48	TK5255	0.0061	0.016	0.00082	0.283	0.00108	0.00155	0.039	<0.0001	<0.001	0.066	0.000143	76.3	<0.001	0.00137	0.00401	0.771	0.00112	0.0099	23.2	0.385
L5-TNCP	5/10/2018 22:35	TK5496	<0.005	0.0082	0.00043	0.006	0.00109	0.00077	0.0427	<0.0001	<0.001	0.067	0.000055	78.2	<0.001	0.00079	0.0024	0.02	<0.0002	0.0104	24.7	0.361
L5-TNCP	5/11/2018 4:32	TK5501	<0.005	0.01	0.00085	0.0048	0.00108	0.00084	0.0433	<0.0001	<0.001	0.066	0.000051	79.6	<0.001	0.00085	0.00226	0.016	<0.0002	0.0103	24.5	0.372
L5-TNCP	5/11/2018 10:30	TK6056	<0.005	0.0118	0.00033	0.0051	0.00106	0.00076	0.0456	<0.0001	<0.001	0.067	0.000053	76.6	<0.001	0.0009	0.00266	0.012	<0.0002	0.011	28.5	0.366
L5-TNCP	5/11/2018 16:30	TK6049	0.0074	0.0224	0.00042	0.006	0.00106	0.00078	0.0445	<0.0001	<0.001	0.068	0.000051	81.4	<0.001	0.00081	0.00279	0.016	<0.0002	0.0112	27.6	0.348
L5-TNCP	5/12/2018 13:17	TK6553	0.0121	0.0363	0.00052	0.0045	0.00102	0.0007	0.0421	<0.0001	<0.001	0.067	0.000046	76.4	<0.001	0.00088	0.00256	0.015	<0.0002	0.0106	26.9	0.437
L5-TNCP	5/26/2018 16:40	TM9443	<0.025	0.06	0.00223	0.011	0.00094	0.00091	0.0585	<0.0001	<0.001	0.113	0.000022	114	<0.001	0.00035	0.00606	0.011	<0.0002	0.0151	38.8	0.0084
L5-TNCP	5/30/2018 6:40	TN9747	<0.005	0.0143	0.00066	0.0054	0.00085	0.00105	0.0675	<0.0001	<0.001	0.144	0.000033	123	<0.001	<0.0002	0.00386	<0.01	<0.0002	0.015	42.2	0.0013
L5-TNCP	6/8/2018 10:56	TP6118	<0.005	0.0066	0.0005	0.0061	0.0008	0.00103	0.0663	<0.0001	<0.001	0.121	0.00002	127	<0.001	0.00037	0.0034	0.038	<0.0002	0.019	43.6	0.0469

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	4/27/2018 10:40	TI4641	-	0.0041	0.0037	-	6.80	0.00084	1.32	0.00002	9.00	0.132	31.2	0.000012	<0.005	<0.005	0.00238	<0.005	<0.005	<0.0001
L5-TNCP	4/27/2018 21:01	TI5320	0.0000026	0.0042	0.0037	-	7.21	0.00077	1.32	<0.00002	9.32	0.131	32.4	0.000011	<0.005	<0.005	0.00233	<0.005	<0.005	0.00014
L5-TNCP	4/28/2018 4:00	TI5325	0.0000029	0.0041	0.0038	-	7.22	0.00087	1.31	<0.00002	8.97	0.13	33.8	0.000011	<0.005	<0.005	0.00233	<0.005	<0.005	0.00013
L5-TNCP	4/28/2018 12:00	TI5341	0.0000032	0.004	0.0036	-	7.07	0.00083	1.33	<0.00002	8.59	0.129	32.4	<0.00001	<0.005	<0.005	0.00234	<0.005	<0.005	0.00018
L5-TNCP	4/28/2018 20:30	TI5408	0.000003	0.004	0.0034	-	7.13	0.00081	1.36	<0.00002	8.97	0.129	32.9	0.00001	<0.005	<0.005	0.00231	<0.005	<0.005	0.0001
L5-TNCP	4/29/2018 1:38	TI5414	0.0000027	0.004	0.0033	-	7.58	0.00079	1.45	<0.00002	9.00	0.126	32.5	0.000011	<0.005	<0.005	0.00237	<0.005	<0.005	0.0004
L5-TNCP	4/29/2018 7:45	TI7037	0.0000027	0.0037	0.0034	-	6.53	0.00079	1.31	<0.00002	8.48	0.122	29.3	0.000011	<0.005	0.0075	0.00231	<0.005	<0.005	0.00035
L5-TNCP	4/29/2018 13:36	TI7018	0.0000028	0.0039	0.0034	-	6.54	0.0008	1.32	<0.00002	8.49	0.125	28.3	0.000011	<0.005	0.0063	0.00233	<0.005	<0.005	0.0003
L5-TNCP	4/29/2018 20:40	TI7026	0.0000023	0.0039	0.0033	-	6.48	0.00069	1.38	<0.00002	8.11	0.12	26.2	0.00001	<0.005	0.007	0.00242	<0.005	<0.005	0.00028
L5-TNCP	4/30/2018 2:41	TI7014	0.0000027	0.0037	0.0035	-	6.25	0.00077	1.28	<0.00002	8.51	0.117	28.9	0.00001	<0.005	0.0076	0.00231	<0.005	<0.005	0.00032
L5-TNCP	4/30/2018 7:48	TI8565	<0.000002	0.004	0.0033	-	7.46	0.00078	1.35	<0.00002	9.33	0.131	29.7	0.000011	<0.005	0.0063	0.00231	<0.005	<0.005	0.00032
L5-TNCP	4/30/2018 13:45	TI8563	<0.000002	0.0041	0.0034	-	7.38	0.00077	1.34	<0.00002	9.35	0.137	29.9	0.000011	<0.005	0.0056	0.0025	<0.005	<0.005	0.00034
L5-TNCP	4/30/2018 20:05	TJ0419	0.0000024	0.0043	0.0033	-	7.13	0.00076	1.44	<0.00002	9.60	0.135	30.5	0.000013	<0.005	0.0053	0.00265	<0.005	<0.005	0.00036
L5-TNCP	5/1/2018 1:54	TJ0415	0.0000022	0.0041	0.0034	-	7.09	0.00077	1.44	<0.00002	9.42	0.136	30.2	0.000013	<0.005	0.0055	0.00256	<0.005	<0.005	0.00032
L5-TNCP	5/1/2018 8:00	TJ0414	0.0000024	0.0042	0.0035	-	7.09	0.0008	1.41	<0.00002	9.43	0.135	29.6	0.000014	<0.005	0.0051	0.00263	<0.005	<0.005	0.00026
L5-TNCP	5/1/2018 8:00	TJ0413	0.0000024	0.0043	0.0034	-	7.03	0.00077	1.39	<0.00002	9.34	0.136	29.7	0.000013	<0.005	<0.005	0.00263	<0.005	<0.005	0.00032
L5-TNCP	5/1/2018 13:55	TJ1216	0.0000023	0.0041	0.0034	-	7.11	0.00075	1.4	<0.00002	8.69	0.135	29.8	0.00001	<0.005	0.0058	0.00237	<0.005	<0.005	0.00035
L5-TNCP	5/1/2018 20:03	TJ1202	0.0000024	0.0041	0.0034	-	6.98	0.00075	1.44	<0.00002	9.44	0.134	30.1	<0.00001	<0.005	0.0057	0.00246	<0.005	<0.005	0.00036
L5-TNCP	5/2/2018 2:12	TJ1212	0.0000023	0.0041	0.0036	-	7.05	0.00076	1.42	<0.00002	9.03	0.135	30.4	0.000011	<0.005	0.0051	0.00244	<0.005	<0.005	0.00027
L5-TNCP	5/2/2018 2:12	TJ1213	0.0000021	0.0041	0.0035	-	7.06	0.00075	1.41	<0.00002	8.90	0.135	29.6	0.000012	<0.005	0.0058	0.00244	<0.005	<0.005	0.00028
L5-TNCP	5/2/2018 7:55	TJ1205	0.0000024	0.0043	0.0037	-	7.11	0.00076	1.45	<0.00002	9.30	0.14	30.8	0.000013	<0.005	0.0062	0.00255	<0.005	<0.005	0.00032
L5-TNCP	5/2/2018 13:50	TJ2151	0.0000027	0.0045	0.0036	-	7.11	0.00082	1.45	<0.00002	9.32	0.148	30.9	0.000013	<0.005	0.0056	0.00262	<0.005	<0.005	0.0003
L5-TNCP	5/2/2018 20:03	TJ2684	0.0000022	0.0046	0.0036	-	7.06	0.00077	1.46	<0.00002	9.54	0.149	31.3	<0.00001	<0.005	<0.005	0.00264	<0.005	<0.005	0.00029
L5-TNCP	5/3/2018 2:13	TJ2685	<0.000002	0.0045	0.0037	-	7.06	0.00082	1.45	<0.00002	9.72	0.149	32.2	<0.00001	<0.005	0.0066	0.00268	<0.005	<0.005	0.00034
L5-TNCP	5/3/2018 7:45	TJ2677	<0.000002	0.0044	0.0037	-	7.03	0.0008	1.46	<0.00002	9.92	0.151	32.3	0.000011	<0.005	<0.005	0.00272	<0.005	<0.005	0.00019
L5-TNCP	5/3/2018 13:45	TJ4224	0.0000024	0.0023	0.0078	-	8.83	0.00056	2.28	<0.00002	19.6	0.262	73.4	<0.00001	<0.005	<0.005	0.0029	<0.005	<0.005	0.0003
L5-TNCP	5/3/2018 20:14	TJ4750	0.0000022	0.0048	0.0041	-	7.27	0.00088	1.48	<0.00002	10.1	0.168	35.3	0.000013	<0.005	<0.005	0.00284	<0.005	<0.005	0.0002
L5-TNCP	5/4/2018 2:12	TJ4756	<0.000002	0.0051	0.004	-	7.08	0.00091	1.46	<0.00002	10.4	0.177	36.6	0.000012	<0.005	<0.005	0.00302	<0.005	<0.005	0.00019
L5-TNCP	5/4/2018 7:45	TJ4762	0.0000021	0.0055	0.0037	-	7.13	0.00092	1.48	<0.00002	10.5	0.181	38.3	0.000012	<0.005	<0.005	0.00327	<0.005	<0.005	0.00024
L5-TNCP	5/4/2018 13:45	TJ5500	0.0000068	0.0059	0.005	-	7.61	0.00124	1.93	<0.00002	16.7	0.239	56.9	0.000014	<0.005	<0.005	0.00447	<0.005	<0.005	0.00021
L5-TNCP	5/4/2018 13:45	TJ5499	0.0000069	0.0059	0.005	-	7.75	0.00128	1.97	<0.00002	17.0	0.24	58.0	0.000014	<0.005	<0.005	0.00446	<0.005	<0.005	0.00015
L5-TNCP	5/4/2018 19:30	TJ5486	0.0000021	0.0064	0.0049	-	8.05	0.00125	2.05	<0.00002	17.0	0.245	56.9	0.000016	<0.005	<0.005	0.0046	<0.005	<0.005	0.00015
L5-TNCP	5/5/2018 2:11	TJ5476	0.0000021	0.0064	0.0054	-	8.03	0.00127	2.2	<0.00002	19.7	0.26	62.1	0.000016	<0.005	<0.005	0.00491	<0.005	<0.005	0.00016
L5-TNCP	5/5/2018 8:00	TJ5487	0.0000023	0.0063	0.0052	-	8.27	0.00122	2.13	<0.00002	18.6	0.254	60.3	0.000015	<0.005	<0.005	0.00476	<0.005	<0.005	0.00015
L5-TNCP	5/5/2018 13:45	TJ5672	0.0000068	0.0067	0.0052	-	8.58	0.00128	2.11	<0.00002	19.4	0.239	61.3	0.000018	<0.005	<0.005	0.00507	<0.005	<0.005	0.00016
L5-TNCP	5/5/2018 20:00	TJ5692	0.0000022	0.0072	0.0053	-	8.43	0.00122	2.2	<0.00002	21.6	0.266	61.6	0.00002	<0.005	<0.005	0.00511	<0.005	<0.005	0.00014
L5-TNCP	5/6/2018 2:12	TJ5684	0.0000022	0.0072	0.0054	-	8.56	0.00124	2.25	<0.00002	21.9	0.266	60.1	0.00002	<0.005	<0.005	0.0051	<0.005	<0.005	0.00015
L5-TNCP	5/6/2018 8:00	TJ5686	<0.000002	0.0076	0.0055	-	8.64	0.00134	2.55	<0.00002	29.0	0.288	66.9	0.000021	<0.005	<0.005	0.00556	<0.005	<0.005	0.00013
L5-TNCP	5/6/2018 14:00	TJ7026	<0.000002	0.0078	0.0051	-	8.83	0.00153	2.54	<0.00002	26.7	0.268	66.0	0.000029	<0.005	<0.005	0.00579	<0.005	<0.005	0.00016
L5-TNCP	5/6/2018 20:15	TJ7491	<0.000002	0.0076	0.0055	-	9.12	0.00156	2.84	<0.00002	29.2	0.281	75.3	0.000023	<0.005	<0.005	0.00581	<0.005	<0.005	0.00011
L5-TNCP	5/7/2018 2:05	TJ7484	<0.000002	0.0082	0.0045	-	8.29	0.00164	3.13	<0.00002	38.8	0.279	69.2	0.000017	<0.005	<0.005	0.00644	<0.005	<0.005	0.00019
L5-TNCP	5/7/2018 8:00	TJ7477	<0.000002	0.0069	0.0041	-	7.62	0.00114	1.89	<0.00002	15.3	0.195	45.6	0.000016	<0.005	<0.005	0.00432	<0.005	<0.005	0.00014
L5-TNCP	5/7/2018 14:07	TJ9170	0.0000023	0.007	0.0041	-	7.72	0.00121	1.76	<0.00002	16.2	0.229	46.8	0.000018	<0.005	<0.005	0.00417	<0.005	<0.005	0.00012
L5-TNCP	5/7/2018 22:40	TJ9707	<0.000002	0.0068	0.0041	-	7.66	0.00116	1.76	<0.00002	14.9	0.193	45.3	0.00002	<0.005	<0.005	0.00445	<0.005	<0.005	0.00018
L5-TNCP	5/8/2018 4:33	TJ9698	<0.000002	0.0074	0.0043	-	7.53	0.00115	1.77	<0.00002	15.3	0.185	44.3	0.00002	<0.005	<0.005	0.00446	<0.005	<0.005	0.00013
L5-TNCP	5/8/2018 10:30	TJ9693	<0.000002	0.0075	0.0045	-	7.88	0.00113	1.8	<0.00002	15.8	0.189	46.3	0.000021	<0.005	<0.005	0.0046	<0.005	<0.005	0.00013
L5-TNCP	5/8/2018 16:36	TK1903	0.0000022	0.0082	0.0043	-	8.14	0.00115	1.98	<0.00002	18.1	0.206	47.6	0.00002	<0.005	<0.005	0.00452	<0.005	<0.005	0.0002
L5-TNCP	5/8/2018 22:36	TK1908	0.0000025	0.0082	0.0043	-	8.20	0.00116	1.98	<0.00002	18.3	0.208	48.8	0.000019	<0.005	<0.005	0.00452	<0.005	<0.005	0.00016
L5-TNCP	5/9/2018	TK5298	0.0000028	0.0096	0.0047	-	9.27	0.00122	2.47	<0.00002	20.9	0.224	60.3	0.000026	<0.005	<0.005	0.00551	<0.005	<0.005	0.00016
L5-TNCP	5/9/2018 4:31	TK1911	0.0000027	0.0086	0.0044	-	8.21	0.00129	1.82	<0.00002	17.5	0.216	50.8	0.000022	<0.005	<0.005	0.00474	<0.005	<0.005	0.00022
L5-TNCP	5/9/2018 10:42	TK1895	0.0000029	0.0089	0.0043	-	7.92	0.00123	2.05	<0.00002	20.3	0.221	49.7	0.000019	<0.005	<0.005	0.00484	<0.005	<0.005	0.00021
L5-TNCP	5/9/2018 22:40	TK5236	0.0000028	0.0091	0.0049	-	9.16	0.00123	2.4	0.000022	22.5	0.223	58.9	0.000025	<0.005	<0.005	0.00543	<0.005	<0.005	<0.0001
L5-TNCP	5/10/2018 4:35	TK5241	0.0000029	0.0095	0.0048	-	8.73	0.00119	2.52	<0.00002	22.1	0.223	55.5	0.000025	<0.005	<0.005	0.00556	<0.005	<0.005	<0.0001
L5-TNCP	5/10/2018 10:40	TK5248	<0.000002	0.0095	0.0049	-	8.98	0.0012	2.48	<0.00002	23.4	0.235	61.1	0.000025	<0.005	<0.005	0.00559	<0.005	<0.005	0.0001
L5-TNCP	5/10/2018 16:46	TK5254	<0.000002	0.0096	0.0051	-	9.32	0.00129	2.51	<0.00002	24.3	0.232	63.8	0.000028	<0.005	<0.005	0.0056	<0.005	<0.005	0.00011
L5-TNCP	5/10/2018 16:48	TK5255	<0.000002	0.0095	0.0063	-	8.61	0.00178	2.57	<0.00002	21.8	0.235	3660	0.000031	<0.005	<0.005	0.0058	<0.005	0.0062	0.00069
L5-TNCP	5/10/2018 22:35	TK5496	0.0000027	0.0095	0.0047	-	9.30	0.00122	2.63	<0.00002	24.5	0.233	59.8	0.000025	<0.005	<0.005	0.00548	<0.005	<0.005	0.00017
L5-TNCP	5/11/2018 4:32	TK5501	0.0000027	0.0096	0.0048	-	9.31	0.00121	2.68	<0.00002	24.1	0.234	62.9	0.000024	<0.005	<0.005	0.00567	<0.005	<0.005	0.00012
L5-TNCP	5/11/2018 10:30	TK6056	0.0000026	0.0098	0.0052	-	9.28	0.00119	2.56	<0.00002	28.3	0.237	60.7	0.000028	<0.005	<0.005	0.006	<0.005	<0.005	<0.0001
L5-TNCP	5/11/2018 16:30	TK6049	0.0000023	0.0096	0.0051	-	8.97	0.0013	2.69	<0.00002	27.2	0.242	58.3	0.000026	<0.005	<0.005	0.00587	<0.005	<0.005	0.0002
L5-TNCP	5/12/2018 13:17	TK6553	0.0000025	0.0098	0.0055	-	8.70	0.00112	2.32	<0.00002	28.5	0.259	57.9	0.000019	<0.005	<0.005	0.00557	<0.005	<0.005	0.00011
L5-TNCP	5/26/2018 16:40	TM9443	<0.000002	0.0118	0.0052	-	10.9	0.0015	2.1	<0.00002	33.2	0.407	94.5	0.000022	<0.005	<0.005	0.00963	<0.005	<0.005	0.00014
L5-TNCP	5/30/2018 6:40	TN9747	<0.000002	0.0117	0.0059	-	11.3	0.00137	2.66	<0.00002	34.2	0.445	101	0.000022	<0.005	<0.005	0.011	<0.005	<0.005	0.00014
L5-TNCP	6/8/2018 10:56	TP6118	<0.000002	0.0096	0.0049	-	9.04	0.00195	3.31	0.000046	38.3	0.431	98.4	0.000022	<0.005	<0.005	0.0109	<0.005	<0.005	0.00015

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	D-SO_4
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	6/12/2018 13:00	TQ4132	8.34	1150	965	780	-	663	538	305	2.9	365	3.5	<1.0	5.54	0.310	0.097	356
L5-TNCP	6/25/2018	TS9114	8.28	1560	191	1010	166	595	558	523	<1.0	638	<1.0	<1.0	3.52	0.310	0.13	386
L5-TNCP	6/26/2018 13:25	TT0846	2.79	4500	455	5210	193	1920	1710	<1.0	<1.0	<1.0	<1.0	<1.0	2.84	0.160	0.47	2260
L5-TNCP	7/9/2018 16:50	TV3541	2.98	4550	225	-	-	2500	2470	<1.0	<1.0	<1.0	<1.0	<1.0	9.40	2.00	0.39	3420
L5-TNCP	7/21/2018 11:55	TX5551	7.88	2060	24.7	1720	24.5	1070	1040	177	<1.0	215	<1.0	<1.0	2.74	0.370	0.30	1210
L5-TNCP	7/26/2018 18:00	TY5334	8.29	1680	2.17	1180	34.5	654	612	406	<1.0	495	<1.0	<1.0	3.56	0.480	0.21	569
L5-TPSP	3/14/2018 16:15	TC7636	7.85	988	9.29	642	18.5	480	459	64.1	<1.0	78.2	<1.0	<1.0	12.9	0.370	0.13	425
L5-TPSP	3/19/2018 15:35	TD4115	8.04	1040	52.2	666	90.5	414	395	103	<1.0	125	<1.0	<1.0	16.3	0.350	0.15	367
L5-TPSP	3/20/2018 12:30	TD4119	8.09	962	18.4	618	32.8	389	378	104	<1.0	127	<1.0	<1.0	14.4	0.320	0.14	336
L5-TPSP	3/21/2018 11:50	TD7852	8.22	877	125	590	109	382	355	136	<1.0	166	<1.0	<1.0	13.8	0.260	0.12	335
L5-TPSP	3/23/2018 11:20	TD9510	8.26	1210	144	880	36.8	553	515	195	<1.0	238	<1.0	<1.0	23.2	0.340	0.17	427
L5-TPSP	4/5/2018 15:40	TF7753	7.12	77.5	>4000	330	5770	441	162	17.2	<1.0	21.0	<1.0	<1.0	2.90	0.024	0.032	143
L5-TPSP	4/10/2018 16:45	TG4222	7.98	770	34.3	490	72.8	409	333	113	<1.0	138	<1.0	<1.0	4.56	0.330	0.14	287
L5-TPSP	4/11/2018 13:15	TG5966	8.01	615	37.5	410	41.5	263	260	107	<1.0	131	<1.0	<1.0	4.63	0.210	0.069	192
L5-TPSP	4/12/2018 18:30	TG7677	8.05	651	17.2	436	36.5	263	260	111	<1.0	135	<1.0	<1.0	6.10	0.190	0.11	217
L5-TPSP	4/14/2018 15:25	TH0423	8.03	725	26.6	434	49.5	290	288	103	<1.0	126	<1.0	<1.0	7.75	0.2	0.11	270
L5-TPSP	4/18/2018 17:45	TH5882	8.10	791	32.7	518	47.5	293	290	110	<1.0	135	<1.0	<1.0	11.2	0.220	0.13	269
L5-TPSP	4/19/2018 15:15	TH5947	8.18	809	9.80	504	15.5	268	287	111	<1.0	135	<1.0	<1.0	11.7	0.230	0.14	274
L5-TPSP	4/20/2018 17:30	TH8460	8.11	867	18.7	504	15.8	293	294	107	<1.0	131	<1.0	<1.0	11.0	0.290	0.15	283
L5-TPSP	4/21/2018 15:10	TH8457	8.10	924	42.0	554	45.0	322	317	112	<1.0	137	<1.0	<1.0	11.2	0.310	0.15	308
L5-TPSP	4/22/2018 15:00	TH8484	7.99	1460	41.5	974	24.0	399	419	104	<1.0	127	<1.0	<1.0	19.3	0.490	0.38	604
L5-TPSP	4/23/2018 16:10	TH9254	8.11	1470	54.7	950	63.3	345	290	65.9	<1.0	80.4	<1.0	<1.0	19.8	0.510	0.36	553
L5-TPSP	4/24/2018 11:28	TI1783	8.53	1610	21.6	1050	29.0	377	354	87.8	3.1	99.4	3.8	<1.0	21.1	0.560	0.39	638
L5-TPSP	4/25/2018 12:30	TI3531	7.93	1650	17.1	1050	27.5	293	296	69.9	<1.0	85.3	<1.0	<1.0	20.0	0.650	0.38	690
L5-TPSP	4/26/2018 13:50	TI3468	7.94	1750	5.77	1170	13.0	321	332	71.8	<1.0	87.6	<1.0	<1.0	20.5	0.670	0.40	752
L5-TPSP	4/27/2018 10:50	TI4642	7.94	1810	2.15	1260	7.8	344	346	74.9	<1.0	91.3	<1.0	<1.0	20.5	0.690	0.45	783
L5-TPSP	4/28/2018 9:10	TI5385	8.02	1860	2.04	1310	5.5	363	358	84.7	<1.0	103	<1.0	<1.0	21.1	0.760	0.41	816
L5-TPSP	4/29/2018 11:20	TI7034	8.04	1850	6.52	1210	14.8	366	369	93.3	<1.0	114	<1.0	<1.0	20.1	0.770	0.40	806
L5-TPSP	4/30/2018 10:35	TI8576	8.04	1890	2.92	1370	8.3	411	404	89.0	<1.0	109	<1.0	<1.0	20.3	0.810	0.41	816
L5-TPSP	5/1/2018 11:00	TJ1441	7.98	1950	8.28	1340	16.8	414	401	89.0	<1.0	109	<1.0	<1.0	21.1	0.890	0.54	855
L5-TPSP	5/2/2018 8:30	TJ1500	7.78	2200	20.2	1710	61.0	485	497	73.4	<1.0	89.5	<1.0	<1.0	21.9	1.00	0.68	1040
L5-TPSP	5/3/2018 11:50	TJ4285	7.84	2740	11.8	1960	24.5	609	627	62.0	<1.0	75.6	<1.0	<1.0	23.1	1.20	0.68	1390
L5-TPSP	5/3/2018 11:50	TJ4281	7.82	2770	10.3	1870	10.3	634	628	62.2	<1.0	75.9	<1.0	<1.0	22.8	1.20	0.66	1400
L5-TPSP	5/4/2018 17:45	TJ5492	7.83	2940	4.84	2110	13.0	690	718	57.6	<1.0	70.2	<1.0	<1.0	24.6	1.20	0.79	1550
L5-TPSP	5/5/2018 12:10	TJ6367	7.58	1700	3.01	1560	8.3	704	720	60.9	<1.0	74.3	<1.0	<1.0	24.1	1.20	0.77	1610
L5-TPSP	5/6/2018 14:00	TJ7041	8.04	3140	4.04	2260	7.8	791	785	57.9	<1.0	70.6	<1.0	<1.0	25.2	1.30	0.93	1640
L5-TPSP	5/7/2018 10:20	TJ8509	7.91	3230	2.33	2290	14.8	781	791	53.1	<1.0	64.8	<1.0	<1.0	26.9	1.30	0.82	1770
L5-TPSP	5/8/2018 12:15	TK0809	7.66	3320	3.22	2470	7.5	804	834	49.5	<1.0	60.4	<1.0	<1.0	24.8	1.40	0.87	1690
L5-TPSP	5/9/2018 6:25	TK3821	7.92	3400	1.49	2810	<4.0	865	828	49.2	<1.0	60.0	<1.0	<1.0	25.7	1.40	0.88	1740
L5-TPSP	5/10/2018 6:30	TK5559	7.75	3540	8.18	2560	10.8	994	1020	47.4	<1.0	57.8	<1.0	<1.0	27.5	1.50	0.86	1810
L5-TPSP	5/11/2018 6:20	TK5493	7.99	3470	4.54	2790	19.3	999	953	50.1	<1.0	61.1	<1.0	<1.0	26.7	1.50	0.88	1770
L5-TPSP	5/12/2018 6:20	TK7570	7.66	3730	8.22	3000	30.5	1110	961	48.6	<1.0	59.2	<1.0	<1.0	28.2	1.60	0.91	1970
L5-TPSP	5/13/2018 6:40	TK7585	7.80	3940	18.6	3190	31.0	1230	1030	66.2	<1.0	80.7	<1.0	<1.0	29.7	1.60	1.0	2180
L5-TPSP	5/14/2018	TK8139	7.79	4120	18.3	3430	42.3	1110	1110	79.5	<1.0	97.0	<1.0	<1.0	36.8	1.50	0.90	2360
L5-TPSP	5/15/2018 12:10	TL0260	7.99	4480	4.55	3710	7.5	1240	1270	102	<1.0	124	<1.0	<1.0	37.1	1.70	1.1	2490
L5-TPSP	5/30/2018 6:55	TN9748	8.08	1010	3.23	710	4.0	443	453	106	<1.0	129	<1.0	<1.0	1.39	0.570	0.11	331
L5-TPSP	5/31/2018	TN9637	8.02	969	0.86	702	<4.0	453	431	95.4	<1.0	116	<1.0	<1.0	1.44	0.570	0.11	366
L5-TPSP	6/1/2018	TO1002	7.97	984	0.83	704	<4.0	442	455	88.9	<1.0	109	<1.0	<1.0	1.16	0.560	0.11	381
L5-TPSP	6/2/2018 6:35	TO4783	8.11	985	3.17	676	4.0	456	455	93.8	<1.0	114	<1.0	<1.0	1.55	0.550	0.10	402
L5-TPSP	6/3/2018 7:00	TO4801	8.05	992	2.05	686	<4.0	468	471	93.2	<1.0	114	<1.0	<1.0	1.53	0.580	0.11	405
L5-TPSP	6/4/2018 13:00	TO7167	8.07	935	131	626	117	426	443	84.8	<1.0	103	<1.0	<1.0	1.53	0.490	0.11	387
L5-TPSP	6/5/2018 14:00	TP0511	8.00	942	11.9	688	12.3	434	437	83.4	<1.0	102	<1.0	<1.0	1.74	0.490	0.10	409
L5-TPSP	6/6/2018 6:55	TP0517	7.98	958	7.73	640	9.0	421	426	85.9	<1.0	105	<1.0	<1.0	2.38	0.490	0.16	410
L5-TPSP	6/7/2018 6:45	TP6776	8.02	1000	17.2	698	12.3	426	469	89.4	<1.0	109	<1.0	<1.0	3.08	0.470	0.13	402
L5-TPSP	6/8/2018 19:00	TP8931	7.89	1040	5.10	704	26.3	490	481	96.9	<1.0	118	<1.0	<1.0	2.88	0.470	0.12	418
L5-TPSP	6/9/2018 18:20	TP8999	8.07	1090	11.1	768	14.0	532	505	101	<1.0	123	<1.0	<1.0	3.72	0.470	0.13	467
L5-TPSP	6/10/2018 18:10	TP9978	8.09	1110	9.49	814	13.5	511	514	103	<1.0	126	<1.0	<1.0	4.01	0.490	0.13	534
L5-TPSP	6/11/2018 15:00	TQ0649	8.12	1130	12.6	798	14.3	521	530	105	<1.0	128	<1.0	<1.0	3.81	0.490	0.14	541
L5-TPSP	6/12/2018 11:50	TQ4131	8.09	1150	7.11	790	8.5	568	550	105	<1.0	128	<1.0	<1.0	4.07	0.510	0.14	471
L5-TPSP	6/13/2018 15:00	TQ8814	8.11	1160	5.99	838	21.0	581	507	107	<1.0	130	<1.0	<1.0	4.22	0.490	0.14	484
L5-TPSP	6/14/2018 16:50	TQ8830	8.09	1120	3.89	824	13.8	537	526	101	<1.0	123	<1.0	<1.0	4.09	0.470	0.14	505
L5-TPSP	6/15/2018 17:10	TR1409	8.10	1120	8.00	830	15.3	503	509	98.9	<1.0	121	<1.0	<1.0	4.30	0.470	0.13	493
L5-TPSP	6/16/2018 18:55	TR1381	8.09	1140	6.95	758	9.8	502	542	102	<1.0	124	<1.0	<1.0	6.13	0.480	0.13	458
L5-TPSP	6/17/2018 19:00	TR2102	8.13	1160	7.70	792	8.8	545	551	102	<1.0	124	<1.0	<1.0	4.77	0.500	0.14	563

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	6/12/2018 13:00	TQ4132	0.13	0.0193	<0.020	0.033	0.0130	15.6	8.27	10.3	0.00097	0.0136	0.47	0.00084	<0.001	0.151	0.00124	154	0.0214	0.0129	0.0444
L5-TNCP	6/25/2018	TS9114	0.049	0.0212	0.303	0.325	<0.0050	5.73	4.06	2.28	<0.0005	0.00254	0.0958	0.00013	<0.001	0.249	0.000123	87.7	0.0035	0.00186	0.00564
L5-TNCP	6/26/2018 13:25	TT0846	0.62	0.0513	1.51	1.57	2.23	5.98	4.53	182	<0.01	0.0963	0.141	0.035	<0.02	<1	0.0942	455	0.143	1.25	1.47
L5-TNCP	7/9/2018 16:50	TV3541	0.95	0.0112	1.92	1.93	0.0398	3.9	2.8	131	<0.025	<0.005	0.161	0.0281	<0.05	<2.5	0.089	640	0.068	1.18	1.07
L5-TNCP	7/21/2018 11:55	TX5551	0.56	0.0999	1.45	1.55	<0.0050	3.7	3.2	0.638	0.00057	0.00098	0.0931	<0.0001	<0.001	0.11	0.00299	282	<0.001	0.0635	0.00224
L5-TNCP	7/26/2018 18:00	TY5334	0.073	0.0304	1.16	1.19	<0.0050	4.1	3.1	0.103	<0.0005	0.00055	0.0287	<0.0001	<0.001	0.257	0.000038	96.6	<0.001	0.011	0.00154
L5-TPSP	3/14/2018 16:15	TC7636	0.76	0.0437	1.23	1.27	<0.0050	4.66	4.47	0.276	0.00074	0.00073	0.0525	<0.0001	<0.001	0.052	0.00011	122	0.0013	0.00329	0.00235
L5-TPSP	3/19/2018 15:35	TD4115	1.1	0.0981	0.841	0.939	<0.0050	5.89	4.84	3.62	0.00188	0.00316	0.164	0.00016	<0.001	0.053	0.000247	110	0.0059	0.00509	0.00876
L5-TPSP	3/20/2018 12:30	TD4119	0.91	0.0941	0.821	0.915	<0.0050	5.43	4.46	1.2	0.0015	0.00134	0.11	<0.0001	<0.001	<0.05	0.000114	104	0.0021	0.00312	0.00362
L5-TPSP	3/21/2018 11:50	TD7852	0.78	0.0943	0.675	0.769	<0.0050	4.49	4.13	2.06	0.00153	0.00243	0.161	0.0001	<0.001	<0.05	0.000209	98.8	0.0041	0.00329	0.00818
L5-TPSP	3/23/2018 11:20	TD9510	1.0	0.151	0.933	1.08	<0.0050	8.16	7.10	0.898	0.00225	0.00132	0.165	<0.0001	<0.001	0.055	0.000088	146	0.0019	0.00214	0.00409
L5-TPSP	4/5/2018 15:40	TF7753	1.3	0.0276	0.111	0.138	<0.0050	2.58	1.67	34.3	<0.0025	0.0212	0.979	0.00178	<0.005	<0.25	0.00253	119	0.0529	0.0255	0.088
L5-TPSP	4/10/2018 16:45	TG4222	1.3	0.0392	0.274	0.313	<0.0050	3.41	1.80	4.31	0.00197	0.00492	0.224	0.00028	<0.001	<0.05	0.000745	106	0.0088	0.00741	0.0206
L5-TPSP	4/11/2018 13:15	TG5966	1.2	0.0477	0.364	0.412	<0.0050	3.74	2.58	0.39	0.002	0.00101	0.068	<0.0001	<0.001	<0.05	0.000086	63.0	0.0011	0.00221	0.0027
L5-TPSP	4/12/2018 18:30	TG7677	1.2	0.0454	0.401	0.447	0.0398	3.83	3.40	0.889	0.00203	0.00156	0.0615	<0.0001	<0.001	<0.05	0.000098	60.2	0.0021	0.00203	0.00432
L5-TPSP	4/14/2018 15:25	TH0423	1.1	0.0433	0.578	0.621	<0.0050	3.34	2.45	0.994	0.00204	0.00133	0.0699	<0.0001	<0.001	<0.05	0.000073	67.8	0.0019	0.00164	0.0035
L5-TPSP	4/18/2018 17:45	TH5882	1.1	0.0498	0.651	0.701	0.0074	3.86	2.06	0.907	0.00225	0.00135	0.0696	<0.0001	<0.001	0.052	0.000088	68.7	0.0022	0.00167	0.00365
L5-TPSP	4/19/2018 15:15	TH5947	1.1	0.0532	0.652	0.706	0.0258	3.59	3.25	0.313	0.0021	0.00101	0.0564	<0.0001	<0.001	<0.05	0.000056	61.8	0.0012	0.00122	0.00309
L5-TPSP	4/20/2018 17:30	TH8460	1.1	0.0488	0.642	0.691	<0.0050	3.62	2.54	0.231	0.00231	0.00061	0.0615	<0.0001	<0.001	0.051	0.000183	66.9	<0.001	0.00397	0.00189
L5-TPSP	4/21/2018 15:10	TH8457	1.1	0.0625	0.626	0.688	<0.0050	3.67	3.08	0.853	0.00215	0.00105	0.0672	<0.0001	<0.001	0.059	0.000256	75.4	0.0016	0.00685	0.00439
L5-TPSP	4/22/2018 15:00	TH8484	1.3	0.0572	1.15	1.21	<0.0050	3.50	2.70	0.311	0.00157	0.00058	0.0605	<0.0001	<0.001	0.084	0.000867	90.2	<0.001	0.0273	0.00176
L5-TPSP	4/23/2018 16:10	TH9254	1.7	0.0664	1.01	1.08	<0.0050	5.74	4.80	0.251	0.00151	0.00081	0.0431	<0.0001	<0.001	0.095	0.000286	68.3	0.0021	0.0181	0.00508
L5-TPSP	4/24/2018 11:28	TI1783	1.6	0.0721	1.12	1.19	0.0149	4.87	4.81	0.208	0.00149	0.00063	0.047	<0.0001	<0.001	0.103	0.000275	73.4	0.0018	0.0191	0.00359
L5-TPSP	4/25/2018 12:30	TI3531	1.5	0.0651	1.07	1.14	0.0065	6.67	6.39	0.153	0.00145	0.00073	0.0282	<0.0001	<0.001	0.102	0.000045	47.3	0.0015	0.00242	0.00452
L5-TPSP	4/26/2018 13:50	TI3468	1.3	0.0638	1.09	1.15	<0.0050	5.78	5.15	0.173	0.00149	0.00075	0.034	<0.0001	<0.001	0.109	0.000049	52.3	0.001	0.00435	0.0037
L5-TPSP	4/27/2018 10:50	TI4642	1.2	0.0724	1.08	1.15	<0.0050	5.76	4.47	0.146	0.00148	0.00064	0.0325	<0.0001	<0.001	0.121	0.000049	57.6	<0.001	0.00496	0.00335
L5-TPSP	4/28/2018 9:10	TI5385	1.1	0.0737	1.05	1.13	0.0236	4.34	3.84	0.074	0.00145	0.00057	0.0322	<0.0001	<0.001	0.116	0.000053	62.8	<0.001	0.00478	0.00264
L5-TPSP	4/29/2018 11:20	TI7034	0.99	0.0880	1.36	1.45	<0.0050	5.41	3.93	0.149	0.00152	0.00053	0.037	<0.0001	<0.001	0.12	0.000043	65.3	<0.001	0.00615	0.00214
L5-TPSP	4/30/2018 10:35	TI8576	0.89	0.0868	1.38	1.46	<0.0050	3.60	3.36	0.0524	0.00163	0.00046	0.0383	<0.0001	<0.001	0.138	0.000034	72.8	<0.001	0.00513	0.00195
L5-TPSP	5/1/2018 11:00	TJ1441	0.77	0.0855	1.46	1.54	<0.0050	4.76	5.11	0.227	0.00156	0.00062	0.0382	<0.0001	<0.001	0.123	0.000045	69.5	<0.001	0.00398	0.002
L5-TPSP	5/2/2018 8:30	TJ1500	0.92	0.0948	1.42	1.51	<0.0050	3.92	3.64	0.307	0.00142	0.00057	0.0436	<0.0001	<0.001	0.157	0.000481	79.9	<0.001	0.018	0.00231
L5-TPSP	5/3/2018 11:50	TJ4285	0.97	0.118	1.39	1.51	<0.0050	4.66	4.12	0.364	<0.001	0.00089	0.0513	<0.0002	<0.002	0.163	0.000656	100	<0.002	0.0275	0.0027
L5-TPSP	5/3/2018 11:50	TJ4281	0.94	0.119	1.38	1.50	<0.0050	4.35	2.99	0.294	<0.001	0.00073	0.0488	<0.0002	<0.002	0.167	0.000664	103	<0.002	0.0277	0.0017
L5-TPSP	5/4/2018 17:45	TJ5492	0.70	0.110	1.35	1.46	<0.0050	4.64	4.11	0.15	<0.001	0.00053	0.0436	<0.0002	<0.002	0.176	0.000483	116	<0.002	0.0238	0.0011
L5-TPSP	5/5/2018 12:10	TJ6367	0.56	0.118	1.24	1.36	<0.0050	5.00	4.43	0.0839	<0.001	0.00047	0.0413	<0.0002	<0.002	0.176	0.000332	122	<0.002	0.018	<0.001
L5-TPSP	5/6/2018 14:00	TJ7041	0.46	0.110	1.15	1.26	<0.0050	5.19	4.58	0.209	0.00087	0.00053	0.0464	<0.0001	<0.001	0.2	0.000185	137	<0.001	0.0128	0.00161
L5-TPSP	5/7/2018 10:20	TJ8509	0.16	0.105	0.932	1.04	<0.0050	4.66	3.79	0.361	<0.0025	0.00086	0.0547	<0.0005	<0.005	<0.25	0.000135	138	<0.005	0.0085	<0.0025
L5-TPSP	5/8/2018 12:15	TK0809	0.072	0.0846	0.729	0.813	<0.0050	1.61	1.18	0.135	<0.0025	0.00061	0.0414	<0.0005	<0.005	<0.25	0.000062	145	<0.005	0.0042	<0.0025
L5-TPSP	5/9/2018 6:25	TK3821	0.068	0.0687	0.543	0.612	<0.0050	4.72	<0.50	0.073	<0.0025	0.00057	0.0381	<0.0005	<0.005	<0.25	<0.00005	157	<0.005	0.0025	<0.0025
L5-TPSP	5/10/2018 6:30	TK5559	0.047	0.0283	0.142	0.171	<0.0050	2.92	2.75	0.202	<0.0025	0.00075	0.0404	<0.0005	<0.005	<0.25	<0.00005	186	<0.005	0.0013	<0.0025
L5-TPSP	5/11/2018 6:20	TK5493	0.048	0.0487	0.281	0.330	<0.0050	2.04	1.95	0.051	<0.0025	0.00057	0.0351	<0.0005	<0.005	<0.25	<0.00005	183	<0.005	0.0016	<0.0025
L5-TPSP	5/12/2018 6:20	TK7570	0.058	0.0119	0.055	0.067	<0.0050	7.02	4.51	0.3	<0.0025	0.00097	0.0405	<0.0005	<0.005	<0.25	<0.00005	206	<0.005	0.0011	<0.0025
L5-TPSP	5/13/2018 6:40	TK7585	0.083	0.0103	0.041	0.051	0.0161	6.56	5.26	0.816	<0.0025	0.00144	0.0542	<0.0005	<0.005	0.257	0.000091	229	<0.005	0.0017	0.0034
L5-TPSP	5/14/2018	TK8139	0.046	0.0155	<0.020	0.020	<0.0050	6.38	6.29	1.32	<0.0025	0.00111	0.0469	<0.0005	<0.005	<0.25	0.000116	213	<0.005	0.0019	0.0027
L5-TPSP	5/15/2018 12:10	TL0260	0.080	0.0074	<0.020	<0.020	<0.0050	7.35	5.79	0.134	<0.0025	0.00102	0.0359	<0.0005	<0.005	0.29	0.000072	230	<0.005	0.0013	<0.0025
L5-TPSP	5/30/2018 6:55	TN9748	0.066	0.0144	0.209	0.223	<0.0050	5.11	2.25	0.0579	0.00103	0.00052	0.0404	<0.0001	<0.001	0.062	0.000017	102	<0.001	0.00023	0.0021
L5-TPSP	5/31/2018	TN9637	0.029	0.0126	0.140	0.153	<0.0050	4.78	3.28	0.0379	0.00114	0.00052	0.0426	<0.0001	<0.001	0.063	0.000018	103	<0.001	0.0002	0.00213
L5-TPSP	6/1/2018	TO1002	0.045	0.0100	0.088	0.098	<0.0050	3.25	2.96	0.0323	0.00106	0.00046	0.0388	<0.0001	<0.001	0.061	0.000014	101	<0.001	<0.0002	0.00212
L5-TPSP	6/2/2018 6:35	TO4783	<0.020	0.0111	0.057	0.068	<0.0050	2.85	3.27	0.107	0.0012	0.00065	0.0411	<0.0001	<0.001	0.062	0.000016	101	<0.001	0.00027	0.00231
L5-TPSP	6/3/2018 7:00	TO4801	0.032	0.0079	0.028	0.036	<0.0050	4.25	3.98	0.0882	0.00113	0.00058	0.0405	<0.0001	<0.001	0.067	0.000024	108	<0.001	0.00024	0.00205
L5-TPSP	6/4/2018 13:00	TO7167	0.11	<0.0050	0.203	0.203	<0.0050	4.72	3.38	2.07	0.00112	0.00243	0.0867	0.00012	<0.001	0.07	0.000158	101	0.0039	0.0021	0.00813
L5-TPSP	6/5/2018 14:00	TP0511	0.11	0.0067	0.136	0.142	<0.0050	4.48	3.08	0.65	0.00108	0.00073	0.0532	<0.0001	<0.001	0.06	0.000034	102	0.0011	0.00043	0.00297
L5-TPSP	6/6/2018 6:55	TP0517	0.092	0.0093	0.183	0.193	<0.0050	4.09	2.76	0.35	0.00104	0.0007	0.0539	<0.0001	<0.001	0.065	0.000036	97.9	<0.001	0.00036	0.00272
L5-TPSP	6/7/2018 6:45	TP6776	0.12	0.0131	0.174	0.187	0.0033	3.29	2.82	0.392	0.00099	0.00081	0.0505	<0.0001	<0.001	0.065	0.000044	97.5	<0.001	0.00061	0.00267
L5-TPSP	6/8/2018 19:00	TP8931	0.11	0.0157	0.170	0.186	0.0059	4.96	4.58	0.752	0.00095	0.00089	0.051	<0.0001	<0.001	0.073	0.000078	126	0.0013	0.00066	0.00288
L5-TPSP	6/9/2018 18:20	TP8999	0.13	0.0158	0.177	0.193	0.0033	8.98	4.29	0.427	0.001	0.00078	0.051	<0.0001	<0.001	0.077	0.000054	136	<0.001	0.00062	0.00276
L5-TPSP	6/10/2018 18:10	TP9978	0.15	0.0111	0.171	0.182	<0.0030	5.40	3.92	0.359	0.00096	0.00076	0.0491	<0.0001	<0.001	0.076	0.000058	128	<0.001	0.00053	0.00255
L5-TPSP	6/11/2018 15:00	TQ0649	0.11	0.0221	0.169	0.191	<0.0030	3.73	0.57	0.785	0.00095	0.00085	0.0534	<0.0001	<0.001	0.076	0.000061	126	0.0013	0.00063	0.00292
L5-TPSP	6/12/2018 11:50	TQ4131	0.13	0.0263	0.187	0.213	<0.0050	5.03	4.24	0.133	0.001	0.00065	0.0489	<0.0001	<0.001	0.07	0.000053	137	<0.001	0.00051	0.00256
L5-TPSP	6/13/2018 15:00	TQ8814	0.090	0.0255	0.189	0.215	<0.0040	5.13	2.97	0.316	0.00101	0.0008	0.0507	<0.0001	<0.001	0.073	0.000068	140	<0.001	0.00052	0.00304
L5-TPSP	6/14/2018 16:50	TQ8830	0.11	0.0265	0.229	0.255	<0.0040	4.80	3.52	0.159	0.0009	0.00063	0.0435	<0.0001	<0.001	0.066	0.00004	134	<0.001	0.00037	0.00273
L5-TPSP	6/15/2018 17:10	TR1409	0.090	0.0248	0.232	0.257	<0.0040	4.57	3.46	0.397	0.00091	0.00072	0.0462	<0.0001	<0.001	0.066	0.000044	124	<0.001	0.00044	0.00296
L5-TPSP	6/16/2018 18:55	TR1381	0.074	0.0164	0.214	0.231	<0.0040	5.68	4.35	0.212	0.0009	0.00068	0.0457	<0.0001	<0.001	0.066	0.000039	123	<0.001	0.00039	0.00427
L5-TPSP	6/17/2018 19:00	TR2102	0.040	0.0197	0.179	0.199	0.0064	5.66	3.97	0.297	0.00096	0.00067	0.0468	<0.0001	<0.001	0.07	0.000042	134	<0.001	0.00037	0.00298

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	6/12/2018 13:00	TQ4132	34	0.0221	0.0403	67.7	0.66	0.0000028	0.0082	0.0456	-	11.7	0.00221	20.2	0.000423	66.8	0.569	131	0.000299	<0.005	0.101	0.0133
L5-TNCP	6/25/2018	TS9114	4.06	0.00244	0.0601	91.4	0.0797	<0.000002	0.006	0.0077	-	6.39	0.00166	11.3	0.000044	156	0.576	124	0.000073	<0.005	0.0509	0.0105
L5-TNCP	6/26/2018 13:25	TT0846	369	0.0052	0.62	191	20.9	0.0000111	<0.02	3.79	-	6.2	0.0227	8.51	<0.0004	79.3	1.07	1190	<0.0002	<0.1	<0.1	0.166
L5-TNCP	7/9/2018 16:50	TV3541	116	<0.01	0.541	218	22.4	<0.000002	<0.05	3.56	-	9.0	0.0165	11	<0.001	59.2	1.61	1170	<0.0005	<0.25	<0.25	0.122
L5-TNCP	7/21/2018 11:55	TX5551	1.18	0.0005	0.0939	89.6	4.25	0.000003	0.006	0.174	-	6.58	0.00768	3.32	<0.00002	62.0	0.933	370	0.000051	<0.005	0.0169	0.00632
L5-TNCP	7/26/2018 18:00	TY5334	0.114	<0.0002	0.0747	100	0.172	<0.000002	0.0063	0.0477	-	6.15	0.00364	6.83	<0.00002	166	0.652	194	0.000029	<0.005	<0.005	0.00777
L5-TPSP	3/14/2018 16:15	TC7636	0.421	0.00037	0.0274	42.8	0.198	-	0.0112	0.0138	-	4.64	0.0135	1.91	0.000031	28.4	0.336	166	0.000018	<0.005	<0.005	0.00672
L5-TPSP	3/19/2018 15:35	TD4115	4.64	0.00288	0.0272	34.2	0.216	-	0.0346	0.0209	-	5.82	0.00606	8.58	0.000061	59.9	0.34	137	0.000071	<0.005	0.126	0.00865
L5-TPSP	3/20/2018 12:30	TD4119	1.26	0.00087	0.0196	31.5	0.163	-	0.026	0.0137	-	5.07	0.00491	4.77	0.000025	42.8	0.307	121	0.000031	<0.005	0.047	0.00723
L5-TPSP	3/21/2018 11:50	TD7852	4.03	0.00255	0.0167	32.8	0.189	-	0.0248	0.0152	-	4.94	0.00466	5.25	0.00005	38.4	0.317	100	0.000052	<0.005	0.0517	0.0072
L5-TPSP	3/23/2018 11:20	TD9510	1.12	0.00065	0.0203	46.0	0.185	0.0000025	0.035	0.0126	-	7.23	0.00633	4.81	<0.00002	51.9	0.492	144	0.00003	<0.005	0.0262	0.00971
L5-TPSP	4/5/2018 15:40	TF7753	55.1	0.0359	0.043	35.3	0.934	-	0.023	0.0869	-	9.30	0.00371	61.4	0.00073	14.8	0.424	41	0.000628	<0.025	0.669	0.0103
L5-TPSP	4/10/2018 16:45	TG4222	10.4	0.00835	0.0128	34.8	0.417	-	0.0228	0.0268	-	4.28	0.00336	7.05	0.00017	28.3	0.35	89.5	0.000103	<0.005	0.0953	0.00658
L5-TPSP	4/11/2018 13:15	TG5966	0.87	0.00073	0.0084	25.8	0.136	-	0.024	0.0095	-	3.18	0.00348	1.6	0.00002	21.1	0.227	64.6	0.000016	<0.005	0.0124	0.00498
L5-TPSP	4/12/2018 18:30	TG7677	1.96	0.00131	0.0085	27.3	0.109	-	0.0244	0.0085	-	3.36	0.0036	2.53	0.000041	23.4	0.227	65.8	0.000024	<0.005	0.0309	0.00514
L5-TPSP	4/14/2018 15:25	TH0423	1.56	0.00099	0.0111	29.3	0.106	-	0.0222	0.0074	-	3.79	0.00403	3.2	0.000036	33.8	0.254	86.1	0.00003	<0.005	0.0284	0.00601
L5-TPSP	4/18/2018 17:45	TH5882	1.51	0.00112	0.0138	29.4	0.0892	-	0.0271	0.0081	-	3.87	0.00455	3.42	0.000037	47.2	0.264	93.5	0.000029	<0.005	0.0273	0.00579
L5-TPSP	4/19/2018 15:15	TH5947	0.811	0.0007	0.0124	27.6	0.07	-	0.0253	0.0064	-	3.64	0.00415	2.13	0.000035	43.7	0.248	88.8	0.000019	<0.005	0.009	0.00534
L5-TPSP	4/20/2018 17:30	TH8460	1.43	0.00033	0.0176	30.7	0.116	-	0.0271	0.0171	-	3.85	0.00445	1.91	<0.00002	52.8	0.27	109	0.000018	<0.005	0.0071	0.00585
L5-TPSP	4/21/2018 15:10	TH8457	2.11	0.00104	0.0229	32.4	0.177	-	0.026	0.0281	-	3.95	0.00421	3.28	0.000024	57.5	0.294	117	0.000032	<0.005	0.0265	0.00586
L5-TPSP	4/22/2018 15:00	TH8484	3.35	0.00072	0.0609	42.1	0.578	-	0.0188	0.102	-	3.93	0.00569	2.13	<0.00002	126	0.348	202	0.000027	<0.005	0.0087	0.00483
L5-TPSP	4/23/2018 16:10	TH9254	0.782	0.00033	0.0666	42.4	0.386	-	0.0254	0.0763	-	7.07	0.0068	2.34	<0.00002	189	0.352	211	0.000023	<0.005	0.0074	0.00425
L5-TPSP	4/24/2018 11:28	TI1783	1.63	0.00029	0.0772	47.1	0.413	<0.000002	0.0221	0.0845	-	6.75	0.00662	2.09	<0.00002	199	0.349	230	0.000025	<0.005	<0.005	0.00399
L5-TPSP	4/25/2018 12:30	TI3531	0.627	0.00025	0.0762	42.5	0.0471	<0.000002	0.0292	0.0208	-	9.25	0.00644	2.1	<0.00002	226	0.329	243	0.00002	<0.005	<0.005	0.00253
L5-TPSP	4/26/2018 13:50	TI3468	0.678	0.00027	0.084	46.2	0.109	<0.000002	0.0288	0.0284	-	9.34	0.00689	1.87	<0.00002	237	0.346	250	0.000025	<0.005	<0.005	0.00283
L5-TPSP	4/27/2018 10:50	TI4642	0.495	<0.0002	0.0888	48.6	0.126	<0.000002	0.0285	0.0306	-	9.44	0.00682	1.85	<0.00002	246	0.362	268	0.000023	<0.005	<0.005	0.00301
L5-TPSP	4/28/2018 9:10	TI5385	0.293	<0.0002	0.0944	50.1	0.122	<0.000002	0.0291	0.0298	-	9.78	0.0068	1.72	<0.00002	248	0.377	281	0.000026	<0.005	<0.005	0.00313
L5-TPSP	4/29/2018 11:20	TI7034	0.58	<0.0002	0.0848	49.4	0.146	<0.000002	0.0311	0.0336	-	8.55	0.00657	1.76	<0.00002	231	0.387	252	0.000027	<0.005	<0.005	0.00399
L5-TPSP	4/30/2018 10:35	TI8576	0.218	<0.0002	0.0909	55.7	0.124	<0.000002	0.0319	0.0301	-	9.83	0.00687	1.42	<0.00002	263	0.432	295	0.000027	<0.005	<0.005	0.00441
L5-TPSP	5/1/2018 11:00	TJ1441	0.353	0.00021	0.0894	58.3	0.102	<0.000002	0.0351	0.0259	-	9.91	0.00685	1.47	<0.00002	274	0.497	290	0.000025	<0.005	0.0094	0.00446
L5-TPSP	5/2/2018 8:30	TJ1500	5.13	0.00029	0.118	69.2	0.389	<0.000002	0.0296	0.0764	-	10.1	0.00635	1.17	<0.00002	312	0.468	364	0.000033	<0.005	<0.005	0.00395
L5-TPSP	5/3/2018 11:50	TJ4285	1.72	0.00062	0.156	87.2	0.822	<0.000002	0.0135	0.118	-	9.78	0.00702	1.2	<0.00004	351	0.585	412	0.000034	<0.01	0.011	0.00296
L5-TPSP	5/3/2018 11:50	TJ4281	1.25	0.00045	0.159	91.3	0.847	<0.000002	0.0142	0.12	-	10.3	0.0072	1.04	<0.00004	369	0.603	429	0.000037	<0.01	<0.01	0.00314
L5-TPSP	5/4/2018 17:45	TJ5492	1	<0.0004	0.166	97.4	0.842	<0.000002	0.0132	0.107	-	10.3	0.00723	0.596	<0.00004	383	0.657	460	0.000032	<0.01	<0.01	0.00315
L5-TPSP	5/5/2018 12:10	TJ6367	0.511	<0.0004	0.17	97.2	0.693	<0.000002	0.0131	0.0831	-	9.98	0.00713	0.371	<0.00004	378	0.704	462	0.000029	<0.01	<0.01	0.00324
L5-TPSP	5/6/2018 14:00	TJ7041	0.309	<0.0002	0.187	109	0.558	<0.000002	0.0134	0.0642	-	11.4	0.0074	0.493	<0.00002	426	0.669	538	0.000031	<0.005	<0.005	0.00324
L5-TPSP	5/7/2018 10:20	TJ8509	0.953	<0.001	0.185	106	0.41	<0.000002	0.0134	0.0478	-	11.7	0.00689	0.53	<0.0001	419	0.652	533	<0.00005	<0.025	<0.025	0.00344
L5-TPSP	5/8/2018 12:15	TK0809	0.211	<0.001	0.191	107	0.223	<0.000002	0.0147	0.0277	-	12.3	0.00727	<0.5	<0.0001	426	0.733	567	<0.00005	<0.025	<0.025	0.00323
L5-TPSP	5/9/2018 6:25	TK3821	0.152	<0.001	0.201	115	0.128	<0.000002	0.0142	0.0184	-	11.7	0.00729	<0.5	<0.0001	466	0.699	576	<0.00005	<0.025	<0.025	0.00321
L5-TPSP	5/10/2018 6:30	TK5559	0.376	<0.001	0.195	128	0.0694	<0.000002	0.0157	0.0097	-	14.4	0.00757	<0.5	<0.0001	518	0.77	660	<0.00005	<0.025	<0.025	0.00317
L5-TPSP	5/11/2018 6:20	TK5493	0.076	<0.001	0.186	131	0.0756	<0.000002	0.0146	0.0122	-	13.8	0.00768	<0.5	<0.0001	522	0.71	662	<0.00005	<0.025	<0.025	0.00295
L5-TPSP	5/12/2018 6:20	TK7570	0.34	<0.001	0.199	145	0.0614	<0.000002	0.016	0.0076	-	15.6	0.00829	0.686	<0.0001	558	0.79	760	<0.00005	<0.025	<0.025	0.00359
L5-TPSP	5/13/2018 6:40	TK7585	1.39	<0.001	0.211	160	0.126	<0.000002	0.017	0.01	-	17.6	0.00744	1.75	<0.0001	611	0.906	849	<0.00005	<0.025	0.034	0.00481
L5-TPSP	5/14/2018	TK8139	0.853	<0.001	0.199	141	0.16	<0.000002	0.017	0.0106	-	14.5	0.0076	1.24	<0.0001	553	0.88	775	<0.00005	<0.025	<0.025	0.00542
L5-TPSP	5/15/2018 12:10	TL0260	0.161	<0.001	0.211	162	0.094	<0.000002	0.0179	0.0094	-	15.3	0.00694	<0.5	<0.0001	621	1.08	782	<0.00005	<0.025	<0.025	0.00633
L5-TPSP	5/30/2018 6:55	TN9748	0.1	<0.0002	0.011	45.6	0.0147	<0.000002	0.0146	0.0018	-	4.76	0.00341	0.253	<0.00002	35.7	0.429	143	0.000012	<0.005	<0.005	0.00598
L5-TPSP	5/31/2018	TN9637	0.056	<0.0002	0.011	47.2	0.0121	<0.000002	0.0159	0.0019	-	5.05	0.00345	0.108	<0.00002	36.9	0.454	148	0.000011	<0.005	<0.005	0.00625
L5-TPSP	6/1/2018	TO1002	0.029	<0.0002	0.0102	46.4	0.0092	<0.000002	0.0147	0.0018	-	4.87	0.0035	0.105	<0.00002	36.3	0.412	149	0.00001	<0.005	<0.005	0.00624
L5-TPSP	6/2/2018 6:35	TO4783	0.125	<0.0002	0.0121	49.6	0.0153	0.0000026	0.0164	0.002	-	5.16	0.00343	0.235	<0.00002	38.4	0.448	159	0.000013	<0.005	<0.005	0.00676
L5-TPSP	6/3/2018 7:00	TO4801	0.097	<0.0002	0.0115	48.4	0.0129	0.0000024	0.0161	0.0019	-	5.03	0.00349	0.214	<0.00002	36.6	0.417	143	0.000014	<0.005	<0.005	0.00661
L5-TPSP	6/4/2018 13:00	TO7167	4.9	0.00279	0.0134	42.4	0.076	<0.000002	0.0136	0.008	-	4.79	0.00418	3.96	0.00005	33.5	0.41	138	0.000059	<0.005	0.0409	0.00638
L5-TPSP	6/5/2018 14:00	TP0511	0.533	0.00034	0.0113	43.8	0.0213	<0.000002	0.0141	0.0026	-	4.79	0.0037	1.33	<0.00002	33.9	0.385	137	0.000015	<0.005	0.0161	0.00619
L5-TPSP	6/6/2018 6:55	TP0517	0.44	0.00027	0.012	42.9	0.0256	<0.000002	0.014	0.0025	-	4.61	0.00373	0.942	<0.00002	35.1	0.378	140	0.000016	<0.005	0.0108	0.00604
L5-TPSP	6/7/2018 6:45	TP6776	0.464	0.00031	0.0113	44.3	0.107	<0.000002	0.014	0.0028	-	5.66	0.00385	1.09	0.000044	38.7	0.398	147	0.000021	<0.005	0.0097	0.00619
L5-TPSP	6/8/2018 19:00	TP8931	0.837	0.00044	0.0128	42.4	0.104	<0.000002	0.0134	0.0033	-	5.40	0.00404	2.1	0.000046	34.8	0.419	136	0.000024	<0.005	0.0322	0.00642
L5-TPSP	6/9/2018 18:20	TP8999	0.463	0.00029	0.014	46.7	0.118	<0.000002	0.0143	0.0034	-	5.88	0.00406	1.7	0.00005	38.1	0.451	158	0.000023	<0.005	0.0137	0.00713
L5-TPSP	6/10/2018 18:10	TP9978	0.346	0.00024	0.0124	46.9	0.104	<0.000002	0.0141	0.0033	-	6.29	0.00368	1.39	<0.00002	38.2	0.46	179	0.000026	<0.005	0.0098	0.00684
L5-TPSP	6/11/2018 15:00	TQ0649	0.581	0.00036	0.0129	50.1	0.0976	<0.000002	0.0141	0.0037	-	6.64	0.0037	2.04	0.00007	39.5	0.455	186	0.000028	<0.005	0.0333	0.00689
L5-TPSP	6/12/2018 11:50	TQ4131	0.271	<0.0002	0.0122	55.0	0.0888	<0.000002	0.0141	0.0032	-	6.91	0.00395	0.848	<0.00002	45.2	0.451	196	0.000022	<0.005	<0.005	0.00679
L5-TPSP	6/13/2018 15:00	TQ8814	0.45	0.00026	0.0123	56.0	0.0797	<0.000002	0.0148	0.0036	-	6.65	0.00421	1.01	<0.00002	45.7	0.5	177	0.000025	<0.005	0.0066	0.00651
L5-TPSP	6/14/2018 16:50	TQ8830	0.241	0.0004	0.011	49.2	0.0521	<0.000002	0.0131	0.0029	-	6.19	0.00387	0.796	<0.00002	39.9	0.471	162	0.000019	<0.005	<0.005	0.0058
L5-TPSP	6/15/2018 17:10	TR1409	0.417	0.00026	0.0116	46.8	0.0526	<0.000002	0.0134	0.003	-	5.79	0.00394	1.4	<0.00002	38.9	0.441	156	0.000022	<0.005	0.0109	0.00663
L5-TPSP	6/16/2018 18:55	TR1381	0.266	<0.0002	0.0125	47.1	0.0427	<0.000002	0.0136	0.0029	-	6.17	0.00382	0.946	<0.00002	38.3	0.477	163	0.000018	<0.005	<0.005	0.00637
L5-TPSP	6/17/2018 19:00	TR2102	0.292	<0.0002	0.0121	51.1	0.0362	<0.000002	0.0142	0.0028	-	6.25	0.00421	0.974	<0.00002	42.1	0.466	170	0.000021	<0.005	0.0075	0.00701

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	6/12/2018 13:00	TQ4132	0.0408	0.134	0.00317	0.0039	0.00076	0.00092	0.0691	<0.0001	<0.001	0.138	0.000017	120	<0.001	0.00036	0.00312	0.014	<0.0002	0.023	57.8	0.058
L5-TNCP	6/25/2018	TS9114	0.0077	0.0165	0.00096	0.0185	<0.0005	0.0007	0.0385	<0.0001	<0.001	0.25	<0.00001	76.6	<0.001	0.0005	0.00147	<0.01	<0.0002	0.0592	89.2	0.0186
L5-TNCP	6/26/2018 13:25	TT0846	<0.1	12.1	0.0024	163	<0.01	0.0154	0.138	0.0335	<0.02	<1	0.0888	392	0.119	1.17	1.41	224	0.0047	0.643	178	19.7
L5-TNCP	7/9/2018 16:50	TV3541	<0.25	11.6	<0.005	126	<0.025	<0.005	0.113	0.0256	<0.05	<2.5	0.087	620	0.065	1.14	1.05	82.4	<0.01	0.546	224	22.3
L5-TNCP	7/21/2018 11:55	TX5551	<0.005	0.126	0.00045	0.0118	<0.001	0.00053	0.0687	<0.0002	<0.002	0.103	0.00298	269	<0.002	0.0647	0.0013	<0.02	<0.0004	0.0976	89.8	4.12
L5-TNCP	7/26/2018 18:00	TY5334	<0.005	0.0072	<0.0001	0.0579	<0.0005	0.00053	0.0246	<0.0001	<0.001	0.242	<0.00001	82.1	<0.001	0.0055	0.00094	<0.01	<0.0002	0.0722	98.8	0.0244
L5-TPSP	3/14/2018 16:15	TC7636	<0.005	<0.005	0.00013	0.0137	0.00069	0.00043	0.0436	<0.0001	<0.001	<0.05	0.000086	117	<0.001	0.00234	0.00094	<0.01	<0.0002	0.0264	40.3	0.167
L5-TPSP	3/19/2018 15:35	TD4115	0.0113	0.0231	0.00219	0.0098	0.00185	0.00096	0.0867	<0.0001	<0.001	0.05	0.000084	102	<0.001	0.00291	0.00164	<0.01	<0.0002	0.0246	34.3	0.158
L5-TPSP	3/20/2018 12:30	TD4119	<0.005	0.008	0.00083	0.0092	0.00152	0.00071	0.0924	<0.0001	<0.001	<0.05	0.000071	98.6	<0.001	0.00245	0.00161	<0.01	<0.0002	0.0191	32.0	0.15
L5-TPSP	3/21/2018 11:50	TD7852	0.0073	0.0218	0.00072	0.0048	0.00145	0.00055	0.0976	<0.0001	<0.001	<0.05	0.000032	93.9	<0.001	0.00126	0.00145	<0.01	<0.0002	0.0137	29.3	0.116
L5-TPSP	3/23/2018 11:20	TD9510	<0.005	0.0066	0.00061	0.0111	0.00203	0.00078	0.127	<0.0001	<0.001	<0.05	0.00004	132	<0.001	0.00117	0.00216	<0.01	<0.0002	0.0183	44.8	0.144
L5-TPSP	4/5/2018 15:40	TF7753	0.099	0.314	0.027	0.0696	0.00225	0.00042	0.085	<0.0001	<0.001	<0.05	0.000047	40.1	<0.001	0.00032	0.00161	<0.01	<0.0002	0.0032	15.0	0.0787
L5-TPSP	4/10/2018 16:45	TG4222	0.0172	0.058	0.00126	0.0159	0.00171	0.0005	0.0852	<0.0001	<0.001	<0.05	0.000066	86.5	<0.001	0.00196	0.00133	<0.01	<0.0002	0.0084	28.3	0.202
L5-TPSP	4/11/2018 13:15	TG5966	<0.005	0.0066	0.00025	0.0044	0.00197	0.00049	0.0502	<0.0001	<0.001	<0.05	0.000043	63.3	<0.001	0.00159	0.00102	<0.01	<0.0002	0.0078	24.6	0.116
L5-TPSP	4/12/2018 18:30	TG7677	<0.005	0.0109	0.00043	0.0056	0.00209	0.00047	0.0389	<0.0001	<0.001	<0.05	0.000024	60.3	<0.001	0.00098	0.00103	<0.01	<0.0002	0.0081	26.5	0.0799
L5-TPSP	4/14/2018 15:25	TH0423	<0.005	0.0074	0.00073	0.0088	0.00196	0.00041	0.0424	<0.0001	<0.001	<0.05	0.000032	66.3	<0.001	0.00081	0.00105	<0.01	<0.0002	0.0097	29.7	0.0712
L5-TPSP	4/18/2018 17:45	TH5882	<0.005	0.0088	0.00081	0.0108	0.00219	0.00044	0.0483	<0.0001	<0.001	0.057	0.000031	67.3	<0.001	0.00082	0.00105	<0.01	<0.0002	0.0136	29.7	0.0663
L5-TPSP	4/19/2018 15:15	TH5947	<0.005	<0.005	0.00036	0.0053	0.00221	0.00043	0.0497	<0.0001	<0.001	0.051	0.000024	65.2	<0.001	0.00077	0.00108	<0.01	<0.0002	0.0134	30.3	0.0637
L5-TPSP	4/20/2018 17:30	TH8460	<0.005	0.0281	0.00016	0.0319	0.00229	0.00024	0.058	<0.0001	<0.001	0.057	0.000089	68.0	<0.001	0.00337	0.00088	<0.01	<0.0002	0.0184	30.1	0.107
L5-TPSP	4/21/2018 15:10	TH8457	<0.005	0.0341	0.00129	0.0237	0.00214	0.00028	0.0518	<0.0001	<0.001	0.067	0.000133	73.2	<0.001	0.00557	0.00099	<0.01	<0.0002	0.0225	32.6	0.152
L5-TPSP	4/22/2018 15:00	TH8484	<0.005	0.115	0.00042	0.0035	0.0015	0.00018	0.0546	<0.0001	<0.001	0.099	0.000598	92.2	<0.001	0.0272	0.00054	<0.01	<0.0002	0.0675	45.9	0.604
L5-TPSP	4/23/2018 16:10	TH9254	<0.005	0.0386	0.00026	0.0094	0.00148	0.00053	0.0251	<0.0001	<0.001	0.103	<0.00001	45.8	0.0017	0.00382	0.00355	<0.01	<0.0002	0.066	42.7	0.0433
L5-TPSP	4/24/2018 11:28	TI1783	<0.005	0.0481	0.00013	0.0117	0.00146	0.00038	0.0403	<0.0001	<0.001	0.102	0.000032	68.8	<0.001	0.00971	0.00202	<0.01	<0.0002	0.0768	44.2	0.286
L5-TPSP	4/25/2018 12:30	TI3531	<0.005	0.009	0.00015	0.0152	0.00148	0.0005	0.0241	<0.0001	<0.001	0.094	<0.00001	45.4	<0.001	0.00101	0.00384	0.033	<0.0002	0.0747	44.2	0.0084
L5-TPSP	4/26/2018 13:50	TI3468	<0.005	0.0101	0.0001	0.026	0.00146	0.00053	0.0267	<0.0001	<0.001	0.116	0.000014	49.4	<0.001	0.00255	0.00343	0.015	<0.0002	0.0826	50.8	0.0687
L5-TPSP	4/27/2018 10:50	TI4642	<0.005	0.0078	<0.0001	0.0247	0.00155	0.00047	0.029	<0.0001	<0.001	0.123	0.000021	55.9	<0.001	0.00379	0.00291	<0.01	<0.0002	0.0893	50.0	0.0846
L5-TPSP	4/28/2018 9:10	TI5385	<0.005	0.0066	<0.0001	0.022	0.00142	0.00049	0.0298	<0.0001	<0.001	0.114	0.000036	61.4	<0.001	0.0043	0.00238	<0.01	<0.0002	0.0901	49.7	0.109
L5-TPSP	4/29/2018 11:20	TI7034	<0.005	0.015	0.00012	0.0098	0.00154	0.00043	0.0332	<0.0001	<0.001	0.123	0.000027	64.5	<0.001	0.00591	0.00158	<0.01	<0.0002	0.0849	50.4	0.146
L5-TPSP	4/30/2018 10:35	TI8576	<0.005	0.0085	<0.0001	0.0144	0.00158	0.00046	0.0355	<0.0001	<0.001	0.12	0.000029	68.3	<0.001	0.00442	0.00163	<0.01	<0.0002	0.0899	56.8	0.111
L5-TPSP	5/1/2018 11:00	TJ1441	<0.005	0.0052	0.00019	0.0109	0.00148	0.00045	0.033	<0.0001	<0.001	0.111	0.000029	70.5	<0.001	0.0034	0.00154	<0.01	<0.0002	0.083	54.6	0.0879
L5-TPSP	5/2/2018 8:30	TJ1500	<0.005	0.0715	0.00016	0.0079	0.00131	0.00034	0.0369	<0.0001	<0.001	0.148	0.00029	85.3	<0.001	0.0155	0.00124	<0.01	<0.0002	0.123	68.9	0.387
L5-TPSP	5/3/2018 11:50	TJ4285	<0.01	0.033	0.00047	0.0081	<0.001	0.00039	0.0423	<0.0002	<0.002	0.174	0.000484	102	<0.002	0.0253	<0.001	<0.02	<0.0004	0.161	90.3	0.823
L5-TPSP	5/3/2018 11:50	TJ4281	<0.01	0.028	0.00022	0.0101	0.0011	0.00043	0.0417	<0.0002	<0.002	0.167	0.000481	105	<0.002	0.025	<0.001	<0.02	<0.0004	0.157	89.1	0.822
L5-TPSP	5/4/2018 17:45	TJ5492	<0.01	0.023	<0.0002	<0.015	<0.0025	0.00081	0.0409	<0.0005	<0.005	<0.25	0.000379	118	<0.005	0.024	<0.0025	<0.05	<0.001	0.173	103	0.839
L5-TPSP	5/5/2018 12:10	TJ6367	<0.01	0.012	<0.0002	0.029	<0.0025	<0.0005	0.0406	<0.0005	<0.005	<0.25	0.000265	124	<0.005	0.0179	<0.0025	<0.05	<0.001	0.183	99.4	0.683
L5-TPSP	5/6/2018 14:00	TJ7041	<0.005	<0.005	0.00017	0.056	<0.0025	<0.0005	0.0413	<0.0005	<0.005	<0.25	0.000131	136	<0.005	0.0111	<0.0025	<0.05	<0.001	0.184	108	0.531
L5-TPSP	5/7/2018 10:20	TJ8509	<0.025	<0.025	<0.0005	0.042	<0.0025	<0.0005	0.0406	<0.0005	<0.005	<0.25	0.000077	139	<0.005	0.0064	<0.0025	<0.05	<0.001	0.192	108	0.332
L5-TPSP	5/8/2018 12:15	TK0809	<0.025	<0.025	<0.0005	0.0317	<0.001	0.00065	0.0413	<0.0002	<0.002	0.212	0.000035	151	<0.002	0.00302	<0.001	0.099	<0.0004	0.192	111	0.149
L5-TPSP	5/9/2018 6:25	TK3821	<0.025	<0.025	<0.0005	0.156	<0.001	0.00048	0.0387	<0.0002	<0.002	0.206	0.000026	149	<0.002	0.00158	0.0012	<0.02	<0.0004	0.197	111	0.0712
L5-TPSP	5/10/2018 6:30	TK5559	<0.025	<0.025	<0.0005	0.035	<0.0025	0.00052	0.0342	<0.0005	<0.005	<0.25	<0.00005	193	<0.005	<0.001	<0.0025	<0.05	<0.001	0.19	130	0.033
L5-TPSP	5/11/2018 6:20	TK5493	<0.025	<0.025	<0.0005	0.022	<0.0025	0.00056	0.0357	<0.0005	<0.005	<0.25	<0.00005	175	<0.005	0.001	<0.0025	<0.05	<0.001	0.187	125	0.0316
L5-TPSP	5/12/2018 6:20	TK7570	<0.025	<0.025	<0.0005	0.047	<0.0025	0.00066	0.0339	<0.0005	<0.005	<0.25	<0.00005	180	<0.005	<0.001	0.0049	<0.05	<0.001	0.212	125	0.0431
L5-TPSP	5/13/2018 6:40	TK7585	<0.025	<0.025	<0.0005	0.07	<0.0025	0.00067	0.0346	<0.0005	<0.005	0.257	<0.00005	194	<0.005	<0.001	<0.0025	<0.05	<0.001	0.219	132	0.0885
L5-TPSP	5/14/2018	TK8139	<0.025	<0.025	<0.0005	0.035	<0.0025	0.00081	0.0327	<0.0005	<0.005	0.27	0.000061	208	<0.005	0.0013	<0.0025	<0.05	<0.001	0.223	142	0.129
L5-TPSP	5/15/2018 12:10	TL0260	<0.025	<0.025	<0.0005	0.039	<0.0025	0.0008	0.0375	<0.0005	<0.005	0.318	0.00006	236	<0.005	0.0012	<0.0025	<0.05	<0.001	0.226	164	0.0926
L5-TPSP	5/30/2018 6:55	TN9748	<0.005	<0.005	<0.0001	0.012	0.00103	0.00048	0.0386	<0.0001	<0.001	0.066	0.000015	104	<0.001	<0.0002	0.00273	<0.01	<0.0002	0.0114	46.9	0.005
L5-TPSP	5/31/2018	TN9637	<0.005	<0.005	<0.0001	0.0142	0.00103	0.00045	0.0383	<0.0001	<0.001	0.064	0.000012	96.8	<0.001	<0.0002	0.00242	<0.01	<0.0002	0.0108	46.0	0.0074
L5-TPSP	6/1/2018	TO1002	<0.005	<0.005	<0.0001	0.033	<0.0025	0.00064	0.0383	<0.0005	<0.005	<0.25	<0.00005	103	<0.005	<0.001	0.0033	<0.05	<0.001	0.011	48.1	0.0091
L5-TPSP	6/2/2018 6:35	TO4783	<0.005	<0.005	<0.0001	0.015	0.0012	0.00052	0.0377	<0.0001	<0.001	0.06	0.00001	105	<0.001	0.00021	0.00208	<0.01	<0.0002	0.0116	47.0	0.0125
L5-TPSP	6/3/2018 7:00	TO4801	<0.005	<0.005	<0.0001	0.0192	0.00114	0.00053	0.0371	<0.0001	<0.001	0.063	<0.00001	112	<0.001	0.0002	0.00316	<0.01	<0.0002	0.0111	46.4	0.0111
L5-TPSP	6/4/2018 13:00	TO7167	0.007	0.0217	0.00091	0.0094	0.00097	0.00046	0.0443	<0.0001	<0.001	0.066	0.000018	106	<0.001	0.00022	0.00553	<0.01	<0.0002	0.0128	43.0	0.0154
L5-TPSP	6/5/2018 14:00	TP0511	<0.005	<0.005	0.00048	0.0125	0.00104	0.00048	0.0445	<0.0001	<0.001	0.06	0.000019	101	<0.001	0.00021	0.00261	<0.01	<0.0002	0.0105	44.8	0.0134
L5-TPSP	6/6/2018 6:55	TP0517	<0.005	<0.005	0.00023	0.01	0.00099	0.00049	0.0446	<0.0001	<0.001	0.063	0.000021	97.8	<0.001	0.00022	0.00223	<0.01	<0.0002	0.0111	44.2	0.0185
L5-TPSP	6/7/2018 6:45	TP6776	<0.005	<0.005	0.00027	0.0115	0.00102	0.00052	0.0426	<0.0001	<0.001	0.071	0.00003	116	<0.001	0.00041	0.00207	<0.01	<0.0002	0.0118	43.7	0.0972
L5-TPSP	6/8/2018 19:00	TP8931	<0.005	<0.005	0.00052	0.0096	0.00095	0.00054	0.0396	<0.0001	<0.001	0.068	0.000037	114	<0.001	0.0004	0.00223	<0.01	<0.0002	0.0113	47.7	0.0966
L5-TPSP	6/9/2018 18:20	TP8999	<0.005	0.0111	0.00032	0.0084	0.00092	0.00053	0.0399	<0.0001	<0.001	0.069	0.000038	121	<0.001	0.00042	0.00194	<0.01	<0.0002	0.0115	49.3	0.105
L5-TPSP	6/10/2018 18:10	TP9978	<0.005	<0.005	0.00023	0.0082	0.00094	0.00053	0.0409	<0.0001	<0.001	0.069	0.000041	123	<0.001	0.0004	0.0019	<0.01	<0.0002	0.0115	50.2	0.0946
L5-TPSP	6/11/2018 15:00	TQ0649	<0.005	<0.005	0.0004	0.0086	0.00098	0.00057	0.0439	<0.0001	<0.001	0.079	0.000043	132	<0.001	0.00038	0.00225	<0.01	<0.0002	0.0131	48.7	0.0895
L5-TPSP	6/12/2018 11:50	TQ4131	<0.005	<0.005	0.0001	0.0268	0.001	0.00052	0.0448	<0.0001	<0.001	0.072	0.000041	133	<0.001	0.0004	0.00236	<0.01	<0.0002	0.0125	52.6	0.0865
L5-TPSP	6/13/2018 15:00	TQ8814	<0.005	<0.005	0.00024	0.0087	0.00096	0.00056	0.0431	<0.0001	<0.001	0.073	0.000041	124	<0.001	0.00034	0.00278	<0.01	<0.0002	0.0121	48.0	0.0594
L5-TPSP	6/14/2018 16:50	TQ8830	<0.005	<0.005	0.00013	0.0093	0.00095	0.00054	0.0426	<0.0001	<0.001	0.073	0.000033	130	<0.001	0.00031	0.00283	<0.01	<0.0002	0.0109	48.7	0.0488
L5-TPSP	6/15/2018 17:10	TR1409	<0.005	<0.005	0.00087	0.0091	0.00095	0.00056	0.0445	<0.0001	<0.001	0.077	0.000035	123	<0.001	0.00032	0.00262	<0.01	<0.0002	0.0144	49.1	0.049
L5-TPSP	6/16/2018 18:55	TR1381	<0.005	<0.005	0.00022	0.012	0.00101	0.00061	0.0453	<0.0001	<0.001	0.078	0.000031	131	<0.001	0.00029	0.00388	<0.01	<0.0002	0.0149	51.9	0.0357
L5-TPSP	6/17/2018 19:00	TR2102	<0.005	<0.005	0.00022	0.0124	0.00099	0.00057	0.0449	<0.0001	<0.001	0.077	0.000032	133	<0.001	0.00027	0.00266	<0.01	<0.0002	0.0137	53.3	0.0311

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TNCP	6/12/2018 13:00	TQ4132	<0.000002	0.01	0.0044	-	9.62	0.0017	3.19	<0.00002	59.5	0.476	125	0.000015	<0.005	<0.005	0.0116	<0.005	<0.005	0.00019
L5-TNCP	6/25/2018	TS9114	<0.000002	0.0063	0.0036	-	6.83	0.00158	5.46	<0.00002	164	0.488	136	0.000023	<0.005	<0.005	0.0106	<0.005	<0.005	0.00017
L5-TNCP	6/26/2018 13:25	TT0846	<0.000002	<0.02	3.64	-	5.5	0.017	7.29	<0.0004	74.2	1.01	1080	<0.0002	<0.1	<0.1	0.154	<0.1	12	<0.002
L5-TNCP	7/9/2018 16:50	TV3541	<0.000002	<0.05	3.37	-	9.3	0.0157	9.15	<0.001	59.9	1.59	1170	<0.0005	<0.25	<0.25	0.119	<0.25	11.4	<0.005
L5-TNCP	7/21/2018 11:55	TX5551	<0.000002	0.0056	0.186	-	6.04	0.00826	2.31	<0.00004	64.7	0.818	363	0.000039	<0.01	<0.01	0.00618	<0.01	0.135	<0.0002
L5-TNCP	7/26/2018 18:00	TY5334	<0.000002	0.0062	0.0416	-	6.16	0.00357	6.56	<0.00002	167	0.603	191	0.000026	<0.005	<0.005	0.0075	<0.005	<0.005	<0.0001
L5-TPSP	3/14/2018 16:15	TC7636	-	0.0111	0.0108	-	4.59	0.0133	1.65	<0.00002	27.7	0.322	164	0.000014	<0.005	<0.005	0.00655	<0.005	<0.005	<0.0001
L5-TPSP	3/19/2018 15:35	TD4115	-	0.035	0.0148	-	4.97	0.00622	1.76	<0.00002	61.7	0.33	142	0.000012	<0.005	<0.005	0.00867	<0.005	<0.005	<0.0001
L5-TPSP	3/20/2018 12:30	TD4119	-	0.027	0.0125	-	4.66	0.00515	1.74	<0.00002	45.1	0.314	127	<0.00001	<0.005	<0.005	0.00747	<0.005	<0.005	<0.0001
L5-TPSP	3/21/2018 11:50	TD7852	-	0.0226	0.0077	-	4.63	0.00449	1.93	<0.00002	35.6	0.28	98.1	<0.00001	<0.005	<0.005	0.00618	<0.005	<0.005	<0.0001
L5-TPSP	3/23/2018 11:20	TD9510	<0.000002	0.0319	0.0086	-	6.66	0.00584	2.81	<0.00002	49.4	0.435	139	0.000016	<0.005	<0.005	0.0091	<0.005	<0.005	<0.0001
L5-TPSP	4/5/2018 15:40	TF7753	-	0.0306	0.0016	-	3.24	0.00258	0.708	<0.00002	16.1	0.177	36.9	0.000023	<0.005	<0.005	0.00545	<0.005	<0.005	<0.0001
L5-TPSP	4/10/2018 16:45	TG4222	-	0.0216	0.0094	-	3.91	0.00328	1.39	<0.00002	25.9	0.281	108	0.000012	<0.005	<0.005	0.0062	<0.005	<0.005	<0.0001
L5-TPSP	4/11/2018 13:15	TG5966	-	0.0242	0.0075	-	3.14	0.0034	1.13	<0.00002	20.0	0.216	65.9	<0.00001	<0.005	<0.005	0.00498	<0.005	<0.005	<0.0001
L5-TPSP	4/12/2018 18:30	TG7677	-	0.0254	0.0053	-	3.23	0.00365	1.22	<0.00002	22.9	0.233	69.1	0.00001	<0.005	<0.005	0.0053	<0.005	<0.005	<0.0001
L5-TPSP	4/14/2018 15:25	TH0423	-	0.0234	0.0045	-	3.55	0.00388	1.32	<0.00002	34.8	0.248	83	0.000013	<0.005	<0.005	0.00548	<0.005	<0.005	<0.0001
L5-TPSP	4/18/2018 17:45	TH5882	-	0.0269	0.0051	-	3.72	0.00433	1.55	<0.00002	46.9	0.265	94.5	0.000014	<0.005	<0.005	0.00572	<0.005	<0.005	<0.0001
L5-TPSP	4/19/2018 15:15	TH5947	-	0.0269	0.005	-	3.82	0.00449	1.61	<0.00002	48.8	0.254	99.7	0.000014	<0.005	<0.005	0.00579	<0.005	<0.005	<0.0001
L5-TPSP	4/20/2018 17:30	TH8460	-	0.0282	0.0154	-	3.80	0.00441	1.49	<0.00002	54.2	0.275	107	0.000017	<0.005	<0.005	0.006	<0.005	0.0081	<0.0001
L5-TPSP	4/21/2018 15:10	TH8457	-	0.0257	0.0246	-	3.86	0.00439	1.6	<0.00002	59.3	0.295	108	0.000019	<0.005	<0.005	0.00576	<0.005	0.0086	<0.0001
L5-TPSP	4/22/2018 15:00	TH8484	-	0.0182	0.104	-	4.09	0.00615	1.62	<0.00002	137	0.374	216	0.000024	<0.005	<0.005	0.00495	<0.005	0.0545	<0.0001
L5-TPSP	4/23/2018 16:10	TH9254	-	0.0249	0.029	-	6.98	0.0066	1.73	<0.00002	187	0.303	212	0.000018	<0.005	<0.005	0.00381	<0.005	<0.005	<0.0001
L5-TPSP	4/24/2018 11:28	TI1783	<0.000002	0.0235	0.0512	-	7.03	0.00644	1.72	<0.00002	187	0.358	236	0.000023	<0.005	<0.005	0.00427	<0.005	<0.005	<0.0001
L5-TPSP	4/25/2018 12:30	TI3531	<0.000002	0.0286	0.0145	-	9.18	0.00663	1.75	<0.00002	229	0.315	240	0.000016	<0.005	<0.005	0.00239	<0.005	0.0072	<0.0001
L5-TPSP	4/26/2018 13:50	TI3468	<0.000002	0.0313	0.0207	-	9.38	0.00637	1.51	<0.00002	251	0.39	255	0.000019	<0.005	<0.005	0.00275	<0.005	<0.005	<0.0001
L5-TPSP	4/27/2018 10:50	TI4642	<0.000002	0.0322	0.0267	-	9.92	0.00681	1.63	<0.00002	262	0.391	290	0.000022	<0.005	<0.005	0.00309	<0.005	<0.005	<0.0001
L5-TPSP	4/28/2018 9:10	TI5385	<0.000002	0.0295	0.0281	-	9.69	0.00652	1.61	<0.00002	249	0.378	274	0.000022	<0.005	<0.005	0.00312	<0.005	<0.005	<0.0001
L5-TPSP	4/29/2018 11:20	TI7034	<0.000002	0.0311	0.0328	-	8.53	0.00681	1.35	<0.00002	244	0.391	270	0.000025	<0.005	<0.005	0.00405	<0.005	0.0073	<0.0001
L5-TPSP	4/30/2018 10:35	TI8576	<0.000002	0.0348	0.0282	-	9.92	0.00671	1.3	<0.00002	267	0.487	286	0.000022	<0.005	<0.005	0.00436	<0.005	0.0056	<0.0001
L5-TPSP	5/1/2018 11:00	TJ1441	<0.000002	0.0341	0.0236	-	9.66	0.00666	1.06	<0.00002	262	0.472	288	0.000023	<0.005	<0.005	0.00424	<0.005	<0.005	<0.0001
L5-TPSP	5/2/2018 8:30	TJ1500	<0.000002	0.0272	0.073	-	9.86	0.00689	0.908	<0.00002	302	0.465	356	0.000031	<0.005	<0.005	0.0035	<0.005	0.0122	<0.0001
L5-TPSP	5/3/2018 11:50	TJ4285	<0.000002	0.0132	0.113	-	10.1	0.00704	0.583	<0.00004	363	0.597	431	0.000029	<0.01	<0.01	0.00286	<0.01	0.015	<0.0002
L5-TPSP	5/3/2018 11:50	TJ4281	<0.000002	0.0137	0.111	-	9.97	0.00722	0.584	<0.00004	362	0.6	426	0.000031	<0.01	<0.01	0.00301	<0.01	0.012	<0.0002
L5-TPSP	5/4/2018 17:45	TJ5492	<0.000002	0.0119	0.114	-	11.4	0.00714	<0.5	<0.0001	399	0.59	507	<0.00005	<0.025	<0.025	0.00306	<0.025	<0.025	<0.0005
L5-TPSP	5/5/2018 12:10	TJ6367	<0.000002	0.0125	0.0875	-	11.3	0.00723	<0.5	<0.0001	385	0.603	500	<0.00005	<0.025	<0.025	0.00334	<0.025	<0.025	<0.0005
L5-TPSP	5/6/2018 14:00	TJ7041	<0.000002	0.0127	0.0631	-	12.0	0.00722	<0.5	<0.0001	419	0.639	541	<0.00005	<0.025	<0.025	0.00337	<0.025	<0.025	<0.0005
L5-TPSP	5/7/2018 10:20	TJ8509	<0.000002	0.0132	0.0407	-	11.7	0.00741	<0.5	<0.0001	427	0.678	541	<0.00005	<0.025	<0.025	0.00346	<0.025	<0.025	<0.0005
L5-TPSP	5/8/2018 12:15	TK0809	<0.000002	0.0168	0.0251	-	12.8	0.00773	<0.2	<0.00004	442	0.834	615	0.000031	<0.01	<0.01	0.00346	<0.01	<0.01	<0.0002
L5-TPSP	5/9/2018 6:25	TK3821	<0.000002	0.0152	0.0154	-	12.5	0.00711	<0.2	<0.00004	449	0.706	605	0.000027	<0.01	<0.01	0.00324	<0.01	<0.01	<0.0002
L5-TPSP	5/10/2018 6:30	TK5559	<0.000002	0.0149	0.0078	-	13.9	0.00721	<0.5	<0.0001	509	0.756	663	<0.00005	<0.025	<0.025	0.00313	<0.025	<0.025	<0.0005
L5-TPSP	5/11/2018 6:20	TK5493	<0.000002	0.0152	0.0101	-	14.2	0.0073	<0.5	<0.0001	507	0.737	681	<0.00005	<0.025	<0.025	0.0031	<0.025	<0.025	<0.0005
L5-TPSP	5/12/2018 6:20	TK7570	<0.000002	0.0163	0.0065	-	13.1	0.0076	<0.5	<0.0001	503	0.781	686	<0.00005	<0.025	<0.025	0.00381	<0.025	<0.025	<0.0005
L5-TPSP	5/13/2018 6:40	TK7585	<0.000002	0.017	0.007	-	13.5	0.00741	<0.5	<0.0001	530	0.902	731	<0.00005	<0.025	<0.025	0.00493	<0.025	<0.025	<0.0005
L5-TPSP	5/14/2018	TK8139	<0.000002	0.0174	0.0087	-	14.0	0.00707	<0.5	<0.0001	569	0.923	774	<0.00005	<0.025	<0.025	0.0055	<0.025	<0.025	<0.0005
L5-TPSP	5/15/2018 12:10	TL0260	<0.000002	0.0198	0.0097	-	16.3	0.00703	<0.5	<0.0001	627	1.09	885	<0.00005	<0.025	<0.025	0.00705	<0.025	<0.025	<0.0005
L5-TPSP	5/30/2018 6:55	TN9748	<0.000002	0.015	0.0018	-	4.98	0.00354	0.192	<0.00002	37.8	0.413	149	0.000014	<0.005	<0.005	0.00644	<0.005	<0.005	<0.0001
L5-TPSP	5/31/2018	TN9637	<0.000002	0.0152	0.0019	-	5.00	0.00328	<0.1	<0.00002	37.1	0.418	150	0.000011	<0.005	<0.005	0.00634	<0.005	<0.005	<0.0001
L5-TPSP	6/1/2018	TO1002	0.0000026	0.0141	<0.005	-	4.94	0.00381	<0.5	<0.0001	37.5	0.398	2030	<0.00005	<0.025	<0.025	0.00616	<0.025	<0.025	<0.0005
L5-TPSP	6/2/2018 6:35	TO4783	<0.000002	0.0156	0.0018	-	4.92	0.00331	<0.1	<0.00002	35.5	0.436	142	0.000014	<0.005	<0.005	0.00678	<0.005	<0.005	<0.0001
L5-TPSP	6/3/2018 7:00	TO4801	<0.000002	0.0153	0.0018	-	5.07	0.00358	<0.1	<0.00002	36.8	0.446	159	0.000013	<0.005	<0.005	0.00661	<0.005	<0.005	<0.0001
L5-TPSP	6/4/2018 13:00	TO7167	<0.000002	0.0141	0.0016	-	4.33	0.00473	0.228	<0.00002	34.6	0.369	135	<0.00001	<0.005	<0.005	0.00598	<0.005	<0.005	<0.0001
L5-TPSP	6/5/2018 14:00	TP0511	<0.000002	0.0142	0.0017	-	4.78	0.00404	0.195	<0.00002	35.2	0.37	146	0.000012	<0.005	<0.005	0.00601	<0.005	<0.005	<0.0001
L5-TPSP	6/6/2018 6:55	TP0517	<0.000002	0.0137	0.0018	-	4.82	0.00412	0.272	<0.00002	36.4	0.373	144	0.000012	<0.005	<0.005	0.00611	<0.005	<0.005	<0.0001
L5-TPSP	6/7/2018 6:45	TP6776	<0.000002	0.014	0.0022	-	4.88	0.00412	0.405	0.000044	36.0	0.381	143	0.000011	<0.005	<0.005	0.00651	<0.005	<0.005	<0.0001
L5-TPSP	6/8/2018 19:00	TP8931	<0.000002	0.0137	0.0024	-	5.68	0.00385	0.43	<0.00002	39.9	0.437	155	0.000016	<0.005	<0.005	0.00606	<0.005	<0.005	<0.0001
L5-TPSP	6/9/2018 18:20	TP8999	<0.000002	0.0134	0.0026	-	6.01	0.00381	0.518	<0.00002	41.8	0.46	165	0.000017	<0.005	<0.005	0.00615	<0.005	<0.005	<0.0001
L5-TPSP	6/10/2018 18:10	TP9978	<0.000002	0.0135	0.0028	-	6.27	0.00385	0.536	<0.00002	42.3	0.471	168	0.000014	<0.005	<0.005	0.00631	<0.005	<0.005	<0.0001
L5-TPSP	6/11/2018 15:00	TQ0649	<0.000002	0.0146	0.0028	-	6.38	0.00359	0.66	<0.00002	39.5	0.47	188	0.00002	<0.005	<0.005	0.00713	<0.005	<0.005	<0.0001
L5-TPSP	6/12/2018 11:50	TQ4131	<0.000002	0.0149	0.003	-	6.94	0.00389	0.651	<0.00002	42.9	0.479	187	0.000022	<0.005	<0.005	0.00713	<0.005	<0.005	<0.0001
L5-TPSP	6/13/2018 15:00	TQ8814	<0.000002	0.0138	0.0029	-	6.09	0.00379	0.591	<0.00002	43.1	0.456	168	0.000022	<0.005	<0.005	0.00674	<0.005	<0.005	<0.0001
L5-TPSP	6/14/2018 16:50	TQ8830	<0.000002	0.0136	0.0026	-	6.25	0.00385	0.659	<0.00002	40.5	0.448	174	0.000019	<0.005	<0.005	0.00639	<0.005	<0.005	<0.0001
L5-TPSP	6/15/2018 17:10	TR1409	<0.000002	0.0141	0.0025	-	6.47	0.00377	0.661	<0.00002	39.4	0.476	176	0.000017	<0.005	<0.005	0.00676	<0.005	<0.005	<0.0001
L5-TPSP	6/16/2018 18:55	TR1381	<0.000002	0.0143	0.0027	-	6.62	0.00392	0.647	<0.00002	40.4	0.484	182	0.000017	<0.005	<0.005	0.00696	<0.005	<0.005	<0.0001
L5-TPSP	6/17/2018 19:00	TR2102	<0.000002	0.0151	0.0025	-	6.55	0.00403	0.585	<0.00002	43.9	0.527	182	0.000013	<0.005	<0.005	0.00696	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	6/18/2018 11:00	TR2130	8.12	1150	7.70	876	8.8	540	559	101	<1.0	123	<1.0	<1.0	5.27	0.500	0.14	583
L5-TPSP	6/19/2018 14:35	TR6051	8.08	1170	5.92	888	8.5	553	580	98.2	<1.0	120	<1.0	<1.0	4.93	0.500	0.15	552
L5-TPSP	6/20/2018 6:30	TR8733	8.09	1200	4.40	882	6.8	531	564	103	<1.0	126	<1.0	<1.0	4.44	0.500	0.15	537
L5-TPSP	6/21/2018	TS1919	8.12	1220	5.37	880	6.8	569	594	102	<1.0	125	<1.0	<1.0	4.34	0.470	0.15	536
L5-TPSP	6/22/2018	TS2370	7.89	1240	6.60	840	8.8	544	603	100	<1.0	122	<1.0	<1.0	4.36	0.490	0.15	535
L5-TPSP	6/23/2018	TS5387	7.99	1230	6.32	930	13.3	559	610	105	<1.0	128	<1.0	<1.0	4.47	0.490	0.15	584
L5-TPSP	6/24/2018	TS5391	8.01	1260	4.42	942	10.8	593	618	105	<1.0	128	<1.0	<1.0	4.62	0.510	0.13	595
L5-TPSP	6/25/2018	TS9113	8.09	1260	8.35	930	9.8	578	620	107	<1.0	130	<1.0	<1.0	4.87	0.520	0.13	608
L5-TPSP	6/27/2018 16:30	TT3454	7.75	1380	65.4	1120	58.8	696	680	108	<1.0	132	<1.0	<1.0	16.4	0.490	0.37	535
L5-TPSP	6/28/2018 15:30	TT6321	7.98	1500	20.2	1140	23.5	662	663	114	<1.0	139	<1.0	<1.0	26.3	0.500	0.62	682
L5-TPSP	6/30/2018	TU0476	7.96	1360	27.9	992	40.0	564	571	129	<1.0	157	<1.0	<1.0	33.9	0.410	0.58	548
L5-TPSP	7/1/2018 0:00	TU0438	7.83	1710	28.0	1280	20.3	685	698	128	<1.0	156	<1.0	<1.0	33.1	0.580	0.61	796
L5-TPSP	7/2/2018 13:35	TU1416	7.91	1750	51.9	1330	76.3	732	687	123	<1.0	150	<1.0	<1.0	33.9	0.600	0.61	848
L5-TPSP	7/3/2018 21:05	TU4429	7.99	1750	12.2	1370	11.3	676	727	132	<1.0	161	<1.0	<1.0	29.1	0.620	0.60	837
L5-TPSP	7/4/2018 19:20	TU6247	8.07	1740	7.84	1360	9.8	707	699	145	<1.0	177	<1.0	<1.0	28.1	0.620	0.55	815
L5-TPSP	7/5/2018 11:20	TU8084	8.07	1760	5.13	1360	7.3	713	719	150	<1.0	183	<1.0	<1.0	29.4	0.620	0.57	838
L5-TPSP	7/6/2018 7:00	TU8088	8.07	1750	2.88	1340	4.3	715	724	146	<1.0	178	<1.0	<1.0	28.7	0.660	0.57	849
L5-TPSP	7/7/2018 7:00	TV0768	8.07	1760	2.46	1360	4.3	719	726	137	<1.0	167	<1.0	<1.0	28.1	0.630	0.59	823
L5-TPSP	7/8/2018 13:20	TV1576	8.11	1760	5.64	1400	9.5	726	726	134	<1.0	163	<1.0	<1.0	27.6	0.650	0.58	818
L5-TPSP	7/9/2018 17:00	TV3540	7.93	1770	5.28	1380	9.3	732	742	134	<1.0	164	<1.0	<1.0	28.5	0.670	0.58	786
L5-TPSP	7/11/2018 10:15	TV9388	8.18	1800	1.69	1340	6.3	747	722	138	<1.0	168	<1.0	<1.0	26.9	0.640	0.58	822
L5-TPSP	7/12/2018 0:00	TV9382	8.14	1830	2.53	1410	4.8	754	740	138	<1.0	168	<1.0	<1.0	27.7	0.660	0.61	847
L5-TPSP	7/13/2018 0:00	TV9673	8.10	1820	8.77	1440	12.5	737	760	139	<1.0	169	<1.0	<1.0	27.2	0.650	0.60	858
L5-TPSP	7/14/2018 12:15	TW3847	8.23	1860	4.70	1390	6.5	692	769	139	<1.0	169	<1.0	<1.0	27.0	0.660	0.59	922
L5-TPSP	7/15/2018 16:10	TW3848	8.21	1890	3.65	1310	5.8	793	770	134	<1.0	163	<1.0	<1.0	37.7	0.670	0.71	918
L5-TPSP	7/16/2018 7:45	TW5977	8.11	1860	3.01	1410	6.3	730	785	135	<1.0	164	<1.0	<1.0	41.2	0.640	0.75	954
L5-TPSP	7/17/2018 11:10	TW5976	8.07	1880	3.39	1430	10.0	779	787	129	<1.0	157	<1.0	<1.0	43.9	0.660	0.78	988
L5-TPSP	7/18/2018 11:45	TW8369	8.16	1920	5.77	1460	23.5	792	761	117	<1.0	143	<1.0	<1.0	41.9	0.690	0.79	936
L5-TPSP	7/19/2018 9:45	TX0646	8.15	1910	3.62	1480	8.5	732	773	116	<1.0	142	<1.0	<1.0	42.1	0.690	0.75	988
L5-TPSP	7/20/2018 17:10	TX5552	7.99	1840	18.3	1390	26.8	698	692	107	<1.0	130	<1.0	<1.0	41.2	0.660	0.73	911
L5-TPSP	7/21/2018 12:20	TX5556	7.72	1970	12.4	1530	17.8	727	745	85.0	<1.0	104	<1.0	<1.0	39.7	0.760	0.74	992
L5-TPSP	7/22/2018 11:20	TX5560	7.63	1860	20.8	1500	18.5	726	708	77.6	<1.0	94.6	<1.0	<1.0	34.1	0.760	0.68	1060
L5-TPSP	7/23/2018 18:50	TX8486	7.67	2030	9.06	1590	9.8	766	784	53.1	<1.0	64.7	<1.0	<1.0	38.9	0.770	0.70	1110
L5-TPSP	7/24/2018 18:45	TY1084	7.70	2060	10.8	1580	7.3	815	757	52.4	<1.0	64.0	<1.0	<1.0	32.6	0.860	0.69	1130
L5-TPSP	7/25/2018 20:20	TY3340	7.67	2100	7.67	1640	<4.0	829	835	49.4	<1.0	60.2	<1.0	<1.0	34.3	0.830	0.70	1130
L5-TPSP	7/26/2018 18:15	TY5335	7.58	2090	5.18	1670	24.5	822	838	50.8	<1.0	61.9	<1.0	<1.0	33.3	0.870	0.64	1160
L5-TPSP	7/27/2018 19:10	TZ1789	7.71	2120	2.89	1670	4.5	833	804	49.7	<1.0	60.6	<1.0	<1.0	34.0	1.00	0.70	1180
L5-TPSP	7/28/2018 16:45	TZ1782	7.72	2130	2.72	1650	7.8	835	820	49.2	<1.0	60.1	<1.0	<1.0	35.4	0.930	0.73	1110
L5-TPSP	7/29/2018 17:50	TZ1786	7.70	2150	3.12	1680	17.5	848	828	51.2	<1.0	62.5	<1.0	<1.0	35.2	1.00	0.71	1200
L5-TPSP	7/30/2018 7:00	TZ3237	7.26	2200	33.7	1750	22.8	880	874	40.9	<1.0	49.8	<1.0	<1.0	36.3	0.950	0.72	1230
L5-TPSP	7/31/2018 14:54	TZ5902	7.41	2240	8.54	1790	86.8	846	874	53.3	<1.0	65.0	<1.0	<1.0	33.0	0.950	0.71	1250
L5-TPSP	8/1/2018 15:01	TZ8462	7.64	2250	9.96	1850	12.3	871	870	55.7	<1.0	67.9	<1.0	<1.0	32.1	0.940	0.73	1260
L5-TPSP	8/2/2018 14:52	UA0956	7.58	2370	6.37	1940	17.0	899	930	63.4	<1.0	77.3	<1.0	<1.0	31.0	0.990	0.69	1320
L5-TPSP	8/3/2018 11:49	UA1044	7.56	2430	14.2	1970	11.8	930	1020	61.4	<1.0	74.9	<1.0	<1.0	30.2	1.00	0.71	1370
L5-TPSP	8/4/2018 15:49	UA3783	7.72	2490	8.74	2020	8.5	973	1020	59.1	<1.0	72.2	<1.0	<1.0	32.1	1.00	0.71	1350
L5-TPSP	8/5/2018 15:00	UA3784	7.71	2490	3.54	2070	6.3	1010	1000	61.2	<1.0	74.7	<1.0	<1.0	32.0	1.10	0.72	1330
L5-TPSP	8/6/2018 15:34	UA3838	7.74	2510	2.60	2080	<4.0	967	1040	62.4	<1.0	76.1	<1.0	<1.0	32.4	1.10	0.72	1330
L5-TPSP	8/7/2018 13:45	UA4369	7.75	2530	4.57	2070	49.3	1090	1040	61.2	<1.0	74.7	<1.0	<1.0	32.5	1.10	0.72	1350
L5-TPSP	8/8/2018 11:20	UA6828	7.55	2560	4.57	2100	19.0	1050	1020	64.1	<1.0	78.2	<1.0	<1.0	35.5	1.00	0.89	1420
L5-TPSP	8/10/2018 11:02	UB1629	7.76	2510	4.62	2100	5.0	1070	1060	65.8	<1.0	80.3	<1.0	<1.0	36.1	1.00	0.79	1430
L5-TPSP	8/11/2018 14:40	UB4068	7.65	2560	3.08	2070	43.3	994	1030	66.7	<1.0	81.4	<1.0	<1.0	31.3	1.10	0.67	1480
L5-TPSP	8/12/2018 14:45	UB4560	7.81	2540	3.43	2050	5.0	1020	1070	68.3	<1.0	83.3	<1.0	<1.0	31.9	1.10	0.64	1490
L5-TPSP	8/13/2018 10:35	UB4589	7.67	2560	3.73	2070	22.0	986	1050	66.3	<1.0	80.8	<1.0	<1.0	32.4	1.10	0.68	1500
L5-TPSP	8/14/2018 15:55	UC1797	7.70	2510	6.21	2090	13.5	1040	1000	67.5	<1.0	82.3	<1.0	<1.0	34.5	1.10	0.86	1370
L5-TPSP	8/15/2018 13:15	UC1587	7.77	2560	3.20	2140	5.5	1050	1020	67.3	<1.0	82.0	<1.0	<1.0	32.0	1.10	0.55	1380
L5-TPSP	8/16/2018 14:02	UC2159	7.69	2580	3.62	2140	5.3	1030	997	63.9	<1.0	77.9	<1.0	<1.0	31.2	1.10	0.64	1370
L5-TPSP	8/17/2018 5:40	UC4876	7.74	2540	3.82	2080	4.0	1040	1160	66.2	<1.0	80.8	<1.0	<1.0	31.6	1.10	0.75	1350
L5-TPSP	8/18/2018 11:35	UC8579	7.74	2560	3.19	2130	4.3	1090	1100	64.7	<1.0	78.9	<1.0	<1.0	30.1	1.20	0.70	1410
L5-TPSP	8/19/2018 11:35	UC8613	7.56	2560	3.44	2150	<4.0	1110	1090	63.7	<1.0	77.7	<1.0	<1.0	31.9	1.10	0.71	1390
L5-TPSP	8/20/2018 10:15	UD1949	7.60	2620	6.59	2170	26.3	1160	923	62.6	<1.0	76.4	<1.0	<1.0	33.8	1.10	0.71	1430
L5-TPSP	8/21/2018 11:20	UD2060	7.71	2600	5.07	2160	14.8	1100	977	64.5	<1.0	78.6	<1.0	<1.0	35.7	1.10	0.71	1470
L5-TPSP	8/22/2018 12:40	UD5027	7.91	2610	2.81	2220	5.8	996	1080	70.9	<1.0	86.5	<1.0	<1.0	34.7	1.10	0.70	1410
L5-TPSP	8/23/2018 11:20	UD6750	7.71	2530	6.73	2170	13.5	1080	1020	62.0	<1.0	75.7	<1.0	<1.0	35.1	1.10	0.73	1420
L5-TPSP	8/24/2018 10:15	UD8199	7.79	2620	10.4	2150	8.3	1080	1060	71.1	<1.0	86.7	<1.0	<1.0	33.8	1.10	0.75	1410

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	6/18/2018 11:00	TR2130	0.064	0.0170	0.147	0.164	<0.0040	4.23	3.18	0.217	0.00098	0.00067	0.0479	<0.0001	<0.001	0.075	0.000041	131	<0.001	0.00034	0.00286
L5-TPSP	6/19/2018 14:35	TR6051	0.039	0.0070	0.077	0.084	<0.0040	4.06	4.18	0.184	0.00104	0.0007	0.0501	<0.0001	<0.001	0.078	0.000038	135	<0.001	0.00035	0.00292
L5-TPSP	6/20/2018 6:30	TR8733	0.034	0.0064	0.052	0.059	<0.0040	4.28	2.98	0.16	0.00099	0.00064	0.0507	<0.0001	<0.001	0.079	0.000028	128	<0.001	0.0003	0.00269
L5-TPSP	6/21/2018	TS1919	0.034	<0.0050	<0.020	<0.020	<0.0050	4.24	3.61	0.0985	0.001	0.00065	0.052	<0.0001	<0.001	0.083	0.000029	136	<0.001	0.00028	0.00255
L5-TPSP	6/22/2018	TS2370	0.039	<0.0050	<0.020	<0.020	<0.0050	4.04	2.31	0.142	0.001	0.00067	0.0549	<0.0001	<0.001	0.084	0.000032	130	<0.001	0.0003	0.00249
L5-TPSP	6/23/2018	TS5387	0.039	<0.0050	<0.020	<0.020	<0.0050	3.26	3.79	0.197	0.00094	0.00081	0.0511	<0.0001	<0.001	0.071	0.000032	133	<0.001	0.00032	0.00266
L5-TPSP	6/24/2018	TS5391	0.021	<0.0050	<0.020	<0.020	<0.0050	4.51	3.38	0.211	0.00098	0.00074	0.0529	<0.0001	<0.001	0.086	0.000031	140	<0.001	0.00032	0.00269
L5-TPSP	6/25/2018	TS9113	<0.020	0.0062	<0.020	<0.020	<0.0050	5.49	3.60	0.292	0.00101	0.00071	0.0558	<0.0001	<0.001	0.083	0.000034	139	<0.001	0.0003	0.00259
L5-TPSP	6/27/2018 16:30	TT3454	0.39	0.0457	1.24	1.28	<0.0050	3.73	2.07	1.45	0.00052	0.00172	0.129	0.00011	<0.001	0.147	0.00417	179	0.003	0.0825	0.00556
L5-TPSP	6/28/2018 15:30	TT6321	0.39	0.108	1.80	1.91	<0.0050	3.50	2.54	0.277	0.00072	0.00058	0.0887	<0.0001	<0.001	0.153	0.00288	169	<0.001	0.0627	0.00168
L5-TPSP	6/30/2018	TU0476	0.35	0.101	1.43	1.53	<0.0050	4.26	2.84	1.69	0.0008	0.00201	0.118	<0.0001	<0.001	0.136	0.00145	144	0.0026	0.0367	0.00414
L5-TPSP	7/1/2018 0:00	TU0438	0.44	0.102	1.42	1.52	<0.0050	3.42	3.06	0.437	0.00062	0.00062	0.105	<0.0001	<0.001	0.182	0.0045	171	<0.001	0.0849	0.00256
L5-TPSP	7/2/2018 13:35	TU1416	0.47	0.100	1.55	1.66	<0.0050	3.87	3.11	2.3	0.00068	0.00162	0.133	0.00012	<0.001	0.16	0.00377	180	0.0033	0.0813	0.00485
L5-TPSP	7/3/2018 21:05	TU4429	0.38	0.0949	1.54	1.63	<0.0050	2.84	2.61	0.207	0.00052	0.00048	0.0756	<0.0001	<0.001	0.153	0.00306	164	<0.001	0.0677	0.00146
L5-TPSP	7/4/2018 19:20	TU6247	0.32	0.0935	1.54	1.63	<0.0050	3.76	3.74	0.122	0.00051	0.00045	0.0754	<0.0001	<0.001	0.173	0.00278	170	<0.001	0.0682	0.00148
L5-TPSP	7/5/2018 11:20	TU8084	0.29	0.0676	1.55	1.61	<0.0050	3.84	2.61	0.139	<0.001	0.00049	0.0791	<0.0002	<0.002	0.156	0.00252	178	<0.002	0.0606	0.0017
L5-TPSP	7/6/2018 7:00	TU8088	0.32	0.0632	1.53	1.60	<0.0050	3.55	2.67	0.0599	<0.001	0.00039	0.078	<0.0002	<0.002	0.163	0.00257	178	<0.002	0.06	0.0012
L5-TPSP	7/7/2018 7:00	TV0768	0.25	0.0931	1.50	1.59	<0.0050	3.3	-	0.0394	0.00051	0.00039	0.0729	<0.0001	<0.001	0.162	0.00243	175	<0.001	0.0589	0.00107
L5-TPSP	7/8/2018 13:20	TV1576	0.18	0.0813	1.38	1.47	<0.0050	-	-	0.152	<0.0005	0.00042	0.0706	<0.0001	<0.001	0.171	0.00221	176	<0.001	0.053	0.00123
L5-TPSP	7/9/2018 17:00	TV3540	0.21	0.0809	1.40	1.48	<0.0050	2.7	2.8	0.0796	0.00051	0.00041	0.0745	<0.0001	<0.001	0.166	0.00197	177	<0.001	0.0499	0.00115
L5-TPSP	7/11/2018 10:15	TV9388	0.11	0.0884	1.32	1.41	<0.0050	3.0	3.9	0.039	<0.0005	0.00034	0.0658	<0.0001	<0.001	0.188	0.00186	175	<0.001	0.047	0.00102
L5-TPSP	7/12/2018 0:00	TV9382	0.070	0.0843	1.33	1.42	<0.0050	3.7	4.6	0.0462	<0.0005	0.00038	0.0648	<0.0001	<0.001	0.187	0.00188	178	<0.001	0.0461	0.00101
L5-TPSP	7/13/2018 0:00	TV9673	0.12	0.0900	1.47	1.56	<0.0050	3.6	3.8	0.13	<0.0005	0.00048	0.066	<0.0001	<0.001	0.185	0.00173	171	<0.001	0.0431	0.00142
L5-TPSP	7/14/2018 12:15	TW3847	0.11	0.0879	1.46	1.55	<0.0050	3.8	3.4	0.105	<0.0025	<0.0005	0.0568	<0.0005	<0.005	<0.25	0.00157	160	<0.005	0.0393	<0.0025
L5-TPSP	7/15/2018 16:10	TW3848	0.099	0.0836	1.41	1.49	<0.0050	3.7	4.0	0.0667	0.00052	0.00041	0.0747	<0.0001	<0.001	0.174	0.00153	181	<0.001	0.0388	0.001
L5-TPSP	7/16/2018 7:45	TW5977	0.088	0.0852	1.35	1.43	0.0061	3.9	2.8	0.138	<0.001	0.00042	0.0708	<0.0002	<0.002	0.199	0.00137	166	<0.002	0.0371	0.0016
L5-TPSP	7/17/2018 11:10	TW5976	0.053	0.0822	1.22	1.31	<0.0050	4.1	2.9	0.0877	<0.001	0.00052	0.0725	<0.0002	<0.002	0.202	0.00112	177	<0.002	0.0325	0.0013
L5-TPSP	7/18/2018 11:45	TW8369	0.040	0.0806	1.11	1.19	<0.0050	3.0	3.2	0.157	0.00059	0.00056	0.0775	<0.0001	<0.001	0.206	0.000875	185	<0.001	0.0262	0.00167
L5-TPSP	7/19/2018 9:45	TX0646	0.047	0.0768	1.10	1.17	<0.0050	2.6	3.0	0.0419	<0.001	0.00042	0.0632	<0.0002	<0.002	0.182	0.000867	166	<0.002	0.0251	0.0011
L5-TPSP	7/20/2018 17:10	TX5552	0.062	0.0727	1.03	1.10	<0.0050	2.8	3.2	0.512	0.00057	0.0008	0.0706	<0.0001	<0.001	0.176	0.00103	162	<0.001	0.0248	0.00271
L5-TPSP	7/21/2018 12:20	TX5556	0.17	0.0742	1.02	1.09	<0.0050	2.7	2.7	0.355	0.00052	0.0006	0.0661	<0.0001	<0.001	0.186	0.0024	168	<0.001	0.0425	0.00522
L5-TPSP	7/22/2018 11:20	TX5560	0.18	0.0712	0.975	1.05	0.0056	2.7	2.8	0.606	0.00052	0.00111	0.072	<0.0001	<0.001	0.185	0.00217	169	<0.001	0.0413	0.00381
L5-TPSP	7/23/2018 18:50	TX8486	0.26	0.0698	1.05	1.12	<0.0050	2.4	3.3	0.212	<0.0005	0.0004	0.0627	<0.0001	<0.001	0.202	0.00329	175	<0.001	0.0576	0.00412
L5-TPSP	7/24/2018 18:45	TY1084	0.29	0.0702	0.996	1.07	<0.0050	2.3	1.9	0.116	<0.001	0.00033	0.0636	<0.0002	<0.002	0.191	0.00345	191	<0.002	0.0602	0.003
L5-TPSP	7/25/2018 20:20	TY3340	0.18	0.0686	0.940	1.01	<0.0050	2.0	1.9	0.078	<0.0005	0.00031	0.0627	<0.0001	<0.001	0.221	0.00281	191	<0.001	0.0505	0.00201
L5-TPSP	7/26/2018 18:15	TY5335	0.20	0.0655	0.860	0.926	<0.0050	2.6	2.1	0.089	<0.0005	0.00032	0.0592	<0.0001	<0.001	0.234	0.00244	189	<0.001	0.045	0.00172
L5-TPSP	7/27/2018 19:10	TZ1789	0.21	0.0717	0.895	0.967	<0.0050	3.0	4.0	0.056	<0.0005	0.00031	0.0602	<0.0001	<0.001	0.218	0.00267	195	<0.001	0.0465	0.00164
L5-TPSP	7/28/2018 16:45	TZ1782	0.19	0.0699	0.898	0.968	0.0312	3.1	3.1	0.0668	<0.0005	0.00033	0.0601	<0.0001	<0.001	0.224	0.0026	194	<0.001	0.0445	0.00159
L5-TPSP	7/29/2018 17:50	TZ1786	0.18	0.0598	0.804	0.864	<0.0050	2.8	4.0	0.0537	<0.0005	0.00033	0.0596	<0.0001	<0.001	0.222	0.00245	198	<0.001	0.0429	0.00129
L5-TPSP	7/30/2018 7:00	TZ3237	0.21	0.0438	0.825	0.869	<0.0050	2.8	3.2	0.286	<0.0025	<0.0005	0.0606	<0.0005	<0.005	<0.25	0.00381	205	<0.005	0.0633	0.0031
L5-TPSP	7/31/2018 14:54	TZ5902	0.057	0.0685	0.885	0.954	<0.0050	3.6	4.3	0.346	<0.0025	0.00062	0.0649	<0.0005	<0.005	<0.25	0.00292	195	<0.005	0.0513	<0.0025
L5-TPSP	8/1/2018 15:01	TZ8462	0.18	0.0787	0.914	0.992	<0.0050	3.2	4.1	0.269	<0.0005	0.00051	0.0655	<0.0001	<0.001	0.22	0.00263	211	<0.001	0.0474	0.00148
L5-TPSP	8/2/2018 14:52	UA0956	0.25	0.0999	1.04	1.14	<0.0050	3.79	3.28	0.297	<0.001	0.00056	0.0591	<0.0002	<0.002	0.208	0.00269	209	<0.002	0.0526	0.0015
L5-TPSP	8/3/2018 11:49	UA1044	0.26	0.101	1.08	1.19	<0.0050	3.19	3.56	0.209	<0.001	0.00044	0.0575	<0.0002	<0.002	0.213	0.00364	217	<0.002	0.0626	0.0014
L5-TPSP	8/4/2018 15:49	UA3783	0.23	0.0994	1.04	1.14	<0.0050	3.38	2.49	0.127	<0.0025	<0.0005	0.0579	<0.0005	<0.005	<0.25	0.00456	233	<0.005	0.0721	<0.0025
L5-TPSP	8/5/2018 15:00	UA3784	0.22	0.0999	1.03	1.13	<0.0050	4.76	2.50	0.049	<0.0025	<0.0005	0.0535	<0.0005	<0.005	<0.25	0.00417	240	<0.005	0.0709	<0.0025
L5-TPSP	8/6/2018 15:34	UA3838	0.19	0.0980	0.978	1.08	<0.0050	2.79	2.62	0.05	<0.0025	<0.0005	0.0532	<0.0005	<0.005	<0.25	0.00405	242	<0.005	0.0635	<0.0025
L5-TPSP	8/7/2018 13:45	UA4369	0.18	0.0909	0.923	1.01	<0.0050	3.39	3.08	0.441	<0.0025	0.00079	0.0698	<0.0005	<0.005	<0.25	0.00384	252	<0.005	0.0648	<0.0025
L5-TPSP	8/8/2018 11:20	UA6828	0.16	0.0906	0.941	1.03	<0.0050	2.37	2.66	0.138	<0.0025	<0.0005	0.065	<0.0005	<0.005	<0.25	0.00366	251	<0.005	0.0641	<0.0025
L5-TPSP	8/10/2018 11:02	UB1629	0.13	0.0779	0.860	0.938	0.0059	3.17	3.62	0.062	<0.0025	<0.0005	0.0606	<0.0005	<0.005	<0.25	0.00348	254	<0.005	0.0587	<0.0025
L5-TPSP	8/11/2018 14:40	UB4068	1.0	0.0825	0.848	0.931	0.0058	3.37	2.60	0.504	<0.0005	0.00073	0.0744	<0.0001	<0.001	0.214	0.00298	234	<0.001	0.051	0.00224
L5-TPSP	8/12/2018 14:45	UB4560	0.15	0.0899	0.782	0.871	0.0500	3.14	2.95	0.0698	<0.0005	0.00037	0.0616	<0.0001	<0.001	0.244	0.0028	236	<0.001	0.0498	0.001
L5-TPSP	8/13/2018 10:35	UB4589	0.12	0.0861	0.787	0.873	0.0120	2.74	3.07	0.0795	<0.0005	0.0004	0.0586	<0.0001	<0.001	0.205	0.00274	230	<0.001	0.0469	0.00107
L5-TPSP	8/14/2018 15:55	UC1797	0.095	0.0710	0.771	0.842	<0.0050	3.40	2.89	0.0462	<0.001	0.0004	0.0587	<0.0002	<0.002	0.236	0.00257	256	<0.002	0.0438	<0.001
L5-TPSP	8/15/2018 13:15	UC1587	0.043	0.0692	0.750	0.820	<0.0050	3.59	2.86	0.062	<0.0025	<0.0005	0.0548	<0.0005	<0.005	<0.25	0.00244	249	<0.005	0.0438	<0.0025
L5-TPSP	8/16/2018 14:02	UC2159	0.069	0.0654	0.699	0.764	<0.0050	3.71	2.76	0.0391	<0.001	0.00042	0.0555	<0.0002	<0.002	0.235	0.00219	251	<0.002	0.0378	0.0011
L5-TPSP	8/17/2018 5:40	UC4876	0.078	0.0670	0.555	0.622	<0.0050	3.63	2.66	0.0409	<0.001	0.00038	0.0543	<0.0002	<0.002	0.229	0.00218	256	<0.002	0.038	0.0012
L5-TPSP	8/18/2018 11:35	UC8579	0.031	0.0563	0.689	0.745	<0.0050	2.55	2.87	0.036	<0.0025	<0.0005	0.0522	<0.0005	<0.005	0.264	0.00206	265	<0.005	0.0353	<0.0025
L5-TPSP	8/19/2018 11:35	UC8613	<0.020	0.0564	0.679	0.735	<0.0050	2.52	2.41	0.032	<0.0025	<0.0005	0.0519	<0.0005	<0.005	0.27	0.00197	263	<0.005	0.0339	<0.0025
L5-TPSP	8/20/2018 10:15	UD1949	0.094	0.0544	0.672	0.727	0.0073	3.20	2.68	0.182	<0.0005	0.00057	0.0618	<0.0001	<0.001	0.228	0.00231	281	<0.001	0.0433	0.00183
L5-TPSP	8/21/2018 11:20	UD2060	0.050	0.0534	0.666	0.719	<0.0050	3.39	1.97	0.185	<0.0005	0.00052	0.0583	<0.0001	<0.001	0.23	0.00178	267	<0.001	0.0326	0.0017
L5-TPSP	8/22/2018 12:40	UD5027	0.099	0.0548	0.677	0.732	<0.0050	3.12	3.25	0.0693	<0.0005	0.00043	0.0496	<0.0001	<0.001	0.255	0.00151	234	<0.001	0.0276	0.00135
L5-TPSP	8/23/2018 11:20	UD6750	0.12	0.0516	1.51	1.56	0.0054	3.84	2.02	0.165	<0.0025	<0.0005	0.0577	<0.0005	<0.005	0.252	0.00161	256	<0.005	0.0291	<0.0025
L5-TPSP	8/24/2018 10:15	UD8199	0.13	0.0479	0.658	0.706	<0.0050	2.76	2.25	0.518	<0.0025	0.00077	0.0625	<0.0005	<0.005	0.274	0.00165	252	<0.005	0.0269	0.0026

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	6/18/2018 11:00	TR2130	0.237	<0.0002	0.0128	51.5	0.032	<0.000002	0.0145	0.0027	-	6.30	0.00408	0.917	<0.00002	42.6	0.472	172	0.000021	<0.005	0.0076	0.0071
L5-TPSP	6/19/2018 14:35	TR6051	0.262	<0.0002	0.0142	52.5	0.0252	<0.000002	0.0145	0.0033	-	6.85	0.00376	0.798	<0.00002	42.6	0.501	190	0.000021	<0.005	<0.005	0.00721
L5-TPSP	6/20/2018 6:30	TR8733	0.198	<0.0002	0.0144	51.2	0.0222	<0.000002	0.0139	0.0026	-	6.71	0.00401	0.846	<0.00002	42.7	0.494	186	0.00002	<0.005	<0.005	0.00712
L5-TPSP	6/21/2018	TS1919	0.161	<0.0002	0.0148	55.8	0.0186	<0.000002	0.0149	0.0026	-	7.24	0.00406	0.986	<0.00002	46.8	0.511	197	0.00002	<0.005	<0.005	0.00734
L5-TPSP	6/22/2018	TS2370	0.211	<0.0002	0.0146	53.0	0.0171	<0.000002	0.0145	0.0026	-	6.86	0.00384	0.808	<0.00002	44.2	0.516	185	0.00002	<0.005	<0.005	0.00707
L5-TPSP	6/23/2018	TS5387	0.249	<0.0002	0.0125	54.9	0.0161	<0.000002	0.0136	0.0026	-	6.50	0.00398	1.02	<0.00002	45.0	0.555	185	0.000021	<0.005	<0.005	0.00668
L5-TPSP	6/24/2018	TS5391	0.258	<0.0002	0.0144	59.0	0.0147	<0.000002	0.0141	0.0026	-	6.78	0.00403	1.07	<0.00002	48.1	0.597	197	0.000019	<0.005	0.0141	0.00712
L5-TPSP	6/25/2018	TS9113	0.349	0.00022	0.0131	55.8	0.0137	<0.000002	0.0147	0.0025	-	6.88	0.00402	0.984	<0.00002	45.4	0.563	192	0.000023	<0.005	0.0097	0.00738
L5-TPSP	6/27/2018 16:30	TT3454	5.41	0.00186	0.058	60.3	1.74	0.0000022	0.0057	0.244	-	5.95	0.00701	4.7	0.000036	51.7	0.647	224	0.000047	<0.005	0.0353	0.00378
L5-TPSP	6/28/2018 15:30	TT6321	0.6	0.00034	0.0581	58.4	1.4	<0.000002	0.0101	0.183	-	6.80	0.00949	2.97	<0.00002	81.0	0.614	228	0.00003	<0.005	0.0072	0.00398
L5-TPSP	6/30/2018	TU0476	2.15	0.00125	0.0506	49.6	1.01	0.0000034	0.0106	0.112	-	6.45	0.00799	5.5	0.000025	86.0	0.599	184	0.000046	<0.005	0.0555	0.00403
L5-TPSP	7/1/2018 0:00	TU0438	2.45	0.00041	0.0768	62.6	1.85	<0.000002	0.0085	0.254	-	6.30	0.0087	3.33	<0.00002	124	0.697	275	0.000035	<0.005	0.0143	0.00379
L5-TPSP	7/2/2018 13:35	TU1416	3.41	0.00166	0.079	68.5	1.94	<0.000002	0.0087	0.249	-	6.64	0.00925	6.7	0.000031	127	0.734	272	0.000067	<0.005	0.0823	0.0046
L5-TPSP	7/3/2018 21:05	TU4429	0.42	0.00022	0.0718	64.9	1.72	<0.000002	0.0083	0.205	-	5.75	0.00865	2.78	<0.00002	121	0.665	253	0.000028	<0.005	0.0154	0.00553
L5-TPSP	7/4/2018 19:20	TU6247	0.329	<0.0002	0.0721	68.7	1.65	<0.000002	0.0081	0.203	-	6.02	0.0095	3.03	<0.00002	121	0.658	263	0.000034	<0.005	<0.005	0.00687
L5-TPSP	7/5/2018 11:20	TU8084	0.458	<0.0004	0.0703	65.1	1.53	<0.000002	0.0082	0.187	-	6.24	0.00976	3.02	<0.00004	115	0.647	266	0.000036	<0.01	<0.01	0.00702
L5-TPSP	7/6/2018 7:00	TU8088	0.19	<0.0004	0.072	65.5	1.56	<0.000002	0.0084	0.189	-	6.14	0.00961	2.99	<0.00004	114	0.668	264	0.000034	<0.01	<0.01	0.00684
L5-TPSP	7/7/2018 7:00	TV0768	0.106	<0.0002	0.0726	68.6	1.62	<0.000002	0.0089	0.184	-	6.04	0.00935	2.84	<0.00002	120	0.75	262	0.000032	<0.005	<0.005	0.0073
L5-TPSP	7/8/2018 13:20	TV1576	0.302	<0.0002	0.074	69.6	1.36	<0.000002	0.0084	0.166	-	6.28	0.00932	2.61	<0.00002	122	0.664	275	0.000032	<0.005	<0.005	0.00741
L5-TPSP	7/9/2018 17:00	TV3540	0.158	<0.0002	0.0775	70.3	1.32	<0.000002	0.0087	0.164	-	6.52	0.00968	2.38	<0.00002	122	0.702	287	0.000031	<0.005	<0.005	0.00761
L5-TPSP	7/11/2018 10:15	TV9388	0.094	<0.0002	0.0785	75.6	1.34	<0.000002	0.0082	0.155	-	6.21	0.00958	1.92	<0.00002	128	0.74	267	0.00003	<0.005	<0.005	0.00788
L5-TPSP	7/12/2018 0:00	TV9382	0.126	<0.0002	0.0818	75.3	1.3	<0.000002	0.0083	0.155	-	6.21	0.01	1.84	<0.00002	129	0.741	269	0.000029	<0.005	<0.005	0.00788
L5-TPSP	7/13/2018 0:00	TV9673	0.297	0.0002	0.0785	75.2	1.22	<0.000002	0.0079	0.148	-	6.08	0.00971	1.89	<0.00002	126	0.704	264	0.000032	<0.005	<0.005	0.00771
L5-TPSP	7/14/2018 12:15	TW3847	0.207	<0.001	0.066	70.9	1.07	<0.000002	0.0072	0.144	-	5.63	0.00855	1.61	<0.0001	123	0.618	3440	<0.00005	<0.025	<0.025	0.00659
L5-TPSP	7/15/2018 16:10	TW3848	0.108	<0.0002	0.0798	82.8	1.13	<0.000002	0.0106	0.145	-	6.59	0.0101	1.73	<0.00002	147	0.797	274	0.00003	<0.005	<0.005	0.00775
L5-TPSP	7/16/2018 7:45	TW5977	0.101	<0.0004	0.081	76.9	1	<0.000002	0.0104	0.14	-	6.30	0.0103	1.77	<0.00004	139	0.684	285	0.00003	<0.01	<0.01	0.00747
L5-TPSP	7/17/2018 11:10	TW5976	0.118	<0.0004	0.0861	82.0	0.901	<0.000002	0.0115	0.129	-	6.79	0.0105	1.69	<0.00004	153	0.752	309	0.00003	<0.01	<0.01	0.00769
L5-TPSP	7/18/2018 11:45	TW8369	0.317	0.00023	0.0849	80.2	0.806	<0.000002	0.0122	0.107	-	7.03	0.0108	1.51	<0.00002	152	0.821	308	0.000031	<0.005	<0.005	0.00838
L5-TPSP	7/19/2018 9:45	TX0646	0.055	<0.0004	0.0779	77.2	0.738	<0.000002	0.011	0.105	-	6.36	0.00922	1.01	<0.00004	146	0.741	291	0.000028	<0.01	<0.01	0.00737
L5-TPSP	7/20/2018 17:10	TX5552	1.1	0.00048	0.0732	71.4	0.762	<0.000002	0.0111	0.101	-	6.53	0.00886	1.65	<0.00002	132	0.744	291	0.000036	<0.005	0.0475	0.00731
L5-TPSP	7/21/2018 12:20	TX5556	1.65	<0.0002	0.086	74.5	1.09	<0.000002	0.0095	0.152	-	6.83	0.0089	1.35	<0.00002	150	0.763	321	0.000036	<0.005	<0.005	0.00604
L5-TPSP	7/22/2018 11:20	TX5560	1.6	0.00038	0.0845	73.8	1.12	<0.000002	0.0094	0.144	-	6.96	0.00859	1.8	<0.00002	149	0.754	325	0.000039	<0.005	0.0094	0.00571
L5-TPSP	7/23/2018 18:50	TX8486	1.57	<0.0002	0.0926	80.0	1.46	<0.000002	0.0068	0.187	-	6.75	0.00919	1.38	<0.00002	158	0.755	336	0.000031	<0.005	<0.005	0.00321
L5-TPSP	7/24/2018 18:45	TY1084	1.84	<0.0004	0.0934	82.1	1.54	0.0000047	0.0066	0.2	-	7.09	0.0099	1.38	<0.00004	168	0.738	353	0.000036	<0.01	<0.01	0.00293
L5-TPSP	7/25/2018 20:20	TY3340	1.01	<0.0002	0.102	85.3	1.37	<0.000002	0.0065	0.158	-	7.27	0.0101	1.1	<0.00002	177	0.861	366	0.000035	<0.005	<0.005	0.00297
L5-TPSP	7/26/2018 18:15	TY5335	0.701	<0.0002	0.0994	84.9	1.3	<0.000002	0.0059	0.141	-	7.11	0.01	0.975	<0.00002	176	0.851	373	0.000037	<0.005	<0.005	0.00261
L5-TPSP	7/27/2018 19:10	TZ1789	0.721	<0.0002	0.104	84.2	1.34	<0.000002	0.0056	0.144	-	7.14	0.00979	1.1	<0.00002	171	0.89	366	0.000032	<0.005	<0.005	0.0026
L5-TPSP	7/28/2018 16:45	TZ1782	0.536	<0.0002	0.11	85.0	1.32	<0.000002	0.0055	0.139	-	7.17	0.00985	1.06	<0.00002	173	0.893	370	0.000034	<0.005	<0.005	0.0026
L5-TPSP	7/29/2018 17:50	TZ1786	0.635	<0.0002	0.107	86.0	1.31	<0.000002	0.0055	0.133	-	7.33	0.00991	0.966	<0.00002	177	0.925	378	0.000035	<0.005	<0.005	0.00258
L5-TPSP	7/30/2018 7:00	TZ3237	2.75	<0.001	0.118	89.6	1.76	<0.000002	<0.005	0.203	-	7.07	0.00957	1.42	<0.0001	181	0.745	400	<0.00005	<0.025	<0.025	0.00257
L5-TPSP	7/31/2018 14:54	TZ5902	0.813	<0.001	0.104	87.4	1.64	<0.000002	<0.005	0.162	-	7.44	0.00902	1.62	<0.0001	182	0.737	395	<0.00005	<0.025	<0.025	0.00218
L5-TPSP	8/1/2018 15:01	TZ8462	1.22	0.00031	0.0933	83.4	1.66	<0.000002	0.0047	0.144	-	7.51	0.00832	1.79	<0.00002	171	0.747	412	0.000049	<0.005	0.0076	0.00244
L5-TPSP	8/2/2018 14:52	UA0956	1.16	<0.0004	0.104	91.4	2.01	<0.000002	0.0039	0.165	-	7.02	0.00806	1.73	<0.00004	179	0.753	381	0.000046	<0.01	<0.01	0.0026
L5-TPSP	8/3/2018 11:49	UA1044	1.73	<0.0004	0.108	94.2	2.25	<0.000002	0.0037	0.197	-	7.04	0.00805	1.66	<0.00004	182	0.772	399	0.000044	<0.01	<0.01	0.0027
L5-TPSP	8/4/2018 15:49	UA3783	1.4	<0.001	0.108	94.9	2.62	<0.000002	<0.005	0.22	-	7.48	0.00888	1.56	<0.0001	179	0.813	410	<0.00005	<0.025	<0.025	0.00305
L5-TPSP	8/5/2018 15:00	UA3784	0.755	<0.001	0.106	99.9	2.62	<0.000002	<0.005	0.216	-	7.54	0.00843	1.32	<0.0001	180	0.804	427	0.000055	<0.025	<0.025	0.00299
L5-TPSP	8/6/2018 15:34	UA3838	0.532	<0.001	0.11	88.2	2.49	<0.000002	<0.005	0.19	-	7.18	0.00866	1.29	<0.0001	163	0.795	401	<0.00005	<0.025	<0.025	0.00318
L5-TPSP	8/7/2018 13:45	UA4369	1.32	<0.001	0.114	111	2.45	<0.000002	<0.005	0.204	-	7.61	0.00946	1.81	<0.0001	206	0.87	471	0.000058	<0.025	<0.025	0.00339
L5-TPSP	8/8/2018 11:20	UA6828	0.573	<0.001	0.114	104	2.31	<0.000002	<0.005	0.198	-	7.45	0.00959	1.23	<0.0001	193	0.847	433	0.000052	<0.025	<0.025	0.00329
L5-TPSP	8/10/2018 11:02	UB1629	0.28	<0.001	0.112	106	2.31	<0.000002	<0.005	0.19	-	8.13	0.00985	1.06	<0.0001	204	0.907	472	<0.00005	<0.025	<0.025	0.0034
L5-TPSP	8/11/2018 14:40	UB4068	1.09	0.00059	0.112	99.4	2.02	<0.000002	0.0042	0.168	-	8.37	0.00935	1.82	<0.00002	193	0.913	470	0.000055	<0.005	0.0137	0.00358
L5-TPSP	8/12/2018 14:45	UB4560	0.332	<0.0002	0.112	103	1.98	<0.000002	0.0041	0.165	-	7.81	0.00988	0.92	<0.00002	196	0.941	472	0.000048	<0.005	<0.005	0.00366
L5-TPSP	8/13/2018 10:35	UB4589	0.324	<0.0002	0.107	99.7	1.89	<0.000002	0.004	0.156	-	8.08	0.00908	0.904	<0.00002	195	0.914	459	0.000046	<0.005	<0.005	0.00351
L5-TPSP	8/14/2018 15:55	UC1797	0.235	<0.0004	0.116	98.3	1.75	<0.000002	0.0042	0.149	-	8.16	0.00985	0.856	<0.00004	188	0.945	499	0.000043	<0.01	<0.01	0.00354
L5-TPSP	8/15/2018 13:15	UC1587	0.217	<0.001	0.106	103	1.75	<0.000002	<0.005	0.147	-	7.70	0.00974	0.723	<0.0001	187	0.895	462	<0.00005	<0.025	<0.025	0.00352
L5-TPSP	8/16/2018 14:02	UC2159	0.175	<0.0004	0.109	97.3	1.54	<0.000002	0.0041	0.13	-	8.34	0.00998	0.722	<0.00004	189	0.971	500	0.000042	<0.01	<0.01	0.00393
L5-TPSP	8/17/2018 5:40	UC4876	0.167	<0.0004	0.108	97.0	1.54	<0.000002	0.0039	0.137	-	8.04	0.00936	0.727	<0.00004	187	0.935	483	0.00004	<0.01	<0.01	0.00362
L5-TPSP	8/18/2018 11:35	UC8579	0.142	<0.001	0.113	105	1.42	<0.000002	<0.005	0.134	-	7.88	0.00982	0.645	<0.0001	205	0.885	498	<0.00005	<0.025	<0.025	0.00358
L5-TPSP	8/19/2018 11:35	UC8613	0.129	<0.001	0.116	110	1.35	<0.000002	<0.005	0.132	-	8.09	0.00973	0.612	<0.0001	209	0.898	507	<0.00005	<0.025	<0.025	0.00364
L5-TPSP	8/20/2018 10:15	UD1949	0.612	0.00025	0.0961	111	1.74	<0.000002	0.004	0.144	-	8.14	0.0101	0.603	<0.00002	207	1.1	483	0.000042	<0.005	<0.005	0.00383
L5-TPSP	8/21/2018 11:20	UD2060	0.518	0.00027	0.0944	106	1.32	<0.000002	0.0039	0.117	-	7.78	0.00947	0.587	<0.00002	195	1.03	463	0.000043	<0.005	0.0051	0.00372
L5-TPSP	8/22/2018 12:40	UD5027	0.172	<0.0002	0.108	99.8	1.11	<0.000002	0.0037	0.109	-	7.56	0.00879	0.533	<0.00002	194	0.874	455	0.000043	<0.005	<0.005	0.00375
L5-TPSP	8/23/2018 11:20	UD6750	0.792	<0.001	0.111	108	1.16	<0.000002	<0.005	0.114	-	8.06	0.00916	0.714	<0.0001	210	0.904	472	<0.00005	<0.025	<0.025	0.00368
L5-TPSP	8/24/2018 10:15	UD8199	2.01	<0.001	0.114	108	1.08	0.0000088	<0.005	0.108	-	7.61	0.00896	1.5	<0.0001	211	0.879	444	<0.00005	<0.025	<0.025	0.00373

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	6/18/2018 11:00	TR2130	<0.005	<0.005	0.00018	0.0158	0.001	0.00058	0.0458	<0.0001	<0.001	0.08	0.000031	135	<0.001	0.00025	0.00271	<0.01	<0.0002	0.0139	53.7	0.0287
L5-TPSP	6/19/2018 14:35	TR6051	<0.005	<0.005	0.00022	0.0307	0.00109	0.00061	0.0475	<0.0001	<0.001	0.075	0.000029	138	<0.001	0.00023	0.00224	<0.01	<0.0002	0.0139	57.4	0.0204
L5-TPSP	6/20/2018 6:30	TR8733	<0.005	<0.005	<0.0001	0.022	0.00102	0.00056	0.0469	<0.0001	<0.001	0.078	0.000026	134	<0.001	0.00035	0.00224	<0.01	<0.0002	0.0123	55.8	0.0215
L5-TPSP	6/21/2018	TS1919	<0.005	<0.005	<0.0001	0.0141	0.00106	0.00064	0.0508	<0.0001	<0.001	0.084	0.000027	142	<0.001	<0.0002	0.00222	<0.01	<0.0002	0.0153	57.9	0.0099
L5-TPSP	6/22/2018	TS2370	<0.005	<0.005	<0.0001	0.013	0.00107	0.00063	0.0521	<0.0001	<0.001	0.09	0.000026	145	<0.001	0.00024	0.00214	<0.01	<0.0002	0.0147	58.5	0.0116
L5-TPSP	6/23/2018	TS5387	<0.005	<0.005	0.00019	0.0124	0.00105	0.00062	0.0529	<0.0001	<0.001	0.087	0.000025	146	<0.001	<0.0002	0.00219	<0.01	<0.0002	0.0154	59.7	0.0105
L5-TPSP	6/24/2018	TS5391	<0.005	<0.005	0.00024	0.0139	0.00105	0.00059	0.0532	<0.0001	<0.001	0.091	0.000023	147	<0.001	0.0002	0.00234	<0.01	<0.0002	0.0159	60.6	0.0089
L5-TPSP	6/25/2018	TS9113	<0.005	<0.005	0.00015	0.0114	0.001	0.00057	0.0521	<0.0001	<0.001	0.085	0.000023	151	<0.001	<0.0002	0.00224	<0.01	<0.0002	0.015	58.6	0.0083
L5-TPSP	6/27/2018 16:30	TT3454	<0.005	0.413	0.00075	<0.003	<0.0005	0.00021	0.0815	<0.0001	<0.001	0.132	0.00326	177	<0.001	0.0747	0.00162	<0.01	<0.0002	0.055	57.9	1.65
L5-TPSP	6/28/2018 15:30	TT6321	<0.005	0.231	0.0003	0.0044	0.0007	0.00042	0.0809	<0.0001	<0.001	0.171	0.00272	174	<0.001	0.0589	0.001	<0.01	<0.0002	0.0585	55.7	1.35
L5-TPSP	6/30/2018	TU0476	0.0053	0.0905	0.00173	0.009	0.00075	0.00041	0.0879	<0.0001	<0.001	0.134	0.00122	149	<0.001	0.032	0.0013	<0.01	<0.0002	0.0482	48.5	0.907
L5-TPSP	7/1/2018 0:00	TU0438	<0.005	0.404	0.00032	0.0064	0.00058	0.00024	0.0939	<0.0001	<0.001	0.171	0.00386	179	<0.001	0.0802	0.00097	<0.01	<0.0002	0.0764	61.2	1.77
L5-TPSP	7/2/2018 13:35	TU1416	0.0074	0.31	0.00167	0.0105	0.00053	0.00029	0.0793	<0.0001	<0.001	0.148	0.0031	175	<0.001	0.0761	0.00112	<0.01	<0.0002	0.0738	60.7	1.88
L5-TPSP	7/3/2018 21:05	TU4429	<0.005	0.227	0.00015	0.0095	0.00054	0.00032	0.0749	<0.0001	<0.001	0.147	0.00302	181	<0.001	0.0752	0.00113	<0.01	<0.0002	0.0746	66.8	1.8
L5-TPSP	7/4/2018 19:20	TU6247	<0.005	0.199	0.00011	0.005	0.00052	0.00034	0.0716	<0.0001	<0.001	0.179	0.00281	165	<0.001	0.0622	0.0009	<0.01	<0.0002	0.0797	69.4	1.66
L5-TPSP	7/5/2018 11:20	TU8084	<0.01	0.17	<0.0002	0.0528	0.00051	0.00033	0.0734	<0.0001	<0.001	0.172	0.00249	177	<0.001	0.0572	0.00102	<0.01	<0.0002	0.0739	67.6	1.61
L5-TPSP	7/6/2018 7:00	TU8088	<0.01	0.165	<0.0002	0.006	0.00051	0.00033	0.0742	<0.0001	<0.001	0.17	0.00251	177	<0.001	0.0589	0.00087	<0.01	<0.0002	0.0751	68.3	1.65
L5-TPSP	7/7/2018 7:00	TV0768	<0.005	0.153	<0.0001	0.0063	0.00053	0.00034	0.0741	<0.0001	<0.001	0.175	0.00234	179	<0.001	0.0528	0.00083	<0.01	<0.0002	0.0752	67.7	1.41
L5-TPSP	7/8/2018 13:20	TV1576	<0.005	0.129	0.00012	0.0208	<0.0005	0.00031	0.068	<0.0001	<0.001	0.166	0.002	176	<0.001	0.0483	0.00073	<0.01	<0.0002	0.0764	69.4	1.3
L5-TPSP	7/9/2018 17:00	TV3540	<0.005	0.0975	<0.0001	0.0179	<0.0005	0.00031	0.0674	<0.0001	<0.001	0.163	0.00176	181	<0.001	0.0437	0.00079	<0.01	<0.0002	0.0775	70.4	1.19
L5-TPSP	7/11/2018 10:15	TV9388	<0.005	0.0918	0.00012	0.0337	<0.001	0.00033	0.0666	<0.0002	<0.002	0.175	0.0017	171	<0.002	0.0441	<0.001	<0.02	<0.0004	0.0804	71.8	1.21
L5-TPSP	7/12/2018 0:00	TV9382	<0.005	0.0953	<0.0001	0.017	<0.001	0.00029	0.0662	<0.0002	<0.002	0.185	0.00169	177	<0.002	0.0423	<0.001	<0.02	<0.0004	0.087	72.2	1.13
L5-TPSP	7/13/2018 0:00	TV9673	<0.005	0.0926	<0.0001	0.0124	<0.001	0.00035	0.0665	<0.0002	<0.002	0.185	0.00162	185	<0.002	0.0402	<0.001	<0.02	<0.0004	0.0829	72.5	1.11
L5-TPSP	7/14/2018 12:15	TW3847	<0.025	0.082	<0.0005	0.0122	<0.001	0.00034	0.0639	<0.0002	<0.002	0.186	0.00165	179	<0.002	0.0393	<0.001	<0.02	<0.0004	0.0778	78.4	1.1
L5-TPSP	7/15/2018 16:10	TW3848	<0.005	0.0663	0.0004	0.0127	<0.001	0.00037	0.0688	<0.0002	<0.002	0.188	0.0013	176	<0.002	0.0339	0.0031	<0.02	<0.0004	0.0791	80.0	0.977
L5-TPSP	7/16/2018 7:45	TW5977	<0.01	0.069	<0.0002	0.0113	<0.001	0.00037	0.0687	<0.0002	<0.002	0.196	0.00119	180	<0.002	0.0321	<0.001	<0.02	<0.0004	0.0832	81.4	0.927
L5-TPSP	7/17/2018 11:10	TW5976	<0.01	0.055	<0.0002	0.0116	<0.001	0.00039	0.0679	<0.0002	<0.002	0.203	0.000898	179	<0.002	0.026	0.0011	<0.02	<0.0004	0.0852	82.4	0.745
L5-TPSP	7/18/2018 11:45	TW8369	<0.005	0.0401	0.00015	0.0143	0.00056	0.00043	0.0672	<0.0001	<0.001	0.201	0.000609	176	<0.001	0.0196	0.00098	<0.01	<0.0002	0.0843	77.9	0.613
L5-TPSP	7/19/2018 9:45	TX0646	<0.01	0.039	<0.0002	0.0123	<0.001	0.00036	0.0614	<0.0002	<0.002	0.168	0.000703	177	<0.002	0.0199	<0.001	<0.02	<0.0004	0.0743	80.3	0.576
L5-TPSP	7/20/2018 17:10	TX5552	<0.005	0.0546	0.00033	0.0543	0.00053	0.0004	0.0561	<0.0001	<0.001	0.186	0.00083	166	<0.001	0.0223	0.00118	<0.01	<0.0002	0.0771	67.6	0.705
L5-TPSP	7/21/2018 12:20	TX5556	<0.005	0.167	<0.0001	0.0309	<0.001	0.00036	0.0577	<0.0002	<0.002	0.188	0.00222	174	<0.002	0.0437	0.0023	<0.02	<0.0004	0.0865	75.6	1.1
L5-TPSP	7/22/2018 11:20	TX5560	<0.005	0.144	0.00031	0.0393	<0.001	0.00031	0.0582	<0.0002	<0.002	0.194	0.00194	169	<0.002	0.0401	0.0018	<0.02	<0.0004	0.0863	69.8	1.09
L5-TPSP	7/23/2018 18:50	TX8486	<0.005	0.263	<0.0001	0.0047	<0.0005	0.00023	0.0606	<0.0001	<0.001	0.203	0.00316	181	<0.001	0.0577	0.002	<0.01	<0.0002	0.0937	80.9	1.5
L5-TPSP	7/24/2018 18:45	TY1084	<0.01	0.27	<0.0002	<0.006	<0.001	0.00021	0.0607	<0.0002	<0.002	0.194	0.00318	176	<0.002	0.0586	0.0015	<0.02	<0.0004	0.0989	77.3	1.51
L5-TPSP	7/25/2018 20:20	TY3340	<0.005	0.195	<0.0001	0.0055	<0.0005	0.00026	0.061	<0.0001	<0.001	0.187	0.00274	192	<0.001	0.0521	0.00117	<0.01	<0.0002	0.0902	86.4	1.37
L5-TPSP	7/26/2018 18:15	TY5335	<0.005	0.156	<0.0001	0.0095	<0.0005	0.00026	0.0576	<0.0001	<0.001	0.234	0.00226	192	<0.001	0.0442	0.00114	<0.01	<0.0002	0.0993	86.8	1.27
L5-TPSP	7/27/2018 19:10	TZ1789	<0.005	0.176	<0.0001	0.0063	<0.001	0.00027	0.0561	<0.0002	<0.002	0.212	0.00272	181	<0.002	0.0508	0.0011	<0.02	<0.0004	0.0988	85.3	1.44
L5-TPSP	7/28/2018 16:45	TZ1782	<0.005	0.165	<0.0001	0.0621	<0.001	0.00024	0.0556	<0.0002	<0.002	0.224	0.00264	187	<0.002	0.0474	0.0011	<0.02	<0.0004	0.103	85.9	1.38
L5-TPSP	7/29/2018 17:50	TZ1786	<0.005	0.15	<0.0001	0.008	<0.001	0.00025	0.0554	<0.0002	<0.002	0.231	0.00245	188	<0.002	0.0463	<0.001	<0.02	<0.0004	0.105	86.8	1.39
L5-TPSP	7/30/2018 7:00	TZ3237	<0.025	0.348	<0.0005	0.104	<0.001	0.00024	0.0571	<0.0002	<0.002	0.246	0.00348	197	<0.002	0.0618	0.0015	0.395	<0.0004	0.116	92.7	1.75
L5-TPSP	7/31/2018 14:54	TZ5902	<0.025	0.205	<0.0005	0.141	<0.0005	0.00064	0.0642	<0.0001	<0.001	0.22	0.00265	203	<0.001	0.0494	0.00237	0.805	0.00059	0.102	88.9	1.59
L5-TPSP	8/1/2018 15:01	TZ8462	<0.005	0.148	0.00017	0.0351	<0.001	0.00029	0.0577	<0.0002	<0.002	0.226	0.00245	210	<0.002	0.0466	0.001	<0.02	<0.0004	0.0973	84.0	1.71
L5-TPSP	8/2/2018 14:52	UA0956	<0.01	0.16	<0.0002	0.0053	<0.0005	0.00028	0.0553	<0.0001	<0.001	0.228	0.00263	227	<0.001	0.0507	0.0008	<0.01	<0.0002	0.105	88.1	2.08
L5-TPSP	8/3/2018 11:49	UA1044	<0.01	0.26	<0.0002	<0.015	<0.0025	<0.0005	0.0568	<0.0005	<0.005	<0.25	0.00362	249	<0.005	0.0648	<0.0025	<0.05	<0.001	0.106	95.8	2.48
L5-TPSP	8/4/2018 15:49	UA3783	<0.025	0.33	<0.0005	<0.015	<0.0025	<0.0005	0.0565	<0.0005	<0.005	<0.25	0.00458	250	<0.005	0.0743	<0.0025	<0.05	<0.001	0.11	97.0	2.74
L5-TPSP	8/5/2018 15:00	UA3784	<0.025	0.315	<0.0005	<0.015	<0.0025	<0.0005	0.0565	<0.0005	<0.005	<0.25	0.00441	246	<0.005	0.0706	<0.0025	<0.05	<0.001	0.109	94.3	2.62
L5-TPSP	8/6/2018 15:34	UA3838	<0.025	0.274	<0.0005	<0.015	<0.0025	<0.0005	0.0563	<0.0005	<0.005	<0.25	0.00425	259	<0.005	0.068	<0.0025	<0.05	<0.001	0.111	96.7	2.57
L5-TPSP	8/7/2018 13:45	UA4369	<0.025	0.243	<0.0005	<0.015	<0.0025	<0.0005	0.0524	<0.0005	<0.005	<0.25	0.0034	254	<0.005	0.0602	<0.0025	<0.05	<0.001	0.108	97.5	2.31
L5-TPSP	8/8/2018 11:20	UA6828	<0.025	0.238	<0.0005	<0.015	<0.0025	<0.0005	0.0579	<0.0005	<0.005	<0.25	0.00342	245	<0.005	0.0572	<0.0025	<0.05	<0.001	0.108	99.3	2.27
L5-TPSP	8/10/2018 11:02	UB1629	<0.025	0.218	<0.0005	0.0058	<0.0005	0.0003	0.0595	<0.0001	<0.001	0.222	0.0029	254	<0.001	0.0543	0.0006	<0.01	<0.0002	0.108	104	2.08
L5-TPSP	8/11/2018 14:40	UB4068	<0.005	0.176	0.00028	0.0062	<0.0005	0.00036	0.056	<0.0001	<0.001	0.227	0.00256	243	<0.001	0.0464	0.00076	<0.01	<0.0002	0.109	103	1.86
L5-TPSP	8/12/2018 14:45	UB4560	<0.005	0.155	<0.0001	0.0133	<0.001	0.00033	0.0555	<0.0002	<0.002	0.225	0.00238	255	<0.002	0.0457	<0.001	<0.02	<0.0004	0.105	106	1.8
L5-TPSP	8/13/2018 10:35	UB4589	<0.005	0.155	<0.0001	0.0125	<0.001	0.00038	0.0561	<0.0002	<0.002	0.242	0.00239	250	<0.002	0.0469	<0.001	<0.02	<0.0004	0.105	104	1.82
L5-TPSP	8/14/2018 15:55	UC1797	<0.01	0.134	<0.0002	0.0148	<0.0005	0.00033	0.0537	<0.0001	<0.001	0.227	0.00228	240	<0.001	0.0404	0.00066	<0.01	<0.0002	0.105	97.8	1.59
L5-TPSP	8/15/2018 13:15	UC1587	<0.025	0.119	<0.0005	0.0082	<0.0005	0.0003	0.0543	<0.0001	<0.001	0.227	0.00215	241	<0.001	0.0379	0.00062	<0.01	<0.0002	0.103	101	1.48
L5-TPSP	8/16/2018 14:02	UC2159	<0.01	0.105	<0.0002	0.007	<0.0005	0.00034	0.0512	<0.0001	<0.001	0.226	0.00182	235	<0.001	0.0334	0.00083	<0.01	<0.0002	0.105	99.7	1.28
L5-TPSP	8/17/2018 5:40	UC4876	<0.01	0.098	<0.0002	0.041	<0.0025	<0.0005	0.0542	<0.0005	<0.005	<0.25	0.00212	271	<0.005	0.036	<0.0025	0.056	<0.001	0.114	118	1.48
L5-TPSP	8/18/2018 11:35	UC8579	<0.025	0.092	<0.0005	<0.015	<0.0025	<0.0005	0.0532	<0.0005	<0.005	<0.25	0.00192	265	<0.005	0.0344	<0.0025	<0.05	<0.001	0.11	107	1.35
L5-TPSP	8/19/2018 11:35	UC8613	<0.025	0.085	<0.0005	<0.015	<0.0025	<0.0005	0.0523	<0.0005	<0.005	0.256	0.00177	257	<0.005	0.0315	<0.0025	<0.05	<0.001	0.111	108	1.23
L5-TPSP	8/20/2018 10:15	UD1949	<0.005	0.155	0.0001	<0.015	<0.0025	<0.0005	0.0464	<0.0005	<0.005	<0.25	0.00142	215	<0.005	0.0277	<0.0025	<0.05	<0.001	0.105	93.9	1.11
L5-TPSP	8/21/2018 11:20	UD2060	<0.005	0.0741	0.00011	<0.015	<0.0025	<0.0005	0.0476	<0.0005	<0.005	<0.25	0.00133	230	<0.005	0.0263	<0.0025	<0.05	<0.001	0.106	97.7	1.05
L5-TPSP	8/22/2018 12:40	UD5027	<0.005	0.0543	<0.0001	0.0079	<0.001	0.00045	0.0474	<0.0002	<0.002	0.256	0.00137	260	<0.002	0.0243	0.001	<0.02	<0.0004	0.107	106	0.952
L5-TPSP	8/23/2018 11:20	UD6750	<0.025	0.052	<0.0005	0.0219	<0.001	0.00039	0.0502	<0.0002	<0.002	0.224	0.00128	245	<0.002	0.0213	<0.001	<0.02	<0.0004	0.11	99.6	0.865
L5-TPSP	8/24/2018 10:15	UD8199	<0.025	0.053	0.00065	0.0178	<0.001	0.00036	0.051	<0.0002	<0.002	0.239	0.00131	256	<0.002	0.0227	<0.001	<0.02	<0.0004	0.116	103	0.975

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	6/18/2018 11:00	TR2130	<0.000002	0.0151	0.0025	-	6.71	0.00397	0.594	<0.00002	44.5	0.543	184	0.000014	<0.005	<0.005	0.007	<0.005	<0.005	<0.0001
L5-TPSP	6/19/2018 14:35	TR6051	<0.000002	0.0159	0.0024	-	6.79	0.00396	0.55	<0.00002	47.8	0.548	186	0.000015	<0.005	<0.005	0.00729	<0.005	<0.005	<0.0001
L5-TPSP	6/20/2018 6:30	TR8733	<0.000002	0.0151	0.0026	-	6.76	0.00393	0.567	<0.00002	47.6	0.526	198	0.000018	<0.005	<0.005	0.007	<0.005	<0.005	<0.0001
L5-TPSP	6/21/2018	TS1919	<0.000002	0.0154	0.0023	-	7.20	0.00409	0.58	<0.00002	47.7	0.568	194	0.000018	<0.005	<0.005	0.00753	<0.005	<0.005	<0.0001
L5-TPSP	6/22/2018	TS2370	<0.000002	0.0155	0.0022	-	7.27	0.00408	0.603	<0.00002	47.7	0.585	196	0.000019	<0.005	<0.005	0.00761	<0.005	<0.005	<0.0001
L5-TPSP	6/23/2018	TS5387	<0.000002	0.0155	0.0022	-	7.40	0.00409	0.566	<0.00002	49.0	0.588	198	0.000018	<0.005	<0.005	0.00768	<0.005	<0.005	<0.0001
L5-TPSP	6/24/2018	TS5391	<0.000002	0.0159	0.0023	-	7.51	0.00414	0.563	<0.00002	49.8	0.607	203	0.000018	<0.005	<0.005	0.00782	<0.005	<0.005	<0.0001
L5-TPSP	6/25/2018	TS9113	<0.000002	0.0146	0.0021	-	7.19	0.00367	0.529	<0.00002	49.4	0.55	212	0.00002	<0.005	<0.005	0.00748	<0.005	<0.005	<0.0001
L5-TPSP	6/27/2018 16:30	TT3454	<0.000002	0.0052	0.225	-	5.56	0.00672	2.25	<0.00002	51.7	0.599	219	0.000017	<0.005	<0.005	0.00338	<0.005	0.297	<0.0001
L5-TPSP	6/28/2018 15:30	TT6321	<0.000002	0.0101	0.175	-	6.46	0.00968	2.61	<0.00002	78.0	0.608	219	0.000026	<0.005	<0.005	0.00389	<0.005	0.191	<0.0001
L5-TPSP	6/30/2018	TU0476	<0.000002	0.0105	0.1	-	6.10	0.0081	2.44	<0.00002	83.8	0.583	193	0.000022	<0.005	<0.005	0.00393	<0.005	0.0527	<0.0001
L5-TPSP	7/1/2018 0:00	TU0438	<0.000002	0.0082	0.24	-	5.99	0.00916	2.49	<0.00002	122	0.684	259	0.000026	<0.005	<0.005	0.00361	<0.005	0.318	<0.0001
L5-TPSP	7/2/2018 13:35	TU1416	<0.000002	0.0082	0.228	-	5.63	0.00952	2.16	<0.00002	117	0.674	246	0.000028	<0.005	<0.005	0.00455	<0.005	0.215	<0.0001
L5-TPSP	7/3/2018 21:05	TU4429	<0.000002	0.0086	0.225	-	6.25	0.00964	2.63	<0.00002	118	0.68	273	0.000031	<0.005	<0.005	0.00605	<0.005	0.214	<0.0001
L5-TPSP	7/4/2018 19:20	TU6247	<0.000002	0.0084	0.194	-	6.01	0.00914	2.84	<0.00002	122	0.721	269	0.000025	<0.005	<0.005	0.00666	<0.005	0.176	<0.0001
L5-TPSP	7/5/2018 11:20	TU8084	<0.000002	0.009	0.18	-	6.10	0.00941	3.16	<0.00002	117	0.766	261	0.000032	<0.005	<0.005	0.00784	<0.005	0.14	<0.0001
L5-TPSP	7/6/2018 7:00	TU8088	<0.000002	0.009	0.186	-	6.12	0.0094	3.1	<0.00002	120	0.78	263	0.00003	<0.005	<0.005	0.00769	<0.005	0.141	<0.0001
L5-TPSP	7/7/2018 7:00	TV0768	<0.000002	0.0086	0.166	-	6.43	0.00928	2.6	<0.00002	120	0.686	281	0.000033	<0.005	<0.005	0.0071	<0.005	0.114	<0.0001
L5-TPSP	7/8/2018 13:20	TV1576	<0.000002	0.0084	0.153	-	6.44	0.0094	2.35	<0.00002	122	0.679	290	0.00003	<0.005	<0.005	0.00749	<0.005	0.0783	<0.0001
L5-TPSP	7/9/2018 17:00	TV3540	<0.000002	0.0086	0.143	-	6.49	0.00908	2.27	<0.00002	121	0.69	290	0.000031	<0.005	<0.005	0.00767	<0.005	0.0579	<0.0001
L5-TPSP	7/11/2018 10:15	TV9388	<0.000002	0.0085	0.157	-	6.62	0.00971	2.17	<0.00004	126	0.661	277	0.000031	<0.01	<0.01	0.00752	<0.01	0.06	<0.0002
L5-TPSP	7/12/2018 0:00	TV9382	<0.000002	0.0084	0.152	-	6.63	0.00943	2.11	<0.00004	128	0.681	288	0.000031	<0.01	<0.01	0.00744	<0.01	0.062	<0.0002
L5-TPSP	7/13/2018 0:00	TV9673	<0.000002	0.0085	0.142	-	6.70	0.00962	2.12	<0.00004	127	0.706	281	0.000034	<0.01	<0.01	0.00755	<0.01	0.058	<0.0002
L5-TPSP	7/14/2018 12:15	TW3847	<0.000002	0.0087	0.145	-	6.28	0.00979	1.79	<0.00004	134	0.716	286	0.000026	<0.01	<0.01	0.00777	<0.01	0.058	<0.0002
L5-TPSP	7/15/2018 16:10	TW3848	<0.000002	0.0105	0.131	-	6.47	0.00979	1.67	<0.00004	144	0.771	291	0.000025	<0.01	<0.01	0.00773	<0.01	0.036	<0.0002
L5-TPSP	7/16/2018 7:45	TW5977	<0.000002	0.0107	0.127	-	6.48	0.00985	1.59	<0.00004	146	0.782	291	0.000026	<0.01	<0.01	0.00768	<0.01	0.031	<0.0002
L5-TPSP	7/17/2018 11:10	TW5976	<0.000002	0.0117	0.111	-	6.59	0.01	1.32	<0.00004	151	0.789	294	0.000022	<0.01	<0.01	0.00786	<0.01	0.02	<0.0002
L5-TPSP	7/18/2018 11:45	TW8369	<0.000002	0.0119	0.0902	-	6.74	0.0108	1.05	<0.00002	146	0.838	303	0.000027	<0.005	<0.005	0.00818	<0.005	0.0103	<0.0001
L5-TPSP	7/19/2018 9:45	TX0646	<0.000002	0.0107	0.0932	-	6.65	0.00956	1.02	<0.00004	149	0.721	307	0.000029	<0.01	<0.01	0.00716	<0.01	0.016	<0.0002
L5-TPSP	7/20/2018 17:10	TX5552	<0.000002	0.011	0.0945	-	6.34	0.00972	1.01	<0.00002	134	0.679	291	0.000024	<0.005	<0.005	0.00745	<0.005	0.0263	<0.0001
L5-TPSP	7/21/2018 12:20	TX5556	<0.000002	0.0089	0.158	-	6.61	0.00982	1.25	<0.00004	153	0.675	323	0.00003	<0.01	<0.01	0.00567	<0.01	0.155	<0.0002
L5-TPSP	7/22/2018 11:20	TX5560	<0.000002	0.0089	0.142	-	6.47	0.00913	1.23	<0.00004	146	0.65	320	0.00003	<0.01	<0.01	0.0052	<0.01	0.124	<0.0002
L5-TPSP	7/23/2018 18:50	TX8486	<0.000002	0.0064	0.188	-	6.98	0.00969	1.19	<0.00002	162	0.796	345	0.000027	<0.005	<0.005	0.00272	<0.005	0.243	<0.0001
L5-TPSP	7/24/2018 18:45	TY1084	<0.000002	0.0052	0.195	-	6.74	0.00934	1.18	<0.00004	163	0.7	337	0.000037	<0.01	<0.01	0.00254	<0.01	0.264	<0.0002
L5-TPSP	7/25/2018 20:20	TY3340	<0.000002	0.0056	0.164	-	7.05	0.01	0.877	<0.00002	176	0.783	361	0.000032	<0.005	<0.005	0.00262	<0.005	0.181	<0.0001
L5-TPSP	7/26/2018 18:15	TY5335	<0.000002	0.0055	0.138	-	7.11	0.0103	0.831	<0.00002	180	0.853	376	0.00004	<0.005	<0.005	0.00247	<0.005	0.13	<0.0001
L5-TPSP	7/27/2018 19:10	TZ1789	<0.000002	0.0048	0.166	-	7.20	0.00889	0.911	<0.00004	173	0.749	368	0.000041	<0.01	<0.01	0.00237	<0.01	0.187	<0.0002
L5-TPSP	7/28/2018 16:45	TZ1782	<0.000002	0.0048	0.158	-	7.22	0.00899	0.898	<0.00004	175	0.784	372	0.000035	<0.01	<0.01	0.00239	<0.01	0.17	<0.0002
L5-TPSP	7/29/2018 17:50	TZ1786	<0.000002	0.0049	0.151	-	7.27	0.00887	0.833	<0.00004	179	0.79	379	0.000041	<0.01	<0.01	0.00241	<0.01	0.149	<0.0002
L5-TPSP	7/30/2018 7:00	TZ3237	<0.000002	0.0034	0.195	-	7.18	0.00907	0.934	<0.00004	191	0.791	399	0.000038	<0.01	<0.01	0.00196	<0.01	0.244	<0.0002
L5-TPSP	7/31/2018 14:54	TZ5902	<0.000002	0.0052	0.149	-	7.26	0.00976	1.1	<0.00002	194	0.837	383	0.000039	<0.005	<0.005	0.0024	<0.005	0.146	0.00024
L5-TPSP	8/1/2018 15:01	TZ8462	<0.000002	0.0041	0.147	-	7.52	0.00894	1.25	<0.00004	173	0.753	409	0.000042	<0.01	<0.01	0.00239	<0.01	0.129	<0.0002
L5-TPSP	8/2/2018 14:52	UA0956	<0.000002	0.0044	0.155	-	7.54	0.0087	1.38	<0.00002	171	0.827	438	0.000048	<0.005	<0.005	0.0029	<0.005	0.134	<0.0001
L5-TPSP	8/3/2018 11:49	UA1044	<0.000002	<0.005	0.199	-	7.59	0.0096	1.5	<0.0001	186	0.823	441	<0.00005	<0.025	<0.025	0.0029	<0.025	0.229	<0.0005
L5-TPSP	8/4/2018 15:49	UA3783	<0.000002	<0.005	0.222	-	7.61	0.00908	1.4	<0.0001	177	0.823	478	0.000055	<0.025	<0.025	0.00299	<0.025	0.312	<0.0005
L5-TPSP	8/5/2018 15:00	UA3784	<0.000002	<0.005	0.213	-	7.21	0.00902	1.33	<0.0001	172	0.839	451	0.00006	<0.025	<0.025	0.00302	<0.025	0.285	<0.0005
L5-TPSP	8/6/2018 15:34	UA3838	<0.000002	<0.005	0.207	-	7.58	0.00955	1.26	<0.0001	173	0.86	475	<0.00005	<0.025	<0.025	0.00323	<0.025	0.27	<0.0005
L5-TPSP	8/7/2018 13:45	UA4369	<0.000002	<0.005	0.187	-	7.61	0.00948	1.04	<0.0001	185	0.816	460	0.000052	<0.025	<0.025	0.00322	<0.025	0.185	<0.0005
L5-TPSP	8/8/2018 11:20	UA6828	<0.000002	<0.005	0.178	-	7.38	0.00907	1.03	<0.0001	182	0.831	427	<0.00005	<0.025	<0.025	0.00328	<0.025	0.193	<0.0005
L5-TPSP	8/10/2018 11:02	UB1629	<0.000002	0.0037	0.172	-	8.01	0.00919	0.98	<0.00002	194	0.884	469	0.000048	<0.005	<0.005	0.00342	<0.005	0.133	<0.0001
L5-TPSP	8/11/2018 14:40	UB4068	<0.000002	0.0038	0.149	-	8.02	0.00914	0.907	<0.00002	189	0.882	454	0.000049	<0.005	<0.005	0.00356	<0.005	0.0889	<0.0001
L5-TPSP	8/12/2018 14:45	UB4560	<0.000002	0.0037	0.153	-	8.11	0.0089	0.815	<0.00004	195	0.877	457	0.000047	<0.01	<0.01	0.00339	<0.01	0.085	<0.0002
L5-TPSP	8/13/2018 10:35	UB4589	<0.000002	0.0036	0.153	-	8.16	0.00921	0.787	<0.00004	191	0.871	475	0.000048	<0.01	<0.01	0.00348	<0.01	0.086	<0.0002
L5-TPSP	8/14/2018 15:55	UC1797	<0.000002	0.004	0.138	-	8.02	0.00929	0.727	<0.00002	191	0.93	469	0.000045	<0.005	<0.005	0.00348	<0.005	0.0751	<0.0001
L5-TPSP	8/15/2018 13:15	UC1587	<0.000002	0.0039	0.135	-	8.14	0.00928	0.702	<0.00002	195	0.927	491	0.000046	<0.005	<0.005	0.00354	<0.005	0.0586	<0.0001
L5-TPSP	8/16/2018 14:02	UC2159	<0.000002	0.004	0.123	-	7.79	0.0094	0.58	<0.00002	191	0.922	481	0.000046	<0.005	<0.005	0.00357	<0.005	0.0413	<0.0001
L5-TPSP	8/17/2018 5:40	UC4876	<0.000002	<0.005	0.135	-	7.96	0.00936	0.63	<0.0001	214	0.906	478	0.000068	<0.025	<0.025	0.00356	<0.025	0.047	<0.0005
L5-TPSP	8/18/2018 11:35	UC8579	<0.000002	<0.005	0.123	-	8.07	0.0102	0.576	<0.0001	198	0.928	496	<0.00005	<0.025	<0.025	0.00361	<0.025	0.037	<0.0005
L5-TPSP	8/19/2018 11:35	UC8613	<0.000002	<0.005	0.118	-	8.07	0.0102	0.506	<0.0001	202	0.927	519	<0.00005	<0.025	<0.025	0.00367	<0.025	0.027	<0.0005
L5-TPSP	8/20/2018 10:15	UD1949	<0.000002	<0.005	0.11	-	7.27	0.00853	<0.5	<0.0001	178	0.839	410	<0.00005	<0.025	<0.025	0.00326	<0.025	<0.025	<0.0005
L5-TPSP	8/21/2018 11:20	UD2060	<0.000002	<0.005	0.105	-	7.56	0.00814	<0.5	<0.0001	182	0.854	403	<0.00005	<0.025	<0.025	0.0024	<0.025	0.032	<0.0005
L5-TPSP	8/22/2018 12:40	UD5027	<0.000002	0.004	0.11	-	8.15	0.01	0.498	<0.00004	206	0.925	490	0.000045	<0.01	<0.01	0.0038	<0.01	0.018	<0.0002
L5-TPSP	8/23/2018 11:20	UD6750	<0.000002	0.0038	0.0916	-	8.25	0.00872	0.512	<0.00004	193	0.907	493	0.000047	<0.01	<0.01	0.00349	<0.01	0.013	<0.0002
L5-TPSP	8/24/2018 10:15	UD8199	<0.000002	0.0037	0.0965	-	8.35	0.00898	0.526	<0.00004	201	0.926	489	0.000042	<0.01	<0.01	0.00362	<0.01	0.015	<0.0002

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	8/25/2018 10:35	UE1793	7.87	2620	4.37	2180	5.3	1140	1060	73.4	<1.0	89.5	<1.0	<1.0	34.4	1.10	0.73	1400
L5-TPSP	8/26/2018 12:15	UE1801	7.78	2570	6.56	2160	6.8	1100	1040	70.4	<1.0	85.9	<1.0	<1.0	33.3	1.10	0.73	1400
L5-TPSP	8/27/2018 12:51	UE2119	7.82	2580	6.13	2120	7.5	1080	1010	75.4	<1.0	92.0	<1.0	<1.0	33.6	1.10	0.74	1400
L5-TPSP	8/28/2018 11:55	UE5264	7.80	2690	5.11	2160	12.0	952	1030	79.3	<1.0	96.7	<1.0	<1.0	32.9	1.00	0.74	1390
L5-TPSP	8/29/2018 11:15	UF1102	7.94	2530	6.93	2130	15.0	1020	1000	77.5	<1.0	94.6	<1.0	<1.0	38.3	1.10	0.73	1420
L5-TPSP	8/30/2018 12:00	UF1075	7.93	2540	5.23	2030	4.3	1030	1000	82.6	<1.0	101	<1.0	<1.0	38.7	1.10	0.71	1410
L5-TPSP	8/31/2018 9:15	UF3967	7.94	2560	3.28	2050	6.8	962	1000	86.0	<1.0	105	<1.0	<1.0	35.4	1.20	0.74	1370
L5-TPSP	9/1/2018 9:35	UF6667	7.95	2530	1.45	2160	9.3	1100	958	84.2	<1.0	103	<1.0	<1.0	56.0	1.10	0.78	1440
L5-TPSP	9/2/2018 11:15	UF7754	7.87	2580	14.7	2070	27.5	1040	1050	88.6	<1.0	108	<1.0	<1.0	39.0	1.10	0.75	1320
L5-TPSP	9/3/2018 7:47	UF9063	7.85	2550	2.50	2120	12.8	1050	999	85.4	<1.0	104	<1.0	<1.0	39.6	1.10	1.1	1350
L5-TPSP	9/4/2018 16:10	UG0436	7.86	2590	2.03	1940	6.3	991	1030	89.2	<1.0	109	<1.0	<1.0	43.8	1.10	0.83	1310
L5-TPSP	9/5/2018 15:55	UG2791	7.88	2600	12.4	2080	7.5	943	977	81.4	<1.0	99.4	<1.0	<1.0	42.7	1.20	0.82	1350
L5-TPSP	9/7/2018 11:00	UG5296	7.81	2520	6.97	2040	9.5	935	950	83.5	<1.0	102	<1.0	<1.0	42.9	1.10	0.95	1310
L5-TPSP	9/8/2018 19:10	UG8750	7.83	1740	19.3	1340	28.3	747	723	78.8	<1.0	96.1	<1.0	<1.0	20.0	0.490	0.36	916
L5-TPSP	9/10/2018 11:10	UH0974	7.72	1740	13.9	1340	13.5	716	776	89.4	<1.0	109	<1.0	<1.0	18.8	0.510	0.44	830
L5-TPSP	9/13/2018 10:20	UH7730	7.85	1790	4.39	1410	5.5	742	789	89.2	<1.0	109	<1.0	<1.0	18.3	0.550	0.37	833
L5-TPSP	9/14/2018 10:55	UI0646	7.92	1750	2.56	1320	13.0	682	720	93.3	<1.0	114	<1.0	<1.0	18.4	0.560	0.38	836
L5-TPSP	9/15/2018 6:25	UI5254	7.86	1780	47.3	1330	81.3	756	713	94.1	<1.0	115	<1.0	<1.0	18.5	0.560	0.41	881
L5-TPSP	9/16/2018 11:40	UI5530	7.87	1770	4.33	1320	54.5	752	703	90.5	<1.0	110	<1.0	<1.0	18.7	0.550	0.41	917
L5-TPSP	9/17/2018 12:10	UI5112	7.75	1780	2.90	1340	5.0	747	702	92.7	<1.0	113	<1.0	<1.0	18.6	0.550	0.41	840
L5-TPSP	9/18/2018 11:40	UI9110	7.86	1770	10.8	1270	22.0	710	745	89.9	<1.0	110	<1.0	<1.0	18.6	0.550	0.42	854
L5-TPSP	9/27/2018 11:00	UK8656	7.99	1770	20.1	1390	28.8	710	765	97.6	<1.0	119	<1.0	<1.0	19.6	0.550	0.38	873
L5-TPSP	9/28/2018 9:50	UL0969	7.97	1770	1.35	1360	17.5	744	703	101	<1.0	123	<1.0	<1.0	19.5	0.640	0.45	885
L5-TPSP	9/29/2018 9:30	UL4209	7.75	1770	13.1	1390	22.3	767	715	98.4	<1.0	120	<1.0	<1.0	19.8	0.650	0.44	768
L5-TPSP	10/1/2018 11:50	UL6713	7.84	1860	10.1	1420	24.3	758	769	103	<1.0	126	<1.0	<1.0	20.7	0.630	0.55	908
L5-TPSP	10/16/2018 17:00	UO9192	8.11	1820	6.89	1370	11.5	748	755	139	<1.0	170	<1.0	<1.0	21.9	0.530	0.47	812
L5-TPSP	10/23/2018 13:50	UP9906	8.09	1840	2.44	1400	5.0	695	736	153	<1.0	187	<1.0	<1.0	20.5	0.670	0.50	759
L5-TPSP	10/30/2018 9:45	UR2634	8.20	1850	2.77	1490	7.8	705	750	166	<1.0	203	<1.0	<1.0	21.6	0.570	0.42	849
L5-TPSP	11/5/2018 15:40	US7028	7.88	2360	2.98	1720	12.8	940	907	167	<1.0	203	<1.0	<1.0	26.8	0.680	0.55	1160
LBCD-OUT	6/26/2018 12:00	TT1141	-	-	3.79	-	4.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	6/27/2018 15:40	TT3455	8.03	341	9.02	208	11.5	168	175	113	<1.0	138	<1.0	<1.0	1.95	0.120	0.019	69.1
LBCD-OUT	7/1/2018 14:05	TU1420	-	-	7.03	226	8.5	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/1/2018 20:00	TU1421	-	-	7.00	206	8.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 9:15	TU1422	-	-	6.24	224	5.5	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 20:20	TU4434	-	-	6.65	254	7.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/5/2018 8:35	TU8094	-	-	5.58	240	5.8	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/12/2018 20:57	TW3850	-	-	18.7	-	14.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/4/2018 16:15	UA3832	-	-	-	-	7.8	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/5/2018 16:00	UA3833	-	-	-	-	4.5	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/17/2018 4:00	UC8615	-	-	2.64	-	6.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/18/2018 2:10	UC8616	-	-	4.82	-	7.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/10/2018 12:20	UH6592	-	-	5.22	304	5.5	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/13/2018 11:45	UI0654	-	-	33.0	306	73.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/14/2018 8:30	UI0653	-	-	1.37	350	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 2:30	UI5116	-	-	2.67	300	5.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 3:40	UI5295	-	-	176	70	281	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/17/2018 8:50	UI9109	-	-	5.44	-	8.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/26/2018 0:00	UK8659	-	-	-	-	-	-	338	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/26/2018 12:05	UK8657	7.98	884	7.15	484	12.3	438	430	169	<1.0	206	<1.0	<1.0	6.58	0.088	0.14	299
LBCD-OUT	9/28/2018 10:00	UL0970	-	-	2.83	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/30/2018 2:20	UL6715	-	-	2.92	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/1/2018 9:00	UL6719	-	-	43.1	-	83.5	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/8/2018 10:45	UN2719	-	-	4.5	-	9.8	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 2:10	UN7466	-	-	2.36	-	4.8	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 10:15	UN7448	-	-	3.05	-	5.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/11/2018 10:45	UN7447	8.07	944	8.38	644	59.5	425	440	161	<1.0	196	<1.0	<1.0	7.34	0.088	0.15	275
LBCD-OUT	10/16/2018 12:00	UO9194	-	-	1.75	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/20/2018 13:30	UP6174	-	-	1.71	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/21/2018 15:15	UP6175	-	-	1.73	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/22/2018 11:45	UP6072	8.14	977	0.24	678	<4.0	454	457	174	<1.0	212	<1.0	<1.0	7.43	0.087	0.16	307
LBCD-OUT	10/25/2018 13:20	UQ3346	8.26	1010	2.20	660	<4.0	426	430	179	<1.0	218	<1.0	<1.0	7.85	0.082	0.17	333
LBCD-OUT	10/28/2018 9:35	UQ8567	-	-	1.35	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/30/2018 9:10	UR2633	8.20	948	1.42	692	<4.0	421	427	171	<1.0	208	<1.0	<1.0	7.93	0.086	0.16	268
LBCD-OUT	11/5/2018 16:00	US7126	-	-	1.93	-	<4.0	-	-	-	-	-	-	-	-	-	-	-

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	8/25/2018 10:35	UE1793	0.034	0.0475	0.637	0.685	<0.0050	2.73	1.49	0.118	<0.0005	0.00044	0.0525	<0.0001	<0.001	0.208	0.00144	277	<0.001	0.0228	0.00118
L5-TPSP	8/26/2018 12:15	UE1801	0.62	0.0462	0.636	0.683	<0.0050	2.81	2.19	0.155	<0.0005	0.00047	0.0529	<0.0001	<0.001	0.244	0.0014	263	<0.001	0.023	0.00137
L5-TPSP	8/27/2018 12:51	UE2119	0.14	0.0442	0.611	0.655	<0.0050	3.80	2.64	0.227	<0.0005	0.00046	0.0551	<0.0001	<0.001	0.248	0.00118	259	<0.001	0.0204	0.00124
L5-TPSP	8/28/2018 11:55	UE5264	0.038	0.0414	0.621	0.662	<0.0050	3.08	3.78	0.322	<0.0005	0.00079	0.0729	<0.0001	<0.001	0.228	0.00117	225	<0.001	0.0202	0.00225
L5-TPSP	8/29/2018 11:15	UF1102	0.31	0.0414	0.492	0.533	<0.0050	2.5	2.92	0.689	<0.001	0.00096	0.077	<0.0002	<0.002	0.238	0.00121	242	<0.002	0.02	0.0033
L5-TPSP	8/30/2018 12:00	UF1075	0.29	0.0397	0.490	0.530	<0.0050	2.9	3.80	0.164	<0.0025	<0.0005	0.056	<0.0005	<0.005	0.251	0.000968	240	<0.005	0.0184	<0.0025
L5-TPSP	8/31/2018 9:15	UF3967	0.22	0.0452	1.00	1.05	<0.0050	2.1	0.66	0.146	<0.001	0.0005	0.0533	<0.0002	<0.002	0.236	0.000888	233	<0.002	0.0164	0.0012
L5-TPSP	9/1/2018 9:35	UF6667	0.16	0.0345	0.550	0.585	<0.0050	3.37	2.01	0.326	<0.0025	0.00054	0.0587	<0.0005	<0.005	0.255	0.000847	261	<0.005	0.0163	<0.0025
L5-TPSP	9/2/2018 11:15	UF7754	0.18	0.0333	0.547	0.581	0.0068	3.4	2.9	0.572	<0.0025	0.00069	0.0633	<0.0005	<0.005	<0.25	0.000822	242	<0.005	0.0154	<0.0025
L5-TPSP	9/3/2018 7:47	UF9063	0.30	0.0346	0.502	0.537	<0.0050	3.2	3.0	0.232	<0.0025	<0.0005	0.0531	<0.0005	<0.005	<0.25	0.00068	245	<0.005	0.0141	<0.0025
L5-TPSP	9/4/2018 16:10	UG0436	0.22	0.0335	0.468	0.502	<0.0050	3.0	2.2	0.116	<0.0005	0.00043	0.0493	<0.0001	<0.001	0.199	0.000524	235	<0.001	0.0111	0.00118
L5-TPSP	9/5/2018 15:55	UG2791	0.27	0.0333	0.459	0.492	<0.0050	2.4	2.3	0.138	<0.001	0.00036	0.0516	<0.0002	<0.002	0.24	0.000488	223	<0.002	0.0133	0.0014
L5-TPSP	9/7/2018 11:00	UG5296	0.28	0.0282	0.492	0.520	<0.0050	2.3	1.6	0.156	<0.0005	0.00041	0.0531	<0.0001	<0.001	0.201	0.000354	214	<0.001	0.0104	0.00087
L5-TPSP	9/8/2018 19:10	UG8750	0.66	0.0429	1.95	2.00	<0.0050	2.5	2.6	0.534	0.0006	0.0011	0.0872	<0.0001	<0.001	0.123	0.00114	194	<0.001	0.0143	0.00346
L5-TPSP	9/10/2018 11:10	UH0974	0.58	0.0595	1.90	1.96	0.0073	2.1	2.0	0.285	<0.001	0.00075	0.0719	<0.0002	<0.002	0.12	0.000782	181	<0.002	0.0116	0.0026
L5-TPSP	9/13/2018 10:20	UH7730	0.60	0.0564	2.11	2.17	0.0145	2.5	3.0	0.121	0.00071	0.00046	0.0654	<0.0001	<0.001	0.125	0.000714	185	<0.001	0.0109	0.00168
L5-TPSP	9/14/2018 10:55	UI0646	0.50	0.0606	2.03	2.09	0.0170	2.2	2.4	0.248	0.00073	0.0006	0.0711	<0.0001	<0.001	0.113	0.000708	174	<0.001	0.0107	0.00222
L5-TPSP	9/15/2018 6:25	UI5254	0.56	0.0582	2.15	2.21	0.0139	2.3	2.1	1.56	0.00084	0.00245	0.145	<0.0001	<0.001	0.12	0.000893	191	0.0033	0.0127	0.00687
L5-TPSP	9/16/2018 11:40	UI5530	0.56	0.0566	2.16	2.22	0.0113	2.2	2.5	0.171	0.00076	0.00055	0.0696	<0.0001	<0.001	0.124	0.000653	191	<0.001	0.0102	0.00172
L5-TPSP	9/17/2018 12:10	UI5112	0.56	0.0613	2.12	2.18	0.0095	2.4	2.3	0.136	0.00073	0.00048	0.065	<0.0001	<0.001	0.12	0.000667	188	<0.001	0.0102	0.00239
L5-TPSP	9/18/2018 11:40	UI9110	0.57	0.0571	1.93	1.99	0.0088	2.3	1.8	0.453	0.00079	0.00087	0.0765	<0.0001	<0.001	0.128	0.000677	178	0.0013	0.0103	0.00318
L5-TPSP	9/27/2018 11:00	UK8656	0.70	0.0534	1.77	1.82	<0.0050	2.35	1.60	0.558	0.00076	0.00087	0.0764	<0.0001	<0.001	0.124	0.000716	177	0.0011	0.0131	0.00268
L5-TPSP	9/28/2018 9:50	UL0969	0.42	0.0112	0.467	0.478	<0.0050	2.5	1.90	0.404	0.00073	0.00057	0.0606	<0.0001	<0.001	0.127	0.00068	192	<0.001	0.0127	0.00886
L5-TPSP	9/29/2018 9:30	UL4209	0.48	0.0570	1.86	1.92	<0.0050	1.4	2.1	0.463	0.0007	0.00052	0.0597	<0.0001	<0.001	0.13	0.000688	196	<0.001	0.0136	0.00152
L5-TPSP	10/1/2018 11:50	UL6713	0.46	0.0520	1.80	1.85	<0.0050	2.2	2.2	0.0914	<0.001	0.00035	0.0522	<0.0002	<0.002	0.129	0.000748	187	<0.002	0.0146	<0.001
L5-TPSP	10/16/2018 17:00	UO9192	0.30	0.0441	1.53	1.58	<0.0050	2.3	2.2	0.12	0.00068	0.00058	0.0565	<0.0001	<0.001	0.147	0.000553	182	<0.001	0.0134	0.00156
L5-TPSP	10/23/2018 13:50	UP9906	0.33	0.0434	1.49	1.53	<0.0050	2.6	3.0	0.0918	0.00064	0.00054	0.0497	<0.0001	<0.001	0.115	0.000474	174	<0.001	0.0116	0.00127
L5-TPSP	10/30/2018 9:45	UR2634	0.22	0.0424	1.50	1.54	<0.0050	1.99	2.14	0.0736	0.00062	0.0006	0.0462	<0.0001	<0.001	0.127	0.000464	174	<0.001	0.0112	0.001
L5-TPSP	11/5/2018 15:40	US7028	0.70	0.0300	1.66	1.69	<0.0050	3.65	2.66	0.1	<0.001	0.00065	0.0465	<0.0002	<0.002	0.169	0.000364	225	<0.002	0.0118	0.0012
LBCD-OUT	6/26/2018 12:00	TT1141	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	6/27/2018 15:40	TT3455	0.081	0.0084	<0.020	<0.020	<0.0050	1.94	1.57	0.188	<0.0005	0.00058	0.0908	<0.0001	<0.001	<0.05	0.000022	46.8	<0.001	<0.0002	0.0014
LBCD-OUT	7/1/2018 14:05	TU1420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/1/2018 20:00	TU1421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 9:15	TU1422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 20:20	TU4434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/5/2018 8:35	TU8094	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/12/2018 20:57	TW3850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/4/2018 16:15	UA3832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/5/2018 16:00	UA3833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/17/2018 4:00	UC8615	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/18/2018 2:10	UC8616	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/10/2018 12:20	UH6592	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/13/2018 11:45	UI0654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/14/2018 8:30	UI0653	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 2:30	UI5116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 3:40	UI5295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/17/2018 8:50	UI9109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/26/2018 0:00	UK8659	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/26/2018 12:05	UK8657	0.079	<0.0050	<0.020	<0.020	<0.0050	1.7	<0.50	0.0287	<0.0005	0.00096	0.164	<0.0001	<0.001	<0.05	0.000025	128	<0.001	<0.0002	<0.0005
LBCD-OUT	9/28/2018 10:00	UL0970	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/30/2018 2:20	UL6715	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/1/2018 9:00	UL6719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/8/2018 10:45	UN2719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 2:10	UN7466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 10:15	UN7448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/11/2018 10:45	UN7447	0.089	<0.0050	<0.020	<0.020	<0.0050	0.72	0.81	0.111	<0.0005	0.00081	0.11	<0.0001	<0.001	<0.05	0.000035	125	<0.001	0.0003	0.0008
LBCD-OUT	10/16/2018 12:00	UO9194	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/20/2018 13:30	UP6174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/21/2018 15:15	UP6175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/22/2018 11:45	UP6072	0.082	<0.0050	<0.020	<0.020	<0.0050	1.3	0.92	0.0115	<0.0005	0.00073	0.0949	<0.0001	<0.001	<0.05	0.000011	132	<0.001	0.00023	<0.0005
LBCD-OUT	10/25/2018 13:20	UQ3346	0.12	<0.0050	<0.020	<0.020	<0.0050	1.3	<0.50	0.0308	<0.0005	0.00069	0.0932	<0.0001	<0.001	<0.05	0.000015	124	<0.001	0.00022	<0.0005
LBCD-OUT	10/28/2018 9:35	UQ8567	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/30/2018 9:10	UR2633	0.070	<0.0050	<0.020	<0.020	<0.0050	0.95	0.75	0.006	<0.0005	0.00072	0.0895	<0.0001	<0.001	<0.05	<0.00001	123	<0.001	0.00021	<0.0005
LBCD-OUT	11/5/2018 16:00	US7126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	8/25/2018 10:35	UE1793	0.688	<0.0002	0.098	110	0.999	<0.000002	0.0038	0.0913	-	8.13	0.00929	0.467	<0.00002	211	1.1	478	0.000041	<0.005	<0.005	0.00388
L5-TPSP	8/26/2018 12:15	UE1801	0.678	<0.0002	0.105	109	0.995	<0.000002	0.0038	0.096	-	7.90	0.00904	0.627	0.000028	210	1.06	485	0.00004	<0.005	<0.005	0.00379
L5-TPSP	8/27/2018 12:51	UE2119	0.499	<0.0002	0.104	105	0.926	<0.000002	0.0037	0.0882	-	7.68	0.00841	0.915	<0.00002	208	1.02	464	0.000044	<0.005	0.007	0.0037
L5-TPSP	8/28/2018 11:55	UE5264	1.08	0.00045	0.105	94.5	0.827	0.0000022	0.0039	0.0934	-	7.37	0.0084	0.966	0.000027	201	0.912	448	0.000044	<0.005	0.0069	0.00339
L5-TPSP	8/29/2018 11:15	UF1102	1.41	0.00066	0.104	101	0.837	<0.000002	0.0039	0.0939	-	7.68	0.00847	1.91	<0.00004	211	0.907	472	0.00005	<0.01	0.018	0.00371
L5-TPSP	8/30/2018 12:00	UF1075	0.545	<0.001	0.104	105	0.833	<0.000002	<0.005	0.0825	-	7.51	0.00773	1.07	<0.0001	218	0.96	459	<0.00005	<0.025	<0.025	0.00364
L5-TPSP	8/31/2018 9:15	UF3967	0.33	<0.0004	0.0967	92.4	0.761	<0.000002	0.0042	0.0753	-	7.16	0.00811	0.853	<0.00004	193	0.911	438	0.00004	<0.01	<0.01	0.00369
L5-TPSP	9/1/2018 9:35	UF6667	0.719	<0.001	0.112	108	0.761	<0.000002	<0.005	0.0762	-	7.40	0.00744	1.17	<0.0001	227	0.907	455	<0.00005	<0.025	<0.025	0.00349
L5-TPSP	9/2/2018 11:15	UF7754	1.07	<0.001	0.105	105	0.727	<0.000002	<0.005	0.0744	-	7.31	0.00747	1.55	<0.0001	223	0.849	432	<0.00005	<0.025	<0.025	0.00348
L5-TPSP	9/3/2018 7:47	UF9063	0.301	<0.001	0.104	106	0.683	<0.000002	<0.005	0.0695	-	7.46	0.00763	1.11	<0.0001	239	0.868	448	<0.00005	<0.025	<0.025	0.00353
L5-TPSP	9/4/2018 16:10	UG0436	0.389	<0.0002	0.0855	98.3	0.551	<0.000002	0.0048	0.0542	-	7.47	0.00762	0.744	<0.00002	228	0.954	434	0.000031	<0.005	<0.005	0.00324
L5-TPSP	9/5/2018 15:55	UG2791	1.62	<0.0004	0.102	93.8	0.639	<0.000002	0.0046	0.0698	-	7.22	0.00683	0.895	<0.00004	224	0.858	453	0.000035	<0.01	<0.01	0.00303
L5-TPSP	9/7/2018 11:00	UG5296	0.283	<0.0002	0.0914	97.2	0.58	<0.000002	0.0047	0.054	-	7.20	0.00696	0.993	<0.00002	224	0.934	440	0.000032	<0.005	0.0052	0.00324
L5-TPSP	9/8/2018 19:10	UG8750	1.44	0.00057	0.0594	63.9	0.975	0.0000028	0.0072	0.0437	-	6.12	0.00853	1.4	<0.00002	98.7	0.679	273	0.000035	<0.005	0.0106	0.00501
L5-TPSP	9/10/2018 11:10	UH0974	0.718	<0.0004	0.0545	63.8	0.9	0.0000023	0.0088	0.036	-	6.15	0.00794	1.36	<0.00004	102	0.635	277	0.000038	<0.01	<0.01	0.006
L5-TPSP	9/13/2018 10:20	UH7730	0.211	<0.0002	0.0522	68.3	0.903	0.0000021	0.009	0.0318	-	6.25	0.00824	1.09	<0.00002	109	0.69	284	0.000031	<0.005	<0.005	0.00642
L5-TPSP	9/14/2018 10:55	UI0646	0.468	0.00028	0.0516	60.5	0.866	0.0000027	0.0087	0.0328	-	6.52	0.00795	1.3	<0.00002	92.8	0.621	284	0.000036	<0.005	0.007	0.00587
L5-TPSP	9/15/2018 6:25	UI5254	3.84	0.00233	0.0548	67.8	0.98	<0.000002	0.0095	0.0369	-	6.78	0.00857	3.22	0.000032	109	0.765	287	0.000056	<0.005	0.0464	0.00687
L5-TPSP	9/16/2018 11:40	UI5530	0.369	0.00023	0.0564	66.5	0.888	<0.000002	0.0099	0.0296	-	6.66	0.00858	1.26	<0.00002	110	0.748	291	0.00003	<0.005	<0.005	0.00671
L5-TPSP	9/17/2018 12:10	UI5112	0.306	<0.0002	0.0493	67.1	0.884	<0.000002	0.0091	0.0311	-	6.38	0.00767	1.23	<0.00002	106	0.706	282	0.000033	<0.005	<0.005	0.00606
L5-TPSP	9/18/2018 11:40	UI9110	1.06	0.00066	0.0532	64.5	0.852	<0.000002	0.0095	0.0322	-	6.61	0.00804	1.8	<0.00002	105	0.666	293	0.00004	<0.005	0.0138	0.00628
L5-TPSP	9/27/2018 11:00	UK8656	1.18	0.00074	0.051	64.9	0.849	<0.000002	0.0086	0.0401	-	6.33	0.00834	2.34	<0.00002	112	0.641	299	0.000043	<0.005	0.0139	0.00521
L5-TPSP	9/28/2018 9:50	UL0969	0.507	0.00032	0.0527	64.0	0.77	0.0000025	0.0083	0.0367	-	6.16	0.00825	2.15	<0.00002	119	0.652	285	0.000039	<0.005	0.0087	0.00491
L5-TPSP	9/29/2018 9:30	UL4209	0.471	0.0003	0.0534	67.2	0.794	<0.000002	0.008	0.0389	-	5.90	0.00859	2.03	<0.00002	119	0.665	281	0.000039	<0.005	0.0054	0.00522
L5-TPSP	10/1/2018 11:50	UL6713	0.37	<0.0004	0.0548	70.6	0.94	<0.000002	0.0084	0.0438	-	6.41	0.00822	1.55	<0.00004	127	0.715	310	0.000036	<0.01	<0.01	0.00481
L5-TPSP	10/16/2018 17:00	UO9192	0.256	<0.0002	0.0503	71.6	0.834	0.0000026	0.0087	0.039	-	6.14	0.00754	2.18	<0.00002	135	0.688	286	0.000029	<0.005	<0.005	0.00502
L5-TPSP	10/23/2018 13:50	UP9906	0.106	<0.0002	0.0455	63.2	0.808	<0.000002	0.0086	0.0336	-	5.72	0.00668	2.48	<0.00002	119	0.726	270	0.000029	<0.005	<0.005	0.00492
L5-TPSP	10/30/2018 9:45	UR2634	0.099	<0.0002	0.0434	65.9	0.77	<0.000002	0.0083	0.0334	-	6.07	0.00682	2.13	<0.00002	126	0.688	263	0.000026	<0.005	<0.005	0.00507
L5-TPSP	11/5/2018 15:40	US7028	0.282	<0.0004	0.0666	91.9	0.916	<0.000002	0.0094	0.0373	-	6.10	0.00729	2.63	<0.00004	206	0.775	383	0.000028	<0.01	<0.01	0.00606
LBCD-OUT	6/26/2018 12:00	TT1141	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	6/27/2018 15:40	TT3455	0.35	<0.0002	0.0065	12.5	0.0307	<0.000002	0.0035	0.0014	-	1.19	0.00024	0.938	<0.00002	4.03	0.218	21.7	0.000012	<0.005	<0.005	0.00113
LBCD-OUT	7/1/2018 14:05	TU1420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/1/2018 20:00	TU1421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 9:15	TU1422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 20:20	TU4434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/5/2018 8:35	TU8094	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/12/2018 20:57	TW3850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/4/2018 16:15	UA3832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/5/2018 16:00	UA3833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/17/2018 4:00	UC8615	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/18/2018 2:10	UC8616	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/10/2018 12:20	UH6592	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/13/2018 11:45	UI0654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/14/2018 8:30	UI0653	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 2:30	UI5116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 3:40	UI5295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/17/2018 8:50	UI9109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/26/2018 0:00	UK8659	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/26/2018 12:05	UK8657	0.282	<0.0002	0.0115	28.7	0.414	<0.000002	0.0025	<0.001	-	1.30	<0.0001	4.93	<0.00002	22.7	0.488	104	<0.00001	<0.005	<0.005	0.00083
LBCD-OUT	9/28/2018 10:00	UL0970	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/30/2018 2:20	UL6715	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/1/2018 9:00	UL6719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/8/2018 10:45	UN2719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 2:10	UN7466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 10:15	UN7448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/11/2018 10:45	UN7447	0.625	<0.0002	0.0107	27.5	0.489	0.0000038	0.0018	<0.001	-	1.16	<0.0001	4.32	<0.00002	30.3	0.377	115	<0.00001	<0.005	0.0051	0.00082
LBCD-OUT	10/16/2018 12:00	UO9194	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/20/2018 13:30	UP6174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/21/2018 15:15	UP6175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/22/2018 11:45	UP6072	0.342	<0.0002	0.0098	30.3	0.515	<0.000002	0.002	<0.001	-	1.13	<0.0001	3.71	<0.00002	36.0	0.385	114	<0.00001	<0.005	<0.005	0.00092
LBCD-OUT	10/25/2018 13:20	UQ3346	0.363	<0.0002	0.0098	28.4	0.493	0.0000057	0.0017	<0.001	-	1.14	<0.0001	3.81	<0.00002	33.4	0.353	107	<0.00001	<0.005	<0.005	0.00088
LBCD-OUT	10/28/2018 9:35	UQ8567	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/30/2018 9:10	UR2633	0.324	<0.0002	0.0084	27.8	0.494	<0.000002	0.0018	<0.001	-	1.07	<0.0001	3.54	<0.00002	34.1	0.373	103	<0.00001	<0.005	<0.005	0.00083
LBCD-OUT	11/5/2018 16:00	US7126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	8/25/2018 10:35	UE1793	<0.005	0.0297	<0.0001	0.142	0.0011	0.00032	0.0477	<0.0002	<0.002	0.255	0.00132	253	<0.002	0.0217	<0.001	<0.02	<0.0004	0.114	103	0.952
L5-TPSP	8/26/2018 12:15	UE1801	<0.005	0.0271	<0.0001	0.0624	<0.001	0.00039	0.0472	<0.0002	<0.002	0.243	0.00122	249	<0.002	0.0203	0.001	<0.02	<0.0004	0.111	101	0.921
L5-TPSP	8/27/2018 12:51	UE2119	<0.005	0.019	0.0002	0.0309	<0.001	0.00039	0.0489	<0.0002	<0.002	0.238	0.00108	246	<0.002	0.0191	0.0011	<0.02	<0.0004	0.107	97.2	0.868
L5-TPSP	8/28/2018 11:55	UE5264	<0.005	0.0277	0.00018	0.052	<0.0025	<0.0005	0.0495	<0.0005	<0.005	0.26	0.00107	241	<0.005	0.0191	<0.0025	<0.05	<0.001	0.101	103	0.853
L5-TPSP	8/29/2018 11:15	UF1102	<0.01	0.032	0.00042	0.0311	<0.0005	0.00036	0.0508	<0.0001	<0.001	0.255	0.000909	239	<0.001	0.015	0.00079	<0.01	<0.0002	0.107	98.8	0.704
L5-TPSP	8/30/2018 12:00	UF1075	<0.025	<0.025	<0.0005	0.0436	<0.0005	0.00036	0.0537	<0.0001	<0.001	0.248	0.000805	238	<0.001	0.0161	0.00105	0.015	<0.0002	0.105	99.3	0.756
L5-TPSP	8/31/2018 9:15	UF3967	<0.01	0.013	<0.0002	0.0526	<0.001	0.00044	0.052	<0.0002	<0.002	0.237	0.000802	243	<0.002	0.0162	0.0017	<0.02	<0.0004	0.102	96.1	0.741
L5-TPSP	9/1/2018 9:35	UF6667	<0.025	<0.025	<0.0005	0.0438	<0.0005	0.00035	0.0494	<0.0001	<0.001	0.224	0.000705	227	0.0018	0.0143	0.00236	0.049	<0.0002	0.101	95.3	0.688
L5-TPSP	9/2/2018 11:15	UF7754	<0.025	<0.025	<0.0005	0.0499	<0.001	0.00055	0.0554	<0.0002	<0.002	0.252	0.000766	253	<0.002	0.0147	<0.001	0.042	<0.0004	0.108	102	0.729
L5-TPSP	9/3/2018 7:47	UF9063	<0.025	<0.025	<0.0005	0.043	<0.0025	<0.0005	0.0496	<0.0005	<0.005	<0.25	0.000671	235	<0.005	0.0129	<0.0025	<0.05	<0.001	0.108	100	0.655
L5-TPSP	9/4/2018 16:10	UG0436	<0.005	<0.005	0.00013	0.052	<0.0025	<0.0005	0.0483	<0.0005	<0.005	0.262	0.000512	239	<0.005	0.012	<0.0025	<0.05	<0.001	0.104	105	0.609
L5-TPSP	9/5/2018 15:55	UG2791	<0.01	0.012	<0.0002	0.0216	<0.001	0.0003	0.0503	<0.0002	<0.002	0.247	0.00034	230	<0.002	0.0122	<0.001	<0.02	<0.0004	0.106	97.8	0.624
L5-TPSP	9/7/2018 11:00	UG5296	<0.005	<0.005	0.0001	0.0186	<0.001	0.00029	0.0501	<0.0002	<0.002	0.239	0.000337	224	<0.002	0.0112	<0.001	<0.02	<0.0004	0.103	95.1	0.592
L5-TPSP	9/8/2018 19:10	UG8750	<0.005	0.0564	0.00022	0.0194	0.00057	0.00034	0.0735	<0.0001	<0.001	0.126	0.00109	182	<0.001	0.0147	0.00154	<0.01	<0.0002	0.0566	64.9	1.05
L5-TPSP	9/10/2018 11:10	UH0974	<0.01	0.042	<0.0002	0.0273	0.00072	0.00041	0.0653	<0.0001	<0.001	0.126	0.000734	197	<0.001	0.0116	0.00152	<0.01	<0.0002	0.0557	68.8	0.887
L5-TPSP	9/13/2018 10:20	UH7730	<0.005	0.0276	0.00014	0.0181	0.00074	0.00034	0.0643	<0.0001	<0.001	0.129	0.000712	201	<0.001	0.0109	0.00401	<0.01	<0.0002	0.0575	69.9	0.87
L5-TPSP	9/14/2018 10:55	UI0646	<0.005	0.032	0.00014	0.0169	0.00071	0.00034	0.0625	<0.0001	<0.001	0.124	0.000696	181	<0.001	0.0108	0.0013	<0.01	<0.0002	0.0555	65.3	0.913
L5-TPSP	9/15/2018 6:25	UI5254	0.0059	0.0456	0.00068	0.0151	0.00076	0.00036	0.0629	<0.0001	<0.001	0.12	0.00071	180	<0.001	0.0108	0.00136	<0.01	<0.0002	0.0553	63.7	0.878
L5-TPSP	9/16/2018 11:40	UI5530	<0.005	0.0241	0.00017	0.0158	0.00075	0.00036	0.0622	<0.0001	<0.001	0.117	0.000645	177	<0.001	0.0101	0.00131	<0.01	<0.0002	0.0544	63.3	0.853
L5-TPSP	9/17/2018 12:10	UI5112	<0.005	0.0247	<0.0001	0.0164	0.00076	0.00038	0.0626	<0.0001	<0.001	0.117	0.00063	176	<0.001	0.00988	0.00141	<0.01	<0.0002	0.0575	63.5	0.854
L5-TPSP	9/18/2018 11:40	UI9110	<0.005	0.0307	0.00028	0.014	0.00073	0.00033	0.0533	<0.0001	<0.001	0.128	0.00064	187	<0.001	0.00931	0.00127	<0.01	<0.0002	0.0548	67.8	0.844
L5-TPSP	9/27/2018 11:00	UK8656	<0.005	0.0388	0.00045	0.027	0.0007	0.0003	0.0498	<0.0001	<0.001	0.125	0.000623	194	<0.001	0.0131	0.001	<0.01	<0.0002	0.0523	68.2	0.844
L5-TPSP	9/28/2018 9:50	UL0969	<0.005	0.0277	0.00037	0.0317	0.00072	0.00034	0.0518	<0.0001	<0.001	0.124	0.000669	178	<0.001	0.0126	0.00097	<0.01	<0.0002	0.052	62.6	0.852
L5-TPSP	9/29/2018 9:30	UL4209	<0.005	0.0302	0.00024	0.0278	0.00074	0.00036	0.054	<0.0001	<0.001	0.138	0.000691	175	<0.001	0.014	0.00097	<0.01	<0.0002	0.0569	67.5	0.851
L5-TPSP	10/1/2018 11:50	UL6713	<0.01	0.035	<0.0002	0.0162	0.00074	0.00031	0.0514	<0.0001	<0.001	0.137	0.000729	188	<0.001	0.0155	0.00088	<0.01	<0.0002	0.061	72.5	0.905
L5-TPSP	10/16/2018 17:00	UO9192	<0.005	0.0234	0.00013	0.0188	0.00068	0.00044	0.0512	<0.0001	<0.001	0.134	0.000514	183	<0.001	0.0132	0.00097	<0.01	<0.0002	0.041	72.5	0.833
L5-TPSP	10/23/2018 13:50	UP9906	<0.005	0.0182	0.0001	0.0185	0.00067	0.00052	0.0498	<0.0001	<0.001	0.128	0.000478	183	<0.001	0.0117	0.00074	<0.01	<0.0002	0.0505	67.6	0.794
L5-TPSP	10/30/2018 9:45	UR2634	<0.005	0.0159	<0.0001	0.0177	0.00065	0.00055	0.0451	<0.0001	<0.001	0.162	0.000455	178	<0.001	0.0111	0.00126	<0.01	<0.0002	0.0543	74.4	0.761
L5-TPSP	11/5/2018 15:40	US7028	<0.01	0.017	<0.0002	0.0079	<0.001	0.00048	0.0395	<0.0002	<0.002	0.166	0.000338	218	<0.002	0.0112	<0.001	<0.02	<0.0004	0.0617	88.2	0.889
LBCD-OUT	6/26/2018 12:00	TT1141	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	6/27/2018 15:40	TT3455	<0.005	<0.005	<0.0001	0.0171	<0.0005	0.0004	0.0841	<0.0001	<0.001	<0.05	<0.00001	49.6	<0.001	<0.0002	0.00116	0.012	<0.0002	0.0059	12.4	0.0051
LBCD-OUT	7/1/2018 14:05	TU1420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/1/2018 20:00	TU1421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 9:15	TU1422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 20:20	TU4434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/5/2018 8:35	TU8094	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/12/2018 20:57	TW3850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/4/2018 16:15	UA3832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/5/2018 16:00	UA3833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/17/2018 4:00	UC8615	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/18/2018 2:10	UC8616	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/10/2018 12:20	UH6592	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/13/2018 11:45	UI0654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/14/2018 8:30	UI0653	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 2:30	UI5116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 3:40	UI5295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/17/2018 8:50	UI9109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/26/2018 0:00	UK8659	-	-	-	0.0037	<0.0005	0.00066	0.195	<0.0001	<0.001	<0.05	0.00002	98.8	<0.001	<0.0002	<0.0005	0.021	<0.0002	0.009	22.1	0.362
LBCD-OUT	9/26/2018 12:05	UK8657	<0.005	0.005	<0.0001	<0.003	<0.0005	0.00076	0.0799	<0.0001	<0.001	<0.05	<0.00001	124	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0115	29.4	0.384
LBCD-OUT	9/28/2018 10:00	UL0970	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/30/2018 2:20	UL6715	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/1/2018 9:00	UL6719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/8/2018 10:45	UN2719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 2:10	UN7466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 10:15	UN7448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/11/2018 10:45	UN7447	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00064	0.103	<0.0001	<0.001	<0.05	0.000019	127	<0.001	0.00021	<0.0005	<0.01	<0.0002	0.0103	29.7	0.514
LBCD-OUT	10/16/2018 12:00	UO9194	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/20/2018 13:30	UP6174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/21/2018 15:15	UP6175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/22/2018 11:45	UP6072	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00068	0.0938	<0.0001	<0.001	<0.05	0.00001	132	<0.001	0.00022	<0.0005	0.022	<0.0002	0.0102	31.0	0.528
LBCD-OUT	10/25/2018 13:20	UQ3346	<0.005	<0.005	<0.0001	0.0033	<0.0005	0.00063	0.0936	<0.0001	<0.001	<0.05	<0.00001	126	<0.001	<0.0002	<0.0005	0.025	<0.0002	0.0102	28.1	0.488
LBCD-OUT	10/28/2018 9:35	UQ8567	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/30/2018 9:10	UR2633	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.0006	0.086	<0.0001	<0.001	<0.05	<0.00001	123	<0.001	<0.0002	<0.0005	0.011	<0.0002	0.0101	29.3	0.486
LBCD-OUT	11/5/2018 16:00	US7126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
L5-TPSP	8/25/2018 10:35	UE1793	<0.000002	0.0037	0.0957	-	7.74	0.00904	0.462	<0.00004	203	0.948	492	0.000045	<0.01	<0.01	0.00382	<0.01	0.017	<0.0002
L5-TPSP	8/26/2018 12:15	UE1801	<0.000002	0.0038	0.0927	-	7.59	0.00892	0.493	<0.00004	202	0.944	495	0.000048	<0.01	<0.01	0.00381	<0.01	0.014	<0.0002
L5-TPSP	8/27/2018 12:51	UE2119	<0.000002	0.0038	0.0864	-	7.42	0.00869	0.555	<0.00004	203	0.919	485	0.000044	<0.01	<0.01	0.00372	<0.01	0.012	<0.0002
L5-TPSP	8/28/2018 11:55	UE5264	<0.000002	<0.005	0.0861	-	7.26	0.00896	0.551	<0.0001	213	0.905	459	<0.00005	<0.025	<0.025	0.00344	<0.025	<0.025	<0.0005
L5-TPSP	8/29/2018 11:15	UF1102	<0.000002	0.004	0.0796	-	7.68	0.00858	0.657	<0.00002	208	0.953	475	0.000042	<0.005	<0.005	0.00366	<0.005	0.0066	<0.0001
L5-TPSP	8/30/2018 12:00	UF1075	<0.000002	0.0043	0.0779	-	7.56	0.00843	0.75	<0.00002	212	0.972	476	0.000042	<0.005	<0.005	0.00366	<0.005	0.0062	<0.0001
L5-TPSP	8/31/2018 9:15	UF3967	<0.000002	0.0041	0.0774	-	7.55	0.0084	0.742	<0.00004	207	0.916	469	0.000038	<0.01	<0.01	0.00352	<0.01	<0.01	<0.0002
L5-TPSP	9/1/2018 9:35	UF6667	<0.000002	0.0046	0.0708	-	7.38	0.00785	0.721	<0.00002	211	0.917	457	0.000038	<0.005	<0.005	0.00359	<0.005	0.009	<0.0001
L5-TPSP	9/2/2018 11:15	UF7754	<0.000002	0.0052	0.0748	-	7.93	0.00896	0.882	<0.00004	227	1.01	485	0.000056	<0.01	<0.01	0.00404	<0.01	<0.01	<0.0002
L5-TPSP	9/3/2018 7:47	UF9063	<0.000002	<0.005	0.0666	-	7.38	0.00744	0.775	<0.0001	228	0.858	426	<0.00005	<0.025	<0.025	0.00337	<0.025	<0.025	<0.0005
L5-TPSP	9/4/2018 16:10	UG0436	<0.000002	<0.005	0.062	-	7.63	0.00723	0.761	<0.0001	245	0.92	458	<0.00005	<0.025	<0.025	0.0034	<0.025	<0.025	<0.0005
L5-TPSP	9/5/2018 15:55	UG2791	<0.000002	0.0044	0.0666	-	7.29	0.00701	0.846	<0.00004	229	0.88	453	0.000034	<0.01	<0.01	0.00306	<0.01	<0.01	<0.0002
L5-TPSP	9/7/2018 11:00	UG5296	0.0000021	0.0046	0.061	-	6.99	0.00684	0.931	<0.00004	223	0.869	445	0.000032	<0.01	<0.01	0.0031	<0.01	<0.01	<0.0002
L5-TPSP	9/8/2018 19:10	UG8750	<0.000002	0.0074	0.0438	-	6.51	0.00777	0.821	<0.00002	104	0.721	293	0.000033	<0.005	<0.005	0.0047	<0.005	0.0453	<0.0001
L5-TPSP	9/10/2018 11:10	UH0974	0.0000025	0.0084	0.0332	-	6.70	0.00786	0.945	<0.00002	111	0.627	321	0.00003	<0.005	<0.005	0.00616	<0.005	0.0297	<0.0001
L5-TPSP	9/13/2018 10:20	UH7730	<0.000002	0.0087	0.0314	-	6.68	0.00794	0.949	<0.00002	112	0.642	299	0.000032	<0.005	<0.005	0.00662	<0.005	0.0262	<0.0001
L5-TPSP	9/14/2018 10:55	UI0646	<0.000002	0.0094	0.0326	-	6.70	0.00801	1.01	<0.00002	103	0.625	312	0.00003	<0.005	<0.005	0.00624	<0.005	0.0268	<0.0001
L5-TPSP	9/15/2018 6:25	UI5254	<0.000002	0.0091	0.0332	-	6.55	0.00828	1.01	<0.00002	98.7	0.637	300	0.00003	<0.005	<0.005	0.00606	<0.005	0.0282	<0.0001
L5-TPSP	9/16/2018 11:40	UI5530	<0.000002	0.009	0.0312	-	6.48	0.00809	1.17	<0.00002	99.4	0.638	296	0.000031	<0.005	<0.005	0.00597	<0.005	0.0253	<0.0001
L5-TPSP	9/17/2018 12:10	UI5112	<0.000002	0.0092	0.0308	-	6.39	0.00812	1.12	<0.00002	99.8	0.633	296	0.000028	<0.005	<0.005	0.00603	<0.005	0.0252	<0.0001
L5-TPSP	9/18/2018 11:40	UI9110	<0.000002	0.0097	0.0286	-	6.48	0.00797	1.04	<0.00002	109	0.675	285	0.000031	<0.005	<0.005	0.00631	<0.005	0.0182	<0.0001
L5-TPSP	9/27/2018 11:00	UK8656	<0.000002	0.0082	0.0377	-	5.94	0.00836	1.36	<0.00002	117	0.638	282	0.000027	<0.005	<0.005	0.00524	<0.005	0.0243	<0.0001
L5-TPSP	9/28/2018 9:50	UL0969	<0.000002	0.0083	0.0373	-	6.09	0.00818	1.59	<0.00002	112	0.635	298	0.000034	<0.005	<0.005	0.00513	<0.005	0.0285	<0.0001
L5-TPSP	9/29/2018 9:30	UL4209	<0.000002	0.0087	0.0416	-	6.59	0.00858	1.61	<0.00002	120	0.647	312	0.000037	<0.005	<0.005	0.00516	<0.005	0.0317	<0.0001
L5-TPSP	10/1/2018 11:50	UL6713	<0.000002	0.0089	0.046	-	6.74	0.00852	1.64	<0.00002	126	0.668	329	0.000038	<0.005	<0.005	0.00492	<0.005	0.0379	<0.0001
L5-TPSP	10/16/2018 17:00	UO9192	<0.000002	0.0086	0.0384	-	6.16	0.00769	1.83	<0.00002	138	0.658	283	0.000024	<0.005	<0.005	0.005	<0.005	0.0197	<0.0001
L5-TPSP	10/23/2018 13:50	UP9906	<0.000002	0.0089	0.0341	-	5.97	0.00686	2.37	<0.00002	129	0.722	285	0.000023	<0.005	<0.005	0.00518	<0.005	0.0165	<0.0001
L5-TPSP	10/30/2018 9:45	UR2634	0.0000052	0.0089	0.0336	-	6.30	0.00665	2.29	<0.00002	143	0.714	295	0.000027	<0.005	<0.005	0.00529	<0.005	0.0148	<0.0001
L5-TPSP	11/5/2018 15:40	US7028	<0.000002	0.0094	0.0361	-	5.93	0.00723	2.42	<0.00004	198	0.747	376	0.000026	<0.01	<0.01	0.00587	<0.01	0.015	<0.0002
LBCD-OUT	6/26/2018 12:00	TT1141	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	6/27/2018 15:40	TT3455	<0.000002	0.0036	<0.001	-	1.09	0.00023	0.66	<0.00002	4.05	0.199	21.0	<0.00001	<0.005	<0.005	0.00106	<0.005	<0.005	<0.0001
LBCD-OUT	7/1/2018 14:05	TU1420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/1/2018 20:00	TU1421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 9:15	TU1422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/3/2018 20:20	TU4434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/5/2018 8:35	TU8094	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	7/12/2018 20:57	TW3850	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/4/2018 16:15	UA3832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/5/2018 16:00	UA3833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/17/2018 4:00	UC8615	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	8/18/2018 2:10	UC8616	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/10/2018 12:20	UH6592	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/13/2018 11:45	UI0654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/14/2018 8:30	UI0653	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 2:30	UI5116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/16/2018 3:40	UI5295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/17/2018 8:50	UI9109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/26/2018 0:00	UK8659	0.0000029	0.0021	<0.001	-	1.02	<0.0001	3.88	<0.00002	17.3	0.403	79.8	<0.00001	<0.005	<0.005	0.0007	<0.005	0.0051	<0.0001
LBCD-OUT	9/26/2018 12:05	UK8657	<0.000002	0.0024	<0.001	-	1.25	<0.0001	3.93	<0.00002	24.2	0.449	96.8	<0.00001	<0.005	<0.005	0.00085	<0.005	<0.005	<0.0001
LBCD-OUT	9/28/2018 10:00	UL0970	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	9/30/2018 2:20	UL6715	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/1/2018 9:00	UL6719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/8/2018 10:45	UN2719	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 2:10	UN7466	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/10/2018 10:15	UN7448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/11/2018 10:45	UN7447	0.000006	0.002	<0.001	-	1.12	<0.0001	3.97	<0.00002	31.4	0.411	110	<0.00001	<0.005	<0.005	0.00085	<0.005	<0.005	<0.0001
LBCD-OUT	10/16/2018 12:00	UO9194	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/20/2018 13:30	UP6174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/21/2018 15:15	UP6175	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/22/2018 11:45	UP6072	<0.000002	0.0019	<0.001	-	1.16	<0.0001	3.77	<0.00002	37.0	0.389	119	<0.00001	<0.005	<0.005	0.00092	<0.005	<0.005	<0.0001
LBCD-OUT	10/25/2018 13:20	UQ3346	0.0000031	0.0018	<0.001	-	1.13	<0.0001	3.92	<0.00002	34.6	0.36	106	<0.00001	<0.005	<0.005	0.00083	<0.005	<0.005	<0.0001
LBCD-OUT	10/28/2018 9:35	UQ8567	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	10/30/2018 9:10	UR2633	0.000004	0.0098	<0.001	-	1.09	<0.0001	3.77	<0.00002	35.3	0.387	111	<0.00001	<0.005	<0.005	0.00082	<0.005	<0.005	<0.0001
LBCD-OUT	11/5/2018 16:00	US7126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBCD-OUT	11/6/2018 9:50	UT3581	-	-	1.79	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/6/2018 15:55	US9400	8.16	949	1.99	650	<4.0	438	438	169	<1.0	207	<1.0	<1.0	7.46	0.099	0.17	303
LBCD-OUT	11/7/2018 9:55	UT3583	-	-	1.75	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/8/2018 10:30	UT3582	-	-	3.48	-	7.5	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/9/2018 10:00	UT4952	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/10/2018 10:00	UT4843	-	-	-	-	4.5	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/11/2018 9:30	UT4848	-	-	-	-	4.3	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/12/2018 9:30	UT6584	-	-	-	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/13/2018 13:30	UT9231	8.15	942	1.75	654	6.5	438	436	170	<1.0	207	<1.0	<1.0	8.84	0.078	0.16	312
LBCD-OUT	11/22/2018 14:45	UV5071	8.03	981	1.42	696	<4.0	440	457	166	<1.0	202	<1.0	<1.0	8.41	0.086	0.18	363
LBCD-OUT	12/1/2018 13:15	UW8608	8.10	953	1.25	690	<4.0	441	434	165	<1.0	202	<1.0	<1.0	8.22	0.094	0.17	284
LBCD-OUT	12/4/2018 15:10	UX4642	7.98	969	1.30	678	<4.0	444	444	168	<1.0	205	<1.0	<1.0	8.31	0.088	0.18	315
LBCD-OUT	12/12/2018 10:45	UY7670	8.18	987	1.36	684	<4.0	459	478	167	<1.0	204	<1.0	<1.0	8.77	0.084	0.16	316
LBCD-OUT	12/13/2018 15:00	UZ2668	-	-	1.14	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/14/2018 16:00	UZ2667	-	-	1.19	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/15/2018 15:30	UZ2669	-	-	1.34	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:30	UZ8203	-	-	2.23	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:40	UZ8202	8.24	1000	2.98	680	<4.0	482	458	166	<1.0	202	<1.0	<1.0	9.17	0.083	0.16	332
LBCD-OUT	12/24/2018 13:45	UZ9969	-	-	5.40	-	11.8	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/28/2018 13:30	VA3074	-	-	2.27	-	<4.0	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/29/2018 13:25	VA3064	8.04	1020	2.42	714	<4.0	453	460	169	<1.0	206	<1.0	<1.0	10.4	0.091	0.20	318
LBEX-CC	1/6/2018 12:00	ST9404	8.23	403	2.11	250	<4.0	199	201	156	<1.0	191	<1.0	<1.0	1.86	0.130	0.012	62.3
LBEX-CC	2/23/2018 12:35	SZ9587	8.27	438	0.43	238	<4.0	218	225	155	<1.0	189	<1.0	<1.0	1.92	0.140	0.020	66.7
LBEX-CC	3/17/2018 14:20	TD2175	8.31	486	35.9	300	49.3	260	251	171	1.5	205	1.8	<1.0	2.82	0.140	0.020	80.2
LBEX-CC	4/2/2018 15:00	TF2037	7.68	234	12.6	142	11.0	96.9	92.7	61.4	<1.0	74.9	<1.0	<1.0	4.18	0.140	0.042	45.7
LBEX-CC	5/16/2018 6:40	TL2462	8.15	345	2.98	176	<4.0	184	177	119	<1.0	146	<1.0	<1.0	1.61	0.130	0.022	60.9
LBEX-CC	6/12/2018 11:15	TQ4129	8.18	342	6.21	180	13.8	176	166	116	<1.0	141	<1.0	<1.0	1.60	0.140	0.015	64.9
LBEX-CC	7/18/2018 11:00	TW8368	8.17	599	10.9	392	16.8	311	300	169	<1.0	206	<1.0	<1.0	4.65	0.110	0.070	156
LBEX-CC	8/18/2018 11:50	UC8580	7.87	559	4.23	334	8.5	258	259	91.6	<1.0	112	<1.0	<1.0	5.77	0.110	0.11	184
LBEX-DICC	1/6/2018 12:00	ST9402	8.16	913	23.3	644	39.8	398	431	149	<1.0	181	<1.0	<1.0	6.49	0.230	0.033	344
LBEX-DICC	2/23/2018 13:20	SZ9582	8.29	959	0.45	660	<4.0	462	459	149	<1.0	182	<1.0	<1.0	6.35	0.220	0.099	344
LBEX-DICC	5/17/2018 6:45	TL6391	8.08	790	9.60	538	10.5	371	362	109	<1.0	133	<1.0	<1.0	5.09	0.190	0.089	303
LBEX-DICC	5/30/2018 7:20	TN9746	8.17	824	20.2	558	22.5	380	368	122	<1.0	149	<1.0	<1.0	5.07	0.210	0.089	278
LBEX-DICC	6/12/2018 11:30	TQ4130	8.27	799	14.2	534	38.3	428	405	170	<1.0	207	<1.0	<1.0	5.41	0.150	0.078	262
LBEX-DOCC	1/6/2018 12:00	ST9403	8.20	1100	2.37	782	5.5	482	501	242	<1.0	295	<1.0	<1.0	6.13	0.110	0.095	372
LBEX-DOCC	2/7/2018 12:47	SY0767	8.30	1180	1.05	802	<4.0	474	537	253	<1.0	309	<1.0	<1.0	6.88	0.120	0.107	399
LBEX-DOCC	3/17/2018 14:45	TD1675	8.27	1150	1.23	804	4.8	534	556	233	<1.0	285	<1.0	<1.0	6.12	0.120	0.16	375
LBEX-DOCC	4/1/2018 11:15	TF0155	8.17	667	2.13	424	<4.0	285	296	154	<1.0	188	<1.0	<1.0	4.69	0.077	0.082	198
LBEX-DOCC	5/12/2018 7:00	TK7567	8.18	729	4.55	444	10.5	371	317	156	<1.0	190	<1.0	<1.0	4.26	0.100	0.080	235
LBEX-DOCC	5/24/2018 23:02	TM7249	-	-	10.7	-	61.5	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/25/2018 11:00	TM7250	-	-	2.93	-	8.3	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 11:15	TM9445	-	-	9.89	-	12.0	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 16:30	TM9446	-	-	65.9	-	78.0	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	6/12/2018 10:50	TQ4128	8.25	1600	3.28	1200	13.5	795	708	241	<1.0	293	<1.0	<1.0	12.0	0.090	0.29	614
LBEX-DOCC	6/27/2018 15:15	TT3456	8.09	1210	9.29	890	12.0	564	568	224	<1.0	273	<1.0	<1.0	14.1	0.140	0.27	433
LBEX-DOCC	7/17/2018 11:25	TW5985	8.09	1580	18.4	1190	19.8	668	656	167	<1.0	203	<1.0	<1.0	14.9	0.083	0.33	754
LBEX-DOCC	8/31/2018 10:05	UF3974	8.16	1170	9.52	840	17.5	498	511	235	<1.0	286	<1.0	<1.0	14.1	0.100	0.21	331
LBEX-DOCC	9/17/2018 8:30	UI9104	-	-	3.25	-	12.8	-	-	-	-	-	-	-	-	-	-	-
LBEX-GW	1/5/2018 15:25	ST8671	8.04	1690	2.08	1120	5.8	730	700	755	<1.0	922	<1.0	<1.0	3.48	0.380	0.151	248
LBEX-GW	12/26/2018 11:30	UZ9925	7.96	1990	200	1350	311	943	957	714	<1.0	871	<1.0	<1.0	4.79	0.490	0.17	457
LBEX-GW-SUMP	2/25/2018 10:30	TA2077	7.99	1690	46.0	1090	125	778	705	739	<1.0	901	<1.0	<1.0	3.06	0.420	0.16	242
LBEX-GW-SUMP	3/14/2018 14:15	TC7633	8.17	1280	228	854	220	534	494	458	<1.0	559	<1.0	<1.0	2.81	0.380	0.12	264
LBEX-GW-SUMP	4/5/2018 13:10	TF7751	8.05	1600	103	1100	144	697	614	615	<1.0	750	<1.0	<1.0	3.69	0.430	0.18	312
LBEX-GW-SUMP	5/16/2018 14:35	TL6389	8.30	1630	10.6	1100	36.0	688	622	606	<1.0	739	<1.0	<1.0	3.13	0.390	0.20	319
LBEX-GW-SUMP	6/11/2018 14:30	TQ0650	8.16	1690	1.61	1000	5.0	685	623	732	<1.0	894	<1.0	<1.0	2.69	0.430	0.16	279
LBEX-SP	1/6/2018 12:00	ST9405	4.38	2570	1.50	2490	4.5	1580	1460	<1.0	<1.0	<1.0	<1.0	<1.0	7.61	1.40	0.089	1730
LBEX-SP	2/23/2018 12:00	SZ9584	4.51	2910	0.67	2750	<4.0	1690	1740	<1.0	<1.0	<1.0	<1.0	<1.0	8.52	1.40	0.46	1910
LBEX-SP	3/18/2018 13:35	TD1672	5.78	561	21.0	384	32.0	257	257	1.1	<1.0	1.3	<1.0	<1.0	0.89	0.270	0.055	247
LBEX-SP	4/2/2018 15:30	TF2038	4.48	1940	1.25	1680	5.0	1020	1170	<1.0	<1.0	<1.0	<1.0	<1.0	4.02	1.20	0.30	1210
LBEX-SP	5/17/2018 15:00	TL6388	4.18	2060	4.83	1830	10.0	961	1040	<1.0	<1.0	<1.0	<1.0	<1.0	4.01	1.30	0.26	1310
LBEX-SP	6/19/2018 14:15	TR6050	4.18	2280	6.17	2100	9.5	1330	1320	<1.0	<1.0	<1.0	<1.0	<1.0	4.63	1.50	0.28	1540
LBEX-SP	7/18/2018 12:00	TW8370	4.94	2600	6.75	2460	12.5	1620	1610	<1.0	<1.0	<1.0	<1.0	<1.0	4.92	1.40	0.30	1700
LBEX-SP	8/8/2018 10:35	UA6829	7.14	2820	16.4	2550	24.5	1520	1520	32.7	<1.0	39.9	<1.0	<1.0	8.11	1.20	0.40	1780
LBEX-SP	9/27/2018 10:30	UK8403	8.13	3360	3.74	2640	10.5	869	857	226	<1.0	276	<1.0	<1.0	40.0	0.990	0.81	1740

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBCD-OUT	11/6/2018 9:50	UT3581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/6/2018 15:55	US9400	0.095	<0.0050	<0.020	<0.020	<0.0050	1.04	<0.50	0.0062	<0.0005	0.00069	0.0877	<0.0001	<0.001	<0.05	<0.00001	128	<0.001	<0.0002	<0.0005
LBCD-OUT	11/7/2018 9:55	UT3583	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/8/2018 10:30	UT3582	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/9/2018 10:00	UT4952	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/10/2018 10:00	UT4843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/11/2018 9:30	UT4848	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/12/2018 9:30	UT6584	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/13/2018 13:30	UT9231	0.080	<0.0050	<0.020	<0.020	<0.0050	0.79	0.63	0.0296	<0.0005	0.00069	0.0866	<0.0001	<0.001	<0.05	0.000011	126	<0.001	0.00021	<0.0005
LBCD-OUT	11/22/2018 14:45	UV5071	0.080	<0.0050	<0.020	<0.020	<0.0050	1.0	1.4	0.0178	<0.0005	0.00068	0.0855	<0.0001	<0.001	<0.05	0.000012	127	<0.001	0.00023	<0.0005
LBCD-OUT	12/1/2018 13:15	UW8608	0.088	<0.0050	<0.020	<0.020	<0.0050	<0.50	1.2	0.0053	<0.0005	0.00064	0.0809	<0.0001	<0.001	<0.05	<0.00001	128	<0.001	0.0002	<0.0005
LBCD-OUT	12/4/2018 15:10	UX4642	0.069	<0.0050	<0.020	<0.020	<0.0050	0.67	0.63	0.0059	<0.0005	0.00065	0.0787	<0.0001	<0.001	<0.05	<0.00001	129	<0.001	0.00022	<0.0005
LBCD-OUT	12/12/2018 10:45	UY7670	0.094	<0.0050	<0.020	<0.020	<0.0050	<0.50	<0.50	0.0097	<0.0005	0.00064	0.0792	<0.0001	<0.001	<0.05	<0.00001	132	<0.001	0.00023	<0.0005
LBCD-OUT	12/13/2018 15:00	UZ2668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/14/2018 16:00	UZ2667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/15/2018 15:30	UZ2669	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:30	UZ8203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:40	UZ8202	0.093	0.0305	<0.020	0.041	<0.0050	<0.50	<0.50	0.0116	<0.0005	0.00077	0.0791	<0.0001	<0.001	<0.05	<0.00001	138	<0.001	0.00024	<0.0005
LBCD-OUT	12/24/2018 13:45	UZ9969	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/28/2018 13:30	VA3074	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/29/2018 13:25	VA3064	0.082	<0.0050	<0.020	<0.020	<0.0050	-	0.64	0.0192	<0.0005	0.00064	0.0766	<0.0001	<0.001	<0.05	<0.00001	129	<0.001	0.00025	<0.0005
LBEX-CC	1/6/2018 12:00	ST9404	0.022	<0.0050	<0.020	<0.020	<0.0050	3.58	2.39	0.0596	<0.0005	0.00036	0.108	<0.0001	<0.001	<0.05	0.000022	57.9	<0.001	<0.0002	0.00491
LBEX-CC	2/23/2018 12:35	SZ9587	0.031	<0.0050	0.021	0.021	<0.0050	2.70	2.60	0.0204	<0.0005	0.00037	0.105	<0.0001	<0.001	<0.05	0.000015	63.5	<0.001	<0.0002	0.00178
LBEX-CC	3/17/2018 14:20	TD2175	0.15	0.0069	0.355	0.362	0.0142	4.05	4.78	0.26	<0.0005	0.00066	0.135	<0.0001	<0.001	<0.05	0.000028	74.3	<0.001	0.00025	0.00247
LBEX-CC	4/2/2018 15:00	TF2037	0.089	0.0435	1.08	1.12	0.0167	2.81	2.60	0.38	0.00229	0.00101	0.077	<0.0001	<0.001	<0.05	0.000042	31.0	0.0067	0.00029	0.0026
LBEX-CC	5/16/2018 6:40	TL2462	<0.020	<0.0050	<0.020	<0.020	<0.0050	2.10	2.14	0.101	<0.0005	0.00034	0.0847	<0.0001	<0.001	<0.05	0.000017	55.1	<0.001	<0.0002	0.00104
LBEX-CC	6/12/2018 11:15	TQ4129	0.040	<0.0050	<0.020	<0.020	<0.0050	2.85	2.08	0.222	<0.0005	0.00056	0.0971	<0.0001	<0.001	<0.05	0.000024	50.5	<0.001	0.00023	0.00174
LBEX-CC	7/18/2018 11:00	TW8368	0.032	<0.0050	<0.020	<0.020	<0.0050	2.2	1.7	0.17	<0.0005	0.00107	0.18	<0.0001	<0.001	<0.05	0.000042	91.1	<0.001	0.0005	0.00118
LBEX-CC	8/18/2018 11:50	UC8580	<0.020	<0.0050	<0.020	<0.020	<0.0050	3.48	3.11	0.0757	<0.0005	0.00073	0.123	<0.0001	<0.001	<0.05	0.000018	67.0	<0.001	<0.0002	0.00141
LBEX-DICC	1/6/2018 12:00	ST9402	<0.020	<0.0050	0.058	0.058	<0.0050	3.96	3.18	0.446	<0.0005	0.00065	0.135	<0.0001	<0.001	<0.05	0.000041	114	0.0013	0.00044	0.00959
LBEX-DICC	2/23/2018 13:20	SZ9582	0.064	<0.0050	0.085	0.085	<0.0050	2.88	3.05	0.0153	<0.0005	0.00038	0.144	<0.0001	<0.001	<0.05	0.000026	132	<0.001	0.00052	0.00144
LBEX-DICC	5/17/2018 6:45	TL6391	<0.020	0.0148	0.124	0.139	<0.0050	2.93	2.83	0.114	0.00068	0.00058	0.0553	<0.0001	<0.001	<0.05	0.000018	102	<0.001	0.00022	0.00112
LBEX-DICC	5/30/2018 7:20	TN9746	0.021	0.0070	0.054	0.061	0.0068	2.95	2.87	0.304	0.00067	0.0008	0.0677	<0.0001	<0.001	<0.05	0.000043	103	<0.001	0.0004	0.00195
LBEX-DICC	6/12/2018 11:30	TQ4130	0.034	0.0087	<0.020	<0.020	<0.0050	2.71	2.35	0.456	<0.0005	0.00087	0.0792	<0.0001	<0.001	<0.05	0.000059	124	<0.001	0.00077	0.00225
LBEX-DOCC	1/6/2018 12:00	ST9403	<0.020	<0.0050	<0.020	<0.020	<0.0050	4.79	4.99	0.0323	<0.0005	0.00044	0.19	<0.0001	<0.001	<0.05	0.000015	127	<0.001	<0.0002	0.00266
LBEX-DOCC	2/7/2018 12:47	SY0767	0.054	<0.0050	0.021	0.021	<0.0050	8.32	4.04	0.0065	<0.0005	0.00033	0.164	<0.0001	<0.001	<0.05	0.000012	122	<0.001	<0.0002	0.00114
LBEX-DOCC	3/17/2018 14:45	TD1675	0.091	<0.0050	0.034	0.034	<0.0050	3.77	3.27	0.0196	<0.0005	0.00039	0.184	<0.0001	<0.001	<0.05	0.00001	143	<0.001	<0.0002	0.00112
LBEX-DOCC	4/1/2018 11:15	TF0155	0.055	<0.0050	0.104	0.104	0.0260	2.82	2.43	0.0473	<0.0005	0.00028	0.0923	<0.0001	<0.001	<0.05	0.000016	76.1	<0.001	<0.0002	0.00096
LBEX-DOCC	5/12/2018 7:00	TK7567	0.020	<0.0050	<0.020	<0.020	<0.0050	3.26	2.57	0.0973	<0.0005	0.00057	0.104	<0.0001	<0.001	<0.05	0.000024	106	<0.001	0.00023	0.00115
LBEX-DOCC	5/24/2018 23:02	TM7249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/25/2018 11:00	TM7250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 11:15	TM9445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 16:30	TM9446	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	6/12/2018 10:50	TQ4128	0.043	0.0071	<0.020	<0.020	<0.0050	3.63	2.74	0.0424	<0.0005	0.00043	0.0813	<0.0001	<0.001	<0.05	0.000014	197	<0.001	<0.0002	0.00101
LBEX-DOCC	6/27/2018 15:15	TT3456	0.16	0.0210	0.195	0.216	0.0060	3.03	1.76	0.16	<0.0005	0.00074	0.0874	<0.0001	<0.001	<0.05	0.000066	147	<0.001	0.0006	0.00138
LBEX-DOCC	7/17/2018 11:25	TW5985	<0.020	<0.0050	<0.020	<0.020	0.0197	3.1	2.6	0.321	<0.0005	0.00095	0.0631	<0.0001	<0.001	<0.05	0.000032	139	<0.001	0.00032	0.00205
LBEX-DOCC	8/31/2018 10:05	UF3974	0.025	<0.0050	<0.020	<0.020	0.0153	4.4	3.89	0.262	<0.0005	0.00108	0.0681	<0.0001	<0.001	<0.05	0.000038	127	<0.001	0.00042	0.00174
LBEX-DOCC	9/17/2018 8:30	UI9104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-GW	1/5/2018 15:25	ST8671	0.11	0.0075	0.254	0.262	0.0050	4.01	3.38	0.0127	<0.0005	0.0007	0.0651	<0.0001	<0.001	0.205	0.000059	134	<0.001	0.00032	0.00099
LBEX-GW	12/26/2018 11:30	UZ9925	0.53	<0.0050	<0.020	<0.020	0.0121	3.9	4.5	0.377	<0.0005	0.00485	0.0458	<0.0001	<0.001	0.211	0.000119	177	<0.001	0.00136	0.00282
LBEX-GW-SUMP	2/25/2018 10:30	TA2077	0.038	<0.0050	0.300	0.300	<0.0050	4.00	4.05	0.244	<0.0005	0.00079	0.0713	<0.0001	<0.001	0.243	0.000057	150	<0.001	0.00047	0.00128
LBEX-GW-SUMP	3/14/2018 14:15	TC7633	0.13	0.0173	1.22	1.24	<0.0050	5.53	5.32	2.04	<0.0005	0.00311	0.148	0.00013	<0.001	0.125	0.000264	116	0.0042	0.00306	0.00739
LBEX-GW-SUMP	4/5/2018 13:10	TF7751	0.11	<0.0050	0.529	0.529	<0.0050	2.08	2.08	2.07	<0.0005	0.00179	0.0993	<0.0001	<0.001	0.232	0.000142	138	0.0034	0.00147	0.00383
LBEX-GW-SUMP	5/16/2018 14:35	TL6389	0.030	<0.0050	1.56	1.56	<0.0050	3.96	3.47	0.0231	<0.0005	0.00029	0.0474	<0.0001	<0.001	0.222	0.000013	128	<0.001	<0.0002	0.00077
LBEX-GW-SUMP	6/11/2018 14:30	TQ0650	0.021	0.0050	0.857	0.862	<0.0030	3.92	<0.50	0.0167	<0.0005	0.00027	0.0476	<0.0001	<0.001	0.255	0.000015	122	<0.001	<0.0002	0.00077
LBEX-SP	1/6/2018 12:00	ST9405	0.10	<0.0050	<0.020	<0.020	<0.0050	0.97	0.61	28.3	<0.0025	<0.0005	0.0241	0.00336	<0.005	<0.25	0.0169	383	<0.005	0.152	0.144
LBEX-SP	2/23/2018 12:00	SZ9584	0.25	<0.0050	0.036	0.036	<0.0050	<0.50	<0.50	24.1	<0.0025	<0.0005	0.0183	0.00287	<0.005	<0.25	0.0178	413	<0.005	0.148	0.122
LBEX-SP	3/18/2018 13:35	TD1672	0.23	0.0052	0.188	0.193	0.0135	0.78	0.90	1.28	<0.0005	0.00047	0.0447	0.00016	<0.001	<0.05	0.00172	71.2	<0.001	0.0162	0.00738
LBEX-SP	4/2/2018 15:30	TF2038	0.31	0.0135	0.401	0.415	<0.0050	0.51	<0.50	22.5	<0.0025	<0.0005	0.0326	0.00296	<0.005	<0.25	0.0143	250	<0.005	0.126	0.0891
LBEX-SP	5/17/2018 15:00	TL6388	0.047	<0.0050	0.078	0.078	<0.0050	0.92	<0.50	21	<0.0005	0.00036	0.0202	0.00315	<0.001	<0.05	0.0153	230	0.0027	0.134	0.0891
LBEX-SP	6/19/2018 14:15	TR6050	0.11	<0.0050	<0.020	<0.020	0.0052	<0.50	<0.50	27.9	<0.0025	<0.0005	0.0217	0.00386	<0.005	<0.25	0.0187	316	<0.005	0.173	0.111
LBEX-SP	7/18/2018 12:00	TW8370	0.11	<0.0050	<0.020	<0.020	<0.0050	<0.50	<0.50	4.63	<0.0005	0.00052	0.043	0.00129	<0.001	0.068	0.0148	416	<0.001	0.124	0.0269
LBEX-SP	8/8/2018 10:35	UA6829	0.23	<0.0050	0.038	0.038	0.0100	1.51	1.62	0.917	<0.0025	0.00087	0.0307	0.00054	<0.005	<0.25	0.0135	375	<0.005	0.111	0.0145
LBEX-SP	9/27/2018 10:30	UK8403	0.96	0.0273	0.261	0.288	<0.0050	2.44	2.41	0.127	0.00206	0.00059	0.0391	<0.0001	<0.001	0.396	0.00202	185	<0.001	0.0429	0.00095

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBCD-OUT	11/6/2018 9:50	UT3581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/6/2018 15:55	US9400	0.346	<0.0002	0.0098	28.9	0.472	<0.000002	0.0018	<0.001	-	1.18	<0.0001	4.22	<0.00002	34.1	0.346	116	<0.00001	<0.005	<0.005	0.00083
LBCD-OUT	11/7/2018 9:55	UT3583	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/8/2018 10:30	UT3582	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/9/2018 10:00	UT4952	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/10/2018 10:00	UT4843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/11/2018 9:30	UT4848	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/12/2018 9:30	UT6584	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/13/2018 13:30	UT9231	0.453	<0.0002	0.0098	30.2	0.469	<0.000002	0.0018	<0.001	-	1.09	<0.0001	3.98	<0.00002	35.2	0.366	113	<0.00001	<0.005	<0.005	0.00078
LBCD-OUT	11/22/2018 14:45	UV5071	0.427	<0.0002	0.0088	29.7	0.473	<0.000002	0.0017	<0.001	-	1.08	0.00013	3.36	<0.00002	35.6	0.358	112	<0.00001	<0.005	<0.005	0.00084
LBCD-OUT	12/1/2018 13:15	UW8608	0.38	<0.0002	0.0098	29.5	0.483	<0.000002	0.0019	<0.001	-	1.10	0.0001	3.87	<0.00002	35.8	0.378	113	<0.00001	<0.005	<0.005	0.00079
LBCD-OUT	12/4/2018 15:10	UX4642	0.365	<0.0002	0.0106	29.6	0.48	0.000003	0.0018	<0.001	-	1.11	0.00012	3.96	<0.00002	37.2	0.354	119	<0.00001	<0.005	<0.005	0.00081
LBCD-OUT	12/12/2018 10:45	UY7670	0.425	<0.0002	0.0101	31.1	0.481	<0.000002	0.0019	<0.001	-	1.10	<0.0001	3.81	<0.00002	37.9	0.372	121	<0.00001	<0.005	<0.005	0.0008
LBCD-OUT	12/13/2018 15:00	UZ2668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/14/2018 16:00	UZ2667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/15/2018 15:30	UZ2669	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:30	UZ8203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:40	UZ8202	0.726	<0.0002	0.0106	33.6	0.517	<0.000002	0.0019	<0.001	-	1.30	<0.0001	4.08	<0.00002	40.5	0.364	133	<0.00001	<0.005	<0.005	0.0008
LBCD-OUT	12/24/2018 13:45	UZ9969	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/28/2018 13:30	VA3074	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/29/2018 13:25	VA3064	0.46	<0.0002	0.0118	32.0	0.482	<0.000002	0.0018	<0.001	-	1.15	<0.0001	4.02	<0.00002	41.0	0.376	126	<0.00001	<0.005	<0.005	0.00083
LBEX-CC	1/6/2018 12:00	ST9404	0.057	<0.0002	0.0057	13.1	0.0079	-	0.0031	0.0017	-	1.23	0.00036	1.01	<0.00002	3.97	0.219	21.3	<0.00001	<0.005	<0.005	0.00113
LBEX-CC	2/23/2018 12:35	SZ9587	0.053	<0.0002	0.0056	14.3	0.0032	-	0.0034	0.0017	-	1.29	0.00041	1.02	<0.00002	4.48	0.238	22.2	<0.00001	<0.005	<0.005	0.00117
LBEX-CC	3/17/2018 14:20	TD2175	0.378	0.00026	0.0078	18.1	0.0108	-	0.0042	0.0026	-	1.94	0.00055	1.62	<0.00002	5.26	0.273	29.7	0.000011	<0.005	0.0075	0.00145
LBEX-CC	4/2/2018 15:00	TF2037	0.454	0.00027	0.0022	4.74	0.0197	-	0.008	0.0014	-	1.73	0.00062	3.44	<0.00002	6.72	0.0821	15.3	<0.00001	<0.005	0.0093	0.00071
LBEX-CC	5/16/2018 6:40	TL2462	0.093	<0.0002	0.0054	11.4	0.0069	<0.000002	0.003	0.0016	-	1.21	0.00026	0.931	<0.00002	3.73	0.19	18.6	<0.00001	<0.005	<0.005	0.00106
LBEX-CC	6/12/2018 11:15	TQ4129	0.469	0.00028	0.0053	12.0	0.0132	<0.000002	0.0032	0.0023	-	1.33	0.00028	0.638	<0.00002	3.95	0.184	22.5	0.000014	<0.005	<0.005	0.00108
LBEX-CC	7/18/2018 11:00	TW8368	0.42	0.00022	0.008	20.3	0.707	<0.000002	0.004	0.0024	-	1.82	0.00018	3.81	<0.00002	6.23	0.383	47.0	0.000015	<0.005	<0.005	0.00209
LBEX-CC	8/18/2018 11:50	UC8580	0.195	<0.0002	0.0089	21.9	0.0801	<0.000002	0.0035	0.0015	-	0.855	0.00017	2.78	<0.00002	8.43	0.334	61.5	<0.00001	<0.005	<0.005	0.0021
LBEX-DICC	1/6/2018 12:00	ST9402	0.796	0.00055	0.0117	27.4	0.0302	-	0.0041	0.0023	-	3.14	0.00078	2.37	<0.00002	22.3	0.386	112	0.000021	<0.005	0.0105	0.00364
LBEX-DICC	2/23/2018 13:20	SZ9582	0.032	<0.0002	0.0115	32.5	0.152	-	0.0046	0.0022	-	3.33	0.0007	1.79	<0.00002	26.5	0.429	119	<0.00001	<0.005	<0.005	0.00397
LBEX-DICC	5/17/2018 6:45	TL6391	0.216	0.00021	0.0073	28.3	0.0086	<0.000002	0.0071	0.002	-	2.99	0.00155	2.02	<0.00002	20.1	0.29	101	0.000014	<0.005	0.0066	0.00479
LBEX-DICC	5/30/2018 7:20	TN9746	0.709	0.0005	0.0075	29.7	0.0272	<0.000002	0.0074	0.0025	-	3.04	0.00141	1.74	<0.00002	20.1	0.338	102	0.000019	<0.005	0.0075	0.00495
LBEX-DICC	6/12/2018 11:30	TQ4130	1.14	0.00075	0.0082	28.6	0.192	<0.000002	0.0038	0.0035	-	2.47	0.00054	3.3	<0.00002	14.3	0.326	96.9	0.000026	<0.005	0.0106	0.00391
LBEX-DOCC	1/6/2018 12:00	ST9403	0.061	<0.0002	0.0128	40.1	0.0799	-	0.0044	0.0022	-	2.13	0.00029	2.04	<0.00002	47.8	0.462	128	0.000013	<0.005	<0.005	0.0044
LBEX-DOCC	2/7/2018 12:47	SY0767	0.02	<0.0002	0.012	40.7	0.0495	-	0.0038	0.0019	-	2.11	0.00023	1.9	<0.00002	47.6	0.397	127	0.000014	<0.005	<0.005	0.00392
LBEX-DOCC	3/17/2018 14:45	TD1675	0.054	<0.0002	0.0132	43.1	0.0224	-	0.0044	0.002	-	2.22	0.00028	2.47	<0.00002	48.9	0.487	135	0.000015	<0.005	<0.005	0.00448
LBEX-DOCC	4/1/2018 11:15	TF0155	0.061	<0.0002	0.0066	23.2	0.0908	-	0.0023	0.0013	-	1.44	0.00023	2.1	<0.00002	25.1	0.246	62.2	<0.00001	<0.005	<0.005	0.00221
LBEX-DOCC	5/12/2018 7:00	TK7567	0.291	<0.0002	0.0081	25.7	0.0597	<0.000002	0.0032	0.0018	-	1.98	0.00034	2.25	<0.00002	27.1	0.267	79.7	0.000011	<0.005	<0.005	0.00271
LBEX-DOCC	5/24/2018 23:02	TM7249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/25/2018 11:00	TM7250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 11:15	TM9445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 16:30	TM9446	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	6/12/2018 10:50	TQ4128	0.174	<0.0002	0.0189	73.7	0.068	<0.000002	0.0029	0.0026	-	2.64	0.00025	2.7	<0.00002	101	0.486	253	0.000019	<0.005	<0.005	0.00512
LBEX-DOCC	6/27/2018 15:15	TT3456	0.513	0.00027	0.0134	47.8	0.404	<0.000002	0.0046	0.0026	-	2.72	0.00061	3.81	<0.00002	61.1	0.447	153	0.000015	<0.005	<0.005	0.00347
LBEX-DOCC	7/17/2018 11:25	TW5985	0.754	0.00036	0.0224	77.8	0.076	<0.000002	0.0042	0.0027	-	1.80	0.0002	5.22	<0.00002	111	0.483	243	0.000023	<0.005	0.0157	0.0046
LBEX-DOCC	8/31/2018 10:05	UF3974	0.475	0.00029	0.0168	44.0	0.199	0.0000021	0.0041	0.0033	-	3.10	0.00037	3.56	<0.00002	56.3	0.439	129	0.000022	<0.005	0.0065	0.00374
LBEX-DOCC	9/17/2018 8:30	UI9104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-GW	1/5/2018 15:25	ST8671	0.033	<0.0002	0.0549	95.9	0.137	-	0.0042	0.0037	-	5.14	0.00051	8.93	<0.00002	171	0.597	99.6	0.000037	<0.005	<0.005	0.0103
LBEX-GW	12/26/2018 11:30	UZ9925	1.03	0.00124	0.0674	122	0.153	<0.000002	0.0107	0.0045	-	5.47	0.00048	10	0.000022	190	0.756	181	0.000035	<0.005	0.0086	0.0134
LBEX-GW-SUMP	2/25/2018 10:30	TA2077	0.772	0.00036	0.0582	97.9	0.0852	-	0.0047	0.0044	-	5.59	0.00047	11.1	<0.00002	175	0.661	104	0.000041	<0.005	0.0066	0.0108
LBEX-GW-SUMP	3/14/2018 14:15	TC7633	6.35	0.00305	0.0355	59.2	0.17	-	0.0066	0.0101	-	4.75	0.00248	9.76	0.000048	93.0	0.462	96.5	0.000088	<0.005	0.0448	0.0071
LBEX-GW-SUMP	4/5/2018 13:10	TF7751	3.66	0.00174	0.0571	86.0	0.0831	-	0.0061	0.007	-	5.39	0.00146	14.5	0.000036	154	0.596	119	0.000065	<0.005	0.0884	0.01
LBEX-GW-SUMP	5/16/2018 14:35	TL6389	0.056	<0.0002	0.0559	89.2	0.0037	<0.000002	0.0049	0.0021	-	5.38	0.00226	9.89	<0.00002	157	0.565	122	0.000027	<0.005	<0.005	0.0108
LBEX-GW-SUMP	6/11/2018 14:30	TQ0650	0.038	<0.0002	0.0555	92.6	0.0035	<0.000002	0.0042	0.0021	-	5.41	0.00102	9.54	0.000096	158	0.616	105	0.000024	<0.005	<0.005	0.0111
LBEX-SP	1/6/2018 12:00	ST9405	0.203	<0.001	0.12	152	2.49	-	<0.005	0.572	-	7.90	0.00669	2.77	<0.0001	49.1	0.798	587	<0.00005	<0.025	<0.025	0.0146
LBEX-SP	2/23/2018 12:00	SZ9584	0.117	<0.001	0.109	159	2.64	-	<0.005	0.567	-	7.80	0.00775	2.76	<0.0001	53.2	0.931	650	<0.00005	<0.025	<0.025	0.013
LBEX-SP	3/18/2018 13:35	TD1672	0.719	0.00041	0.0156	19.1	0.278	-	<0.001	0.0585	-	1.63	0.00149	3.72	<0.00002	3.87	0.119	86.4	0.000022	<0.005	0.0077	0.00033
LBEX-SP	4/2/2018 15:30	TF2038	1.7	<0.001	0.117	96.4	2.12	-	<0.005	0.485	-	5.02	0.00408	1.97	<0.0001	29.8	0.485	413	<0.00005	<0.025	<0.025	0.0123
LBEX-SP	5/17/2018 15:00	TL6388	2.68	<0.0002	0.116	94.0	2.21	<0.000002	<0.001	0.527	-	3.46	0.00357	1.75	<0.00002	31.6	0.462	404	0.000024	<0.005	<0.005	0.0126
LBEX-SP	6/19/2018 14:15	TR6050	2.24	<0.001	0.134	130	3.05	<0.000002	<0.005	0.664	-	4.72	0.00352	1.74	<0.0001	40.8	0.556	521	<0.00005	<0.025	<0.025	0.015
LBEX-SP	7/18/2018 12:00	TW8370	0.815	<0.0002	0.0832	141	4.12	<0.000002	<0.001	0.501	-	4.83	0.00389	1.8	<0.00002	45.4	0.821	565	0.000031	<0.005	<0.005	0.0063
LBEX-SP	8/8/2018 10:35	UA6829	0.765	<0.001	0.105	143	3.83	<0.000002	<0.005	0.458	-	4.12	0.0055	2.47	<0.0001	105	0.653	556	<0.00005	<0.025	<0.025	0.00632
LBEX-SP	9/27/2018 10:30	UK8403	0.231	<0.0002	0.16	98.5	1.2	0.0000033	0.0083	0.136	-	6.75	0.00804	2.7	<0.00002	467	1.15	575	0.000035	<0.005	<0.005	0.00735

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBCD-OUT	11/6/2018 9:50	UT3581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/6/2018 15:55	US9400	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00063	0.0867	<0.0001	<0.001	<0.05	<0.00001	125	<0.001	0.00022	<0.0005	0.012	<0.0002	0.0098	30.5	0.482
LBCD-OUT	11/7/2018 9:55	UT3583	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/8/2018 10:30	UT3582	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/9/2018 10:00	UT4952	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/10/2018 10:00	UT4843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/11/2018 9:30	UT4848	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/12/2018 9:30	UT6584	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/13/2018 13:30	UT9231	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00059	0.0839	<0.0001	<0.001	<0.05	<0.00001	126	<0.001	0.00021	<0.0005	0.018	<0.0002	0.0087	29.4	0.482
LBCD-OUT	11/22/2018 14:45	UV5071	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00054	0.0857	<0.0001	<0.001	<0.05	<0.00001	131	<0.001	0.00023	<0.0005	0.011	<0.0002	0.0099	31.8	0.483
LBCD-OUT	12/1/2018 13:15	UW8608	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00054	0.0781	<0.0001	<0.001	<0.05	<0.00001	123	<0.001	0.0002	0.00222	0.07	<0.0002	0.0107	30.8	0.469
LBCD-OUT	12/4/2018 15:10	UX4642	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.0006	0.0781	<0.0001	<0.001	<0.05	<0.00001	129	<0.001	0.00021	<0.0005	0.065	<0.0002	0.01	29.9	0.479
LBCD-OUT	12/12/2018 10:45	UY7670	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00054	0.0751	<0.0001	<0.001	<0.05	<0.00001	136	<0.001	0.00023	0.00114	0.049	<0.0002	0.0109	33.5	0.453
LBCD-OUT	12/13/2018 15:00	UZ2668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/14/2018 16:00	UZ2667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/15/2018 15:30	UZ2669	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:30	UZ8203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:40	UZ8202	<0.005	<0.005	<0.0001	0.0289	<0.0005	0.00076	0.0766	<0.0001	<0.001	<0.05	<0.00001	130	<0.001	0.0003	<0.0005	0.791	<0.0002	0.0101	32.4	0.504
LBCD-OUT	12/24/2018 13:45	UZ9969	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/28/2018 13:30	VA3074	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/29/2018 13:25	VA3064	<0.005	<0.005	0.00025	<0.003	<0.0005	0.00052	0.074	<0.0001	<0.001	<0.05	<0.00001	131	<0.001	0.00022	<0.0005	0.061	<0.0002	0.011	32.5	0.492
LBEX-CC	1/6/2018 12:00	ST9404	<0.005	<0.005	0.00015	0.012	<0.0005	0.00035	0.105	<0.0001	<0.001	<0.05	0.000014	58.0	<0.001	<0.0002	0.0107	<0.01	<0.0002	0.0058	13.5	<0.001
LBEX-CC	2/23/2018 12:35	SZ9587	<0.005	<0.005	<0.0001	0.0105	<0.0005	0.00036	0.108	<0.0001	<0.001	<0.05	0.000012	65.4	<0.001	<0.0002	0.00116	<0.01	<0.0002	0.0059	14.9	<0.001
LBEX-CC	3/17/2018 14:20	TD2175	<0.005	<0.005	0.0002	0.0056	<0.0005	0.00046	0.107	<0.0001	<0.001	<0.05	0.00001	70.0	<0.001	<0.0002	0.00192	<0.01	<0.0002	0.0076	18.5	0.0046
LBEX-CC	4/2/2018 15:00	TF2037	<0.005	0.0063	0.00063	0.0072	0.00223	0.00082	0.0624	<0.0001	<0.001	<0.05	0.000023	29.7	0.0055	<0.0002	0.00175	<0.01	<0.0002	0.0021	4.51	0.012
LBEX-CC	5/16/2018 6:40	TL2462	<0.005	<0.005	0.00015	0.0145	<0.0005	0.00028	0.0817	<0.0001	<0.001	<0.05	<0.00001	52.6	<0.001	<0.0002	0.00086	<0.01	<0.0002	0.0052	11.1	<0.001
LBEX-CC	6/12/2018 11:15	TQ4129	<0.005	<0.005	<0.0001	0.0173	<0.0005	0.00031	0.0865	<0.0001	<0.001	<0.05	<0.00001	46.9	<0.001	<0.0002	0.00125	<0.01	<0.0002	0.0055	12.0	<0.001
LBEX-CC	7/18/2018 11:00	TW8368	<0.005	<0.005	0.00014	0.0045	<0.0005	0.00075	0.167	<0.0001	<0.001	<0.05	0.000013	88.1	<0.001	0.00036	0.00125	<0.01	<0.0002	0.0074	19.5	0.637
LBEX-CC	8/18/2018 11:50	UC8580	<0.005	<0.005	<0.0001	0.0045	<0.0005	0.00061	0.126	<0.0001	<0.001	<0.05	0.00001	66.1	<0.001	<0.0002	0.00099	0.011	<0.0002	0.0089	22.9	0.071
LBEX-DICC	1/6/2018 12:00	ST9402	<0.005	0.0078	0.00022	0.0093	<0.0005	0.00024	0.119	<0.0001	<0.001	<0.05	0.000015	122	<0.001	<0.0002	0.00476	<0.01	<0.0002	0.0122	30.6	0.0016
LBEX-DICC	2/23/2018 13:20	SZ9582	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00038	0.148	<0.0001	<0.001	<0.05	0.000024	130	<0.001	0.00049	0.00093	<0.01	<0.0002	0.0118	32.4	0.154
LBEX-DICC	5/17/2018 6:45	TL6391	<0.005	<0.005	0.00017	0.0073	0.00066	0.00047	0.0488	<0.0001	<0.001	<0.05	<0.00001	95.5	<0.001	<0.0002	0.00084	<0.01	<0.0002	0.007	29.9	<0.001
LBEX-DICC	5/30/2018 7:20	TN9746	<0.005	<0.005	0.00017	0.0067	0.00065	0.00044	0.0516	<0.0001	<0.001	<0.05	0.000012	99.1	<0.001	<0.0002	0.0014	<0.01	<0.0002	0.0074	29.4	0.0037
LBEX-DICC	6/12/2018 11:30	TQ4130	<0.005	0.0056	0.00021	0.0037	<0.0005	0.00034	0.0585	<0.0001	<0.001	<0.05	0.000019	116	<0.001	0.00028	0.00099	<0.01	<0.0002	0.0067	28.2	0.161
LBEX-DOCC	1/6/2018 12:00	ST9403	<0.005	<0.005	<0.0001	0.0044	<0.0005	0.00041	0.196	<0.0001	<0.001	<0.05	0.000014	131	<0.001	<0.0002	0.00254	<0.01	<0.0002	0.0129	42.2	0.0571
LBEX-DOCC	2/7/2018 12:47	SY0767	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.0004	0.18	<0.0001	<0.001	<0.05	0.000012	139	<0.001	<0.0002	0.00106	<0.01	<0.0002	0.0142	46.0	0.0065
LBEX-DOCC	3/17/2018 14:45	TD1675	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00035	0.181	<0.0001	<0.001	<0.05	<0.00001	146	<0.001	<0.0002	0.00116	<0.01	<0.0002	0.0139	46.3	<0.001
LBEX-DOCC	4/1/2018 11:15	TF0155	<0.005	<0.005	<0.0001	0.0031	<0.0005	0.00023	0.0949	<0.0001	<0.001	<0.05	0.000015	79.0	<0.001	<0.0002	0.00087	<0.01	<0.0002	0.0071	23.9	0.0867
LBEX-DOCC	5/12/2018 7:00	TK7567	<0.005	<0.005	<0.0001	0.0045	<0.0005	0.00038	0.0933	<0.0001	<0.001	<0.05	0.000013	88.9	<0.001	<0.0002	0.00087	0.015	<0.0002	0.008	23.1	0.0192
LBEX-DOCC	5/24/2018 23:02	TM7249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/25/2018 11:00	TM7250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 11:15	TM9445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 16:30	TM9446	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	6/12/2018 10:50	TQ4128	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.0004	0.0832	<0.0001	<0.001	<0.05	<0.00001	174	<0.001	<0.0002	0.00116	<0.01	<0.0002	0.0185	66.5	0.0211
LBEX-DOCC	6/27/2018 15:15	TT3456	<0.005	<0.005	0.00015	<0.003	<0.0005	0.00042	0.0794	<0.0001	<0.001	<0.05	0.000046	149	<0.001	0.00041	0.00087	<0.01	<0.0002	0.0131	47.6	0.374
LBEX-DOCC	7/17/2018 11:25	TW5985	<0.005	<0.005	0.00024	0.0033	<0.0005	0.00055	0.0503	<0.0001	<0.001	<0.05	0.000012	141	<0.001	<0.0002	0.00157	<0.01	<0.0002	0.0223	73.7	0.0291
LBEX-DOCC	8/31/2018 10:05	UF3974	<0.005	<0.005	0.00013	<0.003	<0.0005	0.00078	0.0572	<0.0001	<0.001	<0.05	<0.00001	128	<0.001	<0.0002	0.00125	<0.01	<0.0002	0.0173	46.1	<0.001
LBEX-DOCC	9/17/2018 8:30	UI9104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-GW	1/5/2018 15:25	ST8671	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00071	0.0635	<0.0001	<0.001	<0.05	<0.00001	124	<0.001	0.00024	0.00077	<0.01	<0.0002	0.0571	94.7	0.0647
LBEX-GW	12/26/2018 11:30	UZ9925	<0.005	0.0054	0.00076	0.0071	<0.001	0.00372	0.0087	<0.0002	<0.002	0.207	<0.00002	170	<0.002	0.00074	0.0029	<0.02	<0.0004	0.0684	129	0.0951
LBEX-GW-SUMP	2/25/2018 10:30	TA2077	<0.005	<0.005	0.00019	<0.003	<0.0005	0.00046	0.0545	<0.0001	<0.001	0.232	<0.00001	134	<0.001	<0.0002	0.00061	<0.01	<0.0002	0.0563	90.0	0.0335
LBEX-GW-SUMP	3/14/2018 14:15	TC7633	0.0084	0.0232	0.00068	0.0041	<0.0005	0.00044	0.0666	<0.0001	<0.001	0.129	<0.00001	103	<0.001	<0.0002	0.00082	<0.01	<0.0002	0.034	57.3	0.0091
LBEX-GW-SUMP	4/5/2018 13:10	TF7751	0.0066	0.0129	0.0011	0.0059	<0.0005	0.00039	0.0401	<0.0001	<0.001	0.235	<0.00001	93.7	<0.001	<0.0002	0.00065	<0.01	<0.0002	0.0549	92.2	0.001
LBEX-GW-SUMP	5/16/2018 14:35	TL6389	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00028	0.0368	<0.0001	<0.001	0.245	<0.00001	90.9	<0.001	<0.0002	0.00065	<0.01	<0.0002	0.0572	96.0	<0.001
LBEX-GW-SUMP	6/11/2018 14:30	TQ0650	<0.005	<0.005	0.00012	<0.003	<0.0005	0.00029	0.0383	<0.0001	<0.001	0.283	<0.00001	101	<0.001	<0.0002	0.00113	<0.01	<0.0002	0.0554	89.9	<0.001
LBEX-SP	1/6/2018 12:00	ST9405	<0.025	1.73	<0.0005	27.1	<0.0025	<0.0005	0.0212	0.00353	<0.005	<0.25	0.0174	358	<0.005	0.146	0.141	0.155	<0.001	0.115	138	2.54
LBEX-SP	2/23/2018 12:00	SZ9584	<0.025	1.78	<0.0005	24.9	<0.0025	<0.0005	0.0176	0.003	<0.005	<0.25	0.0182	422	<0.005	0.156	0.127	0.115	<0.001	0.114	167	2.74
LBEX-SP	3/18/2018 13:35	TD1672	<0.005	0.136	0.00189	0.284	<0.0005	0.00013	0.0344	0.00012	<0.001	<0.05	0.00181	70.5	<0.001	0.0166	0.00489	0.046	<0.0002	0.0155	19.7	0.283
LBEX-SP	4/2/2018 15:30	TF2038	<0.025	1.37	<0.0005	26.2	<0.0025	<0.0005	0.0323	0.0028	<0.005	<0.25	0.0143	295	<0.005	0.126	0.0903	1.78	<0.001	0.125	105	2.16
LBEX-SP	5/17/2018 15:00	TL6388	<0.005	1.5	<0.0001	21.3	<0.0025	<0.0005	0.024	0.0032	<0.005	<0.25	0.0159	251	<0.005	0.143	0.0924	0.175	<0.001	0.111	101	2.43
LBEX-SP	6/19/2018 14:15	TR6050	<0.025	1.81	<0.0005	27	<0.0025	<0.0005	0.0203	0.00391	<0.005	<0.25	0.0194	308	<0.005	0.178	0.115	2.08	<0.001	0.14	135	3.22
LBEX-SP	7/18/2018 12:00	TW8370	<0.005	0.885	<0.0001	4.25	<0.0005	0.00046	0.0415	0.00129	<0.001	0.054	0.0158	415	<0.001	0.124	0.0266	0.596	<0.0002	0.0866	140	4.09
LBEX-SP	8/8/2018 10:35	UA6829	<0.025	0.752	<0.0005	0.062	<0.0025	0.0005	0.0211	<0.0005	<0.005	<0.25	0.014	383	<0.005	0.106	0.0081	<0.05	<0.001	0.103	136	3.79
LBEX-SP	9/27/2018 10:30	UK8403	<0.005	0.139	0.00016	0.045	0.0024	0.00051	0.0354	<0.0002	<0.002	0.411	0.00198	185	<0.002	0.0457	0.0012	<0.02	<0.0004	0.171	96.2	1.1

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBCD-OUT	11/6/2018 9:50	UT3581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/6/2018 15:55	US9400	<0.000002	0.0018	<0.001	-	1.12	<0.0001	3.56	<0.00002	37.4	0.363	111	<0.00001	<0.005	<0.005	0.00086	<0.005	<0.005	<0.0001
LBCD-OUT	11/7/2018 9:55	UT3583	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/8/2018 10:30	UT3582	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/9/2018 10:00	UT4952	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/10/2018 10:00	UT4843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/11/2018 9:30	UT4848	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/12/2018 9:30	UT6584	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	11/13/2018 13:30	UT9231	<0.000002	0.0049	<0.001	-	1.08	<0.0001	3.69	<0.00002	35.3	0.368	111	<0.00001	<0.005	<0.005	0.00082	<0.005	<0.005	<0.0001
LBCD-OUT	11/22/2018 14:45	UV5071	<0.000002	0.0018	<0.001	-	1.12	0.00013	3.57	<0.00002	37.3	0.385	119	<0.00001	<0.005	<0.005	0.00087	<0.005	<0.005	<0.0001
LBCD-OUT	12/1/2018 13:15	UW8608	<0.000002	0.0018	<0.001	-	1.09	<0.0001	3.72	<0.00002	37.2	0.378	115	<0.00001	<0.005	<0.005	0.00077	<0.005	<0.005	<0.0001
LBCD-OUT	12/4/2018 15:10	UX4642	<0.000002	0.0018	<0.001	-	1.11	0.00011	3.93	<0.00002	37.0	0.34	119	<0.00001	<0.005	<0.005	0.00082	<0.005	<0.005	<0.0001
LBCD-OUT	12/12/2018 10:45	UY7670	<0.000002	0.002	<0.001	-	1.16	<0.0001	3.96	<0.00002	41.3	0.341	126	<0.00001	<0.005	<0.005	0.00084	<0.005	<0.005	<0.0001
LBCD-OUT	12/13/2018 15:00	UZ2668	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/14/2018 16:00	UZ2667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/15/2018 15:30	UZ2669	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:30	UZ8203	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/20/2018 13:40	UZ8202	<0.000002	0.0017	<0.001	-	1.18	<0.0001	4.02	<0.00002	42.0	0.354	121	<0.00001	<0.005	<0.005	0.0008	<0.005	<0.005	<0.0001
LBCD-OUT	12/24/2018 13:45	UZ9969	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/28/2018 13:30	VA3074	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBCD-OUT	12/29/2018 13:25	VA3064	<0.000002	0.0018	<0.001	-	1.10	<0.0001	3.7	<0.00002	41.0	0.39	123	<0.00001	<0.005	<0.005	0.00081	<0.005	<0.005	<0.0001
LBEX-CC	1/6/2018 12:00	ST9404	-	0.0032	0.0015	-	1.24	0.00037	0.93	<0.00002	4.13	0.221	21.5	<0.00001	<0.005	<0.005	0.00115	<0.005	<0.005	<0.0001
LBEX-CC	2/23/2018 12:35	SZ9587	-	0.0034	0.0017	-	1.34	0.00041	1.01	<0.00002	4.62	0.244	22.9	<0.00001	<0.005	<0.005	0.00121	<0.005	<0.005	<0.0001
LBEX-CC	3/17/2018 14:20	TD2175	-	0.0044	0.002	-	1.91	0.00043	1.19	<0.00002	5.55	0.253	30.5	<0.00001	<0.005	<0.005	0.00138	<0.005	<0.005	<0.0001
LBEX-CC	4/2/2018 15:00	TF2037	-	0.0076	<0.001	-	1.78	0.00063	2.87	<0.00002	6.56	0.0819	16.0	<0.00001	<0.005	<0.005	0.00072	<0.005	<0.005	<0.0001
LBEX-CC	5/16/2018 6:40	TL2462	<0.000002	0.003	0.0014	-	1.15	0.00027	0.739	<0.00002	3.70	0.187	20.5	<0.00001	<0.005	<0.005	0.00102	<0.005	<0.005	<0.0001
LBEX-CC	6/12/2018 11:15	TQ4129	<0.000002	0.0036	0.0011	-	1.33	0.00024	0.249	<0.00002	4.09	0.19	21.9	<0.00001	<0.005	<0.005	0.00113	<0.005	<0.005	<0.0001
LBEX-CC	7/18/2018 11:00	TW8368	<0.000002	0.0039	0.0019	-	1.69	0.00018	3.2	<0.00002	5.99	0.383	45.8	0.000011	<0.005	<0.005	0.002	<0.005	<0.005	<0.0001
LBEX-CC	8/18/2018 11:50	UC8580	<0.000002	0.0036	0.0015	-	0.854	0.00015	2.62	<0.00002	8.51	0.341	63.0	<0.00001	<0.005	<0.005	0.00214	<0.005	<0.005	<0.0001
LBEX-DICC	1/6/2018 12:00	ST9402	-	0.0044	0.0014	-	3.21	0.00072	1.55	<0.00002	25.0	0.411	119	0.00001	<0.005	<0.005	0.0039	<0.005	<0.005	<0.0001
LBEX-DICC	2/23/2018 13:20	SZ9582	-	0.0047	0.0023	-	3.37	0.00068	1.8	<0.00002	26.7	0.423	121	<0.00001	<0.005	<0.005	0.00406	<0.005	<0.005	<0.0001
LBEX-DICC	5/17/2018 6:45	TL6391	<0.000002	0.0074	0.0014	-	2.95	0.00152	1.41	<0.00002	20.1	0.285	103	<0.00001	<0.005	<0.005	0.0048	<0.005	<0.005	<0.0001
LBEX-DICC	5/30/2018 7:20	TN9746	<0.000002	0.0073	0.0015	-	3.05	0.00133	1.32	<0.00002	19.6	0.323	111	0.000013	<0.005	<0.005	0.00518	<0.005	<0.005	<0.0001
LBEX-DICC	6/12/2018 11:30	TQ4130	<0.000002	0.0039	0.002	-	2.26	0.00048	2.35	<0.00002	12.7	0.326	93.2	0.000012	<0.005	<0.005	0.00381	<0.005	<0.005	<0.0001
LBEX-DOCC	1/6/2018 12:00	ST9403	-	0.0045	0.002	-	2.11	0.00026	2.09	<0.00002	50.2	0.471	131	0.000013	<0.005	<0.005	0.00458	<0.005	<0.005	<0.0001
LBEX-DOCC	2/7/2018 12:47	SY0767	-	0.0043	0.0021	-	2.15	0.00028	2.23	<0.00002	54.9	0.507	137	0.000014	<0.005	<0.005	0.00468	<0.005	<0.005	<0.0001
LBEX-DOCC	3/17/2018 14:45	TD1675	-	0.0045	0.002	-	2.32	0.00032	2.44	<0.00002	53.4	0.486	145	0.000015	<0.005	<0.005	0.00466	<0.005	<0.005	<0.0001
LBEX-DOCC	4/1/2018 11:15	TF0155	-	0.0027	0.0013	-	1.44	0.00023	2.04	<0.00002	25.2	0.26	65.1	<0.00001	<0.005	<0.005	0.00228	<0.005	<0.005	<0.0001
LBEX-DOCC	5/12/2018 7:00	TK7567	<0.000002	0.0032	0.0014	-	1.69	0.00032	1.88	<0.00002	25.9	0.271	73.5	<0.00001	<0.005	<0.005	0.00282	<0.005	<0.005	<0.0001
LBEX-DOCC	5/24/2018 23:02	TM7249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/25/2018 11:00	TM7250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 11:15	TM9445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	5/26/2018 16:30	TM9446	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-DOCC	6/12/2018 10:50	TQ4128	<0.000002	0.0033	0.0023	-	2.52	0.00024	2.39	<0.00002	88.0	0.533	243	0.000016	<0.005	<0.005	0.00555	<0.005	<0.005	<0.0001
LBEX-DOCC	6/27/2018 15:15	TT3456	<0.000002	0.0046	0.0021	-	2.59	0.00061	3.33	<0.00002	62.8	0.438	153	<0.00001	<0.005	<0.005	0.00337	<0.005	<0.005	<0.0001
LBEX-DOCC	7/17/2018 11:25	TW5985	<0.000002	0.0042	0.0016	-	1.67	0.00015	4.29	<0.00002	110	0.473	243	0.000013	<0.005	<0.005	0.00449	<0.005	<0.005	<0.0001
LBEX-DOCC	8/31/2018 10:05	UF3974	<0.000002	0.0043	0.0026	-	3.16	0.00029	3.07	<0.00002	60.5	0.441	138	0.000015	<0.005	<0.005	0.00358	<0.005	<0.005	<0.0001
LBEX-DOCC	9/17/2018 8:30	UI9104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBEX-GW	1/5/2018 15:25	ST8671	-	0.0043	0.0034	-	5.33	0.00054	9.13	<0.00002	173	0.625	99.7	0.000035	<0.005	<0.005	0.0107	<0.005	<0.005	0.00011
LBEX-GW	12/26/2018 11:30	UZ9925	<0.000002	0.0111	0.0032	-	5.87	0.00056	9.62	<0.00004	209	0.717	187	0.000027	<0.01	<0.01	0.0138	<0.01	<0.01	<0.0002
LBEX-GW-SUMP	2/25/2018 10:30	TA2077	-	0.0046	0.0031	-	5.39	0.00039	10.4	<0.00002	160	0.635	98.6	0.00003	<0.005	<0.005	0.01	<0.005	<0.005	<0.0001
LBEX-GW-SUMP	3/14/2018 14:15	TC7633	-	0.0063	0.0023	-	4.53	0.00227	6.62	<0.00002	92.8	0.448	100	0.000026	<0.005	<0.005	0.00687	<0.005	<0.005	<0.0001
LBEX-GW-SUMP	4/5/2018 13:10	TF7751	-	0.0058	0.003	-	4.76	0.0015	8.91	<0.00002	166	0.536	108	0.000029	<0.005	<0.005	0.00939	<0.005	<0.005	<0.0001
LBEX-GW-SUMP	5/16/2018 14:35	TL6389	<0.000002	0.0052	0.002	-	5.36	0.00244	8.48	<0.00002	176	0.64	110	0.000024	<0.005	<0.005	0.0114	<0.005	<0.005	<0.0001
LBEX-GW-SUMP	6/11/2018 14:30	TQ0650	<0.000002	0.0045	0.0019	-	5.75	0.00109	10.6	<0.00002	157	0.577	106	0.000025	<0.005	<0.005	0.0106	<0.005	<0.005	<0.0001
LBEX-SP	1/6/2018 12:00	ST9405	-	<0.005	0.539	-	7.25	0.00752	2.69	<0.0001	44.4	0.799	585	<0.00005	<0.025	<0.025	0.015	<0.025	1.82	<0.0005
LBEX-SP	2/23/2018 12:00	SZ9584	-	<0.005	0.595	-	7.76	0.00785	2.84	<0.0001	56.1	0.932	658	<0.00005	<0.025	<0.025	0.0136	<0.025	1.81	<0.0005
LBEX-SP	3/18/2018 13:35	TD1672	-	<0.001	0.0606	-	1.57	0.00148	3.01	<0.00002	4.04	0.12	91.3	0.000013	<0.005	<0.005	0.00019	<0.005	0.139	<0.0001
LBEX-SP	4/2/2018 15:30	TF2038	-	<0.005	0.488	-	5.46	0.00435	1.78	<0.0001	31.3	0.534	450	<0.00005	<0.025	<0.025	0.0126	<0.025	1.38	<0.0005
LBEX-SP	5/17/2018 15:00	TL6388	<0.000002	<0.005	0.562	-	3.52	0.00357	1.62	<0.0001	33.0	0.496	397	<0.00005	<0.025	<0.025	0.0133	<0.025	1.47	<0.0005
LBEX-SP	6/19/2018 14:15	TR6050	<0.000002	<0.005	0.68	-	4.14	0.00318	1.5	<0.0001	42.8	0.582	489	<0.00005	<0.025	<0.025	0.0153	<0.025	1.81	<0.0005
LBEX-SP	7/18/2018 12:00	TW8370	<0.000002	<0.001	0.501	-	4.81	0.00386	1.66	<0.00002	44.5	0.845	566	0.000029	<0.005	<0.005	0.00641	<0.005	0.885	<0.0001
LBEX-SP	8/8/2018 10:35	UA6829	<0.000002	<0.005	0.43	-	4.07	0.00577	2.32	<0.0001	104	0.676	557	<0.00005	<0.025	<0.025	0.00574	<0.025	0.719	<0.0005
LBEX-SP	9/27/2018 10:30	UK8403	<0.000002	0.008	0.147	-	6.56	0.00815	2.33	<0.00004	485	0.881	556	0.00004	<0.01	<0.01	0.00733	<0.01	0.129	<0.0002

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBEX-SP	10/11/2018 10:00	UN7446	8.28	3410	2.57	2600	9.3	817	837	238	<1.0	290	<1.0	<1.0	42.2	1.10	0.78	1590
LBEX-SP	10/27/2018 13:45	UQ8568	8.27	3270	3.17	2630	7.8	827	862	214	<1.0	261	<1.0	<1.0	33.9	1.00	0.80	1580
LBEX-SP	11/1/2018 9:23	UR8075	8.25	3300	2.39	2560	8.5	762	803	231	<1.0	282	<1.0	<1.0	24.1	0.970	0.82	1480
LBEX-SP	11/14/2018 16:00	UU0937	8.28	3300	2.06	2420	21.0	655	670	357	<1.0	436	<1.0	<1.0	40.7	0.990	0.98	1240
LBEX-SP	11/24/2018 14:20	UV7555	8.43	4470	38.2	2920	58.0	514	503	434	8.8	508	10.6	<1.0	64.7	1.50	4.6	1720
LBEX-SP	12/2/2018 15:10	UW8615	8.99	4840	22.5	3250	49.3	319	285	303	42.8	265	51.3	<1.0	72.8	1.50	12	1880
LBEX-SP	12/4/2018 14:45	UX4639	9.00	4740	46.8	3250	53.8	260	243	290	39.5	257	47.4	<1.0	72.6	1.30	12	1870
LBEX-SP	12/24/2018 13:30	UZ9965	7.22	5050	3.48	3510	7.8	274	281	303	<1.0	370	<1.0	<1.0	78.6	1.80	16	1920
LBEX-SP	12/31/2018 15:00	VA5857	7.25	5110	2.37	3650	6.0	335	301	328	<1.0	400	<1.0	<1.0	76.2	1.60	15	2110
LBGC-0.60	3/14/2018 15:45	TC7634	7.24	106	521	166	162	42.3	44.7	20.1	<1.0	24.5	<1.0	<1.0	1.93	0.081	<0.010	27.5
LBGC-0.60	4/10/2018 17:25	TG4223	7.05	2020	20.9	1640	8.3	965	848	23.2	<1.0	28.3	<1.0	<1.0	20.4	0.520	0.26	1100
LBGC-0.60	4/25/2018	TI3540	7.98	298	>4000	532	13400	633	125	76.0	<1.0	92.7	<1.0	<1.0	7.39	0.200	0.016	58.7
LBGC-0.60	4/27/2018 22:15	TI5322	7.96	423	>4000	480	49300	1550	173	87.6	<1.0	107	<1.0	<1.0	7.19	0.270	0.034	110
LBGC-0.60	4/28/2018 4:30	TI5328	7.97	401	>4000	482	18300	891	162	89.4	<1.0	109	<1.0	<1.0	9.15	0.250	0.028	97.4
LBGC-0.60	4/28/2018 11:48	TI5339	7.96	395	>4000	352	13600	1130	156	83.0	<1.0	101	<1.0	<1.0	9.71	0.250	0.028	100
LBGC-0.60	4/28/2018 21:00	TI5409	7.94	436	>4000	514	17200	1140	180	83.7	<1.0	102	<1.0	<1.0	9.01	0.220	0.024	112
LBGC-0.60	4/29/2018 3:15	TI5411	7.97	382	>4000	390	11800	800	158	79.5	<1.0	97.0	<1.0	<1.0	9.58	0.190	0.021	78.0
LBGC-0.60	4/29/2018 3:15	TI5412	7.97	381	>4000	412	12100	716	151	80.5	<1.0	98.1	<1.0	<1.0	9.77	0.200	0.023	93.0
LBGC-0.60	4/29/2018 8:20	TI7038	7.98	401	>4000	728	14300	821	156	83.8	<1.0	102	<1.0	<1.0	11.0	0.190	0.036	92.6
LBGC-0.60	4/29/2018 13:57	TI7015	7.98	423	>4000	636	15900	879	166	82.7	<1.0	101	<1.0	<1.0	11.2	0.220	0.040	106
LBGC-0.60	4/29/2018 21:05	TI7030	7.97	459	>4000	536	22800	1170	178	83.1	<1.0	101	<1.0	<1.0	10.9	0.190	0.038	127
LBGC-0.60	4/30/2018 3:05	TI7012	7.98	426	>4000	422	11400	641	167	82.1	<1.0	100	<1.0	<1.0	11.2	0.210	0.034	111
LBGC-0.60	4/30/2018 8:57	TI8564	7.81	450	>4000	696	11100	564	864	79.6	<1.0	97.1	<1.0	<1.0	12.3	0.210	0.033	126
LBGC-0.60	4/30/2018 14:01	TI8568	7.80	488	>400	526	12300	872	184	80.1	<1.0	97.7	<1.0	<1.0	12.3	0.230	0.038	132
LBGC-0.60	4/30/2018 14:01	TI8569	7.82	487	>400	726	12900	875	201	79.5	<1.0	97.0	<1.0	<1.0	12.2	0.220	0.036	134
LBGC-0.60	4/30/2018 20:30	TJ0420	7.91	497	>4000	594	11300	1060	220	86.3	<1.0	105	<1.0	<1.0	11.2	0.260	0.039	139
LBGC-0.60	5/1/2018 2:21	TJ0406	7.88	497	369	412	19400	942	213	83.7	<1.0	102	<1.0	<1.0	12.7	0.250	0.040	144
LBGC-0.60	5/1/2018 8:49	TJ0412	7.87	525	2500	526	717	830	224	87.2	<1.0	106	<1.0	<1.0	13.3	0.270	0.045	146
LBGC-0.60	5/1/2018 14:25	TJ1217	7.89	550	>4000	478	9320	1040	218	90.6	<1.0	110	<1.0	<1.0	13.2	0.260	0.039	165
LBGC-0.60	5/1/2018 21:16	TJ1201	7.86	553	>4000	378	9920	1160	230	89.6	<1.0	109	<1.0	<1.0	12.7	0.240	0.044	161
LBGC-0.60	5/2/2018 2:45	TJ1214	7.89	564	>4000	442	10200	1020	230	90.6	<1.0	111	<1.0	<1.0	13.4	0.260	0.058	171
LBGC-0.60	5/2/2018 8:13	TJ1210	7.80	709	>4000	544	12700	1280	293	91.7	<1.0	112	<1.0	<1.0	14.2	0.270	0.049	224
LBGC-0.60	5/2/2018 14:10	TJ2153	7.90	673	>4000	522	24200	1260	297	88.5	<1.0	108	<1.0	<1.0	14.8	0.260	0.064	244
LBGC-0.60	5/2/2018 20:27	TJ2680	7.90	614	>4000	400	12700	1230	265	87.2	<1.0	106	<1.0	<1.0	13.9	0.310	0.053	196
LBGC-0.60	5/3/2018 2:38	TJ2687	7.86	623	>4000	436	9930	941	264	87.9	<1.0	107	<1.0	<1.0	15.1	0.300	0.055	188
LBGC-0.60	5/3/2018 8:00	TJ2676	7.84	630	>4000	308	8240	866	264	87.6	<1.0	107	<1.0	<1.0	15.7	0.300	0.057	212
LBGC-0.60	5/3/2018 14:01	TJ4225	7.92	654	>4000	386	11000	1110	182	92.9	<1.0	113	<1.0	<1.0	15.8	0.320	0.066	238
LBGC-0.60	5/3/2018 20:40	TJ4748	7.90	681	>4000	498	7430	1230	288	94.1	<1.0	115	<1.0	<1.0	16.1	0.250	0.072	235
LBGC-0.60	5/4/2018 3:00	TJ4757	7.90	717	>4000	440	12500	1170	311	96.6	<1.0	118	<1.0	<1.0	17.3	0.320	0.075	252
LBGC-0.60	5/4/2018 3:00	TJ4754	7.91	718	>4000	438	8740	1140	307	96.9	<1.0	118	<1.0	<1.0	17.1	0.230	0.075	258
LBGC-0.60	5/4/2018 8:15	TJ4761	7.95	728	>4000	478	9390	1210	308	97.7	<1.0	119	<1.0	<1.0	17.4	0.330	0.076	257
LBGC-0.60	5/4/2018 14:22	TJ5502	7.92	765	>4000	332	16000	1490	342	94.6	<1.0	115	<1.0	<1.0	18.2	0.310	0.086	263
LBGC-0.60	5/4/2018 19:50	TJ5485	7.92	766	>4000	408	10700	1300	338	97.7	<1.0	119	<1.0	<1.0	17.3	0.330	0.082	268
LBGC-0.60	5/5/2018 2:33	TJ5475	7.93	839	>4000	534	13600	1390	382	102	<1.0	124	<1.0	<1.0	18.7	0.340	0.089	288
LBGC-0.60	5/5/2018 8:20	TJ5488	7.93	915	>4000	570	13500	1150	416	99.8	<1.0	122	<1.0	<1.0	19.7	0.340	0.11	342
LBGC-0.60	5/5/2018 14:10	TJ5673	7.85	917	>4000	404	10700	1390	414	90.9	<1.0	111	<1.0	<1.0	19.9	0.240	0.12	348
LBGC-0.60	5/5/2018 20:20	TJ5693	7.93	873	>4000	390	12000	1520	398	97.6	<1.0	119	<1.0	<1.0	19.2	0.370	0.097	326
LBGC-0.60	5/6/2018 2:35	TJ6009	7.90	909	>4000	598	10800	1440	409	101	<1.0	123	<1.0	<1.0	19.9	0.340	0.10	249
LBGC-0.60	5/6/2018 2:35	TJ5682	7.95	914	>4000	412	11400	1400	405	99.7	<1.0	122	<1.0	<1.0	19.9	0.370	0.11	343
LBGC-0.60	5/6/2018 8:15	TJ5685	7.89	911	>4000	416	8560	1170	404	97.3	<1.0	119	<1.0	<1.0	21.8	0.290	0.11	337
LBGC-0.60	5/6/2018 14:15	TJ7027	7.88	1010	>4000	432	14500	1660	460	98.1	<1.0	120	<1.0	<1.0	21.5	0.440	0.13	394
LBGC-0.60	5/6/2018 21:15	TJ7488	7.87	993	>4000	504	14700	1580	455	110	<1.0	134	<1.0	<1.0	22.3	0.330	0.12	378
LBGC-0.60	5/7/2018 2:30	TJ7483	7.87	1030	>4000	444	10000	1270	477	111	<1.0	135	<1.0	<1.0	21.5	0.410	0.12	401
LBGC-0.60	5/7/2018 8:37	TJ7476	7.87	1020	>4000	550	7950	1190	455	114	<1.0	139	<1.0	<1.0	22.5	0.440	0.13	393
LBGC-0.60	5/7/2018 14:32	TJ9168	7.83	1120	>4000	604	9440	1450	502	91.4	<1.0	111	<1.0	<1.0	23.3	0.320	0.14	468
LBGC-0.60	5/7/2018 23:15	TJ9706	7.90	1080	>4000	482	9080	1150	477	106	<1.0	129	<1.0	<1.0	23.1	0.450	0.13	426
LBGC-0.60	5/8/2018 4:59	TJ9697	7.90	1080	>4000	634	6070	1010	473	111	<1.0	136	<1.0	<1.0	22.6	0.450	0.13	415
LBGC-0.60	5/8/2018 4:59	TJ9696	7.85	1070	>4000	760	6740	969	472	112	<1.0	137	<1.0	<1.0	22.5	0.470	0.13	421
LBGC-0.60	5/8/2018 10:49	TJ9694	7.82	1140	>4000	616	7270	1140	506	105	<1.0	128	<1.0	<1.0	24.4	0.480	0.14	452
LBGC-0.60	5/8/2018 16:51	TK1902	7.92	1140	>4000	754	6790	1090	519	113	<1.0	138	<1.0	<1.0	23.7	0.500	0.14	489
LBGC-0.60	5/8/2018 22:51	TK1907	7.89	1180	>4000	788	7780	884	525	118	<1.0	144	<1.0	<1.0	24.3	0.490	0.14	502
LBGC-0.60	5/9/2018 4:47	TK1898	7.79	1280	>4000	560	6530	936	569	117	<1.0	143	<1.0	<1.0	24.6	0.480	0.16	568
LBGC-0.60	5/9/2018 10:58	TK1894	7.81	1320	>4000	926	4010	1040	584	117	<1.0	143	<1.0	<1.0	24.6	0.510	0.17	544
LBGC-0.60	5/9/2018 17:00	TK5292	7.86	1390	>4000	980	6260	1320	735	112	<1.0	136	<1.0	<1.0	24.9	0.550	0.16	626

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBEX-SP	10/11/2018 10:00	UN7446	0.56	0.0185	0.251	0.270	<0.0050	1.6	1.6	0.171	<0.0025	0.00071	0.0328	<0.0005	<0.005	0.431	0.000818	173	<0.005	0.0324	<0.0025
LBEX-SP	10/27/2018 13:45	UQ8568	0.12	0.0176	0.219	0.237	<0.0050	0.87	1.51	0.207	0.0017	0.00082	0.0225	<0.0002	<0.002	0.381	0.000378	151	<0.002	0.0211	0.0016
LBEX-SP	11/1/2018 9:23	UR8075	0.098	0.0133	0.172	0.185	<0.0050	1.51	1.67	0.191	0.0016	0.00102	0.0211	<0.0002	<0.002	0.449	0.000279	147	<0.002	0.0168	0.0015
LBEX-SP	11/14/2018 16:00	UU0937	0.50	0.0084	0.245	0.254	<0.0050	2.6	3.3	0.192	0.00098	0.00161	0.0255	<0.0001	<0.001	0.363	0.000104	138	<0.001	0.00545	0.00147
LBEX-SP	11/24/2018 14:20	UV7555	3.9	0.0317	0.063	0.094	<0.0050	0.91	0.78	1	<0.0025	0.00323	0.0505	<0.0005	<0.005	0.635	0.000108	99.9	<0.005	0.0059	0.0027
LBEX-SP	12/2/2018 15:10	UW8615	13	0.0169	0.070	0.087	<0.0050	2.4	2.8	0.483	<0.0025	0.00326	0.0193	<0.0005	<0.005	0.771	<0.00005	43.3	0.0068	0.0016	<0.0025
LBEX-SP	12/4/2018 14:45	UX4639	13	0.0201	0.086	0.107	<0.0050	1.3	2.1	0.998	<0.0025	0.00372	0.0527	<0.0005	<0.005	0.719	<0.00005	35.0	0.0072	0.0016	0.0126
LBEX-SP	12/24/2018 13:30	UZ9965	17	0.0263	0.046	0.072	0.0058	2.7	3.1	0.185	<0.0025	0.00367	0.0107	<0.0005	<0.005	0.838	0.000062	41.4	<0.005	0.0011	<0.0025
LBEX-SP	12/31/2018 15:00	VA5857	19	0.0246	0.075	0.099	<0.0050	2.1	2.0	0.116	<0.0025	0.00339	0.0095	<0.0005	<0.005	0.816	<0.00005	54.7	<0.005	0.0017	<0.0025
LBGC-0.60	3/14/2018 15:45	TC7634	0.091	0.0151	0.676	0.691	0.443	22.1	15.6	3.32	<0.0005	0.00688	0.297	0.00015	<0.001	<0.05	0.000133	11.4	0.0047	0.00102	0.00593
LBGC-0.60	4/10/2018 17:25	TG4223	0.58	0.0084	0.339	0.347	0.0145	5.75	4.14	0.189	<0.0025	0.00058	0.04	<0.0005	<0.005	<0.25	0.00242	222	<0.005	0.0831	0.0027
LBGC-0.60	4/25/2018	TI3540	0.35	0.0178	0.347	0.365	0.0123	12.0	8.71	73.9	<0.0025	0.0263	3.09	0.00591	<0.005	<0.25	0.00689	166	0.133	0.0853	0.242
LBGC-0.60	4/27/2018 22:15	TI5322	0.41	0.0175	0.374	0.392	0.0337	18.0	7.90	125	<0.0025	0.0451	5.63	0.0113	<0.005	<0.25	0.0172	419	0.218	0.166	0.424
LBGC-0.60	4/28/2018 4:30	TI5328	0.25	0.0145	0.414	0.429	0.0313	21.1	8.72	94.7	<0.0025	0.0356	4.37	0.00818	<0.005	<0.25	0.00974	228	0.175	0.113	0.312
LBGC-0.60	4/28/2018 11:48	TI5339	0.32	0.0207	0.378	0.399	0.0174	17.1	12.5	97.7	<0.0025	0.0301	4.12	0.0082	<0.005	<0.25	0.0112	296	0.175	0.118	0.314
LBGC-0.60	4/28/2018 21:00	TI5409	0.28	0.0109	0.329	0.340	0.0108	22.3	12.0	122	<0.0025	0.0412	5.03	0.0101	<0.005	<0.25	0.0118	295	0.222	0.14	0.38
LBGC-0.60	4/29/2018 3:15	TI5411	0.19	0.0128	0.355	0.367	0.920	17.5	13.2	78.8	<0.0025	0.0283	3.03	0.00638	<0.005	<0.25	0.00745	204	0.143	0.0893	0.247
LBGC-0.60	4/29/2018 3:15	TI5412	0.19	0.0560	0.352	0.408	0.0444	37.2	10.0	41	<0.0025	0.0246	1.35	0.00437	<0.005	<0.25	0.00639	200	0.0711	0.0548	0.158
LBGC-0.60	4/29/2018 8:20	TI7038	0.20	0.112	0.317	0.429	0.0090	15.2	12.2	71	<0.0025	0.0286	2.77	0.00628	<0.005	<0.25	0.00802	221	0.135	0.0889	0.234
LBGC-0.60	4/29/2018 13:57	TI7015	0.18	0.0369	0.282	0.319	0.0091	16.3	11.0	19.6	<0.0025	0.0153	0.71	0.00403	<0.005	<0.25	0.00776	256	0.0269	0.0475	0.127
LBGC-0.60	4/29/2018 21:05	TI7030	0.24	<0.0050	0.227	0.227	0.0062	16.4	11.6	29.8	<0.0025	0.0214	0.93	0.00537	<0.005	<0.25	0.0103	355	0.0438	0.0584	0.164
LBGC-0.60	4/30/2018 3:05	TI7012	0.18	0.0215	0.196	0.217	0.0089	15.0	11.0	8.63	<0.0005	0.00674	0.343	0.0026	<0.001	0.061	0.00541	194	0.0075	0.0249	0.0695
LBGC-0.60	4/30/2018 8:57	TI8564	0.21	0.138	0.194	0.332	0.0070	15.4	11.0	48.9	<0.0025	0.0167	1.6	0.00369	<0.005	<0.25	0.00475	148	0.0836	0.05	0.146
LBGC-0.60	4/30/2018 14:01	TI8568	0.24	0.0106	0.206	0.217	0.0059	15.4	10.7	23.6	<0.0025	0.018	0.772	0.00388	<0.005	<0.25	0.00754	256	0.0333	0.0417	0.125
LBGC-0.60	4/30/2018 14:01	TI8569	0.19	0.0081	0.208	0.216	0.0055	13.9	10.3	16	<0.0025	0.0102	0.524	0.00358	<0.005	<0.25	0.00712	262	0.0177	0.0352	0.106
LBGC-0.60	4/30/2018 20:30	TJ0420	0.21	0.0466	0.149	0.196	0.0063	17.5	11.4	35.4	0.00062	0.0253	1.16	0.00397	<0.001	0.068	0.00956	306	0.0522	0.0578	0.156
LBGC-0.60	5/1/2018 2:21	TJ0406	0.20	0.0073	0.156	0.164	<0.0050	16.0	13.9	42.9	0.00058	0.0331	1.4	0.00376	<0.001	0.073	0.00839	248	0.081	0.0687	0.186
LBGC-0.60	5/1/2018 8:49	TJ0412	0.23	0.0079	0.115	0.123	0.0054	16.2	8.52	28.9	0.00059	0.0226	0.914	0.00359	<0.001	0.071	0.00748	238	0.0406	0.0449	0.129
LBGC-0.60	5/1/2018 14:25	TJ1217	0.22	0.0094	0.170	0.179	0.0081	18.3	12.0	45.1	<0.0025	0.0277	1.57	0.00549	<0.005	<0.25	0.00958	290	0.0741	0.0711	0.188
LBGC-0.60	5/1/2018 21:16	TJ1201	0.21	0.0072	0.168	0.175	0.0078	17.5	12.7	81.2	<0.0025	0.031	3.09	0.00776	<0.005	<0.25	0.011	316	0.135	0.0962	0.264
LBGC-0.60	5/2/2018 2:45	TJ1214	0.22	0.0138	0.186	0.199	0.512	17.3	12.7	46.5	<0.0025	0.0276	1.61	0.00564	<0.005	<0.25	0.00892	285	0.0804	0.0691	0.184
LBGC-0.60	5/2/2018 8:13	TJ1210	0.27	0.0060	0.194	0.200	<0.0050	16.7	12.5	52.9	<0.0025	0.038	2.07	0.00657	<0.005	<0.25	0.0116	372	0.0835	0.0789	0.214
LBGC-0.60	5/2/2018 14:10	TJ2153	0.10	0.0075	0.207	0.215	<0.0050	20.9	12.6	34.6	<0.0025	0.0267	0.924	0.00655	<0.005	<0.25	0.012	371	0.0474	0.0652	0.188
LBGC-0.60	5/2/2018 20:27	TJ2680	0.26	0.0080	0.198	0.206	0.0052	18.7	11.9	31.4	<0.0025	0.0233	0.898	0.00502	<0.005	<0.25	0.0107	364	0.0415	0.0572	0.155
LBGC-0.60	5/3/2018 2:38	TJ2687	0.23	<0.0050	0.065	0.065	<0.0050	17.8	14.8	28.8	<0.0025	0.0202	0.831	0.00421	<0.005	<0.25	0.00756	274	0.04	0.0461	0.121
LBGC-0.60	5/3/2018 8:00	TJ2676	0.21	0.0169	0.182	0.199	<0.0050	18.5	12.2	22.8	<0.0025	0.0185	0.759	0.0037	<0.005	<0.25	0.00749	252	0.0309	0.0435	0.113
LBGC-0.60	5/3/2018 14:01	TJ4225	0.24	0.0066	0.179	0.186	<0.0050	15.8	9.91	71.7	<0.0025	0.032	3.44	0.00611	<0.005	<0.25	0.00952	301	0.131	0.0915	0.241
LBGC-0.60	5/3/2018 20:40	TJ4748	0.24	0.0063	0.200	0.207	<0.0050	16.1	10.4	88.1	<0.0025	0.0376	3.96	0.00715	<0.005	<0.25	0.011	336	0.155	0.105	0.268
LBGC-0.60	5/4/2018 3:00	TJ4757	0.24	0.0113	0.192	0.203	<0.0050	15.5	10.9	85.7	<0.0025	0.0389	3.84	0.00693	<0.005	<0.25	0.0104	313	0.15	0.101	0.264
LBGC-0.60	5/4/2018 3:00	TJ4754	0.21	0.0062	0.193	0.199	<0.0050	15.4	10.4	77.3	<0.0025	0.0397	3.53	0.0065	<0.005	<0.25	0.01	309	0.135	0.0956	0.243
LBGC-0.60	5/4/2018 8:15	TJ4761	0.25	0.0076	0.191	0.199	<0.0050	15.4	7.26	86.4	<0.0025	0.0426	4.06	0.00704	<0.005	<0.25	0.0112	324	0.151	0.105	0.27
LBGC-0.60	5/4/2018 14:22	TJ5502	0.28	0.0059	0.208	0.214	<0.0050	16.4	8.90	107	<0.0025	0.049	4.71	0.00822	<0.005	<0.25	0.0139	407	0.191	0.128	0.352
LBGC-0.60	5/4/2018 19:50	TJ5485	0.21	0.0094	0.209	0.218	<0.0050	16.1	10.6	94.6	<0.0025	0.0423	3.97	0.00711	<0.005	<0.25	0.0112	343	0.167	0.111	0.303
LBGC-0.60	5/5/2018 2:33	TJ5475	0.27	0.0055	0.210	0.216	<0.0050	15.8	12.0	82.5	<0.0025	0.0344	3.41	0.00667	<0.005	<0.25	0.0118	380	0.141	0.0994	0.267
LBGC-0.60	5/5/2018 8:20	TJ5488	0.28	0.0082	0.331	0.340	<0.0050	15.4	10.1	67.6	0.00058	0.0465	2.64	0.00556	0.0015	0.133	0.0109	312	0.112	0.0875	0.219
LBGC-0.60	5/5/2018 14:10	TJ5673	0.33	0.0078	0.223	0.230	<0.0050	15.9	11.1	112	<0.0025	0.0959	4.88	0.0083	<0.005	<0.25	0.0124	367	0.216	0.142	0.387
LBGC-0.60	5/5/2018 20:20	TJ5693	0.26	<0.0050	0.224	0.224	<0.0050	16.4	11.0	91.4	<0.0025	0.0435	3.85	0.00831	<0.005	<0.25	0.0126	421	0.164	0.116	0.305
LBGC-0.60	5/6/2018 2:35	TJ6009	0.27	<0.0050	0.222	0.222	<0.0050	15.9	11.0	107	<0.0025	0.048	4.54	0.00893	<0.005	<0.25	0.0123	383	0.193	0.127	0.336
LBGC-0.60	5/6/2018 2:35	TJ5682	0.28	<0.0050	0.227	0.227	<0.0050	16.2	11.2	59.9	<0.0025	0.0391	2.41	0.00648	<0.005	<0.25	0.0114	393	0.106	0.0905	0.234
LBGC-0.60	5/6/2018 8:15	TJ5685	0.25	0.0051	0.220	0.225	<0.0050	15.4	10.6	49.9	<0.0025	0.0423	1.98	0.0052	<0.005	<0.25	0.00893	328	0.0831	0.0788	0.193
LBGC-0.60	5/6/2018 14:15	TJ7027	0.39	<0.0050	0.255	0.255	<0.0050	17.3	10.6	118	<0.0025	0.0664	4.32	0.0102	<0.005	<0.25	0.016	450	0.216	0.154	0.404
LBGC-0.60	5/6/2018 21:15	TJ7488	0.28	0.0058	0.215	0.221	<0.0050	16.3	11.9	43.3	<0.0025	0.0163	1.58	0.00683	<0.005	<0.25	0.0137	468	0.0597	0.077	0.181
LBGC-0.60	5/7/2018 2:30	TJ7483	0.27	<0.0050	0.251	0.251	<0.0050	14.4	10.1	37.5	<0.0025	0.015	1.47	0.00529	<0.005	<0.25	0.00937	364	0.0547	0.0649	0.145
LBGC-0.60	5/7/2018 8:37	TJ7476	0.31	0.0056	0.213	0.218	<0.0050	15.4	10.2	36.6	<0.0025	0.013	1.46	0.0051	<0.005	<0.25	0.00849	346	0.05	0.064	0.133
LBGC-0.60	5/7/2018 14:32	TJ9168	0.41	<0.0050	0.284	0.284	<0.0050	16.0	9.76	124	<0.0025	0.139	4.96	0.00945	<0.005	<0.25	0.0118	389	0.22	0.141	0.384
LBGC-0.60	5/7/2018 23:15	TJ9706	0.31	0.0052	0.248	0.253	<0.0050	15.3	10.7	28.6	<0.0025	0.026	0.81	0.00404	<0.005	<0.25	0.00751	327	0.0374	0.0533	0.118
LBGC-0.60	5/8/2018 4:59	TJ9697	0.27	0.0078	0.231	0.239	<0.0050	15.6	10.7	38.7	<0.0025	0.03	1.19	0.00427	<0.005	<0.25	0.00646	279	0.0578	0.0604	0.131
LBGC-0.60	5/8/2018 4:59	TJ9696	0.27	0.0052	0.230	0.235	<0.0050	15.0	10.9	24.3	<0.0025	0.0212	0.733	0.00349	<0.005	<0.25	0.0061	272	0.0339	0.0484	0.101
LBGC-0.60	5/8/2018 10:49	TJ9694	0.30	0.0053	0.249	0.255	<0.0050	15.7	10.5	45.3	<0.0025	0.0356	1.57	0.00479	<0.005	<0.25	0.00793	313	0.0696	0.0729	0.157
LBGC-0.60	5/8/2018 16:51	TK1902	0.27	0.0053	0.224	0.229	<0.0050	15.5	11.4	26	<0.0025	0.025	0.726	0.00386	<0.005	<0.25	0.00742	305	0.0356	0.0586	0.119
LBGC-0.60	5/8/2018 22:51	TK1907	0.27	<0.0050	0.235	0.235	<0.0050	16.9	11.1	17.3	<0.0025	0.0151	0.422	0.00274	<0.005	<0.25	0.00524	242	0.0202	0.0449	0.0777
LBGC-0.60	5/9/2018 4:47	TK1898	0.36	<0.0050	0.250	0.250	<0.0050	13.3	8.94	17.8	<0.0025	0.0175	0.395	0.00289	<0.005	<0.25	0.00553	258	0.0204	0.0469	0.0796
LBGC-0.60	5/9/2018 10:58	TK1894	0.31	<0.0050	0.252	0.252	<0.0050	14.6	8.67	23.2	<0.0025	0.021	0.617	0.00309	<0.005	<0.25	0.00528	285	0.0302	0.0594	0.0858
LBGC-0.60	5/9/2018 17:00	TK5292	0.40	0.0135	0.240	0.253	<0.0050	14.0	8.97	27.5	<0.0025	0.0229	0.631	0.00406	<0.005	<0.25	0.00643	374	0.0324	0.0654	0.104

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBEX-SP	10/11/2018 10:00	UN7446	0.284	<0.001	0.169	93.4	0.844	0.0000051	0.0082	0.114	-	6.43	0.00668	1.85	<0.0001	461	0.826	539	<0.00005	<0.025	<0.025	0.00785
LBEX-SP	10/27/2018 13:45	UQ8568	0.258	<0.0004	0.144	109	0.557	0.0000041	0.0079	0.0688	-	6.88	0.00601	0.735	<0.00004	491	0.799	581	0.000032	<0.01	<0.01	0.00838
LBEX-SP	11/1/2018 9:23	UR8075	0.243	<0.0004	0.147	95.9	0.447	<0.000002	0.0082	0.0603	-	6.14	0.00541	0.987	<0.00004	453	0.819	538	0.000028	<0.01	<0.01	0.00889
LBEX-SP	11/14/2018 16:00	UU0937	0.327	0.00024	0.138	75.4	0.221	<0.000002	0.0122	0.0213	-	4.98	0.00289	2.04	<0.00002	589	0.67	494	0.000023	<0.005	<0.005	0.00816
LBEX-SP	11/24/2018 14:20	UV7555	1.78	0.0011	0.196	64.2	0.267	<0.000002	0.141	0.0229	-	4.78	0.00564	4.69	<0.0001	913	0.795	663	<0.00005	<0.025	0.029	0.00681
LBEX-SP	12/2/2018 15:10	UW8615	0.654	<0.001	0.17	51.1	0.0244	<0.000002	0.429	0.0131	-	6.58	0.0131	3.65	<0.0001	1110	0.618	733	<0.00005	<0.025	<0.025	0.0052
LBEX-SP	12/4/2018 14:45	UX4639	1.61	0.0019	0.159	42.0	0.0272	0.000003	0.414	0.0118	-	6.66	0.0138	4.7	<0.0001	991	0.546	680	<0.00005	<0.025	<0.025	0.00508
LBEX-SP	12/24/2018 13:30	UZ9965	0.251	<0.001	0.144	41.3	0.0592	<0.000002	0.532	0.0077	-	10.0	0.0138	4.53	<0.0001	1140	0.529	833	<0.00005	<0.025	<0.025	0.00476
LBEX-SP	12/31/2018 15:00	VA5857	0.153	<0.001	0.146	48.1	0.117	<0.000002	0.479	0.009	-	9.22	0.0144	4.39	<0.0001	1110	0.552	792	<0.00005	<0.025	<0.025	0.00589
LBGC-0.60	3/14/2018 15:45	TC7634	11.1	0.00864	0.0054	3.39	0.0426	-	0.0059	0.0042	-	7.57	0.00084	7.78	0.00022	2.12	0.0641	12.6	0.000237	<0.005	0.0152	0.00041
LBGC-0.60	4/10/2018 17:25	TG4223	0.902	<0.001	0.059	99.5	3.2	-	<0.005	0.247	-	7.87	0.00118	3.26	<0.0001	137	0.824	395	<0.00005	<0.025	<0.025	0.00051
LBGC-0.60	4/25/2018	TI3540	184	0.125	0.149	53.3	2.72	0.0000062	<0.005	0.293	-	20.3	0.00162	91.3	0.00237	8.72	0.627	28	0.00185	<0.025	0.089	0.0112
LBGC-0.60	4/27/2018 22:15	TI5322	276	0.224	0.269	122	6.13	0.000009	<0.005	0.532	-	26.2	0.00336	113	0.00435	11.5	1.41	46	0.003	<0.025	0.111	0.0234
LBGC-0.60	4/28/2018 4:30	TI5328	213	0.163	0.21	78.2	3.44	0.000008	<0.005	0.387	-	21.5	0.00246	97.1	0.00335	11.3	0.843	39	0.00238	<0.025	0.102	0.0156
LBGC-0.60	4/28/2018 11:48	TI5339	195	0.158	0.197	94.8	3.89	0.0000061	<0.005	0.399	-	21.7	0.00211	98	0.00322	12.4	0.954	37	0.00211	<0.025	0.102	0.0164
LBGC-0.60	4/28/2018 21:00	TI5409	264	0.206	0.253	96.9	4.33	0.0000074	<0.005	0.486	-	25.4	0.00303	112	0.00398	11.9	1.07	49	0.00294	<0.025	0.115	0.0195
LBGC-0.60	4/29/2018 3:15	TI5411	163	0.123	0.159	70.6	2.76	0.0000056	<0.005	0.316	-	19.7	0.00233	85.1	0.00234	10.7	0.677	33	0.00175	<0.025	0.095	0.0123
LBGC-0.60	4/29/2018 3:15	TI5412	87.1	0.0727	0.077	52.6	2.2	0.0000057	<0.005	0.177	-	15.9	0.00178	54.4	0.00099	10.8	0.59	32	0.000871	<0.025	0.08	0.00901
LBGC-0.60	4/29/2018 8:20	TI7038	147	0.109	0.148	65.7	2.86	0.0000061	<0.005	0.291	-	18.5	0.00255	82.8	0.00217	12.0	0.73	30	0.00159	<0.025	0.217	0.012
LBGC-0.60	4/29/2018 13:57	TI7015	34.2	0.0557	0.038	57.9	2.42	0.0000059	<0.005	0.119	-	12.2	0.00128	25.1	0.00031	11.5	0.663	32	0.000326	<0.025	0.139	0.00956
LBGC-0.60	4/29/2018 21:05	TI7030	54	0.0727	0.053	69.3	3.09	0.000008	<0.005	0.155	-	13.3	0.00173	38.2	0.00052	11.9	0.868	33	0.000509	<0.025	0.175	0.0112
LBGC-0.60	4/30/2018 3:05	TI7012	11.6	0.0337	0.0191	38.0	1.55	0.0000054	0.0013	0.0607	-	9.83	0.00058	11.1	0.000083	10.6	0.54	34.9	0.000114	<0.005	0.05	0.00686
LBGC-0.60	4/30/2018 8:57	TI8564	94.8	0.0697	0.096	47.0	1.65	0.0000058	<0.005	0.185	-	16.2	0.00163	62.4	0.00142	13.4	0.51	39	0.000992	<0.025	0.154	0.00789
LBGC-0.60	4/30/2018 14:01	TI8568	40.7	0.0572	0.047	56.4	2.24	0.0000061	<0.005	0.123	-	14.1	0.00123	33.5	0.00037	14.4	0.66	43	0.00041	<0.025	0.224	0.00947
LBGC-0.60	4/30/2018 14:01	TI8569	22.5	0.0447	0.032	53.6	2.17	0.000005	<0.005	0.0971	-	13.0	0.00076	22.6	0.00013	14.2	0.642	41	0.000193	<0.025	0.191	0.00833
LBGC-0.60	4/30/2018 20:30	TJ0420	67.1	0.0734	0.0438	70.8	2.94	0.0000076	0.0024	0.165	-	14.7	0.00181	43.1	0.000649	15.0	1.02	47.1	0.000652	<0.005	0.0914	0.0128
LBGC-0.60	5/1/2018 2:21	TJ0406	83.4	0.0776	0.0524	78.3	3.06	0.000007	0.0025	0.209	-	17.7	0.00196	51.8	0.00088	17.4	1.01	53.2	0.000865	<0.005	0.124	0.0119
LBGC-0.60	5/1/2018 8:49	TJ0412	51.2	0.0634	0.0388	57.3	2.21	0.0000137	0.0022	0.134	-	13.1	0.00154	37.2	0.000475	15.3	0.791	46.3	0.000521	<0.005	0.0924	0.0115
LBGC-0.60	5/1/2018 14:25	TJ1217	94.6	0.0846	0.088	77.1	2.91	0.0000122	<0.005	0.212	-	16.2	0.00157	51.6	0.00112	17.2	0.845	55	0.000949	<0.025	0.083	0.0127
LBGC-0.60	5/1/2018 21:16	TJ1201	185	0.134	0.165	90.2	3.38	0.0000088	<0.005	0.325	-	19.3	0.00252	82.7	0.00269	17.3	0.992	56	0.00175	<0.025	0.095	0.0158
LBGC-0.60	5/2/2018 2:45	TJ1214	107	0.0847	0.093	76.3	2.84	0.0000084	<0.005	0.218	-	17.4	0.0019	56.2	0.00122	19.0	0.824	57	0.001	<0.025	0.088	0.0116
LBGC-0.60	5/2/2018 8:13	TJ1210	141	0.1	0.112	84.7	3.25	0.0000089	<0.005	0.244	-	18.7	0.00309	61.3	0.00158	21.3	1.03	88	0.00143	<0.025	0.094	0.0155
LBGC-0.60	5/2/2018 14:10	TJ2153	62.7	0.0818	0.074	79.8	3.29	0.0000098	<0.005	0.189	-	15.8	0.0021	43.3	0.00054	19.4	0.977	67	0.000603	<0.025	0.145	0.0144
LBGC-0.60	5/2/2018 20:27	TJ2680	54.8	0.0606	0.059	77.2	3.13	0.0000128	<0.005	0.158	-	16.8	0.00213	41.1	0.00051	19.8	0.943	63	0.000555	<0.025	0.201	0.0115
LBGC-0.60	5/3/2018 2:38	TJ2687	53.9	0.0536	0.052	62.6	2.34	0.0000104	<0.005	0.133	-	15.4	0.00194	39.6	0.00047	19.6	0.762	67	0.000562	<0.025	0.245	0.00974
LBGC-0.60	5/3/2018 8:00	TJ2676	44.4	0.0459	0.044	57.4	2.25	0.000007	<0.005	0.126	-	14.8	0.00189	33.1	0.00055	19.7	0.697	65	0.000523	<0.025	0.175	0.00937
LBGC-0.60	5/3/2018 14:01	TJ4225	175	0.127	0.151	86.0	3.3	0.0000079	<0.005	0.315	-	20.6	0.00284	76.4	0.00272	21.7	1.09	74	0.00139	<0.025	0.098	0.015
LBGC-0.60	5/3/2018 20:40	TJ4748	215	0.14	0.183	95.1	3.78	0.0000063	<0.005	0.361	-	22.1	0.00336	87	0.00309	21.7	1.22	75	0.0014	<0.025	0.109	0.0154
LBGC-0.60	5/4/2018 3:00	TJ4757	212	0.143	0.176	94.8	3.61	0.0000058	<0.005	0.352	-	22.1	0.00337	80.1	0.00329	24.5	1.18	84	0.00154	<0.025	0.104	0.0158
LBGC-0.60	5/4/2018 3:00	TJ4754	192	0.127	0.165	88.4	3.45	0.0000077	<0.005	0.319	-	20.6	0.00369	81.9	0.00272	22.7	1.11	80	0.00143	<0.025	0.103	0.0145
LBGC-0.60	5/4/2018 8:15	TJ4761	222	0.148	0.186	96.8	3.78	0.0000084	<0.005	0.359	-	22.5	0.00428	85.7	0.00339	25.2	1.23	92	0.00177	<0.025	0.108	0.0165
LBGC-0.60	5/4/2018 14:22	TJ5502	268	0.183	0.209	116	4.74	0.0000078	<0.005	0.443	-	25.8	0.00412	107	0.00406	27.0	1.45	96	0.00282	<0.025	0.183	0.02
LBGC-0.60	5/4/2018 19:50	TJ5485	232	0.158	0.186	107	3.97	0.0000071	<0.005	0.38	-	23.8	0.00377	94.9	0.00338	27.2	1.11	96	0.00244	<0.025	0.123	0.0171
LBGC-0.60	5/5/2018 2:33	TJ5475	199	0.137	0.169	107	3.86	0.0000046	<0.005	0.347	-	21.9	0.00317	82.6	0.00324	29.5	1.16	109	0.00217	<0.025	0.108	0.0164
LBGC-0.60	5/5/2018 8:20	TJ5488	198	0.139	0.151	89.8	3.3	0.0000086	0.0085	0.272	-	21.3	0.00451	68.2	0.00286	29.5	1.34	129	0.00274	<0.005	0.102	0.0165
LBGC-0.60	5/5/2018 14:10	TJ5673	357	0.218	0.223	115	4.69	0.0000079	0.0136	0.498	-	28.0	0.00727	98.4	0.00427	33.0	1.43	128	0.00355	<0.025	0.243	0.0199
LBGC-0.60	5/5/2018 20:20	TJ5693	222	0.167	0.206	114	4.04	0.0000088	<0.005	0.389	-	24.9	0.00378	93	0.0034	31.4	1.25	123	0.00175	<0.025	0.112	0.0194
LBGC-0.60	5/6/2018 2:35	TJ6009	273	0.195	0.238	118	4.28	0.0000082	<0.005	0.452	-	27.8	0.00397	105	0.00444	34.4	1.32	144	0.00233	<0.025	0.118	0.0205
LBGC-0.60	5/6/2018 2:35	TJ5682	157	0.118	0.131	102	3.7	0.0000074	<0.005	0.286	-	22.1	0.004	73.6	0.00189	33.4	1.18	130	0.00118	<0.025	0.094	0.0165
LBGC-0.60	5/6/2018 8:15	TJ5685	134	0.0994	0.103	85.5	3.22	0.0000094	<0.005	0.241	-	21.9	0.00407	60.6	0.00152	33.3	0.985	127	0.0011	<0.025	0.086	0.0139
LBGC-0.60	5/6/2018 14:15	TJ7027	320	0.222	0.267	129	5.09	0.0000084	0.0072	0.521	-	28.4	0.00621	111	0.005	38.2	1.51	150	0.00212	<0.025	0.115	0.0241
LBGC-0.60	5/6/2018 21:15	TJ7488	61	0.0646	0.11	101	3.59	0.000007	<0.005	0.249	-	16.4	0.00187	49.6	0.00166	35.7	1.19	131	0.000701	<0.025	<0.025	0.0158
LBGC-0.60	5/7/2018 2:30	TJ7483	58.7	0.0539	0.099	87.0	2.81	0.0000071	<0.005	0.214	-	16.6	0.0021	43.5	0.0015	35.4	0.972	134	0.000747	<0.025	<0.025	0.0131
LBGC-0.60	5/7/2018 8:37	TJ7476	59.7	0.0552	0.096	80.4	2.79	0.0000058	<0.005	0.207	-	16.5	0.00205	43	0.00136	40.1	0.936	132	0.000669	<0.025	<0.025	0.0123
LBGC-0.60	5/7/2018 14:32	TJ9168	390	0.225	0.252	118	4.68	0.0000121	0.0259	0.472	-	31.8	0.0124	116	0.00413	42.6	1.53	182	0.00433	<0.025	0.327	0.0212
LBGC-0.60	5/7/2018 23:15	TJ9706	64.3	0.0523	0.062	80.7	2.75	0.0000085	<0.005	0.167	-	16.8	0.00226	31.2	0.00045	42.5	0.961	145	0.000578	<0.025	0.088	0.0114
LBGC-0.60	5/8/2018 4:59	TJ9697	91.6	0.0601	0.084	76.7	2.58	0.00001	<0.005	0.198	-	17.3	0.00298	44.1	0.00081	40.7	0.895	136	0.000885	<0.025	0.099	0.0108
LBGC-0.60	5/8/2018 4:59	TJ9696	59.6	0.045	0.058	70.3	2.29	0.000009	<0.005	0.153	-	15.5	0.00208	29.3	0.00044	41.2	0.835	139	0.000518	<0.025	0.082	0.0101
LBGC-0.60	5/8/2018 10:49	TJ9694	118	0.0743	0.098	87.6	3.11	0.0000135	<0.005	0.237	-	19.2	0.00364	49.4	0.00116	45.5	1.03	162	0.00122	<0.025	0.116	0.0127
LBGC-0.60	5/8/2018 16:51	TK1902	63.2	0.0483	0.056	79.3	2.87	0.0000086	<0.005	0.174	-	14.8	0.00233	29.6	0.0004	43.6	0.885	140	0.000552	<0.025	0.121	0.0124
LBGC-0.60	5/8/2018 22:51	TK1907	41	0.0305	0.042	67.9	2.22	0.0000073	<0.005	0.137	-	13.1	0.00159	18.7	0.00021	44.1	0.747	137	0.00032	<0.025	0.08	0.00953
LBGC-0.60	5/9/2018 4:47	TK1898	42.2	0.0302	0.044	70.8	2.32	0.0000085	<0.005	0.142	-	12.4	0.00178	18.4	0.00022	46.0	0.77	153	0.00034	<0.025	0.095	0.00963
LBGC-0.60	5/9/2018 10:58	TK1894	61.8	0.0341	0.056	79.1	2.67	0.0000146	0.0056	0.18	-	15.1	0.00238	26	0.00036	55.2	0.853	184	0.000515	<0.025	0.125	0.01
LBGC-0.60	5/9/2018 17:00	TK5292	73.3	0.0419	0.07	93.3	2.79	0.0000075	<0.005	0.198	-	18.7	0.00263	35.1	0.00057	62.1	0.984	244	0.000562	<0.025	0.098	0.0118

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBEX-SP	10/11/2018 10:00	UN7446	<0.025	0.049	<0.0005	0.0362	0.002	0.00064	0.0247	<0.0002	<0.002	0.433	0.000193	166	<0.002	0.0281	<0.001	<0.02	<0.0004	0.162	103	0.712
LBEX-SP	10/27/2018 13:45	UQ8568	<0.01	0.021	<0.0002	0.103	0.0018	0.00079	0.02	<0.0002	<0.002	0.389	0.000301	173	<0.002	0.0179	0.0015	0.085	<0.0004	0.144	104	0.512
LBEX-SP	11/1/2018 9:23	UR8075	<0.01	0.015	<0.0002	0.0783	0.0017	0.00089	0.0163	<0.0002	<0.002	0.418	0.000248	158	<0.002	0.0164	0.0012	<0.02	<0.0004	0.148	99.3	0.441
LBEX-SP	11/14/2018 16:00	UU0937	<0.005	0.0072	0.00021	0.0226	<0.001	0.00147	0.0168	<0.0002	<0.002	0.386	0.000073	138	<0.002	0.00559	0.0015	0.044	<0.0004	0.139	79.2	0.224
LBEX-SP	11/24/2018 14:20	UV7555	<0.025	<0.025	0.00102	0.035	<0.0025	0.0022	0.0132	<0.0005	<0.005	0.616	<0.00005	97.6	<0.005	0.0045	<0.0025	<0.05	<0.001	0.196	62.9	0.229
LBEX-SP	12/2/2018 15:10	UW8615	<0.025	<0.025	0.00122	0.057	<0.0025	0.00275	<0.005	<0.0005	<0.005	0.799	<0.00005	30.8	0.0058	<0.001	<0.0025	<0.05	<0.001	0.181	50.6	<0.005
LBEX-SP	12/4/2018 14:45	UX4639	<0.025	<0.025	0.00123	0.078	<0.0025	0.00272	0.0076	<0.0005	<0.005	0.74	<0.00005	27.4	0.0063	<0.001	0.0032	<0.05	<0.001	0.151	42.3	<0.005
LBEX-SP	12/24/2018 13:30	UZ9965	<0.025	<0.025	<0.0005	0.099	<0.0025	0.00353	0.0071	<0.0005	<0.005	0.912	<0.00005	42.1	<0.005	0.0012	<0.0025	<0.05	<0.001	0.149	42.6	0.0587
LBEX-SP	12/31/2018 15:00	VA5857	<0.025	<0.025	<0.0005	0.058	<0.0025	0.00304	0.0072	<0.0005	<0.005	0.775	<0.00005	48.6	<0.005	0.0015	<0.0025	<0.05	<0.001	0.136	43.6	0.104
LBGC-0.60	3/14/2018 15:45	TC7634	0.0107	0.036	0.00073	0.305	<0.0005	0.00254	0.043	<0.0001	<0.001	<0.05	0.000028	12.3	<0.001	0.00033	0.00246	0.243	0.00021	0.0036	3.38	0.0135
LBGC-0.60	4/10/2018 17:25	TG4223	<0.025	0.383	<0.0005	0.0174	<0.001	0.00027	0.0292	<0.0002	<0.002	0.144	0.00226	200	<0.002	0.0743	0.0015	0.062	<0.0004	0.0563	84.3	2.71
LBGC-0.60	4/25/2018	TI3540	0.195	0.873	0.00375	0.0156	<0.0005	0.00084	0.0444	<0.0001	<0.001	<0.05	0.000045	34.4	<0.001	0.00023	0.00375	0.125	<0.0002	0.0051	9.52	0.0367
LBGC-0.60	4/27/2018 22:15	TI5322	0.301	1.51	0.00432	0.0097	<0.0005	0.00061	0.0251	<0.0001	<0.001	<0.05	0.000036	47.8	<0.001	0.00037	0.00232	0.044	<0.0002	0.0062	13.1	0.0883
LBGC-0.60	4/28/2018 4:30	TI5328	0.224	1.13	0.00363	0.0137	<0.0005	0.00067	0.0236	<0.0001	<0.001	<0.05	0.000035	43.6	<0.001	0.00038	0.0028	0.095	<0.0002	0.0057	12.9	0.0679
LBGC-0.60	4/28/2018 11:48	TI5339	0.238	1.1	0.00414	0.0137	<0.0005	0.00056	0.0243	<0.0001	<0.001	<0.05	0.000036	41.1	<0.001	0.00033	0.00349	0.111	<0.0002	0.0063	13.0	0.0488
LBGC-0.60	4/28/2018 21:00	TI5409	0.281	1.37	0.00449	0.0116	<0.0005	0.00055	0.0219	<0.0001	<0.001	<0.05	0.000044	48.6	<0.001	0.00036	0.00276	0.073	<0.0002	0.0062	14.2	0.0774
LBGC-0.60	4/29/2018 3:15	TI5411	0.196	0.906	0.00366	0.0131	<0.0005	0.00059	0.0213	<0.0001	<0.001	<0.05	0.000041	41.4	<0.001	0.00041	0.00292	0.093	<0.0002	0.0056	13.2	0.0593
LBGC-0.60	4/29/2018 3:15	TI5412	0.13	0.517	0.0036	0.0133	<0.0005	0.00055	0.022	<0.0001	<0.001	<0.05	0.000038	39.8	<0.001	0.0004	0.00299	0.09	<0.0002	0.0055	12.6	0.0578
LBGC-0.60	4/29/2018 8:20	TI7038	0.186	0.822	0.0045	0.0301	<0.0005	0.00066	0.0233	<0.0001	<0.001	<0.05	0.000041	40.4	<0.001	0.00045	0.00493	0.294	0.00031	0.0057	13.4	0.0474
LBGC-0.60	4/29/2018 13:57	TI7015	0.091	0.32	0.00418	0.0293	<0.0005	0.00061	0.0223	<0.0001	<0.001	<0.05	0.000043	43.0	<0.001	0.00049	0.00386	0.281	0.00028	0.0063	14.3	0.06
LBGC-0.60	4/29/2018 21:05	TI7030	0.127	0.439	0.00454	0.0245	<0.0005	0.00057	0.0212	<0.0001	<0.001	<0.05	0.000039	45.7	<0.001	0.00039	0.00356	0.227	0.00023	0.0073	15.4	0.058
LBGC-0.60	4/30/2018 3:05	TI7012	0.0456	0.155	0.00412	0.0286	<0.0005	0.00062	0.0204	<0.0001	<0.001	<0.05	0.000045	43.8	<0.001	0.00059	0.00372	0.277	0.00027	0.006	14.0	0.079
LBGC-0.60	4/30/2018 8:57	TI8564	0.115	0.532	0.00372	9.61	<0.0005	0.00898	0.385	0.00267	<0.001	0.052	0.00759	259	0.0082	0.0341	0.0824	15.3	0.0431	0.0164	52.8	2.29
LBGC-0.60	4/30/2018 14:01	TI8568	0.1	0.349	0.0109	0.0192	<0.0005	0.00062	0.0229	<0.0001	<0.001	<0.05	0.000044	45.6	<0.001	0.00053	0.00318	0.151	<0.0002	0.0069	17.2	0.0895
LBGC-0.60	4/30/2018 14:01	TI8569	0.074	0.271	0.0105	0.0169	<0.0005	0.00063	0.0234	<0.0001	<0.001	<0.05	0.000043	49.3	<0.001	0.00055	0.0034	0.136	<0.0002	0.007	19.0	0.0934
LBGC-0.60	4/30/2018 20:30	TJ0420	0.134	0.436	0.00466	0.0175	<0.0005	0.00053	0.024	<0.0001	<0.001	0.056	0.000054	55.4	<0.001	0.00049	0.00342	0.124	<0.0002	0.0084	19.9	0.0881
LBGC-0.60	5/1/2018 2:21	TJ0406	0.168	0.568	0.00455	0.0169	<0.0005	0.00052	0.0219	<0.0001	<0.001	0.055	0.000058	53.5	<0.001	0.00051	0.00356	0.119	<0.0002	0.0079	19.4	0.0898
LBGC-0.60	5/1/2018 8:49	TJ0412	0.109	0.359	0.0039	0.0177	<0.0005	0.00051	0.0219	<0.0001	<0.001	0.058	0.000064	56.4	<0.001	0.00056	0.0037	0.109	<0.0002	0.0085	20.1	0.108
LBGC-0.60	5/1/2018 14:25	TJ1217	0.148	0.605	0.00417	0.0172	<0.0005	0.00048	0.021	<0.0001	<0.001	0.054	0.000051	56.0	<0.001	0.00049	0.00362	0.126	<0.0002	0.0084	19.0	0.0833
LBGC-0.60	5/1/2018 21:16	TJ1201	0.204	0.925	0.0055	0.0207	<0.0005	0.00048	0.0177	<0.0001	<0.001	0.059	0.000065	58.6	<0.001	0.00067	0.00322	0.142	<0.0002	0.0091	20.3	0.124
LBGC-0.60	5/2/2018 2:45	TJ1214	0.148	0.628	0.0048	0.0178	<0.0005	0.00047	0.0185	<0.0001	<0.001	0.06	0.000059	58.2	<0.001	0.00079	0.00322	0.117	<0.0002	0.0092	20.6	0.135
LBGC-0.60	5/2/2018 8:13	TJ1210	0.171	0.719	0.0052	0.0174	<0.0005	0.00044	0.0153	<0.0001	<0.001	0.064	0.000088	76.7	<0.001	0.0009	0.0033	0.051	<0.0002	0.0127	24.8	0.195
LBGC-0.60	5/2/2018 14:10	TJ2153	0.143	0.534	0.00379	0.0103	<0.0005	0.00049	0.0237	<0.0001	<0.001	0.07	0.00007	78.9	<0.001	0.0006	0.00338	0.027	<0.0002	0.0123	24.4	0.137
LBGC-0.60	5/2/2018 20:27	TJ2680	0.125	0.426	0.0133	0.0147	<0.0005	0.00047	0.0197	<0.0001	<0.001	0.067	0.000057	68.2	<0.001	0.00082	0.00293	0.071	<0.0002	0.0103	23.0	0.164
LBGC-0.60	5/3/2018 2:38	TJ2687	0.101	0.366	0.00528	0.043	<0.0005	0.00046	0.0179	<0.0001	<0.001	0.074	0.000066	67.1	<0.001	0.00124	0.00299	0.102	<0.0002	0.0109	23.5	0.211
LBGC-0.60	5/3/2018 8:00	TJ2676	0.088	0.325	0.00413	0.0219	<0.0005	0.00044	0.0192	<0.0001	<0.001	0.075	0.000066	67.2	<0.001	0.00118	0.00298	0.076	<0.0002	0.0104	23.3	0.213
LBGC-0.60	5/3/2018 14:01	TJ4225	0.175	0.865	0.00261	0.0133	0.00053	0.00055	0.0389	<0.0001	<0.001	<0.05	0.000045	48.2	<0.001	0.00036	0.00338	0.088	<0.0002	0.0064	14.9	0.0645
LBGC-0.60	5/3/2018 20:40	TJ4748	0.213	0.993	0.00285	0.0167	<0.0005	0.00041	0.0194	<0.0001	<0.001	0.079	0.000068	74.6	<0.001	0.00121	0.00305	0.059	<0.0002	0.0117	24.8	0.223
LBGC-0.60	5/4/2018 3:00	TJ4757	0.208	0.985	0.00361	0.0184	<0.0005	0.00041	0.018	<0.0001	<0.001	0.084	0.00008	80.0	<0.001	0.00138	0.00314	0.043	<0.0002	0.0129	26.9	0.252
LBGC-0.60	5/4/2018 3:00	TJ4754	0.193	0.901	0.00207	0.0176	<0.0005	0.0004	0.0178	<0.0001	<0.001	0.08	0.000083	79.8	<0.001	0.00143	0.00295	0.045	<0.0002	0.0126	26.1	0.248
LBGC-0.60	5/4/2018 8:15	TJ4761	0.206	1.01	0.00257	0.0233	<0.0005	0.00041	0.0175	<0.0001	<0.001	0.081	0.000105	79.5	<0.001	0.00128	0.0031	0.042	<0.0002	0.0129	26.6	0.266
LBGC-0.60	5/4/2018 14:22	TJ5502	0.267	1.25	0.00543	0.0128	<0.0005	0.00037	0.0181	<0.0001	<0.001	0.081	0.000076	88.7	<0.001	0.00103	0.00333	0.026	<0.0002	0.0123	29.3	0.22
LBGC-0.60	5/4/2018 19:50	TJ5485	0.232	1.08	0.00698	0.0156	<0.0005	0.00038	0.0196	<0.0001	<0.001	0.081	0.000085	87.6	<0.001	0.00125	0.00342	0.031	<0.0002	0.0124	29.0	0.286
LBGC-0.60	5/5/2018 2:33	TJ5475	0.198	0.964	0.00403	0.0177	<0.0005	0.00036	0.0173	<0.0001	<0.001	0.086	0.000106	98.8	<0.001	0.00195	0.00323	0.023	<0.0002	0.014	32.8	0.354
LBGC-0.60	5/5/2018 8:20	TJ5488	0.18	0.774	0.0045	0.0259	<0.0005	0.00037	0.0126	<0.0001	<0.001	0.081	0.000183	110	<0.001	0.003	0.00347	0.016	<0.0002	0.0175	34.2	0.464
LBGC-0.60	5/5/2018 14:10	TJ5673	0.335	1.52	0.00815	0.0153	<0.0005	0.00038	0.0172	<0.0001	<0.001	0.098	0.000116	111	<0.001	0.00147	0.00339	0.027	<0.0002	0.0138	33.0	0.348
LBGC-0.60	5/5/2018 20:20	TJ5693	0.227	1.13	0.00302	0.0147	<0.0005	0.00034	0.0179	<0.0001	<0.001	0.098	0.000096	102	<0.001	0.00182	0.00319	0.023	<0.0002	0.0155	34.8	0.361
LBGC-0.60	5/6/2018 2:35	TJ6009	0.25	1.3	0.00301	0.0185	<0.0005	0.00035	0.0188	<0.0001	<0.001	0.102	0.000106	105	<0.001	0.00209	0.00306	0.03	<0.0002	0.017	35.8	0.427
LBGC-0.60	5/6/2018 2:35	TJ5682	0.181	0.813	0.00321	0.0178	<0.0005	0.00035	0.0184	<0.0001	<0.001	0.104	0.000104	104	<0.001	0.00195	0.00309	0.033	<0.0002	0.0165	35.2	0.424
LBGC-0.60	5/6/2018 8:15	TJ5685	0.146	0.678	0.00264	0.0224	<0.0005	0.00034	0.0182	<0.0001	<0.001	0.112	0.000131	104	<0.001	0.00311	0.00304	0.024	<0.0002	0.0173	34.9	0.547
LBGC-0.60	5/6/2018 14:15	TJ7027	0.292	1.53	0.00321	0.0245	<0.0005	0.00044	0.0205	<0.0001	<0.001	0.119	0.000118	121	<0.001	0.00143	0.00354	<0.01	<0.0002	0.018	38.5	0.412
LBGC-0.60	5/6/2018 21:15	TJ7488	0.104	0.655	0.00096	0.015	<0.0005	0.00038	0.0202	<0.0001	<0.001	0.118	0.000115	120	<0.001	0.00234	0.00315	0.02	<0.0002	0.0179	37.5	0.485
LBGC-0.60	5/7/2018 2:30	TJ7483	0.085	0.562	0.00075	0.0199	<0.0005	0.00034	0.0203	<0.0001	<0.001	0.12	0.000134	127	<0.001	0.00306	0.00295	0.015	<0.0002	0.018	38.6	0.563
LBGC-0.60	5/7/2018 8:37	TJ7476	0.08	0.522	0.00084	0.0238	<0.0005	0.00032	0.0229	<0.0001	<0.001	0.12	0.000121	119	<0.001	0.00359	0.00286	0.014	<0.0002	0.0185	38.2	0.593
LBGC-0.60	5/7/2018 14:32	TJ9168	0.355	1.5	0.0154	0.0272	<0.0005	0.0004	0.016	<0.0001	<0.001	0.134	0.000147	133	<0.001	0.00203	0.00295	<0.01	<0.0002	0.0212	41.4	0.595
LBGC-0.60	5/7/2018 23:15	TJ9706	0.091	0.435	0.00475	0.0222	<0.0005	0.00037	0.0243	<0.0001	<0.001	0.13	0.00012	125	<0.001	0.00316	0.00284	0.015	<0.0002	0.0191	40.1	0.618
LBGC-0.60	5/8/2018 4:59	TJ9697	0.11	0.535	0.00302	0.0285	<0.0005	0.00034	0.0265	<0.0001	<0.001	0.129	0.000135	119	<0.001	0.00551	0.00276	<0.01	<0.0002	0.0191	42.6	0.712
LBGC-0.60	5/8/2018 4:59	TJ9696	0.077	0.404	0.00301	0.0282	<0.0005	0.00028	0.0265	<0.0001	<0.001	0.131	0.000121	119	<0.001	0.00455	0.00281	0.015	<0.0002	0.0201	42.1	0.705
LBGC-0.60	5/8/2018 10:49	TJ9694	0.128	0.629	0.0036	0.0289	<0.0005	0.00033	0.0216	<0.0001	<0.001	0.134	0.000172	128	<0.001	0.00493	0.00296	0.018	<0.0002	0.0215	45.3	0.767
LBGC-0.60	5/8/2018 16:51	TK1902	0.091	0.459	0.0046	0.0288	<0.0005	0.00033	0.0226	<0.0001	<0.001	0.138	0.000095	131	<0.001	0.0026	0.00259	0.017	<0.0002	0.0204	46.3	0.719
LBGC-0.60	5/8/2018 22:51	TK1907	0.056	0.343	0.00294	0.0326	<0.0005	0.00029	0.0279	<0.0001	<0.001	0.142	0.000146	132	<0.001	0.00545	0.00243	0.018	<0.0002	0.0224	47.6	0.907
LBGC-0.60	5/9/2018 4:47	TK1898	0.056	0.354	0.00233	0.0287	<0.0005	0.00028	0.0193	<0.0001	<0.001	0.138	0.000231	144	<0.001	0.00787	0.00245	0.01	<0.0002	0.0246	50.7	1.05
LBGC-0.60	5/9/2018 10:58	TK1894	0.072	0.445	0.00315	0.0353	<0.0005	0.00027	0.0233	<0.0001	<0.001	0.138	0.000243	149	<0.001	0.00973	0.00228	<0.01	<0.0002	0.0257	51.5	1.15
LBGC-0.60	5/9/2018 17:00	TK5292	0.08	0.515	0.00466	0.0572	<0.0005	0.00031	0.0196	<0.0001	<0.001	0.16	0.000218	196	<0.001	0.00594	0.00253	<0.01	<0.0002	0.0237	59.6	1.14

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBEX-SP	10/11/2018 10:00	UN7446	<0.000002	0.0083	0.0988	-	6.59	0.00677	1.54	<0.00004	483	0.954	542	0.000028	<0.01	<0.01	0.00825	<0.01	<0.01	<0.0002
LBEX-SP	10/27/2018 13:45	UQ8568	0.0000059	0.0083	0.059	-	6.87	0.00602	0.685	<0.00004	481	0.828	569	0.000029	<0.01	<0.01	0.00855	<0.01	<0.01	<0.0002
LBEX-SP	11/1/2018 9:23	UR8075	<0.000002	0.0083	0.0578	-	6.30	0.00566	0.854	<0.00004	474	0.808	552	0.000023	<0.01	<0.01	0.00892	<0.01	<0.01	<0.0002
LBEX-SP	11/14/2018 16:00	UU0937	<0.000002	0.0125	0.0225	-	5.14	0.00311	1.65	<0.00004	645	0.661	514	0.000021	<0.01	<0.01	0.00795	<0.01	<0.01	<0.0002
LBEX-SP	11/24/2018 14:20	UV7555	<0.000002	0.142	0.0183	-	4.47	0.00543	2.44	<0.0001	892	0.78	651	<0.00005	<0.025	<0.025	0.00654	<0.025	<0.025	<0.0005
LBEX-SP	12/2/2018 15:10	UW8615	<0.000002	0.41	0.0119	-	6.32	0.012	2.87	<0.0001	1120	0.537	715	<0.00005	<0.025	<0.025	0.00483	<0.025	<0.025	<0.0005
LBEX-SP	12/4/2018 14:45	UX4639	0.0000026	0.405	0.0076	-	6.52	0.0132	2.92	<0.0001	997	0.498	724	<0.00005	<0.025	<0.025	0.00483	<0.025	<0.025	<0.0005
LBEX-SP	12/24/2018 13:30	UZ9965	<0.000002	0.559	0.0078	-	9.59	0.0158	4.46	<0.0001	1190	0.541	808	<0.00005	<0.025	<0.025	0.00556	<0.025	<0.025	<0.0005
LBEX-SP	12/31/2018 15:00	VA5857	<0.000002	0.465	0.0082	-	8.51	0.0127	3.96	<0.0001	1010	0.525	738	<0.00005	<0.025	<0.025	0.00578	<0.025	<0.025	<0.0005
LBGC-0.60	3/14/2018 15:45	TC7634	-	0.0018	0.0028	-	6.40	0.00049	3.83	<0.00002	2.27	0.041	9.1	0.000013	<0.005	0.0242	0.00023	<0.005	<0.005	0.00238
LBGC-0.60	4/10/2018 17:25	TG4223	-	<0.002	0.211	-	7.71	0.00103	3.13	<0.00004	120	0.808	402	0.000027	<0.01	<0.01	0.00046	<0.01	0.317	<0.0002
LBGC-0.60	4/25/2018	TI3540	0.0000021	0.0027	0.0031	-	8.24	0.0005	1.59	<0.00002	6.71	0.108	18.7	0.000015	<0.005	0.0065	0.0015	<0.005	<0.005	0.00035
LBGC-0.60	4/27/2018 22:15	TI5322	0.000003	0.0026	0.0034	-	7.70	0.00046	1.85	<0.00002	8.43	0.161	36.3	0.00001	<0.005	<0.005	0.00197	<0.005	<0.005	0.00018
LBGC-0.60	4/28/2018 4:30	TI5328	0.0000029	0.0024	0.004	-	7.83	0.0005	2.03	<0.00002	9.61	0.146	33.2	<0.00001	<0.005	<0.005	0.00167	<0.005	<0.005	0.00031
LBGC-0.60	4/28/2018 11:48	TI5339	0.0000033	0.002	0.0036	-	7.51	0.00049	2.19	<0.00002	9.92	0.15	33.5	0.00001	<0.005	<0.005	0.00196	<0.005	<0.005	0.00028
LBGC-0.60	4/28/2018 21:00	TI5409	0.0000031	0.0022	0.0038	-	7.82	0.00051	2.1	<0.00002	9.52	0.168	40.7	<0.00001	<0.005	<0.005	0.00194	<0.005	<0.005	0.00035
LBGC-0.60	4/29/2018 3:15	TI5411	0.0000033	0.0018	0.0044	-	7.95	0.0005	2.17	<0.00002	9.94	0.141	33.0	<0.00001	<0.005	<0.005	0.00169	<0.005	<0.005	0.00029
LBGC-0.60	4/29/2018 3:15	TI5412	0.0000035	0.0018	0.0043	-	7.91	0.00054	2.15	<0.00002	9.55	0.141	32.6	<0.00001	<0.005	<0.005	0.00161	<0.005	<0.005	0.00032
LBGC-0.60	4/29/2018 8:20	TI7038	0.0000031	0.0019	0.0047	-	7.11	0.00044	2	<0.00002	10.4	0.14	30.1	0.000011	<0.005	0.016	0.0018	<0.005	<0.005	0.00091
LBGC-0.60	4/29/2018 13:57	TI7015	0.0000041	0.0019	0.0046	-	7.09	0.00051	1.93	<0.00002	10.5	0.147	34.3	0.000012	<0.005	0.0175	0.00193	<0.005	<0.005	0.00092
LBGC-0.60	4/29/2018 21:05	TI7030	0.0000024	0.0021	0.004	-	6.51	0.00058	1.98	<0.00002	10.9	0.16	36.4	0.000011	<0.005	0.0121	0.00218	<0.005	<0.005	0.00086
LBGC-0.60	4/30/2018 3:05	TI7012	0.0000026	0.0016	0.0051	-	7.25	0.00047	2.09	<0.00002	10.7	0.149	34.5	<0.00001	<0.005	0.0142	0.00173	<0.005	<0.005	0.00069
LBGC-0.60	4/30/2018 8:57	TI8564	<0.000002	0.0011	0.0785	-	10.7	0.00052	11	<0.00002	12.7	0.77	34.3	0.000109	<0.005	0.0134	0.00906	0.0566	0.197	0.00625
LBGC-0.60	4/30/2018 14:01	TI8568	<0.000002	0.0021	0.005	-	8.29	0.00053	2.14	<0.00002	13.6	0.184	42.6	0.000012	<0.005	0.0085	0.0021	<0.005	<0.005	0.00048
LBGC-0.60	4/30/2018 14:01	TI8569	<0.000002	0.0021	0.0055	-	9.18	0.00054	2.03	<0.00002	15.4	0.205	47.0	0.000012	<0.005	0.0068	0.00209	<0.005	<0.005	0.00045
LBGC-0.60	4/30/2018 20:30	TJ0420	0.0000032	0.0022	0.0048	-	8.04	0.00053	2.27	<0.00002	14.8	0.199	49.6	0.000014	<0.005	0.0077	0.00246	<0.005	<0.005	0.00046
LBGC-0.60	5/1/2018 2:21	TJ0406	0.000003	0.0021	0.0051	-	7.96	0.00051	2.2	<0.00002	14.8	0.196	47.5	0.000013	<0.005	0.0063	0.00225	<0.005	<0.005	0.00048
LBGC-0.60	5/1/2018 8:49	TJ0412	0.0000035	0.0022	0.0058	-	8.40	0.00056	2.18	<0.00002	16.0	0.205	50.8	0.000014	<0.005	<0.005	0.00235	<0.005	<0.005	0.00039
LBGC-0.60	5/1/2018 14:25	TJ1217	0.0000023	0.0022	0.0051	-	8.03	0.00052	2.02	<0.00002	14.6	0.209	50.9	0.000014	<0.005	0.0065	0.00237	<0.005	<0.005	0.00044
LBGC-0.60	5/1/2018 21:16	TJ1201	0.000003	0.002	0.0058	-	7.70	0.0005	2.11	<0.00002	15.3	0.209	53.3	0.000012	<0.005	0.0082	0.0024	<0.005	<0.005	0.0005
LBGC-0.60	5/2/2018 2:45	TJ1214	0.0000032	0.002	0.0062	-	8.15	0.0005	2.14	<0.00002	16.1	0.226	56.7	0.000011	<0.005	0.0061	0.0024	<0.005	<0.005	0.00045
LBGC-0.60	5/2/2018 8:13	TJ1210	0.0000024	0.0021	0.007	-	7.90	0.00076	1.92	<0.00002	17.7	0.243	77.5	0.000012	<0.005	<0.005	0.00257	<0.005	<0.005	0.00024
LBGC-0.60	5/2/2018 14:10	TJ2153	0.0000034	0.003	0.0058	-	8.71	0.0009	2.16	<0.00002	18.5	0.274	77.7	0.000017	<0.005	<0.005	0.0029	<0.005	<0.005	0.0002
LBGC-0.60	5/2/2018 20:27	TJ2680	0.0000024	0.0023	0.0067	-	8.35	0.0006	2.22	<0.00002	17.6	0.251	66.0	0.000011	<0.005	<0.005	0.00268	<0.005	<0.005	0.00032
LBGC-0.60	5/3/2018 2:38	TJ2687	0.0000027	0.002	0.0082	-	8.69	0.00056	2.2	<0.00002	19.2	0.252	66.0	0.00001	<0.005	0.0058	0.00263	<0.005	<0.005	0.0004
LBGC-0.60	5/3/2018 8:00	TJ2676	0.0000023	0.0019	0.0082	-	8.91	0.00055	2.19	<0.00002	19.5	0.24	65.0	0.000013	<0.005	<0.005	0.00233	<0.005	<0.005	0.00032
LBGC-0.60	5/3/2018 14:01	TJ4225	0.0000028	0.0048	0.0038	-	7.14	0.00087	1.54	<0.00002	10.5	0.151	33.5	0.00001	<0.005	0.0051	0.00284	<0.005	<0.005	0.00034
LBGC-0.60	5/3/2018 20:40	TJ4748	0.0000026	0.0023	0.0081	-	8.96	0.00061	2.17	<0.00002	20.1	0.283	75.6	0.000012	<0.005	<0.005	0.00277	<0.005	<0.005	0.00029
LBGC-0.60	5/4/2018 3:00	TJ4757	0.0000026	0.0023	0.0091	-	9.09	0.00068	2.15	<0.00002	22.1	0.299	83.5	0.000014	<0.005	<0.005	0.0028	<0.005	<0.005	0.00025
LBGC-0.60	5/4/2018 3:00	TJ4754	0.0000026	0.0022	0.0091	-	8.95	0.00068	2.18	<0.00002	21.5	0.295	81.9	0.000013	<0.005	<0.005	0.00279	<0.005	<0.005	0.00023
LBGC-0.60	5/4/2018 8:15	TJ4761	0.0000024	0.0023	0.0094	-	9.08	0.00082	2.02	<0.00002	22.1	0.284	83.0	0.000015	<0.005	<0.005	0.00272	<0.005	<0.005	0.00022
LBGC-0.60	5/4/2018 14:22	TJ5502	0.0000085	0.0027	0.0082	-	9.11	0.00079	2.03	<0.00002	24.0	0.303	90.5	0.000015	<0.005	<0.005	0.00327	<0.005	<0.005	0.00019
LBGC-0.60	5/4/2018 19:50	TJ5485	0.0000029	0.0025	0.0088	-	9.35	0.00075	2.08	<0.00002	23.6	0.307	90.0	0.000015	<0.005	<0.005	0.00309	<0.005	<0.005	0.0002
LBGC-0.60	5/5/2018 2:33	TJ5475	0.0000027	0.0025	0.0113	-	9.45	0.00084	2.19	<0.00002	25.9	0.335	104	0.000013	<0.005	<0.005	0.00313	<0.005	<0.005	0.00019
LBGC-0.60	5/5/2018 8:20	TJ5488	0.0000025	0.0023	0.0154	-	9.55	0.00122	2.16	<0.00002	26.2	0.341	118	0.000012	<0.005	<0.005	0.00299	<0.005	<0.005	0.00014
LBGC-0.60	5/5/2018 14:10	TJ5673	0.0000092	0.0028	0.0096	-	9.78	0.00087	1.9	<0.00002	27.5	0.327	118	0.000019	<0.005	<0.005	0.00378	<0.005	<0.005	0.00018
LBGC-0.60	5/5/2018 20:20	TJ5693	0.0000028	0.0027	0.0106	-	9.33	0.00072	2.1	<0.00002	28.7	0.356	105	0.000013	<0.005	<0.005	0.00371	<0.005	<0.005	0.0002
LBGC-0.60	5/6/2018 2:35	TJ6009	0.0000026	0.0025	0.0116	-	9.44	0.00074	2.14	<0.00002	31.0	0.364	111	0.000014	<0.005	<0.005	0.00346	<0.005	<0.005	0.00018
LBGC-0.60	5/6/2018 2:35	TJ5682	<0.000002	0.0024	0.0114	-	9.45	0.00076	2.1	<0.00002	31.4	0.36	108	0.000015	<0.005	<0.005	0.0035	<0.005	<0.005	0.0002
LBGC-0.60	5/6/2018 8:15	TJ5685	0.0000024	0.0023	0.016	-	10.1	0.00066	2.19	<0.00002	33.3	0.359	113	0.000018	<0.005	<0.005	0.00327	<0.005	<0.005	0.00017
LBGC-0.60	5/6/2018 14:15	TJ7027	0.0000026	0.0032	0.0104	-	10.4	0.00104	1.84	<0.00002	34.5	0.371	136	0.000025	<0.005	<0.005	0.00428	<0.005	<0.005	0.0002
LBGC-0.60	5/6/2018 21:15	TJ7488	0.0000025	0.0029	0.0125	-	9.81	0.00079	2.22	<0.00002	34.2	0.368	129	0.000017	<0.005	<0.005	0.00402	<0.005	<0.005	0.00014
LBGC-0.60	5/7/2018 2:30	TJ7483	<0.000002	0.0025	0.0161	-	10.6	0.00078	2.36	<0.00002	34.6	0.398	140	0.000016	<0.005	<0.005	0.0037	<0.005	<0.005	0.00016
LBGC-0.60	5/7/2018 8:37	TJ7476	<0.000002	0.0022	0.0175	-	10.7	0.00072	2.37	<0.00002	36.0	0.39	127	0.000019	<0.005	<0.005	0.00375	<0.005	<0.005	0.00012
LBGC-0.60	5/7/2018 14:32	TJ9168	0.0000025	0.0033	0.0111	-	9.88	0.00125	1.85	<0.00002	37.1	0.462	151	0.000023	<0.005	<0.005	0.00414	<0.005	<0.005	<0.0001
LBGC-0.60	5/7/2018 23:15	TJ9706	<0.000002	0.0024	0.0161	-	10.8	0.00078	2.13	<0.00002	39.4	0.41	147	0.000019	<0.005	<0.005	0.00411	<0.005	<0.005	0.00013
LBGC-0.60	5/8/2018 4:59	TJ9697	<0.000002	0.0021	0.0238	-	11.3	0.00074	2.3	<0.00002	40.3	0.417	145	0.000019	<0.005	<0.005	0.00396	<0.005	<0.005	0.00014
LBGC-0.60	5/8/2018 4:59	TJ9696	<0.000002	0.0024	0.0211	-	11.2	0.00069	2.27	<0.00002	40.4	0.421	148	0.000019	<0.005	<0.005	0.004	<0.005	<0.005	0.00013
LBGC-0.60	5/8/2018 10:49	TJ9694	<0.000002	0.0022	0.0233	-	11.1	0.00092	2.12	<0.00002	43.4	0.433	156	0.000021	<0.005	<0.005	0.00424	<0.005	<0.005	0.00019
LBGC-0.60	5/8/2018 16:51	TK1902	<0.000002	0.0029	0.0149	-	11.6	0.00076	2.05	<0.00002	45.3	0.502	161	0.000018	<0.005	<0.005	0.00434	<0.005	<0.005	0.00016
LBGC-0.60	5/8/2018 22:51	TK1907	<0.000002	0.0024	0.0252	-	11.7	0.00067	2.35	<0.00002	47.0	0.51	167	0.000017	<0.005	<0.005	0.00398	<0.005	<0.005	0.00014
LBGC-0.60	5/9/2018 4:47	TK1898	<0.000002	0.0025	0.032	-	11.2	0.00085	2.42	<0.00002	48.9	0.536	188	0.000015	<0.005	<0.005	0.00401	<0.005	<0.005	0.00013
LBGC-0.60	5/9/2018 10:58	TK1894	<0.000002	0.0024	0.0389	-	11.6	0.00083	2.46	<0.00002	51.2	0.559	195	0.000019	<0.005	<0.005	0.00403	<0.005	<0.005	0.00011
LBGC-0.60	5/9/2018 17:00	TK5292	<0.000002	0.003	0.0245	-	13.3	0.00095	2.56	<0.00002	62.2	0.569	238	0.000025	<0.005	<0.005	0.0047	<0.005	<0.005	0.00012

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-0.60	5/9/2018 17:05	TK5293	7.89	1390	>4000	1010	6510	1300	730	116	<1.0	141	<1.0	<1.0	24.9	0.560	0.15	618
LBGC-0.60	5/9/2018 23:01	TK5237	7.81	1420	>4000	1160	5630	1050	721	116	<1.0	142	<1.0	<1.0	25.0	0.560	0.16	653
LBGC-0.60	5/10/2018 4:49	TK5242	7.86	1490	>4000	884	6480	1250	766	122	<1.0	149	<1.0	<1.0	26.3	0.560	0.17	699
LBGC-0.60	5/10/2018 10:59	TK5249	7.82	1510	>4000	856	8990	1320	760	96.8	<1.0	118	<1.0	<1.0	27.0	0.520	0.18	728
LBGC-0.60	5/10/2018 17:06	TK5256	7.95	1780	>4000	482	19100	2640	979	112	<1.0	136	<1.0	<1.0	27.9	0.650	0.23	905
LBGC-0.60	5/10/2018 22:49	TK5497	7.88	1580	>4000	1070	8050	1470	823	124	<1.0	151	<1.0	<1.0	26.4	0.600	0.19	755
LBGC-0.60	5/11/2018 4:47	TK5502	7.84	1590	>4000	908	10600	1570	853	132	<1.0	161	<1.0	<1.0	27.1	0.590	0.19	748
LBGC-0.60	5/11/2018 10:47	TK6057	7.75	1650	>4000	1150	6680	1440	832	128	<1.0	156	<1.0	<1.0	28.6	0.630	0.21	786
LBGC-0.60	5/11/2018 16:48	TK6050	7.79	1800	>4000	1450	11100	1840	962	115	<1.0	140	<1.0	<1.0	29.0	0.640	0.23	935
LBGC-0.60	5/12/2018 13:39	TK6554	7.76	1880	>4000	1510	9760	1540	957	96.7	<1.0	118	<1.0	<1.0	28.3	0.680	0.21	1000
LBGC-0.60	5/21/2018 6:15	TM2899	7.77	2920	452	2500	356	1500	1420	124	<1.0	151	<1.0	<1.0	26.2	0.910	0.48	1640
LBGC-0.60	5/26/2018 16:30	TM9442	7.98	3060	425	2770	425	1800	1800	291	<1.0	355	<1.0	<1.0	18	0.640	0.42	1800
LBGC-0.60	5/30/2018 6:20	TN9751	8.01	2960	309	2640	229	1500	1620	254	<1.0	310	<1.0	<1.0	17.7	0.710	0.36	1480
LBGC-OUT	3/14/2018 15:10	TC7635	7.94	587	253	376	105	254	239	64.5	<1.0	78.7	<1.0	<1.0	2.07	0.120	0.054	204
LBGC-OUT	4/27/2018 22:40	TI5321	7.93	411	>4000	352	32200	1130	173	83.8	<1.0	102	<1.0	<1.0	7.86	0.260	0.035	105
LBGC-OUT	4/28/2018 4:50	TI5327	8.03	402	>4000	430	12300	660	160	91.2	<1.0	111	<1.0	<1.0	7.95	0.250	0.024	96.5
LBGC-OUT	4/28/2018 12:46	TI5338	8.00	423	>4000	484	13300	778	178	80.9	<1.0	98.6	<1.0	<1.0	8.45	0.250	0.035	115
LBGC-OUT	4/28/2018 12:46	TI5337	8.00	423	>4000	504	12000	858	174	81.6	<1.0	99.5	<1.0	<1.0	8.66	0.250	0.044	113
LBGC-OUT	4/28/2018 19:55	TI5405	7.96	398	>4000	470	11500	808	164	83.3	<1.0	102	<1.0	<1.0	7.40	0.210	<0.010	102
LBGC-OUT	4/29/2018 2:58	TI5402	7.98	376	>4000	348	6340	593	157	80.9	<1.0	98.7	<1.0	<1.0	7.42	0.200	0.025	92.9
LBGC-OUT	4/29/2018 8:53	TI7039	7.89	379	3280	516	6120	439	150	81.4	<1.0	99.2	<1.0	<1.0	11.4	0.200	0.027	98.6
LBGC-OUT	4/29/2018 14:12	TI7017	7.97	385	>4000	458	3320	405	153	83.2	<1.0	102	<1.0	<1.0	8.01	0.220	0.035	96.7
LBGC-OUT	4/29/2018 21:40	TI7029	7.99	393	>4000	504	4130	398	156	84.5	<1.0	103	<1.0	<1.0	6.73	0.260	0.028	96.0
LBGC-OUT	4/30/2018 3:42	TI7022	7.98	397	>4000	654	4380	383	156	84.3	<1.0	103	<1.0	<1.0	7.59	0.250	0.033	101
LBGC-OUT	4/30/2018 3:42	TI7019	8.00	395	>4000	532	940	369	156	85.2	<1.0	104	<1.0	<1.0	7.50	0.230	0.035	99.2
LBGC-OUT	4/30/2018 9:45	TI8566	7.91	389	3740	496	2400	313	153	80.7	<1.0	98.4	<1.0	<1.0	6.68	0.210	0.028	96.3
LBGC-OUT	4/30/2018 15:04	TI8571	7.90	402	>4000	550	2880	349	161	80.8	<1.0	98.5	<1.0	<1.0	6.58	0.220	0.026	96.8
LBGC-OUT	4/30/2018 20:03	TJ0418	7.89	406	417	452	3430	380	175	83.5	<1.0	102	<1.0	<1.0	6.86	0.240	0.043	103
LBGC-OUT	5/1/2018 2:39	TJ0407	7.92	401	1100	460	3880	317	169	86.3	<1.0	105	<1.0	<1.0	7.41	0.230	0.028	94.9
LBGC-OUT	5/1/2018 9:05	TJ0422	7.95	404	1590	344	1900	283	173	86.9	<1.0	106	<1.0	<1.0	6.82	0.240	0.024	97.9
LBGC-OUT	5/1/2018 14:40	TJ1218	7.88	411	>4000	248	1840	359	161	86.7	<1.0	106	<1.0	<1.0	7.02	0.220	0.026	101
LBGC-OUT	5/1/2018 23:34	TJ1200	7.85	422	>4000	410	2170	416	170	87.7	<1.0	107	<1.0	<1.0	7.15	0.230	0.028	109
LBGC-OUT	5/2/2018 8:42	TJ1209	7.89	442	>4000	354	2660	391	183	88.8	<1.0	108	<1.0	<1.0	7.19	0.230	0.033	119
LBGC-OUT	5/2/2018 8:42	TJ1206	7.92	442	>4000	344	2580	418	179	88.3	<1.0	108	<1.0	<1.0	7.77	0.240	0.044	123
LBGC-OUT	5/2/2018 14:30	TJ2150	7.87	444	>4000	404	3600	395	186	84.4	<1.0	103	<1.0	<1.0	7.53	0.230	0.033	126
LBGC-OUT	5/2/2018 15:00	TJ1221	7.96	423	>4000	322	3110	349	172	88.5	<1.0	108	<1.0	<1.0	7.23	0.220	0.020	109
LBGC-OUT	5/2/2018 20:48	TJ2683	7.94	430	>4000	206	2180	349	185	86.8	<1.0	106	<1.0	<1.0	7.14	0.240	0.029	118
LBGC-OUT	5/3/2018 2:54	TJ2688	7.87	430	2680	344	1610	285	182	84.7	<1.0	103	<1.0	<1.0	7.07	0.240	0.026	115
LBGC-OUT	5/3/2018 8:30	TJ2675	7.86	431	2590	336	1710	286	180	85.3	<1.0	104	<1.0	<1.0	7.07	0.250	0.029	118
LBGC-OUT	5/3/2018 8:30	TJ2674	7.97	433	2630	284	1400	304	183	87.8	<1.0	107	<1.0	<1.0	7.07	0.240	0.029	102
LBGC-OUT	5/3/2018 14:22	TJ4220	7.99	448	2830	386	1520	308	205	97.3	<1.0	119	<1.0	<1.0	7.44	0.230	0.032	121
LBGC-OUT	5/3/2018 20:57	TJ4747	7.99	466	2980	374	1730	312	196	100	<1.0	122	<1.0	<1.0	6.85	0.230	0.039	126
LBGC-OUT	5/4/2018 3:20	TJ4755	7.95	486	>4000	276	27700	3260	202	108	<1.0	132	<1.0	<1.0	6.96	0.160	0.033	132
LBGC-OUT	5/4/2018 8:45	TJ4760	7.87	733	>4000	458	11700	1330	311	97.0	<1.0	118	<1.0	<1.0	18.5	0.330	0.079	271
LBGC-OUT	5/4/2018 14:35	TJ5498	7.90	750	>4000	446	13800	1460	333	95.9	<1.0	117	<1.0	<1.0	17.4	0.290	0.083	259
LBGC-OUT	5/4/2018 20:18	TJ5484	7.94	763	>4000	530	10100	1140	335	92.9	<1.0	113	<1.0	<1.0	17.3	0.340	0.082	268
LBGC-OUT	5/5/2018 2:45	TJ5479	7.98	841	>4000	474	8760	1210	375	97.2	<1.0	119	<1.0	<1.0	18.4	0.350	0.096	301
LBGC-OUT	5/5/2018 2:45	TJ5480	7.95	846	>4000	496	9770	1260	372	98.8	<1.0	121	<1.0	<1.0	18.3	0.360	0.096	300
LBGC-OUT	5/5/2018 8:35	TJ5491	7.90	1030	>4000	674	11900	1060	479	87.8	<1.0	107	<1.0	<1.0	19.5	0.350	0.13	417
LBGC-OUT	5/5/2018 14:30	TJ5678	7.85	925	>4000	394	10400	1230	431	87.4	<1.0	107	<1.0	<1.0	20.0	0.280	0.12	355
LBGC-OUT	5/5/2018 14:30	TJ5674	7.85	923	>4000	448	9850	1280	438	86.5	<1.0	106	<1.0	<1.0	20.0	0.320	0.12	369
LBGC-OUT	5/5/2018 20:35	TJ5694	7.94	905	>4000	456	11900	1490	407	97.7	<1.0	119	<1.0	<1.0	19.0	0.340	0.10	285
LBGC-OUT	5/6/2018 2:47	TJ5681	7.93	929	>4000	388	10400	1260	418	97.3	<1.0	119	<1.0	<1.0	20.7	0.280	0.11	331
LBGC-OUT	5/6/2018 8:30	TJ5687	7.92	920	>4000	464	8560	1070	406	93.3	<1.0	114	<1.0	<1.0	21.3	0.390	0.11	329
LBGC-OUT	5/6/2018 14:40	TJ7031	7.88	1030	>4000	604	13800	1540	477	96.8	<1.0	118	<1.0	<1.0	22.1	0.450	0.13	419
LBGC-OUT	5/6/2018 14:40	TJ7032	7.91	1040	>4000	576	13800	1510	477	97.3	<1.0	119	<1.0	<1.0	21.8	0.450	0.14	405
LBGC-OUT	5/6/2018 20:52	TJ7490	7.93	992	>4000	432	9680	1160	446	101	<1.0	124	<1.0	<1.0	21.2	0.430	0.12	380
LBGC-OUT	5/7/2018 2:43	TJ7482	7.92	1050	>4000	416	9680	1290	472	108	<1.0	131	<1.0	<1.0	21.4	0.440	0.13	394
LBGC-OUT	5/7/2018 9:03	TJ7480	7.93	1040	>4000	450	8400	1150	467	112	<1.0	137	<1.0	<1.0	22.6	0.460	0.12	409
LBGC-OUT	5/7/2018 14:52	TJ9167	8.02	546	2550	292	1710	438	228	109	<1.0	133	<1.0	<1.0	6.81	0.240	0.044	159
LBGC-OUT	5/7/2018 23:27	TJ9705	7.90	1100	>4000	520	5430	937	494	105	<1.0	128	<1.0	<1.0	22.9	0.470	0.13	454
LBGC-OUT	5/8/2018 5:13	TJ9701	7.88	1100	>4000	506	4480	874	490	111	<1.0	135	<1.0	<1.0	22.0	0.370	0.13	443
LBGC-OUT	5/8/2018 10:57	TJ9695	7.90	1160	>4000	760	6000	927	517	104	<1.0	126	<1.0	<1.0	24.5	0.520	0.15	465
LBGC-OUT	5/8/2018 17:14	TK1913	8.01	1200	>4000	894	6870	912	530	114	<1.0	140	<1.0	<1.0	23.8	0.430	0.15	518

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-0.60	5/9/2018 17:05	TK5293	0.40	0.0060	0.256	0.262	<0.0050	14.2	8.84	29.8	<0.0025	0.0274	0.738	0.00411	<0.005	<0.25	0.00673	369	0.0379	0.0671	0.113
LBGC-0.60	5/9/2018 23:01	TK5237	0.35	0.0099	0.227	0.237	<0.0050	12.9	9.01	31.6	<0.0025	0.0277	0.971	0.00334	<0.005	<0.25	0.0046	277	0.0456	0.0625	0.101
LBGC-0.60	5/10/2018 4:49	TK5242	0.38	0.0053	0.250	0.255	<0.0050	13.9	7.52	29.7	<0.0025	0.0241	0.617	0.00437	<0.005	<0.25	0.00662	339	0.0352	0.0669	0.11
LBGC-0.60	5/10/2018 10:59	TK5249	0.41	0.0072	0.260	0.267	<0.0050	15.1	8.63	47.7	<0.0025	0.0578	1.54	0.00556	<0.005	<0.25	0.00797	357	0.0699	0.0856	0.172
LBGC-0.60	5/10/2018 17:06	TK5256	0.53	0.0087	0.446	0.455	<0.0050	17.0	9.45	46.1	<0.0025	0.0445	1.34	0.00788	<0.005	<0.25	0.0185	768	0.0582	0.1	0.194
LBGC-0.60	5/10/2018 22:49	TK5497	0.42	0.0053	0.247	0.253	<0.0050	12.4	9.10	38.4	0.00073	0.037	1.23	0.00467	<0.001	0.182	0.00771	411	0.0529	0.0755	0.131
LBGC-0.60	5/11/2018 4:47	TK5502	0.40	<0.0050	0.254	0.254	<0.0050	13.9	7.86	40.9	<0.0025	0.036	1.46	0.00484	<0.005	<0.25	0.009	430	0.0605	0.0811	0.137
LBGC-0.60	5/11/2018 10:47	TK6057	0.41	0.0058	0.257	0.263	0.0264	10.4	6.11	64	<0.0025	0.0433	2.09	0.00595	<0.005	<0.25	0.00814	373	0.11	0.109	0.204
LBGC-0.60	5/11/2018 16:48	TK6050	0.58	0.0061	0.275	0.281	0.0212	18.4	9.07	85.2	<0.0025	0.0481	2.2	0.00807	<0.005	<0.25	0.0117	483	0.142	0.127	0.27
LBGC-0.60	5/12/2018 13:39	TK6554	0.50	<0.0050	0.310	0.310	<0.0050	12.2	8.63	63.3	<0.0025	0.0483	1.69	0.00678	<0.005	<0.25	0.00954	414	0.101	0.112	0.209
LBGC-0.60	5/21/2018 6:15	TM2899	1.0	0.0242	0.318	0.342	<0.0050	5.45	5.13	9.42	<0.0025	0.00516	0.223	0.00061	<0.005	<0.25	0.00239	373	0.0152	0.101	0.0142
LBGC-0.60	5/26/2018 16:30	TM9442	1.3	0.0070	0.059	0.066	<0.0050	11.3	8.38	14.4	<0.0025	0.016	0.535	0.00118	<0.005	<0.25	0.00299	485	0.0211	0.0569	0.0419
LBGC-0.60	5/30/2018 6:20	TN9751	1.1	0.0080	0.089	0.097	<0.0050	9.70	7.71	1.1	<0.0005	0.0014	0.0457	0.0002	<0.001	0.151	0.00101	387	0.0013	0.0518	0.00485
LBGC-OUT	3/14/2018 15:10	TC7635	0.088	0.0174	0.454	0.472	0.0392	11.1	8.38	4.45	<0.0005	0.00348	0.106	0.00022	<0.001	<0.05	0.000262	62.2	0.0085	0.00324	0.012
LBGC-OUT	4/27/2018 22:40	TI5321	0.39	0.0167	0.398	0.415	0.0148	16.7	21.9	120	<0.0025	0.0384	5.16	0.0102	<0.005	<0.25	0.0129	293	0.208	0.138	0.372
LBGC-OUT	4/28/2018 4:50	TI5327	0.28	0.0166	0.422	0.439	0.185	12.6	7.89	72.4	<0.0025	0.0317	3.18	0.00574	<0.005	<0.25	0.0068	168	0.129	0.0811	0.233
LBGC-OUT	4/28/2018 12:46	TI5338	0.27	0.0150	0.396	0.411	0.0119	12.3	10.5	63.7	<0.0025	0.0281	2.6	0.00537	<0.005	<0.25	0.00727	206	0.116	0.0779	0.214
LBGC-OUT	4/28/2018 12:46	TI5337	0.27	0.0184	0.405	0.424	0.0097	13.0	8.91	74.9	<0.0025	0.0335	3.27	0.00614	<0.005	<0.25	0.00817	219	0.141	0.0954	0.262
LBGC-OUT	4/28/2018 19:55	TI5405	0.26	0.0117	0.402	0.414	0.0176	13.3	6.58	88.4	<0.0025	0.0363	3.45	0.00687	<0.005	<0.25	0.00827	208	0.167	0.1	0.281
LBGC-OUT	4/29/2018 2:58	TI5402	0.25	0.0453	0.387	0.433	0.0095	11.3	7.31	50.5	<0.0025	0.025	1.88	0.00417	<0.005	<0.25	0.0049	155	0.0927	0.0602	0.164
LBGC-OUT	4/29/2018 8:53	TI7039	0.21	0.0181	0.385	0.403	0.0078	12.0	8.67	38.1	<0.0025	0.0217	1.31	0.0028	<0.005	<0.25	0.00331	116	0.0693	0.0405	0.118
LBGC-OUT	4/29/2018 14:12	TI7017	0.22	0.0125	0.371	0.384	0.0071	13.3	8.74	11.5	0.00052	0.0106	0.477	0.00171	<0.001	0.054	0.00289	118	0.0175	0.0186	0.0576
LBGC-OUT	4/29/2018 21:40	TI7029	0.25	0.0132	0.382	0.395	0.0057	7.94	8.22	15	0.00061	0.0125	0.548	0.00164	<0.001	0.054	0.00277	114	0.0245	0.0203	0.062
LBGC-OUT	4/30/2018 3:42	TI7022	0.23	0.0332	<0.020	<0.020	0.0205	10.8	<0.50	11.5	0.00055	0.00963	0.438	0.0016	<0.001	0.055	0.00263	109	0.0179	0.0169	0.0519
LBGC-OUT	4/30/2018 3:42	TI7019	0.22	0.0147	0.364	0.379	0.0053	9.47	9.09	13.9	0.00057	0.0116	0.47	0.00161	<0.001	0.055	0.00267	105	0.0221	0.0189	0.0569
LBGC-OUT	4/30/2018 9:45	TI8566	0.23	0.0168	0.402	0.419	0.0080	8.48	8.34	15.4	0.00063	0.0125	0.596	0.0013	<0.001	0.052	0.00179	85.7	0.0255	0.0161	0.0487
LBGC-OUT	4/30/2018 15:04	TI8571	0.25	0.0199	0.404	0.424	0.0121	8.27	7.11	18.6	0.00061	0.0145	0.656	0.0015	<0.001	0.055	0.00221	97.0	0.0319	0.0204	0.0599
LBGC-OUT	4/30/2018 20:03	TJ0418	0.27	0.0524	0.220	0.272	0.0059	9.70	7.03	22.6	0.0006	0.0182	0.79	0.0017	<0.001	0.056	0.00263	102	0.0385	0.0258	0.073
LBGC-OUT	5/1/2018 2:39	TJ0407	0.27	0.0260	0.308	0.334	0.0053	7.89	8.40	17.8	0.00059	0.0147	0.625	0.00139	<0.001	0.054	0.00194	83.8	0.0307	0.0195	0.0562
LBGC-OUT	5/1/2018 9:05	TJ0422	0.26	0.0712	0.206	0.277	0.0057	7.87	8.59	12.9	0.0006	0.0123	0.496	0.00105	<0.001	0.051	0.00151	75.4	0.0214	0.0147	0.0424
LBGC-OUT	5/1/2018 14:40	TJ1218	0.26	0.0209	0.410	0.431	0.0131	9.24	8.22	20.7	<0.0025	0.0144	0.89	0.00172	<0.005	<0.25	0.00211	93.5	0.0389	0.0251	0.0741
LBGC-OUT	5/1/2018 23:34	TJ1200	0.27	0.0202	0.378	0.398	0.0086	10.2	8.75	28.1	<0.0025	0.0172	1.08	0.00209	<0.005	<0.25	0.00273	108	0.0524	0.0326	0.0924
LBGC-OUT	5/2/2018 8:42	TJ1209	0.30	0.0233	0.386	0.409	0.0058	9.90	9.09	25.4	<0.0025	0.0189	1.11	0.00195	<0.005	<0.25	0.00262	101	0.0476	0.0299	0.0874
LBGC-OUT	5/2/2018 8:42	TJ1206	0.29	0.0198	0.402	0.422	0.0099	8.85	8.75	29.4	<0.0025	0.0217	1.22	0.00217	<0.005	<0.25	0.00278	110	0.0519	0.0328	0.0964
LBGC-OUT	5/2/2018 14:30	TJ2150	0.33	0.0186	0.400	0.418	<0.0050	10.2	10.1	14.7	0.00065	0.0126	0.53	0.00163	<0.001	0.059	0.00268	110	0.0231	0.0198	0.0593
LBGC-OUT	5/2/2018 15:00	TJ1221	0.28	0.0219	0.398	0.420	0.0128	10.3	7.61	22.2	<0.0025	0.0155	0.877	0.00173	<0.005	<0.25	0.00219	91.9	0.0403	0.0248	0.0718
LBGC-OUT	5/2/2018 20:48	TJ2683	0.30	0.0270	0.405	0.432	0.0052	9.91	6.05	14.6	0.00069	0.0116	0.482	0.00132	<0.001	0.056	0.00206	97.5	0.0239	0.0166	0.0492
LBGC-OUT	5/3/2018 2:54	TJ2688	0.32	0.0680	0.408	0.476	0.0055	8.33	8.29	13.7	0.00071	0.0107	0.46	0.00105	<0.001	0.057	0.00141	77.3	0.0219	0.0128	0.04
LBGC-OUT	5/3/2018 8:30	TJ2675	0.36	0.0757	0.403	0.479	<0.0050	9.48	7.34	12.2	0.00075	0.00988	0.407	0.00091	<0.001	0.055	0.00132	77.2	0.0204	0.0124	0.0373
LBGC-OUT	5/3/2018 8:30	TJ2674	0.34	0.0449	0.404	0.449	<0.0050	9.19	10.8	21.6	0.00081	0.0175	0.782	0.00134	<0.001	0.066	0.00154	76.9	0.0384	0.0201	0.0598
LBGC-OUT	5/3/2018 14:22	TJ4220	0.34	0.0217	0.409	0.431	<0.0050	8.12	6.01	16.2	0.00069	0.0143	0.72	0.00116	<0.001	0.051	0.00159	82.0	0.0298	0.018	0.0543
LBGC-OUT	5/3/2018 20:57	TJ4747	0.36	0.0419	0.410	0.452	<0.0050	7.25	6.14	16.2	0.00068	0.0144	0.693	0.00113	<0.001	0.054	0.00164	83.4	0.0291	0.0177	0.0512
LBGC-OUT	5/4/2018 3:20	TJ4755	1.1	0.0514	0.373	0.424	<0.0050	25.0	8.55	266	<0.01	0.0654	14.4	0.0225	<0.02	<1	0.0368	905	0.465	0.33	0.905
LBGC-OUT	5/4/2018 8:45	TJ4760	0.23	0.0050	0.188	0.193	0.0053	16.1	11.3	86.2	<0.0025	0.0374	4.04	0.00727	<0.005	<0.25	0.0125	362	0.15	0.109	0.269
LBGC-OUT	5/4/2018 14:35	TJ5498	0.23	0.0127	0.209	0.221	<0.0050	17.1	8.85	82.1	<0.0025	0.0369	3.37	0.00746	<0.005	<0.25	0.013	405	0.143	0.109	0.28
LBGC-OUT	5/4/2018 20:18	TJ5484	0.23	0.0282	0.202	0.231	0.0061	16.1	10.8	88.8	<0.0025	0.0377	3.7	0.00681	<0.005	<0.25	0.00994	303	0.155	0.0994	0.278
LBGC-OUT	5/5/2018 2:45	TJ5479	0.26	0.0058	0.208	0.214	<0.0050	15.4	10.4	76.3	<0.0025	0.0374	2.95	0.00618	<0.005	<0.25	0.0105	331	0.131	0.0899	0.248
LBGC-OUT	5/5/2018 2:45	TJ5480	0.23	0.0078	0.213	0.221	<0.0050	15.6	13.0	90.6	<0.0025	0.0392	3.71	0.00698	<0.005	<0.25	0.0111	338	0.158	0.103	0.283
LBGC-OUT	5/5/2018 8:35	TJ5491	0.29	0.0057	0.661	0.666	<0.0050	14.6	8.35	74.1	0.0005	0.0511	2.55	0.00585	0.0016	0.124	0.0106	279	0.133	0.0843	0.237
LBGC-OUT	5/5/2018 14:30	TJ5678	0.27	0.0078	0.226	0.233	<0.0050	15.9	11.9	108	<0.0025	0.096	4.68	0.00767	<0.005	<0.25	0.011	322	0.207	0.13	0.359
LBGC-OUT	5/5/2018 14:30	TJ5674	0.30	0.0059	0.236	0.242	<0.0050	15.9	11.9	110	<0.0025	0.0954	4.57	0.00764	<0.005	<0.25	0.0114	336	0.208	0.131	0.363
LBGC-OUT	5/5/2018 20:35	TJ5694	0.28	<0.0050	0.220	0.220	<0.0050	16.3	11.2	110	<0.0025	0.0403	4.24	0.00925	<0.005	<0.25	0.0128	397	0.207	0.131	0.36
LBGC-OUT	5/6/2018 2:47	TJ5681	0.26	<0.0050	0.228	0.228	<0.0050	19.3	13.0	53.3	<0.0025	0.0359	2.25	0.00593	<0.005	<0.25	0.0104	363	0.0888	0.0744	0.204
LBGC-OUT	5/6/2018 8:30	TJ5687	0.26	<0.0050	0.236	0.236	<0.0050	15.5	10.3	67.7	<0.0025	0.0434	3.07	0.0059	<0.005	<0.25	0.00817	293	0.122	0.085	0.234
LBGC-OUT	5/6/2018 14:40	TJ7031	0.38	<0.0050	0.276	0.276	<0.0050	16.1	10.9	113	<0.0025	0.0555	3.84	0.00941	<0.005	<0.25	0.0141	417	0.215	0.141	0.385
LBGC-OUT	5/6/2018 14:40	TJ7032	0.37	<0.0050	0.274	0.274	<0.0050	16.9	11.8	112	<0.0025	0.0573	3.88	0.00961	<0.005	<0.25	0.0137	407	0.208	0.136	0.366
LBGC-OUT	5/6/2018 20:52	TJ7490	0.28	0.0070	0.219	0.226	<0.0050	15.3	10.2	31.7	<0.0025	0.0168	1.23	0.005	<0.005	<0.25	0.00941	344	0.0396	0.0559	0.137
LBGC-OUT	5/7/2018 2:43	TJ7482	0.32	0.0059	0.244	0.250	<0.0050	14.7	10.4	26.9	<0.0025	0.015	1.02	0.00485	<0.005	<0.25	0.00993	384	0.0329	0.0535	0.121
LBGC-OUT	5/7/2018 9:03	TJ7480	0.29	0.0069	0.238	0.245	<0.0050	15.8	11.5	42.3	<0.0025	0.0139	1.6	0.00508	<0.005	<0.25	0.0081	325	0.0622	0.0673	0.147
LBGC-OUT	5/7/2018 14:52	TJ9167	0.63	0.0274	0.401	0.429	<0.0050	8.12	6.70	25.8	<0.0025	0.0301	1.17	0.00181	<0.005	<0.25	0.00215	115	0.0439	0.0274	0.07
LBGC-OUT	5/7/2018 23:27	TJ9705	0.29	<0.0050	0.240	0.240	<0.0050	14.9	10.8	16.7	<0.0025	0.0152	0.419	0.00303	<0.005	<0.25	0.00566	268	0.0196	0.0364	0.0842
LBGC-OUT	5/8/2018 5:13	TJ9701	0.29	<0.0050	0.227	0.227	<0.0050	14.5	11.1	15.5	<0.0025	0.0136	0.402	0.00262	<0.005	<0.25	0.00492	246	0.0183	0.0346	0.073
LBGC-OUT	5/8/2018 10:57	TJ9695	0.29	0.0054	0.242	0.247	<0.0050	15.4	11.1	45.2	<0.0025	0.0361	1.58	0.00399	<0.005	<0.25	0.00567	247	0.0732	0.0604	0.142
LBGC-OUT	5/8/2018 17:14	TK1913	0.26	0.0057	0.234	0.240	<0.0050	15.7	11.5	20.6	<0.0025	0.0127	0.381	0.00297	<0.005	<0.25	0.00575	262	0.0285	0.0365	0.0769

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-0.60	5/9/2018 17:05	TK5293	82.7	0.048	0.072	92.6	2.79	0.0000087	<0.005	0.203	-	19.2	0.00313	38.2	0.00075	61.8	0.954	240	0.000671	<0.025	0.129	0.0127
LBGC-0.60	5/9/2018 23:01	TK5237	97.7	0.0455	0.078	86.4	2.4	<0.000002	<0.005	0.204	-	17.4	0.00269	41	0.00077	59.7	0.817	214	0.000807	<0.025	0.089	0.00969
LBGC-0.60	5/10/2018 4:49	TK5242	76.1	0.0479	0.076	97.2	2.68	0.0000061	<0.005	0.21	-	16.7	0.00251	33.4	0.00059	64.2	0.978	230	0.000548	<0.025	0.102	0.0129
LBGC-0.60	5/10/2018 10:59	TK5249	165	0.0853	0.116	105	3.16	0.00001	0.0108	0.276	-	21.7	0.0052	59.8	0.00138	65.0	1.1	242	0.00175	<0.025	0.117	0.0162
LBGC-0.60	5/10/2018 17:06	TK5256	130	0.076	0.132	175	5.3	<0.000002	0.0073	0.303	-	21.3	0.00584	53.3	0.00151	85.3	1.89	349	0.00146	<0.025	0.113	0.0214
LBGC-0.60	5/10/2018 22:49	TK5497	118	0.0645	0.0981	108	3.32	0.0000089	0.006	0.239	-	20.0	0.00403	50.9	0.00102	70.5	1.13	291	0.00122	<0.005	0.0947	0.0142
LBGC-0.60	5/11/2018 4:47	TK5502	125	0.0665	0.106	120	3.7	0.0000085	0.0061	0.256	-	20.1	0.00411	52.6	0.00117	72.5	1.21	285	0.0013	<0.025	0.107	0.0138
LBGC-0.60	5/11/2018 10:47	TK6057	217	0.105	0.16	124	3.68	0.0000077	0.0062	0.353	-	22.5	0.00517	70.6	0.0024	77.6	1.21	291	0.00157	<0.025	0.081	0.0159
LBGC-0.60	5/11/2018 16:48	TK6050	269	0.126	0.218	154	4.44	0.000009	0.0071	0.42	-	24.8	0.00594	82.9	0.00324	85.2	1.55	329	0.00214	<0.025	0.083	0.0221
LBGC-0.60	5/12/2018 13:39	TK6554	215	0.104	0.173	124	4	0.0000108	0.0076	0.377	-	22.8	0.00609	65.3	0.00234	88.1	1.31	359	0.00147	<0.025	0.061	0.0197
LBGC-0.60	5/21/2018 6:15	TM2899	44.9	0.0059	0.087	138	5.98	<0.000002	<0.005	0.284	-	14.1	0.00265	34.2	0.00014	164	1.32	623	0.000277	<0.025	0.396	0.00681
LBGC-0.60	5/26/2018 16:30	TM9442	68.9	0.021	0.061	143	4.82	0.0000039	0.0058	0.176	-	18.1	0.00191	22.1	0.0004	115	1.41	548	0.000423	<0.025	0.11	0.0154
LBGC-0.60	5/30/2018 6:20	TN9751	18	0.00088	0.045	130	4.25	<0.000002	0.0023	0.145	-	13.7	0.00115	5.62	<0.00002	133	1.37	529	0.000055	<0.005	0.0093	0.0104
LBGC-OUT	3/14/2018 15:10	TC7635	7.57	0.00407	0.0084	24.0	0.166	-	0.0028	0.0136	-	6.06	0.002	9.57	0.00005	20.0	0.173	78.5	0.000082	0.0064	0.0683	0.00181
LBGC-OUT	4/27/2018 22:40	TI5321	246	0.211	0.249	95.6	4.55	0.0000068	<0.005	0.475	-	22.8	0.00269	109	0.00415	10.8	1.05	44	0.00283	<0.025	0.099	0.0207
LBGC-OUT	4/28/2018 4:50	TI5327	160	0.117	0.142	58.4	2.49	0.0000057	<0.005	0.286	-	18.1	0.0026	79.3	0.00238	10.2	0.642	35	0.00179	<0.025	0.099	0.0116
LBGC-OUT	4/28/2018 12:46	TI5338	143	0.11	0.13	64.1	2.56	0.0000064	<0.005	0.262	-	17.0	0.00249	75.2	0.00202	10.8	0.65	42	0.00163	<0.025	0.092	0.0118
LBGC-OUT	4/28/2018 12:46	TI5337	168	0.124	0.155	75.7	3.07	0.0000064	<0.005	0.329	-	20.1	0.00247	80	0.00237	12.7	0.708	51	0.00182	<0.025	0.105	0.0133
LBGC-OUT	4/28/2018 19:55	TI5405	198	0.142	0.183	70.2	2.96	0.0000062	<0.005	0.353	-	20.6	0.00282	94.7	0.00285	11.2	0.756	39	0.0021	<0.025	0.109	0.0142
LBGC-OUT	4/29/2018 2:58	TI5402	109	0.0795	0.101	50.2	1.94	0.0000048	<0.005	0.201	-	15.0	0.002	60.9	0.00137	10.4	0.507	30	0.00121	<0.025	0.092	0.00897
LBGC-OUT	4/29/2018 8:53	TI7039	78.7	0.0537	0.068	36.0	1.33	0.0000044	<0.005	0.135	-	13.4	0.00251	54.9	0.00096	10.7	0.386	33	0.000859	<0.025	0.23	0.00696
LBGC-OUT	4/29/2018 14:12	TI7017	21.4	0.0298	0.023	27.0	0.914	0.0000046	0.0022	0.0546	-	9.46	0.00101	17.1	0.000227	9.49	0.333	30.8	0.00025	<0.005	0.106	0.00581
LBGC-OUT	4/29/2018 21:40	TI7029	29	0.0306	0.0285	27.5	0.886	0.0000053	0.0029	0.0613	-	9.53	0.00137	22.3	0.000338	9.21	0.332	29.3	0.000331	<0.005	0.122	0.00572
LBGC-OUT	4/30/2018 3:42	TI7022	22.3	0.0263	0.0229	26.6	0.825	0.0000049	0.0026	0.0508	-	9.39	0.00121	18.1	0.00025	9.62	0.312	30.6	0.00026	<0.005	0.103	0.0053
LBGC-OUT	4/30/2018 3:42	TI7019	25.9	0.0269	0.0277	25.9	0.836	0.0000039	0.0025	0.0573	-	9.64	0.00125	20.5	0.000315	9.42	0.325	31.0	0.000295	<0.005	0.14	0.00528
LBGC-OUT	4/30/2018 9:45	TI8566	29.4	0.0239	0.0297	24.1	0.626	0.0000035	0.0026	0.0541	-	10.3	0.00134	25.9	0.000365	9.71	0.275	32.0	0.000351	<0.005	0.171	0.00464
LBGC-OUT	4/30/2018 15:04	TI8571	37.5	0.0303	0.0365	26.0	0.797	0.0000032	0.0029	0.0686	-	10.8	0.00174	29.6	0.000432	9.87	0.305	31.5	0.00044	<0.005	0.177	0.0053
LBGC-OUT	4/30/2018 20:03	TJ0418	48.3	0.0358	0.0334	30.1	0.975	0.0000046	0.003	0.0837	-	10.9	0.00176	34.1	0.000499	10.1	0.358	32.6	0.000521	<0.005	0.1	0.00603
LBGC-OUT	5/1/2018 2:39	TJ0407	38	0.0276	0.0313	26.1	0.746	0.0000047	0.0033	0.0654	-	9.97	0.00164	24.8	0.000395	9.95	0.293	31.8	0.000419	<0.005	0.0896	0.00518
LBGC-OUT	5/1/2018 9:05	TJ0422	26.7	0.0212	0.0218	23.0	0.577	0.0000126	0.0033	0.0484	-	10.0	0.00143	18.8	0.000291	10.3	0.265	33.0	0.000307	<0.005	0.0888	0.00471
LBGC-OUT	5/1/2018 14:40	TJ1218	54.4	0.0349	0.042	30.5	0.806	0.0000034	<0.005	0.0869	-	11.2	0.00152	29.3	0.00068	11.1	0.306	35	0.000603	<0.025	0.076	0.00552
LBGC-OUT	5/1/2018 23:34	TJ1200	68.4	0.0429	0.054	35.5	1.06	0.000005	<0.005	0.11	-	12.6	0.00173	37.9	0.00086	11.7	0.338	38	0.000712	<0.025	0.069	0.00623
LBGC-OUT	5/2/2018 8:42	TJ1209	66.1	0.0416	0.052	33.7	0.948	0.0000043	<0.005	0.103	-	12.4	0.00187	34.1	0.00083	11.6	0.336	39	0.000746	<0.025	0.068	0.00595
LBGC-OUT	5/2/2018 8:42	TJ1206	78.6	0.0471	0.057	34.6	1.01	0.0000047	<0.005	0.109	-	13.3	0.00211	38.7	0.00087	12.6	0.37	43	0.000852	<0.025	0.075	0.00657
LBGC-OUT	5/2/2018 14:30	TJ2150	29.8	0.028	0.029	29.3	0.862	0.0000053	0.0034	0.0615	-	10.6	0.00149	22.8	0.000342	11.3	0.338	39.5	0.000357	<0.005	0.155	0.00593
LBGC-OUT	5/2/2018 15:00	TJ1221	54.1	0.0348	0.044	28.9	0.821	0.0000046	<0.005	0.0895	-	11.2	0.00165	31.3	0.00071	11.1	0.301	34	0.000583	<0.025	0.088	0.00547
LBGC-OUT	5/2/2018 20:48	TJ2683	28.9	0.024	0.0266	25.5	0.695	0.0000036	0.0036	0.0524	-	10.3	0.00148	24.2	0.000325	10.7	0.297	35.3	0.000349	<0.005	0.194	0.00518
LBGC-OUT	5/3/2018 2:54	TJ2688	27.6	0.0196	0.0253	22.4	0.493	0.0000032	0.0038	0.0435	-	9.98	0.00148	23.8	0.00031	10.9	0.245	35.5	0.00033	<0.005	0.205	0.00447
LBGC-OUT	5/3/2018 8:30	TJ2675	25	0.0176	0.0222	22.6	0.479	0.0000033	0.004	0.0419	-	10.1	0.00153	21.6	0.000296	11.1	0.25	36.3	0.00031	<0.005	0.174	0.00431
LBGC-OUT	5/3/2018 8:30	TJ2674	49.5	0.0294	0.0408	27.2	0.608	0.0000032	0.0044	0.0718	-	11.7	0.00208	34.6	0.000608	11.4	0.279	37.6	0.000597	<0.005	0.206	0.00499
LBGC-OUT	5/3/2018 14:22	TJ4220	43.2	0.0271	0.0335	25.0	0.647	0.0000039	0.0036	0.0637	-	10.4	0.00184	24	0.000508	11.1	0.313	38.4	0.000281	<0.005	0.0666	0.00511
LBGC-OUT	5/3/2018 20:57	TJ4747	41.2	0.0256	0.0328	25.2	0.653	0.0000046	0.0039	0.0621	-	10.0	0.00187	23.6	0.000474	11.0	0.326	39.1	0.000288	<0.005	0.0683	0.00499
LBGC-OUT	5/4/2018 3:20	TJ4755	595	0.456	0.549	243	13.1	0.0000062	<0.02	1.12	-	44.6	0.0054	201	0.0122	19.4	3.26	70	0.00484	<0.1	0.132	0.047
LBGC-OUT	5/4/2018 8:45	TJ4760	207	0.148	0.182	104	4.2	0.0000066	<0.005	0.372	-	21.7	0.00369	80.8	0.00341	25.6	1.3	86	0.00171	<0.025	0.104	0.0175
LBGC-OUT	5/4/2018 14:35	TJ5498	196	0.141	0.161	108	4.42	0.0000073	<0.005	0.364	-	22.2	0.00298	81.2	0.00291	25.9	1.32	89	0.00209	<0.025	0.116	0.017
LBGC-OUT	5/4/2018 20:18	TJ5484	211	0.143	0.171	92.8	3.49	0.0000087	<0.005	0.351	-	21.9	0.00323	90.6	0.00311	26.1	1.01	93	0.00218	<0.025	0.113	0.0156
LBGC-OUT	5/5/2018 2:45	TJ5479	187	0.124	0.151	94.2	3.38	0.0000073	<0.005	0.315	-	20.6	0.00353	81.9	0.00253	28.5	1.04	107	0.00197	<0.025	0.106	0.0148
LBGC-OUT	5/5/2018 2:45	TJ5480	220	0.147	0.179	102	3.67	0.000007	<0.005	0.366	-	22.3	0.00368	89.5	0.00325	29.7	1.12	110	0.00234	<0.025	0.126	0.0163
LBGC-OUT	5/5/2018 8:35	TJ5491	253	0.151	0.178	86.7	2.88	0.0000073	0.0109	0.287	-	22.5	0.0055	69.1	0.00372	30.5	1.43	153	0.00365	<0.005	0.0933	0.0184
LBGC-OUT	5/5/2018 14:30	TJ5678	339	0.201	0.213	103	4.19	0.0000122	0.0147	0.459	-	27.5	0.00767	96.7	0.0039	33.0	1.32	131	0.00338	<0.025	0.242	0.0181
LBGC-OUT	5/5/2018 14:30	TJ5674	335	0.203	0.213	106	4.28	0.0000117	0.014	0.463	-	27.7	0.0077	97.6	0.00396	33.6	1.33	131	0.0035	<0.025	0.245	0.0183
LBGC-OUT	5/5/2018 20:35	TJ5694	272	0.194	0.253	121	4.23	0.0000094	<0.005	0.465	-	27.5	0.00404	102	0.00475	31.8	1.31	134	0.00226	<0.025	0.111	0.0214
LBGC-OUT	5/6/2018 2:47	TJ5681	139	0.11	0.116	86.3	3.1	0.000008	<0.005	0.243	-	19.7	0.00376	64.2	0.00166	31.3	1.05	124	0.00104	<0.025	0.081	0.0157
LBGC-OUT	5/6/2018 8:30	TJ5687	190	0.133	0.15	82.0	2.93	0.0000099	<0.005	0.295	-	23.7	0.00421	78.7	0.00266	34.3	0.955	137	0.0017	<0.025	0.087	0.0143
LBGC-OUT	5/6/2018 14:40	TJ7031	323	0.203	0.252	121	4.53	0.0000075	0.0065	0.501	-	28.2	0.00504	112	0.00485	40.6	1.42	161	0.00222	<0.025	0.12	0.0213
LBGC-OUT	5/6/2018 14:40	TJ7032	305	0.196	0.247	119	4.32	0.0000067	0.0067	0.484	-	28.0	0.00494	108	0.00471	38.8	1.37	162	0.00218	<0.025	0.114	0.0207
LBGC-OUT	5/6/2018 20:52	TJ7490	50.9	0.0491	0.079	72.8	2.62	0.000009	<0.005	0.179	-	15.6	0.00191	35.8	0.00094	33.2	0.928	133	0.000604	<0.025	<0.025	0.0129
LBGC-OUT	5/7/2018 2:43	TJ7482	45.7	0.0481	0.072	81.4	2.75	0.0000074	<0.005	0.168	-	16.0	0.00222	30.3	0.00075	37.3	1.01	147	0.000567	<0.025	<0.025	0.0125
LBGC-OUT	5/7/2018 9:03	TJ7480	67.1	0.057	0.112	81.8	2.65	0.0000072	<0.005	0.226	-	17.3	0.00205	48.3	0.00165	38.6	0.909	141	0.000764	<0.025	0.026	0.0124
LBGC-OUT	5/7/2018 14:52	TJ9167	63.7	0.0367	0.046	36.7	1.06	0.0000042	0.0104	0.0855	-	12.0	0.00348	39.5	0.00068	15.5	0.413	46	0.00074	<0.025	0.354	0.00704
LBGC-OUT	5/7/2018 23:27	TJ9705	36.3	0.0347	0.043	65.2	2.08	0.0000092	<0.005	0.113	-	14.7	0.00163	20.8	0.00019	40.8	0.786	141	0.000317	<0.025	0.069	0.00963
LBGC-OUT	5/8/2018 5:13	TJ9701	35.3	0.0309	0.042	63.3	1.93	0.0000099	<0.005	0.109	-	14.1	0.00156	18.4	0.00023	40.2	0.745	141	0.000287	<0.025	0.067	0.00911
LBGC-OUT	5/8/2018 10:57	TJ9695	127	0.075	0.1	75.4	2.38	0.0000108	0.0059	0.21	-	19.4	0.00359	51.6	0.00129	44.4	0.884	164	0.00142	<0.025	0.099	0.011
LBGC-OUT	5/8/2018 17:14	TK1913	34.3	0.0307	0.043	62.5	1.93	0.0000088	<0.005	0.109	-	16.5	0.00155	37.9	0.00018	39.6	0.798	159	0.000369	<0.025	0.426	0.0101

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-0.60	5/9/2018 17:05	TK5293	0.086	0.533	0.00353	0.0546	<0.0005	0.00033	0.0182	<0.0001	<0.001	0.153	0.000199	195	<0.001	0.00498	0.00247	<0.01	<0.0002	0.0198	59.1	1.06
LBGC-0.60	5/9/2018 23:01	TK5237	0.084	0.537	0.00248	0.0393	<0.0005	0.00026	0.0247	<0.0001	<0.001	0.151	0.000263	184	<0.001	0.0102	0.00221	<0.01	<0.0002	0.0234	63.7	1.32
LBGC-0.60	5/10/2018 4:49	TK5242	0.084	0.533	0.00429	0.0313	<0.0005	0.00028	0.02	<0.0001	<0.001	0.149	0.000256	193	<0.001	0.00801	0.00205	<0.01	<0.0002	0.0234	68.9	1.24
LBGC-0.60	5/10/2018 10:59	TK5249	0.138	0.765	0.00351	0.0335	<0.0005	0.00027	0.0196	<0.0001	<0.001	0.162	0.000275	196	<0.001	0.00832	0.00208	<0.01	<0.0002	0.0276	65.7	1.27
LBGC-0.60	5/10/2018 17:06	TK5256	0.152	0.784	0.00451	0.0304	<0.0005	0.0004	0.0108	<0.0001	<0.001	0.162	0.000273	248	<0.001	0.0038	0.00269	<0.01	<0.0002	0.0371	87.2	1.07
LBGC-0.60	5/10/2018 22:49	TK5497	0.104	0.642	0.00315	0.0341	<0.0005	0.00027	0.0171	<0.0001	<0.001	0.159	0.000302	209	<0.001	0.0104	0.00211	<0.01	<0.0002	0.0333	72.8	1.53
LBGC-0.60	5/11/2018 4:47	TK5502	0.11	0.67	0.00333	0.0293	<0.0005	0.00028	0.0146	<0.0001	<0.001	0.158	0.000312	219	<0.001	0.0092	0.00195	<0.01	<0.0002	0.0333	74.2	1.54
LBGC-0.60	5/11/2018 10:47	TK6057	0.157	0.975	0.00245	0.0305	<0.0005	0.00026	0.017	<0.0001	<0.001	0.155	0.000288	210	<0.001	0.00816	0.00219	<0.01	<0.0002	0.0318	74.7	1.46
LBGC-0.60	5/11/2018 16:48	TK6050	0.195	1.2	0.00231	0.0251	<0.0005	0.00036	0.0115	<0.0001	<0.001	0.169	0.000253	238	<0.001	0.00399	0.0032	<0.01	<0.0002	0.0305	89.0	1.39
LBGC-0.60	5/12/2018 13:39	TK6554	0.147	0.993	0.00256	0.0253	<0.0005	0.00023	0.0093	<0.0001	<0.001	0.153	0.000365	240	<0.001	0.00634	0.00199	<0.01	<0.0002	0.034	86.6	1.97
LBGC-0.60	5/21/2018 6:15	TM2899	0.035	0.398	0.00605	0.338	<0.0025	<0.0005	0.0198	<0.0005	<0.005	<0.25	0.000812	349	<0.005	0.0812	<0.0025	<0.05	<0.001	0.064	133	5.31
LBGC-0.60	5/26/2018 16:30	TM9442	0.039	0.383	0.00409	0.018	<0.0025	<0.0005	0.0306	<0.0005	<0.005	<0.25	0.000422	483	<0.005	0.0351	<0.0025	<0.05	<0.001	0.038	143	4.39
LBGC-0.60	5/30/2018 6:20	TN9751	<0.005	0.142	0.00062	0.0153	<0.001	0.00031	0.0242	<0.0002	<0.002	0.172	0.000533	411	<0.002	0.0469	0.002	<0.02	<0.0004	0.05	144	4.29
LBGC-OUT	3/14/2018 15:10	TC7635	0.0146	0.0327	0.00155	0.0325	<0.0005	0.00049	0.0372	<0.0001	<0.001	<0.05	0.000065	59.3	<0.001	0.00039	0.00293	0.054	<0.0002	0.0043	22.0	0.0398
LBGC-OUT	4/27/2018 22:40	TI5321	0.266	1.38	0.00351	0.0088	<0.0005	0.00054	0.0235	<0.0001	<0.001	<0.05	0.00003	47.9	<0.001	0.0003	0.00242	0.046	<0.0002	0.0062	12.9	0.0706
LBGC-OUT	4/28/2018 4:50	TI5327	0.177	0.836	0.00335	0.0128	<0.0005	0.00057	0.0246	<0.0001	<0.001	<0.05	0.000029	43.3	<0.001	0.00035	0.00269	0.076	<0.0002	0.0063	12.5	0.0541
LBGC-OUT	4/28/2018 12:46	TI5338	0.166	0.755	0.00275	0.0108	<0.0005	0.00053	0.0231	<0.0001	<0.001	<0.05	0.000043	47.3	<0.001	0.00037	0.00305	0.05	<0.0002	0.0069	14.7	0.0687
LBGC-OUT	4/28/2018 12:46	TI5337	0.2	0.924	0.00341	0.0094	<0.0005	0.00054	0.0233	<0.0001	<0.001	<0.05	0.00004	47.1	<0.001	0.00035	0.00299	0.045	<0.0002	0.0071	13.7	0.0644
LBGC-OUT	4/28/2018 19:55	TI5405	0.224	1.03	0.00363	0.0099	<0.0005	0.00057	0.0227	<0.0001	<0.001	<0.05	0.000039	43.5	<0.001	0.0003	0.00253	0.05	<0.0002	0.0063	13.4	0.0597
LBGC-OUT	4/29/2018 2:58	TI5402	0.14	0.587	0.00328	0.0108	<0.0005	0.00056	0.0219	<0.0001	<0.001	<0.05	0.000032	42.2	<0.001	0.00033	0.00236	0.063	<0.0002	0.0062	12.4	0.0569
LBGC-OUT	4/29/2018 8:53	TI7039	0.114	0.408	0.00595	0.027	<0.0005	0.00067	0.024	<0.0001	<0.001	<0.05	0.00004	40.7	<0.001	0.00041	0.00343	0.262	0.00028	0.0055	11.8	0.0511
LBGC-OUT	4/29/2018 14:12	TI7017	0.048	0.151	0.00275	0.0243	<0.0005	0.00062	0.0217	<0.0001	<0.001	<0.05	0.000034	40.5	<0.001	0.00039	0.00355	0.222	0.00024	0.0059	12.6	0.0506
LBGC-OUT	4/29/2018 21:40	TI7029	0.0555	0.172	0.00257	0.023	<0.0005	0.00062	0.0222	<0.0001	<0.001	<0.05	0.000032	41.3	<0.001	0.00036	0.00287	0.21	0.00023	0.0062	12.9	0.0496
LBGC-OUT	4/30/2018 3:42	TI7022	0.0453	0.14	0.00613	0.0244	<0.0005	0.00058	0.0211	<0.0001	<0.001	<0.05	0.000038	41.3	<0.001	0.00042	0.00304	0.212	0.00023	0.0059	12.7	0.058
LBGC-OUT	4/30/2018 3:42	TI7019	0.0509	0.16	0.00342	0.0253	<0.0005	0.00061	0.0204	<0.0001	<0.001	<0.05	0.000037	41.4	<0.001	0.00045	0.00304	0.225	0.0003	0.0058	12.7	0.0613
LBGC-OUT	4/30/2018 9:45	TI8566	0.0519	0.155	0.00349	0.018	<0.0005	0.00061	0.0271	<0.0001	<0.001	<0.05	0.000037	39.6	<0.001	0.00034	0.00294	0.133	<0.0002	0.0055	13.1	0.05
LBGC-OUT	4/30/2018 15:04	TI8571	0.066	0.197	0.00638	0.018	<0.0005	0.00058	0.0258	<0.0001	<0.001	<0.05	0.000035	40.9	<0.001	0.00036	0.00285	0.127	<0.0002	0.0059	14.4	0.0532
LBGC-OUT	4/30/2018 20:03	TJ0418	0.0738	0.237	0.00297	0.0194	<0.0005	0.00055	0.025	<0.0001	<0.001	<0.05	0.00004	45.5	<0.001	0.00035	0.00318	0.145	<0.0002	0.0064	14.9	0.0538
LBGC-OUT	5/1/2018 2:39	TJ0407	0.0591	0.192	0.00222	0.0168	<0.0005	0.00053	0.0244	<0.0001	<0.001	<0.05	0.000037	44.0	<0.001	0.00035	0.00297	0.112	<0.0002	0.0062	14.3	0.0547
LBGC-OUT	5/1/2018 9:05	TJ0422	0.0437	0.135	0.00257	0.0223	<0.0005	0.00057	0.027	<0.0001	<0.001	<0.05	0.000043	45.3	<0.001	0.00039	0.00331	0.151	<0.0002	0.0063	14.5	0.0576
LBGC-OUT	5/1/2018 14:40	TJ1218	0.068	0.259	0.00261	0.0307	<0.0005	0.00048	0.0223	<0.0001	<0.001	<0.05	0.000032	42.8	<0.001	0.00035	0.00301	0.126	<0.0002	0.0058	13.1	0.051
LBGC-OUT	5/1/2018 23:34	TJ1200	0.085	0.335	0.00257	0.0227	<0.0005	0.0005	0.02	<0.0001	<0.001	<0.05	0.000041	44.6	<0.001	0.00042	0.00393	0.163	<0.0002	0.0065	14.4	0.066
LBGC-OUT	5/2/2018 8:42	TJ1209	0.077	0.317	0.00334	0.0237	<0.0005	0.0005	0.0194	<0.0001	<0.001	<0.05	0.000045	48.5	<0.001	0.00047	0.0032	0.126	0.00025	0.0069	14.9	0.0776
LBGC-OUT	5/2/2018 8:42	TJ1206	0.084	0.341	0.00292	0.0211	<0.0005	0.00048	0.0193	<0.0001	<0.001	<0.05	0.000045	47.5	<0.001	0.00047	0.00303	0.11	<0.0002	0.0069	14.8	0.0789
LBGC-OUT	5/2/2018 14:30	TJ2150	0.055	0.168	0.00331	0.0181	<0.0005	0.00052	0.0248	<0.0001	<0.001	<0.05	0.000047	49.5	<0.001	0.0004	0.00307	0.075	<0.0002	0.0069	15.1	0.0726
LBGC-OUT	5/2/2018 15:00	TJ1221	0.069	0.269	0.00302	0.0203	<0.0005	0.00048	0.0211	<0.0001	<0.001	<0.05	0.000037	45.3	<0.001	0.00042	0.00325	0.12	<0.0002	0.0062	14.4	0.0653
LBGC-OUT	5/2/2018 20:48	TJ2683	0.0521	0.148	0.00351	0.0211	<0.0005	0.00053	0.0243	<0.0001	<0.001	<0.05	0.000033	48.9	<0.001	0.00043	0.00321	0.128	<0.0002	0.0064	15.2	0.0735
LBGC-OUT	5/3/2018 2:54	TJ2688	0.0453	0.126	0.00453	0.0508	<0.0005	0.00052	0.025	<0.0001	<0.001	<0.05	0.000042	47.8	<0.001	0.0005	0.00319	0.136	<0.0002	0.0065	15.3	0.0807
LBGC-OUT	5/3/2018 8:30	TJ2675	0.0422	0.115	0.00361	0.0276	<0.0005	0.0005	0.0261	<0.0001	<0.001	<0.05	0.000037	47.4	<0.001	0.00048	0.00331	0.108	<0.0002	0.0062	14.9	0.0791
LBGC-OUT	5/3/2018 8:30	TJ2674	0.0674	0.21	0.00414	0.0255	<0.0005	0.0005	0.0263	<0.0001	<0.001	<0.05	0.000042	48.4	<0.001	0.00049	0.00306	0.088	<0.0002	0.0063	15.2	0.0798
LBGC-OUT	5/3/2018 14:22	TJ4220	0.0501	0.186	0.00101	0.0237	0.0005	0.0005	0.0257	<0.0001	<0.001	<0.05	0.000044	54.2	<0.001	0.00053	0.00318	0.131	<0.0002	0.0072	16.8	0.0944
LBGC-OUT	5/3/2018 20:57	TJ4747	0.0513	0.18	0.00096	0.0168	0.00053	0.00046	0.0289	<0.0001	<0.001	<0.05	0.000049	53.0	<0.001	0.00051	0.00317	0.08	<0.0002	0.0062	15.4	0.0976
LBGC-OUT	5/4/2018 3:20	TJ4755	0.493	3.2	0.0043	0.0108	0.00064	0.00063	0.0326	<0.0001	<0.001	<0.05	0.000046	54.5	<0.001	0.00064	0.00213	0.069	<0.0002	0.0061	16.1	0.221
LBGC-OUT	5/4/2018 8:45	TJ4760	0.202	1.01	0.00296	0.0202	<0.0005	0.0004	0.0166	<0.0001	<0.001	0.082	0.000096	79.3	<0.001	0.00146	0.00299	0.041	<0.0002	0.013	27.4	0.275
LBGC-OUT	5/4/2018 14:35	TJ5498	0.212	0.982	0.00441	0.0124	<0.0005	0.00039	0.0192	<0.0001	<0.001	0.082	0.000077	85.9	<0.001	0.00099	0.00317	0.031	<0.0002	0.0125	28.9	0.218
LBGC-OUT	5/4/2018 20:18	TJ5484	0.211	1	0.00379	0.0159	<0.0005	0.00041	0.0208	<0.0001	<0.001	0.08	0.000068	87.2	<0.001	0.00093	0.00348	0.032	<0.0002	0.0119	28.6	0.218
LBGC-OUT	5/5/2018 2:45	TJ5479	0.194	0.902	0.00332	0.02	<0.0005	0.00035	0.0161	<0.0001	<0.001	0.081	0.000082	96.5	<0.001	0.00124	0.00332	0.025	<0.0002	0.0134	32.4	0.298
LBGC-OUT	5/5/2018 2:45	TJ5480	0.217	1.05	0.004	0.0205	<0.0005	0.00036	0.0158	<0.0001	<0.001	0.081	0.000087	96.7	<0.001	0.00126	0.00317	0.026	<0.0002	0.0134	31.6	0.293
LBGC-OUT	5/5/2018 8:35	TJ5491	0.193	0.848	0.00386	0.0311	<0.0005	0.00037	0.0098	<0.0001	<0.001	0.085	0.000161	126	<0.001	0.00185	0.00369	0.011	<0.0002	0.0192	39.7	0.421
LBGC-OUT	5/5/2018 14:30	TJ5678	0.32	1.42	0.00838	0.0231	<0.0005	0.00043	0.0162	<0.0001	<0.001	0.103	0.000078	113	<0.001	0.00104	0.00335	0.022	<0.0002	0.0146	36.1	0.284
LBGC-OUT	5/5/2018 14:30	TJ5674	0.323	1.43	0.00688	0.0168	<0.0005	0.00046	0.0168	<0.0001	<0.001	0.099	0.000076	118	<0.001	0.00099	0.00348	0.018	<0.0002	0.0149	34.8	0.275
LBGC-OUT	5/5/2018 20:35	TJ5694	0.246	1.35	0.00313	0.0166	<0.0005	0.00039	0.0174	<0.0001	<0.001	0.101	0.000075	105	<0.001	0.00126	0.00319	0.028	<0.0002	0.0156	35.4	0.321
LBGC-OUT	5/6/2018 2:47	TJ5681	0.151	0.703	0.00268	0.0203	<0.0005	0.00035	0.018	<0.0001	<0.001	0.102	0.000094	108	<0.001	0.00182	0.00298	0.016	<0.0002	0.0165	35.8	0.393
LBGC-OUT	5/6/2018 8:30	TJ5687	0.174	0.872	0.00233	0.0275	<0.0005	0.00037	0.0172	<0.0001	<0.001	0.108	0.000097	104	<0.001	0.002	0.00307	0.025	<0.0002	0.0167	35.2	0.466
LBGC-OUT	5/6/2018 14:40	TJ7031	0.297	1.44	0.00374	0.0243	<0.0005	0.00046	0.0206	<0.0001	<0.001	0.119	0.000096	126	<0.001	0.00122	0.00344	<0.01	<0.0002	0.0188	39.5	0.371
LBGC-OUT	5/6/2018 14:40	TJ7032	0.275	1.44	0.00345	0.0208	<0.0005	0.00044	0.0221	<0.0001	<0.001	0.126	0.000095	128	<0.001	0.00117	0.0035	<0.01	<0.0002	0.0191	38.2	0.367
LBGC-OUT	5/6/2018 20:52	TJ7490	0.082	0.474	0.00082	0.0205	<0.0005	0.00038	0.0208	<0.0001	<0.001	0.11	0.000101	119	<0.001	0.00177	0.00315	0.014	<0.0002	0.0167	36.4	0.451
LBGC-OUT	5/7/2018 2:43	TJ7482	0.075	0.435	0.00095	0.0305	<0.0005	0.00037	0.0183	<0.0001	<0.001	0.126	0.000111	126	<0.001	0.00248	0.0031	0.014	<0.0002	0.0181	38.3	0.507
LBGC-OUT	5/7/2018 9:03	TJ7480	0.085	0.586	0.00096	0.0356	<0.0005	0.00036	0.022	<0.0001	<0.001	0.128	0.000092	122	<0.001	0.00219	0.00299	0.024	<0.0002	0.018	39.4	0.527
LBGC-OUT	5/7/2018 14:52	TJ9167	0.086	0.27	0.0107	0.0321	0.00076	0.00053	0.0288	<0.0001	<0.001	0.052	0.000038	59.0	<0.001	0.00052	0.00296	0.011	<0.0002	0.0079	19.6	0.141
LBGC-OUT	5/7/2018 23:27	TJ9705	0.06	0.295	0.00321	0.038	<0.0005	0.00035	0.0221	<0.0001	<0.001	0.129	0.000096	129	<0.001	0.00263	0.00313	0.012	<0.0002	0.0189	41.8	0.575
LBGC-OUT	5/8/2018 5:13	TJ9701	0.053	0.283	0.00282	0.0431	<0.0005	0.00031	0.0256	<0.0001	<0.001	0.12	0.000092	127	<0.001	0.00316	0.00291	0.012	<0.0002	0.019	41.7	0.621
LBGC-OUT	5/8/2018 10:57	TJ9695	0.122	0.591	0.00407	0.0423	<0.0005	0.00035	0.0203	<0.0001	<0.001	0.134	0.000099	133	<0.001	0.0024	0.00313	<0.01	<0.0002	0.0217	45.0	0.655
LBGC-OUT	5/8/2018 17:14	TK1913	0.076	0.317	0.0111	0.034	<0.0005	0.00034	0.0195	<0.0001	<0.001	0.123	0.000073	139	<0.001	0.00182	0.00309	0.014	<0.0002	0.0187	44.3	0.628

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-0.60	5/9/2018 17:05	TK5293	<0.000002	0.0031	0.0211	-	13.1	0.00103	2.41	<0.00002	58.6	0.547	240	0.000024	<0.005	<0.005	0.00454	<0.005	<0.005	<0.0001
LBGC-0.60	5/9/2018 23:01	TK5237	<0.000002	0.0025	0.0365	-	13.1	0.0009	2.51	<0.00002	65.0	0.576	237	0.000023	<0.005	<0.005	0.00445	<0.005	<0.005	<0.0001
LBGC-0.60	5/10/2018 4:49	TK5242	<0.000002	0.0026	0.0308	-	12.4	0.001	2.47	<0.00002	66.7	0.612	247	0.000023	<0.005	<0.005	0.00492	<0.005	<0.005	<0.0001
LBGC-0.60	5/10/2018 10:59	TK5249	<0.000002	0.0027	0.0307	-	12.7	0.00102	2.28	<0.00002	65.9	0.622	246	0.000029	<0.005	<0.005	0.00489	<0.005	<0.005	<0.0001
LBGC-0.60	5/10/2018 17:06	TK5256	<0.000002	0.0049	0.0166	-	10.6	0.00292	2.05	<0.00002	79.3	0.637	326	0.000027	<0.005	<0.005	0.00678	<0.005	<0.005	<0.0001
LBGC-0.60	5/10/2018 22:49	TK5497	<0.000002	0.0029	0.0397	-	12.5	0.00123	2.56	<0.00002	72.3	0.642	280	0.000025	<0.005	<0.005	0.00553	<0.005	<0.005	0.00013
LBGC-0.60	5/11/2018 4:47	TK5502	<0.000002	0.0028	0.0357	-	11.7	0.00133	2.63	<0.00002	73.0	0.634	288	0.000021	<0.005	<0.005	0.00544	<0.005	<0.005	0.00011
LBGC-0.60	5/11/2018 10:47	TK6057	<0.000002	0.0026	0.0321	-	11.2	0.00112	2.33	<0.00002	72.4	0.672	266	0.000024	<0.005	<0.005	0.00555	<0.005	<0.005	<0.0001
LBGC-0.60	5/11/2018 16:48	TK6050	<0.000002	0.004	0.0214	-	12.0	0.0017	1.77	<0.00002	85.1	0.709	316	0.000025	<0.005	<0.005	0.00688	<0.005	<0.005	<0.0001
LBGC-0.60	5/12/2018 13:39	TK6554	<0.000002	0.0031	0.0261	-	10.5	0.00173	1.59	<0.00002	87.7	0.767	300	0.000023	<0.005	<0.005	0.00564	<0.005	<0.005	<0.0001
LBGC-0.60	5/21/2018 6:15	TM2899	<0.000002	<0.005	0.223	-	10.3	0.00242	2.57	<0.0001	168	1.23	501	<0.00005	<0.025	<0.025	0.00502	<0.025	0.061	<0.0005
LBGC-0.60	5/26/2018 16:30	TM9442	<0.000002	<0.005	0.0988	-	16.5	0.00088	4.16	<0.0001	121	1.36	572	0.000058	<0.025	<0.025	0.0113	<0.025	0.033	<0.0005
LBGC-0.60	5/30/2018 6:20	TN9751	<0.000002	0.0021	0.138	-	14.7	0.00123	4.76	<0.00004	144	1.37	587	0.000042	<0.01	<0.01	0.0111	<0.01	0.058	<0.0002
LBGC-OUT	3/14/2018 15:10	TC7635	-	0.0024	0.0031	-	5.38	0.00185	1.96	<0.00002	20.0	0.162	80.5	<0.00001	0.0067	<0.005	0.00155	<0.005	<0.005	0.00058
LBGC-OUT	4/27/2018 22:40	TI5321	0.0000027	0.0027	0.0033	-	7.68	0.00053	1.82	<0.00002	8.49	0.149	35.1	0.00001	<0.005	<0.005	0.00203	<0.005	<0.005	0.00015
LBGC-OUT	4/28/2018 4:50	TI5327	0.0000026	0.003	0.0037	-	7.54	0.00067	1.82	<0.00002	9.18	0.145	34.8	0.000012	<0.005	<0.005	0.00196	<0.005	<0.005	0.00037
LBGC-OUT	4/28/2018 12:46	TI5338	0.0000033	0.0027	0.004	-	7.86	0.00064	1.87	<0.00002	9.74	0.144	39.9	0.000011	<0.005	<0.005	0.002	<0.005	<0.005	0.00017
LBGC-OUT	4/28/2018 12:46	TI5337	0.0000031	0.0028	0.0039	-	7.63	0.00078	1.85	<0.00002	9.54	0.148	39.2	0.000012	<0.005	<0.005	0.00196	<0.005	<0.005	0.00013
LBGC-OUT	4/28/2018 19:55	TI5405	0.0000027	0.0031	0.0037	-	7.65	0.00067	1.69	<0.00002	9.20	0.15	35.0	<0.00001	<0.005	<0.005	0.00217	<0.005	<0.005	0.00023
LBGC-OUT	4/29/2018 2:58	TI5402	0.000003	0.0028	0.0038	-	7.55	0.00063	1.79	<0.00002	8.97	0.138	32.9	<0.00001	<0.005	<0.005	0.00196	<0.005	<0.005	0.00018
LBGC-OUT	4/29/2018 8:53	TI7039	0.0000029	0.0029	0.0039	-	6.56	0.0006	1.67	<0.00002	8.58	0.123	29.4	0.000012	<0.005	0.0176	0.00208	<0.005	<0.005	0.00073
LBGC-OUT	4/29/2018 14:12	TI7017	<0.000002	0.0029	0.0037	-	6.53	0.00069	1.56	<0.00002	8.95	0.13	28.8	0.000012	<0.005	0.013	0.00217	<0.005	<0.005	0.00084
LBGC-OUT	4/29/2018 21:40	TI7029	<0.000002	0.0033	0.0034	-	6.67	0.00066	1.56	<0.00002	8.99	0.137	32.2	0.000012	<0.005	0.0122	0.00228	<0.005	<0.005	0.00073
LBGC-OUT	4/30/2018 3:42	TI7022	0.0000023	0.003	0.0039	-	6.51	0.0006	1.61	<0.00002	8.97	0.132	30.7	0.00001	<0.005	0.0118	0.0022	<0.005	<0.005	0.00066
LBGC-OUT	4/30/2018 3:42	TI7019	0.0000027	0.003	0.004	-	6.67	0.00064	1.64	<0.00002	9.11	0.139	31.2	0.000011	<0.005	0.0143	0.00222	<0.005	<0.005	0.00054
LBGC-OUT	4/30/2018 9:45	TI8566	<0.000002	0.0036	0.0034	-	7.33	0.00072	1.54	<0.00002	9.64	0.142	30.6	0.000013	<0.005	0.008	0.00239	<0.005	<0.005	0.00038
LBGC-OUT	4/30/2018 15:04	TI8571	<0.000002	0.0038	0.0038	-	7.69	0.00072	1.57	<0.00002	10.4	0.149	33.9	0.000013	<0.005	0.0084	0.00248	<0.005	<0.005	0.00036
LBGC-OUT	4/30/2018 20:03	TJ0418	0.0000026	0.0038	0.0037	-	7.24	0.00072	1.64	<0.00002	10.7	0.151	34.1	0.000013	<0.005	0.0079	0.00258	<0.005	<0.005	0.00049
LBGC-OUT	5/1/2018 2:39	TJ0407	0.0000025	0.0039	0.0036	-	7.15	0.00073	1.56	<0.00002	10.3	0.15	33.0	0.000016	<0.005	0.0062	0.00255	<0.005	<0.005	0.00033
LBGC-OUT	5/1/2018 9:05	TJ0422	0.0000023	0.004	0.0039	-	7.38	0.00076	1.6	<0.00002	10.5	0.154	33.2	0.000015	<0.005	0.009	0.00259	<0.005	<0.005	0.00049
LBGC-OUT	5/1/2018 14:40	TJ1218	<0.000002	0.0036	0.0037	-	6.97	0.00064	1.48	<0.00002	9.42	0.146	31.9	0.000012	<0.005	0.0066	0.00221	<0.005	<0.005	0.00034
LBGC-OUT	5/1/2018 23:34	TJ1200	0.0000023	0.0037	0.0043	-	7.05	0.00065	1.55	<0.00002	10.3	0.152	34.7	0.000011	<0.005	0.0088	0.0024	<0.005	<0.005	0.00046
LBGC-OUT	5/2/2018 8:42	TJ1209	0.0000021	0.0039	0.0044	-	7.15	0.00075	1.52	<0.00002	10.7	0.158	37.5	0.000013	<0.005	0.0066	0.00255	<0.005	<0.005	0.00035
LBGC-OUT	5/2/2018 8:42	TJ1206	0.0000023	0.0039	0.0044	-	7.08	0.00074	1.48	<0.00002	10.5	0.156	37.6	0.000013	<0.005	0.0057	0.00259	<0.005	0.0075	0.00034
LBGC-OUT	5/2/2018 14:30	TJ2150	0.0000029	0.0043	0.0042	-	7.44	0.00085	1.57	<0.00002	10.8	0.171	39.4	0.000013	<0.005	<0.005	0.00266	<0.005	<0.005	0.0003
LBGC-OUT	5/2/2018 15:00	TJ1221	0.0000021	0.0037	0.0041	-	6.94	0.00069	1.52	<0.00002	10.4	0.15	33.0	0.000013	<0.005	0.0067	0.00258	<0.005	<0.005	0.00041
LBGC-OUT	5/2/2018 20:48	TJ2683	<0.000002	0.0043	0.0042	-	7.31	0.00079	1.59	<0.00002	10.7	0.165	36.6	0.000011	<0.005	0.0086	0.00274	<0.005	<0.005	0.00043
LBGC-OUT	5/3/2018 2:54	TJ2688	<0.000002	0.0042	0.0044	-	7.27	0.00077	1.57	<0.00002	11.0	0.163	35.8	0.000012	<0.005	0.0082	0.00272	<0.005	<0.005	0.00051
LBGC-OUT	5/3/2018 8:30	TJ2675	0.0000029	0.0043	0.0043	-	7.24	0.00078	1.49	<0.00002	10.7	0.161	35.4	0.000014	<0.005	0.0066	0.0027	<0.005	<0.005	0.00039
LBGC-OUT	5/3/2018 8:30	TJ2674	<0.000002	0.0044	0.0044	-	7.36	0.0008	1.51	<0.00002	10.9	0.162	36.3	0.000018	<0.005	0.0051	0.00277	<0.005	<0.005	0.00029
LBGC-OUT	5/3/2018 14:22	TJ4220	0.000002	0.0046	0.0045	-	7.28	0.00082	1.65	<0.00002	12.2	0.172	40.5	0.000013	<0.005	0.0087	0.00294	<0.005	<0.005	0.00053
LBGC-OUT	5/3/2018 20:57	TJ4747	0.0000024	0.0046	0.0046	-	7.30	0.00083	1.51	<0.00002	10.7	0.182	39.6	0.000013	<0.005	<0.005	0.00292	<0.005	<0.005	0.00024
LBGC-OUT	5/4/2018 3:20	TJ4755	<0.000002	0.006	0.0038	-	7.36	0.00085	1.53	<0.00002	11.3	0.178	41.6	0.000013	<0.005	<0.005	0.00354	<0.005	<0.005	0.00021
LBGC-OUT	5/4/2018 8:45	TJ4760	0.0000026	0.0022	0.0103	-	9.24	0.00086	2.09	<0.00002	23.2	0.298	85.0	0.000014	<0.005	<0.005	0.0027	<0.005	<0.005	0.00024
LBGC-OUT	5/4/2018 14:35	TJ5498	0.0000022	0.0027	0.0081	-	9.25	0.00077	2.05	<0.00002	23.8	0.307	88.5	0.000013	<0.005	<0.005	0.00327	<0.005	<0.005	0.00022
LBGC-OUT	5/4/2018 20:18	TJ5484	0.0000028	0.0028	0.0077	-	9.46	0.00075	2.01	<0.00002	23.4	0.302	89.8	0.000013	<0.005	<0.005	0.00326	<0.005	<0.005	0.00022
LBGC-OUT	5/5/2018 2:45	TJ5479	0.000003	0.0028	0.0091	-	9.28	0.00093	1.93	<0.00002	25.3	0.321	103	0.000014	<0.005	<0.005	0.00331	<0.005	<0.005	0.00018
LBGC-OUT	5/5/2018 2:45	TJ5480	0.0000031	0.0028	0.0093	-	9.14	0.00093	1.94	<0.00002	25.2	0.323	101	0.000012	<0.005	<0.005	0.00325	<0.005	<0.005	0.0002
LBGC-OUT	5/5/2018 8:35	TJ5491	0.0000025	0.003	0.0114	-	9.81	0.00221	1.75	<0.00002	27.0	0.376	143	0.000013	<0.005	<0.005	0.00346	<0.005	<0.005	0.00013
LBGC-OUT	5/5/2018 14:30	TJ5678	0.0000027	0.0031	0.0084	-	10.2	0.00108	1.74	<0.00002	27.5	0.326	129	0.000017	<0.005	<0.005	0.00394	<0.005	<0.005	0.00015
LBGC-OUT	5/5/2018 14:30	TJ5674	0.0000029	0.0035	0.0077	-	10.1	0.00103	1.8	<0.00002	28.4	0.337	127	0.000019	<0.005	<0.005	0.00422	<0.005	<0.005	0.00017
LBGC-OUT	5/5/2018 20:35	TJ5694	0.0000028	0.0029	0.0091	-	9.55	0.00077	1.91	<0.00002	29.1	0.357	112	0.000015	<0.005	<0.005	0.00404	<0.005	<0.005	0.00021
LBGC-OUT	5/6/2018 2:47	TJ5681	0.0000025	0.0028	0.0108	-	9.72	0.00079	1.98	<0.00002	30.8	0.37	118	0.000015	<0.005	<0.005	0.0038	<0.005	<0.005	0.00018
LBGC-OUT	5/6/2018 8:30	TJ5687	0.0000023	0.0025	0.0123	-	10.0	0.00069	1.95	<0.00002	32.3	0.359	113	0.000015	<0.005	<0.005	0.00344	<0.005	<0.005	0.00018
LBGC-OUT	5/6/2018 14:40	TJ7031	<0.000002	0.0036	0.0089	-	10.3	0.0011	1.75	<0.00002	34.1	0.38	137	0.000025	<0.005	<0.005	0.00467	<0.005	<0.005	0.00012
LBGC-OUT	5/6/2018 14:40	TJ7032	0.0000022	0.0037	0.0091	-	10.6	0.00115	1.83	<0.00002	32.4	0.385	143	0.000025	<0.005	<0.005	0.00453	<0.005	<0.005	0.00012
LBGC-OUT	5/6/2018 20:52	TJ7490	0.0000025	0.0029	0.0111	-	10.4	0.00078	1.98	<0.00002	31.5	0.366	131	0.000017	<0.005	<0.005	0.00412	<0.005	<0.005	0.00021
LBGC-OUT	5/7/2018 2:43	TJ7482	<0.000002	0.0027	0.0137	-	10.3	0.00086	2.03	<0.00002	34.0	0.395	143	0.000017	<0.005	<0.005	0.00398	<0.005	<0.005	0.00025
LBGC-OUT	5/7/2018 9:03	TJ7480	<0.000002	0.0025	0.0128	-	10.9	0.00075	2.1	<0.00002	35.4	0.401	132	0.000019	<0.005	<0.005	0.00407	<0.005	<0.005	0.00016
LBGC-OUT	5/7/2018 14:52	TJ9167	0.0000022	0.0067	0.0044	-	7.22	0.00123	1.69	<0.00002	15.3	0.215	49.0	0.000018	<0.005	<0.005	0.00404	<0.005	<0.005	<0.0001
LBGC-OUT	5/7/2018 23:27	TJ9705	<0.000002	0.0027	0.0146	-	11.1	0.00085	1.91	<0.00002	39.3	0.425	153	0.000018	<0.005	<0.005	0.0045	<0.005	<0.005	0.00016
LBGC-OUT	5/8/2018 5:13	TJ9701	<0.000002	0.0026	0.0169	-	10.9	0.00079	2.06	<0.00002	39.2	0.424	148	0.000018	<0.005	<0.005	0.00438	<0.005	<0.005	0.00013
LBGC-OUT	5/8/2018 10:57	TJ9695	<0.000002	0.0025	0.0142	-	11.5	0.00081	1.8	<0.00002	42.8	0.445	164	0.000021	<0.005	<0.005	0.0046	<0.005	<0.005	0.00013
LBGC-OUT	5/8/2018 17:14	TK1913	0.0000021	0.0033	0.0118	-	11.4	0.00097	1.63	<0.00002	39.3	0.501	172	0.00002	<0.005	<0.005	0.00487	<0.005	<0.005	0.00016

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-OUT	5/8/2018 17:14	TK1912	7.98	1190	>4000	728	6960	913	543	115	<1.0	140	<1.0	<1.0	23.1	0.540	0.15	521
LBGC-OUT	5/8/2018 23:03	TK1906	7.95	1220	>4000	780	5610	876	562	117	<1.0	143	<1.0	<1.0	23.4	0.520	0.16	529
LBGC-OUT	5/9/2018 5:00	TK1897	7.89	1320	>4000	848	4910	960	607	114	<1.0	139	<1.0	<1.0	24.0	0.380	0.17	599
LBGC-OUT	5/9/2018 11:13	TK1893	7.89	1380	>4000	932	3630	824	634	108	<1.0	132	<1.0	<1.0	24.0	0.560	0.19	651
LBGC-OUT	5/9/2018 17:20	TK5295	7.97	1430	>4000	932	4400	1040	767	114	<1.0	139	<1.0	<1.0	24.2	0.590	0.17	658
LBGC-OUT	5/9/2018 23:16	TK5238	7.92	1460	>4000	1080	3830	978	742	115	<1.0	141	<1.0	<1.0	24.6	0.580	0.16	663
LBGC-OUT	5/10/2018 5:03	TK5243	7.94	1540	>4000	904	5480	1230	803	120	<1.0	146	<1.0	<1.0	25.1	0.600	0.17	738
LBGC-OUT	5/10/2018 11:10	TK5250	7.95	1530	>4000	864	5950	1150	775	109	<1.0	133	<1.0	<1.0	27.4	0.660	0.18	724
LBGC-OUT	5/10/2018 17:23	TK5257	7.97	1670	>4000	996	7700	1460	901	107	<1.0	131	<1.0	<1.0	25.2	0.720	0.20	804
LBGC-OUT	5/10/2018 23:02	TK5498	7.95	1620	>4000	1250	6440	1340	862	125	<1.0	153	<1.0	<1.0	25.9	0.640	0.19	801
LBGC-OUT	5/11/2018 5:00	TK5506	7.96	1640	>4000	1150	5840	1330	851	134	<1.0	164	<1.0	<1.0	26.6	0.510	0.19	814
LBGC-OUT	5/11/2018 5:00	TK5503	7.94	1640	>4000	1180	6170	1340	895	132	<1.0	161	<1.0	<1.0	26.4	0.620	0.19	770
LBGC-OUT	5/11/2018 11:02	TK6058	7.90	1710	>4000	1240	7010	1350	898	123	<1.0	150	<1.0	<1.0	28.0	0.690	0.21	868
LBGC-OUT	5/11/2018 16:55	TK6051	7.80	1990	>4000	1640	7720	1850	1070	106	<1.0	129	<1.0	<1.0	27.9	0.710	0.22	1090
LBGC-OUT	5/12/2018 13:53	TK6555	8.11	754	>4000	490	3470	777	332	171	<1.0	208	<1.0	<1.0	6.26	0.320	0.049	208
LBL3C-3.32	4/25/2018 13:35	TI3536	-	-	-	-	1300	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	5/27/2018 11:15	TM9448	-	-	2.09	-	4.5	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/9/2018 17:20	TQ0034	-	-	2.58	804	4.5	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/12/2018 10:00	TQ4127	8.20	1290	5.91	902	12.5	687	610	286	<1.0	349	<1.0	<1.0	49.7	0.140	0.24	391
LBL3C-3.32	6/25/2018 17:00	TS9093	-	-	-	-	82.4	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/26/2018 11:50	TT0845	-	-	43.5	-	33.0	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/9/2018 15:30	TV3539	-	-	8.39	878	10.3	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/21/2018 6:35	TX8504	-	-	-	-	11.8	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/29/2018 10:38	TZ1787	-	-	6.60	844	28.3	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/31/2018 13:22	TZ5898	8.11	1310	4.33	980	6.3	596	632	251	<1.0	307	<1.0	<1.0	72.7	0.200	0.31	373
LBL5-C1	1/6/2018 12:00	ST9401	8.13	920	31.8	644	42.5	400	421	199	<1.0	242	<1.0	<1.0	1.96	0.300	0.033	321
LBL5-C1	2/23/2018 13:45	SZ9583	8.30	910	1.79	590	6.0	421	419	178	<1.0	217	<1.0	<1.0	1.64	0.270	0.088	292
LBL5-C1	4/5/2018 15:15	TF7752	8.08	1020	54.7	790	75	502	534	170	<1.0	207	<1.0	<1.0	1.98	0.290	0.11	389
RSEM-L5-EP	11/3/2018 15:30	US3526	7.99	1880	11.0	1520	10.3	840	808	159	<1.0	194	<1.0	<1.0	20.6	0.550	0.48	902
RSEM-L5-EP	11/19/2018 13:30	UU8728	7.95	1790	1.22	1290	<4.0	760	741	148	<1.0	181	<1.0	<1.0	17.8	0.480	0.39	796
RSEM-L5-EP	11/25/2018 14:45	UV7537	8.10	1870	1.58	1450	<4.0	838	800	161	<1.0	196	<1.0	<1.0	18.7	0.510	0.39	835
RSEM-L5-EP	12/1/2018 12:35	UW8607	7.94	1060	9.01	774	15.3	484	491	105	<1.0	128	<1.0	<1.0	5.57	0.310	0.14	410
RSEM-L5-EP	12/11/2018 13:45	UY3862	7.96	831	1.39	578	7.8	401	349	76.6	<1.0	93.5	<1.0	<1.0	2.23	0.260	0.073	280
RSEM-L5-EP	12/17/2018 15:30	UZ1473	7.87	853	1090	598	-	418	395	84.4	<1.0	103	<1.0	<1.0	2.23	0.240	0.067	322
RSEM-L5-WP	10/13/2018 15:56	UN9930	7.70	640	11.0	450	34.0	266	284	47.5	<1.0	58.0	<1.0	<1.0	2.14	0.250	0.044	251
RSEM-L5-WP	10/31/2018 17:00	UR7290	7.80	635	4.02	412	10.8	293	289	50.5	<1.0	61.6	<1.0	<1.0	1.93	0.250	0.064	223
RSEM-L5-WP	11/16/2018 13:30	UU3465	7.86	726	1.53	484	<4.0	354	343	55.2	<1.0	67.4	<1.0	<1.0	1.82	0.290	0.073	283
RSEM-L5-WP	11/25/2018 14:35	UV7533	7.85	754	1.16	512	<4.0	352	353	61.9	<1.0	75.5	<1.0	<1.0	1.93	0.300	0.067	278
RSEM-L5-WP	12/1/2018 12:20	UW8606	7.50	305	12.3	218	11.5	117	117	46.9	<1.0	57.2	<1.0	<1.0	3.47	0.130	0.053	93.4
RSEM-L5-WP	12/7/2018 13:45	UX6860	7.82	822	1.25	580	<4.0	377	390	67.5	<1.0	82.4	<1.0	<1.0	2.14	0.330	0.076	310
RSEM-L5-WP	12/11/2018 13:35	UY3861	7.84	807	1.56	556	<4.0	391	385	65.7	<1.0	80.2	<1.0	<1.0	2.10	0.310	0.068	320
RSEM-L5-WP	12/17/2018 15:20	UZ1474	7.77	819	1.24	576	<4.0	402	378	68.6	<1.0	83.7	<1.0	<1.0	2.19	0.300	0.068	314
RSEM-L5-WP	12/28/2018 12:45	VA3068	7.76	842	2.36	584	<4.0	380	403	70.1	<1.0	85.5	<1.0	<1.0	2.31	0.320	0.098	327
MWTF-SLP	12/17/2018 18:00	UZ1380	8.10	1440	1.88	916	<4.0	203	191	152	<1.0	186	<1.0	<1.0	37.8	0.350	1.4	458
PHASE-2-CRUSHER	9/16/2018 10:30	UI5526	8.00	577	>4000	296	7360	276	146	145	<1.0	177	<1.0	<1.0	53.8	0.340	0.24	56.9
PHASE-2-CRUSHER	11/2/2018 10:45	US0134	7.97	387	4.85	234	5.8	176	167	109	<1.0	133	<1.0	<1.0	41.8	0.170	0.027	17.6
PHASE-2-THICKENER	11/2/2018 10:30	US0133	8.10	389	2.08	236	<4.0	174	166	111	<1.0	135	<1.0	<1.0	42.1	0.170	0.034	16.4
R5B-EAST-SEEP	4/18/2018 16:10	TH5887	6.97	2820	97.4	2090	54.5	1010	1020	14.8	<1.0	18.0	<1.0	<1.0	46.4	1.40	0.59	1530
R5B-EAST-SEEP	5/9/2018 17:30	TK4271	7.94	2310	7.72	1900	4.1	579	595	160	<1.0	195	<1.0	<1.0	64.1	0.560	0.56	1010
R5B-EAST-SEEP	5/12/2018 13:45	TK7569	7.90	2110	6.89	1450	4.5	609	533	174	<1.0	212	<1.0	<1.0	86.0	0.550	0.51	866
R5B-EAST-SEEP	6/21/2018	TS1921	8.21	663	135	448	299	455	381	280	<1.0	342	<1.0	<1.0	1.98	0.120	0.018	98.7
R5B-EAST-SEEP	7/26/2018 17:30	TY5333	7.99	2220	27.3	1650	5.0	685	675	139	<1.0	169	<1.0	<1.0	49.6	0.530	0.65	1050
R5B-EAST-SEEP	8/10/2018 9:50	UB1626	7.77	2730	56.5	2050	35.7	763	753	184	<1.0	225	<1.0	<1.0	58.8	0.930	0.65	1320
R5B-WEST-SEEP	5/9/2018 16:30	TK4272	8.25	2470	1.00	1940	1.9	659	717	348	<1.0	424	<1.0	<1.0	41.8	0.180	0.49	949
RBAC-SEEP	1/6/2018 12:00	ST9407	8.23	3330	0.75	1850	4.8	274	267	1070	<1.0	1310	<1.0	<1.0	509	0.140	1.38	12.9
RBAC-SEEP	4/27/2018 16:50	TI5381	8.25	2040	5.79	974	34.8	270	260	670	<1.0	817	<1.0	<1.0	225	0.140	0.70	19.3
RBAC-SEEP	5/9/2018 8:30	TK4270	8.39	2500	0.33	1430	<1.3	237	257	772	12	913	14	<10	290	0.150	0.79	15.8
RBAC-SEEP	5/9/2018 10:00	TK4269	8.23	1080	1.34	588	2.8	297	316	434	<1.0	529	<1.0	<1.0	74.5	0.110	0.55	23.7
RBAC-SEEP	5/17/2018 14:25	TL6390	8.59	1860	4.21	1070	143	165	135	595	20.3	676	24.4	<1.0	199	0.160	0.74	34.9
RBAC-SEEP	6/30/2018	TU0478	8.50	1390	0.84	788	<4.0	142	139	491	21.8	546	26.1	<1.0	145	0.160	0.52	38.0
RBAC-SEEP	7/23/2018 7:10	TX8483	8.26	1000	160	596	65.5	159	146	350	<1.0	427	<1.0	<1.0	104	0.220	0.40	35.0
RBAC-SEEP	8/8/2018 0:00	UB1681	8.56	1710	6.27	998	45.3	174	126	588	20.0	669	24.0	<1.0	191	0.160	0.75	28.9
RBAC-SEEP	9/8/2018 18:15	UG8748	8.24	500	36.3	284	44.5	145	105	177	<1.0	216	<1.0	<1.0	35.2	0.250	0.19	28.8
RBAC-SEEP	10/10/2018 15:45	UN4657	8.50	1650	1.4	978	13.0	135	138	682	12.4	801	14.8	<1.0	143	0.170	0.79	20.5

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-OUT	5/8/2018 17:14	TK1912	0.30	<0.0050	0.232	0.232	<0.0050	15.2	11.0	27.6	<0.0025	0.0199	0.658	0.00333	<0.005	<0.25	0.00579	256	0.0435	0.0447	0.098
LBGC-OUT	5/8/2018 23:03	TK1906	0.29	<0.0050	0.230	0.230	<0.0050	16.1	11.2	18.4	<0.0025	0.0154	0.435	0.0027	<0.005	<0.25	0.00469	244	0.022	0.0393	0.0734
LBGC-OUT	5/9/2018 5:00	TK1897	0.34	<0.0050	0.257	0.257	<0.0050	13.5	10.1	19.1	<0.0025	0.0192	0.45	0.00285	<0.005	<0.25	0.00517	264	0.024	0.0432	0.0823
LBGC-OUT	5/9/2018 11:13	TK1893	0.31	<0.0050	0.268	0.268	<0.0050	13.0	9.22	18.6	<0.0025	0.0175	0.509	0.00224	<0.005	<0.25	0.00359	227	0.0227	0.0366	0.0607
LBGC-OUT	5/9/2018 17:20	TK5295	0.39	0.0113	0.231	0.242	<0.0050	13.6	10.3	25.9	<0.0025	0.024	0.729	0.00303	<0.005	<0.25	0.00425	291	0.0347	0.0443	0.0826
LBGC-OUT	5/9/2018 23:16	TK5238	0.39	0.0119	0.218	0.230	<0.0050	12.4	9.85	15	<0.0025	0.01	0.234	0.00223	<0.005	<0.25	0.00359	264	0.0135	0.0375	0.0522
LBGC-OUT	5/10/2018 5:03	TK5243	0.40	0.0112	0.249	0.260	<0.0050	12.2	7.71	26.4	<0.0025	0.0207	0.552	0.00375	<0.005	<0.25	0.00569	333	0.0317	0.0556	0.0976
LBGC-OUT	5/10/2018 11:10	TK5250	0.40	0.0056	0.251	0.257	<0.0050	13.3	9.24	31.9	<0.0025	0.0275	0.805	0.00368	<0.005	<0.25	0.00505	302	0.0416	0.0586	0.104
LBGC-OUT	5/10/2018 17:23	TK5257	0.45	0.0070	0.251	0.258	<0.0050	13.1	9.80	49.2	<0.0025	0.0421	1.54	0.00543	<0.005	<0.25	0.00743	401	0.0734	0.0803	0.166
LBGC-OUT	5/10/2018 23:02	TK5498	0.46	<0.0050	0.240	0.240	<0.0050	11.9	8.51	20.6	0.00071	0.0215	0.498	0.00328	<0.001	0.16	0.00604	376	0.0239	0.0505	0.0844
LBGC-OUT	5/11/2018 5:00	TK5506	0.45	<0.0050	0.257	0.257	<0.0050	11.5	9.59	19.4	0.00068	0.0185	0.45	0.00307	<0.001	0.156	0.0061	363	0.0214	0.0466	0.0764
LBGC-OUT	5/11/2018 5:00	TK5503	0.46	<0.0050	0.249	0.249	<0.0050	11.9	9.62	34.2	0.00066	0.0325	1.12	0.00369	<0.001	0.162	0.0063	360	0.0486	0.0577	0.112
LBGC-OUT	5/11/2018 11:02	TK6058	0.40	0.0060	0.267	0.273	0.0222	8.68	5.79	51.9	<0.0025	0.0408	1.9	0.00459	<0.005	<0.25	0.00634	347	0.0911	0.082	0.171
LBGC-OUT	5/11/2018 16:55	TK6051	0.58	0.0053	0.301	0.306	0.0199	10.1	6.11	77.9	<0.0025	0.0513	2	0.00727	<0.005	<0.25	0.01	488	0.139	0.114	0.256
LBGC-OUT	5/12/2018 13:53	TK6555	0.56	0.0289	0.349	0.378	0.0068	10.1	7.53	43.8	<0.0025	0.0308	2.13	0.0037	<0.005	<0.25	0.00516	213	0.083	0.0559	0.161
LBL3C-3.32	4/25/2018 13:35	TI3536	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	5/27/2018 11:15	TM9448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/9/2018 17:20	TQ0034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/12/2018 10:00	TQ4127	0.023	<0.0050	<0.020	<0.020	0.0138	11.2	9.40	0.0477	<0.0005	0.0005	0.129	<0.0001	<0.001	0.074	0.000049	182	<0.001	<0.0002	0.00211
LBL3C-3.32	6/25/2018 17:00	TS9093	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/26/2018 11:50	TT0845	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/9/2018 15:30	TV3539	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/21/2018 6:35	TX8504	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/29/2018 10:38	TZ1787	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/31/2018 13:22	TZ5898	<0.020	<0.0050	<0.020	<0.020	0.0148	13	14	0.0969	<0.0005	0.00074	0.12	<0.0001	<0.001	0.134	0.000042	153	<0.001	<0.0002	0.00201
LBL5-C1	1/6/2018 12:00	ST9401	0.087	0.0105	0.368	0.378	<0.0050	3.51	3.41	0.79	<0.0005	0.00059	0.0821	<0.0001	<0.001	0.056	0.00029	103	0.0012	0.0118	0.00718
LBL5-C1	2/23/2018 13:45	SZ9583	0.12	0.0059	0.390	0.396	0.0057	2.41	1.02	0.0496	<0.0005	0.00036	0.0909	<0.0001	<0.001	<0.05	0.000033	110	<0.001	0.00197	0.00112
LBL5-C1	4/5/2018 15:15	TF7752	0.34	0.0101	0.397	0.407	<0.0050	1.07	0.79	2.84	0.0006	0.00147	0.0834	<0.0001	<0.001	<0.05	0.000184	126	0.0039	0.00526	0.0037
RSEM-L5-EP	11/3/2018 15:30	US3526	0.36	0.0387	1.60	1.64	<0.0050	2.85	1.60	0.162	0.00067	0.00058	0.0596	<0.0001	<0.001	0.149	0.000296	203	<0.001	0.00938	0.00131
RSEM-L5-EP	11/19/2018 13:30	UU8728	0.19	0.0262	1.85	1.88	<0.0050	2.3	1.8	0.0331	0.00055	0.00033	0.0446	<0.0001	<0.001	0.109	0.000221	183	<0.001	0.00613	0.00096
RSEM-L5-EP	11/25/2018 14:45	UV7537	0.19	0.0201	1.97	1.99	<0.0050	1.3	1.1	0.0352	0.00056	0.00031	0.0463	<0.0001	<0.001	0.14	0.000236	205	<0.001	0.00608	0.00095
RSEM-L5-EP	12/1/2018 12:35	UW8607	0.069	0.0067	2.73	2.74	<0.0050	1.2	2.0	0.168	<0.0005	0.00033	0.0454	<0.0001	<0.001	<0.05	0.000066	121	<0.001	0.001	0.00119
RSEM-L5-EP	12/11/2018 13:45	UY3862	<0.020	<0.0050	2.43	2.43	0.0052	1.1	1.2	0.0633	<0.0005	0.00024	0.0511	<0.0001	<0.001	<0.05	0.000026	99.9	<0.001	<0.0002	0.001
RSEM-L5-EP	12/17/2018 15:30	UZ1473	0.074	<0.010	2.53	2.53	<0.0050	1.7	2.1	1.12	<0.0005	0.00073	0.0689	<0.0001	<0.001	<0.05	0.000057	107	0.0018	0.00047	0.00222
RSEM-L5-WP	10/13/2018 15:56	UN9930	0.028	0.0165	1.88	1.89	<0.0050	1.2	1.3	0.531	<0.0005	0.00072	0.05	<0.0001	<0.001	<0.05	0.000062	67.6	0.0011	0.00058	0.00242
RSEM-L5-WP	10/31/2018 17:00	UR7290	<0.020	0.0256	1.70	1.72	<0.0050	1.58	1.58	0.145	<0.0005	0.00037	0.0411	<0.0001	<0.001	<0.05	0.000034	77.7	<0.001	0.00024	0.00134
RSEM-L5-WP	11/16/2018 13:30	UU3465	0.052	0.0238	1.94	1.96	<0.0050	2.3	2.3	0.0265	<0.0005	0.00021	0.0408	<0.0001	<0.001	<0.05	0.000028	94.0	<0.001	<0.0002	0.00109
RSEM-L5-WP	11/25/2018 14:35	UV7533	0.086	0.0195	2.18	2.20	<0.0050	1.3	1.2	0.0217	<0.0005	0.00024	0.0407	<0.0001	<0.001	<0.05	0.000028	91.1	<0.001	<0.0002	0.0011
RSEM-L5-WP	12/1/2018 12:20	UW8606	0.23	0.0836	0.581	0.665	<0.0050	17	13	0.258	<0.0005	0.00037	0.0634	<0.0001	<0.001	<0.05	0.000036	33.9	<0.001	0.00023	0.00242
RSEM-L5-WP	12/7/2018 13:45	UX6860	0.10	0.0186	2.29	2.31	<0.0050	2.4	2.5	0.0277	<0.0005	0.00029	0.0465	<0.0001	<0.001	<0.05	0.000032	100	<0.001	<0.0002	0.00112
RSEM-L5-WP	12/11/2018 13:35	UY3861	0.067	0.0155	2.21	2.23	<0.0050	2.0	1.9	0.0467	<0.0005	0.00032	0.046	<0.0001	<0.001	<0.05	0.000036	101	<0.001	<0.0002	0.00139
RSEM-L5-WP	12/17/2018 15:20	UZ1474	0.063	0.0172	2.38	2.40	<0.0050	2.4	2.2	0.0459	<0.0005	0.0003	0.0458	<0.0001	<0.001	<0.05	0.000031	104	<0.001	<0.0002	0.00124
RSEM-L5-WP	12/28/2018 12:45	VA3068	0.11	0.0134	2.37	2.39	0.0054	2.5	2.4	0.0445	<0.0005	0.00029	0.0483	<0.0001	<0.001	<0.05	0.000038	96.4	<0.001	<0.0002	0.00238
MWTF-SLP	12/17/2018 18:00	UZ1380	1.7	0.124	0.348	0.472	<0.0050	2.2	2.4	0.126	0.00183	0.00181	0.0223	<0.0001	<0.001	0.203	<0.00001	21.8	0.0024	0.00023	0.00106
PHASE-2-CRUSHER	9/16/2018 10:30	UI5526	0.089	0.0294	0.628	0.657	0.0615	440	300	8	0.00094	0.0118	0.715	0.00049	<0.001	0.083	0.000683	80.3	0.0203	0.00937	0.0233
PHASE-2-CRUSHER	11/2/2018 10:45	US0134	0.099	0.0129	0.185	0.198	<0.0050	4.1	4.3	0.0761	<0.0005	0.00035	0.189	<0.0001	<0.001	<0.05	0.000018	52.6	<0.001	<0.0002	0.00131
PHASE-2-THICKENER	11/2/2018 10:30	US0133	0.087	0.0112	0.189	0.200	<0.0050	3.9	<0.50	0.0701	<0.0005	0.00035	0.18	<0.0001	<0.001	<0.05	0.000016	51.3	<0.001	<0.0002	0.00101
R5B-EAST-SEEP	4/18/2018 16:10	TH5887	0.82	0.0158	1.18	1.20	<0.0050	0.85	<0.50	4.76	<0.0025	0.0008	0.0501	0.00163	<0.005	<0.25	0.00931	250	<0.005	0.2	0.062
R5B-EAST-SEEP	5/9/2018 17:30	TK4271	0.81	0.0310	0.511	0.542	<0.0050	2.23	1.03	0.241	0.00014	<0.0001	0.0112	0.000136	<0.00005	0.236	0.00141	148	<0.0005	0.0476	0.00309
R5B-EAST-SEEP	5/12/2018 13:45	TK7569	0.54	0.0297	0.325	0.355	<0.0050	1.06	0.77	0.255	<0.0005	0.00016	0.0135	0.00014	<0.001	0.241	0.00119	160	<0.001	0.0411	0.00345
R5B-EAST-SEEP	6/21/2018	TS1921	0.24	0.0254	0.106	0.132	<0.0050	2.93	1.76	3.31	<0.0005	0.0325	0.281	0.00018	<0.001	<0.05	0.00029	133	0.0059	0.00298	0.00972
R5B-EAST-SEEP	7/26/2018 17:30	TY5333	0.80	<0.0050	0.051	0.051	<0.0050	1.3	1.0	0.0542	<0.0005	0.00037	0.0179	<0.0001	<0.001	0.401	0.000391	177	<0.001	0.0378	0.00095
R5B-EAST-SEEP	8/10/2018 9:50	UB1626	1.6	0.0160	0.021	0.037	<0.0050	3.51	1.23	0.134	<0.0025	0.00103	0.0161	<0.0005	<0.005	0.641	<0.00005	188	<0.005	0.0278	<0.0025
R5B-WEST-SEEP	5/9/2018 16:30	TK4272	0.18	0.0105	0.470	0.481	<0.0050	2.32	1.57	<0.015	<0.0001	0.0002	0.0418	<0.00005	<0.00005	0.392	0.000069	188	<0.0005	0.000083	<0.0005
RBAC-SEEP	1/6/2018 12:00	ST9407	<0.020	<0.0050	0.836	0.836	<0.0050	2.86	3.16	<0.015	<0.0025	<0.0005	0.351	<0.0005	<0.005	<0.25	<0.00005	67.6	<0.005	<0.001	<0.0025
RBAC-SEEP	4/27/2018 16:50	TI5381	0.044	<0.0050	1.38	1.38	<0.0050	1.76	1.58	0.0905	<0.0005	0.00023	0.294	<0.0001	<0.001	0.108	0.000013	71.5	<0.001	<0.0002	0.00065
RBAC-SEEP	5/9/2018 8:30	TK4270	0.029	<0.0020	1.10	1.10	<0.0050	2.31	0.77	<0.015	<0.0001	0.00014	0.278	<0.00005	<0.00005	0.172	<0.000025	62.2	<0.0005	<0.00005	<0.0005
RBAC-SEEP	5/9/2018 10:00	TK4269	0.088	<0.0020	0.711	0.711	<0.0050	2.28	1.33	0.0081	0.000054	0.000117	0.244	<0.00001	<0.00001	0.034	0.000007	85.6	0.00016	0.000026	0.00021
RBAC-SEEP	5/17/2018 14:25	TL6390	<0.020	0.0089	1.08	1.09	<0.0050	3.02	1.88	0.223	<0.0005	0.00068	0.217	<0.0001	<0.001	0.16	0.000043	42.5	<0.001	0.00051	0.00141
RBAC-SEEP	6/30/2018	TU0478	0.037	<0.0050	0.816	0.816	<0.0050	1.64	1.16	0.0224	<0.0005	0.00026	0.168	<0.0001	<0.001	0.133	<0.00001	33.9	<0.001	<0.0002	0.00054
RBAC-SEEP	7/23/2018 7:10	TX8483	<0.020	<0.0050	1.18	1.18	<0.0050	2.7	1.8	1.7	<0.0005	0.00189	0.224	<0.0001	<0.001	0.103	0.000106	44.6	0.0035	0.00135	0.00384
RBAC-SEEP	8/8/2018 0:00	UB1681	<0.020	0.0138	1.19	1.20	<0.0050	2.14	2.56	0.171	<0.0005	0.00046	0.237	<0.0001	<0.001	0.167	0.000017	42.3	<0.001	0.0002	0.00084
RBAC-SEEP	9/8/2018 18:15	UG8748	0.047	<0.0050	0.905	0.905	<0.0050	1.8	2.1	1.33	<0.0005	0.00163	0.216	<0.0001	<0.001	<0.05	0.000117	44.9	0.0032	0.00138	0.00406
RBAC-SEEP	10/10/2018 15:45	UN4657	0.022	<0.0050	0.946	0.946	<0.0050	1.8	2.0	0.115	<0.0005	0.00031	0.176	<0.0001	<0.001	0.227	0.000016	34.9	<0.001	<0.0002	0.00078

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-OUT	5/8/2018 17:14	TK1912	58.3	0.0409	0.057	66.3	2.1	0.0000136	<0.005	0.141	-	18.0	0.0022	45.9	0.00043	40.9	0.819	158	0.000629	<0.025	0.621	0.0105
LBGC-OUT	5/8/2018 23:03	TK1906	44.2	0.032	0.045	64.8	1.94	0.0000088	<0.005	0.122	-	13.8	0.00169	21	0.00026	45.2	0.704	151	0.000365	<0.025	0.094	0.00984
LBGC-OUT	5/9/2018 5:00	TK1897	46.1	0.0331	0.048	72.9	2.29	0.0000067	<0.005	0.133	-	13.9	0.00208	20.6	0.00027	49.7	0.781	181	0.000396	<0.025	0.097	0.0101
LBGC-OUT	5/9/2018 11:13	TK1893	52.2	0.0279	0.049	62.3	1.73	0.0000057	0.0063	0.116	-	12.7	0.00243	21.8	0.00032	47.5	0.662	173	0.000519	<0.025	0.111	0.00845
LBGC-OUT	5/9/2018 17:20	TK5295	74.6	0.0407	0.067	75.8	2.13	0.0000057	0.0057	0.145	-	18.1	0.00288	36.1	0.00066	56.8	0.806	246	0.000723	<0.025	0.101	0.00964
LBGC-OUT	5/9/2018 23:16	TK5238	35.4	0.0189	0.044	77.3	1.96	0.0000047	<0.005	0.116	-	14.5	0.00167	16.5	0.00022	59.4	0.739	215	0.000233	<0.025	0.088	0.00833
LBGC-OUT	5/10/2018 5:03	TK5243	67.7	0.0402	0.07	95.8	2.43	0.000006	<0.005	0.176	-	16.9	0.00313	30.6	0.00048	64.8	0.945	258	0.000525	<0.025	0.096	0.0121
LBGC-OUT	5/10/2018 11:10	TK5250	88.2	0.045	0.077	96.8	2.43	0.0000073	<0.005	0.186	-	18.1	0.00315	38.5	0.00074	66.1	0.904	256	0.000824	<0.025	0.076	0.0115
LBGC-OUT	5/10/2018 17:23	TK5257	152	0.087	0.115	111	3.25	0.000008	0.0066	0.26	-	23.5	0.00427	64.1	0.00148	70.6	1.2	311	0.00151	<0.025	0.136	0.0168
LBGC-OUT	5/10/2018 23:02	TK5498	59.5	0.0325	0.0644	97.9	2.75	0.0000086	0.005	0.155	-	17.2	0.00264	27.5	0.000433	73.8	0.979	304	0.000542	<0.005	0.102	0.0119
LBGC-OUT	5/11/2018 5:00	TK5506	53.3	0.0288	0.0621	102	2.65	0.0000069	0.0045	0.144	-	15.1	0.0029	24.7	0.000332	69.8	0.947	270	0.000497	<0.005	0.097	0.0114
LBGC-OUT	5/11/2018 5:00	TK5503	108	0.0558	0.0876	106	2.73	0.0000089	0.006	0.187	-	17.2	0.00401	43.9	0.000889	68.8	1	268	0.00116	<0.005	0.142	0.0125
LBGC-OUT	5/11/2018 11:02	TK6058	195	0.0877	0.141	117	3.12	0.0000087	0.0074	0.272	-	22.1	0.00516	62.6	0.00197	75.6	1.12	290	0.00151	<0.025	0.071	0.0137
LBGC-OUT	5/11/2018 16:55	TK6051	294	0.116	0.208	152	4.09	0.0000128	0.0097	0.385	-	26.1	0.00658	81.3	0.00327	94.8	1.5	394	0.00223	<0.025	0.082	0.0205
LBGC-OUT	5/12/2018 13:53	TK6555	129	0.0838	0.099	59.7	2.2	0.0000052	0.0056	0.185	-	16.6	0.00364	56.3	0.00167	30.3	0.668	82	0.000907	<0.025	0.078	0.0128
LBL3C-3.32	4/25/2018 13:35	TI3536	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	5/27/2018 11:15	TM9448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/9/2018 17:20	TQ0034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/12/2018 10:00	TQ4127	0.108	<0.0002	0.0165	56.4	0.0176	<0.000002	0.0017	0.0037	-	13.1	0.00063	4.14	<0.00002	42.1	0.603	140	0.00001	<0.005	<0.005	0.00784
LBL3C-3.32	6/25/2018 17:00	TS9093	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/26/2018 11:50	TT0845	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/9/2018 15:30	TV3539	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/21/2018 6:35	TX8504	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/29/2018 10:38	TZ1787	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/31/2018 13:22	TZ5898	0.116	<0.0002	0.0173	51.8	0.009	<0.000002	0.0018	0.0053	-	10.9	0.00044	4.16	<0.00002	43.7	0.635	128	0.000011	<0.005	<0.005	0.00439
LBL5-C1	1/6/2018 12:00	ST9401	0.836	0.00067	0.0285	34.6	0.421	-	0.0028	0.0386	-	2.48	0.00157	4.35	<0.00002	31.8	0.332	104	0.00002	<0.005	0.0234	0.00335
LBL5-C1	2/23/2018 13:45	SZ9583	0.097	<0.0002	0.0213	35.6	0.206	-	0.0029	0.0104	-	2.39	0.0014	2.85	<0.00002	30.9	0.337	102	<0.00001	<0.005	<0.005	0.00313
LBL5-C1	4/5/2018 15:15	TF7752	2.46	0.00148	0.0285	45.6	0.526	-	0.0053	0.0174	-	3.65	0.00166	8.41	0.000035	29.7	0.367	143	0.000049	<0.005	0.0777	0.00472
RSEM-L5-EP	11/3/2018 15:30	US3526	0.323	0.0002	0.0522	81.0	0.714	0.0000026	0.0082	0.0298	-	6.12	0.00686	2.81	<0.00002	155	0.659	328	0.000025	<0.005	0.0071	0.00609
RSEM-L5-EP	11/19/2018 13:30	UU8728	0.057	<0.0002	0.0404	73.9	0.525	<0.000002	0.0073	0.0213	-	5.29	0.00602	2.49	<0.00002	128	0.64	291	0.000023	<0.005	<0.005	0.00534
RSEM-L5-EP	11/25/2018 14:45	UV7537	0.051	<0.0002	0.0492	79.2	0.564	<0.000002	0.008	0.022	-	5.82	0.00695	2.69	<0.00002	140	0.723	323	0.000017	<0.005	<0.005	0.00624
RSEM-L5-EP	12/1/2018 12:35	UW8607	0.301	<0.0002	0.0118	44.0	0.0836	<0.000002	0.005	0.0045	-	3.31	0.00346	2.31	<0.00002	37.9	0.413	149	0.00001	<0.005	0.0063	0.00386
RSEM-L5-EP	12/11/2018 13:45	UY3862	0.142	<0.0002	0.0057	36.7	0.0038	<0.000002	0.0053	<0.001	-	3.07	0.00306	1.35	<0.00002	19.6	0.361	124	<0.00001	<0.005	<0.005	0.00308
RSEM-L5-EP	12/17/2018 15:30	UZ1473	1.2	0.00061	0.0068	36.8	0.0191	<0.000002	0.0049	0.0021	-	3.20	0.003	3.98	<0.00002	19.4	0.362	122	0.000021	<0.005	0.0378	0.00327
RSEM-L5-WP	10/13/2018 15:56	UN9930	1.05	0.00061	0.0051	23.6	0.0339	<0.000002	0.0065	0.0024	-	2.66	0.00257	1.25	<0.00002	13.4	0.239	85.3	0.000019	<0.005	0.0141	0.00228
RSEM-L5-WP	10/31/2018 17:00	UR7290	0.258	<0.0002	0.0047	24.0	0.0237	0.0000071	0.0065	0.0011	-	2.68	0.00261	0.794	<0.00002	13.5	0.247	89.7	<0.00001	<0.005	<0.005	0.00239
RSEM-L5-WP	11/16/2018 13:30	UU3465	0.027	<0.0002	0.0052	28.9	0.0195	<0.000002	0.0076	0.001	-	3.28	0.00305	0.535	<0.00002	16.5	0.304	107	<0.00001	<0.005	<0.005	0.00266
RSEM-L5-WP	11/25/2018 14:35	UV7533	0.024	<0.0002	0.0058	30.2	0.0183	<0.000002	0.0079	0.0013	-	3.19	0.00308	0.511	<0.00002	17.5	0.32	108	<0.00001	<0.005	<0.005	0.00286
RSEM-L5-WP	12/1/2018 12:20	UW8606	0.219	0.00021	<0.002	7.94	0.031	<0.000002	0.003	0.0018	-	2.20	0.0016	1.38	<0.00002	10.9	0.105	28.4	<0.00001	<0.005	0.0053	0.00117
RSEM-L5-WP	12/7/2018 13:45	UX6860	0.042	<0.0002	0.0057	31.0	0.0168	0.000005	0.008	0.0011	-	3.70	0.00326	0.608	<0.00002	18.4	0.318	122	<0.00001	<0.005	<0.005	0.00312
RSEM-L5-WP	12/11/2018 13:35	UY3861	0.049	<0.0002	0.0061	33.6	0.0161	<0.000002	0.0087	0.0014	-	3.64	0.0033	0.53	<0.00002	19.4	0.383	125	<0.00001	<0.005	<0.005	0.00315
RSEM-L5-WP	12/17/2018 15:20	UZ1474	0.048	<0.0002	0.0063	34.5	0.0153	<0.000002	0.0086	0.0013	-	3.58	0.00325	0.551	<0.00002	19.3	0.365	123	<0.00001	<0.005	<0.005	0.00327
RSEM-L5-WP	12/28/2018 12:45	VA3068	0.131	<0.0002	0.0059	33.8	0.0162	<0.000002	0.0086	0.0015	-	3.41	0.00353	0.51	<0.00002	19.7	0.356	119	<0.00001	<0.005	<0.005	0.00347
MWTF-SLP	12/17/2018 18:00	UZ1380	0.048	<0.0002	0.0483	36.1	0.004	<0.000002	0.042	0.0043	-	4.19	0.00349	4.81	<0.00002	247	0.243	172	<0.00001	<0.005	<0.005	0.00281
PHASE-2-CRUSHER	9/16/2018 10:30	UI5526	28.1	0.0127	0.0122	18.3	0.717	0.0000034	0.0094	0.0268	-	3.48	0.0011	15	0.00014	51.9	0.247	17.3	0.000248	<0.005	0.14	0.00263
PHASE-2-CRUSHER	11/2/2018 10:45	US0134	0.118	<0.0002	0.0031	10.9	0.0059	0.0000074	0.0025	<0.001	-	1.41	0.00037	3.82	<0.00002	12.0	0.108	6.3	<0.00001	<0.005	<0.005	0.0008
PHASE-2-THICKENER	11/2/2018 10:30	US0133	0.065	<0.0002	0.0028	11.1	0.0042	0.0000035	0.0025	<0.001	-	1.41	0.00037	3.67	<0.00002	12.0	0.108	6.4	<0.00001	<0.005	<0.005	0.00077
R5B-EAST-SEEP	4/18/2018 16:10	TH5887	9.59	<0.001	0.272	94.3	2.37	-	<0.005	0.613	-	4.53	0.00433	8.99	<0.0001	274	1.42	551	0.000176	<0.025	0.032	0.00367
R5B-EAST-SEEP	5/9/2018 17:30	TK4271	0.954	<0.0001	0.159	51.0	0.789	<0.000002	0.00091	0.15	<0.025	3.8	0.00071	3.51	<0.00005	269	1.04	304	0.000096	<0.001	<0.01	0.0012
R5B-EAST-SEEP	5/12/2018 13:45	TK7569	1.06	<0.0002	0.152	51.0	0.673	<0.000002	<0.001	0.127	-	4.41	0.00062	4.16	<0.00002	269	0.841	328	0.000117	<0.005	<0.005	0.00109
R5B-EAST-SEEP	6/21/2018	TS1921	36.8	0.00428	0.0132	29.9	0.512	<0.000002	0.0055	0.009	-	3.26	0.00052	14.6	0.000084	4.21	0.389	32.1	0.00007	<0.005	0.0989	0.00049
R5B-EAST-SEEP	7/26/2018 17:30	TY5333	2.22	<0.0002	0.162	59.0	1	<0.000002	0.0013	0.0978	-	5.99	<0.0001	4.78	<0.00002	275	1.36	355	0.0001	<0.005	<0.005	0.00108
R5B-EAST-SEEP	8/10/2018 9:50	UB1626	24.5	<0.001	0.204	71.2	1.18	<0.000002	<0.005	0.133	-	5.22	<0.0005	6.08	<0.0001	350	1.23	438	<0.00005	<0.025	<0.025	0.0008
R5B-WEST-SEEP	5/9/2018 16:30	TK4272	0.049	<0.0001	0.121	45.8	0.0479	<0.000002	0.00173	0.00211	<0.025	3.6	<0.0002	2.43	<0.00005	278	0.714	293	0.00004	<0.001	<0.01	0.00271
RBAC-SEEP	1/6/2018 12:00	ST9407	<0.05	<0.001	1.04	25.5	<0.005	-	<0.005	<0.005	-	4.76	<0.0005	5.86	<0.0001	704	0.232	<15	<0.00005	<0.025	<0.025	0.00453
RBAC-SEEP	4/27/2018 16:50	TI5381	0.118	0.00024	0.595	22.3	0.0075	<0.000002	0.0019	<0.001	-	3.59	0.00022	6.13	<0.00002	326	0.228	6.5	<0.00001	<0.005	<0.005	0.00295
RBAC-SEEP	5/9/2018 8:30	TK4270	<0.025	<0.0001	0.761	19.8	<0.0005	<0.000002	0.00227	<0.0005	<0.025	3.3	0.00029	5.08	<0.00005	446	0.22	<15	<0.00001	<0.001	<0.01	0.00339
RBAC-SEEP	5/9/2018 10:00	TK4269	0.0238	<0.00002	0.0128	20.3	0.00043	<0.000002	0.00092	0.00016	0.0056	2.99	0.000636	6.09	<0.00001	120	0.241	7.4	0.000002	<0.0002	<0.002	0.00151
RBAC-SEEP	5/17/2018 14:25	TL6390	0.55	0.00036	0.529	14.3	0.0198	<0.000002	0.0056	0.0035	-	3.97	0.00105	6.78	<0.00002	346	0.158	12.8	0.000033	<0.005	0.01	0.00525
RBAC-SEEP	6/30/2018	TU0478	0.02	<0.0002	0.398	13.9	0.002	<0.000002	0.0039	<0.001	-	3.27	0.00074	3.76	<0.00002	272	0.148	11.7	0.000015	<0.005	<0.005	0.00319
RBAC-SEEP	7/23/2018 7:10	TX8483	3.52	0.00172	0.249	11.7	0.0863	<0.000002	0.0051	0.0045	-	2.94	0.00053	7.74	0.000025	168	0.165	9.4	0.000044	<0.005	0.046	0.00226
RBAC-SEEP	8/8/2018 0:00	UB1681	0.287	<0.0002	0.583	16.5	0.0104	<0.000002	0.0041	0.0015	-	3.83	0.00062	6.26	<0.00002	377	0.179	9.6	0.000021	<0.005	<0.005	0.00439
RBAC-SEEP	9/8/2018 18:15	UG8748	3.18	0.00181	0.0926	8.08	0.0745	<0.000002	0.0049	0.0043	-	1.97	0.00035	5.18	<0.00002	60.1	0.132	8.6	0.000031	<0.005	0.0294	0.00146
RBAC-SEEP	10/10/2018 15:45	UN4657	0.206	<0.0002	0.553	11.7	0.006	0.0000027	0.0036	0.0017	-	2.85	0.00046	4.89	<0.00002	327	0.125	8.6	0.000013	<0.005	<0.005	0.0039

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-OUT	5/8/2018 17:14	TK1912	0.104	0.417	0.0559	0.0387	<0.0005	0.00034	0.0203	<0.0001	<0.001	0.121	0.000076	140	<0.001	0.00195	0.00305	0.011	<0.0002	0.0178	47.2	0.666
LBGC-OUT	5/8/2018 23:03	TK1906	0.057	0.323	0.00301	0.0529	<0.0005	0.0003	0.0247	<0.0001	<0.001	0.141	0.000102	142	<0.001	0.00334	0.0029	0.01	<0.0002	0.0222	50.4	0.817
LBGC-OUT	5/9/2018 5:00	TK1897	0.06	0.352	0.00366	0.0498	<0.0005	0.0003	0.0161	<0.0001	<0.001	0.137	0.000173	156	<0.001	0.00468	0.0026	<0.01	<0.0002	0.0241	52.7	0.966
LBGC-OUT	5/9/2018 11:13	TK1893	0.051	0.3	0.00406	0.0683	<0.0005	0.00029	0.015	<0.0001	<0.001	0.134	0.000172	164	<0.001	0.00446	0.00262	<0.01	<0.0002	0.0269	54.7	1.04
LBGC-OUT	5/9/2018 17:20	TK5295	0.07	0.409	0.00272	0.073	<0.0005	0.00032	0.0148	<0.0001	<0.001	0.15	0.00014	203	<0.001	0.0027	0.00261	<0.01	<0.0002	0.0216	63.0	0.978
LBGC-OUT	5/9/2018 23:16	TK5238	0.037	0.294	0.00245	0.0719	<0.0005	0.00029	0.0199	<0.0001	<0.001	0.151	0.000165	194	<0.001	0.00469	0.00238	<0.01	<0.0002	0.0236	62.4	1.13
LBGC-OUT	5/10/2018 5:03	TK5243	0.076	0.466	0.00343	0.057	<0.0005	0.00029	0.0167	<0.0001	<0.001	0.15	0.000161	206	<0.001	0.00451	0.00224	<0.01	<0.0002	0.0243	69.9	1.11
LBGC-OUT	5/10/2018 11:10	TK5250	0.084	0.508	0.00231	0.0681	<0.0005	0.00036	0.0203	<0.0001	<0.001	0.16	0.000145	198	<0.001	0.00361	0.0022	0.017	<0.0002	0.0242	68.5	1.13
LBGC-OUT	5/10/2018 17:23	TK5257	0.137	0.743	0.00509	0.0605	<0.0005	0.00033	0.0168	<0.0001	<0.001	0.16	0.000137	234	<0.001	0.00256	0.00242	<0.01	<0.0002	0.0262	77.1	1.05
LBGC-OUT	5/10/2018 23:02	TK5498	0.062	0.403	0.00265	0.0472	<0.0005	0.00033	0.0131	<0.0001	<0.001	0.156	0.000185	221	<0.001	0.00406	0.00217	<0.01	<0.0002	0.0305	75.7	1.26
LBGC-OUT	5/11/2018 5:00	TK5506	0.0563	0.363	0.00281	0.0525	<0.0005	0.00028	0.0126	<0.0001	<0.001	0.14	0.000199	212	<0.001	0.00532	0.0021	<0.01	<0.0002	0.0308	77.8	1.28
LBGC-OUT	5/11/2018 5:00	TK5503	0.0918	0.511	0.00295	0.0489	<0.0005	0.00031	0.0124	<0.0001	<0.001	0.145	0.000196	231	<0.001	0.00491	0.00204	<0.01	<0.0002	0.0315	77.4	1.24
LBGC-OUT	5/11/2018 11:02	TK6058	0.136	0.784	0.00186	0.0437	<0.0005	0.00028	0.0126	<0.0001	<0.001	0.158	0.000165	228	<0.001	0.00287	0.00234	<0.01	<0.0002	0.0325	79.8	1.23
LBGC-OUT	5/11/2018 16:55	TK6051	0.19	1.1	0.00265	0.0443	<0.0005	0.00037	0.0094	<0.0001	<0.001	0.171	0.000201	278	<0.001	0.00232	0.00273	0.012	<0.0002	0.0331	91.9	1.24
LBGC-OUT	5/12/2018 13:53	TK6555	0.119	0.582	0.00113	0.0091	0.00098	0.00065	0.0357	<0.0001	<0.001	0.07	0.00003	82.7	<0.001	0.00096	0.00228	0.023	<0.0002	0.0113	30.4	0.451
LBL3C-3.32	4/25/2018 13:35	TI3536	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	5/27/2018 11:15	TM9448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/9/2018 17:20	TQ0034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/12/2018 10:00	TQ4127	<0.005	<0.005	0.0002	<0.003	<0.0005	0.00046	0.128	<0.0001	<0.001	0.073	0.000037	156	<0.001	<0.0002	0.00205	0.012	<0.0002	0.015	53.5	0.0154
LBL3C-3.32	6/25/2018 17:00	TS9093	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/26/2018 11:50	TT0845	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/9/2018 15:30	TV3539	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/21/2018 6:35	TX8504	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/29/2018 10:38	TZ1787	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/31/2018 13:22	TZ5898	<0.005	<0.005	0.00029	0.0043	<0.0005	0.00073	0.118	<0.0001	<0.001	0.138	0.000033	165	<0.001	<0.0002	0.00205	<0.01	<0.0002	0.0177	53.4	0.0068
LBL5-C1	1/6/2018 12:00	ST9401	<0.005	0.0362	0.00062	0.0095	<0.0005	0.00026	0.0531	<0.0001	<0.001	0.054	0.000255	105	<0.001	0.0118	0.00274	<0.01	<0.0002	0.0291	38.4	0.424
LBL5-C1	2/23/2018 13:45	SZ9583	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00034	0.0872	<0.0001	<0.001	<0.05	0.000029	108	<0.001	0.0019	0.00062	<0.01	<0.0002	0.0217	36.4	0.207
LBL5-C1	4/5/2018 15:15	TF7752	0.0075	0.0205	0.00668	0.0064	0.00056	0.00032	0.0424	<0.0001	<0.001	<0.05	0.000116	138	<0.001	0.00433	0.00082	<0.01	<0.0002	0.0256	46.2	0.493
RSEM-L5-EP	11/3/2018 15:30	US3526	<0.005	0.0113	0.00065	0.0068	<0.001	0.00035	0.0527	<0.0002	<0.002	0.144	0.000287	196	<0.002	0.00849	<0.001	<0.02	<0.0004	0.0513	77.5	0.719
RSEM-L5-EP	11/19/2018 13:30	UU8728	<0.005	0.008	<0.0001	0.0044	0.00054	0.00029	0.0428	<0.0001	<0.001	0.128	0.000217	181	<0.001	0.00608	0.00086	<0.01	<0.0002	0.0447	70.3	0.541
RSEM-L5-EP	11/25/2018 14:45	UV7537	<0.005	0.0089	0.00027	0.0035	0.00054	0.00028	0.0442	<0.0001	<0.001	0.129	0.000214	197	<0.001	0.00547	0.00086	<0.01	<0.0002	0.0463	74.8	0.514
RSEM-L5-EP	12/1/2018 12:35	UW8607	<0.005	<0.005	0.00021	<0.003	<0.0005	0.00017	0.039	<0.0001	<0.001	<0.05	0.00005	122	<0.001	0.00083	0.00077	<0.01	<0.0002	0.0132	45.5	0.0759
RSEM-L5-EP	12/11/2018 13:45	UY3862	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00031	0.0446	<0.0001	<0.001	<0.05	0.000021	85.1	<0.001	<0.0002	0.00127	<0.01	<0.0002	0.0046	33.1	<0.001
RSEM-L5-EP	12/17/2018 15:30	UZ1473	<0.005	0.0054	0.00095	<0.003	<0.0005	0.00013	0.0466	<0.0001	<0.001	<0.05	0.000021	99.7	<0.001	<0.0002	0.00102	<0.01	<0.0002	0.0055	35.5	<0.001
RSEM-L5-WP	10/13/2018 15:56	UN9930	<0.005	0.0051	0.00023	0.0031	<0.0005	0.00019	0.0375	<0.0001	<0.001	<0.05	0.000034	74.3	<0.001	<0.0002	0.00099	<0.01	<0.0002	0.0051	23.8	0.0206
RSEM-L5-WP	10/31/2018 17:00	UR7290	<0.005	<0.005	<0.0001	0.0039	<0.0005	0.00019	0.0344	<0.0001	<0.001	<0.05	0.000015	76.4	<0.001	<0.0002	0.00089	<0.01	<0.0002	0.0046	23.8	0.0181
RSEM-L5-WP	11/16/2018 13:30	UU3465	<0.005	<0.005	<0.0001	0.0042	<0.0005	0.00024	0.0397	<0.0001	<0.001	<0.05	0.000022	90.9	<0.001	<0.0002	0.00096	<0.01	<0.0002	0.0052	28.1	0.0185
RSEM-L5-WP	11/25/2018 14:35	UV7533	<0.005	<0.005	<0.0001	0.0047	<0.0005	0.00023	0.0422	<0.0001	<0.001	<0.05	0.000029	92.0	<0.001	<0.0002	0.00092	<0.01	<0.0002	0.006	29.9	0.0172
RSEM-L5-WP	12/1/2018 12:20	UW8606	<0.005	0.0165	0.00028	0.0065	<0.0005	0.00026	0.057	<0.0001	<0.001	<0.05	0.000024	33.3	<0.001	<0.0002	0.00202	<0.01	<0.0002	0.0021	8.09	0.0278
RSEM-L5-WP	12/7/2018 13:45	UX6860	<0.005	<0.005	<0.0001	0.0039	<0.0005	0.00028	0.0442	<0.0001	<0.001	<0.05	0.000028	103	<0.001	<0.0002	0.00108	<0.01	<0.0002	0.0061	31.9	0.0153
RSEM-L5-WP	12/11/2018 13:35	UY3861	<0.005	<0.005	<0.0001	0.0033	<0.0005	0.00047	0.0432	<0.0001	<0.001	<0.05	0.000031	99.4	<0.001	<0.0002	0.00118	<0.01	<0.0002	0.0058	33.3	0.0145
RSEM-L5-WP	12/17/2018 15:20	UZ1474	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00026	0.0445	<0.0001	<0.001	<0.05	0.000032	97.7	<0.001	<0.0002	0.00134	<0.01	<0.0002	0.0059	32.5	0.014
RSEM-L5-WP	12/28/2018 12:45	VA3068	<0.005	<0.005	<0.0001	0.004	<0.0005	0.00028	0.0454	<0.0001	<0.001	<0.05	0.00003	104	<0.001	<0.0002	0.00185	<0.01	<0.0002	0.0066	34.8	0.0137
MWTF-SLP	12/17/2018 18:00	UZ1380	<0.005	<0.005	<0.0001	0.0318	0.00183	0.00175	0.0209	<0.0001	<0.001	0.205	<0.00001	20.9	0.0021	<0.0002	0.00106	<0.01	<0.0002	0.0489	33.6	0.003
PHASE-2-CRUSHER	9/16/2018 10:30	UI5526	0.0296	0.0756	0.00105	0.0075	<0.0005	0.00048	0.204	<0.0001	<0.001	0.084	<0.00001	44.4	<0.001	<0.0002	0.00104	<0.01	<0.0002	0.0045	8.54	0.0086
PHASE-2-CRUSHER	11/2/2018 10:45	US0134	<0.005	<0.005	<0.0001	0.0063	<0.0005	0.00026	0.167	<0.0001	<0.001	<0.05	0.00001	48.5	<0.001	<0.0002	0.00087	<0.01	<0.0002	0.0029	11.2	<0.001
PHASE-2-THICKENER	11/2/2018 10:30	US0133	<0.005	0.0066	<0.0001	0.0076	<0.0005	0.00027	0.165	<0.0001	<0.001	<0.05	0.000014	48.6	<0.001	<0.0002	0.00081	<0.01	<0.0002	0.003	10.7	0.0012
R5B-EAST-SEEP	4/18/2018 16:10	TH5887	<0.025	2.18	0.00167	0.518	<0.0025	<0.0005	0.0322	0.00075	<0.005	<0.25	0.00903	249	<0.005	0.206	0.0246	0.394	<0.001	0.276	96.6	2.41
R5B-EAST-SEEP	5/9/2018 17:30	TK4271	<0.001	0.327	<0.0005	0.0365	0.00015	<0.0001	0.011	0.000097	<0.000025	0.233	0.00144	149	<0.0005	0.0473	0.00194	0.397	<0.000025	0.167	54.0	0.802
R5B-EAST-SEEP	5/12/2018 13:45	TK7569	<0.005	0.259	<0.0001	0.0144	<0.0005	<0.0001	0.013	<0.0001	<0.001	0.267	0.0012	137	<0.001	0.0388	0.00144	<0.01	<0.0002	0.163	46.3	0.683
R5B-EAST-SEEP	6/21/2018	TS1921	0.0109	0.0351	0.00114	<0.003	<0.0005	0.00088	0.0959	<0.0001	<0.001	<0.05	<0.00001	103	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0092	30.0	0.297
R5B-EAST-SEEP	7/26/2018 17:30	TY5333	<0.005	0.155	<0.0001	0.0125	<0.0005	0.00016	0.0172	<0.0001	<0.001	0.377	0.000324	173	<0.001	0.037	<0.0005	<0.01	<0.0002	0.154	58.8	0.971
R5B-EAST-SEEP	8/10/2018 9:50	UB1626	<0.025	0.328	<0.0005	<0.015	<0.0025	<0.0005	0.0124	<0.0005	<0.005	0.638	<0.00005	185	<0.005	0.0265	<0.0025	0.887	<0.001	0.191	70.6	1.14
R5B-WEST-SEEP	5/9/2018 16:30	TK4272	<0.001	<0.005	<0.0005	<0.0025	<0.0001	0.0002	0.0406	<0.00005	<0.000025	0.4	0.000063	202	<0.0005	0.000118	<0.00025	0.0169	<0.000025	0.129	51.9	0.0511
RBAC-SEEP	1/6/2018 12:00	ST9407	<0.025	<0.025	<0.0005	<0.015	<0.0025	<0.0005	0.362	<0.0005	<0.005	<0.25	<0.00005	67.1	<0.005	<0.001	<0.0025	<0.05	<0.001	0.992	24.1	<0.005
RBAC-SEEP	4/27/2018 16:50	TI5381	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00014	0.275	<0.0001	<0.001	0.108	<0.00001	68.6	<0.001	<0.0002	0.00067	<0.01	<0.0002	0.584	21.6	<0.001
RBAC-SEEP	5/9/2018 8:30	TK4270	<0.001	<0.005	<0.0005	<0.0025	<0.0001	0.00016	0.279	<0.00005	<0.000025	0.168	<0.000025	66.5	<0.0005	<0.000025	<0.00025	<0.005	<0.000025	0.795	22.2	0.00027
RBAC-SEEP	5/9/2018 10:00	TK4269	<0.0002	<0.001	<0.0001	0.0008	0.000052	0.000099	0.237	<0.00001	<0.000005	0.034	0.000006	90.0	0.00021	0.0000224	0.000172	0.0024	<0.000005	0.0139	22.2	0.000135
RBAC-SEEP	5/17/2018 14:25	TL6390	<0.005	<0.005	0.0004	0.0077	<0.0005	0.00037	0.169	<0.0001	<0.001	0.149	<0.00001	27.3	<0.001	<0.0002	0.00081	<0.01	<0.0002	0.374	16.1	<0.001
RBAC-SEEP	6/30/2018	TU0478	<0.005	<0.005	<0.0001	0.0042	<0.0005	0.00026	0.17	<0.0001	<0.001	0.127	<0.00001	33.9	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.421	13.2	<0.001
RBAC-SEEP	7/23/2018 7:10	TX8483	0.006	0.0134	0.00111	0.0096	<0.0005	0.00028	0.166	<0.0001	<0.001	0.092	<0.00001	40.0	<0.001	<0.0002	0.00076	<0.01	<0.0002	0.256	11.1	0.0018
RBAC-SEEP	8/8/2018 0:00	UB1681	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.0003	0.199	<0.0001	<0.001	0.175	<0.00001	26.0	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.565	15.0	<0.001
RBAC-SEEP	9/8/2018 18:15	UG8748	<0.005	0.0131	0.00042	0.0071	<0.0005	0.00032	0.119	<0.0001	<0.001	<0.05	<0.00001	31.7	<0.001	<0.0002	0.00065	<0.01	<0.0002	0.0909	6.31	<0.001
RBAC-SEEP	10/10/2018 15:45	UN4657	<0.005	<0.005	<0.0001	<0.006	<0.001	<0.0002	0.159	<0.0002	<0.002	0.198	<0.00002	34.3	<0.002	<0.0004	<0.001	<0.02	<0.0004	0.559	12.8	<0.002

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
LBGC-OUT	5/8/2018 17:14	TK1912	<0.000002	0.0033	0.0123	-	11.9	0.0009	1.65	<0.00002	44.3	0.504	174	0.000022	<0.005	<0.005	0.00489	<0.005	<0.005	0.00013
LBGC-OUT	5/8/2018 23:03	TK1906	<0.000002	0.0027	0.0185	-	12.1	0.00074	2.05	<0.00002	47.7	0.534	175	0.000019	<0.005	<0.005	0.00447	<0.005	<0.005	0.00013
LBGC-OUT	5/9/2018 5:00	TK1897	<0.000002	0.0027	0.0228	-	11.4	0.00101	2.07	<0.00002	48.8	0.535	200	0.000017	<0.005	<0.005	0.00456	<0.005	<0.005	0.00012
LBGC-OUT	5/9/2018 11:13	TK1893	0.000002	0.0027	0.0223	-	11.6	0.00105	2.02	<0.00002	50.9	0.562	209	0.000015	<0.005	<0.005	0.00445	<0.005	<0.005	<0.0001
LBGC-OUT	5/9/2018 17:20	TK5295	<0.000002	0.0031	0.0137	-	13.5	0.00104	2.06	<0.00002	59.7	0.557	252	0.000022	<0.005	<0.005	0.00515	<0.005	<0.005	<0.0001
LBGC-OUT	5/9/2018 23:16	TK5238	<0.000002	0.0026	0.0207	-	13.0	0.00099	2.23	<0.00002	60.7	0.588	240	0.000022	<0.005	<0.005	0.00525	<0.005	<0.005	0.00011
LBGC-OUT	5/10/2018 5:03	TK5243	<0.000002	0.003	0.0199	-	12.6	0.00105	2.15	<0.00002	66.2	0.649	257	0.000023	<0.005	<0.005	0.00562	<0.005	<0.005	<0.0001
LBGC-OUT	5/10/2018 11:10	TK5250	<0.000002	0.0029	0.0162	-	13.1	0.0009	1.92	<0.00002	68.2	0.626	262	0.000025	<0.005	<0.005	0.00548	<0.005	<0.005	0.00011
LBGC-OUT	5/10/2018 17:23	TK5257	<0.000002	0.004	0.0112	-	13.5	0.0012	1.75	<0.00002	70.6	0.687	298	0.000031	<0.005	<0.005	0.00664	<0.005	<0.005	<0.0001
LBGC-OUT	5/10/2018 23:02	TK5498	<0.000002	0.0033	0.0182	-	12.2	0.00129	1.98	<0.00002	70.0	0.655	292	0.000023	<0.005	<0.005	0.00604	<0.005	<0.005	<0.0001
LBGC-OUT	5/11/2018 5:00	TK5506	<0.000002	0.003	0.0232	-	11.2	0.00141	2.06	<0.00002	69.1	0.647	275	0.000021	<0.005	<0.005	0.00622	<0.005	<0.005	0.0001
LBGC-OUT	5/11/2018 5:00	TK5503	<0.000002	0.0031	0.0221	-	10.9	0.00138	2.1	<0.00002	67.8	0.655	265	0.000022	<0.005	<0.005	0.00598	<0.005	<0.005	0.00014
LBGC-OUT	5/11/2018 11:02	TK6058	<0.000002	0.0032	0.0132	-	11.8	0.00148	1.76	<0.00002	72.4	0.68	275	0.000025	<0.005	<0.005	0.00639	<0.005	<0.005	<0.0001
LBGC-OUT	5/11/2018 16:55	TK6051	<0.000002	0.0046	0.0095	-	12.3	0.00204	1.44	<0.00002	83.6	0.768	364	0.000026	<0.005	<0.005	0.00787	<0.005	<0.005	<0.0001
LBGC-OUT	5/12/2018 13:53	TK6555	<0.000002	0.0101	0.0059	-	8.64	0.00118	2.11	<0.00002	31.5	0.276	67.1	0.000016	<0.005	<0.005	0.00601	<0.005	<0.005	0.00014
LBL3C-3.32	4/25/2018 13:35	TI3536	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	5/27/2018 11:15	TM9448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/9/2018 17:20	TQ0034	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/12/2018 10:00	TQ4127	<0.000002	0.0017	0.0035	-	12.8	0.0006	3.6	<0.00002	37.8	0.629	137	<0.00001	<0.005	<0.005	0.00782	<0.005	<0.005	0.00022
LBL3C-3.32	6/25/2018 17:00	TS9093	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	6/26/2018 11:50	TT0845	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/9/2018 15:30	TV3539	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/21/2018 6:35	TX8504	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/29/2018 10:38	TZ1787	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LBL3C-3.32	7/31/2018 13:22	TZ5898	<0.000002	0.0018	0.005	-	10.7	0.00043	3.97	<0.00002	47.1	0.68	129	<0.00001	<0.005	<0.005	0.00467	<0.005	<0.005	0.00025
LBL5-C1	1/6/2018 12:00	ST9401	-	0.003	0.04	-	2.41	0.00164	3.13	<0.00002	35.4	0.342	110	<0.00001	<0.005	<0.005	0.00344	<0.005	0.0267	<0.0001
LBL5-C1	2/23/2018 13:45	SZ9583	-	0.003	0.0105	-	2.40	0.00136	2.89	<0.00002	31.6	0.325	104	<0.00001	<0.005	<0.005	0.0031	<0.005	<0.005	<0.0001
LBL5-C1	4/5/2018 15:15	TF7752	-	0.005	0.0144	-	2.94	0.00203	2.73	<0.00002	31.3	0.379	136	<0.00001	<0.005	<0.005	0.00451	<0.005	0.0059	<0.0001
RSEM-L5-EP	11/3/2018 15:30	US3526	<0.000002	0.0083	0.0281	-	5.76	0.00658	2.3	<0.00004	145	0.702	312	0.000022	<0.01	<0.01	0.00567	<0.01	<0.01	<0.0002
RSEM-L5-EP	11/19/2018 13:30	UU8728	<0.000002	0.0076	0.0213	-	5.25	0.00625	2.47	<0.00002	121	0.649	280	0.000017	<0.005	<0.005	0.00542	<0.005	0.0074	<0.0001
RSEM-L5-EP	11/25/2018 14:45	UV7537	<0.000002	0.0077	0.0204	-	5.59	0.00667	2.59	<0.00002	132	0.693	308	0.000017	<0.005	<0.005	0.00595	<0.005	0.0074	<0.0001
RSEM-L5-EP	12/1/2018 12:35	UW8607	<0.000002	0.0051	0.0039	-	3.24	0.00333	1.83	<0.00002	39.4	0.408	152	<0.00001	<0.005	<0.005	0.0038	<0.005	<0.005	<0.0001
RSEM-L5-EP	12/11/2018 13:45	UY3862	<0.000002	0.0051	<0.001	-	2.91	0.00266	1.07	<0.00002	18.0	0.347	115	<0.00001	<0.005	<0.005	0.00284	<0.005	<0.005	<0.0001
RSEM-L5-EP	12/17/2018 15:30	UZ1473	<0.000002	0.005	<0.001	-	2.95	0.00295	1.3	<0.00002	19.1	0.354	116	<0.00001	<0.005	<0.005	0.00319	<0.005	<0.005	<0.0001
RSEM-L5-WP	10/13/2018 15:56	UN9930	0.0000035	0.0068	<0.001	-	2.63	0.00254	0.37	<0.00002	13.8	0.273	84.5	<0.00001	<0.005	<0.005	0.00224	<0.005	<0.005	<0.0001
RSEM-L5-WP	10/31/2018 17:00	UR7290	0.000006	0.0066	<0.001	-	2.64	0.00241	0.426	<0.00002	13.7	0.268	88.3	<0.00001	<0.005	<0.005	0.00227	<0.005	<0.005	<0.0001
RSEM-L5-WP	11/16/2018 13:30	UU3465	<0.000002	0.0075	<0.001	-	3.24	0.00289	0.505	<0.00002	16.2	0.287	107	<0.00001	<0.005	<0.005	0.00268	<0.005	<0.005	<0.0001
RSEM-L5-WP	11/25/2018 14:35	UV7533	<0.000002	0.0081	0.001	-	3.22	0.00301	0.455	<0.00002	17.3	0.328	108	<0.00001	<0.005	<0.005	0.00291	<0.005	<0.005	<0.0001
RSEM-L5-WP	12/1/2018 12:20	UW8606	<0.000002	0.0029	0.0013	-	2.08	0.00153	0.931	<0.00002	11.4	0.104	29.2	<0.00001	<0.005	<0.005	0.00105	<0.005	0.0106	<0.0001
RSEM-L5-WP	12/7/2018 13:45	UX6860	<0.000002	0.0081	0.0012	-	3.45	0.00336	0.531	<0.00002	18.1	0.327	117	<0.00001	<0.005	<0.005	0.00309	<0.005	<0.005	<0.0001
RSEM-L5-WP	12/11/2018 13:35	UY3861	<0.000002	0.0085	0.0012	-	3.62	0.00326	0.439	<0.00002	19.2	0.371	124	<0.00001	<0.005	<0.005	0.0031	<0.005	<0.005	<0.0001
RSEM-L5-WP	12/17/2018 15:20	UZ1474	<0.000002	0.0084	0.0012	-	3.46	0.00327	0.383	<0.00002	19.1	0.356	114	<0.00001	<0.005	<0.005	0.00319	<0.005	<0.005	<0.0001
RSEM-L5-WP	12/28/2018 12:45	VA3068	<0.000002	0.0088	0.0013	-	3.57	0.00342	0.439	<0.00002	19.9	0.38	122	<0.00001	<0.005	<0.005	0.00331	<0.005	<0.005	<0.0001
MWTF-SLP	12/17/2018 18:00	UZ1380	<0.000002	0.0423	0.0041	-	4.23	0.00361	4.41	<0.00002	234	0.244	167	<0.00001	<0.005	<0.005	0.0028	<0.005	<0.005	<0.0001
PHASE-2-CRUSHER	9/16/2018 10:30	UI5526	<0.000002	0.0112	0.0012	-	2.11	0.0009	3.85	<0.00002	52.2	0.157	17.9	0.000012	<0.005	<0.005	0.00157	<0.005	<0.005	<0.0001
PHASE-2-CRUSHER	11/2/2018 10:45	US0134	0.0000048	0.0025	<0.001	-	1.35	0.00035	3.21	<0.00002	12.6	0.0997	6.3	<0.00001	<0.005	<0.005	0.00075	<0.005	<0.005	<0.0001
PHASE-2-THICKENER	11/2/2018 10:30	US0133	0.0000052	0.0022	<0.001	-	1.25	0.00031	3.13	<0.00002	12.0	0.0999	6.1	<0.00001	<0.005	<0.005	0.00075	<0.005	<0.005	<0.0001
R5B-EAST-SEEP	4/18/2018 16:10	TH5887	-	<0.005	0.633	-	4.41	0.00386	5.75	<0.0001	278	1.43	555	0.000137	<0.025	<0.025	0.00095	<0.025	2.15	<0.0005
R5B-EAST-SEEP	5/9/2018 17:30	TK4271	<0.000002	0.00086	0.15	<0.01	3.71	0.00075	3.51	<0.000025	289	1	315	0.000098	<0.001	<0.0025	0.00121	<0.001	0.326	<0.0005
R5B-EAST-SEEP	5/12/2018 13:45	TK7569	<0.000002	<0.001	0.126	-	3.72	0.00058	3.77	<0.00002	253	0.824	292	0.000117	<0.005	<0.005	0.00106	<0.005	0.29	<0.0001
R5B-EAST-SEEP	6/21/2018	TS1921	<0.000002	0.0057	<0.001	-	2.75	0.0002	5.71	<0.00002	4.22	0.4	31.8	<0.00001	<0.005	<0.005	0.00022	<0.005	<0.005	<0.0001
R5B-EAST-SEEP	7/26/2018 17:30	TY5333	<0.000002	0.0012	0.0952	-	5.92	<0.0001	4.54	<0.00002	270	1.31	347	0.000081	<0.005	<0.005	0.001	<0.005	0.125	<0.0001
R5B-EAST-SEEP	8/10/2018 9:50	UB1626	<0.000002	<0.005	0.127	-	5.05	<0.0005	5.01	<0.0001	332	1.17	423	<0.00005	<0.025	<0.025	<0.0005	<0.025	0.178	<0.0005
R5B-WEST-SEEP	5/9/2018 16:30	TK4272	<0.000002	0.00194	0.00236	<0.01	3.73	<0.0002	2.49	<0.000025	309	0.726	314	0.000039	<0.001	<0.0025	0.00295	<0.001	0.00135	<0.0005
RBAC-SEEP	1/6/2018 12:00	ST9407	-	<0.005	<0.005	-	4.28	<0.0005	6.06	<0.0001	631	0.247	<15	<0.00005	<0.025	<0.025	0.00476	<0.025	<0.025	<0.0005
RBAC-SEEP	4/27/2018 16:50	TI5381	<0.000002	0.0019	<0.001	-	3.63	0.00019	5.89	<0.00002	328	0.221	6.2	<0.00001	<0.005	<0.005	0.00294	<0.005	<0.005	<0.0001
RBAC-SEEP	5/9/2018 8:30	TK4270	<0.000002	0.00225	0.00016	<0.01	3.42	0.00031	5.34	<0.000025	504	0.225	<15	<0.00001	<0.001	<0.0025	0.00362	<0.001	<0.0005	<0.0005
RBAC-SEEP	5/9/2018 10:00	TK4269	<0.000002	0.00093	0.000141	0.0056	3.14	0.000668	6.33	<0.000005	135	0.242	8.6	0.0000023	<0.0002	<0.0005	0.0016	<0.0002	0.00028	<0.0001
RBAC-SEEP	5/17/2018 14:25	TL6390	<0.000002	0.0057	0.0022	-	4.03	0.00112	4.8	<0.00002	415	0.169	11.8	0.000022	<0.005	<0.005	0.00583	<0.005	<0.005	<0.0001
RBAC-SEEP	6/30/2018	TU0478	<0.000002	0.0038	<0.001	-	3.28	0.00087	3.85	<0.00002	259	0.137	12.6	0.000015	<0.005	<0.005	0.00323	<0.005	<0.005	<0.0001
RBAC-SEEP	7/23/2018 7:10	TX8483	<0.000002	0.0054	<0.001	-	2.57	0.0005	4.5	<0.00002	170	0.158	9.7	<0.00001	<0.005	<0.005	0.00212	<0.005	<0.005	<0.0001
RBAC-SEEP	8/8/2018 0:00	UB1681	<0.000002	0.0038	<0.001	-	3.62	0.00058	5.86	<0.00002	328	0.153	8.8	0.000019	<0.005	<0.005	0.00426	<0.005	<0.005	<0.0001
RBAC-SEEP	9/8/2018 18:15	UG8748	<0.000002	0.0059	<0.001	-	1.74	0.00034	3.3	<0.00002	61.7	0.111	8.5	<0.00001	<0.005	<0.005	0.00119	<0.005	<0.005	<0.0001
RBAC-SEEP	10/10/2018 15:45	UN4657	0.0000024	0.0036	<0.002	-	2.80	0.00044	4.43	<0.00004	368	0.127	7.1	<0.00002	<0.01	<0.01	0.00399	<0.01	<0.01	<0.0002

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RBAC-SEEP	11/24/2018 12:30	UV7550	8.37	1460	2.33	854	28.5	136	132	636	7.0	759	8.3	<1.0	89.6	0.150	0.48	18.0
RBAC-SUMP	1/6/2018 12:00	ST9406	8.24	1770	2.80	1110	5.3	517	489	466	<1.0	568	<1.0	<1.0	155	0.400	0.697	316
RBAC-SUMP	2/7/2018 11:00	SY0765	8.34	1130	2.61	642	<4.0	347	321	393	4.2	469	5.1	<1.0	107	0.240	0.606	66.7
RBAC-SUMP	4/27/2018 16:40	TI5383	8.25	1770	14.2	1080	14.3	281	264	448	<1.0	547	<1.0	<1.0	168	0.300	0.54	230
RBAC-SUMP	5/17/2018 12:00	TL6387	8.38	961	8.30	562	<4.0	379	367	254	4.7	298	5.7	<1.0	56.4	0.300	0.40	179
RBAC-SUMP	6/30/2018	TU0477	8.12	1590	5.84	1010	8.5	350	354	343	<1.0	419	<1.0	<1.0	81.2	0.440	0.44	374
RBAC-SUMP	7/23/2018 7:00	TX8482	8.01	1510	50.3	1010	25.0	393	404	234	<1.0	286	<1.0	<1.0	69.4	0.760	0.42	477
RBAC-SUMP	8/8/2018 0:00	UB1682	8.33	1330	10.1	844	42.5	251	232	398	4.5	475	5.4	<1.0	104	0.280	0.47	146
RBAC-SUMP	9/8/2018 18:20	UG8749	7.78	1090	29.1	708	24.0	341	332	109	<1.0	133	<1.0	<1.0	43.1	0.830	0.42	380
RBAC-SUMP	10/10/2018 15:30	UN4656	8.27	942	3.8	582	6.5	357	400	317	<1.0	387	<1.0	<1.0	57.6	0.240	0.58	121
RBAC-SUMP	12/31/2018 14:20	VA5855	8.13	1670	1.74	990	<4.0	293	275	603	<1.0	735	<1.0	<1.0	106	0.350	0.58	161
RBDT-BT	12/10/2018 13:40	UY5756	8.76	2740	4620	2530	4280	342	75.6	-	-	-	-	-	171	0.610	2.7	638
RBDT-NSP	2/23/2018 14:25	SZ9586	7.72	609	68.4	438	35.5	203	194	242	<1.0	295	<1.0	<1.0	12.8	0.088	0.10	57.4
RBDT-NSP	3/21/2018 15:15	TD7851	8.28	451	126	266	152	146	131	161	<1.0	196	<1.0	<1.0	11.7	0.130	0.073	48.7
RBDT-NSP	4/15/2018 13:35	TH0428	7.32	390	125	230	133	74.3	69.1	110	<1.0	135	<1.0	<1.0	16.7	0.14	0.099	54.6
RBDT-NSP	5/14/2018	TK8140	7.61	982	520	678	381	226	211	228	<1.0	278	<1.0	<1.0	16.5	0.340	0.26	258
RBDT-NSP	6/16/2018 15:50	TR1377	8.57	1100	-	-	-	157	159	208	7.1	236	8.5	<1.0	24.1	0.480	0.26	292
RBDT-NSP	7/29/2018 18:40	TZ1788	8.49	1030	22.3	698	6.0	143	137	143	4.3	164	5.1	<1.0	23.2	0.430	0.29	271
RBDT-NSP	8/18/2018 10:18	UC8578	7.94	1040	44.8	704	21.8	108	112	87.5	<1.0	107	<1.0	<1.0	34.8	0.480	0.51	314
RBDT-NSP	8/31/2018 9:15	UF3966	7.75	1040	-	690	-	117	120	77.9	<1.0	95.0	<1.0	<1.0	35.4	0.400	0.42	324
RBDT-NSP	10/21/2018 17:50	UP5460	9.14	1320	6650	870	3350	222	53.5	263	39.7	224	47.6	<1.0	56.6	0.510	0.94	285
RBDT-NSP	12/24/2018 13:05	UZ9967	8.53	1870	5290	1450	6360	338	50.2	282	5.5	330	6.6	<1.0	126	0.390	1.7	387
RBDT-TC	1/6/2018 12:00	ST9400	10.2	1300	10.2	838	22.3	12.6	7.81	219	118	<1.0	122	5.5	48.5	0.510	0.622	327
RBDT-TC	1/13/2018 11:08	SU7313	9.79	1070	318	724	313	54.2	18.6	149	56.5	44.2	67.8	<1.0	46.3	0.410	0.558	234
RBDT-TC	1/18/2018 11:46	SV4472	9.53	1100	28.6	714	41.3	17.7	19.9	139	41.5	68.3	49.8	<1.0	54.4	0.350	0.620	270
RBDT-TC	2/7/2018 12:05	SY0766	8.64	1250	1100	1010	228	147	17.9	293	15.0	321	18.0	<1.0	58.0	0.400	0.649	268
RBDT-TC	2/7/2018 15:30	SX9250	8.70	838	>4000	646	2370	382	40.0	201	9.3	222	11.1	<1.0	36.7	0.340	0.467	188
RBDT-TC	3/18/2018 12:20	TD1671	7.96	220	34.8	114	28.0	50.6	50.1	63.4	<1.0	77.3	<1.0	<1.0	2.72	0.098	0.032	38.2
RBDT-TC	4/8/2018 11:15	TG2640	8.52	340	136	262	126	81.3	60.1	98.8	2.6	114	3.1	<1.0	7.58	0.130	0.096	49.1
RBDT-TC	5/12/2018 15:45	TK7568	7.35	664	216	368	181	202	171	203	<1.0	247	<1.0	<1.0	8.61	0.250	0.18	141
RBDT-TC	5/26/2018 15:00	TM9444	8.12	813	27.2	502	53.3	130	134	175	<1.0	214	<1.0	<1.0	14	0.330	0.20	170
RBDT-TC	6/2/2018 12:30	TO4784	8.19	1020	16.8	638	21.0	183	159	217	<1.0	265	<1.0	<1.0	17.4	0.390	0.23	218
RBDT-TC	6/16/2018 15:55	TR1378	8.21	1180	333	862	320	216	189	313	<1.0	382	<1.0	<1.0	24.2	0.400	0.27	271
RBDT-TC	7/15/2018 13:30	TW3851	8.02	1320	175	782	144	232	214	307	<1.0	375	<1.0	<1.0	23.0	0.390	0.31	279
RBDT-TC	8/31/2018 9:50	UF3973	8.37	1150	36.4	730	70.0	223	203	284	4.1	336	4.9	<1.0	16.1	0.380	0.19	213
RBDT-TC	9/20/2018 9:50	UJ6364	8.08	1130	54.2	716	87	151	142	228	<1.0	278	<1.0	<1.0	22.7	0.420	0.34	222
RBDT-TC	10/21/2018 18:00	UP5461	8.75	818	705	580	985	125	56.1	179	7.9	199	9.5	<1.0	27.9	0.230	0.48	173
RBDT-TC	11/27/2018 13:00	UW1676	8.48	1740	92.1	1200	250	129	108	309	6.6	360	7.9	<1.0	79.0	0.390	1.2	422
RBDT-TC	12/15/2018 16:10	UZ0629	8.74	2110	129	1200	330	94.8	77.7	312	14.8	345	17.7	<1.0	103	0.490	1.5	487
RB-R5B-ACDC	1/7/2018 12:00	ST9343	8.20	1000	1.92	662	7.8	452	471	319	<1.0	389	<1.0	<1.0	23.9	0.170	0.191	228
RB-R5B-ACDC	2/24/2018 17:10	TA2080	8.30	1030	3.06	674	5.8	527	507	335	<1.0	409	<1.0	<1.0	28.8	0.170	0.27	204
RB-R5B-ACDC	3/9/2018 11:15	TB8239	8.20	988	2.12	646	43	487	454	280	<1.0	341	<1.0	<1.0	28.7	0.190	0.25	220
RB-R5B-ACDC	4/5/2018 16:15	TF7750	8.14	1410	4.79	940	93	395	344	389	<1.0	474	<1.0	<1.0	127	0.250	0.46	196
RB-R5B-ACDC	5/18/2018 5:50	TL6448	8.27	1240	1.95	768	<4.0	420	357	287	<1.0	350	<1.0	<1.0	66.1	0.280	0.44	247
RB-R5B-ACDC	6/12/2018 14:30	TQ4138	8.28	984	1.83	602	10.8	319	310	267	<1.0	326	<1.0	<1.0	56.2	0.210	0.38	153
RB-R5B-ACDC	7/18/2018 9:10	TW8367	8.28	987	2.17	568	12.3	303	281	285	<1.0	348	<1.0	<1.0	58.5	0.230	0.40	158
RB-R5B-ACDC	8/10/2018 9:20	UB1625	8.07	3220	5.24	2500	14.3	919	894	160	<1.0	195	<1.0	<1.0	80.0	1.30	1.1	1600
RB-R5B-ACDC	9/20/2018 9:30	UJ6363	8.10	1000	42.8	594	64.5	389	341	308	<1.0	376	<1.0	<1.0	44.7	0.300	0.45	177
RB-R5B-ACDC	10/9/2018 10:30	UM9810	8.16	1020	2.83	610	6.3	433	423	313	<1.0	382	<1.0	<1.0	30.5	0.270	0.32	191
RB-R5B-ACDC	11/18/2018 13:35	UU6363	8.18	1630	0.51	1120	<4.0	525	494	188	<1.0	229	<1.0	<1.0	38.2	0.380	0.46	596
RB-R5B-ACDC	12/3/2018 11:45	UW8510	8.28	1180	35.2	750	46.3	388	401	377	<1.0	460	<1.0	<1.0	45.4	0.400	0.37	189
RCC-WASHPOND-E	10/30/2018 13:00	UR2809	8.03	194	22.2	124	12.8	87.9	80.3	69.3	<1.0	84.5	<1.0	<1.0	4.25	0.180	0.029	26.0
RCC-MID-PWRH	12/25/2018 12:40	UZ9979	10.2	1750	164	1120	72.8	27.4	17.3	305	116	89.7	139	<1.0	161	0.780	3.0	215
RCC-WASHPOND-MID	10/30/2018 13:10	UR2810	8.01	226	5.18	138	4.0	93.3	94.3	74.3	<1.0	90.6	<1.0	<1.0	8.49	0.200	0.031	28.3
RCC-SUMP-1	8/15/2018 14:30	UC1593	8.52	1360	>4000	1000	13900	108	110	279	7.1	323	8.5	<1.0	103	0.560	2.1	194
RCC-WASHPOND-W	10/30/2018 13:15	UR2811	8.09	242	3.48	148	<4.0	97.5	102	79.0	<1.0	96.4	<1.0	<1.0	10.5	0.230	0.040	28.2
RSEM-R5A-A	4/24/2018 13:05	TI1784	7.91	995	38.5	706	10.0	137	123	59.0	<1.0	72.0	<1.0	<1.0	21.0	0.180	0.37	334
RSEM-R5A-A	5/7/2018 9:35	TJ8510	8.00	1080	6.01	890	24.0	125	125	48.0	<1.0	58.5	<1.0	<1.0	25.3	0.220	0.42	401
RSEM-R5A-A	5/12/2018 14:20	TK7571	7.69	1160	11.3	716	11.0	137	126	47.6	<1.0	58.0	<1.0	<1.0	25.6	0.240	0.40	409
RSEM-R5A-A	5/19/2018 16:00	TM0522	7.93	1330	46.6	830	36.8	151	154	59.0	<1.0	72.0	<1.0	<1.0	28.9	0.280	0.52	476
RSEM-R5A-A	5/24/2018 17:00	TM7245	7.91	1470	33.8	960	36.0	165	162	66.3	<1.0	80.9	<1.0	<1.0	34.7	0.330	0.61	548
RSEM-R5A-A	5/29/2018	TN5957	8.11	1760	25.1	1120	19.0	219	198	92.8	<1.0	113	<1.0	<1.0	42.5	0.400	0.70	693
RSEM-R5A-A	6/17/2018 15:20	TR2099	8.13	1650	99.2	1140	37.5	233	238	97.0	<1.0	118	<1.0	<1.0	49.8	0.370	0.71	698
RSEM-R5A-A	7/3/2018 17:50	TU4430	8.12	1830	53.0	1240	24.8	236	238	107	<1.0	131	<1.0	<1.0	41.1	0.380	0.67	709

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	N-NH_3	N-NO_2	N-NO_3	N-NO_2_NO_3	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RBAC-SEEP	11/24/2018 12:30	UV7550	<0.020	<0.0050	0.918	0.918	<0.0050	<0.50	<0.50	0.183	<0.0005	0.00035	0.176	<0.0001	<0.001	0.164	0.000014	36.9	<0.001	0.00024	0.00073
RBAC-SUMP	1/6/2018 12:00	ST9406	0.27	0.0050	0.889	0.894	<0.0050	3.35	1.97	0.204	<0.0005	0.00036	0.22	<0.0001	<0.001	0.113	0.00115	141	<0.001	0.0218	0.00652
RBAC-SUMP	2/7/2018 11:00	SY0765	0.11	<0.0050	0.681	0.681	0.0059	3.95	1.82	0.0446	<0.0005	0.0003	0.272	<0.0001	<0.001	0.067	0.000087	100	<0.001	0.00225	0.00107
RBAC-SUMP	4/27/2018 16:40	TI5383	0.31	0.0118	0.945	0.957	<0.0050	1.44	0.85	0.211	<0.0005	0.00047	0.189	<0.0001	<0.001	0.156	0.000473	71.1	<0.001	0.0154	0.0033
RBAC-SUMP	5/17/2018 12:00	TL6387	0.24	0.0165	0.744	0.760	0.0062	1.86	1.36	0.0278	<0.0005	0.00022	0.337	<0.0001	<0.001	0.229	0.000133	105	<0.001	0.00841	0.00099
RBAC-SUMP	6/30/2018	TU0477	0.35	0.0254	1.11	1.13	0.0070	1.81	0.80	0.208	<0.0005	0.00038	0.186	0.00013	<0.001	0.229	0.00123	87.7	<0.001	0.031	0.00417
RBAC-SUMP	7/23/2018 7:00	TX8482	0.19	0.0059	0.922	0.928	0.0073	1.0	1.8	1	<0.0005	0.001	0.202	0.00027	<0.001	0.221	0.00336	90.0	0.001	0.0812	0.0118
RBAC-SUMP	8/8/2018 0:00	UB1682	<0.020	0.0176	0.648	0.666	<0.0050	2.64	1.85	0.266	<0.0005	0.00071	0.248	<0.0001	<0.001	0.152	0.000526	64.1	<0.001	0.0116	0.00282
RBAC-SUMP	9/8/2018 18:20	UG8749	0.089	0.0226	0.451	0.474	<0.0050	1.3	1.5	2.83	<0.0005	0.00063	0.157	0.00089	<0.001	0.082	0.00518	84.9	0.0018	0.0728	0.0411
RBAC-SUMP	10/10/2018 15:30	UN4656	0.35	<0.0050	0.569	0.569	<0.0050	1.6	1.8	0.0594	<0.0005	0.00035	0.215	<0.0001	<0.001	0.121	0.000248	99.5	<0.001	0.00652	0.00113
RBAC-SUMP	12/31/2018 14:20	VA5855	0.14	<0.0050	0.603	0.603	<0.0050	0.80	1.1	0.0187	<0.0005	0.00027	0.185	<0.0001	<0.001	0.193	0.000317	79.8	<0.001	0.0117	0.00075
RBDT-BT	12/10/2018 13:40	UY5756	0.33	4.34	20.3	24.6	0.0149	<13	0.67	25.2	0.0047	0.0365	1.15	0.00244	<0.005	0.68	0.000803	110	0.0799	0.0466	0.188
RBDT-NSP	2/23/2018 14:25	SZ9586	1.8	0.284	0.234	0.518	0.0096	9.46	40.5	1.04	0.00292	0.0033	0.469	<0.0001	<0.001	<0.05	0.00009	70.2	0.0106	0.00184	0.0091
RBDT-NSP	3/21/2018 15:15	TD7851	1.7	0.516	0.464	0.980	0.0466	3.38	7.63	0.494	0.00504	0.0051	0.397	<0.0001	<0.001	0.059	0.000035	52.5	0.0087	0.00115	0.00731
RBDT-NSP	4/15/2018 13:35	TH0428	0.73	0.487	0.651	1.14	<0.0050	3.25	2.24	3.23	0.00533	0.00504	0.387	0.00017	<0.001	0.059	0.000068	26.9	0.0084	0.00202	0.0117
RBDT-NSP	5/14/2018	TK8140	1.3	0.353	0.764	1.12	0.0064	8.37	6.63	2.86	0.00336	0.00448	0.418	0.00024	<0.001	0.161	0.000188	75.2	0.0061	0.00371	0.0131
RBDT-NSP	6/16/2018 15:50	TR1377	1.2	0.839	4.12	4.96	0.0095	36.1	33.5	0.652	0.0108	0.0129	0.329	<0.0001	<0.001	0.305	0.000024	54.0	0.002	0.0008	0.00689
RBDT-NSP	7/29/2018 18:40	TZ1788	0.045	2.87	4.74	7.61	<0.0050	16	16	0.349	0.0107	0.013	0.201	<0.0001	<0.001	0.369	<0.00001	51.2	0.0026	0.0004	0.0039
RBDT-NSP	8/18/2018 10:18	UC8578	<0.020	0.0142	0.923	0.937	0.0084	18.0	17.9	0.515	0.012	0.0121	0.253	<0.0001	<0.001	0.428	0.000025	36.5	0.0022	0.00059	0.00676
RBDT-NSP	8/31/2018 9:15	UF3966	0.086	<0.0050	<0.020	<0.020	<0.0050	21	15.1	2.04	0.00837	0.0107	0.274	0.00012	<0.001	0.386	0.000076	39.5	0.0036	0.0015	0.0128
RBDT-NSP	10/21/2018 17:50	UP5460	1.4	0.755	9.24	9.99	0.375	8.3	26	23	0.004	0.0377	2.79	0.00249	<0.005	0.412	0.000483	68.2	0.0472	0.037	0.139
RBDT-NSP	12/24/2018 13:05	UZ9967	0.31	0.0387	15.1	15.1	0.0280	<13	<13	17.3	0.0049	0.0351	1.24	0.00227	<0.002	0.472	0.000802	113	0.0406	0.0461	0.168
RBDT-TC	1/6/2018 12:00	ST9400	1.9	1.57	1.74	3.31	0.0059	5.49	5.41	0.52	0.0119	0.00642	0.148	<0.0001	<0.001	0.218	<0.00001	4.46	0.064	0.00045	0.00272
RBDT-TC	1/13/2018 11:08	SU7313	1.1	1.01	1.11	2.11	<0.0050	4.76	3.83	4.13	0.00632	0.00846	0.388	0.00028	<0.001	0.149	0.000063	15.6	0.0532	0.00444	0.0156
RBDT-TC	1/18/2018 11:46	SV4472	1.4	0.968	1.01	1.98	<0.0050	4.15	3.73	1.22	0.0088	0.00537	0.193	<0.0001	<0.001	0.144	<0.00001	5.88	0.0493	0.00055	0.00295
RBDT-TC	2/7/2018 12:05	SY0766	3.7	1.84	1.81	3.64	0.0178	7.78	4.00	14	0.0114	0.022	1.49	0.00075	<0.005	<0.25	0.00015	49.9	0.0748	0.011	0.0522
RBDT-TC	2/7/2018 15:30	SX9250	1.7	1.08	1.57	2.65	0.0857	17.7	14.2	25.9	0.00633	0.0341	3.52	0.00164	<0.001	0.188	0.00048	129	0.0693	0.0304	0.131
RBDT-TC	3/18/2018 12:20	TD1671	1.6	0.610	0.464	1.07	<0.0050	2.56	2.32	1.61	0.00291	0.00214	0.223	<0.0001	<0.001	<0.05	<0.00001	16.2	0.0115	0.00031	0.00292
RBDT-TC	4/8/2018 11:15	TG2640	0.78	0.343	2.27	2.62	0.0206	<0.50	3.56	1.41	0.00312	0.00424	0.43	<0.0001	<0.001	0.069	0.000026	25.1	0.0103	0.00135	0.00762
RBDT-TC	5/12/2018 15:45	TK7568	1.9	0.225	0.477	0.702	0.0408	8.68	8.14	2.2	0.00221	0.00396	0.671	0.00017	<0.001	0.109	0.000183	65.5	0.0055	0.00334	0.0117
RBDT-TC	5/26/2018 15:00	TM9444	1.7	0.0390	4.51	4.55	<0.0050	6.95	6.93	0.42	0.00456	0.00449	0.424	<0.0001	<0.001	0.171	0.000018	41.2	0.0039	0.00141	0.0045
RBDT-TC	6/2/2018 12:30	TO4784	2.4	0.0691	6.80	6.87	0.0239	8.18	6.52	0.785	0.00702	0.00524	0.563	<0.0001	<0.001	0.287	<0.00001	57.6	0.0037	0.00064	0.00457
RBDT-TC	6/16/2018 15:55	TR1378	3.8	0.151	6.53	6.68	0.0066	9.69	33.6	1.79	0.00569	0.00702	0.986	0.00017	<0.001	0.266	0.00006	69.9	0.0064	0.00321	0.0127
RBDT-TC	7/15/2018 13:30	TW3851	0.26	2.01	10.6	12.6	0.0777	12	25	0.877	0.00754	0.00557	0.571	<0.0001	<0.001	0.314	0.000042	74.4	0.0044	0.00193	0.00758
RBDT-TC	8/31/2018 9:50	UF3973	3.9	0.777	8.49	9.27	<0.0050	10	6.97	0.903	0.00535	0.0041	0.292	<0.0001	<0.001	0.269	<0.00001	70.3	0.0038	0.00082	0.00429
RBDT-TC	9/20/2018 9:50	UJ6364	0.048	0.0638	7.88	7.94	<0.0050	5.55	6.45	0.731	0.00608	0.00387	0.27	<0.0001	<0.001	0.298	<0.00001	47.6	0.0049	0.00118	0.00574
RBDT-TC	10/21/2018 18:00	UP5461	0.12	0.674	6.55	7.22	0.0065	3.5	3.5	7.24	0.0043	0.011	1.47	0.0006	<0.005	<0.25	0.000151	40.4	0.0203	0.0084	0.0358
RBDT-TC	11/27/2018 13:00	UW1676	0.022	<0.0050	15.6	15.6	0.0055	17	19	0.662	0.013	0.0117	0.305	<0.0002	<0.002	0.419	0.000039	44.4	0.0106	0.00286	0.0063
RBDT-TC	12/15/2018 16:10	UZ0629	0.060	0.0091	16.9	16.9	0.0869	12	11	2.92	0.0118	0.0173	0.416	<0.0002	<0.002	0.4	0.000033	31.4	0.0196	0.00314	0.0112
RB-R5B-ACDC	1/7/2018 12:00	ST9343	0.042	0.0077	0.921	0.929	<0.0050	2.19	1.36	0.0721	<0.0005	0.00033	0.0617	<0.0001	<0.001	0.057	0.000143	119	<0.001	0.00243	0.00113
RB-R5B-ACDC	2/24/2018 17:10	TA2080	0.062	<0.0050	0.989	0.989	<0.0050	2.03	1.53	0.0867	<0.0005	0.00033	0.0639	<0.0001	<0.001	0.065	0.000106	134	<0.001	0.00148	0.00168
RB-R5B-ACDC	3/9/2018 11:15	TB8239	0.046	<0.0050	0.854	0.854	<0.0050	1.65	0.93	0.0198	<0.0005	0.00022	0.0596	<0.0001	<0.001	0.063	0.000085	125	<0.001	0.0018	0.00076
RB-R5B-ACDC	4/5/2018 16:15	TF7750	0.12	0.0074	0.763	0.771	0.0100	<0.50	<0.50	0.864	<0.0005	0.0012	0.157	<0.0001	<0.001	0.111	0.000275	104	0.0014	0.00628	0.00425
RB-R5B-ACDC	5/18/2018 5:50	TL6448	0.13	0.0113	0.750	0.762	<0.0050	-	2.06	0.0422	<0.0005	0.00026	0.123	<0.0001	<0.001	0.137	0.000229	109	<0.001	0.00886	0.00118
RB-R5B-ACDC	6/12/2018 14:30	TQ4138	0.048	<0.0050	0.525	0.525	<0.0050	2.12	2.02	0.1	<0.0005	0.00033	0.114	<0.0001	<0.001	0.114	0.000041	78.0	<0.001	0.00165	0.00124
RB-R5B-ACDC	7/18/2018 9:10	TW8367	<0.020	<0.0050	0.305	0.305	<0.0050	0.54	0.75	0.0943	<0.0005	0.00033	0.132	<0.0001	<0.001	0.128	0.000044	76.1	<0.001	0.00171	0.00161
RB-R5B-ACDC	8/10/2018 9:20	UB1625	0.28	0.0161	0.808	0.825	<0.0050	1.90	1.23	0.167	<0.0025	<0.0005	0.101	<0.0005	<0.005	0.321	0.000277	276	<0.005	0.0036	<0.0025
RB-R5B-ACDC	9/20/2018 9:30	UJ6363	0.066	<0.0050	0.827	0.827	<0.0050	1.76	1.97	0.478	<0.0005	0.00063	0.144	<0.0001	<0.001	0.082	0.000323	105	<0.001	0.00728	0.00384
RB-R5B-ACDC	10/9/2018 10:30	UM9810	0.070	<0.0050	0.830	0.830	<0.0050	<0.50	<0.50	0.0984	<0.0005	0.0002	0.068	<0.0001	<0.001	0.072	0.000143	117	<0.001	0.00406	0.00092
RB-R5B-ACDC	11/18/2018 13:35	UU6363	0.38	0.0178	0.686	0.704	<0.0050	1.8	1.4	0.0434	<0.0005	0.00028	0.0449	<0.0001	<0.001	0.124	0.000068	104	<0.001	0.00156	0.00088
RB-R5B-ACDC	12/3/2018 11:45	UW8510	0.20	0.0082	0.982	0.990	0.0086	<0.50	<0.50	1.19	<0.0005	0.0017	0.101	0.00019	<0.001	0.095	0.000643	100	0.0016	0.0104	0.0112
RCC-WASHPOND-E	10/30/2018 13:00	UR2809	<0.020	0.0142	<0.020	<0.020	<0.0050	4.25	2.83	1.39	0.0008	0.00149	0.142	<0.0001	<0.001	<0.05	0.000061	24.8	0.0038	0.00095	0.00393
RCC-MID-PWRH	12/25/2018 12:40	UZ9979	1.1	0.259	0.046	0.305	0.159	<2.5	2.8	8.67	0.0047	0.0185	0.236	<0.0005	<0.005	0.448	0.00022	8.05	0.0157	0.0044	0.0157
RCC-WASHPOND-MID	10/30/2018 13:10	UR2810	<0.020	<0.0050	<0.020	<0.020	<0.0050	4.47	3.15	0.231	<0.0005	0.00037	0.131	<0.0001	<0.001	<0.05	<0.00001	25.5	0.001	<0.0002	0.00134
RCC-SUMP-1	8/15/2018 14:30	UC1593	0.81	0.423	1.11	1.53	0.0437	<5.0	6.0	9.1	0.0031	0.00922	1.57	0.00055	<0.002	0.344	0.000089	27.7	0.0172	0.00541	0.059
RCC-WASHPOND-W	10/30/2018 13:15	UR2811	<0.020	<0.0050	<0.020	<0.020	<0.0050	4.79	3.38	0.179	<0.0005	0.0003	0.143	<0.0001	<0.001	<0.05	<0.00001	26.3	<0.001	<0.0002	0.00125
RSEM-R5A-A	4/24/2018 13:05	TI1784	0.38	0.0373	4.73	4.77	0.0122	1.80	1.23	0.569	<0.0005	0.00073	0.165	<0.0001	<0.001	0.073	0.000034	41.6	0.0013	0.00084	0.00205
RSEM-R5A-A	5/7/2018 9:35	TJ8510	0.090	0.0533	3.75	3.81	<0.0050	1.50	0.95	0.423	0.00061	0.00053	0.107	<0.0001	<0.001	0.094	0.000021	36.8	0.0012	0.00024	0.00154
RSEM-R5A-A	5/12/2018 14:20	TK7571	0.041	0.0628	4.36	4.42	<0.0050	2.12	1.79	0.787	0.00074	0.00054	0.106	<0.0001	<0.001	0.111	0.000014	39.7	0.0016	0.00028	0.00149
RSEM-R5A-A	5/19/2018 16:00	TM0522	0.036	0.0526	4.17	4.22	<0.0050	2.05	0.69	2.79	0.0009	0.00096	0.145	0.00011	<0.001	0.146	0.000042	42.9	0.0042	0.00067	0.00314
RSEM-R5A-A	5/24/2018 17:00	TM7245	0.037	0.0621	3.51	3.57	<0.0050	4.39	2.72	0.681	0.00108	0.0008	0.117	<0.0001	<0.001	0.18	0.000047	47.0	0.0015	0.00047	0.0029
RSEM-R5A-A	5/29/2018	TN5957	0.040	0.0394	3.18	3.22	<0.0050	4.25	1.88	0.596	0.00126	0.00079	0.111	<0.0001	<0.001	0.235	0.000036	61.8	0.0013	0.00042	0.00291
RSEM-R5A-A	6/17/2018 15:20	TR2099	0.042	0.0091	1.28	1.29	0.011	3.94	2.69	7.82	0.00123	0.00167	0.208	0.00026	<0.001	0.27	0.000065	67.1	0.0098	0.00154	0.00656
RSEM-R5A-A	7/3/2018 17:50	TU4430	0.065	0.150	11.1	11.3	<0.0050	5.49	3.12	0.894	0.00097	0.00115	0.171	<0.0001	<0.001	0.234	0.000045	65.7	0.0026	0.00102	0.00301

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RBAC-SEEP	11/24/2018 12:30	UV7550	0.407	0.00023	0.488	10.7	0.0116	<0.000002	0.0018	<0.001	-	2.62	0.00027	5.93	<0.00002	290	0.119	5.7	<0.00001	<0.005	0.011	0.00191
RBAC-SUMP	1/6/2018 12:00	ST9406	0.353	<0.0002	0.176	40.0	0.438	-	0.0029	0.0809	-	3.90	0.00117	5.27	<0.00002	221	0.46	112	0.000032	<0.005	<0.005	0.00361
RBAC-SUMP	2/7/2018 11:00	SY0765	0.088	<0.0002	0.102	23.4	0.0323	-	0.0035	0.011	-	2.99	0.00053	5.41	<0.00002	136	0.273	22.2	0.000017	<0.005	<0.005	0.00257
RBAC-SUMP	4/27/2018 16:40	TI5383	0.602	<0.0002	0.432	25.1	0.237	<0.000002	0.0043	0.0551	-	3.28	0.00205	4.61	<0.00002	286	0.308	82.7	0.000028	<0.005	<0.005	0.00336
RBAC-SUMP	5/17/2018 12:00	TL6387	1.4	<0.0002	0.0544	28.3	0.221	<0.000002	0.004	0.044	-	2.27	0.00086	4.25	<0.00002	66.9	0.408	57.3	0.00002	<0.005	<0.005	0.00161
RBAC-SUMP	6/30/2018	TU0477	1.19	<0.0002	0.231	31.7	0.451	<0.000002	0.004	0.103	-	3.37	0.00411	4.37	<0.00002	232	0.455	127	0.000044	<0.005	<0.005	0.003
RBAC-SUMP	7/23/2018 7:00	TX8482	6.19	0.00023	0.222	40.8	1.07	0.0000024	0.0031	0.282	-	2.84	0.00182	5.65	<0.00002	163	0.388	142	0.000033	<0.005	0.0064	0.00323
RBAC-SUMP	8/8/2018 0:00	UB1682	1.34	0.00033	0.292	22.0	0.197	<0.000002	0.0032	0.0439	-	2.99	0.00087	4.84	<0.00002	224	0.262	46.3	0.000026	<0.005	<0.005	0.00241
RBAC-SUMP	9/8/2018 18:20	UG8749	3.31	<0.0002	0.175	31.4	1.13	<0.000002	0.0015	0.25	-	1.81	0.00116	3.27	<0.00002	88.3	0.231	126	0.000016	<0.005	<0.005	0.00472
RBAC-SUMP	10/10/2018 15:30	UN4656	0.988	<0.0002	0.086	26.4	0.147	0.0000046	0.0037	0.0254	-	2.74	0.00082	4.81	<0.00002	70.7	0.349	42.7	0.000018	<0.005	<0.005	0.00155
RBAC-SUMP	12/31/2018 14:20	VA5855	0.319	<0.0002	0.398	22.8	0.251	<0.000002	0.0035	0.0483	-	2.92	0.00052	5.07	<0.00002	270	0.301	56.2	0.000013	<0.005	<0.005	0.00214
RBDT-BT	12/10/2018 13:40	UY5756	38.5	0.0348	0.185	16.0	0.425	<0.000002	0.0875	0.0948	-	27.5	0.0115	55.1	0.00106	666	0.882	246	0.000251	<0.025	0.201	0.00815
RBDT-NSP	2/23/2018 14:25	SZ9586	1.29	0.00262	0.0067	6.61	0.0354	-	0.0189	0.0042	-	7.96	0.00169	8.41	0.000043	54.4	0.392	18.5	0.000023	<0.005	0.0099	0.00093
RBDT-NSP	3/21/2018 15:15	TD7851	0.375	0.00185	0.006	3.74	0.0259	-	0.017	0.0027	-	5.07	0.00148	18.3	0.000036	36.6	0.263	17.6	0.000019	<0.005	<0.005	0.00089
RBDT-NSP	4/15/2018 13:35	TH0428	3.14	0.00284	0.0098	1.71	0.0467	-	0.017	0.0054	-	6.54	0.00165	14.9	0.00005	49.4	0.237	16.3	0.000048	<0.005	0.0387	0.00066
RBDT-NSP	5/14/2018	TK8140	2.63	0.00447	0.0492	9.37	0.0971	0.000002	0.0125	0.0125	-	5.95	0.002	15.3	0.00004	149	0.417	93.7	0.000056	<0.005	0.0607	0.00142
RBDT-NSP	6/16/2018 15:50	TR1377	0.861	0.0012	0.047	5.45	0.0141	0.0000026	0.0282	0.0041	-	6.04	0.00245	10.3	<0.00002	181	0.436	95.8	0.000031	<0.005	0.0071	0.0043
RBDT-NSP	7/29/2018 18:40	TZ1788	0.255	0.00041	0.0473	3.75	0.0021	<0.000002	0.0316	0.0021	-	7.59	0.00287	11.9	<0.00002	160	0.433	101	0.000017	<0.005	<0.005	0.00269
RBDT-NSP	8/18/2018 10:18	UC8578	0.78	0.00075	0.0448	4.10	0.014	<0.000002	0.0356	0.003	-	6.75	0.00282	7.11	0.000025	159	0.341	114	0.000016	<0.005	0.0095	0.00294
RBDT-NSP	8/31/2018 9:15	UF3966	2.41	0.00212	0.0416	4.56	0.0315	0.0000024	0.0372	0.0062	-	5.98	0.00128	4.7	0.000056	151	0.349	117	0.000046	<0.005	0.0299	0.00329
RBDT-NSP	10/21/2018 17:50	UP5460	27	0.0406	0.082	12.5	0.281	0.0000035	0.0408	0.0797	-	14.8	0.00756	50	0.00059	253	0.597	109	0.000281	<0.025	0.065	0.00838
RBDT-NSP	12/24/2018 13:05	UZ9967	28.7	0.0336	0.117	13.7	0.444	<0.000002	0.0565	0.0827	-	15.5	0.00918	40.9	0.000829	408	0.799	152	0.000236	<0.01	0.064	0.00818
RBDT-TC	1/6/2018 12:00	ST9400	0.196	0.0002	0.0435	0.352	0.0026	-	0.076	0.0012	-	14.5	0.00682	41.5	<0.00002	231	0.216	104	0.000012	<0.005	0.0075	<0.0001
RBDT-TC	1/13/2018 11:08	SU7313	5.23	0.00516	0.0579	3.68	0.0341	-	0.0448	0.0111	-	11.0	0.00533	32.6	0.000111	192	0.223	85.3	0.000065	<0.005	0.0179	0.0009
RBDT-TC	1/18/2018 11:46	SV4472	0.36	0.00041	0.0515	0.743	0.0017	<0.00001	0.047	0.0012	-	10.7	0.00477	28.3	<0.00002	204	0.174	92.6	0.000017	<0.005	0.0227	0.00011
RBDT-TC	2/7/2018 12:05	SY0766	8.75	0.015	0.056	5.45	0.0735	-	0.0748	0.022	-	20.1	0.00747	60.3	0.0003	261	0.438	97	0.000158	<0.025	0.162	0.00218
RBDT-TC	2/7/2018 15:30	SX9250	30.1	0.047	0.0681	14.5	0.263	-	0.0417	0.0574	-	15.0	0.00844	62.1	0.000801	149	0.72	58.4	0.00029	<0.005	0.0879	0.00497
RBDT-TC	3/18/2018 12:20	TD1671	0.499	0.00081	0.0051	2.48	0.0032	-	0.0113	0.0011	-	4.28	0.00125	14	<0.00002	20.6	0.161	13.3	0.000021	<0.005	0.0405	0.00033
RBDT-TC	4/8/2018 11:15	TG2640	1.12	0.0024	0.0103	4.51	0.019	-	0.0145	0.003	-	4.94	0.00226	14.2	0.000024	46.8	0.233	18.8	0.000027	<0.005	0.0075	0.00092
RBDT-TC	5/12/2018 15:45	TK7568	3.22	0.0042	0.0279	9.26	0.0937	<0.000002	0.0068	0.0111	-	3.75	0.0017	11.1	0.000075	79.4	0.34	47.3	0.000056	<0.005	0.036	0.00125
RBDT-TC	5/26/2018 15:00	TM9444	0.361	0.00057	0.0363	6.70	0.042	<0.000002	0.0128	0.0045	-	4.87	0.00224	9.44	<0.00002	115	0.372	62.2	0.000033	<0.005	<0.005	0.00157
RBDT-TC	6/2/2018 12:30	TO4784	0.556	0.00065	0.0592	9.57	0.012	<0.000002	0.0196	0.0055	-	6.97	0.00278	17	<0.00002	168	0.508	111	0.000033	<0.005	0.0145	0.00259
RBDT-TC	6/16/2018 15:55	TR1378	2.21	0.00552	0.051	10.0	0.0484	<0.000002	0.0213	0.01	-	6.80	0.00255	14.8	0.000029	191	0.566	85.3	0.00005	<0.005	0.0111	0.00286
RBDT-TC	7/15/2018 13:30	TW3851	0.813	0.00232	0.0537	11.1	0.0412	<0.000002	0.0262	0.0077	-	8.32	0.00269	14.6	<0.00002	227	0.598	96.9	0.000036	<0.005	0.0063	0.00306
RBDT-TC	8/31/2018 9:50	UF3973	0.587	0.00063	0.0455	11.4	0.0176	0.0000031	0.0209	0.0043	-	6.35	0.00256	13.5	<0.00002	152	0.519	84.8	0.000036	<0.005	0.022	0.00271
RBDT-TC	9/20/2018 9:50	UJ6364	0.609	0.0009	0.0473	7.91	0.0265	<0.000002	0.0257	0.0056	-	8.27	0.00259	9.33	<0.00002	186	0.388	89.8	0.000028	<0.005	0.0068	0.00194
RBDT-TC	10/21/2018 18:00	UP5461	7.6	0.0161	0.031	5.85	0.101	0.0000062	0.0294	0.0183	-	8.28	0.00459	20.4	0.00021	138	0.295	52	0.000127	<0.025	0.049	0.00276
RBDT-TC	11/27/2018 13:00	UW1676	0.802	0.00294	0.055	4.33	0.0653	<0.000002	0.0769	0.0052	-	10.4	0.00867	17.5	<0.00004	342	0.399	142	0.000027	<0.01	<0.01	0.00381
RBDT-TC	12/15/2018 16:10	UZ0629	2.23	0.00465	0.0794	4.01	0.0389	<0.000002	0.0885	0.0072	-	11.7	0.00909	20.9	0.000046	462	0.328	181	0.000055	<0.01	0.012	0.00438
RB-R5B-ACDC	1/7/2018 12:00	ST9343	0.166	<0.0002	0.0292	37.6	0.0283	-	0.0024	0.0192	-	4.55	0.00488	4.91	<0.00002	36.2	0.437	70.0	0.00002	<0.005	<0.005	0.00396
RB-R5B-ACDC	2/24/2018 17:10	TA2080	0.26	<0.0002	0.0283	46.4	0.0248	-	0.0029	0.016	-	5.34	0.00484	5.75	<0.00002	42.8	0.467	76.2	0.000017	<0.005	<0.005	0.00424
RB-R5B-ACDC	3/9/2018 11:15	TB8239	0.107	<0.0002	0.0294	42.1	0.0324	-	0.0026	0.0174	-	4.44	0.00473	4.96	<0.00002	38.5	0.44	70.6	0.000017	<0.005	<0.005	0.00383
RB-R5B-ACDC	4/5/2018 16:15	TF7750	1.72	0.00114	0.219	33.0	0.118	-	0.0033	0.0299	-	4.48	0.0024	7.17	0.000028	180	0.374	70.8	0.000043	<0.005	0.0218	0.00354
RB-R5B-ACDC	5/18/2018 5:50	TL6448	0.253	<0.0002	0.119	36.1	0.125	<0.000002	0.0035	0.034	-	4.37	0.00207	5.16	<0.00002	137	0.386	99.2	0.000023	<0.005	<0.005	0.00301
RB-R5B-ACDC	6/12/2018 14:30	TQ4138	0.132	<0.0002	0.115	30.1	0.0259	<0.000002	0.0033	0.0124	-	4.52	0.00175	3.91	<0.00002	124	0.295	56.6	0.00002	<0.005	<0.005	0.00253
RB-R5B-ACDC	7/18/2018 9:10	TW8367	0.269	<0.0002	0.117	27.5	0.0251	<0.000002	0.0028	0.0133	-	3.90	0.00156	3.65	<0.00002	115	0.321	48.1	0.000015	<0.005	<0.005	0.00225
RB-R5B-ACDC	8/10/2018 9:20	UB1625	0.382	<0.001	0.332	55.8	0.0591	<0.000002	<0.005	0.0153	-	6.38	0.00882	3.39	<0.0001	429	1.26	538	0.000083	<0.025	<0.025	0.0012
RB-R5B-ACDC	9/20/2018 9:30	UJ6363	1.58	0.00034	0.086	30.7	0.17	<0.000002	0.0019	0.0303	-	3.42	0.00158	5.09	<0.00002	79.8	0.339	54.8	0.00002	<0.005	<0.005	0.00215
RB-R5B-ACDC	10/9/2018 10:30	UM9810	0.417	<0.0002	0.0526	34.1	0.093	<0.000002	0.0017	0.0173	-	4.30	0.0027	5.34	<0.00002	48.9	0.361	65.5	0.00001	<0.005	<0.005	0.00247
RB-R5B-ACDC	11/18/2018 13:35	UU6363	0.041	<0.0002	0.0991	64.1	0.0358	<0.000002	0.0039	0.0105	-	3.61	0.00234	3.98	<0.00002	192	0.507	228	0.000016	<0.005	<0.005	0.002
RB-R5B-ACDC	12/3/2018 11:45	UW8510	3.05	0.0007	0.126	33.3	0.157	<0.000002	0.0026	0.0436	-	3.90	0.00259	5.68	<0.00002	107	0.389	65.0	0.000035	<0.005	0.0231	0.00269
RCC-WASHPOND-E	10/30/2018 13:00	UR2809	2.08	0.00119	0.0025	6.31	0.0482	<0.000002	0.0059	0.003	-	1.49	0.00028	2.76	<0.00002	5.57	0.111	7.5	0.000031	<0.005	0.0309	0.00095
RCC-MID-PWRH	12/25/2018 12:40	UZ9979	9.07	0.0049	0.047	1.76	0.144	0.0000135	0.0721	0.0141	-	9.87	0.00738	20.4	0.00012	360	0.104	96	0.00015	<0.025	0.154	0.00374
RCC-WASHPOND-MID	10/30/2018 13:10	UR2810	0.168	<0.0002	<0.002	7.22	0.0044	0.0000026	0.0062	<0.001	-	1.40	0.00019	0.389	<0.00002	6.28	0.102	8.5	<0.00001	<0.005	<0.005	0.00088
RCC-SUMP-1	8/15/2018 14:30	UC1593	7.6	0.00701	0.0624	9.43	0.0625	<0.000002	0.0253	0.0194	-	6.98	0.0119	21.4	0.000209	231	0.444	78.2	0.000135	<0.01	0.126	0.0057
RCC-WASHPOND-W	10/30/2018 13:15	UR2811	0.123	<0.0002	<0.002	7.74	0.0029	0.0000076	0.0077	<0.001	-	1.63	0.00017	0.269	<0.00002	6.09	0.111	8.8	<0.00001	<0.005	<0.005	0.00083
RSEM-R5A-A	4/24/2018 13:05	TI1784	0.824	0.00052	0.0362	8.02	0.0359	<0.000002	0.004	0.0038	-	3.67	0.0243	2.07	<0.00002	147	0.28	120	0.000024	<0.005	0.009	0.00183
RSEM-R5A-A	5/7/2018 9:35	TJ8510	0.323	0.00022	0.0409	7.99	0.0052	<0.000002	0.0052	0.0015	-	4.13	0.0271	1.12	<0.00002	162	0.301	130	0.000014	<0.005	0.0089	0.00197
RSEM-R5A-A	5/12/2018 14:20	TK7571	0.406	0.00024	0.0459	9.25	0.0041	<0.000002	0.0062	0.0013	-	5.17	0.0279	2.04	<0.00002	187	0.322	151	0.000016	<0.005	0.0243	0.00199
RSEM-R5A-A	5/19/2018 16:00	TM0522	1.36	0.00078	0.057	10.7	0.0142	<0.000002	0.008	0.0028	-	6.98	0.0282	7.99	0.000026	202	0.367	180	0.000046	<0.005	0.107	0.00237
RSEM-R5A-A	5/24/2018 17:00	TM7245	0.608	0.00042	0.0592	11.7	0.0082	<0.000002	0.009	0.0023	-	6.94	0.0312	1.85	<0.00002	234	0.462	191	0.000023	<0.005	0.0206	0.00259
RSEM-R5A-A	5/29/2018	TN5957	0.464	0.00032	0.0734	15.7	0.0053	<0.000002	0.0118	0.0025	-	8.41	0.0339	1.95	<0.00002	297	0.592	245	0.000023	<0.005	0.0098	0.00324
RSEM-R5A-A	6/17/2018 15:20	TR2099	3.13	0.00186	0.0688	16.0	0.0258	<0.000002	0.0127	0.0068	-	10.2	0.0175	16.8	0.00004	266	0.554	214	0.000106	<0.005	0.2	0.00375
RSEM-R5A-A	7/3/2018 17:50	TU4430	1.08	0.00063	0.0693	17.4	0.017	<0.000002	0.0119	0.0134	-	5.58	0.0341	3.31	<0.00002	296	0.548	219	0.000028	<0.005	0.0123	0.00387

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RBAC-SEEP	11/24/2018 12:30	UV7550	<0.005	<0.005	0.00014	<0.006	<0.001	<0.0002	0.15	<0.0002	<0.002	0.169	<0.00002	35.5	<0.002	<0.0004	<0.001	<0.02	<0.0004	0.491	10.6	<0.002
RBAC-SUMP	1/6/2018 12:00	ST9406	<0.005	0.148	<0.0001	0.0513	<0.0005	0.0002	0.228	<0.0001	<0.001	0.123	0.000976	136	<0.001	0.0202	0.00375	<0.01	<0.0002	0.17	36.3	0.416
RBAC-SUMP	2/7/2018 11:00	SY0765	<0.005	0.0131	<0.0001	0.0074	<0.0005	0.00023	0.239	<0.0001	<0.001	0.074	0.000084	92.3	<0.001	0.00208	0.00088	<0.01	<0.0002	0.0944	22.1	0.0299
RBAC-SUMP	4/27/2018 16:40	TI5383	<0.005	0.14	<0.0001	0.0352	<0.0005	0.00021	0.154	<0.0001	<0.001	0.152	0.000451	67.9	<0.001	0.0159	0.00128	<0.01	<0.0002	0.341	22.8	0.249
RBAC-SUMP	5/17/2018 12:00	TL6387	<0.005	0.118	<0.0001	0.0092	<0.0005	0.00018	0.362	<0.0001	<0.001	0.216	0.000095	97.2	<0.001	0.00825	0.00083	<0.01	<0.0002	0.0563	30.1	0.228
RBAC-SUMP	6/30/2018	TU0477	<0.005	0.269	<0.0001	0.0524	<0.0005	0.00017	0.171	<0.0001	<0.001	0.245	0.000919	91.8	<0.001	0.0292	0.00135	0.02	<0.0002	0.252	30.4	0.432
RBAC-SUMP	7/23/2018 7:00	TX8482	<0.005	0.776	0.0003	0.0127	<0.0005	<0.0001	0.164	<0.0001	<0.001	0.187	0.00279	92.5	<0.001	0.0817	0.00161	<0.01	<0.0002	0.234	42.1	1.08
RBAC-SUMP	8/8/2018 0:00	UB1682	<0.005	0.131	<0.0001	0.0319	<0.0005	0.00032	0.22	<0.0001	<0.001	0.168	0.000012	57.0	<0.001	0.00294	0.00077	<0.01	<0.0002	0.3	21.7	0.0246
RBAC-SUMP	9/8/2018 18:20	UG8749	<0.005	0.737	<0.0001	0.0408	<0.0005	<0.0001	0.147	<0.0001	<0.001	0.085	0.00475	81.9	<0.001	0.0746	0.00653	<0.01	<0.0002	0.173	30.9	1.15
RBAC-SUMP	10/10/2018 15:30	UN4656	<0.005	0.0716	<0.0001	0.0107	<0.0005	0.00016	0.21	<0.0001	<0.001	0.122	0.000192	112	<0.001	0.0064	0.00084	<0.01	<0.0002	0.0909	29.1	0.144
RBAC-SUMP	12/31/2018 14:20	VA5855	<0.005	0.131	<0.0001	0.005	<0.0005	0.00018	0.161	<0.0001	<0.001	0.206	0.000271	71.8	<0.001	0.0115	0.00069	<0.01	<0.0002	0.403	23.3	0.239
RBDT-BT	12/10/2018 13:40	UY5756	0.082	0.527	0.00402	0.081	0.0131	0.0206	0.0482	<0.0005	<0.005	0.524	<0.00005	24.1	0.0261	<0.001	0.0037	<0.05	<0.001	0.112	3.75	<0.005
RBDT-NSP	2/23/2018 14:25	SZ9586	<0.005	0.113	0.00034	0.221	0.00306	0.00277	0.357	<0.0001	<0.001	<0.05	0.000047	67.8	0.0068	0.00098	0.0041	0.197	0.00046	0.0057	5.99	0.0247
RBDT-NSP	3/21/2018 15:15	TD7851	0.01	0.0335	0.00054	0.0416	0.00451	0.00424	0.291	<0.0001	<0.001	<0.05	0.000013	47.4	0.0058	0.00038	0.00314	0.011	<0.0002	0.0052	3.19	0.0071
RBDT-NSP	4/15/2018 13:35	TH0428	0.0164	0.0343	0.00196	0.0942	0.00602	0.00293	0.278	<0.0001	<0.001	<0.05	0.000028	25.8	0.0019	0.00062	0.00317	0.075	<0.0002	0.0056	1.11	0.0134
RBDT-NSP	5/14/2018	TK8140	0.012	0.0437	0.00283	0.0443	0.00429	0.00214	0.358	<0.0001	<0.001	0.162	0.000085	70.6	0.0018	0.00151	0.0045	0.054	<0.0002	0.047	8.45	0.0639
RBDT-NSP	6/16/2018 15:50	TR1377	0.013	0.0101	0.00045	0.0531	0.0119	0.0123	0.281	<0.0001	<0.001	0.313	<0.00001	54.8	<0.001	0.00031	0.00385	0.023	<0.0002	0.0573	5.37	0.0011
RBDT-NSP	7/29/2018 18:40	TZ1788	0.0151	<0.005	0.00025	0.0362	0.011	0.0116	0.157	<0.0001	<0.001	0.357	<0.00001	48.5	0.0021	0.00022	0.00224	<0.01	<0.0002	0.0441	3.73	<0.001
RBDT-NSP	8/18/2018 10:18	UC8578	0.0077	0.0087	0.00024	0.0382	0.0135	0.0123	0.225	<0.0001	<0.001	0.455	<0.00001	38.2	0.0014	<0.0002	0.00457	0.042	<0.0002	0.0454	4.13	<0.001
RBDT-NSP	8/31/2018 9:15	UF3966	0.0083	0.026	0.00122	0.0374	0.00978	0.00954	0.177	<0.0001	<0.001	0.456	0.000012	40.9	<0.001	<0.0002	0.00676	0.023	<0.0002	0.0412	4.28	<0.001
RBDT-NSP	10/21/2018 17:50	UP5460	0.071	0.512	0.00132	0.131	0.0139	0.0225	0.0795	<0.0001	<0.001	0.411	<0.00001	18.3	0.0115	0.00026	0.00653	0.038	0.00048	0.0334	1.89	0.0013
RBDT-NSP	12/24/2018 13:05	UZ9967	0.049	0.496	0.00233	0.102	0.0117	0.0192	0.0675	<0.0001	<0.001	0.399	<0.00001	15.9	0.0085	<0.0002	0.00262	0.036	0.00061	0.0704	2.53	0.0014
RBDT-TC	1/6/2018 12:00	ST9400	0.0293	<0.005	0.00027	0.143	0.0124	0.00695	0.126	<0.0001	<0.001	0.228	<0.00001	2.75	0.0686	0.00029	0.00192	0.065	<0.0002	0.0456	0.231	<0.001
RBDT-TC	1/13/2018 11:08	SU7313	0.0298	0.0553	0.00116	0.0637	0.00891	0.00583	0.124	<0.0001	<0.001	0.159	<0.00001	5.06	0.0497	0.00028	0.00192	0.046	<0.0002	0.0533	1.45	<0.001
RBDT-TC	1/18/2018 11:46	SV4472	0.0225	0.0052	0.00061	0.291	0.00918	0.00545	0.199	<0.0001	<0.001	0.211	<0.00001	6.95	0.0511	0.00055	0.00297	0.147	0.00037	0.0532	0.616	0.0011
RBDT-TC	2/7/2018 12:05	SY0766	0.062	0.173	0.00799	0.0384	0.012	0.0101	0.05	<0.0001	<0.001	0.101	0.000017	5.41	0.0269	<0.0002	0.00134	0.033	<0.0002	0.02	0.838	<0.001
RBDT-TC	2/7/2018 15:30	SX9250	0.0695	0.44	0.00171	0.016	0.0166	0.0166	0.0622	<0.0001	<0.001	0.168	<0.00001	11.4	0.019	<0.0002	0.00218	0.013	<0.0002	0.0173	2.81	<0.001
RBDT-TC	3/18/2018 12:20	TD1671	0.01	<0.005	0.00124	0.0869	0.0032	0.00203	0.209	<0.0001	<0.001	<0.05	<0.00001	16.3	0.0097	<0.0002	0.00111	<0.01	<0.0002	0.004	2.25	<0.001
RBDT-TC	4/8/2018 11:15	TG2640	0.0115	0.0217	0.00109	0.0373	0.00336	0.00376	0.308	<0.0001	<0.001	0.067	<0.00001	18.8	0.0068	<0.0002	0.00149	<0.01	<0.0002	0.0056	3.18	<0.001
RBDT-TC	5/12/2018 15:45	TK7568	0.0088	0.0382	0.00292	0.0524	0.00232	0.00164	0.435	<0.0001	<0.001	0.108	0.00007	55.3	<0.001	0.00114	0.00369	0.048	<0.0002	0.0258	8.05	0.0558
RBDT-TC	5/26/2018 15:00	TM9444	0.0067	0.007	0.00036	0.06	0.00474	0.00432	0.384	<0.0001	<0.001	0.186	<0.00001	42.3	0.0033	<0.0002	0.00388	<0.01	<0.0002	0.0411	6.94	<0.001
RBDT-TC	6/2/2018 12:30	TO4784	0.0079	0.0073	0.00083	0.039	0.00631	0.00446	0.431	<0.0001	<0.001	0.235	<0.00001	50.5	0.0027	<0.0002	0.00318	0.015	<0.0002	0.0483	8.10	<0.001
RBDT-TC	6/16/2018 15:55	TR1378	0.0098	0.0394	0.00138	0.0728	0.00646	0.00532	0.554	<0.0001	<0.001	0.271	0.000012	61.2	0.0179	0.00048	0.00823	0.043	0.00042	0.0549	8.71	0.0055
RBDT-TC	7/15/2018 13:30	TW3851	0.0092	0.0274	0.00085	0.0577	0.00763	0.00455	0.311	<0.0001	<0.001	0.32	0.000027	69.0	0.003	0.00088	0.00656	0.035	0.00031	0.0495	10.1	0.0285
RBDT-TC	8/31/2018 9:50	UF3973	0.0075	0.0129	0.00063	0.0383	0.0058	0.00408	0.206	<0.0001	<0.001	0.286	<0.00001	62.2	0.0024	<0.0002	0.00232	<0.01	<0.0002	0.0456	11.7	<0.001
RBDT-TC	9/20/2018 9:50	UJ6364	0.0078	0.0178	0.00049	0.0371	0.0067	0.00382	0.181	<0.0001	<0.001	0.322	0.000013	44.1	0.0035	<0.0002	0.00292	<0.01	<0.0002	0.0489	7.84	0.0022
RBDT-TC	10/21/2018 18:00	UP5461	<0.025	0.11	0.0025	0.0854	0.00709	0.00788	0.137	<0.0001	<0.001	0.201	<0.00001	17.7	0.0112	<0.0002	0.00197	0.014	<0.0002	0.0195	2.87	<0.001
RBDT-TC	11/27/2018 13:00	UW1676	0.013	0.018	0.00088	0.0631	0.0125	0.0104	0.128	<0.0001	<0.001	0.367	<0.00001	37.3	0.0094	<0.0002	0.00165	0.011	<0.0002	0.048	3.68	<0.001
RBDT-TC	12/15/2018 16:10	UZ0629	0.024	0.025	0.00087	0.0539	0.0156	0.0171	0.0927	<0.0001	<0.001	0.444	<0.00001	26.1	0.015	<0.0002	0.00235	0.017	<0.0002	0.0651	3.03	<0.001
RB-R5B-ACDC	1/7/2018 12:00	ST9343	<0.005	0.0295	<0.0001	0.0136	<0.0005	0.00019	0.0566	<0.0001	<0.001	0.058	0.000143	120	<0.001	0.00242	0.00183	<0.01	<0.0002	0.0311	41.5	0.0257
RB-R5B-ACDC	2/24/2018 17:10	TA2080	<0.005	0.021	<0.0001	0.0352	<0.0005	0.00019	0.0601	<0.0001	<0.001	0.062	0.000072	130	0.0082	0.00132	0.00086	0.071	0.00022	0.0284	44.3	0.0229
RB-R5B-ACDC	3/9/2018 11:15	TB8239	<0.005	0.0181	0.00013	0.009	<0.0005	0.00017	0.0567	<0.0001	<0.001	0.06	<0.00001	109	<0.001	0.00144	<0.0005	<0.01	<0.0002	0.0294	43.8	0.0173
RB-R5B-ACDC	4/5/2018 16:15	TF7750	<0.005	0.0504	0.00056	0.022	<0.0005	0.00021	0.0966	<0.0001	<0.001	0.104	<0.00001	78.8	<0.001	0.00304	<0.0005	<0.01	<0.0002	0.213	35.8	0.0203
RB-R5B-ACDC	5/18/2018 5:50	TL6448	<0.005	0.0804	<0.0001	0.0219	<0.0005	0.00015	0.113	<0.0001	<0.001	0.114	<0.00001	87.6	<0.001	0.00384	0.00055	0.027	<0.0002	0.111	33.5	0.0182
RB-R5B-ACDC	6/12/2018 14:30	TQ4138	<0.005	0.0113	0.00208	0.0379	<0.0005	0.00027	0.101	<0.0001	<0.001	0.117	<0.00001	80.8	<0.001	0.00105	0.00103	0.021	<0.0002	0.108	26.2	0.012
RB-R5B-ACDC	7/18/2018 9:10	TW8367	<0.005	0.0129	<0.0001	0.0661	<0.0005	0.00026	0.122	<0.0001	<0.001	0.106	<0.00001	68.6	<0.001	0.00136	0.00133	0.03	<0.0002	0.11	26.6	0.0138
RB-R5B-ACDC	8/10/2018 9:20	UB1625	<0.025	0.036	<0.0005	0.046	<0.0025	<0.0005	0.0918	<0.0005	<0.005	0.323	0.000059	269	<0.005	0.0017	<0.0025	<0.05	<0.001	0.312	53.6	0.0251
RB-R5B-ACDC	9/20/2018 9:30	UJ6363	<0.005	0.0585	0.0003	0.0651	<0.0005	0.00014	0.113	<0.0001	<0.001	0.086	<0.00001	86.0	<0.001	0.00296	<0.0005	<0.01	<0.0002	0.0906	30.6	0.0297
RB-R5B-ACDC	10/9/2018 10:30	UM9810	<0.005	0.0342	<0.0001	0.0494	<0.0005	0.0001	0.0692	<0.0001	<0.001	0.074	0.000096	111	<0.001	0.00438	0.0009	0.024	<0.0002	0.0572	35.5	0.0931
RB-R5B-ACDC	11/18/2018 13:35	UU6363	<0.005	0.0124	<0.0001	0.028	<0.0005	0.00025	0.0448	<0.0001	<0.001	0.098	0.000064	101	<0.001	0.00154	0.00071	<0.01	<0.0002	0.0814	59.0	0.0329
RB-R5B-ACDC	12/3/2018 11:45	UW8510	<0.005	0.119	0.00067	0.117	<0.0005	0.00017	0.0588	<0.0001	<0.001	0.099	0.000326	103	<0.001	0.00898	0.00135	0.034	<0.0002	0.132	35.1	0.139
RCC-WASHPOND-E	10/30/2018 13:00	UR2809	<0.005	0.01	0.00067	0.0511	0.0008	0.00043	0.106	<0.0001	<0.001	<0.05	<0.00001	22.5	0.0016	<0.0002	0.00197	<0.01	<0.0002	<0.002	5.84	<0.001
RCC-MID-PWRH	12/25/2018 12:40	UZ9979	0.044	0.04	0.0123	1.03	0.00534	0.0143	0.0475	<0.0001	<0.001	0.511	<0.00001	6.31	0.0034	<0.0002	0.00294	0.136	<0.0002	0.0474	0.370	0.0022
RCC-WASHPOND-MID	10/30/2018 13:10	UR2810	<0.005	<0.005	0.00011	0.0484	<0.0005	0.00028	0.125	<0.0001	<0.001	<0.05	<0.00001	25.3	<0.001	<0.0002	0.00114	<0.01	<0.0002	<0.002	7.58	<0.001
RCC-SUMP-1	8/15/2018 14:30	UC1593	0.026	0.041	0.00358	0.0153	0.00548	0.00728	0.125	<0.0001	<0.001	0.383	<0.00001	28.9	0.0048	0.00194	0.0658	0.044	<0.0002	0.0579	9.18	0.0036
RCC-WASHPOND-W	10/30/2018 13:15	UR2811	<0.005	<0.005	0.00012	0.0511	<0.0005	0.00025	0.141	<0.0001	<0.001	<0.05	<0.00001	26.8	<0.001	<0.0002	0.0011	<0.01	<0.0002	0.002	8.57	<0.001
RSEM-R5A-A	4/24/2018 13:05	TI1784	<0.005	0.0052	0.00048	0.0051	<0.0005	0.00038	0.136	<0.0001	<0.001	0.07	0.000022	37.2	<0.001	0.00036	0.00075	<0.01	<0.0002	0.0363	7.44	0.0259
RSEM-R5A-A	5/7/2018 9:35	TJ8510	<0.005	<0.005	0.00021	0.0203	0.0006	0.00033	0.0901	<0.0001	<0.001	0.09	<0.00001	37.0	<0.001	<0.0002	0.00071	<0.01	<0.0002	0.0401	8.01	<0.001
RSEM-R5A-A	5/12/2018 14:20	TK7571	<0.005	<0.005	0.00216	0.0178	0.00074	0.00035	0.0858	<0.0001	<0.001	0.115	<0.00001	35.9	<0.001	<0.0002	0.00088	<0.01	<0.0002	0.0479	8.84	<0.001
RSEM-R5A-A	5/19/2018 16:00	TM0522	0.0086	0.0079	0.00423	0.0203	0.00095	0.00038	0.0866	<0.0001	<0.001	0.152	<0.00001	45.2	<0.001	<0.0002	0.00141	<0.01	<0.0002	0.0576	10.1	<0.001
RSEM-R5A-A	5/24/2018 17:00	TM7245	<0.005	<0.005	0.00065	0.0135	0.00106	0.00047	0.0869	<0.0001	<0.001	0.178	<0.00001	46.8	<0.001	<0.0002	0.00173	<0.01	<0.0002	0.0639	11.0	<0.001
RSEM-R5A-A	5/29/2018	TN5957	<0.005	<0.005	0.0011	0.0102	0.00129	0.00054	0.0838	<0.0001	<0.001	0.231	<0.00001	55.1	<0.001	<0.0002	0.00227	<0.01	<0.0002	0.0712	14.5	<0.001
RSEM-R5A-A	6/17/2018 15:20	TR2099	0.0208	0.0154	0.00869	0.0112	0.00119	0.00063	0.0609	<0.0001	<0.001	0.241	<0.00001	69.4	<0.001	<0.0002	0.00294	<0.01	<0.0002	0.0655	15.7	<0.001
RSEM-R5A-A	7/3/2018 17:50	TU4430	<0.005	0.0067	0.00044	0.0129	<0.001	0.00058	0.143	<0.0002	<0.002	0.232	<0.00002	68.6	<0.002	<0.0004	0.0017	<0.02	<0.0004	0.0706	16.2	<0.002

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RBAC-SEEP	11/24/2018 12:30	UV7550	<0.000002	<0.002	<0.002	-	2.61	0.00028	5.52	<0.00004	299	0.115	<6.0	<0.00002	<0.01	<0.01	0.0019	<0.01	<0.01	<0.0002
RBAC-SUMP	1/6/2018 12:00	ST9406	-	0.003	0.0774	-	3.50	0.00118	5.55	<0.00002	198	0.477	109	0.000034	<0.005	<0.005	0.00366	<0.005	0.126	<0.0001
RBAC-SUMP	2/7/2018 11:00	SY0765	-	0.0032	0.0103	-	2.59	0.00048	5.2	<0.00002	126	0.282	20.9	0.000011	<0.005	<0.005	0.00247	<0.005	0.0123	<0.0001
RBAC-SUMP	4/27/2018 16:40	TI5383	<0.000002	0.0047	0.0563	-	2.90	0.0017	3.84	<0.00002	240	0.299	82.0	0.000022	<0.005	<0.005	0.00313	<0.005	0.113	<0.0001
RBAC-SUMP	5/17/2018 12:00	TL6387	<0.000002	0.0044	0.0442	-	2.45	0.00069	3.69	<0.00002	69.8	0.476	59.5	0.00002	<0.005	<0.005	0.00184	<0.005	0.068	<0.0001
RBAC-SUMP	6/30/2018	TU0477	<0.000002	0.0038	0.0962	-	3.43	0.00421	4.65	<0.00002	221	0.426	134	0.00004	<0.005	<0.005	0.00297	<0.005	0.174	<0.0001
RBAC-SUMP	7/23/2018 7:00	TX8482	<0.000002	0.0029	0.28	-	2.91	0.0019	4.86	<0.00002	170	0.394	149	0.000022	<0.005	<0.005	0.00273	<0.005	0.632	<0.0001
RBAC-SUMP	8/8/2018 0:00	UB1682	<0.000002	0.0028	0.0307	-	3.04	0.00079	4.36	<0.00002	218	0.246	48.2	0.000018	<0.005	<0.005	0.00226	<0.005	0.005	<0.0001
RBAC-SUMP	9/8/2018 18:20	UG8749	<0.000002	0.0014	0.259	-	1.78	0.00115	2.91	<0.00002	88.3	0.218	125	0.000012	<0.005	<0.005	0.00118	<0.005	0.607	<0.0001
RBAC-SUMP	10/10/2018 15:30	UN4656	0.0000027	0.0036	0.0251	-	2.84	0.00084	4.83	<0.00002	77.5	0.391	42.8	0.000016	<0.005	<0.005	0.0016	<0.005	0.0495	<0.0001
RBAC-SUMP	12/31/2018 14:20	VA5855	<0.000002	0.0032	0.0476	-	2.92	0.00046	4.5	<0.00002	280	0.273	58.3	0.000011	<0.005	<0.005	0.00198	<0.005	0.118	<0.0001
RBDT-BT	12/10/2018 13:40	UY5756	<0.00002	0.12	<0.005	-	16.4	0.0106	11.6	<0.0001	575	0.295	217	<0.00005	<0.025	<0.025	0.00374	<0.025	<0.025	<0.0005
RBDT-NSP	2/23/2018 14:25	SZ9586	-	0.0186	0.0025	-	7.13	0.00152	7.12	<0.00002	52.6	0.363	18.0	0.000015	<0.005	<0.005	0.00081	<0.005	0.0697	0.00032
RBDT-NSP	3/21/2018 15:15	TD7851	-	0.0154	0.0015	-	4.73	0.00136	15.5	<0.00002	33.1	0.229	15.9	<0.00001	<0.005	<0.005	0.00077	0.0086	<0.005	<0.0001
RBDT-NSP	4/15/2018 13:35	TH0428	-	0.0177	0.0016	-	5.76	0.00145	9.59	<0.00002	51.8	0.218	15.3	<0.00001	<0.005	<0.005	0.00039	0.0076	0.0067	<0.0001
RBDT-NSP	5/14/2018	TK8140	<0.000002	0.0139	0.0073	-	5.14	0.00204	9.6	<0.00002	146	0.389	87.3	0.000027	<0.005	<0.005	0.0012	<0.005	0.0073	0.00041
RBDT-NSP	6/16/2018 15:50	TR1377	<0.000002	0.0287	0.0027	-	6.01	0.00252	10.1	<0.00002	174	0.401	103	0.000019	<0.005	<0.005	0.00431	0.0109	<0.005	0.00016
RBDT-NSP	7/29/2018 18:40	TZ1788	<0.000002	0.0299	0.0017	-	7.30	0.00235	10.5	<0.00002	164	0.369	99.7	0.000011	<0.005	<0.005	0.00261	0.0144	<0.005	<0.0001
RBDT-NSP	8/18/2018 10:18	UC8578	<0.000002	0.038	0.0018	-	6.82	0.0028	6.34	<0.00002	162	0.355	122	<0.00001	<0.005	<0.005	0.00299	0.0063	<0.005	0.00015
RBDT-NSP	8/31/2018 9:15	UF3966	<0.000002	0.0384	0.0023	-	5.36	0.00121	1.05	<0.00002	160	0.339	123	<0.00001	<0.005	<0.005	0.00282	<0.005	<0.005	0.00012
RBDT-NSP	10/21/2018 17:50	UP5460	0.000021	0.0473	0.0018	-	5.68	0.00669	10.5	<0.00002	227	0.148	97.3	<0.00001	<0.005	<0.005	0.00407	0.0242	0.0066	0.00027
RBDT-NSP	12/24/2018 13:05	UZ9967	<0.000002	0.107	0.001	-	7.66	0.00783	8.85	<0.00002	408	0.175	144	0.000013	<0.005	<0.005	0.00404	0.0151	<0.005	0.00031
RBDT-TC	1/6/2018 12:00	ST9400	-	0.0786	<0.001	-	15.1	0.00761	43.4	<0.00002	257	0.204	112	0.000011	<0.005	<0.005	<0.0001	0.0301	<0.005	<0.0001
RBDT-TC	1/13/2018 11:08	SU7313	-	0.0512	<0.001	-	10.5	0.00549	28.7	<0.00002	199	0.146	93.0	<0.00001	<0.005	<0.005	0.0003	0.0219	<0.005	<0.0001
RBDT-TC	1/18/2018 11:46	SV4472	<0.00001	0.0492	0.001	-	10.5	0.00489	28.3	<0.00002	207	0.186	97.0	0.00001	<0.005	<0.005	<0.0001	0.0216	<0.005	0.00021
RBDT-TC	2/7/2018 12:05	SY0766	-	0.0561	<0.001	-	8.05	0.00414	19.3	<0.00002	132	0.0898	51.1	0.000015	<0.005	<0.005	0.0008	0.0172	<0.005	<0.0001
RBDT-TC	2/7/2018 15:30	SX9250	-	0.062	<0.001	-	8.14	0.00534	16.1	<0.00002	150	0.114	58.2	0.000012	<0.005	<0.005	0.00156	0.0204	<0.005	<0.0001
RBDT-TC	3/18/2018 12:20	TD1671	-	0.0118	<0.001	-	3.80	0.00144	11.2	<0.00002	20.7	0.164	13.2	<0.00001	<0.005	<0.005	0.0003	0.0064	<0.005	<0.0001
RBDT-TC	4/8/2018 11:15	TG2640	-	0.0141	<0.001	-	3.88	0.0021	11.5	<0.00002	38.3	0.205	16.7	<0.00001	<0.005	<0.005	0.0008	0.0077	<0.005	<0.0001
RBDT-TC	5/12/2018 15:45	TK7568	<0.000002	0.0075	0.006	-	3.18	0.00146	5.99	<0.00002	80.5	0.323	43.7	0.000021	<0.005	<0.005	0.001	<0.005	0.0064	0.00033
RBDT-TC	5/26/2018 15:00	TM9444	<0.000002	0.0131	0.0034	-	4.98	0.00221	9.57	<0.00002	120	0.375	64.4	<0.00001	<0.005	<0.005	0.0016	0.0056	<0.005	0.00019
RBDT-TC	6/2/2018 12:30	TO4784	<0.000002	0.0175	0.004	-	6.25	0.0023	12.8	<0.00002	142	0.474	93.0	0.000017	<0.005	<0.005	0.00213	0.0058	<0.005	0.00025
RBDT-TC	6/16/2018 15:55	TR1378	<0.000002	0.0213	0.0047	-	5.83	0.00245	12.8	<0.00002	168	0.461	80.8	0.000027	<0.005	<0.005	0.00259	0.0058	0.0061	0.00033
RBDT-TC	7/15/2018 13:30	TW3851	<0.000002	0.0249	0.0054	-	7.37	0.00249	13.3	<0.00002	209	0.522	93.1	0.000027	<0.005	<0.005	0.0028	0.007	0.0076	0.00046
RBDT-TC	8/31/2018 9:50	UF3973	<0.000002	0.0211	0.0031	-	6.24	0.00222	11.5	<0.00002	158	0.49	86.9	0.000027	<0.005	<0.005	0.00251	<0.005	<0.005	0.00015
RBDT-TC	9/20/2018 9:50	UJ6364	<0.000002	0.0266	0.0033	-	8.05	0.00286	9.42	<0.00002	181	0.393	88.5	0.00002	<0.005	<0.005	0.00198	0.0061	<0.005	0.00015
RBDT-TC	10/21/2018 18:00	UP5461	<0.00002	0.0365	<0.001	-	5.79	0.00434	7.82	<0.00002	134	0.157	54.4	<0.00001	<0.005	<0.005	0.00211	0.0093	<0.005	<0.0001
RBDT-TC	11/27/2018 13:00	UW1676	<0.000002	0.0724	0.0014	-	9.67	0.00753	15.3	<0.00002	326	0.312	131	0.000021	<0.005	<0.005	0.00359	0.0112	<0.005	0.00016
RBDT-TC	12/15/2018 16:10	UZ0629	<0.00002	0.0899	0.001	-	10.4	0.0103	16.2	<0.00002	417	0.301	174	0.000015	<0.005	<0.005	0.00415	0.0167	<0.005	0.00019
RB-R5B-ACDC	1/7/2018 12:00	ST9343	-	0.0025	0.0208	-	4.74	0.00512	4.96	<0.00002	40.3	0.45	73.4	0.000017	<0.005	<0.005	0.00411	<0.005	0.0288	<0.0001
RB-R5B-ACDC	2/24/2018 17:10	TA2080	-	0.0028	0.0165	-	5.33	0.00466	5.47	<0.00002	41.0	0.449	75.7	0.000018	<0.005	<0.005	0.00412	<0.005	0.014	<0.0001
RB-R5B-ACDC	3/9/2018 11:15	TB8239	-	0.0026	0.0168	-	4.72	0.00479	4.6	<0.00002	40.6	0.43	71.5	0.000015	<0.005	<0.005	0.00382	<0.005	<0.005	<0.0001
RB-R5B-ACDC	4/5/2018 16:15	TF7750	-	0.0031	0.0257	-	3.99	0.00265	4.59	<0.00002	194	0.353	64.1	0.000019	<0.005	<0.005	0.00332	<0.005	<0.005	<0.0001
RB-R5B-ACDC	5/18/2018 5:50	TL6448	<0.000002	0.0034	0.027	-	4.27	0.00202	5.29	<0.00002	126	0.363	105	0.00002	<0.005	<0.005	0.00271	<0.005	<0.005	<0.0001
RB-R5B-ACDC	6/12/2018 14:30	TQ4138	<0.000002	0.0034	0.0101	-	4.08	0.00183	4.6	<0.00002	101	0.3	54.6	0.000017	<0.005	<0.005	0.00246	<0.005	<0.005	<0.0001
RB-R5B-ACDC	7/18/2018 9:10	TW8367	<0.000002	0.0027	0.0119	-	3.77	0.00163	3.37	<0.00002	111	0.319	46.4	0.000012	<0.005	<0.005	0.00218	<0.005	<0.005	<0.0001
RB-R5B-ACDC	8/10/2018 9:20	UB1625	<0.000002	<0.005	0.0105	-	6.16	0.00916	3.18	<0.0001	415	1.18	513	0.00007	<0.025	<0.025	0.00115	<0.025	<0.025	<0.0005
RB-R5B-ACDC	9/20/2018 9:30	UJ6363	<0.000002	0.0018	0.0227	-	3.31	0.00167	4.83	<0.00002	77.8	0.33	52.1	<0.00001	<0.005	<0.005	0.00193	<0.005	<0.005	<0.0001
RB-R5B-ACDC	10/9/2018 10:30	UM9810	<0.000002	0.0019	0.0188	-	4.08	0.00287	4.92	<0.00002	51.5	0.408	59.1	<0.00001	<0.005	<0.005	0.00239	<0.005	0.0231	<0.0001
RB-R5B-ACDC	11/18/2018 13:35	UU6363	<0.000002	0.006	0.0105	-	3.56	0.00232	3.76	<0.00002	180	0.487	217	0.000014	<0.005	<0.005	0.00192	<0.005	0.0111	<0.0001
RB-R5B-ACDC	12/3/2018 11:45	UW8510	<0.000002	0.0025	0.0381	-	3.84	0.00254	4.59	<0.00002	113	0.388	68.3	0.000015	<0.005	<0.005	0.00238	<0.005	0.036	<0.0001
RCC-WASHPOND-E	10/30/2018 13:00	UR2809	0.0000021	0.0063	<0.001	-	1.16	0.00026	0.244	<0.00002	5.86	0.108	7.8	<0.00001	<0.005	<0.005	0.0008	<0.005	<0.005	<0.0001
RCC-MID-PWRH	12/25/2018 12:40	UZ9979	0.0000054	0.0839	0.0015	-	7.99	0.00774	5.32	<0.00002	394	0.0833	103	0.000011	<0.005	<0.005	0.00394	0.0212	<0.005	0.00014
RCC-WASHPOND-MID	10/30/2018 13:10	UR2810	0.0000069	0.0064	<0.001	-	1.41	0.0002	<0.1	<0.00002	6.62	0.104	8.4	<0.00001	<0.005	<0.005	0.00085	<0.005	<0.005	<0.0001
RCC-SUMP-1	8/15/2018 14:30	UC1593	<0.000002	0.0335	0.0116	-	5.26	0.0127	4.7	0.000169	252	0.341	3300	0.000016	<0.005	<0.005	0.00536	<0.005	<0.005	<0.0001
RCC-WASHPOND-W	10/30/2018 13:15	UR2811	0.000004	0.0083	<0.001	-	1.73	0.00017	<0.1	<0.00002	6.74	0.118	9.8	<0.00001	<0.005	<0.005	0.00081	<0.005	<0.005	<0.0001
RSEM-R5A-A	4/24/2018 13:05	TI1784	<0.000002	0.0041	0.0023	-	3.60	0.0246	1.1	<0.00002	141	0.275	117	0.000011	<0.005	<0.005	0.00188	<0.005	<0.005	<0.0001
RSEM-R5A-A	5/7/2018 9:35	TJ8510	<0.000002	0.0052	<0.001	-	4.14	0.0272	0.295	<0.00002	162	0.292	134	<0.00001	<0.005	<0.005	0.00193	<0.005	<0.005	<0.0001
RSEM-R5A-A	5/12/2018 14:20	TK7571	<0.000002	0.0061	<0.001	-	4.56	0.0285	0.125	<0.00002	183	0.316	150	<0.00001	<0.005	<0.005	0.00205	<0.005	<0.005	<0.0001
RSEM-R5A-A	5/19/2018 16:00	TM0522	<0.000002	0.0078	<0.001	-	5.75	0.0289	0.238	<0.00002	199	0.356	178	<0.00001	<0.005	<0.005	0.00229	<0.005	<0.005	<0.0001
RSEM-R5A-A	5/24/2018 17:00	TM7245	<0.000002	0.0088	0.0011	-	6.48	0.0295	0.392	<0.00002	225	0.441	173	0.000013	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R5A-A	5/29/2018	TN5957	<0.000002	0.0114	0.0015	-	7.81	0.0304	0.907	<0.00002	288	0.579	229	0.000012	<0.005	<0.005	0.00323	<0.005	<0.005	<0.0001
RSEM-R5A-A	6/17/2018 15:20	TR2099	<0.000002	0.0131	0.0022	-	8.34	0.0179	1.68	<0.00002	284	0.575	222	0.000015	<0.005	<0.005	0.00335	<0.005	<0.005	<0.0001
RSEM-R5A-A	7/3/2018 17:50	TU4430	<0.000002	0.0117	0.011	-	5.57	0.0366	1.99	<0.00004	272	0.515	217	<0.00002	<0.01	<0.01	0.004	<0.01	<0.01	<0.0002

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	D-SO_4
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5A-A	7/20/2018 12:00	TX2839	8.05	951	>4000	704	4130	317	85.2	56.0	<1.0	68.3	<1.0	<1.0	28.2	0.390	0.46	307
RSEM-R5A-A	7/31/2018 17:05	TZ5903	8.03	2040	14.6	1350	32.0	237	237	62.3	<1.0	76.0	<1.0	<1.0	48.9	0.420	0.72	835
RSEM-R5A-A	9/20/2018 8:30	UJ6359	7.93	1300	17.7	844	19.3	186	203	81.8	<1.0	99.7	<1.0	<1.0	25.4	0.310	0.47	401
RSEM-R5A-A	10/20/2018 10:10	UP6168	7.97	1260	13.7	802	10.3	173	175	72.3	<1.0	88.3	<1.0	<1.0	28.1	0.310	0.52	410
RSEM-R5A-B	4/24/2018 13:10	TI1785	7.85	664	62.4	462	24.3	101	96.1	47.3	<1.0	57.7	<1.0	<1.0	11.8	0.160	0.19	236
RSEM-R5A-B	7/3/2018 18:00	TU4431	8.22	2130	83.1	1470	54.3	262	269	205	<1.0	250	<1.0	<1.0	30.8	0.340	0.76	714
RSEM-R5A-B	7/27/2018 8:55	TY5341	7.94	1270	12.2	822	12.3	177	175	95.1	<1.0	116	<1.0	<1.0	24.3	0.500	0.44	436
RSEM-R5A-B	7/31/2018 16:53	TZ5899	8.06	2020	15.8	1380	13.5	233	252	134	<1.0	163	<1.0	<1.0	42.7	0.400	0.74	769
RSEM-R5A-B	9/20/2018 8:45	UJ6360	7.96	870	103	558	92.3	126	125	82.0	<1.0	100	<1.0	<1.0	16.1	0.380	0.32	219
RSEM-R5A-B	10/20/2018 10:20	UP6169	8.20	1360	15.1	832	11.3	145	139	112	<1.0	137	<1.0	<1.0	26.8	0.430	0.48	392
RSEM-R5A-C	4/24/2018 13:25	TI1786	7.83	352	65.3	202	29.0	116	108	54.8	<1.0	66.8	<1.0	<1.0	2.17	0.089	0.059	111
RSEM-R5A-C	5/16/2018 12:30	TL2463	7.99	6250	1.83	4520	-	546	464	502	<1.0	613	<1.0	<1.0	97.3	0.310	1.8	2830
RSEM-R5A-C	7/3/2018 18:10	TU4432	8.13	2090	2.51	1540	4.3	482	503	122	<1.0	149	<1.0	<1.0	22.5	0.320	0.51	992
RSEM-R5A-C	7/27/2018 9:00	TY5342	8.14	2990	5.02	2130	10.5	469	464	172	<1.0	210	<1.0	<1.0	43.4	0.600	0.84	1360
RSEM-R5A-C	7/31/2018 16:20	TZ5896	8.18	3160	15.6	2330	36.5	415	442	141	<1.0	172	<1.0	<1.0	38.4	0.500	0.82	1480
RSEM-R5A-C	9/20/2018 9:00	UJ6361	8.20	2000	33.1	1370	34.0	244	259	139	<1.0	169	<1.0	<1.0	41.9	0.550	0.84	737
RSEM-R5A-C	10/20/2018 10:30	UP6170	7.97	1640	5.41	1040	9.8	192	189	69.3	<1.0	84.6	<1.0	<1.0	34.5	0.480	0.65	602
RSEM-R5A-D	4/24/2018 13:28	TI1787	7.74	346	73.4	228	29.0	108	101	39.6	<1.0	48.3	<1.0	<1.0	3.61	0.070	0.050	109
RSEM-R5A-D	7/3/2018 18:30	TU4433	7.93	1620	5.05	1160	19.8	409	407	66.1	<1.0	80.6	<1.0	<1.0	16.9	0.540	0.46	760
RSEM-R5A-D	7/27/2018 9:10	TY5343	7.74	1300	3.19	922	5.5	399	397	61.7	<1.0	75.3	<1.0	<1.0	10.5	0.450	0.34	579
RSEM-R5A-D	7/31/2018 16:12	TZ5904	7.84	1460	5.26	1040	7.5	392	412	59.0	<1.0	72.0	<1.0	<1.0	13.6	0.440	0.36	685
RSEM-R5A-D	9/20/2018 9:15	UJ6362	7.95	1360	1.43	922	4.3	270	272	97.4	<1.0	119	<1.0	<1.0	18.3	0.450	0.42	472
RSEM-R5B-EOP	3/19/2018 14:45	TD4114	8.39	2940	7.98	2010	11.8	599	601	368	7.6	430	9.1	<1.0	199	0.930	0.87	940
RSEM-R5B-EOP	3/20/2018 22:45	TD4117	8.26	2100	35.4	1400	30.0	439	453	178	<1.0	218	<1.0	<1.0	115	0.650	0.96	759
RSEM-R5B-EOP	3/21/2018 7:15	TD7837	8.29	2490	40.3	1660	35.5	494	506	163	<1.0	199	<1.0	<1.0	107	0.720	0.95	931
RSEM-R5B-EOP	3/22/2018 12:45	TD7855	8.30	1910	22.4	1200	20.3	407	398	161	<1.0	197	<1.0	<1.0	84.7	0.580	0.67	650
RSEM-R5B-EOP	3/30/2018 0:35	TE9239	8.24	1310	3.39	808	<4.0	412	413	372	<1.0	454	<1.0	<1.0	88.4	0.310	0.40	223
RSEM-R5B-EOP	3/31/2018 13:25	TF0118	8.41	1330	0.72	740	4.0	411	414	400	7.8	469	9.3	<1.0	89.1	0.250	0.39	223
RSEM-R5B-EOP	3/31/2018 13:25	TF0119	8.40	1330	0.66	796	<4.0	399	422	397	8.0	465	9.6	<1.0	90.2	0.260	0.39	222
RSEM-R5B-EOP	4/1/2018 15:00	TF0157	8.28	1350	0.60	794	<4.0	401	423	395	<1.0	482	<1.0	<1.0	88.6	0.260	0.40	221
RSEM-R5B-EOP	4/2/2018 13:00	TF2034	8.18	1320	0.53	888	<4.0	403	416	379	<1.0	463	<1.0	<1.0	90.9	0.280	0.39	207
RSEM-R5B-EOP	4/3/2018 12:40	TF4121	8.37	1340	0.85	830	<4.0	421	408	378	5.8	447	6.9	<1.0	85.3	0.240	0.39	193
RSEM-R5B-EOP	4/4/2018 10:00	TF4124	8.31	1370	1.34	888	6.5	434	394	378	4.1	451	4.9	<1.0	92.1	0.240	0.39	204
RSEM-R5B-EOP	4/5/2018 16:40	TF7749	8.14	1330	0.70	846	<4.0	413	402	365	<1.0	446	<1.0	<1.0	96.1	0.300	0.41	227
RSEM-R5B-EOP	4/6/2018 18:22	TF9867	8.26	1410	1.33	892	<4.0	402	385	386	<1.0	471	<1.0	<1.0	107	0.260	0.44	229
RSEM-R5B-EOP	4/7/2018 18:35	TG1021	8.25	1410	7.28	884	<4.0	424	383	393	<1.0	479	<1.0	<1.0	111	0.250	0.44	223
RSEM-R5B-EOP	4/8/2018 12:15	TG1024	8.27	1040	1.01	828	<4.0	416	371	225	<1.0	275	<1.0	<1.0	100	0.260	0.43	209
RSEM-R5B-EOP	4/9/2018 17:08	TG2639	8.22	826	314	536	245	272	239	202	<1.0	247	<1.0	<1.0	50.9	0.230	0.34	160
RSEM-R5B-EOP	4/10/2018 19:20	TG4219	8.00	1100	20.2	696	16.0	319	302	147	<1.0	179	<1.0	<1.0	55.9	0.380	0.42	319
RSEM-R5B-EOP	4/10/2018 19:25	TG4220	8.28	1110	20.6	682	15.8	316	298	154	<1.0	188	<1.0	<1.0	56.7	0.390	0.43	314
RSEM-R5B-EOP	4/11/2018 16:15	TG5969	8.07	1620	49.0	1140	40.0	418	418	132	<1.0	161	<1.0	<1.0	55.1	0.520	0.64	585
RSEM-R5B-EOP	4/12/2018 17:30	TG7676	8.30	1740	4.57	1100	7.3	433	436	196	<1.0	239	<1.0	<1.0	74.9	0.580	0.66	585
RSEM-R5B-EOP	4/13/2018 7:20	TG7680	8.32	1880	2.83	1340	5.3	454	458	200	2.0	239	2.4	<1.0	80.1	0.340	0.69	646
RSEM-R5B-EOP	4/13/2018 7:25	TG7681	8.32	1890	2.75	1390	5.0	462	460	200	2.4	238	2.9	<1.0	80.2	0.300	0.67	640
RSEM-R5B-EOP	4/14/2018 16:55	TH0425	7.66	1080	88.3	716	95	279	297	45.4	<1.0	55.4	<1.0	<1.0	25.8	0.51	0.29	439
RSEM-R5B-EOP	4/15/2018 12:40	TH0427	7.47	2210	14.3	1740	18.3	483	488	38.3	<1.0	46.7	<1.0	<1.0	43.8	0.81	0.55	1060
RSEM-R5B-EOP	4/16/2018 11:35	TH3031	7.85	1450	18.4	996	18.3	389	401	107	<1.0	130	<1.0	<1.0	32.0	0.700	0.36	567
RSEM-R5B-EOP	4/17/2018 14:40	TH3042	7.94	2360	9.54	1670	11.8	536	542	143	<1.0	174	<1.0	<1.0	55.7	0.860	0.53	1020
RSEM-R5B-EOP	4/18/2018 15:45	TH5884	8.17	2450	18.6	<10	35.8	573	522	137	<1.0	167	<1.0	<1.0	59.1	1.00	0.65	1110
RSEM-R5B-EOP	4/19/2018 17:40	TH5944	7.98	1570	32.3	954	34.0	335	337	79.0	<1.0	96.3	<1.0	<1.0	38.9	0.740	0.39	618
RSEM-R5B-EOP	4/20/2018 14:57	TH5949	7.75	1700	32.6	1080	35.6	367	376	46.4	<1.0	56.6	<1.0	<1.0	31.3	0.730	0.36	767
RSEM-R5B-EOP	4/20/2018 14:57	TH5948	7.70	1640	31.6	1100	37.3	354	370	46.1	<1.0	56.3	<1.0	<1.0	27.9	0.700	0.34	732
RSEM-R5B-EOP	4/21/2018 11:20	TH8456	7.89	2070	27.4	1350	28.5	432	434	78.9	<1.0	96.2	<1.0	<1.0	34.2	0.890	0.47	938
RSEM-R5B-EOP	4/22/2018 11:40	TH8483	7.86	1550	57.4	1010	43.5	337	328	67.8	<1.0	82.8	<1.0	<1.0	31.5	0.680	0.42	641
RSEM-R5B-EOP	4/22/2018 11:40	TH8481	7.91	1540	58.3	968	44.0	320	341	69.8	<1.0	85.1	<1.0	<1.0	31.7	0.670	0.42	628
RSEM-R5B-EOP	4/23/2018 12:30	TH9255	7.85	1940	21.0	1330	20.5	441	405	90.7	<1.0	111	<1.0	<1.0	36.4	0.810	0.47	803
RSEM-R5B-EOP	4/24/2018 14:30	TI1791	8.08	1670	32.2	1070	24.8	400	379	146	<1.0	179	<1.0	<1.0	38.9	0.740	0.39	605
RSEM-R5B-EOP	4/25/2018 16:45	TI3533	8.24	1880	10.6	1340	17.5	412	421	163	<1.0	199	<1.0	<1.0	50.0	0.760	0.46	741
RSEM-R5B-EOP	4/26/2018 11:05	TI3467	8.25	1800	10.1	1270	11.5	432	424	203	<1.0	248	<1.0	<1.0	51.2	0.710	0.47	628
RSEM-R5B-EOP	4/26/2018 11:05	TI3466	8.30	1800	10.3	1250	9.1	436	425	204	<1.0	249	<1.0	<1.0	52.4	0.750	0.46	641
RSEM-R5B-EOP	4/27/2018 10:00	TI4640	8.27	1890	5.52	1310	8.3	455	429	216	<1.0	264	<1.0	<1.0	49.5	0.670	0.59	697
RSEM-R5B-EOP	4/28/2018 14:15	TI5380	8.31	2050	6.32	1430	10.3	490	469	228	1.6	274	1.9	<1.0	60.4	0.760	0.51	754
RSEM-R5B-EOP	4/29/2018 15:00	TI7032	8.24	2370	6.89	1890	7.5	506	493	220	<1.0	269	<1.0	<1.0	62.7	0.890	0.61	953
RSEM-R5B-EOP	4/30/2018 12:25	TI8579	8.31	1980	4.36	1400	11.5	482	474	247	3.1	294	3.7	<1.0	58.2	0.760	0.48	683

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5A-A	7/20/2018 12:00	TX2839	0.34	0.0308	2.85	2.88	0.0256	<13	<13	60.3	<0.0025	0.04	3.37	0.00373	<0.005	0.252	0.00259	82.3	0.0931	0.0574	0.152
RSEM-R5A-A	7/31/2018 17:05	TZ5903	0.059	0.322	13.7	14.1	<0.0050	3.5	4.2	1.24	<0.0025	0.00113	0.119	<0.0005	<0.005	0.316	<0.00005	64.9	<0.005	<0.001	<0.0025
RSEM-R5A-A	9/20/2018 8:30	UJ6359	0.045	0.0539	11.1	11.2	<0.0050	2.98	2.55	0.596	<0.0005	0.00084	0.115	<0.0001	<0.001	0.188	0.000044	53.4	0.0016	0.00131	0.00212
RSEM-R5A-A	10/20/2018 10:10	UP6168	<0.020	0.0382	8.07	8.11	<0.0050	2.6	2.5	0.382	0.00059	0.00066	0.0923	<0.0001	<0.001	0.176	0.00002	50.1	0.0012	0.00033	0.00185
RSEM-R5A-B	4/24/2018 13:10	TI1785	0.25	0.0293	1.38	1.41	0.0066	1.92	0.65	0.767	<0.0005	0.00084	0.107	<0.0001	<0.001	0.051	0.000095	29.7	0.0015	0.00262	0.00284
RSEM-R5A-B	7/3/2018 18:00	TU4431	0.038	0.0957	14.3	14.4	<0.0050	3.39	2.27	1.19	0.00076	0.00107	0.111	<0.0001	<0.001	0.372	0.000146	76.7	0.0018	0.00232	0.00444
RSEM-R5A-B	7/27/2018 8:55	TY5341	0.020	0.0557	6.55	6.60	<0.0050	3.0	2.2	0.422	0.00068	0.00068	0.113	<0.0001	<0.001	0.247	0.000045	52.2	<0.001	0.00101	0.00231
RSEM-R5A-B	7/31/2018 16:53	TZ5899	<0.020	0.175	12.7	12.9	<0.0050	2.1	3.1	1.15	<0.0025	0.00074	0.093	<0.0005	<0.005	0.369	<0.00005	65.8	<0.005	<0.001	0.0027
RSEM-R5A-B	9/20/2018 8:45	UJ6360	0.089	0.0255	3.11	3.14	<0.0050	2.37	1.75	1.6	0.00051	0.00125	0.155	<0.0001	<0.001	0.142	0.000076	38.6	0.0024	0.00162	0.00397
RSEM-R5A-B	10/20/2018 10:20	UP6169	<0.020	0.0377	3.19	3.22	<0.0050	2.0	1.9	0.436	0.00073	0.00058	0.0607	<0.0001	<0.001	0.202	0.000023	40.9	<0.001	0.00037	0.00211
RSEM-R5A-C	4/24/2018 13:25	TI1786	0.078	0.0252	0.695	0.720	0.0097	1.68	0.63	0.802	<0.0005	0.00099	0.11	<0.0001	<0.001	<0.05	0.000071	36.2	0.0016	0.00093	0.0027
RSEM-R5A-C	5/16/2018 12:30	TL2463	3.7	0.0882	8.67	8.75	0.0085	4.31	3.82	0.05	<0.0025	<0.0005	0.0088	<0.0005	<0.005	0.739	0.000423	144	<0.005	0.0115	<0.0025
RSEM-R5A-C	7/3/2018 18:10	TU4432	0.023	0.0352	2.58	2.62	0.0182	2.40	2.35	0.0611	<0.0005	0.00034	0.0529	<0.0001	<0.001	0.181	0.00002	141	<0.001	0.00024	0.00119
RSEM-R5A-C	7/27/2018 9:00	TY5342	0.020	0.298	3.68	3.97	<0.0050	3.8	2.5	0.109	<0.0025	0.00076	0.0427	<0.0005	<0.005	0.529	0.000053	126	<0.005	0.0018	<0.0025
RSEM-R5A-C	7/31/2018 16:20	TZ5896	<0.020	0.380	2.64	3.02	<0.0050	3.1	3.6	0.84	<0.0025	0.00107	0.0522	<0.0005	<0.005	0.403	<0.00005	108	<0.005	<0.001	0.0027
RSEM-R5A-C	9/20/2018 9:00	UJ6361	0.35	0.0642	3.49	3.56	<0.0050	2.64	2.56	0.817	0.00093	0.00092	0.0959	<0.0001	<0.001	0.264	0.000019	68.7	0.0019	0.00115	0.00235
RSEM-R5A-C	10/20/2018 10:30	UP6170	<0.020	0.0218	0.355	0.377	<0.0050	2.5	2.7	0.229	0.00102	0.00065	0.0441	<0.0001	<0.001	0.213	0.000019	53.7	<0.001	0.00034	0.00212
RSEM-R5A-D	4/24/2018 13:28	TI1787	0.071	0.0206	0.628	0.648	0.0062	0.93	0.65	0.842	<0.0005	0.001	0.0797	<0.0001	<0.001	<0.05	0.000074	33.4	0.0016	0.00091	0.00358
RSEM-R5A-D	7/3/2018 18:30	TU4433	0.031	0.0524	1.47	1.52	0.0056	2.64	1.84	0.163	0.00089	0.00046	0.0574	<0.0001	<0.001	0.167	0.00006	117	<0.001	0.00168	0.00122
RSEM-R5A-D	7/27/2018 9:10	TY5343	<0.020	0.0269	0.739	0.766	<0.0050	2.3	1.4	0.0766	0.00061	0.00052	0.067	<0.0001	<0.001	0.163	0.000057	118	<0.001	0.00175	0.0016
RSEM-R5A-D	7/31/2018 16:12	TZ5904	<0.020	0.0067	0.096	0.103	<0.0050	2.8	3.3	0.111	0.00066	0.00055	0.0586	<0.0001	<0.001	0.177	0.000021	113	<0.001	0.00059	0.00226
RSEM-R5A-D	9/20/2018 9:15	UJ6362	<0.020	0.0481	1.62	1.67	<0.0050	2.92	2.38	0.0564	0.00091	0.00057	0.0436	<0.0001	<0.001	0.161	<0.00001	81.3	0.005	0.00046	0.00165
RSEM-R5B-EOP	3/19/2018 14:45	TD4114	1.2	0.0165	0.746	0.762	<0.0050	2.22	2.31	0.214	<0.0025	<0.0005	0.0762	<0.0005	<0.005	<0.25	0.002	142	<0.005	0.0771	0.0042
RSEM-R5B-EOP	3/20/2018 22:45	TD4117	1.0	0.0260	0.569	0.595	<0.0050	2.60	2.92	1.25	<0.001	0.0006	0.0736	<0.0002	<0.002	0.173	0.000817	110	<0.002	0.0387	0.0023
RSEM-R5B-EOP	3/21/2018 7:15	TD7837	1.3	0.0284	0.582	0.610	<0.0050	2.91	1.94	0.504	0.0007	0.00069	0.0783	<0.0001	<0.001	0.279	0.00116	120	0.0014	0.0529	0.00263
RSEM-R5B-EOP	3/22/2018 12:45	TD7855	0.82	0.0227	0.636	0.659	<0.0050	2.41	1.38	0.32	<0.0005	0.00052	0.0793	<0.0001	<0.001	0.172	0.00075	101	<0.001	0.0356	0.00184
RSEM-R5B-EOP	3/30/2018 0:35	TE9239	0.18	0.0074	1.01	1.02	0.0534	1.89	1.20	0.062	<0.0005	0.00026	0.0619	<0.0001	<0.001	0.089	0.000174	104	<0.001	0.00578	0.00286
RSEM-R5B-EOP	3/31/2018 13:25	TF0118	0.14	0.0066	0.995	1.00	0.0567	0.81	0.96	0.0343	<0.0005	0.00093	0.0637	<0.0001	<0.001	0.086	0.000138	106	<0.001	0.00475	0.00111
RSEM-R5B-EOP	3/31/2018 13:25	TF0119	0.11	0.0071	0.996	1.00	0.0560	1.34	1.39	0.0265	<0.0005	0.00093	0.0629	<0.0001	<0.001	0.085	0.000134	103	<0.001	0.00478	0.00111
RSEM-R5B-EOP	4/1/2018 15:00	TF0157	0.15	0.0056	1.01	1.02	0.0550	1.73	2.16	0.0253	<0.0005	0.00034	0.0601	<0.0001	<0.001	0.085	0.000137	102	<0.001	0.00485	0.00273
RSEM-R5B-EOP	4/2/2018 13:00	TF2034	0.11	0.0072	0.965	0.972	<0.0050	0.56	0.71	0.0279	<0.0005	0.00024	0.0631	<0.0001	<0.001	0.085	0.000143	102	<0.001	0.00483	0.00085
RSEM-R5B-EOP	4/3/2018 12:40	TF4121	0.12	0.0067	0.949	0.956	<0.0050	1.79	1.22	0.0332	<0.0005	0.00026	0.0742	<0.0001	<0.001	0.095	0.000155	105	<0.001	0.0054	0.00092
RSEM-R5B-EOP	4/4/2018 10:00	TF4124	0.12	0.0093	0.957	0.967	<0.0050	2.72	1.09	0.0387	<0.0005	0.00029	0.0754	<0.0001	<0.001	0.097	0.000142	109	<0.001	0.00523	0.00146
RSEM-R5B-EOP	4/5/2018 16:40	TF7749	0.13	0.0075	0.834	0.842	<0.0050	<0.50	<0.50	0.0477	<0.0005	0.00032	0.0691	<0.0001	<0.001	0.104	0.000147	103	<0.001	0.00512	0.00404
RSEM-R5B-EOP	4/6/2018 18:22	TF9867	0.11	0.0071	0.896	0.903	<0.0050	<0.50	<0.50	0.0381	<0.0005	0.00034	0.085	<0.0001	<0.001	0.096	0.000133	102	<0.001	0.0049	0.00188
RSEM-R5B-EOP	4/7/2018 18:35	TG1021	0.10	0.0058	0.920	0.926	<0.0050	<0.50	<0.50	0.0293	<0.0005	0.00025	0.0806	<0.0001	<0.001	0.101	0.000135	106	<0.001	0.0055	0.00117
RSEM-R5B-EOP	4/8/2018 12:15	TG1024	0.11	0.0068	0.897	0.903	<0.0050	<0.50	<0.50	0.0357	<0.0005	0.00026	0.0765	<0.0001	<0.001	0.095	0.000116	102	<0.001	0.00507	0.00157
RSEM-R5B-EOP	4/9/2018 17:08	TG2639	0.19	0.0318	0.629	0.661	<0.0050	0.66	0.75	2.35	<0.0005	0.00299	0.22	0.00019	<0.001	0.059	0.000295	70.4	0.004	0.00686	0.00926
RSEM-R5B-EOP	4/10/2018 19:20	TG4219	0.26	0.0163	0.474	0.490	<0.0050	2.43	1.59	0.276	<0.0005	0.00042	0.0859	<0.0001	<0.001	0.08	0.000626	79.2	<0.001	0.02	0.00253
RSEM-R5B-EOP	4/10/2018 19:25	TG4220	0.28	0.0159	0.478	0.494	<0.0050	2.41	1.02	0.256	<0.0005	0.00041	0.0853	<0.0001	<0.001	0.078	0.000638	77.9	<0.001	0.0198	0.00253
RSEM-R5B-EOP	4/11/2018 16:15	TG5969	0.70	0.0202	0.426	0.446	<0.0050	0.68	0.89	0.48	<0.0005	0.00065	0.0772	<0.0001	<0.001	0.118	0.000973	102	0.001	0.0405	0.0037
RSEM-R5B-EOP	4/12/2018 17:30	TG7676	0.57	0.0162	0.685	0.701	0.0113	1.52	1.59	0.207	<0.0005	0.00025	0.0699	<0.0001	<0.001	0.127	0.00102	104	<0.001	0.0412	0.00266
RSEM-R5B-EOP	4/13/2018 7:20	TG7680	0.64	0.0187	0.683	0.702	0.0063	1.72	1.57	0.0993	<0.0005	0.00023	0.0658	<0.0001	<0.001	0.146	0.00119	109	<0.001	0.0444	0.00292
RSEM-R5B-EOP	4/13/2018 7:25	TG7681	0.68	0.0169	0.687	0.704	0.0056	2.02	1.43	0.104	<0.0005	0.0002	0.0669	<0.0001	<0.001	0.147	0.00119	111	<0.001	0.0448	0.00301
RSEM-R5B-EOP	4/14/2018 16:55	TH0425	0.48	0.0172	0.672	0.689	<0.0050	1.27	<0.50	1.86	<0.0005	0.00122	0.128	0.00012	<0.001	0.084	0.00144	67.2	0.0029	0.0514	0.00555
RSEM-R5B-EOP	4/15/2018 12:40	TH0427	1.2	0.0208	1.71	1.73	<0.0050	0.53	<0.50	0.262	<0.0005	0.00025	0.0724	0.00011	<0.001	0.216	0.00455	108	<0.001	0.123	0.00682
RSEM-R5B-EOP	4/16/2018 11:35	TH3031	0.65	0.0106	0.740	0.751	<0.0050	1.33	0.89	0.65	<0.0005	0.00044	0.0669	0.00011	<0.001	0.121	0.00201	96.9	<0.001	0.0534	0.00505
RSEM-R5B-EOP	4/17/2018 14:40	TH3042	1.1	0.0142	1.29	1.31	<0.0050	1.08	0.75	0.268	<0.0005	0.00028	0.0567	<0.0001	<0.001	0.236	0.00288	125	<0.001	0.0869	0.00436
RSEM-R5B-EOP	4/18/2018 15:45	TH5884	1.2	0.0187	1.69	1.70	<0.0050	1.89	1.36	0.491	<0.0005	0.00051	0.0811	<0.0001	<0.001	0.25	0.00358	128	<0.001	0.11	0.0042
RSEM-R5B-EOP	4/19/2018 17:40	TH5944	0.67	0.0159	1.23	1.24	<0.0050	1.18	1.21	1.23	<0.0005	0.00064	0.0845	0.00012	<0.001	0.146	0.00218	78.3	0.0015	0.0672	0.00526
RSEM-R5B-EOP	4/20/2018 14:57	TH5949	0.82	0.0097	0.752	0.762	<0.0050	1.41	1.14	0.843	<0.0005	0.00055	0.0892	<0.0001	<0.001	0.145	0.00282	84.9	0.0013	0.0853	0.0044
RSEM-R5B-EOP	4/20/2018 14:57	TH5948	0.82	0.0102	0.757	0.767	<0.0050	1.36	0.87	0.895	<0.0005	0.00054	0.0892	<0.0001	<0.001	0.148	0.00265	82.4	0.0015	0.0794	0.00465
RSEM-R5B-EOP	4/21/2018 11:20	TH8456	0.74	0.0130	1.20	1.22	<0.0050	1.87	0.58	0.5	<0.0005	0.00043	0.0759	0.00013	<0.001	0.181	0.00381	101	<0.001	0.0977	0.00716
RSEM-R5B-EOP	4/22/2018 11:40	TH8483	0.86	0.0352	0.650	0.686	<0.0050	2.27	0.98	1.54	<0.0005	0.00088	0.113	<0.0001	<0.001	0.136	0.00217	82.7	0.0023	0.0647	0.00528
RSEM-R5B-EOP	4/22/2018 11:40	TH8481	0.77	0.0354	0.660	0.695	<0.0050	2.98	0.72	1.7	<0.0005	0.00086	0.105	0.0001	<0.001	0.125	0.00207	77.6	0.0022	0.0625	0.00426
RSEM-R5B-EOP	4/23/2018 12:30	TH9255	0.98	0.0178	0.988	1.01	<0.0050	1.61	1.84	0.442	<0.0005	0.00045	0.0893	<0.0001	<0.001	0.174	0.00237	108	<0.001	0.0791	0.00396
RSEM-R5B-EOP	4/24/2018 14:30	TI1791	0.77	0.0184	1.12	1.13	0.0112	1.97	1.82	0.406	<0.0005	0.00062	0.105	<0.0001	<0.001	0.141	0.00169	94.0	<0.001	0.0626	0.00426
RSEM-R5B-EOP	4/25/2018 16:45	TI3533	0.91	0.0180	1.17	1.19	<0.0050	5.60	1.74	0.317	<0.0005	0.00033	0.0907	<0.0001	<0.001	0.164	0.00158	99.5	<0.001	0.0634	0.00297
RSEM-R5B-EOP	4/26/2018 11:05	TI3467	0.72	0.0163	0.995	1.01	0.0078	3.10	2.39	0.185	<0.0005	0.00027	0.0953	<0.0001	<0.001	0.154	0.00125	105	<0.001	0.0538	0.00196
RSEM-R5B-EOP	4/26/2018 11:05	TI3466	0.65	0.0162	1.00	1.02	0.0086	2.06	2.06	0.201	<0.0005	0.00028	0.0948	<0.0001	<0.001	0.156	0.00128	108	<0.001	0.0534	0.00184
RSEM-R5B-EOP	4/27/2018 10:00	TI4640	0.88	0.0157	0.742	0.758	<0.0050	2.35	1.74	0.208	<0.0005	0.00029	0.0936	<0.0001	<0.001	0.161	0.00118	111	<0.001	0.0507	0.00188
RSEM-R5B-EOP	4/28/2018 14:15	TI5380	0.84	0.0198	0.749	0.769	0.0074	2.25	2.09	0.158	<0.0005	0.00024	0.0977	<0.0001	<0.001	0.177	0.00131	121	<0.001	0.0549	0.00181
RSEM-R5B-EOP	4/29/2018 15:00	TI7032	0.98	0.0204	0.941	0.961	<0.0050	1.81	0.55	0.197	<0.0005	0.00025	0.0891	<0.0001	<0.001	0.23	0.00188	118	<0.001	0.079	0.00194
RSEM-R5B-EOP	4/30/2018 12:25	TI8579	0.76	0.0211	0.858	0.880	<0.0050	2.01	1.82	0.211	<0.0005	0.00033	0.0938	<0.0001	<0.001	0.19	0.00122	114	<0.001	0.0519	0.00252

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5A-A	7/20/2018 12:00	TX2839	108	0.0667	0.13	27.0	1.42	0.0000027	0.0084	0.166	-	17.0	0.0189	83.8	0.00079	170	0.606	119	0.000936	<0.025	0.252	0.00788
RSEM-R5A-A	7/31/2018 17:05	TZ5903	0.677	<0.001	0.088	18.2	0.009	<0.000002	0.0108	<0.005	-	6.72	0.0337	3.4	<0.0001	322	0.59	259	<0.00005	<0.025	0.044	0.00346
RSEM-R5A-A	9/20/2018 8:30	UJ6359	0.63	0.00039	0.0525	12.9	0.0414	<0.000002	0.0058	0.012	-	4.23	0.0158	2.73	<0.00002	199	0.398	154	0.00002	<0.005	0.0088	0.00235
RSEM-R5A-A	10/20/2018 10:10	UP6168	0.318	0.00022	0.0446	11.5	0.0074	0.0000036	0.0066	0.0042	-	4.68	0.0148	1.1	<0.00002	185	0.36	147	0.00001	<0.005	0.0065	0.00269
RSEM-R5A-B	4/24/2018 13:10	TI1785	1.31	0.00087	0.0228	6.38	0.0593	<0.000002	0.0028	0.0093	-	2.25	0.0143	1.97	<0.00002	89.2	0.16	76.2	0.000031	<0.005	0.0112	0.00131
RSEM-R5A-B	7/3/2018 18:00	TU4431	1.45	0.00088	0.0899	17.0	0.0519	<0.000002	0.0066	0.0159	-	5.23	0.0278	3.92	<0.00002	375	0.575	250	0.000039	<0.005	0.0142	0.00495
RSEM-R5A-B	7/27/2018 8:55	TY5341	0.234	<0.0002	0.0495	11.3	0.0222	<0.000002	0.0089	0.0072	-	5.22	0.0197	2.51	<0.00002	209	0.388	162	0.000018	<0.005	0.0095	0.00314
RSEM-R5A-B	7/31/2018 16:53	TZ5899	0.462	<0.001	0.091	16.7	0.0145	<0.000002	0.0084	0.006	-	6.21	0.0263	3.2	<0.0001	323	0.568	251	<0.00005	<0.025	0.026	0.00376
RSEM-R5A-B	9/20/2018 8:45	UJ6360	1.81	0.00135	0.0334	7.25	0.0396	<0.000002	0.0054	0.0065	-	4.16	0.0102	3.91	<0.00002	129	0.233	97.7	0.000038	<0.005	0.0332	0.00197
RSEM-R5A-B	10/20/2018 10:20	UP6169	0.373	0.00027	0.0449	10.4	0.0089	<0.000002	0.0066	0.0026	-	5.23	0.0135	1.01	<0.00002	235	0.313	166	0.000012	<0.005	0.0098	0.00342
RSEM-R5A-C	4/24/2018 13:25	TI1786	1.69	0.00102	0.0064	6.25	0.0445	0.0000026	0.0021	0.0031	-	1.28	0.00281	2.2	<0.00002	23.6	0.101	37.7	0.000029	<0.005	0.0132	0.00098
RSEM-R5A-C	5/16/2018 12:30	TL2463	0.066	<0.001	0.377	45.6	0.365	0.0000032	<0.005	0.0405	-	7.71	0.00824	3.53	<0.0001	1280	1.73	1050	0.000183	<0.025	<0.025	0.00822
RSEM-R5A-C	7/3/2018 18:10	TU4432	0.049	<0.0002	0.0572	31.6	0.0065	<0.000002	0.0069	0.0057	-	4.42	0.00821	2.05	<0.00002	284	0.44	303	0.000017	<0.005	<0.005	0.00467
RSEM-R5A-C	7/27/2018 9:00	TY5342	0.058	<0.001	0.145	37.3	0.0364	<0.000002	0.0086	0.0121	-	8.43	0.0162	1.6	<0.0001	557	0.963	476	<0.00005	<0.025	<0.025	0.00572
RSEM-R5A-C	7/31/2018 16:20	TZ5896	0.524	<0.001	0.148	35.6	0.0146	<0.000002	0.0077	0.006	-	8.16	0.00952	2.81	<0.0001	530	0.751	453	<0.00005	<0.025	0.044	0.00635
RSEM-R5A-C	9/20/2018 9:00	UJ6361	0.754	0.00056	0.0817	17.5	0.0171	<0.000002	0.0126	0.0057	-	4.37	0.0155	2.51	<0.00002	344	0.506	258	0.000031	<0.005	0.0165	0.00402
RSEM-R5A-C	10/20/2018 10:30	UP6170	0.158	<0.0002	0.0525	14.0	0.0043	0.000004	0.0119	0.0019	-	4.66	0.014	0.548	<0.00002	276	0.386	228	<0.00001	<0.005	<0.005	0.00345
RSEM-R5A-D	4/24/2018 13:28	TI1787	1.71	0.00103	0.0053	6.00	0.0432	<0.000002	0.0017	0.003	-	1.22	0.00277	2.05	<0.00002	23.8	0.086	37.4	0.000031	<0.005	0.0154	0.00091
RSEM-R5A-D	7/3/2018 18:30	TU4433	0.13	<0.0002	0.0582	28.2	0.0289	<0.000002	0.0085	0.014	-	5.12	0.0121	1.26	<0.00002	206	0.394	245	0.000021	<0.005	<0.005	0.00374
RSEM-R5A-D	7/27/2018 9:10	TY5343	0.056	<0.0002	0.0456	25.4	0.0558	0.0000021	0.0064	0.0102	-	3.87	0.00744	1.05	<0.00002	133	0.391	206	0.000016	<0.005	<0.005	0.00292
RSEM-R5A-D	7/31/2018 16:12	TZ5904	0.078	<0.0002	0.0532	26.6	0.0103	<0.000002	0.0069	0.0065	-	4.34	0.00616	0.637	<0.00002	162	0.381	227	0.00002	<0.005	<0.005	0.00347
RSEM-R5A-D	9/20/2018 9:15	UJ6362	0.057	<0.0002	0.0438	16.4	0.0059	<0.000002	0.0132	0.005	-	3.80	0.00974	0.875	<0.00002	188	0.338	183	0.000015	<0.005	<0.005	0.00341
RSEM-R5B-EOP	3/19/2018 14:45	TD4114	0.274	<0.001	0.448	59.3	0.938	-	<0.005	0.257	-	5.14	0.00697	5.02	<0.0001	408	0.669	321	0.000072	<0.025	<0.025	0.00504
RSEM-R5B-EOP	3/20/2018 22:45	TD4117	0.752	0.00043	0.214	39.7	0.538	-	0.0044	0.13	-	5.82	0.0123	5.59	<0.00004	256	0.63	250	0.000057	<0.01	0.038	0.0037
RSEM-R5B-EOP	3/21/2018 7:15	TD7837	0.806	0.00049	0.282	47.6	0.727	-	0.0057	0.204	-	5.39	0.0102	4.46	<0.00002	342	0.782	331	0.000061	<0.005	0.0073	0.00382
RSEM-R5B-EOP	3/22/2018 12:45	TD7855	0.512	0.00033	0.214	37.8	0.504	-	0.0039	0.135	-	4.04	0.00659	3.77	<0.00002	247	0.566	228	0.000041	<0.005	0.0058	0.00311
RSEM-R5B-EOP	3/30/2018 0:35	TE9239	0.03	<0.0002	0.132	37.1	0.0872	-	0.0031	0.0329	-	4.00	0.00301	4.37	<0.00002	131	0.39	69.1	0.000022	<0.005	<0.005	0.00318
RSEM-R5B-EOP	3/31/2018 13:25	TF0118	0.04	<0.0002	0.133	35.7	0.0689	-	0.0032	0.0292	-	3.97	0.00312	4.63	<0.00002	129	0.397	64.9	0.000022	<0.005	<0.005	0.00338
RSEM-R5B-EOP	3/31/2018 13:25	TF0119	0.039	<0.0002	0.133	34.6	0.0686	-	0.0032	0.029	-	3.98	0.00306	4.49	<0.00002	125	0.389	65.0	0.000021	<0.005	<0.005	0.00332
RSEM-R5B-EOP	4/1/2018 15:00	TF0157	0.034	<0.0002	0.132	35.6	0.0747	-	0.0032	0.0299	-	4.11	0.0029	4.58	<0.00002	125	0.377	69.8	0.000022	<0.005	<0.005	0.0032
RSEM-R5B-EOP	4/2/2018 13:00	TF2034	0.025	<0.0002	0.134	36.0	0.0789	-	0.0032	0.0296	-	4.12	0.00309	4.46	<0.00002	135	0.426	71.9	0.000018	<0.005	<0.005	0.00329
RSEM-R5B-EOP	4/3/2018 12:40	TF4121	0.025	<0.0002	0.139	38.6	0.0916	-	0.0035	0.0312	-	4.51	0.00318	4.69	<0.00002	144	0.462	79.8	0.000017	<0.005	<0.005	0.00352
RSEM-R5B-EOP	4/4/2018 10:00	TF4124	0.038	<0.0002	0.146	39.3	0.0866	-	0.0035	0.0315	-	4.60	0.00337	4.81	<0.00002	151	0.47	79.9	0.00002	<0.005	<0.005	0.00361
RSEM-R5B-EOP	4/5/2018 16:40	TF7749	0.04	<0.0002	0.156	37.9	0.0901	-	0.0034	0.0294	-	4.51	0.00344	4.84	<0.00002	142	0.418	85.4	0.000022	<0.005	<0.005	0.00359
RSEM-R5B-EOP	4/6/2018 18:22	TF9867	0.041	<0.0002	0.181	36.0	0.08	-	0.0033	0.0289	-	4.10	0.00307	4.55	<0.00002	166	0.414	71.0	0.000022	<0.005	<0.005	0.00363
RSEM-R5B-EOP	4/7/2018 18:35	TG1021	0.03	<0.0002	0.18	38.8	0.0893	-	0.0032	0.0321	-	4.21	0.00298	4.73	<0.00002	171	0.428	76.8	0.000021	<0.005	<0.005	0.00363
RSEM-R5B-EOP	4/8/2018 12:15	TG1024	0.026	<0.0002	0.16	38.9	0.0811	-	0.0034	0.0301	-	4.31	0.0033	4.51	<0.00002	157	0.41	74.0	0.000021	<0.005	<0.005	0.00344
RSEM-R5B-EOP	4/9/2018 17:08	TG2639	5.21	0.0036	0.0761	23.2	0.184	-	0.003	0.0285	-	3.90	0.00202	5.68	0.00004	83.7	0.319	52.6	0.000073	<0.005	0.0261	0.00247
RSEM-R5B-EOP	4/10/2018 19:20	TG4219	0.462	0.00028	0.0936	29.4	0.338	-	0.0026	0.0768	-	3.53	0.00287	2.73	<0.00002	120	0.377	115	0.000023	<0.005	0.0053	0.00249
RSEM-R5B-EOP	4/10/2018 19:25	TG4220	0.414	0.00026	0.0939	29.5	0.33	-	0.0025	0.0763	-	3.46	0.00286	2.71	<0.00002	120	0.371	112	0.000022	<0.005	<0.005	0.00247
RSEM-R5B-EOP	4/11/2018 16:15	TG5969	1.08	0.00058	0.123	39.6	0.508	-	0.0031	0.136	-	5.14	0.0101	3.5	<0.00002	180	0.59	197	0.000051	<0.005	0.0093	0.0036
RSEM-R5B-EOP	4/12/2018 17:30	TG7676	0.177	0.00033	0.163	42.2	0.513	-	0.0031	0.143	-	4.47	0.0064	3.61	<0.00002	199	0.564	196	0.000038	<0.005	<0.005	0.00468
RSEM-R5B-EOP	4/13/2018 7:20	TG7680	0.086	<0.0002	0.175	44.2	0.573	-	0.0032	0.153	-	4.58	0.00681	3.5	<0.00002	217	0.595	215	0.00004	<0.005	<0.005	0.00415
RSEM-R5B-EOP	4/13/2018 7:25	TG7681	0.094	<0.0002	0.178	44.9	0.578	-	0.0034	0.155	-	4.57	0.00682	3.58	<0.00002	219	0.606	219	0.00004	<0.005	<0.005	0.0044
RSEM-R5B-EOP	4/14/2018 16:55	TH0425	2.54	0.00137	0.092	27	0.713	-	0.0014	0.17	-	2.77	0.00415	5.46	0.000027	97.6	0.316	148	0.000064	<0.005	0.0522	0.00148
RSEM-R5B-EOP	4/15/2018 12:40	TH0427	0.818	<0.0002	0.207	52	1.32	-	0.0012	0.414	-	3.98	0.0145	3.59	<0.00002	291	0.648	370	0.000067	<0.005	<0.005	0.00236
RSEM-R5B-EOP	4/16/2018 11:35	TH3031	0.768	0.00028	0.131	35.7	0.696	-	0.002	0.174	-	3.15	0.0061	3.91	<0.00002	139	0.44	205	0.000043	<0.005	0.0173	0.00344
RSEM-R5B-EOP	4/17/2018 14:40	TH3042	0.413	<0.0002	0.232	54.2	1.02	-	0.0021	0.28	-	4.09	0.0119	4.36	<0.00002	302	0.682	354	0.00006	<0.005	<0.005	0.00474
RSEM-R5B-EOP	4/18/2018 15:45	TH5884	0.805	0.00043	0.256	61.7	1.27	-	0.003	0.353	-	4.57	0.0132	5.21	<0.00002	360	0.734	408	0.000073	<0.005	0.01	0.00507
RSEM-R5B-EOP	4/19/2018 17:40	TH5944	1.17	0.00053	0.138	33.9	0.781	-	0.0024	0.218	-	3.06	0.00787	4.78	<0.00002	187	0.404	219	0.000061	<0.005	0.0241	0.0032
RSEM-R5B-EOP	4/20/2018 14:57	TH5949	1.18	0.00053	0.147	37.6	0.989	-	0.0016	0.267	-	3.07	0.00801	4.54	<0.00002	201	0.435	256	0.000068	<0.005	0.0236	0.00227
RSEM-R5B-EOP	4/20/2018 14:57	TH5948	1.17	0.00053	0.141	36.0	0.936	-	0.0016	0.251	-	2.95	0.00771	4.54	<0.00002	189	0.426	249	0.000063	<0.005	0.0271	0.00227
RSEM-R5B-EOP	4/21/2018 11:20	TH8456	1.22	0.00037	0.182	43.7	1.05	-	0.0019	0.311	-	3.83	0.0121	4.55	<0.00002	246	0.541	316	0.00008	<0.005	0.0133	0.00378
RSEM-R5B-EOP	4/22/2018 11:40	TH8483	1.81	0.0011	0.128	31.6	0.763	-	0.0022	0.204	-	3.71	0.00822	6.42	0.000022	177	0.456	222	0.000074	<0.005	0.067	0.00279
RSEM-R5B-EOP	4/22/2018 11:40	TH8481	1.74	0.00088	0.123	30.6	0.738	-	0.0021	0.198	-	3.70	0.00732	6.37	0.000025	169	0.427	218	0.000074	<0.005	0.0589	0.00261
RSEM-R5B-EOP	4/23/2018 12:30	TH9255	0.937	0.0004	0.168	41.3	0.894	-	0.0027	0.246	-	4.03	0.0128	4.63	<0.00002	256	0.526	295	0.000061	<0.005	0.0148	0.00354
RSEM-R5B-EOP	4/24/2018 14:30	TI1791	1.03	0.00053	0.148	40.1	0.74	<0.000002	0.0024	0.201	-	3.61	0.00841	3.91	<0.00002	211	0.441	224	0.000055	<0.005	0.0061	0.00347
RSEM-R5B-EOP	4/25/2018 16:45	TI3533	0.482	0.00025	0.176	39.7	0.732	<0.000002	0.0023	0.204	-	3.66	0.00875	4.1	<0.00002	242	0.476	250	0.000053	<0.005	<0.005	0.00359
RSEM-R5B-EOP	4/26/2018 11:05	TI3467	0.26	<0.0002	0.166	41.2	0.662	<0.000002	0.0024	0.175	-	3.83	0.00646	4.14	<0.00002	232	0.466	224	0.000046	<0.005	<0.005	0.0037
RSEM-R5B-EOP	4/26/2018 11:05	TI3466	0.254	<0.0002	0.167	40.3	0.652	<0.000002	0.0026	0.173	-	3.63	0.0068	4.22	<0.00002	225	0.493	217	0.000051	<0.005	<0.005	0.00379
RSEM-R5B-EOP	4/27/2018 10:00	TI4640	0.248	<0.0002	0.17	42.8	0.624	<0.000002	0.0026	0.162	-	4.00	0.00727	4.11	<0.00002	248	0.517	245	0.000055	<0.005	<0.005	0.0038
RSEM-R5B-EOP	4/28/2018 14:15	TI5380	0.16	<0.0002	0.199	45.9	0.672	<0.000002	0.0028	0.18	-	4.25	0.00699	4.55	<0.00002	271	0.572	272	0.000059	<0.005	<0.005	0.00391
RSEM-R5B-EOP	4/29/2018 15:00	TI7032	0.22	<0.0002	0.226	51.7	0.858	<0.000002	0.003	0.246	-	3.96	0.00848	4.48	<0.00002	322	0.641	313	0.00007	<0.005	<0.005	0.00448
RSEM-R5B-EOP	4/30/2018 12:25	TI8579	0.285	<0.0002	0.179	47.7	0.639	<0.000002	0.0031	0.168	-	4.57	0.00576	4.41	<0.00002	275	0.518	242	0.000054	<0.005	<0.005	0.00425

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5A-A	7/20/2018 12:00	TX2839	0.144	0.587	0.00536	0.0265	0.00078	0.00088	0.0626	<0.0001	<0.001	0.195	<0.00001	26.6	<0.001	<0.0002	0.00245	<0.01	<0.0002	0.028	4.54	0.0059
RSEM-R5A-A	7/31/2018 17:05	TZ5903	<0.025	<0.025	0.00066	0.108	<0.005	0.0013	0.054	<0.001	<0.01	<0.5	<0.0001	64.0	<0.01	<0.002	<0.005	0.167	<0.002	0.078	18.8	<0.01
RSEM-R5A-A	9/20/2018 8:30	UJ6359	<0.005	<0.005	0.00062	0.0097	0.00052	0.00055	0.1	<0.0001	<0.001	0.187	0.00003	59.3	<0.001	0.00078	0.00132	<0.01	<0.0002	0.0529	13.3	0.0267
RSEM-R5A-A	10/20/2018 10:10	UP6168	<0.005	<0.005	0.00019	0.0159	0.00062	0.00051	0.0827	<0.0001	<0.001	0.18	0.000016	50.4	<0.001	<0.0002	0.00134	<0.01	<0.0002	0.0443	11.9	0.0022
RSEM-R5A-B	4/24/2018 13:10	TI1785	<0.005	0.0144	0.00015	0.0115	<0.0005	0.00017	0.0715	<0.0001	<0.001	<0.05	0.000051	28.7	<0.001	0.00144	0.00092	0.033	<0.0002	0.022	5.93	0.0386
RSEM-R5A-B	7/3/2018 18:00	TU4431	<0.005	0.0215	0.00068	<0.015	<0.0025	<0.0005	0.0642	<0.0005	<0.005	0.389	0.000102	80.7	<0.005	<0.001	<0.0025	<0.05	<0.001	0.092	16.3	0.0218
RSEM-R5A-B	7/27/2018 8:55	TY5341	<0.005	0.0052	0.00026	0.0207	0.00067	0.00054	0.101	<0.0001	<0.001	0.236	0.000025	51.5	<0.001	0.00022	0.00155	<0.01	<0.0002	0.0481	11.3	<0.001
RSEM-R5A-B	7/31/2018 16:53	TZ5899	<0.025	<0.025	0.00052	0.0159	0.00087	0.00067	0.0838	<0.0001	<0.001	0.379	0.00003	72.2	<0.001	<0.0002	0.00144	<0.01	<0.0002	0.0869	17.4	0.0026
RSEM-R5A-B	9/20/2018 8:45	UJ6360	<0.005	0.0116	0.00109	0.0103	0.00052	0.00037	0.0782	<0.0001	<0.001	0.15	0.000029	38.8	<0.001	<0.0002	0.00155	<0.01	<0.0002	0.032	6.81	0.0039
RSEM-R5A-B	10/20/2018 10:20	UP6169	<0.005	<0.005	0.00025	0.0153	0.0007	0.00042	0.0427	<0.0001	<0.001	0.197	0.000014	39.4	<0.001	<0.0002	0.00192	<0.01	<0.0002	0.0433	9.88	0.004
RSEM-R5A-C	4/24/2018 13:25	TI1786	<0.005	0.0092	0.00028	0.0057	<0.0005	0.00013	0.0841	<0.0001	<0.001	<0.05	0.000024	33.8	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0057	5.79	0.0169
RSEM-R5A-C	5/16/2018 12:30	TL2463	<0.025	0.027	<0.0005	<0.03	<0.005	<0.001	<0.01	<0.001	<0.01	0.747	0.00035	121	<0.01	0.0103	<0.005	<0.1	<0.002	0.35	39.4	0.318
RSEM-R5A-C	7/3/2018 18:10	TU4432	<0.005	<0.005	<0.0001	<0.015	<0.0025	<0.0005	0.0549	<0.0005	<0.005	<0.25	<0.00005	150	<0.005	<0.001	<0.0025	<0.05	<0.001	0.061	31.3	0.0052
RSEM-R5A-C	7/27/2018 9:00	TY5342	<0.025	<0.025	<0.0005	0.015	<0.0025	0.00064	0.0398	<0.0005	<0.005	0.522	<0.00005	125	<0.005	<0.001	<0.0025	<0.05	<0.001	0.146	37.1	<0.005
RSEM-R5A-C	7/31/2018 16:20	TZ5896	<0.025	<0.025	0.00061	0.017	<0.0025	0.00078	0.0345	<0.0005	<0.005	0.484	<0.00005	113	<0.005	<0.001	<0.0025	<0.05	<0.001	0.156	39.1	<0.005
RSEM-R5A-C	9/20/2018 9:00	UJ6361	<0.005	0.0051	0.00048	0.0145	0.00104	0.00061	0.0654	<0.0001	<0.001	0.281	0.000028	74.0	<0.001	0.00059	0.00117	<0.01	<0.0002	0.083	18.1	0.0058
RSEM-R5A-C	10/20/2018 10:30	UP6170	<0.005	<0.005	0.00018	0.0178	0.001	0.00057	0.0357	<0.0001	<0.001	0.218	0.000014	52.5	0.0011	0.00022	0.00183	0.013	<0.0002	0.0531	14.2	0.0018
RSEM-R5A-D	4/24/2018 13:28	TI1787	<0.005	0.0091	0.0001	0.0051	<0.0005	0.00013	0.0534	<0.0001	<0.001	<0.05	0.000023	31.6	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0045	5.32	0.0163
RSEM-R5A-D	7/3/2018 18:30	TU4433	<0.005	<0.005	0.00013	0.0302	0.0009	0.0004	0.0539	<0.0001	<0.001	0.162	0.000036	120	<0.001	0.00139	0.0009	<0.01	<0.0002	0.0601	26.1	0.0093
RSEM-R5A-D	7/27/2018 9:10	TY5343	<0.005	<0.005	0.00023	0.0147	0.00057	0.00043	0.0633	<0.0001	<0.001	0.159	0.000038	117	<0.001	0.00076	0.00135	<0.01	<0.0002	0.0452	25.5	0.006
RSEM-R5A-D	7/31/2018 16:12	TZ5904	<0.005	<0.005	<0.0001	0.0127	0.00064	0.00049	0.0551	<0.0001	<0.001	0.175	<0.00001	119	<0.001	0.00031	0.00189	<0.01	<0.0002	0.0504	28.1	<0.001
RSEM-R5A-D	9/20/2018 9:15	UJ6362	<0.005	<0.005	<0.0001	0.0163	0.00093	0.00053	0.0415	<0.0001	<0.001	0.166	0.00002	80.7	0.0053	0.0002	0.00179	<0.01	<0.0002	0.0456	17.1	<0.001
RSEM-R5B-EOP	3/19/2018 14:45	TD4114	<0.025	0.493	<0.0005	0.037	<0.0025	<0.0005	0.0663	<0.0005	<0.005	<0.25	0.00205	139	<0.005	0.0805	0.0031	<0.05	<0.001	0.445	61.8	0.989
RSEM-R5B-EOP	3/20/2018 22:45	TD4117	<0.01	0.192	0.00072	0.0181	0.00058	0.0003	0.052	<0.0001	<0.001	0.172	0.000789	113	<0.001	0.039	0.00111	<0.01	<0.0002	0.231	41.6	0.528
RSEM-R5B-EOP	3/21/2018 7:15	TD7837	<0.005	0.315	0.00026	0.0189	0.00072	0.00028	0.053	<0.0001	<0.001	0.328	0.00111	119	<0.001	0.0525	0.00122	<0.01	<0.0002	0.322	51.0	0.715
RSEM-R5B-EOP	3/22/2018 12:45	TD7855	<0.005	0.192	0.00016	0.0133	<0.0005	0.00022	0.0625	<0.0001	<0.001	0.141	0.000639	100	<0.001	0.0335	0.00089	<0.01	<0.0002	0.183	35.9	0.488
RSEM-R5B-EOP	3/30/2018 0:35	TE9239	<0.005	0.0374	<0.0001	0.0229	<0.0005	0.00024	0.0635	<0.0001	<0.001	0.093	0.000104	106	<0.001	0.00518	0.00149	<0.01	<0.0002	0.135	36.3	0.0748
RSEM-R5B-EOP	3/31/2018 13:25	TF0118	<0.005	0.0277	<0.0001	0.0198	<0.0005	0.00092	0.0626	<0.0001	<0.001	0.086	0.000136	105	<0.001	0.00492	0.0007	<0.01	<0.0002	0.134	36.8	0.0718
RSEM-R5B-EOP	3/31/2018 13:25	TF0119	<0.005	0.0271	<0.0001	0.0195	<0.0005	0.00093	0.0617	<0.0001	<0.001	0.087	0.000135	107	<0.001	0.00488	0.00068	<0.01	<0.0002	0.134	37.7	0.0718
RSEM-R5B-EOP	4/1/2018 15:00	TF0157	<0.005	0.0297	<0.0001	0.0191	<0.0005	0.00033	0.0639	<0.0001	<0.001	0.096	0.000141	108	<0.001	0.00523	0.00207	<0.01	<0.0002	0.143	37.0	0.0786
RSEM-R5B-EOP	4/2/2018 13:00	TF2034	<0.005	0.0304	0.00013	0.0206	<0.0005	0.00025	0.0674	<0.0001	<0.001	0.093	0.000144	106	<0.001	0.00485	0.00054	<0.01	<0.0002	0.14	36.5	0.08
RSEM-R5B-EOP	4/3/2018 12:40	TF4121	<0.005	0.0317	<0.0001	0.0214	<0.0005	0.00021	0.0671	<0.0001	<0.001	0.08	0.00011	103	<0.001	0.00451	0.00063	<0.01	<0.0002	0.133	36.5	0.0821
RSEM-R5B-EOP	4/4/2018 10:00	TF4124	<0.005	0.0297	<0.0001	0.0213	<0.0005	0.00022	0.0684	<0.0001	<0.001	0.083	0.000051	99.7	<0.001	0.00389	0.00071	<0.01	<0.0002	0.135	35.2	0.0614
RSEM-R5B-EOP	4/5/2018 16:40	TF7749	<0.005	0.0288	<0.0001	0.0212	<0.0005	0.00032	0.0649	<0.0001	<0.001	0.1	0.000026	96.0	<0.001	0.00415	0.00178	<0.01	<0.0002	0.149	39.4	0.0465
RSEM-R5B-EOP	4/6/2018 18:22	TF9867	<0.005	0.0277	<0.0001	0.0203	<0.0005	0.0003	0.0781	<0.0001	<0.001	0.097	0.000033	95.5	<0.001	0.00418	0.00096	<0.01	<0.0002	0.183	35.6	0.0545
RSEM-R5B-EOP	4/7/2018 18:35	TG1021	<0.005	0.0298	<0.0001	0.0255	<0.0005	0.00023	0.0721	<0.0001	<0.001	0.099	<0.00001	93.4	<0.001	0.00357	0.00199	0.014	<0.0002	0.177	36.4	0.0381
RSEM-R5B-EOP	4/8/2018 12:15	TG1024	<0.005	0.0268	<0.0001	0.0227	<0.0005	0.00023	0.07	<0.0001	<0.001	0.093	0.000039	92.2	<0.001	0.00398	0.00089	<0.01	<0.0002	0.148	34.1	0.0541
RSEM-R5B-EOP	4/9/2018 17:08	TG2639	0.0078	0.0511	0.00035	0.016	<0.0005	0.00029	0.0861	<0.0001	<0.001	0.057	0.000062	63.9	<0.001	0.00258	0.0009	<0.01	<0.0002	0.0764	19.4	0.0788
RSEM-R5B-EOP	4/10/2018 19:20	TG4219	<0.005	0.137	0.00022	0.0406	<0.0005	0.0002	0.0776	<0.0001	<0.001	0.078	0.000556	77.0	<0.001	0.0182	0.00128	<0.01	<0.0002	0.0944	26.7	0.31
RSEM-R5B-EOP	4/10/2018 19:25	TG4220	<0.005	0.137	0.00014	0.0403	<0.0005	0.00021	0.0772	<0.0001	<0.001	0.076	0.00057	75.7	<0.001	0.018	0.00123	<0.01	<0.0002	0.0932	26.5	0.297
RSEM-R5B-EOP	4/11/2018 16:15	TG5969	<0.005	0.262	0.00023	0.0162	<0.0005	0.00015	0.0512	<0.0001	<0.001	0.12	0.000898	103	<0.001	0.0393	0.00147	<0.01	<0.0002	0.125	39.0	0.501
RSEM-R5B-EOP	4/12/2018 17:30	TG7676	<0.005	0.256	0.00017	0.0343	<0.0005	0.0002	0.0656	<0.0001	<0.001	0.133	0.000989	105	<0.001	0.0402	0.00181	<0.01	<0.0002	0.166	42.4	0.516
RSEM-R5B-EOP	4/13/2018 7:20	TG7680	<0.005	0.296	<0.0001	0.0474	<0.0005	0.00018	0.0639	<0.0001	<0.001	0.147	0.00116	110	<0.001	0.0443	0.00236	<0.01	<0.0002	0.179	44.6	0.577
RSEM-R5B-EOP	4/13/2018 7:25	TG7681	<0.005	0.297	<0.0001	0.0471	<0.0005	0.00018	0.0632	<0.0001	<0.001	0.142	0.00115	111	<0.001	0.0439	0.00207	<0.01	<0.0002	0.18	44.6	0.573
RSEM-R5B-EOP	4/14/2018 16:55	TH0425	0.0059	0.37	0.00077	0.0094	<0.0005	<0.0001	0.0664	<0.0001	<0.001	0.083	0.00129	70.6	<0.001	0.0476	0.00106	0.012	<0.0002	0.0929	29.2	0.707
RSEM-R5B-EOP	4/15/2018 12:40	TH0427	<0.005	1.11	0.0001	0.0097	<0.0005	<0.0001	0.0543	<0.0001	<0.001	0.203	0.0042	107	<0.001	0.119	0.0023	<0.01	<0.0002	0.208	53.7	1.27
RSEM-R5B-EOP	4/16/2018 11:35	TH3031	<0.005	0.356	0.00032	0.0375	<0.0005	0.00011	0.0535	<0.0001	<0.001	0.127	0.0019	98.3	<0.001	0.0539	0.00185	<0.01	<0.0002	0.135	37.9	0.724
RSEM-R5B-EOP	4/17/2018 14:40	TH3042	<0.005	0.594	0.00017	0.0456	<0.0005	0.00011	0.0492	<0.0001	<0.001	0.239	0.00283	129	<0.001	0.0832	0.0022	<0.01	<0.0002	0.247	53.1	1
RSEM-R5B-EOP	4/18/2018 15:45	TH5884	<0.005	0.746	0.0003	0.024	<0.0005	0.00015	0.0545	<0.0001	<0.001	0.231	0.00308	115	<0.001	0.0972	0.00103	<0.01	<0.0002	0.253	56.9	1.2
RSEM-R5B-EOP	4/19/2018 17:40	TH5944	<0.005	0.419	0.00084	0.0478	<0.0005	0.00014	0.0595	<0.0001	<0.001	0.141	0.00195	78.7	<0.001	0.0634	0.00114	<0.01	<0.0002	0.142	34.2	0.768
RSEM-R5B-EOP	4/20/2018 14:57	TH5949	<0.005	0.603	0.00046	0.017	<0.0005	<0.0001	0.0642	<0.0001	<0.001	0.157	0.0027	87.1	<0.001	0.0864	0.00093	<0.01	<0.0002	0.153	38.4	1.01
RSEM-R5B-EOP	4/20/2018 14:57	TH5948	<0.005	0.558	0.00052	0.016	<0.0005	<0.0001	0.0619	<0.0001	<0.001	0.153	0.00257	86.6	<0.001	0.0799	0.00109	<0.01	<0.0002	0.15	37.4	0.945
RSEM-R5B-EOP	4/21/2018 11:20	TH8456	<0.005	0.785	0.00042	0.0269	<0.0005	<0.0001	0.0593	<0.0001	<0.001	0.188	0.00364	99.4	<0.001	0.099	0.00155	<0.01	<0.0002	0.186	45.0	1.06
RSEM-R5B-EOP	4/22/2018 11:40	TH8483	<0.005	0.432	0.00091	0.0182	<0.0005	0.00011	0.0751	<0.0001	<0.001	0.138	0.00192	79.2	<0.001	0.0599	0.00092	<0.01	<0.0002	0.129	31.7	0.737
RSEM-R5B-EOP	4/22/2018 11:40	TH8481	<0.005	0.41	0.0029	0.0188	<0.0005	<0.0001	0.0752	<0.0001	<0.001	0.137	0.00198	82.0	<0.001	0.063	0.00134	<0.01	<0.0002	0.127	33.0	0.75
RSEM-R5B-EOP	4/23/2018 12:30	TH9255	<0.005	0.458	0.00057	0.0331	<0.0005	0.00012	0.0712	<0.0001	<0.001	0.185	0.00223	93.8	<0.001	0.0749	0.00145	<0.01	<0.0002	0.166	41.4	0.854
RSEM-R5B-EOP	4/24/2018 14:30	TI1791	<0.005	0.32	0.00013	0.041	<0.0005	0.00013	0.0825	<0.0001	<0.001	0.13	0.0015	92.3	<0.001	0.0557	0.0014	<0.01	<0.0002	0.149	36.1	0.691
RSEM-R5B-EOP	4/25/2018 16:45	TI3533	<0.005	0.28	0.00011	0.0448	<0.0005	0.00015	0.0839	<0.0001	<0.001	0.164	0.0015	100	<0.001	0.0616	0.00203	<0.01	<0.0002	0.17	41.4	0.763
RSEM-R5B-EOP	4/26/2018 11:05	TI3467	<0.005	0.207	<0.0001	0.0449	<0.0005	0.00015	0.0849	<0.0001	<0.001	0.154	0.00119	98.5	<0.001	0.0478	0.00096	<0.01	<0.0002	0.159	43.2	0.643
RSEM-R5B-EOP	4/26/2018 11:05	TI3466	<0.005	0.207	<0.0001	0.044	<0.0005	0.00015	0.0846	<0.0001	<0.001	0.152	0.0012	99.8	0.0048	0.0474	0.00107	0.117	<0.0002	0.156	42.7	0.637
RSEM-R5B-EOP	4/27/2018 10:00	TI4640	<0.005	0.173	0.00041	0.0559	<0.0005	0.00015	0.0882	<0.0001	<0.001	0.182	0.00116	104	<0.001	0.047	0.00092	<0.01	<0.0002	0.178	41.1	0.596
RSEM-R5B-EOP	4/28/2018 14:15	TI5380	<0.005	0.189	<0.0001	0.0515	<0.0005	0.00018	0.0876	<0.0001	<0.001	0.18	0.00117	115	<0.001	0.0529	0.00133	<0.01	<0.0002	0.194	44.1	0.655
RSEM-R5B-EOP	4/29/2018 15:00	TI7032	<0.005	0.318	<0.0001	0.056	<0.0025	<0.0005	0.0788	<0.0005	<0.005	<0.25	0.00178	113	<0.005	0.0764	<0.0025	<0.05	<0.001	0.232	51.3	0.85
RSEM-R5B-EOP	4/30/2018 12:25	TI8579	<0.005	0.174	0.00011	0.059	<0.0005	0.00021	0.0883	<0.0001	<0.001	0.183	0.00113	111	<0.001	0.049	0.00158	<0.01	<0.0002	0.186	47.9	0.616

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5A-A	7/20/2018 12:00	TX2839	<0.000002	0.0098	0.0018	-	4.73	0.0153	1.92	<0.00002	157	0.194	108	<0.00001	<0.005	<0.005	0.00184	<0.005	<0.005	<0.0001
RSEM-R5A-A	7/31/2018 17:05	TZ5903	0.000002	0.011	<0.01	-	6.40	0.0361	<1	<0.0002	347	0.56	254	<0.0001	<0.05	<0.05	0.0034	<0.05	<0.05	<0.001
RSEM-R5A-A	9/20/2018 8:30	UJ6359	<0.000002	0.0059	0.0106	-	4.22	0.018	1.8	<0.00002	197	0.427	155	<0.00001	<0.005	<0.005	0.00244	<0.005	<0.005	<0.0001
RSEM-R5A-A	10/20/2018 10:10	UP6168	0.000003	0.0068	0.0036	-	4.61	0.0153	0.529	<0.00002	190	0.373	152	0.000014	<0.005	<0.005	0.00268	<0.005	<0.005	<0.0001
RSEM-R5A-B	4/24/2018 13:10	TI1785	<0.000002	0.0028	0.0056	-	2.09	0.014	0.86	<0.00002	87.0	0.157	77.6	<0.00001	<0.005	<0.005	0.00124	<0.005	<0.005	<0.0001
RSEM-R5A-B	7/3/2018 18:00	TU4431	<0.000002	0.0062	0.0141	-	5.33	0.0318	2.32	<0.0001	357	0.547	251	<0.00005	<0.025	<0.025	0.00488	<0.025	<0.025	<0.0005
RSEM-R5A-B	7/27/2018 8:55	TY5341	<0.000002	0.0088	0.0059	-	5.00	0.0201	1.66	<0.00002	206	0.378	160	0.000012	<0.005	<0.005	0.00311	<0.005	<0.005	<0.0001
RSEM-R5A-B	7/31/2018 16:53	TZ5899	<0.000002	0.0092	0.0047	-	6.21	0.0296	1.11	<0.00002	363	0.678	264	0.000014	<0.005	<0.005	0.00412	<0.005	<0.005	<0.0001
RSEM-R5A-B	9/20/2018 8:45	UJ6360	<0.000002	0.0056	0.0027	-	3.62	0.0112	1.53	<0.00002	123	0.221	91.6	<0.00001	<0.005	<0.005	0.00194	<0.005	<0.005	<0.0001
RSEM-R5A-B	10/20/2018 10:20	UP6169	<0.000002	0.0064	0.0018	-	4.85	0.013	0.28	<0.00002	227	0.304	159	<0.00001	<0.005	<0.005	0.00323	<0.005	<0.005	<0.0001
RSEM-R5A-C	4/24/2018 13:25	TI1786	<0.000002	0.0023	<0.001	-	1.02	0.00273	1.01	<0.00002	23.6	0.0974	39.4	<0.00001	<0.005	<0.005	0.00094	<0.005	<0.005	<0.0001
RSEM-R5A-C	5/16/2018 12:30	TL2463	<0.000002	<0.01	0.037	-	6.59	0.0075	2.64	<0.0002	1190	1.63	830	0.00016	<0.05	<0.05	0.0072	<0.05	<0.05	<0.001
RSEM-R5A-C	7/3/2018 18:10	TU4432	<0.000002	0.0069	<0.005	-	4.68	0.00866	2.06	<0.0001	274	0.426	301	<0.00005	<0.025	<0.025	0.00482	<0.025	<0.025	<0.0005
RSEM-R5A-C	7/27/2018 9:00	TY5342	<0.000002	0.0083	0.0114	-	8.30	0.0162	1.24	<0.0001	562	0.927	470	0.000057	<0.025	<0.025	0.00576	<0.025	<0.025	<0.0005
RSEM-R5A-C	7/31/2018 16:20	TZ5896	<0.000002	0.0083	<0.005	-	8.02	0.011	0.547	<0.0001	599	0.804	489	<0.00005	<0.025	<0.025	0.00698	<0.025	<0.025	<0.0005
RSEM-R5A-C	9/20/2018 9:00	UJ6361	<0.000002	0.0133	0.0041	-	4.45	0.0172	1.24	<0.00002	344	0.567	268	0.000014	<0.005	<0.005	0.00433	<0.005	<0.005	<0.0001
RSEM-R5A-C	10/20/2018 10:30	UP6170	<0.000002	0.012	0.0016	-	4.58	0.0139	0.168	<0.00002	279	0.374	222	<0.00001	<0.005	<0.005	0.00351	<0.005	<0.005	<0.0001
RSEM-R5A-D	4/24/2018 13:28	TI1787	<0.000002	0.0016	<0.001	-	0.913	0.00281	0.795	<0.00002	23.4	0.0829	38.6	<0.00001	<0.005	<0.005	0.00082	<0.005	<0.005	<0.0001
RSEM-R5A-D	7/3/2018 18:30	TU4433	<0.000002	0.0083	0.0139	-	5.25	0.0126	0.98	<0.00002	190	0.377	243	0.00002	<0.005	<0.005	0.00383	<0.005	<0.005	<0.0001
RSEM-R5A-D	7/27/2018 9:10	TY5343	0.0000022	0.0063	0.0091	-	3.94	0.00755	0.883	<0.00002	135	0.363	207	0.000014	<0.005	<0.005	0.00274	<0.005	<0.005	<0.0001
RSEM-R5A-D	7/31/2018 16:12	TZ5904	<0.000002	0.0069	0.0052	-	4.26	0.00673	0.399	<0.00002	171	0.329	232	0.000017	<0.005	<0.005	0.00353	<0.005	<0.005	<0.0001
RSEM-R5A-D	9/20/2018 9:15	UJ6362	<0.000002	0.0131	0.0047	-	3.79	0.0108	0.92	<0.00002	187	0.359	182	0.000012	<0.005	<0.005	0.00346	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	3/19/2018 14:45	TD4114	-	<0.005	0.266	-	4.96	0.00815	4.43	<0.0001	435	0.694	326	0.000051	<0.025	<0.025	0.00513	<0.025	0.504	<0.0005
RSEM-R5B-EOP	3/20/2018 22:45	TD4117	-	0.0049	0.13	-	5.45	0.0137	3	<0.00002	280	0.699	256	0.000046	<0.005	<0.005	0.00408	<0.005	0.17	<0.0001
RSEM-R5B-EOP	3/21/2018 7:15	TD7837	-	0.0056	0.193	-	5.44	0.0103	3.74	<0.00002	369	0.786	342	0.000049	<0.005	<0.005	0.0037	<0.005	0.281	<0.0001
RSEM-R5B-EOP	3/22/2018 12:45	TD7855	-	0.0036	0.113	-	4.15	0.00714	3	<0.00002	238	0.559	234	0.000031	<0.005	<0.005	0.0029	<0.005	0.141	<0.0001
RSEM-R5B-EOP	3/30/2018 0:35	TE9239	-	0.0035	0.0321	-	4.22	0.00327	4.84	<0.00002	136	0.408	68.1	0.000023	<0.005	<0.005	0.00331	<0.005	0.0217	<0.0001
RSEM-R5B-EOP	3/31/2018 13:25	TF0118	-	0.0034	0.0314	-	4.23	0.00333	4.61	<0.00002	138	0.393	70.0	0.000021	<0.005	<0.005	0.00337	<0.005	0.0277	<0.0001
RSEM-R5B-EOP	3/31/2018 13:25	TF0119	-	0.0033	0.0308	-	4.32	0.00329	4.63	<0.00002	138	0.406	70.7	0.000021	<0.005	<0.005	0.00334	<0.005	0.0273	<0.0001
RSEM-R5B-EOP	4/1/2018 15:00	TF0157	-	0.0034	0.0312	-	4.40	0.00323	4.82	<0.00002	138	0.398	77.0	0.000023	<0.005	<0.005	0.00331	<0.005	0.0304	<0.0001
RSEM-R5B-EOP	4/2/2018 13:00	TF2034	-	0.0032	0.0292	-	4.19	0.00316	4.72	<0.00002	133	0.408	72.8	0.000019	<0.005	<0.005	0.0036	<0.005	0.029	<0.0001
RSEM-R5B-EOP	4/3/2018 12:40	TF4121	-	0.003	0.0267	-	4.09	0.00313	4.39	<0.00002	133	0.388	71.1	0.000018	<0.005	<0.005	0.00322	<0.005	0.023	<0.0001
RSEM-R5B-EOP	4/4/2018 10:00	TF4124	-	0.003	0.0253	-	4.06	0.00309	4.65	<0.00002	135	0.395	72.8	0.000019	<0.005	<0.005	0.00326	<0.005	0.0108	<0.0001
RSEM-R5B-EOP	4/5/2018 16:40	TF7749	-	0.0032	0.0298	-	4.10	0.0034	4.34	<0.00002	150	0.401	75.9	0.00002	<0.005	<0.005	0.00346	<0.005	0.0058	<0.0001
RSEM-R5B-EOP	4/6/2018 18:22	TF9867	-	0.0033	0.0281	-	4.10	0.00315	4.43	<0.00002	168	0.4	69.0	0.00002	<0.005	<0.005	0.00352	<0.005	0.0075	<0.0001
RSEM-R5B-EOP	4/7/2018 18:35	TG1021	-	0.0032	0.0274	-	4.14	0.0031	4.79	<0.00002	158	0.404	79.4	0.00002	<0.005	<0.005	0.0037	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	4/8/2018 12:15	TG1024	-	0.0032	0.0258	-	4.07	0.00316	4.57	<0.00002	136	0.397	74.1	0.000018	<0.005	<0.005	0.00341	<0.005	0.0081	<0.0001
RSEM-R5B-EOP	4/9/2018 17:08	TG2639	-	0.0028	0.0136	-	3.18	0.002	2.59	<0.00002	73.4	0.282	51.4	0.000015	<0.005	<0.005	0.00225	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	4/10/2018 19:20	TG4219	-	0.0025	0.0675	-	3.46	0.00297	2.64	<0.00002	106	0.359	120	0.00002	<0.005	<0.005	0.00254	<0.005	0.0985	<0.0001
RSEM-R5B-EOP	4/10/2018 19:25	TG4220	-	0.0025	0.0666	-	3.39	0.00295	2.58	<0.00002	107	0.361	118	0.000018	<0.005	<0.005	0.0025	<0.005	0.0988	<0.0001
RSEM-R5B-EOP	4/11/2018 16:15	TG5969	-	0.0031	0.131	-	5.10	0.0103	2.84	<0.00002	179	0.593	195	0.000039	<0.005	<0.005	0.00363	<0.005	0.239	<0.0001
RSEM-R5B-EOP	4/12/2018 17:30	TG7676	-	0.0032	0.139	-	4.42	0.00623	3.32	<0.00002	198	0.568	197	0.000034	<0.005	<0.005	0.00462	<0.005	0.222	<0.0001
RSEM-R5B-EOP	4/13/2018 7:20	TG7680	-	0.0033	0.152	-	4.55	0.00699	3.45	<0.00002	217	0.61	222	0.000038	<0.005	<0.005	0.00426	<0.005	0.269	<0.0001
RSEM-R5B-EOP	4/13/2018 7:25	TG7681	-	0.0032	0.152	-	4.59	0.00684	3.45	<0.00002	217	0.606	218	0.000038	<0.005	<0.005	0.00437	<0.005	0.266	<0.0001
RSEM-R5B-EOP	4/14/2018 16:55	TH0425	-	0.0011	0.15	-	2.33	0.00386	1.88	<0.00002	107	0.328	148	0.000025	<0.005	<0.005	0.00127	<0.005	0.298	<0.0001
RSEM-R5B-EOP	4/15/2018 12:40	TH0427	-	0.0013	0.362	-	3.86	0.0137	3.19	<0.00002	303	0.673	349	0.000059	<0.005	<0.005	0.00199	<0.005	0.966	<0.0001
RSEM-R5B-EOP	4/16/2018 11:35	TH3031	-	0.002	0.178	-	3.30	0.00594	2.92	<0.00002	149	0.452	215	0.000035	<0.005	<0.005	0.00342	<0.005	0.324	<0.0001
RSEM-R5B-EOP	4/17/2018 14:40	TH3042	-	0.0022	0.271	-	4.13	0.0119	3.97	<0.00002	293	0.692	359	0.000059	<0.005	<0.005	0.0046	<0.005	0.545	<0.0001
RSEM-R5B-EOP	4/18/2018 15:45	TH5884	-	0.0026	0.297	-	4.36	0.0126	4.18	<0.00002	328	0.688	386	0.000062	<0.005	<0.005	0.00462	<0.005	0.475	<0.0001
RSEM-R5B-EOP	4/19/2018 17:40	TH5944	-	0.0023	0.188	-	2.81	0.00794	2.83	<0.00002	186	0.407	222	0.000045	<0.005	<0.005	0.00301	<0.005	0.291	<0.0001
RSEM-R5B-EOP	4/20/2018 14:57	TH5949	-	0.0015	0.259	-	2.80	0.00808	2.89	<0.00002	203	0.451	265	0.00005	<0.005	<0.005	0.00216	<0.005	0.534	<0.0001
RSEM-R5B-EOP	4/20/2018 14:57	TH5948	-	0.0015	0.246	-	2.69	0.0078	2.86	<0.00002	195	0.427	248	0.000049	<0.005	<0.005	0.00209	<0.005	0.501	<0.0001
RSEM-R5B-EOP	4/21/2018 11:20	TH8456	-	0.002	0.312	-	3.79	0.0127	3.61	<0.00002	254	0.556	321	0.000066	<0.005	<0.005	0.00355	<0.005	0.689	<0.0001
RSEM-R5B-EOP	4/22/2018 11:40	TH8483	-	0.002	0.183	-	3.23	0.00795	2.64	<0.00002	178	0.438	226	0.000048	<0.005	<0.005	0.00262	<0.005	0.285	<0.0001
RSEM-R5B-EOP	4/22/2018 11:40	TH8481	-	0.0021	0.192	-	3.31	0.0082	2.71	<0.00002	186	0.446	225	0.000044	<0.005	<0.005	0.00264	<0.005	0.302	<0.0001
RSEM-R5B-EOP	4/23/2018 12:30	TH9255	-	0.0026	0.234	-	3.63	0.0111	3.1	<0.00002	257	0.528	282	0.000055	<0.005	<0.005	0.0035	<0.005	0.392	<0.0001
RSEM-R5B-EOP	4/24/2018 14:30	TI1791	<0.000002	0.0024	0.172	-	3.60	0.00826	3.38	<0.00002	196	0.448	216	0.000039	<0.005	<0.005	0.00349	<0.005	0.215	<0.0001
RSEM-R5B-EOP	4/25/2018 16:45	TI3533	<0.000002	0.0023	0.188	-	3.78	0.00919	3.47	<0.00002	253	0.48	259	0.000048	<0.005	<0.005	0.00353	<0.005	0.182	<0.0001
RSEM-R5B-EOP	4/26/2018 11:05	TI3467	<0.000002	0.0026	0.145	-	3.72	0.00674	3.78	<0.00002	238	0.523	220	0.000041	<0.005	<0.005	0.00376	<0.005	0.116	<0.0001
RSEM-R5B-EOP	4/26/2018 11:05	TI3466	<0.000002	0.0031	0.144	-	3.65	0.0067	3.74	<0.00002	240	0.523	220	0.000042	<0.005	<0.005	0.00373	<0.005	0.115	<0.0001
RSEM-R5B-EOP	4/27/2018 10:00	TI4640	<0.000002	0.0029	0.147	-	4.01	0.00757	3.71	<0.00002	245	0.563	251	0.000052	<0.005	<0.005	0.00396	<0.005	0.114	<0.0001
RSEM-R5B-EOP	4/28/2018 14:15	TI5380	<0.000002	0.0027	0.171	-	4.27	0.00621	4.13	<0.00002	254	0.552	265	0.000056	<0.005	<0.005	0.00376	<0.005	0.144	<0.0001
RSEM-R5B-EOP	4/29/2018 15:00	TI7032	<0.000002	<0.005	0.237	-	3.94	0.00886	3.93	<0.0001	324	0.616	313	0.000068	<0.025	<0.025	0.00427	<0.025	0.287	<0.0005
RSEM-R5B-EOP	4/30/2018 12:25	TI8579	<0.000002	0.0034	0.157	-	4.52	0.00593	4.17	<0.00002	272	0.629	246	0.000047	<0.005	<0.005	0.0042	<0.005	0.12	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	5/1/2018 13:30	TJ1444	8.35	2040	2.86	1360	7.8	490	480	252	4.8	296	5.8	<1.0	65.5	0.850	0.48	732
RSEM-R5B-EOP	5/2/2018 9:53	TJ1503	8.33	2110	4.59	1530	12.0	486	494	254	2.7	304	3.2	<1.0	63.6	0.870	0.53	740
RSEM-R5B-EOP	5/3/2018 14:25	TJ4284	8.27	1890	2.82	1200	8.8	445	432	268	1.7	322	2.0	<1.0	64.1	0.720	0.53	616
RSEM-R5B-EOP	5/4/2018 15:50	TJ5493	8.31	1650	5.19	1180	16.8	400	398	263	2.0	316	2.4	<1.0	70.5	0.620	0.47	495
RSEM-R5B-EOP	5/5/2018 13:46	TJ6370	8.31	1540	2.73	860	12.3	362	353	270	2.4	323	2.9	<1.0	65.5	0.570	0.45	439
RSEM-R5B-EOP	5/6/2018 9:35	TJ7043	8.38	1570	1.23	1020	5.0	394	359	268	4.6	316	5.5	<1.0	66.4	0.580	0.50	452
RSEM-R5B-EOP	5/7/2018 6:55	TJ8506	8.34	1520	1.45	900	4.0	353	359	271	3.0	323	3.6	<1.0	67.3	0.530	0.47	434
RSEM-R5B-EOP	5/8/2018 13:30	TK0810	8.29	1330	3.46	1020	8.5	325	340	248	<1.0	302	<1.0	<1.0	63.4	0.440	0.45	343
RSEM-R5B-EOP	5/8/2018 13:30	TK0808	8.35	1340	3.08	868	8.8	352	340	250	3.4	297	4.1	<1.0	66.2	0.440	0.45	343
RSEM-R5B-EOP	5/9/2018 14:45	TK3818	8.31	1330	3.82	934	8.8	310	324	261	2.9	311	3.4	<1.0	66.1	0.430	0.46	314
RSEM-R5B-EOP	5/10/2018 14:30	TK5558	8.34	1270	1.93	1120	4.0	360	350	266	3.0	317	3.5	<1.0	66.1	0.400	0.41	291
RSEM-R5B-EOP	5/11/2018 7:05	TK5495	8.37	1260	1.58	722	<4.0	352	362	265	3.8	314	4.6	<1.0	67.1	0.400	0.43	288
RSEM-R5B-EOP	5/11/2018 7:05	TK5492	8.38	1250	1.55	770	<4.0	352	350	264	2.5	316	3.0	<1.0	64.4	0.390	0.43	288
RSEM-R5B-EOP	5/12/2018 13:45	TK7566	8.28	1530	1.55	980	6.5	420	352	250	<1.0	305	<1.0	<1.0	66.8	0.410	0.48	438
RSEM-R5B-EOP	5/13/2018 8:10	TK7583	8.28	1720	1.58	1100	4.5	438	390	248	<1.0	303	<1.0	<1.0	65.6	0.440	0.51	549
RSEM-R5B-EOP	5/13/2018 8:10	TK7582	8.29	1710	1.61	1140	5.3	441	385	252	<1.0	307	<1.0	<1.0	64.6	0.460	0.51	529
RSEM-R5B-EOP	5/14/2018 12:30	TK8138	8.28	1900	2.34	1290	6.5	457	426	254	<1.0	310	<1.0	<1.0	65.7	0.460	0.51	648
RSEM-R5B-EOP	5/15/2018 14:15	TL0257	8.33	1900	2.80	1270	5.0	458	432	239	2.2	287	2.6	<1.0	67.6	0.490	0.46	660
RSEM-R5B-EOP	5/16/2018 12:00	TL2461	8.30	1770	5.34	1100	<4.0	407	401	249	<1.0	304	<1.0	<1.0	69.8	0.410	0.46	598
RSEM-R5B-EOP	5/17/2018 12:40	TL6386	8.34	1700	1.98	1110	<4.0	395	383	234	2.8	279	3.3	<1.0	67.8	0.370	0.50	532
RSEM-R5B-EOP	5/18/2018 5:55	TL6449	8.30	1640	2.13	1050	<4.0	400	377	232	<1.0	283	<1.0	<1.0	69.5	0.420	0.50	483
RSEM-R5B-EOP	5/19/2018 18:50	TM0521	8.33	1500	1.41	942	<4.0	344	364	255	2.6	305	3.1	<1.0	64.8	0.370	0.49	393
RSEM-R5B-EOP	5/20/2018 15:00	TM2848	8.34	1430	5.82	880	15.0	354	331	248	3.5	294	4.2	<1.0	66.5	0.350	0.51	348
RSEM-R5B-EOP	5/21/2018 17:00	TM2897	8.38	1360	1.35	842	<4.0	335	322	250	4.2	294	5.0	<1.0	67.0	0.340	0.51	319
RSEM-R5B-EOP	5/22/2018 12:20	TM6368	8.43	1290	1.65	764	<4.0	328	313	271	6.0	315	7.2	<1.0	65.9	0.310	0.46	289
RSEM-R5B-EOP	5/23/2018 13:10	TM6371	8.45	1220	1.32	760	<4.0	338	290	264	6.1	307	7.3	<1.0	63.4	0.300	0.43	266
RSEM-R5B-EOP	5/24/2018 16:30	TM7243	8.39	1180	0.97	720	<4.0	302	275	251	4.9	295	5.8	<1.0	65.2	0.280	0.45	241
RSEM-R5B-EOP	5/24/2018 16:30	TM7242	8.41	1180	0.77	708	<4.0	301	280	249	4.8	293	5.8	<1.0	66.5	0.280	0.45	247
RSEM-R5B-EOP	5/25/2018 6:40	TM7248	8.41	1150	1.86	702	<4.0	295	276	252	4.9	296	5.9	<1.0	66.5	0.280	0.44	228
RSEM-R5B-EOP	5/26/2018 9:40	TM9441	8.37	1130	1.16	678	<4.0	269	287	274	3.1	326	3.8	<1.0	67	0.270	0.43	210
RSEM-R5B-EOP	5/27/2018 17:30	TN1164	8.44	1100	1.22	654	<4.0	280	281	274	6.3	319	7.5	<1.0	69.4	0.250	0.42	188
RSEM-R5B-EOP	5/28/2018 13:00	TN1169	8.38	1100	1.85	630	6.0	290	279	271	4.9	319	5.9	<1.0	70.3	0.250	0.42	196
RSEM-R5B-EOP	5/29/2018	TN5956	8.44	1090	0.93	608	<4.0	295	273	284	5.6	332	6.7	<1.0	72.2	0.260	0.40	198
RSEM-R5B-EOP	5/30/2018 13:15	TN9749	8.41	1100	1.48	628	<4.0	272	273	282	5.1	332	6.1	<1.0	67.2	0.250	0.42	191
RSEM-R5B-EOP	5/30/2018 13:15	TN9745	8.40	1090	1.41	630	<4.0	269	265	281	4.3	333	5.1	<1.0	67.3	0.250	0.42	190
RSEM-R5B-EOP	5/31/2018	TN9636	8.37	1090	1.53	640	<4.0	279	248	289	4.2	342	5.0	<1.0	66.8	0.250	0.42	182
RSEM-R5B-EOP	6/1/2018	TO1001	8.42	1080	0.94	622	<4.0	301	267	290	6.6	338	7.9	<1.0	65.5	0.240	0.43	174
RSEM-R5B-EOP	6/2/2018 11:00	TO4781	8.36	1080	1.18	614	<4.0	323	304	305	4.0	363	4.8	<1.0	67.7	0.240	0.39	166
RSEM-R5B-EOP	6/2/2018 11:00	TO4780	8.33	1080	1.68	616	<4.0	304	295	302	2.4	362	2.8	<1.0	65.0	0.240	0.40	168
RSEM-R5B-EOP	6/3/2018 12:30	TO4799	8.36	1080	1.25	604	<4.0	311	286	312	3.9	371	4.7	<1.0	64.3	0.240	0.40	161
RSEM-R5B-EOP	6/3/2018 12:30	TO4798	8.12	1070	1.16	602	<4.0	312	287	299	<1.0	365	<1.0	<1.0	67.4	0.240	0.39	175
RSEM-R5B-EOP	6/4/2018 16:15	TO7166	8.37	1050	5.66	586	7.8	291	292	275	4.4	325	5.3	<1.0	69.1	0.240	0.42	193
RSEM-R5B-EOP	6/5/2018 18:50	TP0510	8.30	1170	3.90	730	8.8	317	326	242	2.5	289	3.0	<1.0	74.1	0.350	0.57	252
RSEM-R5B-EOP	6/6/2018 11:40	TP0516	8.32	1140	1.94	676	<4.0	331	320	244	2.4	292	2.9	<1.0	72.2	0.320	0.55	258
RSEM-R5B-EOP	6/7/2018 15:00	TP6775	8.35	1180	1.32	704	<4.0	327	333	249	3.3	295	3.9	<1.0	66.9	0.310	0.49	215
RSEM-R5B-EOP	6/8/2018 20:10	TP8930	8.27	1140	1.06	652	<4.0	325	309	275	<1.0	335	<1.0	<1.0	68.1	0.300	0.47	229
RSEM-R5B-EOP	6/9/2018 19:30	TP8998	8.29	1130	1.51	636	<4.0	318	300	275	<1.0	335	<1.0	<1.0	69.1	0.290	0.45	229
RSEM-R5B-EOP	6/10/2018 12:00	TP9977	8.32	1130	1.54	704	5.0	300	283	280	2.6	336	3.1	<1.0	77.3	0.300	0.43	218
RSEM-R5B-EOP	6/11/2018 16:20	TQ0648	8.37	1080	1.77	590	<4.0	279	273	273	3.0	325	3.6	<1.0	63.9	0.270	0.41	222
RSEM-R5B-EOP	6/12/2018 14:45	TQ4137	8.38	1050	2.19	594	7.0	284	299	267	3.0	318	3.6	<1.0	60.8	0.260	0.41	200
RSEM-R5B-EOP	6/13/2018 16:30	TQ8815	8.26	1020	1.21	582	<4.0	276	247	245	<1.0	299	<1.0	<1.0	63.9	0.260	0.37	190
RSEM-R5B-EOP	6/14/2018 18:30	TQ8829	8.32	991	4.07	576	9.8	270	236	241	2.7	287	3.3	<1.0	63.4	0.240	0.39	188
RSEM-R5B-EOP	6/15/2018 18:20	TR1408	8.32	1020	3.61	590	11.3	276	269	251	2.1	300	2.6	<1.0	65.4	0.260	0.45	196
RSEM-R5B-EOP	6/16/2018 16:25	TR1379	8.35	1040	1.84	622	<4.0	278	277	253	3.8	300	4.5	<1.0	69.8	0.280	0.46	210
RSEM-R5B-EOP	6/17/2018 14:55	TR2098	8.38	1040	1.66	620	<4.0	279	280	252	3.8	299	4.6	<1.0	71.3	0.270	0.44	201
RSEM-R5B-EOP	6/18/2018 10:00	TR2127	8.33	1050	1.44	630	<4.0	278	279	253	1.4	305	1.7	<1.0	71.9	0.290	0.44	234
RSEM-R5B-EOP	6/19/2018 12:50	TR6049	8.39	1050	1.08	610	<4.0	272	281	260	4.2	306	5.1	<1.0	68.4	0.280	0.43	238
RSEM-R5B-EOP	6/20/2018 13:05	TR8731	8.44	1060	1.37	598	<4.0	243	277	261	4.8	307	5.7	<1.0	60.8	0.270	0.43	194
RSEM-R5B-EOP	6/20/2018 13:05	TR8730	8.37	1050	1.52	600	<4.0	251	278	256	3.8	303	4.6	<1.0	62.1	0.270	0.45	194
RSEM-R5B-EOP	6/21/2018	TS1918	8.44	1050	1.24	612	<4.0	255	261	260	5.4	304	6.5	<1.0	63.4	0.260	0.42	185
RSEM-R5B-EOP	6/22/2018	TS2368	8.40	1040	2.35	516	<4.0	244	241	257	3.6	305	4.3	<1.0	64.4	0.260	0.41	176
RSEM-R5B-EOP	6/22/2018	TS2367	8.37	1040	2.23	578	<4.0	242	245	257	2.7	307	3.3	<1.0	64.4	0.260	0.39	178
RSEM-R5B-EOP	6/23/2018	TS5386	8.43	913	1.52	532	<4.0	225	235	248	4.2	293	5.0	<1.0	51.1	0.260	0.30	174
RSEM-R5B-EOP	6/24/2018	TS5390	8.41	784	1.34	526	<4.0	211	220	218	3.9	257	4.7	<1.0	38.5	0.240	0.22	150

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	5/1/2018 13:30	TJ1444	0.75	0.0153	0.926	0.941	<0.0050	1.26	1.90	0.176	<0.0005	0.00022	0.089	<0.0001	<0.001	0.189	0.00139	111	<0.001	0.0559	0.00226
RSEM-R5B-EOP	5/2/2018 9:53	TJ1503	0.79	0.0162	0.887	0.903	<0.0050	0.85	1.19	0.168	<0.0005	0.00022	0.0864	<0.0001	<0.001	0.207	0.00126	114	<0.001	0.054	0.00236
RSEM-R5B-EOP	5/3/2018 14:25	TJ4284	0.55	0.0168	0.817	0.834	<0.0050	1.63	0.90	0.145	<0.0005	0.00021	0.0876	<0.0001	<0.001	0.159	0.000851	105	<0.001	0.0374	0.00174
RSEM-R5B-EOP	5/4/2018 15:50	TJ5493	0.34	0.0197	0.830	0.850	<0.0050	1.08	1.49	0.131	<0.0005	0.00024	0.0877	<0.0001	<0.001	0.137	0.000591	96.5	<0.001	0.0257	0.00162
RSEM-R5B-EOP	5/5/2018 13:46	TJ6370	0.19	0.0171	0.757	0.774	<0.0050	1.92	1.79	0.112	<0.0005	0.00023	0.0879	<0.0001	<0.001	0.136	0.000097	81.1	<0.001	0.0193	0.0013
RSEM-R5B-EOP	5/6/2018 9:35	TJ7043	0.33	0.0136	0.739	0.752	<0.0050	1.86	1.90	0.114	<0.0005	0.00022	0.0864	<0.0001	<0.001	0.149	0.000037	92.7	<0.001	0.0194	0.00227
RSEM-R5B-EOP	5/7/2018 6:55	TJ8506	0.20	0.0157	0.737	0.753	<0.0050	1.75	1.21	0.081	<0.0005	0.00019	0.0821	<0.0001	<0.001	0.139	0.000023	83.2	<0.001	0.0164	0.00117
RSEM-R5B-EOP	5/8/2018 13:30	TK0810	0.11	0.0114	0.678	0.690	<0.0050	<0.50	<0.50	0.12	<0.0005	0.00024	0.0875	<0.0001	<0.001	0.132	0.000018	76.5	<0.001	0.00847	0.00104
RSEM-R5B-EOP	5/8/2018 13:30	TK0808	0.073	0.0114	0.658	0.670	<0.0050	<0.50	<0.50	0.111	<0.0005	0.00026	0.0882	<0.0001	<0.001	0.14	0.000017	85.1	<0.001	0.00866	0.00111
RSEM-R5B-EOP	5/9/2018 14:45	TK3818	0.071	0.0104	0.652	0.662	<0.0050	1.64	1.54	0.0828	<0.0005	0.00024	0.0844	<0.0001	<0.001	0.124	0.000018	72.0	<0.001	0.00573	0.00127
RSEM-R5B-EOP	5/10/2018 14:30	TK5558	0.042	0.0140	0.618	0.632	0.0094	0.77	<0.50	0.0684	<0.0005	0.00025	0.0863	<0.0001	<0.001	0.12	0.00001	83.7	<0.001	0.00463	0.00111
RSEM-R5B-EOP	5/11/2018 7:05	TK5495	0.038	0.0140	0.605	0.619	<0.0050	<0.50	<0.50	0.0748	<0.0005	0.00024	0.0788	<0.0001	<0.001	0.121	<0.00001	80.0	<0.001	0.00387	0.0012
RSEM-R5B-EOP	5/11/2018 7:05	TK5492	0.048	0.0119	0.604	0.616	0.0141	1.94	<0.50	0.0718	<0.0005	0.0002	0.0809	<0.0001	<0.001	0.123	0.00001	81.1	<0.001	0.0038	0.0011
RSEM-R5B-EOP	5/12/2018 13:45	TK7566	0.14	0.0216	0.604	0.625	<0.0050	1.90	1.73	0.0867	<0.0005	0.00024	0.0848	<0.0001	<0.001	0.152	0.000019	104	<0.001	0.00511	0.00125
RSEM-R5B-EOP	5/13/2018 8:10	TK7583	0.18	0.0104	0.606	0.617	0.0061	1.00	0.62	0.0795	<0.0005	0.00025	0.0835	<0.0001	<0.001	0.168	0.000049	108	<0.001	0.00801	0.00104
RSEM-R5B-EOP	5/13/2018 8:10	TK7582	0.20	0.0171	0.612	0.629	<0.0050	1.11	0.74	0.0894	<0.0005	0.00025	0.0855	<0.0001	<0.001	0.173	0.000048	109	<0.001	0.00812	0.00103
RSEM-R5B-EOP	5/14/2018 12:30	TK8138	0.30	0.0232	0.649	0.672	<0.0050	1.09	1.20	0.0757	<0.0005	0.00025	0.0819	<0.0001	<0.001	0.21	0.000105	112	<0.001	0.0149	0.0011
RSEM-R5B-EOP	5/15/2018 14:15	TL0257	0.31	0.0171	1.41	1.43	<0.0050	1.77	0.71	0.0889	<0.0005	0.00026	0.0767	<0.0001	<0.001	0.195	0.000035	105	<0.001	0.0125	0.00114
RSEM-R5B-EOP	5/16/2018 12:00	TL2461	0.23	0.0193	0.564	0.583	<0.0050	1.63	0.52	0.0691	<0.0005	0.00023	0.0785	<0.0001	<0.001	0.174	0.000034	95.6	<0.001	0.0116	0.00107
RSEM-R5B-EOP	5/17/2018 12:40	TL6386	0.17	0.0112	0.537	0.548	<0.0050	1.90	1.92	0.057	<0.0005	0.00023	0.0805	<0.0001	<0.001	0.178	0.000034	90.3	<0.001	0.0107	0.00148
RSEM-R5B-EOP	5/18/2018 5:55	TL6449	0.17	0.0105	0.546	0.556	<0.0050	-	1.85	0.055	<0.0005	0.00023	0.0816	<0.0001	<0.001	0.178	0.000018	92.2	<0.001	0.00888	0.00115
RSEM-R5B-EOP	5/19/2018 18:50	TM0521	0.12	0.0119	0.528	0.540	<0.0050	1.12	1.44	0.055	<0.0005	0.00023	0.0752	<0.0001	<0.001	0.156	0.000014	80.2	<0.001	0.00659	0.00092
RSEM-R5B-EOP	5/20/2018 15:00	TM2848	0.075	0.0074	0.427	0.434	<0.0050	2.70	1.21	0.0852	<0.0005	0.00025	0.0832	<0.0001	<0.001	0.143	0.000019	82.4	<0.001	0.00632	0.00133
RSEM-R5B-EOP	5/21/2018 17:00	TM2897	0.087	0.0134	0.440	0.453	<0.0050	4.50	1.71	0.0478	<0.0005	0.00025	0.0823	<0.0001	<0.001	0.135	<0.00001	75.7	<0.001	0.00423	0.00101
RSEM-R5B-EOP	5/22/2018 12:20	TM6368	0.055	0.0085	0.430	0.439	<0.0050	1.73	1.75	0.0461	<0.0005	0.00024	0.0785	<0.0001	<0.001	0.151	<0.00001	70.7	<0.001	0.00341	0.00098
RSEM-R5B-EOP	5/23/2018 13:10	TM6371	0.043	0.0081	0.401	0.410	<0.0050	2.36	1.40	0.0435	<0.0005	0.00024	0.0807	<0.0001	<0.001	0.144	<0.00001	74.4	<0.001	0.00236	0.00104
RSEM-R5B-EOP	5/24/2018 16:30	TM7243	0.027	0.0068	0.376	0.383	<0.0050	1.55	2.02	0.0431	<0.0005	0.00026	0.078	<0.0001	<0.001	0.139	<0.00001	65.9	<0.001	0.00153	0.00116
RSEM-R5B-EOP	5/24/2018 16:30	TM7242	0.028	0.0072	0.368	0.375	<0.0050	1.87	1.52	0.0409	<0.0005	0.00027	0.0776	<0.0001	<0.001	0.136	<0.00001	65.6	<0.001	0.00154	0.0012
RSEM-R5B-EOP	5/25/2018 6:40	TM7248	<0.020	0.0058	0.362	0.368	<0.0050	3.10	0.74	0.0424	<0.0005	0.00026	0.0788	<0.0001	<0.001	0.131	<0.00001	64.9	<0.001	0.00126	0.00101
RSEM-R5B-EOP	5/26/2018 9:40	TM9441	<0.020	0.0076	0.334	0.341	<0.0050	2.22	1.65	0.0369	<0.0005	0.00027	0.0772	<0.0001	<0.001	0.121	<0.00001	58.7	<0.001	0.00089	0.00086
RSEM-R5B-EOP	5/27/2018 17:30	TN1164	<0.020	0.0056	0.277	0.282	<0.0050	2.28	<0.50	0.0481	<0.0005	0.00038	0.0793	<0.0001	<0.001	0.133	0.00002	60.7	<0.001	0.00076	0.001
RSEM-R5B-EOP	5/28/2018 13:00	TN1169	<0.020	0.0061	0.323	0.329	<0.0050	3.43	1.14	0.0653	<0.0005	0.0004	0.0844	<0.0001	<0.001	0.132	0.000027	63.6	<0.001	0.00083	0.00109
RSEM-R5B-EOP	5/29/2018	TN5956	<0.020	0.0061	0.298	0.304	<0.0050	2.34	1.89	0.0451	<0.0005	0.00031	0.0845	<0.0001	<0.001	0.128	<0.00001	64.2	<0.001	0.00091	0.00104
RSEM-R5B-EOP	5/30/2018 13:15	TN9749	<0.020	0.0069	0.313	0.320	<0.0050	2.29	1.25	0.0452	<0.0005	0.00031	0.0871	<0.0001	<0.001	0.121	<0.00001	58.9	<0.001	0.00087	0.00118
RSEM-R5B-EOP	5/30/2018 13:15	TN9745	<0.020	0.0066	0.311	0.318	<0.0050	2.27	2.05	0.041	<0.0005	0.00031	0.0856	<0.0001	<0.001	0.121	<0.00001	58.3	<0.001	0.00085	0.00113
RSEM-R5B-EOP	5/31/2018	TN9636	<0.020	0.0071	0.355	0.362	<0.0050	3.61	1.63	0.0422	<0.0005	0.00033	0.0962	<0.0001	<0.001	0.118	<0.00001	62.5	<0.001	0.00097	0.00133
RSEM-R5B-EOP	6/1/2018	TO1001	<0.020	0.0052	0.364	0.369	<0.0050	1.72	0.63	0.0568	<0.0005	0.00035	0.0967	<0.0001	<0.001	0.147	0.000011	69.6	<0.001	0.00087	0.00119
RSEM-R5B-EOP	6/2/2018 11:00	TO4781	<0.020	0.0069	0.344	0.351	0.0099	1.24	1.24	0.0487	<0.0005	0.00034	0.098	<0.0001	<0.001	0.124	<0.00001	78.7	<0.001	0.00086	0.00116
RSEM-R5B-EOP	6/2/2018 11:00	TO4780	<0.020	0.0072	0.338	0.345	0.0064	1.68	0.97	0.0624	<0.0005	0.0004	0.0999	<0.0001	<0.001	0.117	0.000012	71.0	<0.001	0.00098	0.00133
RSEM-R5B-EOP	6/3/2018 12:30	TO4799	<0.020	0.0086	0.352	0.361	<0.0050	2.07	1.60	0.0426	<0.0005	0.00038	0.0985	<0.0001	<0.001	0.123	<0.00001	72.9	<0.001	0.00088	0.0011
RSEM-R5B-EOP	6/3/2018 12:30	TO4798	<0.020	0.0061	0.363	0.369	<0.0050	1.30	1.34	0.0431	<0.0005	0.00039	0.0976	<0.0001	<0.001	0.125	0.00001	73.9	<0.001	0.00083	0.00112
RSEM-R5B-EOP	6/4/2018 16:15	TO7166	<0.020	0.0062	0.361	0.367	<0.0050	2.87	1.64	0.101	<0.0005	0.00049	0.0996	<0.0001	<0.001	0.123	0.000019	69.7	<0.001	0.00106	0.00196
RSEM-R5B-EOP	6/5/2018 18:50	TP0510	0.054	0.0134	0.516	0.529	<0.0050	2.98	2.17	0.11	<0.0005	0.00036	0.094	<0.0001	<0.001	0.119	0.000107	80.4	<0.001	0.0065	0.00188
RSEM-R5B-EOP	6/6/2018 11:40	TP0516	0.064	0.0108	0.466	0.477	<0.0050	3.28	0.76	0.0852	<0.0005	0.00033	0.0939	<0.0001	<0.001	0.118	0.000016	86.3	<0.001	0.00412	0.00163
RSEM-R5B-EOP	6/7/2018 15:00	TP6775	0.053	0.0138	0.488	0.502	<0.0030	1.53	1.35	0.0744	<0.0005	0.00033	0.0968	<0.0001	<0.001	0.13	<0.00001	82.1	<0.001	0.00397	0.00162
RSEM-R5B-EOP	6/8/2018 20:10	TP8930	0.024	0.0127	0.428	0.440	<0.0030	2.17	1.94	0.08	<0.0005	0.00033	0.0905	<0.0001	<0.001	0.138	<0.00001	80.4	<0.001	0.00278	0.00169
RSEM-R5B-EOP	6/9/2018 19:30	TP8998	0.025	0.0095	0.419	0.428	<0.0030	2.11	1.79	0.0686	<0.0005	0.00033	0.0921	<0.0001	<0.001	0.135	<0.00001	79.1	<0.001	0.00213	0.00151
RSEM-R5B-EOP	6/10/2018 12:00	TP9977	0.044	<0.0050	0.411	0.411	<0.0030	2.33	1.76	0.105	<0.0005	0.00034	0.096	<0.0001	<0.001	0.142	<0.00001	73.1	<0.001	0.00192	0.00152
RSEM-R5B-EOP	6/11/2018 16:20	TQ0648	<0.020	0.0066	0.333	0.340	<0.0030	4.28	1.34	0.0712	<0.0005	0.00035	0.0902	<0.0001	<0.001	0.134	<0.00001	64.3	<0.001	0.0013	0.00138
RSEM-R5B-EOP	6/12/2018 14:45	TQ4137	0.021	0.0134	0.311	0.324	<0.0050	2.30	2.34	0.0941	<0.0005	0.00038	0.0924	<0.0001	<0.001	0.125	0.000012	64.6	<0.001	0.0012	0.00147
RSEM-R5B-EOP	6/13/2018 16:30	TQ8815	<0.020	0.0108	0.293	0.304	<0.0040	2.25	1.84	0.0548	<0.0005	0.00034	0.0876	<0.0001	<0.001	0.121	<0.00001	62.3	<0.001	0.00073	0.00121
RSEM-R5B-EOP	6/14/2018 18:30	TQ8829	<0.020	<0.0050	<0.020	<0.020	<0.0040	3.67	0.96	0.111	<0.0005	0.00039	0.0907	<0.0001	<0.001	0.121	0.00001	61.5	<0.001	0.00069	0.00168
RSEM-R5B-EOP	6/15/2018 18:20	TR1408	<0.020	0.0062	0.260	0.266	<0.0040	2.91	0.56	0.102	<0.0005	0.00041	0.087	<0.0001	<0.001	0.117	0.000015	64.4	<0.001	0.00109	0.00155
RSEM-R5B-EOP	6/16/2018 16:25	TR1379	<0.020	0.0053	0.257	0.263	<0.0040	2.34	1.66	0.0656	<0.0005	0.00037	0.0887	<0.0001	<0.001	0.112	<0.00001	66.0	<0.001	0.00115	0.00155
RSEM-R5B-EOP	6/17/2018 14:55	TR2098	<0.020	0.0089	0.215	0.224	<0.0040	2.53	1.16	0.078	<0.0005	0.00038	0.0857	<0.0001	<0.001	0.132	<0.00001	63.8	<0.001	0.00085	0.00138
RSEM-R5B-EOP	6/18/2018 10:00	TR2127	<0.020	0.0066	0.204	0.210	<0.0040	3.12	2.21	0.0574	<0.0005	0.00038	0.0859	<0.0001	<0.001	0.143	<0.00001	63.3	<0.001	0.00076	0.00128
RSEM-R5B-EOP	6/19/2018 12:50	TR6049	0.038	0.0059	0.156	0.161	<0.0040	1.28	0.62	0.0515	<0.0005	0.00038	0.0867	<0.0001	<0.001	0.129	<0.00001	60.4	<0.001	0.00052	0.00146
RSEM-R5B-EOP	6/20/2018 13:05	TR8731	0.037	<0.0050	0.113	0.113	<0.0040	2.72	0.98	0.0734	<0.0005	0.00044	0.0827	<0.0001	<0.001	0.141	<0.00001	53.4	<0.001	0.00044	0.00137
RSEM-R5B-EOP	6/20/2018 13:05	TR8730	0.036	<0.0050	0.111	0.111	<0.0040	2.23	1.41	0.0555	<0.0005	0.0004	0.0864	<0.0001	<0.001	0.14	<0.00001	55.3	<0.001	0.00044	0.00143
RSEM-R5B-EOP	6/21/2018	TS1918	0.045	0.0083	0.099	0.107	<0.0050	2.73	1.73	0.0513	<0.0005	0.00048	0.0886	<0.0001	<0.001	0.155	<0.00001	54.9	<0.001	0.00036	0.00148
RSEM-R5B-EOP	6/22/2018	TS2368	0.044	0.0087	0.167	0.176	<0.0050	2.16	1.56	0.0779	<0.0005	0.0005	0.0862	<0.0001	<0.001	0.146	0.000015	53.6	<0.001	0.0007	0.00154
RSEM-R5B-EOP	6/22/2018	TS2367	0.034	0.0079	0.170	0.178	<0.0050	2.02	1.63	0.0755	<0.0005	0.00045	0.0871	<0.0001	<0.001	0.144	0.000014	54.5	<0.001	0.00069	0.00152
RSEM-R5B-EOP	6/23/2018	TS5386	0.042	0.0065	0.164	0.170	<0.0050	2.68	2.32	0.0807	<0.0005	0.00051	0.0788	<0.0001	<0.001	0.104	0.000022	51.2	<0.001	0.00086	0.00152
RSEM-R5B-EOP	6/24/2018	TS5390	0.033	0.0084	0.134	0.143	<0.0050	2.18	1.51	0.0868	<0.0005	0.00042	0.0783	<0.0001	<0.001	0.103	0.000018	50.8	<0.001	0.00078	0.00147

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	5/1/2018 13:30	TJ1444	0.178	<0.0002	0.208	51.5	0.659	<0.000002	0.0033	0.182	-	4.38	0.00615	4.34	<0.00002	297	0.655	259	0.000048	<0.005	<0.005	0.00434
RSEM-R5B-EOP	5/2/2018 9:53	TJ1503	0.176	<0.0002	0.196	48.9	0.611	<0.000002	0.003	0.17	-	4.24	0.00565	4.28	<0.00002	293	0.57	258	0.000052	<0.005	<0.005	0.00436
RSEM-R5B-EOP	5/3/2018 14:25	TJ4284	0.141	<0.0002	0.163	44.2	0.484	<0.000002	0.0032	0.119	-	3.76	0.00488	3.77	<0.00002	243	0.608	203	0.000044	<0.005	<0.005	0.00406
RSEM-R5B-EOP	5/4/2018 15:50	TJ5493	0.122	<0.0002	0.137	38.7	0.337	<0.000002	0.0031	0.0854	-	3.59	0.00392	3.56	<0.00002	204	0.513	155	0.000036	<0.005	<0.005	0.00365
RSEM-R5B-EOP	5/5/2018 13:46	TJ6370	0.062	<0.0002	0.138	38.8	0.207	<0.000002	0.0032	0.0705	-	3.68	0.00322	3.5	<0.00002	194	0.5	144	0.000032	<0.005	<0.005	0.00353
RSEM-R5B-EOP	5/6/2018 9:35	TJ7043	0.07	<0.0002	0.145	39.5	0.168	<0.000002	0.0031	0.0788	-	3.89	0.00355	3.8	<0.00002	203	0.426	159	0.000034	<0.005	<0.005	0.00344
RSEM-R5B-EOP	5/7/2018 6:55	TJ8506	0.064	<0.0002	0.137	35.2	0.14	<0.000002	0.0028	0.0673	-	3.74	0.00317	3.52	<0.00002	177	0.39	137	0.000031	<0.005	<0.005	0.00341
RSEM-R5B-EOP	5/8/2018 13:30	TK0810	0.097	<0.0002	0.118	32.5	0.0666	<0.000002	0.0032	0.0412	-	3.84	0.00273	3.7	<0.00002	153	0.366	116	0.000029	<0.005	<0.005	0.00301
RSEM-R5B-EOP	5/8/2018 13:30	TK0808	0.094	<0.0002	0.124	34.0	0.0687	<0.000002	0.0033	0.0421	-	3.94	0.00275	3.9	<0.00002	151	0.388	115	0.000029	<0.005	<0.005	0.0032
RSEM-R5B-EOP	5/9/2018 14:45	TK3818	0.095	<0.0002	0.115	31.6	0.0446	<0.000002	0.0031	0.0329	-	3.46	0.00247	3.29	<0.00002	149	0.352	103	0.000027	<0.005	<0.005	0.00305
RSEM-R5B-EOP	5/10/2018 14:30	TK5558	0.068	<0.0002	0.113	36.6	0.0344	<0.000002	0.0032	0.029	-	4.22	0.00257	3.7	<0.00002	156	0.34	112	0.000025	<0.005	<0.005	0.00298
RSEM-R5B-EOP	5/11/2018 7:05	TK5495	0.059	<0.0002	0.108	36.9	0.0272	<0.000002	0.0032	0.0258	-	4.08	0.00259	3.43	<0.00002	156	0.335	109	0.000023	<0.005	<0.005	0.00287
RSEM-R5B-EOP	5/11/2018 7:05	TK5492	0.061	<0.0002	0.112	36.3	0.0275	<0.000002	0.0031	0.0253	-	4.13	0.00273	3.58	<0.00002	156	0.333	110	0.000023	<0.005	<0.005	0.00287
RSEM-R5B-EOP	5/12/2018 13:45	TK7566	0.096	<0.0002	0.14	39.3	0.0455	<0.000002	0.0034	0.0298	-	4.78	0.00361	3.81	<0.00002	202	0.423	171	0.000033	<0.005	<0.005	0.00305
RSEM-R5B-EOP	5/13/2018 8:10	TK7583	0.079	<0.0002	0.154	41.2	0.0757	<0.000002	0.0034	0.0382	-	4.69	0.00431	3.82	<0.00002	232	0.459	196	0.00004	<0.005	<0.005	0.00317
RSEM-R5B-EOP	5/13/2018 8:10	TK7582	0.09	<0.0002	0.154	40.8	0.0743	<0.000002	0.0034	0.0383	-	4.74	0.00418	3.78	<0.00002	228	0.482	199	0.000038	<0.005	<0.005	0.00317
RSEM-R5B-EOP	5/14/2018 12:30	TK8138	0.103	<0.0002	0.165	43.0	0.161	<0.000002	0.0036	0.059	-	4.91	0.00474	3.84	<0.00002	251	0.545	236	0.000044	<0.005	<0.005	0.00348
RSEM-R5B-EOP	5/15/2018 14:15	TL0257	0.096	<0.0002	0.16	47.4	0.112	<0.000002	0.0037	0.0563	-	4.82	0.00463	3.41	<0.00002	275	0.582	234	0.000041	<0.005	<0.005	0.00346
RSEM-R5B-EOP	5/16/2018 12:00	TL2461	0.1	<0.0002	0.156	40.8	0.102	<0.000002	0.0035	0.0515	-	4.62	0.00412	3.57	<0.00002	224	0.484	206	0.000042	<0.005	<0.005	0.00335
RSEM-R5B-EOP	5/17/2018 12:40	TL6386	0.115	<0.0002	0.147	41.3	0.0978	<0.000002	0.0036	0.0504	-	4.65	0.00377	3.5	<0.00002	219	0.43	203	0.000036	<0.005	<0.005	0.00317
RSEM-R5B-EOP	5/18/2018 5:55	TL6449	0.122	<0.0002	0.154	41.2	0.0754	<0.000002	0.0037	0.0472	-	4.72	0.00331	3.95	<0.00002	207	0.435	187	0.000035	<0.005	<0.005	0.00327
RSEM-R5B-EOP	5/19/2018 18:50	TM0521	0.117	<0.0002	0.137	35.0	0.0545	<0.000002	0.0033	0.036	-	4.28	0.00282	3.56	<0.00002	179	0.38	148	0.00003	<0.005	<0.005	0.00284
RSEM-R5B-EOP	5/20/2018 15:00	TM2848	0.182	<0.0002	0.131	35.9	0.0548	<0.000002	0.0034	0.0343	-	4.57	0.0025	3.76	<0.00002	167	0.373	146	0.00003	<0.005	<0.005	0.00272
RSEM-R5B-EOP	5/21/2018 17:00	TM2897	0.093	<0.0002	0.129	35.5	0.0337	<0.000002	0.0035	0.0272	-	4.48	0.00237	3.65	<0.00002	151	0.356	127	0.000026	<0.005	<0.005	0.00262
RSEM-R5B-EOP	5/22/2018 12:20	TM6368	0.079	<0.0002	0.123	36.9	0.0232	<0.000002	0.0032	0.0249	-	4.43	0.00242	3.05	<0.00002	169	0.327	114	0.000025	<0.005	<0.005	0.00268
RSEM-R5B-EOP	5/23/2018 13:10	TM6371	0.074	<0.0002	0.12	36.9	0.0156	<0.000002	0.0034	0.0208	-	4.47	0.00235	3.3	<0.00002	158	0.315	108	0.000025	<0.005	<0.005	0.00264
RSEM-R5B-EOP	5/24/2018 16:30	TM7243	0.067	<0.0002	0.114	33.4	0.0106	<0.000002	0.0034	0.0164	-	4.15	0.00225	2.91	<0.00002	138	0.325	86.3	0.000021	<0.005	<0.005	0.00254
RSEM-R5B-EOP	5/24/2018 16:30	TM7242	0.071	<0.0002	0.114	33.2	0.011	<0.000002	0.0033	0.0161	-	4.12	0.00223	2.86	<0.00002	139	0.326	85.9	0.00002	<0.005	<0.005	0.00254
RSEM-R5B-EOP	5/25/2018 6:40	TM7248	0.065	<0.0002	0.114	32.2	0.0098	<0.000002	0.0035	0.0148	-	4.04	0.00211	2.83	<0.00002	133	0.319	79.4	0.000021	<0.005	<0.005	0.00247
RSEM-R5B-EOP	5/26/2018 9:40	TM9441	0.058	<0.0002	0.106	29.7	0.0071	<0.000002	0.0033	0.0119	-	3.79	0.00196	2.69	<0.00002	122	0.298	68.6	0.000019	<0.005	<0.005	0.00231
RSEM-R5B-EOP	5/27/2018 17:30	TN1164	0.058	<0.0002	0.114	31.3	0.0065	<0.000002	0.0034	0.0112	-	4.01	0.00216	2.81	<0.00002	127	0.297	69.5	0.000023	<0.005	<0.005	0.00237
RSEM-R5B-EOP	5/28/2018 13:00	TN1169	0.084	<0.0002	0.118	31.9	0.0088	<0.000002	0.0036	0.0114	-	4.16	0.00216	2.96	<0.00002	130	0.309	68.6	0.000024	<0.005	<0.005	0.00246
RSEM-R5B-EOP	5/29/2018	TN5956	0.074	<0.0002	0.114	32.7	0.0087	<0.000002	0.0036	0.0114	-	4.18	0.00195	2.84	<0.00002	132	0.3	70.5	0.000019	<0.005	<0.005	0.00238
RSEM-R5B-EOP	5/30/2018 13:15	TN9749	0.065	<0.0002	0.11	30.3	0.0081	<0.000002	0.0035	0.0113	-	3.98	0.00192	2.67	<0.00002	128	0.303	63.4	0.000017	<0.005	<0.005	0.00228
RSEM-R5B-EOP	5/30/2018 13:15	TN9745	0.067	<0.0002	0.108	29.9	0.0082	<0.000002	0.0035	0.011	-	3.83	0.00185	2.65	<0.00002	124	0.303	61.0	0.000018	<0.005	<0.005	0.00227
RSEM-R5B-EOP	5/31/2018	TN9636	0.069	<0.0002	0.109	29.9	0.0108	<0.000002	0.0035	0.0114	-	3.96	0.00181	2.76	<0.00002	125	0.318	60.1	0.000017	<0.005	<0.005	0.00232
RSEM-R5B-EOP	6/1/2018	TO1001	0.074	<0.0002	0.119	30.9	0.0114	<0.000002	0.0035	0.0111	-	4.14	0.0019	3.26	<0.00002	127	0.295	63.7	0.000017	<0.005	<0.005	0.00254
RSEM-R5B-EOP	6/2/2018 11:00	TO4781	0.091	<0.0002	0.128	30.8	0.0118	<0.000002	0.0036	0.0104	-	4.27	0.00198	3.88	<0.00002	122	0.307	70.4	0.000015	<0.005	<0.005	0.00257
RSEM-R5B-EOP	6/2/2018 11:00	TO4780	0.116	<0.0002	0.122	30.7	0.014	<0.000002	0.0036	0.011	-	4.21	0.00176	3.43	<0.00002	120	0.314	67.6	0.000019	<0.005	<0.005	0.00256
RSEM-R5B-EOP	6/3/2018 12:30	TO4799	0.081	<0.0002	0.117	31.3	0.0113	0.0000022	0.0035	0.0104	-	4.14	0.00181	3.18	<0.00002	129	0.292	59.2	0.000017	<0.005	<0.005	0.00254
RSEM-R5B-EOP	6/3/2018 12:30	TO4798	0.081	<0.0002	0.115	31.0	0.0115	<0.000002	0.0035	0.0106	-	4.09	0.00205	3.24	<0.00002	128	0.289	55.8	0.000016	<0.005	<0.005	0.00241
RSEM-R5B-EOP	6/4/2018 16:15	TO7166	0.175	<0.0002	0.119	28.5	0.0209	<0.000002	0.0035	0.0105	-	3.93	0.00168	3.06	<0.00002	114	0.326	61.6	0.00002	<0.005	<0.005	0.00256
RSEM-R5B-EOP	6/5/2018 18:50	TP0510	0.099	<0.0002	0.114	28.1	0.0997	<0.000002	0.0036	0.0291	-	3.67	0.00207	2.82	<0.00002	103	0.359	80.5	0.000018	<0.005	<0.005	0.00304
RSEM-R5B-EOP	6/6/2018 11:40	TP0516	0.069	<0.0002	0.117	28.1	0.0569	<0.000002	0.0037	0.0235	-	3.93	0.00219	3.56	<0.00002	105	0.37	82.0	0.000019	<0.005	<0.005	0.00309
RSEM-R5B-EOP	6/7/2018 15:00	TP6775	0.064	<0.0002	0.12	29.7	0.0399	<0.000002	0.0037	0.0253	-	4.37	0.00227	3.31	0.00014	121	0.362	85.9	0.000022	<0.005	<0.005	0.00333
RSEM-R5B-EOP	6/8/2018 20:10	TP8930	0.086	<0.0002	0.125	30.2	0.0257	<0.000002	0.0037	0.0219	-	3.81	0.00233	3.12	0.000146	122	0.333	75.8	0.000014	<0.005	<0.005	0.00309
RSEM-R5B-EOP	6/9/2018 19:30	TP8998	0.089	<0.0002	0.129	29.4	0.0203	<0.000002	0.0036	0.0199	-	3.71	0.00234	3.05	0.000093	115	0.327	73.5	0.000018	<0.005	<0.005	0.00289
RSEM-R5B-EOP	6/10/2018 12:00	TP9977	0.111	<0.0002	0.126	28.5	0.0224	<0.000002	0.004	0.0174	-	4.11	0.00207	3.05	<0.00002	125	0.33	82.9	0.000022	<0.005	<0.005	0.00284
RSEM-R5B-EOP	6/11/2018 16:20	TQ0648	0.081	<0.0002	0.111	28.7	0.0145	<0.000002	0.0042	0.0153	-	3.97	0.00197	2.52	0.000082	125	0.309	72.1	0.000017	<0.005	<0.005	0.00268
RSEM-R5B-EOP	6/12/2018 14:45	TQ4137	0.127	<0.0002	0.119	29.8	0.0135	<0.000002	0.004	0.0143	-	4.02	0.00204	2.54	<0.00002	133	0.305	69.6	0.000021	<0.005	<0.005	0.00258
RSEM-R5B-EOP	6/13/2018 16:30	TQ8815	0.069	<0.0002	0.121	29.1	0.0085	<0.000002	0.004	0.012	-	3.71	0.0019	2.14	<0.00002	123	0.308	59.2	0.000017	<0.005	<0.005	0.00234
RSEM-R5B-EOP	6/14/2018 18:30	TQ8829	0.146	<0.0002	0.117	28.2	0.0126	<0.000002	0.0038	0.0108	-	3.72	0.00173	2.18	<0.00002	118	0.317	58.1	0.000018	<0.005	<0.005	0.00232
RSEM-R5B-EOP	6/15/2018 18:20	TR1408	0.148	<0.0002	0.105	27.9	0.0197	<0.000002	0.0038	0.0113	-	3.74	0.00182	2.13	<0.00002	115	0.327	61.9	0.000017	<0.005	<0.005	0.00238
RSEM-R5B-EOP	6/16/2018 16:25	TR1379	0.069	<0.0002	0.109	27.6	0.0178	<0.000002	0.0037	0.0127	-	3.75	0.0018	2.06	<0.00002	115	0.352	63.8	0.000014	<0.005	<0.005	0.00247
RSEM-R5B-EOP	6/17/2018 14:55	TR2098	0.063	<0.0002	0.114	29.0	0.0132	<0.000002	0.0038	0.0113	-	3.80	0.00188	2.02	<0.00002	120	0.341	65.6	0.000017	<0.005	<0.005	0.00258
RSEM-R5B-EOP	6/18/2018 10:00	TR2127	0.049	<0.0002	0.121	29.2	0.0121	<0.000002	0.0038	0.0109	-	3.90	0.00182	1.96	<0.00002	123	0.332	65.6	0.000017	<0.005	<0.005	0.00256
RSEM-R5B-EOP	6/19/2018 12:50	TR6049	0.049	<0.0002	0.12	29.5	0.0133	<0.000002	0.0038	0.01	-	4.32	0.00176	1.76	<0.00002	125	0.31	71.0	0.00002	<0.005	<0.005	0.00252
RSEM-R5B-EOP	6/20/2018 13:05	TR8731	0.059	<0.0002	0.119	26.7	0.0125	<0.000002	0.0038	0.009	-	3.90	0.00162	1.66	<0.00002	118	0.288	62.0	0.000018	<0.005	<0.005	0.00239
RSEM-R5B-EOP	6/20/2018 13:05	TR8730	0.06	<0.0002	0.122	27.5	0.0131	<0.000002	0.0039	0.0093	-	4.04	0.00172	1.71	<0.00002	124	0.313	63.4	0.000022	<0.005	<0.005	0.00249
RSEM-R5B-EOP	6/21/2018	TS1918	0.058	<0.0002	0.129	28.6	0.0155	<0.000002	0.0041	0.0081	-	4.26	0.00172	1.66	<0.00002	129	0.316	62.5	0.000021	<0.005	<0.005	0.00241
RSEM-R5B-EOP	6/22/2018	TS2368	0.073	<0.0002	0.133	26.9	0.0237	<0.000002	0.004	0.0087	-	4.03	0.00161	1.94	<0.00002	134	0.285	63.3	0.000024	<0.005	<0.005	0.00231
RSEM-R5B-EOP	6/22/2018	TS2367	0.069	<0.0002	0.122	25.8	0.0233	<0.000002	0.0041	0.0085	-	3.82	0.00157	1.97	<0.00002	129	0.288	62.3	0.000024	<0.005	<0.005	0.00238
RSEM-R5B-EOP	6/23/2018	TS5386	0.063	<0.0002	0.105	23.5	0.0361	<0.000002	0.0035	0.0085	-	3.08	0.00131	1.91	<0.00002	108	0.293	51.5	0.000019	<0.005	<0.005	0.00189
RSEM-R5B-EOP	6/24/2018	TS5390	0.043	<0.0002	0.0913	20.4	0.0288	<0.000002	0.0033	0.0079	-	2.55	0.00123	1.93	<0.00002	85.0	0.268	43.3	0.000016	<0.005	<0.005	0.00162

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	5/1/2018 13:30	TJ1444	<0.005	0.189	<0.0001	0.0675	<0.0005	0.00015	0.0841	<0.0001	<0.001	0.174	0.00123	112	<0.001	0.0517	0.00122	<0.01	<0.0002	0.19	48.8	0.616
RSEM-R5B-EOP	5/2/2018 9:53	TJ1503	<0.005	0.168	0.00015	0.0865	<0.0005	0.00016	0.0836	<0.0001	<0.001	0.207	0.0012	115	<0.001	0.0534	0.00133	<0.01	<0.0002	0.21	50.5	0.621
RSEM-R5B-EOP	5/3/2018 14:25	TJ4284	<0.005	0.0935	<0.0001	0.0884	<0.0005	0.00017	0.0782	<0.0001	<0.001	0.165	0.000016	95.2	<0.001	0.0271	0.00074	<0.01	<0.0002	0.172	47.2	0.207
RSEM-R5B-EOP	5/4/2018 15:50	TJ5493	<0.005	0.0623	<0.0001	0.103	<0.0005	0.00022	0.0832	<0.0001	<0.001	0.145	0.000011	94.0	<0.001	0.0201	0.00092	<0.01	<0.0002	0.148	39.6	0.158
RSEM-R5B-EOP	5/5/2018 13:46	TJ6370	<0.005	0.0165	<0.0001	0.0904	<0.0005	0.00018	0.0831	<0.0001	<0.001	0.146	<0.00001	83.1	<0.001	0.0131	0.00071	<0.01	<0.0002	0.146	35.4	0.0722
RSEM-R5B-EOP	5/6/2018 9:35	TJ7043	<0.005	0.012	<0.0001	0.0598	<0.0005	0.0002	0.0802	<0.0001	<0.001	0.146	<0.00001	83.0	<0.001	0.0152	0.00098	<0.01	<0.0002	0.145	36.8	0.0905
RSEM-R5B-EOP	5/7/2018 6:55	TJ8506	<0.005	0.0085	<0.0001	0.0565	<0.0005	0.00018	0.0816	<0.0001	<0.001	0.135	<0.00001	83.6	<0.001	0.013	0.00082	<0.01	<0.0002	0.139	36.4	0.0787
RSEM-R5B-EOP	5/8/2018 13:30	TK0810	<0.005	0.006	<0.0001	0.0488	<0.0005	0.0002	0.0845	<0.0001	<0.001	0.12	<0.00001	76.9	<0.001	0.0056	0.00061	<0.01	<0.0002	0.12	35.9	0.0216
RSEM-R5B-EOP	5/8/2018 13:30	TK0808	<0.005	0.0057	<0.0001	0.0493	<0.0005	0.0002	0.083	<0.0001	<0.001	0.128	<0.00001	77.2	<0.001	0.00613	0.00057	<0.01	<0.0002	0.115	35.7	0.0261
RSEM-R5B-EOP	5/9/2018 14:45	TK3818	<0.005	0.0062	<0.0001	0.0607	<0.0005	0.00017	0.083	<0.0001	<0.001	0.13	<0.00001	75.1	<0.001	0.00398	0.0006	<0.01	<0.0002	0.127	33.2	0.0157
RSEM-R5B-EOP	5/10/2018 14:30	TK5558	<0.005	<0.005	<0.0001	0.0417	<0.0005	0.00024	0.0794	<0.0001	<0.001	0.122	<0.00001	80.8	<0.001	0.00276	0.00067	<0.01	<0.0002	0.115	36.0	0.0087
RSEM-R5B-EOP	5/11/2018 7:05	TK5495	<0.005	<0.005	<0.0001	0.0442	<0.0005	0.0002	0.078	<0.0001	<0.001	0.122	<0.00001	83.0	<0.001	0.00265	0.00066	<0.01	<0.0002	0.114	37.7	0.0089
RSEM-R5B-EOP	5/11/2018 7:05	TK5492	<0.005	<0.005	<0.0001	0.0417	<0.0005	0.00022	0.0766	<0.0001	<0.001	0.121	<0.00001	79.7	<0.001	0.00247	0.00071	<0.01	<0.0002	0.11	36.8	0.0074
RSEM-R5B-EOP	5/12/2018 13:45	TK7566	<0.005	0.0061	<0.0001	0.0466	<0.0005	0.00021	0.0766	<0.0001	<0.001	0.165	<0.00001	82.3	<0.001	0.00317	0.00071	<0.01	<0.0002	0.14	35.7	0.0143
RSEM-R5B-EOP	5/13/2018 8:10	TK7583	<0.005	0.0133	<0.0001	0.0468	<0.0005	0.00024	0.0769	<0.0001	<0.001	0.184	<0.00001	94.5	<0.001	0.00615	0.00111	0.014	<0.0002	0.154	37.5	0.0412
RSEM-R5B-EOP	5/13/2018 8:10	TK7582	<0.005	0.0129	0.00016	0.0463	<0.0005	0.00023	0.0767	<0.0001	<0.001	0.187	<0.00001	92.8	<0.001	0.00614	0.00069	<0.01	<0.0002	0.161	37.1	0.0413
RSEM-R5B-EOP	5/14/2018 12:30	TK8138	<0.005	0.0329	<0.0001	0.0419	<0.0005	0.00022	0.0752	<0.0001	<0.001	0.203	0.000011	102	<0.001	0.0125	0.00067	<0.01	<0.0002	0.164	41.9	0.112
RSEM-R5B-EOP	5/15/2018 14:15	TL0257	<0.005	0.0146	<0.0001	0.0399	<0.0005	0.00026	0.0759	<0.0001	<0.001	0.22	<0.00001	99.3	<0.001	0.0106	0.00073	<0.01	<0.0002	0.163	44.8	0.0753
RSEM-R5B-EOP	5/16/2018 12:00	TL2461	<0.005	0.0178	<0.0001	0.0383	<0.0005	0.00023	0.0776	<0.0001	<0.001	0.206	<0.00001	91.3	<0.001	0.0102	0.00073	<0.01	<0.0002	0.167	42.1	0.074
RSEM-R5B-EOP	5/17/2018 12:40	TL6386	<0.005	0.0177	<0.0001	0.0361	<0.0005	0.00022	0.072	<0.0001	<0.001	0.183	<0.00001	82.7	<0.001	0.00577	0.00069	<0.01	<0.0002	0.149	42.9	0.0162
RSEM-R5B-EOP	5/18/2018 5:55	TL6449	<0.005	0.0106	<0.0001	0.0338	<0.0005	0.00021	0.0781	<0.0001	<0.001	0.151	<0.00001	87.3	<0.001	0.00489	0.00092	0.01	<0.0002	0.15	38.5	0.0137
RSEM-R5B-EOP	5/19/2018 18:50	TM0521	<0.005	0.0087	<0.0001	0.0315	<0.0005	0.00019	0.0748	<0.0001	<0.001	0.171	<0.00001	82.5	<0.001	0.00462	0.0008	<0.01	<0.0002	0.141	38.4	0.021
RSEM-R5B-EOP	5/20/2018 15:00	TM2848	<0.005	0.0093	<0.0001	0.0757	<0.0005	0.00021	0.0733	<0.0001	<0.001	0.145	<0.00001	75.4	<0.001	0.00279	0.00125	<0.01	<0.0002	0.12	34.7	0.007
RSEM-R5B-EOP	5/21/2018 17:00	TM2897	<0.005	<0.005	<0.0001	0.0311	<0.0005	0.00023	0.0734	<0.0001	<0.001	0.142	<0.00001	71.6	<0.001	0.00242	0.00075	<0.01	<0.0002	0.119	34.7	0.0064
RSEM-R5B-EOP	5/22/2018 12:20	TM6368	<0.005	<0.005	<0.0001	0.0311	<0.0005	0.00022	0.0777	<0.0001	<0.001	0.157	<0.00001	68.1	<0.001	0.00098	0.001	<0.01	<0.0002	0.126	34.7	<0.001
RSEM-R5B-EOP	5/23/2018 13:10	TM6371	<0.005	<0.005	<0.0001	0.0371	<0.0005	0.00023	0.0754	<0.0001	<0.001	0.149	<0.00001	63.2	<0.001	0.00053	0.00084	<0.01	<0.0002	0.122	32.2	<0.001
RSEM-R5B-EOP	5/24/2018 16:30	TM7243	<0.005	<0.005	<0.0001	0.0259	<0.0005	0.00024	0.0725	<0.0001	<0.001	0.128	<0.00001	58.6	<0.001	0.00044	0.00099	<0.01	<0.0002	0.124	31.4	<0.001
RSEM-R5B-EOP	5/24/2018 16:30	TM7242	<0.005	<0.005	<0.0001	0.0259	<0.0005	0.00023	0.0745	<0.0001	<0.001	0.129	<0.00001	60.0	<0.001	0.00045	0.00102	<0.01	<0.0002	0.127	31.5	<0.001
RSEM-R5B-EOP	5/25/2018 6:40	TM7248	<0.005	<0.005	<0.0001	0.0264	<0.0005	0.00024	0.0777	<0.0001	<0.001	0.132	<0.00001	60.0	<0.001	0.00038	0.00147	<0.01	<0.0002	0.126	30.6	<0.001
RSEM-R5B-EOP	5/26/2018 9:40	TM9441	<0.005	<0.005	0.00019	0.0252	<0.0005	0.00026	0.0799	<0.0001	<0.001	0.133	<0.00001	61.9	<0.001	0.00037	0.00115	<0.01	<0.0002	0.117	32.0	<0.001
RSEM-R5B-EOP	5/27/2018 17:30	TN1164	<0.005	<0.005	<0.0001	0.0231	<0.0005	0.00026	0.079	<0.0001	<0.001	0.133	<0.00001	59.5	<0.001	0.00046	0.00189	<0.01	<0.0002	0.114	32.1	<0.001
RSEM-R5B-EOP	5/28/2018 13:00	TN1169	<0.005	<0.005	<0.0001	0.0229	<0.0005	0.00027	0.0804	<0.0001	<0.001	0.129	<0.00001	60.6	<0.001	0.00052	0.00181	<0.01	<0.0002	0.115	31.0	0.0024
RSEM-R5B-EOP	5/29/2018	TN5956	<0.005	<0.005	<0.0001	0.0248	<0.0005	0.0003	0.0795	<0.0001	<0.001	0.126	<0.00001	57.8	<0.001	0.00043	0.00168	0.015	<0.0002	0.114	31.1	<0.001
RSEM-R5B-EOP	5/30/2018 13:15	TN9749	<0.005	<0.005	<0.0001	0.0249	<0.0005	0.00027	0.0804	<0.0001	<0.001	0.143	<0.00001	54.3	<0.001	0.00021	0.00157	<0.01	<0.0002	0.116	33.3	<0.001
RSEM-R5B-EOP	5/30/2018 13:15	TN9745	<0.005	<0.005	<0.0001	0.0502	<0.0005	0.00031	0.082	<0.0001	<0.001	0.151	<0.00001	56.2	<0.001	<0.0002	0.00136	<0.01	<0.0002	0.122	30.3	<0.001
RSEM-R5B-EOP	5/31/2018	TN9636	<0.005	<0.005	<0.0001	0.0307	<0.0005	0.00032	0.0878	<0.0001	<0.001	0.148	<0.00001	50.3	<0.001	0.00026	0.00132	<0.01	<0.0002	0.119	29.8	<0.001
RSEM-R5B-EOP	6/1/2018	TO1001	<0.005	<0.005	<0.0001	0.052	<0.0005	0.00031	0.0894	<0.0001	<0.001	0.141	<0.00001	59.0	<0.001	0.00028	0.00171	<0.01	<0.0002	0.108	29.1	<0.001
RSEM-R5B-EOP	6/2/2018 11:00	TO4781	<0.005	<0.005	<0.0001	0.0298	<0.0005	0.00031	0.0968	<0.0001	<0.001	0.12	<0.00001	71.4	<0.001	0.00046	0.00111	<0.01	<0.0002	0.122	30.6	0.0015
RSEM-R5B-EOP	6/2/2018 11:00	TO4780	<0.005	<0.005	<0.0001	0.0258	<0.0005	0.00032	0.0917	<0.0001	<0.001	0.121	<0.00001	70.4	<0.001	0.00044	0.00118	<0.01	<0.0002	0.123	29.1	0.001
RSEM-R5B-EOP	6/3/2018 12:30	TO4799	<0.005	<0.005	<0.0001	0.0234	<0.0005	0.00036	0.0939	<0.0001	<0.001	0.114	<0.00001	68.2	<0.001	0.00046	0.00119	<0.01	<0.0002	0.119	28.1	0.002
RSEM-R5B-EOP	6/3/2018 12:30	TO4798	<0.005	<0.005	<0.0001	0.0244	<0.0005	0.00036	0.0954	<0.0001	<0.001	0.117	<0.00001	66.5	<0.001	0.00044	0.00129	<0.01	<0.0002	0.119	29.3	0.0021
RSEM-R5B-EOP	6/4/2018 16:15	TO7166	<0.005	<0.005	<0.0001	0.027	<0.0005	0.00038	0.0884	<0.0001	<0.001	0.109	<0.00001	70.7	<0.001	0.0007	0.0018	<0.01	<0.0002	0.11	28.0	0.0067
RSEM-R5B-EOP	6/5/2018 18:50	TP0510	<0.005	0.0123	<0.0001	0.0561	<0.0005	0.00029	0.0902	<0.0001	<0.001	0.116	<0.00001	81.6	<0.001	0.00509	0.00146	<0.01	<0.0002	0.114	29.8	0.0496
RSEM-R5B-EOP	6/6/2018 11:40	TP0516	<0.005	<0.005	<0.0001	0.0505	<0.0005	0.00033	0.0895	<0.0001	<0.001	0.12	<0.00001	75.9	<0.001	0.00314	0.00129	<0.01	<0.0002	0.116	31.7	0.0229
RSEM-R5B-EOP	6/7/2018 15:00	TP6775	<0.005	<0.005	<0.0001	0.0634	<0.0005	0.0003	0.0916	<0.0001	<0.001	0.144	<0.00001	82.1	<0.001	0.0028	0.00135	0.01	<0.0002	0.134	31.1	0.0135
RSEM-R5B-EOP	6/8/2018 20:10	TP8930	<0.005	<0.005	<0.0001	0.0602	<0.0005	0.00027	0.0885	<0.0001	<0.001	0.129	<0.00001	71.3	<0.001	0.00168	0.00145	0.013	<0.0002	0.117	31.7	0.0056
RSEM-R5B-EOP	6/9/2018 19:30	TP8998	<0.005	<0.005	<0.0001	0.0495	<0.0005	0.00029	0.0904	<0.0001	<0.001	0.133	<0.00001	67.5	<0.001	0.00111	0.00133	0.014	0.00042	0.12	31.9	0.0023
RSEM-R5B-EOP	6/10/2018 12:00	TP9977	<0.005	<0.005	<0.0001	0.0442	<0.0005	0.00031	0.0898	<0.0001	<0.001	0.131	<0.00001	64.6	<0.001	0.00094	0.00114	0.011	<0.0002	0.121	29.6	0.0022
RSEM-R5B-EOP	6/11/2018 16:20	TQ0648	<0.005	<0.005	<0.0001	0.0439	<0.0005	0.00027	0.0888	<0.0001	<0.001	0.139	<0.00001	64.1	<0.001	0.00059	0.00128	0.012	<0.0002	0.122	27.5	0.0013
RSEM-R5B-EOP	6/12/2018 14:45	TQ4137	<0.005	<0.005	<0.0001	0.0419	<0.0005	0.00035	0.0867	<0.0001	<0.001	0.128	<0.00001	72.8	<0.001	0.00059	0.00107	0.013	<0.0002	0.112	28.4	0.0018
RSEM-R5B-EOP	6/13/2018 16:30	TQ8815	<0.005	<0.005	0.00023	0.0362	<0.0005	0.0003	0.0857	<0.0001	<0.001	0.129	<0.00001	54.4	<0.001	0.00028	0.00141	0.012	<0.0002	0.112	26.9	<0.001
RSEM-R5B-EOP	6/14/2018 18:30	TQ8829	<0.005	<0.005	<0.0001	0.032	<0.0005	0.00036	0.0821	<0.0001	<0.001	0.126	<0.00001	52.2	<0.001	<0.0002	0.00173	0.01	<0.0002	0.107	25.7	<0.001
RSEM-R5B-EOP	6/15/2018 18:20	TR1408	<0.005	<0.005	<0.0001	0.0308	<0.0005	0.00036	0.0833	<0.0001	<0.001	0.124	<0.00001	63.3	<0.001	<0.0002	0.00144	<0.01	<0.0002	0.125	26.9	0.0013
RSEM-R5B-EOP	6/16/2018 16:25	TR1379	<0.005	<0.005	<0.0001	0.0346	<0.0005	0.00035	0.0902	<0.0001	<0.001	0.132	<0.00001	66.2	<0.001	0.00039	0.00139	0.013	<0.0002	0.13	27.1	0.0018
RSEM-R5B-EOP	6/17/2018 14:55	TR2098	<0.005	<0.005	<0.0001	0.0343	<0.0005	0.00035	0.0875	<0.0001	<0.001	0.127	<0.00001	63.1	<0.001	0.00045	0.00134	0.016	<0.0002	0.121	29.8	0.0023
RSEM-R5B-EOP	6/18/2018 10:00	TR2127	<0.005	<0.005	<0.0001	0.0445	<0.0005	0.00035	0.0862	<0.0001	<0.001	0.126	<0.00001	62.0	<0.001	0.00033	0.00129	0.011	<0.0002	0.119	30.1	0.0022
RSEM-R5B-EOP	6/19/2018 12:50	TR6049	<0.005	<0.005	0.00075	0.0336	<0.0005	0.00043	0.0875	<0.0001	<0.001	0.135	<0.00001	59.3	<0.001	0.00027	0.00132	0.012	<0.0002	0.13	32.3	0.003
RSEM-R5B-EOP	6/20/2018 13:05	TR8731	<0.005	<0.005	<0.0001	0.029	<0.0005	0.00046	0.0802	<0.0001	<0.001	0.137	<0.00001	59.0	<0.001	0.00025	0.00119	0.012	<0.0002	0.119	31.5	0.0037
RSEM-R5B-EOP	6/20/2018 13:05	TR8730	<0.005	<0.005	<0.0001	0.0292	<0.0005	0.00043	0.0831	<0.0001	<0.001	0.128	<0.00001	59.7	<0.001	0.00024	0.00132	0.012	<0.0002	0.122	31.4	0.003
RSEM-R5B-EOP	6/21/2018	TS1918	<0.005	<0.005	<0.0001	0.0266	<0.0005	0.00046	0.0866	<0.0001	<0.001	0.151	<0.00001	53.1	<0.001	<0.0002	0.00121	0.013	<0.0002	0.134	31.2	0.0024
RSEM-R5B-EOP	6/22/2018	TS2368	<0.005	<0.005	<0.0001	0.0376	<0.0005	0.00048	0.0846	<0.0001	<0.001	0.146	<0.00001	51.1	<0.001	<0.0002	0.00132	0.011	<0.0002	0.134	27.6	0.0019
RSEM-R5B-EOP	6/22/2018	TS2367	<0.005	<0.005	<0.0001	0.0379	<0.0005	0.00049	0.0843	<0.0001	<0.001	0.146	<0.00001	51.4	<0.001	<0.0002	0.00128	0.012	<0.0002	0.135	28.3	0.0021
RSEM-R5B-EOP	6/23/2018	TS5386	<0.005	<0.005	<0.0001	0.042	<0.0005	0.00046	0.0845	<0.0001	<0.001	0.124	<0.00001	53.7	<0.001	0.00051	0.00132	0.01	<0.0002	0.119	24.5	0.0091
RSEM-R5B-EOP	6/24/2018	TS5390	<0.005	<0.005	0.00015	0.0424	<0.0005	0.00041	0.0857	<0.0001	<0.001	0.101	0.000014	53.2	<0.001	0.00066	0.00124	<0.01	<0.0002	0.0933	21.2	0.0167

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	5/1/2018 13:30	TJ1444	<0.000002	0.0032	0.161	-	4.21	0.00608	3.95	<0.00002	284	0.623	258	0.000046	<0.005	<0.005	0.00403	<0.005	0.133	<0.0001
RSEM-R5B-EOP	5/2/2018 9:53	TJ1503	<0.000002	0.0032	0.169	-	4.30	0.00585	4.08	<0.00002	289	0.565	264	0.000048	<0.005	<0.005	0.00422	<0.005	0.122	<0.0001
RSEM-R5B-EOP	5/3/2018 14:25	TJ4284	<0.000002	0.0032	0.11	-	3.97	0.00495	3.52	<0.00002	263	0.621	213	0.000043	<0.005	<0.005	0.00412	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/4/2018 15:50	TJ5493	<0.000002	0.0031	0.0828	-	3.89	0.00385	3.79	<0.00002	208	0.44	170	0.000039	<0.005	<0.005	0.00369	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/5/2018 13:46	TJ6370	<0.000002	0.0031	0.0661	-	3.74	0.00351	3.48	<0.00002	182	0.417	146	0.000036	<0.005	<0.005	0.0037	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/6/2018 9:35	TJ7043	<0.000002	0.003	0.072	-	3.90	0.00355	3.38	<0.00002	194	0.409	155	0.000036	<0.005	<0.005	0.00363	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/7/2018 6:55	TJ8506	<0.000002	0.003	0.0644	-	3.88	0.00339	3.63	<0.00002	182	0.404	140	0.000032	<0.005	<0.005	0.00352	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/8/2018 13:30	TK0810	0.0000027	0.0035	0.0387	-	4.03	0.00285	3.54	<0.00002	162	0.388	124	0.000027	<0.005	<0.005	0.00312	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/8/2018 13:30	TK0808	<0.000002	0.0034	0.0397	-	3.94	0.00307	3.45	<0.00002	162	0.402	116	0.000028	<0.005	<0.005	0.0031	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/9/2018 14:45	TK3818	<0.000002	0.0035	0.0311	-	3.67	0.00296	3.35	<0.00002	154	0.352	111	0.000025	<0.005	<0.005	0.00313	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/10/2018 14:30	TK5558	<0.000002	0.0031	0.0254	-	4.25	0.00273	3.78	<0.00002	155	0.322	109	0.000023	<0.005	<0.005	0.0029	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/11/2018 7:05	TK5495	<0.000002	0.0032	0.0239	-	4.26	0.00267	3.7	<0.00002	159	0.332	114	0.000021	<0.005	<0.005	0.00282	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/11/2018 7:05	TK5492	<0.000002	0.0032	0.0241	-	4.21	0.00262	3.68	<0.00002	153	0.336	111	0.000022	<0.005	<0.005	0.00285	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/12/2018 13:45	TK7566	<0.000002	0.0033	0.0255	-	4.04	0.00371	3.24	<0.00002	185	0.403	152	0.00003	<0.005	<0.005	0.00309	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/13/2018 8:10	TK7583	<0.000002	0.0034	0.036	-	4.54	0.00434	3.5	<0.00002	216	0.463	192	0.000037	<0.005	<0.005	0.00328	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/13/2018 8:10	TK7582	<0.000002	0.0034	0.0364	-	4.20	0.00441	3.37	<0.00002	216	0.458	182	0.000038	<0.005	<0.005	0.00326	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/14/2018 12:30	TK8138	<0.000002	0.0034	0.0542	-	4.61	0.00443	3.67	<0.00002	246	0.52	227	0.000042	<0.005	<0.005	0.00343	<0.005	0.0054	<0.0001
RSEM-R5B-EOP	5/15/2018 14:15	TL0257	<0.000002	0.0037	0.0531	-	4.88	0.00472	3.42	<0.00002	253	0.538	243	0.000042	<0.005	<0.005	0.00349	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/16/2018 12:00	TL2461	<0.000002	0.0038	0.0502	-	4.64	0.00404	3.28	<0.00002	235	0.558	203	0.000038	<0.005	<0.005	0.00331	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/17/2018 12:40	TL6386	<0.000002	0.0037	0.0435	-	4.52	0.00362	3.18	<0.00002	231	0.494	182	0.000033	<0.005	<0.005	0.00343	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/18/2018 5:55	TL6449	<0.000002	0.0037	0.0379	-	4.79	0.00329	4.11	<0.00002	200	0.417	200	0.000033	<0.005	<0.005	0.00304	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/19/2018 18:50	TM0521	<0.000002	0.0036	0.0335	-	4.69	0.00288	3.72	<0.00002	187	0.368	162	0.000035	<0.005	<0.005	0.00285	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/20/2018 15:00	TM2848	<0.000002	0.0033	0.0264	-	4.01	0.00272	2.83	<0.00002	166	0.374	119	0.000027	<0.005	<0.005	0.00284	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/21/2018 17:00	TM2897	<0.000002	0.0033	0.024	-	4.06	0.00259	2.73	<0.00002	160	0.366	110	0.000023	<0.005	<0.005	0.00261	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/22/2018 12:20	TM6368	<0.000002	0.0035	0.0181	-	4.13	0.00243	3.24	<0.00002	150	0.373	103	0.000023	<0.005	<0.005	0.00266	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/23/2018 13:10	TM6371	<0.000002	0.0035	0.0146	-	3.98	0.0024	3.18	<0.00002	136	0.339	90.8	0.000022	<0.005	<0.005	0.00258	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/24/2018 16:30	TM7243	<0.000002	0.0032	0.0136	-	3.98	0.00215	2.56	<0.00002	131	0.309	78.2	0.000021	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/24/2018 16:30	TM7242	<0.000002	0.0033	0.0139	-	3.97	0.00218	2.52	<0.00002	132	0.303	77.8	0.000021	<0.005	<0.005	0.00245	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/25/2018 6:40	TM7248	<0.000002	0.0033	0.0132	-	3.93	0.00203	2.57	<0.00002	127	0.306	72.0	0.00002	<0.005	<0.005	0.00237	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/26/2018 9:40	TM9441	<0.000002	0.0035	0.0118	-	4.11	0.00218	2.82	<0.00002	132	0.318	74.9	0.00002	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/27/2018 17:30	TN1164	<0.000002	0.0036	0.0108	-	4.14	0.00204	2.73	<0.00002	133	0.302	69.9	0.000018	<0.005	<0.005	0.00248	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/28/2018 13:00	TN1169	<0.000002	0.0035	0.0101	-	3.98	0.00195	2.78	<0.00002	126	0.303	65.9	0.000016	<0.005	<0.005	0.00243	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/29/2018	TN5956	<0.000002	0.0035	0.0103	-	4.04	0.00197	2.67	<0.00002	128	0.307	65.6	0.000017	<0.005	<0.005	0.00242	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/30/2018 13:15	TN9749	<0.000002	0.0034	0.0098	-	4.20	0.00201	2.89	<0.00002	136	0.273	70.6	0.000019	<0.005	<0.005	0.00239	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/30/2018 13:15	TN9745	<0.000002	0.0037	0.0089	-	4.11	0.00188	3.14	<0.00002	122	0.283	70.1	0.000022	<0.005	<0.005	0.00257	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	5/31/2018	TN9636	<0.000002	0.0035	0.0095	-	4.02	0.00163	2.7	<0.00002	122	0.298	61.7	0.00002	<0.005	<0.005	0.0025	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/1/2018	TO1001	<0.000002	0.0035	0.0097	-	4.01	0.00181	3.19	<0.00002	121	0.288	63.0	0.000018	<0.005	<0.005	0.00249	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/2/2018 11:00	TO4781	<0.000002	0.0037	0.0096	-	4.17	0.00188	3.54	<0.00002	117	0.313	67.6	0.000016	<0.005	<0.005	0.00261	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/2/2018 11:00	TO4780	<0.000002	0.0035	0.0094	-	4.04	0.00182	3.45	<0.00002	117	0.3	63.1	0.000014	<0.005	<0.005	0.00252	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/3/2018 12:30	TO4799	<0.000002	0.0034	0.0086	-	4.13	0.00172	3.51	<0.00002	111	0.303	64.4	0.000018	<0.005	<0.005	0.00248	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/3/2018 12:30	TO4798	<0.000002	0.0036	0.009	-	4.17	0.00156	3.36	<0.00002	113	0.309	67.1	0.000016	<0.005	<0.005	0.00252	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/4/2018 16:15	TO7166	<0.000002	0.0034	0.0096	-	3.79	0.002	2.89	<0.00002	118	0.303	58.1	0.000015	<0.005	<0.005	0.00251	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/5/2018 18:50	TP0510	<0.000002	0.0035	0.0264	-	3.94	0.0024	2.84	<0.00002	116	0.369	88.0	0.000018	<0.005	<0.005	0.00315	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/6/2018 11:40	TP0516	<0.000002	0.0036	0.022	-	4.24	0.00251	2.75	<0.00002	125	0.353	85.5	0.000017	<0.005	<0.005	0.00299	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/7/2018 15:00	TP6775	<0.000002	0.0036	0.0242	-	3.91	0.00239	3.37	0.000099	117	0.354	85.7	0.00002	<0.005	<0.005	0.00338	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/8/2018 20:10	TP8930	<0.000002	0.0035	0.0197	-	3.98	0.00224	2.63	<0.00002	130	0.359	74.8	0.000014	<0.005	<0.005	0.00287	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/9/2018 19:30	TP8998	<0.000002	0.0038	0.017	-	4.02	0.00228	2.63	<0.00002	137	0.359	76.7	0.000016	<0.005	<0.005	0.00285	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/10/2018 12:00	TP9977	<0.000002	0.004	0.0157	-	3.90	0.00212	2.5	<0.00002	138	0.334	72.5	0.000015	<0.005	<0.005	0.00266	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/11/2018 16:20	TQ0648	<0.000002	0.0042	0.0128	-	4.02	0.00195	2.73	<0.00002	115	0.318	74.7	0.000022	<0.005	<0.005	0.00278	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/12/2018 14:45	TQ4137	<0.000002	0.004	0.0121	-	4.15	0.00198	2.95	<0.00002	118	0.314	75.9	0.000018	<0.005	<0.005	0.0026	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/13/2018 16:30	TQ8815	<0.000002	0.0038	0.0107	-	3.75	0.00187	2.28	<0.00002	119	0.282	61.0	0.000017	<0.005	<0.005	0.00238	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/14/2018 18:30	TQ8829	<0.000002	0.0038	0.0093	-	3.73	0.00168	2.15	<0.00002	117	0.295	60.5	0.000018	<0.005	<0.005	0.00222	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/15/2018 18:20	TR1408	<0.000002	0.0039	0.0099	-	3.91	0.00186	2.28	<0.00002	110	0.32	63.9	0.000016	<0.005	<0.005	0.00248	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/16/2018 16:25	TR1379	<0.000002	0.004	0.0106	-	3.80	0.00189	2.29	<0.00002	101	0.334	63.2	0.000017	<0.005	<0.005	0.00258	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/17/2018 14:55	TR2098	<0.000002	0.004	0.0109	-	3.94	0.00186	1.96	<0.00002	127	0.354	67.0	0.000011	<0.005	<0.005	0.0026	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/18/2018 10:00	TR2127	<0.000002	0.004	0.0106	-	3.96	0.00185	1.93	<0.00002	127	0.365	67.6	0.000014	<0.005	<0.005	0.00255	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/19/2018 12:50	TR6049	<0.000002	0.0043	0.0098	-	4.07	0.0018	1.7	<0.00002	142	0.349	66.7	0.000017	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/20/2018 13:05	TR8731	<0.000002	0.0039	0.0087	-	4.28	0.00194	1.7	<0.00002	143	0.31	70.3	0.000021	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/20/2018 13:05	TR8730	<0.000002	0.0039	0.0087	-	4.24	0.00172	1.63	<0.00002	143	0.304	69.2	0.000019	<0.005	<0.005	0.00228	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/21/2018	TS1918	<0.000002	0.0042	0.0074	-	4.29	0.00169	1.58	<0.00002	137	0.343	63.6	0.000023	<0.005	<0.005	0.00249	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/22/2018	TS2368	<0.000002	0.0042	0.0072	-	3.99	0.00158	1.89	<0.00002	133	0.331	61.0	0.000021	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/22/2018	TS2367	<0.000002	0.0042	0.0074	-	4.04	0.00162	1.86	<0.00002	137	0.333	61.3	0.00002	<0.005	<0.005	0.00239	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/23/2018	TS5386	<0.000002	0.0038	0.008	-	3.44	0.00141	1.92	<0.00002	115	0.306	53.7	0.000021	<0.005	<0.005	0.00214	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/24/2018	TS5390	<0.000002	0.0037	0.0077	-	2.78	0.0012	1.87	<0.00002	88.7	0.273	44.5	0.000017	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	6/25/2018	TS9112	8.34	762	2.55	438	4.5	209	228	217	2.3	259	2.7	<1.0	35.9	0.230	0.21	136
RSEM-R5B-EOP	6/25/2018	TS9110	8.34	760	2.56	428	<4.0	212	225	217	2.0	260	2.4	<1.0	35.4	0.240	0.21	133
RSEM-R5B-EOP	6/26/2018 16:00	TT0849	7.28	1180	10.3	790	8.0	396	404	52.8	<1.0	64.4	<1.0	<1.0	42.9	0.730	0.46	514
RSEM-R5B-EOP	6/27/2018 12:40	TT1140	4.26	1850	26.1	1520	9.8	701	746	<1.0	<1.0	<1.0	<1.0	<1.0	42.1	1.60	0.53	1040
RSEM-R5B-EOP	6/28/2018 12:50	TT3458	6.19	1810	9.44	1440	8.8	689	709	4.7	<1.0	5.7	<1.0	<1.0	44.8	1.30	0.57	937
RSEM-R5B-EOP	6/29/2018 10:50	TT6312	7.56	1790	4.35	1390	4.5	676	655	42.2	<1.0	51.4	<1.0	<1.0	46.0	1.30	0.62	936
RSEM-R5B-EOP	6/30/2018	TU0475	7.87	1710	1.71	1250	<4.0	615	609	122	<1.0	149	<1.0	<1.0	47.5	1.10	0.52	742
RSEM-R5B-EOP	7/1/2018 0:00	TU0435	8.05	1600	1.63	1120	<4.0	561	552	162	<1.0	197	<1.0	<1.0	48.8	0.960	0.50	634
RSEM-R5B-EOP	7/2/2018 17:15	TU1419	8.22	1330	9.15	924	7.5	442	434	182	<1.0	222	<1.0	<1.0	56.1	0.730	0.48	471
RSEM-R5B-EOP	7/3/2018 15:50	TU4428	8.24	1330	4.56	926	5.8	432	432	192	<1.0	234	<1.0	<1.0	47.1	0.720	0.53	436
RSEM-R5B-EOP	7/4/2018 16:30	TU6246	8.24	1280	6.73	764	11.5	426	398	211	<1.0	257	<1.0	<1.0	50.1	0.630	0.43	298
RSEM-R5B-EOP	7/5/2018 13:45	TU8087	8.15	1230	1.79	758	4.3	393	365	223	<1.0	272	<1.0	<1.0	55.2	0.620	0.44	317
RSEM-R5B-EOP	7/6/2018 10:30	TU8093	8.24	1300	1.47	856	<4.0	393	365	225	<1.0	275	<1.0	<1.0	57.2	0.590	0.50	348
RSEM-R5B-EOP	7/7/2018 7:45	TV0770	8.25	1670	1.24	1150	5.0	450	432	216	<1.0	264	<1.0	<1.0	58.4	0.610	0.58	547
RSEM-R5B-EOP	7/8/2018 10:30	TV1575	8.28	1470	2.40	1030	4.5	396	383	228	<1.0	278	<1.0	<1.0	56.7	0.520	0.54	433
RSEM-R5B-EOP	7/9/2018 17:50	TV3538	8.04	1370	1.56	890	<4.0	344	343	223	<1.0	272	<1.0	<1.0	59.2	0.460	0.52	404
RSEM-R5B-EOP	7/10/2018 14:05	TV5659	8.31	1280	1.67	808	<4.0	312	319	219	2.3	262	2.8	<1.0	63.6	0.410	0.48	312
RSEM-R5B-EOP	7/11/2018 13:15	TV9386	8.38	1190	1.39	828	<4.0	293	283	223	3.9	263	4.6	<1.0	63.4	0.390	0.50	280
RSEM-R5B-EOP	7/12/2018 0:00	TV9381	8.37	1100	1.59	682	4.0	279	259	230	3.8	272	4.6	<1.0	56.7	0.330	0.44	169
RSEM-R5B-EOP	7/13/2018 0:00	TV9675	8.37	1060	2.03	590	<4.0	270	255	238	3.0	283	3.6	<1.0	56.3	0.320	1.2	221
RSEM-R5B-EOP	7/14/2018 14:00	TW3845	8.39	1190	1.90	718	<4.0	292	287	221	3.8	260	4.5	<1.0	58.0	0.340	0.47	274
RSEM-R5B-EOP	7/15/2018 15:15	TW3842	8.29	1720	1.83	1140	<4.0	401	397	195	<1.0	238	<1.0	<1.0	66.9	0.480	0.66	590
RSEM-R5B-EOP	7/16/2018 6:45	TW5085	8.19	2140	1.64	1510	<4.0	529	503	197	<1.0	240	<1.0	<1.0	70.3	0.560	1.5	872
RSEM-R5B-EOP	7/17/2018 9:25	TW5975	8.17	2230	2.32	1590	<4.0	490	520	190	<1.0	232	<1.0	<1.0	73.1	0.590	0.85	1000
RSEM-R5B-EOP	7/18/2018 9:15	TW8366	8.32	1950	1.79	1330	<4.0	450	436	186	2.1	222	2.5	<1.0	69.8	0.520	0.70	751
RSEM-R5B-EOP	7/19/2018 12:00	TX0645	8.36	1700	1.69	1140	4.5	367	381	193	2.9	229	3.4	<1.0	67.3	0.450	0.62	643
RSEM-R5B-EOP	7/20/2018 11:55	TX2836	8.25	1710	11.3	1160	12.5	395	412	184	<1.0	224	<1.0	<1.0	66.6	0.470	0.62	694
RSEM-R5B-EOP	7/21/2018 17:20	TX5553	7.89	1510	3.46	1080	5.5	477	463	76.5	<1.0	93.3	<1.0	<1.0	54.3	0.900	0.56	674
RSEM-R5B-EOP	7/22/2018 12:00	TX5559	7.94	1550	4.70	1090	5.8	498	481	81.8	<1.0	99.8	<1.0	<1.0	48.1	0.900	0.56	682
RSEM-R5B-EOP	7/23/2018 17:00	TY1080	7.93	1730	2.31	1250	<4.0	555	529	80.2	<1.0	97.8	<1.0	<1.0	48.6	1.00	0.59	830
RSEM-R5B-EOP	7/24/2018 17:40	TY1081	8.07	2040	2.16	1510	<4.0	630	621	134	<1.0	164	<1.0	<1.0	67.2	1.10	0.63	963
RSEM-R5B-EOP	7/25/2018 19:30	TY3339	8.24	1740	1.96	1190	4.0	533	541	181	<1.0	220	<1.0	<1.0	50.8	0.840	0.57	683
RSEM-R5B-EOP	7/26/2018 17:15	TY5332	8.23	1640	0.89	1150	<4.0	496	478	191	<1.0	233	<1.0	<1.0	51.4	0.770	0.60	627
RSEM-R5B-EOP	7/27/2018 8:33	TY5340	8.08	1650	0.80	1140	<4.0	482	486	196	<1.0	240	<1.0	<1.0	50.4	0.830	0.61	614
RSEM-R5B-EOP	7/28/2018 15:34	TZ1781	8.36	1400	0.81	924	<4.0	392	391	207	3.4	244	4.1	<1.0	53.5	0.690	0.46	382
RSEM-R5B-EOP	7/29/2018 12:50	TZ1785	8.30	1350	0.95	864	<4.0	362	370	215	<1.0	263	<1.0	<1.0	54.2	0.690	0.45	420
RSEM-R5B-EOP	7/30/2018 12:40	TZ3235	8.08	1200	10.5	788	10.8	386	404	167	<1.0	204	<1.0	<1.0	59.8	0.580	0.65	360
RSEM-R5B-EOP	7/31/2018 17:21	TZ5897	8.14	1330	3.97	908	6.0	408	446	193	<1.0	235	<1.0	<1.0	57.7	0.650	0.56	433
RSEM-R5B-EOP	8/1/2018 16:15	TZ8460	8.19	1380	2.35	938	4.3	447	458	194	<1.0	237	<1.0	<1.0	52.3	0.590	0.67	472
RSEM-R5B-EOP	8/2/2018 16:46	UA0955	8.11	1340	1.38	918	4.0	428	401	209	<1.0	255	<1.0	<1.0	53.1	0.550	0.57	438
RSEM-R5B-EOP	8/3/2018 12:57	UA1047	8.07	1300	1.46	858	<4.0	404	384	205	<1.0	251	<1.0	<1.0	49.2	0.500	0.55	410
RSEM-R5B-EOP	8/4/2018 17:03	UA3789	8.35	1170	1.23	730	<4.0	305	313	223	3.3	264	3.9	<1.0	54.6	0.380	0.50	267
RSEM-R5B-EOP	8/5/2018 16:19	UA3788	8.32	1250	1.06	808	<4.0	325	334	218	2.0	261	2.4	<1.0	53.9	0.420	0.52	312
RSEM-R5B-EOP	8/6/2018 16:42	UA3839	8.31	1380	1.14	890	<4.0	375	389	213	1.6	256	1.9	<1.0	54.4	0.510	0.54	393
RSEM-R5B-EOP	8/7/2018 12:45	UA4367	8.33	1110	1.49	682	4.3	310	305	230	2.8	274	3.4	<1.0	55.7	0.360	0.50	212
RSEM-R5B-EOP	8/8/2018 8:35	UA6827	8.14	1100	1.39	646	<4.0	302	287	247	<1.0	302	<1.0	<1.0	59.9	0.310	0.45	222
RSEM-R5B-EOP	8/9/2018 13:45	UA9169	8.18	1440	2.11	950	<4.0	383	382	217	<1.0	264	<1.0	<1.0	59.3	0.470	0.59	472
RSEM-R5B-EOP	8/10/2018 10:05	UB1627	8.17	2020	2.06	1420	<4.0	533	543	191	<1.0	233	<1.0	<1.0	71.0	0.720	0.76	829
RSEM-R5B-EOP	8/11/2018 16:40	UB4072	8.15	2320	1.10	1640	<4.0	585	610	193	<1.0	236	<1.0	<1.0	65.4	0.820	0.78	1050
RSEM-R5B-EOP	8/12/2018 15:50	UB4557	8.22	2030	1.23	1410	<4.0	521	513	196	<1.0	239	<1.0	<1.0	66.3	0.690	0.77	875
RSEM-R5B-EOP	8/13/2018 0:15	UB4586	8.25	1820	1.16	1240	<4.0	445	456	206	<1.0	251	<1.0	<1.0	62.6	0.590	0.71	737
RSEM-R5B-EOP	8/14/2018 14:50	UC1794	8.04	1690	2.52	1120	10.0	451	408	201	<1.0	245	<1.0	<1.0	64.1	0.570	0.74	547
RSEM-R5B-EOP	8/15/2018 12:15	UC1589	8.10	1590	3.18	1040	9.3	397	385	212	<1.0	259	<1.0	<1.0	59.4	0.520	0.72	504
RSEM-R5B-EOP	8/16/2018 12:14	UC2156	8.13	1430	1.85	952	<4.0	380	363	241	<1.0	294	<1.0	<1.0	59.0	0.450	0.64	425
RSEM-R5B-EOP	8/17/2018 6:47	UC4875	8.21	1350	1.39	890	<4.0	354	360	222	<1.0	271	<1.0	<1.0	56.6	0.400	0.65	362
RSEM-R5B-EOP	8/18/2018 9:46	UC8577	8.25	1370	2.69	884	7.5	339	343	235	<1.0	286	<1.0	<1.0	56.5	0.460	0.66	371
RSEM-R5B-EOP	8/19/2018 12:55	UC8612	8.13	1480	1.59	986	<4.0	387	379	226	<1.0	276	<1.0	<1.0	56.6	0.440	0.69	451
RSEM-R5B-EOP	8/20/2018 11:27	UD1950	8.17	1470	1.09	940	<4.0	402	360	233	<1.0	284	<1.0	<1.0	62.0	0.420	0.57	436
RSEM-R5B-EOP	8/21/2018 9:24	UD2057	8.19	1500	0.87	1000	<4.0	414	385	229	<1.0	279	<1.0	<1.0	61.6	0.440	0.57	474
RSEM-R5B-EOP	8/22/2018 11:34	UD5024	8.28	1540	1.82	1020	<4.0	406	416	211	<1.0	258	<1.0	<1.0	57.6	0.460	0.55	483
RSEM-R5B-EOP	8/23/2018 9:41	UD6753	8.35	1570	1.60	1060	<4.0	407	419	217	2.8	258	3.4	<1.0	55.0	0.460	0.59	512
RSEM-R5B-EOP	8/24/2018 8:49	UD8196	8.06	1740	1.94	1240	<4.0	524	518	222	<1.0	271	<1.0	<1.0	54.1	0.510	0.60	631
RSEM-R5B-EOP	8/25/2018 8:45	UE1792	8.24	1610	4.33	1090	7.5	486	463	217	<1.0	265	<1.0	<1.0	53.5	0.490	0.57	526
RSEM-R5B-EOP	8/26/2018 10:15	UE1804	8.22	1300	2.27	852	<4.0	389	373	242	<1.0	295	<1.0	<1.0	50.4	0.360	0.49	327

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	6/25/2018	TS9112	0.060	<0.0050	0.131	0.131	<0.0050	2.86	2.23	0.0763	<0.0005	0.00043	0.0849	<0.0001	<0.001	0.091	0.000021	51.0	<0.001	0.00067	0.00239
RSEM-R5B-EOP	6/25/2018	TS9110	0.043	<0.0050	0.132	0.132	<0.0050	3.29	2.04	0.0902	<0.0005	0.00042	0.0849	<0.0001	<0.001	0.095	0.000019	51.9	<0.001	0.00068	0.00249
RSEM-R5B-EOP	6/26/2018 16:00	TT0849	0.11	0.0100	0.599	0.609	0.0119	2.74	1.85	0.385	<0.0005	0.00025	0.126	0.0002	<0.001	0.112	0.00346	99.7	<0.001	0.0577	0.0119
RSEM-R5B-EOP	6/27/2018 12:40	TT1140	0.37	0.0061	0.736	0.742	<0.0050	1.35	1.25	9.42	<0.0005	<0.0001	0.145	0.00358	<0.001	0.205	0.013	165	0.0032	0.173	0.199
RSEM-R5B-EOP	6/28/2018 12:50	TT3458	0.47	0.0123	0.736	0.749	<0.0050	1.77	1.38	2.24	<0.0005	0.00017	0.116	0.0013	<0.001	0.214	0.0092	164	<0.001	0.134	0.0878
RSEM-R5B-EOP	6/29/2018 10:50	TT6312	0.40	0.0146	0.831	0.846	0.0058	1.66	0.87	0.547	<0.0005	0.00015	0.1	0.00063	<0.001	0.204	0.00744	164	<0.001	0.113	0.0517
RSEM-R5B-EOP	6/30/2018	TU0475	0.31	0.0183	0.765	0.783	<0.0050	1.73	1.18	0.188	<0.0005	0.00019	0.0932	0.00021	<0.001	0.208	0.00479	146	<0.001	0.0786	0.0176
RSEM-R5B-EOP	7/1/2018 0:00	TU0435	0.28	0.0195	0.797	0.816	<0.0050	1.41	0.57	0.174	<0.0005	0.00022	0.09	0.00012	<0.001	0.195	0.00335	139	<0.001	0.0603	0.0112
RSEM-R5B-EOP	7/2/2018 17:15	TU1419	0.15	0.0217	0.782	0.804	<0.0050	1.90	1.19	0.357	<0.0005	0.00034	0.104	<0.0001	<0.001	0.165	0.000847	109	<0.001	0.0239	0.00312
RSEM-R5B-EOP	7/3/2018 15:50	TU4428	0.18	0.0168	0.747	0.764	<0.0050	2.55	1.24	0.198	<0.0005	0.00025	0.0921	<0.0001	<0.001	0.149	0.000594	107	<0.001	0.0209	0.00223
RSEM-R5B-EOP	7/4/2018 16:30	TU6246	0.085	0.0197	0.722	0.742	<0.0050	2.39	1.39	0.183	<0.0005	0.00025	0.0917	<0.0001	<0.001	0.16	0.000284	108	<0.001	0.0173	0.00212
RSEM-R5B-EOP	7/5/2018 13:45	TU8087	0.047	<0.0050	0.707	0.707	<0.0050	1.76	<0.50	0.16	<0.0005	0.00023	0.0995	<0.0001	<0.001	0.141	0.000029	100	<0.001	0.0111	0.00182
RSEM-R5B-EOP	7/6/2018 10:30	TU8093	0.46	<0.0050	0.624	0.624	<0.0050	1.75	1.22	0.169	<0.0005	0.00025	0.0995	<0.0001	<0.001	0.148	0.000017	99.3	<0.001	0.00744	0.0013
RSEM-R5B-EOP	7/7/2018 7:45	TV0770	0.090	0.0108	0.614	0.624	<0.0050	1.7	-	0.161	<0.0005	0.00025	0.0941	<0.0001	<0.001	0.198	0.000024	115	<0.001	0.00559	0.00165
RSEM-R5B-EOP	7/8/2018 10:30	TV1575	0.033	0.0122	0.561	0.574	0.0052	-	-	0.137	<0.0005	0.00025	0.0933	<0.0001	<0.001	0.173	0.000013	99.9	<0.001	0.00425	0.00135
RSEM-R5B-EOP	7/9/2018 17:50	TV3538	<0.020	0.0060	0.452	0.458	<0.0050	1.6	1.5	0.131	<0.0005	0.00026	0.091	<0.0001	<0.001	0.166	<0.00001	85.9	<0.001	0.0028	0.00143
RSEM-R5B-EOP	7/10/2018 14:05	TV5659	<0.020	0.0075	0.320	0.328	<0.0050	1.8	2.7	0.132	<0.0005	0.00025	0.086	<0.0001	<0.001	0.142	<0.00001	72.8	<0.001	0.00218	0.00151
RSEM-R5B-EOP	7/11/2018 13:15	TV9386	<0.020	0.0065	0.230	0.236	<0.0050	1.6	2.9	0.121	<0.0005	0.00025	0.0848	<0.0001	<0.001	0.156	<0.00001	65.3	<0.001	0.00146	0.0015
RSEM-R5B-EOP	7/12/2018 0:00	TV9381	<0.020	0.0184	0.158	0.176	<0.0050	1.3	2.7	0.125	<0.0005	0.00027	0.0891	<0.0001	<0.001	0.141	<0.00001	59.6	<0.001	0.00102	0.0016
RSEM-R5B-EOP	7/13/2018 0:00	TV9675	<0.020	<0.0050	0.134	0.134	<0.0050	2.1	2.2	0.119	<0.0005	0.00028	0.0907	<0.0001	<0.001	0.142	<0.00001	57.6	<0.001	0.00083	0.0021
RSEM-R5B-EOP	7/14/2018 14:00	TW3845	0.022	0.0082	0.141	0.149	0.0061	1.8	1.8	0.113	<0.0005	0.00025	0.0891	<0.0001	<0.001	0.136	<0.00001	63.2	<0.001	0.00078	0.00157
RSEM-R5B-EOP	7/15/2018 15:15	TW3842	0.037	0.0178	0.327	0.345	<0.0050	1.3	2.3	0.118	<0.0005	0.00024	0.0889	<0.0001	<0.001	0.177	<0.00001	96.1	<0.001	0.00119	0.00148
RSEM-R5B-EOP	7/16/2018 6:45	TW5085	0.056	0.0287	0.445	0.474	<0.0050	1.9	1.7	0.136	<0.001	0.00028	0.0891	<0.0002	<0.002	0.247	<0.00002	135	<0.002	0.00134	0.0016
RSEM-R5B-EOP	7/17/2018 9:25	TW5975	0.044	0.0290	0.466	0.495	0.0845	2.2	1.8	0.17	<0.001	0.00031	0.0778	<0.0002	<0.002	0.286	0.000031	130	<0.002	0.00109	0.0017
RSEM-R5B-EOP	7/18/2018 9:15	TW8366	<0.020	0.0169	0.246	0.263	<0.0050	0.65	1.5	0.105	<0.0005	0.00032	0.0821	<0.0001	<0.001	0.232	<0.00001	113	<0.001	0.00069	0.00176
RSEM-R5B-EOP	7/19/2018 12:00	TX0645	0.034	0.0092	0.131	0.140	0.0081	1.2	1.6	0.1	<0.001	0.00026	0.0734	<0.0002	<0.002	0.185	<0.00002	89.0	<0.002	0.00057	0.0017
RSEM-R5B-EOP	7/20/2018 11:55	TX2836	0.061	0.0050	0.260	0.265	0.0176	2.2	2.1	0.283	<0.0005	0.0005	0.1	<0.0001	<0.001	0.193	0.000046	109	<0.001	0.00132	0.00219
RSEM-R5B-EOP	7/21/2018 17:20	TX5553	0.078	0.0117	0.588	0.600	<0.0050	1.7	1.8	0.182	<0.0005	0.00024	0.123	<0.0001	<0.001	0.15	0.00215	127	<0.001	0.0396	0.00502
RSEM-R5B-EOP	7/22/2018 12:00	TX5559	0.068	0.0140	0.571	0.585	<0.0050	1.6	1.4	0.197	<0.0005	0.00025	0.115	<0.0001	<0.001	0.155	0.00182	134	<0.001	0.0349	0.00411
RSEM-R5B-EOP	7/23/2018 17:00	TY1080	0.23	0.0110	0.639	0.650	<0.0050	1.3	0.71	0.142	<0.0005	0.00025	0.111	<0.0001	<0.001	0.158	0.000987	151	<0.001	0.034	0.00161
RSEM-R5B-EOP	7/24/2018 17:40	TY1081	0.34	0.0110	0.824	0.835	<0.0050	1.0	0.62	0.18	<0.001	0.00025	0.0887	<0.0002	<0.002	0.188	0.000589	175	<0.002	0.0218	0.002
RSEM-R5B-EOP	7/25/2018 19:30	TY3339	0.14	0.0121	0.768	0.781	<0.0050	0.69	0.64	0.202	<0.0005	0.0002	0.093	<0.0001	<0.001	0.189	0.000215	145	<0.001	0.0122	0.0016
RSEM-R5B-EOP	7/26/2018 17:15	TY5332	0.12	0.0090	0.628	0.637	<0.0050	1.5	2.0	0.183	<0.0005	0.00019	0.0881	<0.0001	<0.001	0.198	0.000076	132	<0.001	0.00797	0.00144
RSEM-R5B-EOP	7/27/2018 8:33	TY5340	0.091	0.0086	0.593	0.601	<0.0050	1.7	0.91	0.146	<0.0005	0.00024	0.0843	<0.0001	<0.001	0.198	0.000047	127	<0.001	0.00651	0.00134
RSEM-R5B-EOP	7/28/2018 15:34	TZ1781	0.038	0.0088	0.430	0.439	<0.0050	2.2	3.0	0.144	<0.0005	0.00024	0.0876	<0.0001	<0.001	0.166	0.000011	96.5	<0.001	0.00324	0.00124
RSEM-R5B-EOP	7/29/2018 12:50	TZ1785	0.036	0.0060	0.339	0.345	0.0139	2.3	3.2	0.139	<0.0005	0.00023	0.0914	<0.0001	<0.001	0.16	<0.00001	89.1	<0.001	0.00229	0.00126
RSEM-R5B-EOP	7/30/2018 12:40	TZ3235	<0.020	0.0085	0.282	0.290	<0.0050	2.4	3.6	0.401	<0.0005	0.0005	0.146	<0.0001	<0.001	0.128	0.0001	107	<0.001	0.00306	0.00182
RSEM-R5B-EOP	7/31/2018 17:21	TZ5897	0.069	0.0108	0.431	0.441	<0.0050	1.9	2.7	0.14	<0.0005	0.00031	0.115	<0.0001	<0.001	0.116	0.000118	112	<0.001	0.00581	0.00139
RSEM-R5B-EOP	8/1/2018 16:15	TZ8460	<0.020	0.0087	0.395	0.404	<0.0050	1.8	3.2	0.127	<0.0005	0.0003	0.11	<0.0001	<0.001	0.138	0.000031	124	<0.001	0.0038	0.00125
RSEM-R5B-EOP	8/2/2018 16:46	UA0955	0.029	0.0079	0.488	0.496	<0.0050	2.33	2.37	0.131	<0.0005	0.0003	0.111	<0.0001	<0.001	0.138	0.000017	112	<0.001	0.00289	0.00183
RSEM-R5B-EOP	8/3/2018 12:57	UA1047	<0.020	0.0101	0.405	0.415	<0.0050	2.44	1.95	0.124	<0.0005	0.00029	0.113	<0.0001	<0.001	0.133	0.000014	104	<0.001	0.00214	0.00125
RSEM-R5B-EOP	8/4/2018 17:03	UA3789	<0.020	0.0072	0.227	0.234	<0.0050	2.36	1.98	0.0781	<0.0005	0.00023	0.0946	<0.0001	<0.001	0.116	<0.00001	75.8	<0.001	0.00147	0.00097
RSEM-R5B-EOP	8/5/2018 16:19	UA3788	<0.020	<0.0050	0.292	0.292	<0.0050	1.44	1.61	0.0803	<0.0005	0.00023	0.0941	<0.0001	<0.001	0.124	<0.00001	82.8	<0.001	0.00176	0.00107
RSEM-R5B-EOP	8/6/2018 16:42	UA3839	<0.020	0.0088	0.346	0.355	<0.0050	2.50	1.99	0.0815	<0.0005	0.00024	0.0981	<0.0001	<0.001	0.13	0.000014	100	<0.001	0.00202	0.00108
RSEM-R5B-EOP	8/7/2018 12:45	UA4367	<0.020	0.0062	0.176	0.182	<0.0050	3.18	2.62	0.079	<0.0005	0.00027	0.105	<0.0001	<0.001	0.117	0.000011	71.2	<0.001	0.00142	0.00178
RSEM-R5B-EOP	8/8/2018 8:35	UA6827	0.46	<0.0050	0.170	0.170	<0.0050	2.19	1.71	0.077	<0.0005	0.00027	0.103	<0.0001	<0.001	0.113	<0.00001	66.5	<0.001	0.00128	0.00148
RSEM-R5B-EOP	8/9/2018 13:45	UA9169	<0.020	0.0085	0.206	0.215	<0.0050	1.68	1.73	0.0713	<0.0005	0.00028	0.105	<0.0001	<0.001	0.147	0.000011	97.4	<0.001	0.00115	0.00118
RSEM-R5B-EOP	8/10/2018 10:05	UB1627	0.045	0.0112	0.318	0.329	<0.0050	2.77	1.66	0.0719	<0.0005	0.00026	0.104	<0.0001	<0.001	0.21	0.000022	146	<0.001	0.00125	0.00131
RSEM-R5B-EOP	8/11/2018 16:40	UB4072	<0.020	0.0111	0.454	0.465	<0.0050	1.93	1.36	0.0599	<0.0005	0.00025	0.0923	<0.0001	<0.001	0.228	0.000024	163	<0.001	0.00099	0.00108
RSEM-R5B-EOP	8/12/2018 15:50	UB4557	<0.020	0.0093	0.351	0.360	0.0071	1.19	1.25	0.0551	<0.0005	0.00028	0.0954	<0.0001	<0.001	0.232	0.000019	145	<0.001	0.00081	0.00139
RSEM-R5B-EOP	8/13/2018 0:15	UB4586	0.051	0.0066	0.264	0.270	<0.0050	1.79	2.47	0.0495	<0.0005	0.00024	0.0921	<0.0001	<0.001	0.174	0.00001	120	<0.001	0.00065	0.00109
RSEM-R5B-EOP	8/14/2018 14:50	UC1794	<0.020	0.0054	0.173	0.178	<0.0050	2.25	2.41	0.0993	<0.0005	0.00038	0.102	<0.0001	<0.001	0.192	0.000022	121	<0.001	0.0011	0.00154
RSEM-R5B-EOP	8/15/2018 12:15	UC1589	<0.020	0.0085	0.171	0.179	<0.0050	1.98	1.89	0.137	<0.0005	0.00034	0.0948	<0.0001	<0.001	0.162	0.000033	103	<0.001	0.00147	0.00179
RSEM-R5B-EOP	8/16/2018 12:14	UC2156	<0.020	<0.0050	0.177	0.177	<0.0050	3.19	1.46	0.0758	<0.0005	0.0003	0.103	<0.0001	<0.001	0.149	0.000018	98.6	<0.001	0.00092	0.00116
RSEM-R5B-EOP	8/17/2018 6:47	UC4875	<0.020	0.0053	0.115	0.120	<0.0050	2.69	1.66	0.0497	<0.0005	0.00031	0.102	<0.0001	<0.001	0.144	<0.00001	89.3	<0.001	0.00059	0.00123
RSEM-R5B-EOP	8/18/2018 9:46	UC8577	<0.020	<0.0050	0.089	0.089	<0.0050	2.41	2.24	0.107	<0.0005	0.0004	0.0958	<0.0001	<0.001	0.135	0.000025	85.9	<0.001	0.00115	0.00154
RSEM-R5B-EOP	8/19/2018 12:55	UC8612	<0.020	<0.0050	0.114	0.114	<0.0050	2.14	2.28	0.0523	<0.0005	0.00033	0.0956	<0.0001	<0.001	0.149	0.000011	101	<0.001	0.00069	0.00114
RSEM-R5B-EOP	8/20/2018 11:27	UD1950	0.061	<0.0050	0.190	0.190	<0.0050	2.36	1.62	0.0394	<0.0005	0.00029	0.105	<0.0001	<0.001	0.147	0.000012	99.9	<0.001	0.00064	0.00139
RSEM-R5B-EOP	8/21/2018 9:24	UD2057	<0.020	<0.0050	0.143	0.143	<0.0050	2.96	1.52	0.0365	<0.0005	0.00027	0.098	<0.0001	<0.001	0.159	0.00001	102	<0.001	0.00058	0.00125
RSEM-R5B-EOP	8/22/2018 11:34	UD5024	0.058	<0.0050	0.155	0.155	<0.0050	2.75	2.50	0.0867	<0.0005	0.00035	0.0918	<0.0001	<0.001	0.173	0.000016	100	<0.001	0.00085	0.00151
RSEM-R5B-EOP	8/23/2018 9:41	UD6753	<0.020	0.0062	0.138	0.144	<0.0050	2.77	2.97	0.0531	<0.0005	0.00034	0.0925	<0.0001	<0.001	0.166	0.000012	99.8	<0.001	0.0007	0.00182
RSEM-R5B-EOP	8/24/2018 8:49	UD8196	0.050	0.0085	0.355	0.363	<0.0050	2.71	1.93	0.0554	<0.0005	0.00033	0.0937	<0.0001	<0.001	0.208	0.000015	128	<0.001	0.00071	0.00108
RSEM-R5B-EOP	8/25/2018 8:45	UE1792	<0.020	<0.0050	0.251	0.251	<0.0050	2.28	1.75	0.0986	<0.0005	0.00039	0.0972	<0.0001	<0.001	0.151	0.000019	120	<0.001	0.00088	0.00126
RSEM-R5B-EOP	8/26/2018 10:15	UE1804	<0.020	<0.0050	0.260	0.260	<0.0050	1.84	2.37	0.0528	<0.0005	0.00033	0.107	<0.0001	<0.001	0.142	<0.00001	92.3	<0.001	0.00056	0.00162

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	6/25/2018	TS9112	0.084	<0.0002	0.0685	19.9	0.0294	<0.000002	0.0034	0.0072	-	2.58	0.00123	1.74	<0.00002	72.7	0.252	39.9	0.000019	<0.005	<0.005	0.00163
RSEM-R5B-EOP	6/25/2018	TS9110	0.093	<0.0002	0.0717	20.0	0.03	<0.000002	0.0034	0.0072	-	2.58	0.00123	1.76	<0.00002	73.3	0.251	40.1	0.000018	<0.005	<0.005	0.00166
RSEM-R5B-EOP	6/26/2018 16:00	TT0849	0.925	<0.0002	0.112	35.6	0.761	<0.000002	0.0015	0.195	-	3.03	0.00285	3.05	<0.00002	81.2	0.396	156	0.000025	<0.005	<0.005	0.00184
RSEM-R5B-EOP	6/27/2018 12:40	TT1140	3.58	<0.0002	0.198	70.4	1.84	<0.000002	<0.001	0.592	-	4.12	0.00693	5.4	<0.00002	134	0.653	314	0.00007	<0.005	<0.005	0.0201
RSEM-R5B-EOP	6/28/2018 12:50	TT3458	0.937	<0.0002	0.203	67.9	1.51	<0.000002	<0.001	0.45	-	4.70	0.00663	5.06	<0.00002	141	0.753	313	0.000064	<0.005	<0.005	0.00873
RSEM-R5B-EOP	6/29/2018 10:50	TT6312	0.37	<0.0002	0.189	64.7	1.25	<0.000002	0.0014	0.384	-	5.05	0.0064	4.66	<0.00002	145	0.666	286	0.000067	<0.005	<0.005	0.00612
RSEM-R5B-EOP	6/30/2018	TU0475	0.121	<0.0002	0.173	60.9	0.929	<0.000002	0.0018	0.268	-	4.67	0.00557	4.06	<0.00002	156	0.646	245	0.000051	<0.005	<0.005	0.00543
RSEM-R5B-EOP	7/1/2018 0:00	TU0435	0.187	<0.0002	0.164	52.0	0.717	<0.000002	0.002	0.207	-	4.59	0.005	4.39	<0.00002	144	0.56	222	0.000045	<0.005	<0.005	0.00475
RSEM-R5B-EOP	7/2/2018 17:15	TU1419	0.282	<0.0002	0.133	41.1	0.4	<0.000002	0.0029	0.0883	-	4.14	0.00346	4.06	<0.00002	128	0.485	153	0.000033	<0.005	0.0058	0.00369
RSEM-R5B-EOP	7/3/2018 15:50	TU4428	0.127	<0.0002	0.128	39.8	0.353	<0.000002	0.0028	0.0805	-	3.84	0.00337	3.54	<0.00002	131	0.462	146	0.000023	<0.005	<0.005	0.0035
RSEM-R5B-EOP	7/4/2018 16:30	TU6246	0.132	<0.0002	0.13	38.3	0.254	<0.000002	0.0027	0.0671	-	4.06	0.00286	3.94	<0.00002	132	0.406	135	0.000028	<0.005	<0.005	0.00338
RSEM-R5B-EOP	7/5/2018 13:45	TU8087	0.057	<0.0002	0.127	34.6	0.12	<0.000002	0.0028	0.0537	-	3.86	0.00267	4.05	<0.00002	117	0.4	121	0.000025	<0.005	<0.005	0.00327
RSEM-R5B-EOP	7/6/2018 10:30	TU8093	0.05	<0.0002	0.134	35.2	0.0662	<0.000002	0.0028	0.0431	-	4.00	0.00298	3.88	<0.00002	137	0.412	133	0.000026	<0.005	<0.005	0.00321
RSEM-R5B-EOP	7/7/2018 7:45	TV0770	0.08	<0.0002	0.164	39.6	0.0545	<0.000002	0.0028	0.0333	-	4.15	0.00466	3.48	<0.00002	204	0.596	194	0.000032	<0.005	<0.005	0.00353
RSEM-R5B-EOP	7/8/2018 10:30	TV1575	0.091	<0.0002	0.143	35.5	0.043	<0.000002	0.0028	0.0263	-	4.10	0.00351	3.18	<0.00002	178	0.442	151	0.000028	<0.005	<0.005	0.00288
RSEM-R5B-EOP	7/9/2018 17:50	TV3538	0.082	<0.0002	0.137	31.4	0.0219	<0.000002	0.0026	0.0213	-	4.05	0.00315	2.93	<0.00002	151	0.393	135	0.000023	<0.005	<0.005	0.00259
RSEM-R5B-EOP	7/10/2018 14:05	TV5659	0.098	<0.0002	0.129	31.5	0.0148	<0.000002	0.0026	0.0186	-	3.80	0.00294	2.53	<0.00002	147	0.361	118	0.000023	<0.005	<0.005	0.00255
RSEM-R5B-EOP	7/11/2018 13:15	TV9386	0.1	<0.0002	0.128	31.6	0.0106	<0.000002	0.0026	0.0153	-	3.66	0.00238	2.28	<0.00002	144	0.358	94.9	0.000019	<0.005	<0.005	0.00244
RSEM-R5B-EOP	7/12/2018 0:00	TV9381	0.125	<0.0002	0.121	31.6	0.0088	<0.000002	0.0028	0.0126	-	3.75	0.00208	2.12	<0.00002	137	0.331	81.2	0.000017	<0.005	<0.005	0.00231
RSEM-R5B-EOP	7/13/2018 0:00	TV9675	0.135	<0.0002	0.126	30.6	0.0084	<0.000002	0.0027	0.0113	-	3.77	0.00202	2.15	<0.00002	132	0.33	75.7	0.000017	<0.005	<0.005	0.00223
RSEM-R5B-EOP	7/14/2018 14:00	TW3845	0.113	<0.0002	0.123	32.5	0.009	<0.000002	0.0028	0.0109	-	3.73	0.00245	1.93	<0.00002	158	0.366	92.5	0.000018	<0.005	<0.005	0.00213
RSEM-R5B-EOP	7/15/2018 15:15	TW3842	0.099	<0.0002	0.163	39.1	0.0152	<0.000002	0.0026	0.0119	-	4.28	0.00431	1.86	<0.00002	239	0.55	182	0.000026	<0.005	<0.005	0.00236
RSEM-R5B-EOP	7/16/2018 6:45	TW5085	0.141	<0.0004	0.209	46.7	0.019	<0.000002	0.0027	0.0128	-	4.97	0.00666	1.98	<0.00004	321	0.763	291	0.000031	<0.01	<0.01	0.00276
RSEM-R5B-EOP	7/17/2018 9:25	TW5975	0.13	<0.0004	0.201	40.4	0.0166	<0.000002	0.0025	0.0109	-	4.69	0.00675	1.9	<0.00004	310	0.667	298	0.000042	<0.01	<0.01	0.00244
RSEM-R5B-EOP	7/18/2018 9:15	TW8366	0.099	<0.0002	0.196	40.8	0.0114	<0.000002	0.0027	0.009	-	4.88	0.0059	1.46	<0.00002	280	0.669	250	0.000029	<0.005	<0.005	0.0025
RSEM-R5B-EOP	7/19/2018 12:00	TX0645	0.092	<0.0004	0.159	35.1	0.0108	<0.000002	0.0025	0.0083	-	4.16	0.0041	1.15	<0.00004	231	0.52	187	0.000029	<0.01	<0.01	0.0021
RSEM-R5B-EOP	7/20/2018 11:55	TX2836	0.309	0.0002	0.164	29.7	0.0424	<0.000002	0.0027	0.0098	-	4.48	0.00459	2.21	<0.00002	212	0.548	222	0.00003	<0.005	0.0075	0.00235
RSEM-R5B-EOP	7/21/2018 17:20	TX5553	0.504	<0.0002	0.144	38.6	0.567	<0.000002	0.0018	0.149	-	3.82	0.00307	3.06	<0.00002	135	0.542	217	0.000026	<0.005	<0.005	0.00205
RSEM-R5B-EOP	7/22/2018 12:00	TX5559	0.399	<0.0002	0.151	39.4	0.52	<0.000002	0.0018	0.137	-	3.96	0.00332	2.94	<0.00002	145	0.572	230	0.000026	<0.005	<0.005	0.00221
RSEM-R5B-EOP	7/23/2018 17:00	TY1080	0.151	<0.0002	0.162	43.6	0.67	<0.000002	0.0022	0.129	-	4.18	0.00417	3.17	<0.00002	167	0.612	256	0.000032	<0.005	<0.005	0.00294
RSEM-R5B-EOP	7/24/2018 17:40	TY1081	0.23	<0.0004	0.196	46.9	0.45	<0.000002	<0.002	0.0977	-	4.45	0.00512	3.16	<0.00004	219	0.72	304	0.000038	<0.01	<0.01	0.0034
RSEM-R5B-EOP	7/25/2018 19:30	TY3339	0.184	<0.0002	0.19	41.7	0.219	<0.000002	0.0022	0.0564	-	4.26	0.00402	3.39	<0.00002	189	0.674	226	0.000028	<0.005	<0.005	0.00336
RSEM-R5B-EOP	7/26/2018 17:15	TY5332	0.081	<0.0002	0.181	40.5	0.13	<0.000002	0.0022	0.0425	-	4.19	0.00387	2.91	<0.00002	189	0.637	215	0.000026	<0.005	<0.005	0.00306
RSEM-R5B-EOP	7/27/2018 8:33	TY5340	0.054	<0.0002	0.177	40.0	0.104	<0.000002	0.0022	0.0384	-	3.98	0.00359	2.59	<0.00002	183	0.611	208	0.000025	<0.005	<0.005	0.00286
RSEM-R5B-EOP	7/28/2018 15:34	TZ1781	0.052	<0.0002	0.17	36.6	0.0401	<0.000002	0.0023	0.0244	-	3.92	0.00286	2.6	<0.00002	160	0.512	154	0.000019	<0.005	<0.005	0.00244
RSEM-R5B-EOP	7/29/2018 12:50	TZ1785	0.058	<0.0002	0.164	33.9	0.0263	<0.000002	0.0022	0.0185	-	3.73	0.00278	2.5	<0.00002	151	0.48	136	0.00002	<0.005	<0.005	0.00217
RSEM-R5B-EOP	7/30/2018 12:40	TZ3235	0.296	0.00021	0.117	28.5	0.193	0.0000024	0.0026	0.0161	-	3.91	0.00217	2.76	<0.00002	104	0.496	128	0.000023	<0.005	0.0104	0.00191
RSEM-R5B-EOP	7/31/2018 17:21	TZ5897	0.121	<0.0002	0.119	31.2	0.196	<0.000002	0.0023	0.0285	-	3.55	0.00236	2.93	<0.00002	109	0.462	140	0.000021	<0.005	<0.005	0.00217
RSEM-R5B-EOP	8/1/2018 16:15	TZ8460	0.08	<0.0002	0.134	33.4	0.11	<0.000002	0.0025	0.0223	-	3.98	0.00261	3.14	<0.00002	127	0.49	163	0.000023	<0.005	<0.005	0.00244
RSEM-R5B-EOP	8/2/2018 16:46	UA0955	0.106	<0.0002	0.137	35.8	0.0585	<0.000002	0.0027	0.0202	-	3.81	0.00269	3.08	<0.00002	148	0.491	148	0.000023	<0.005	<0.005	0.00231
RSEM-R5B-EOP	8/3/2018 12:57	UA1047	0.09	<0.0002	0.133	34.9	0.0412	<0.000002	0.0025	0.0176	-	3.64	0.00244	2.8	<0.00002	143	0.457	137	0.000021	<0.005	<0.005	0.00218
RSEM-R5B-EOP	8/4/2018 17:03	UA3789	0.081	<0.0002	0.126	28.0	0.0212	<0.000002	0.0021	0.0157	-	3.47	0.00191	2.79	<0.00002	112	0.332	95.4	0.000019	<0.005	<0.005	0.00203
RSEM-R5B-EOP	8/5/2018 16:19	UA3788	0.07	<0.0002	0.129	28.8	0.0219	<0.000002	0.0021	0.017	-	3.50	0.00232	2.62	<0.00002	117	0.358	106	0.000018	<0.005	<0.005	0.00206
RSEM-R5B-EOP	8/6/2018 16:42	UA3839	0.067	<0.0002	0.138	30.5	0.0333	<0.000002	0.0021	0.017	-	3.68	0.00257	2.72	<0.00002	129	0.415	134	0.000023	<0.005	<0.005	0.00229
RSEM-R5B-EOP	8/7/2018 12:45	UA4367	0.089	<0.0002	0.123	32.1	0.0213	<0.000002	0.0023	0.0164	-	3.74	0.00198	2.44	<0.00002	128	0.328	91.7	0.000018	<0.005	<0.005	0.002
RSEM-R5B-EOP	8/8/2018 8:35	UA6827	0.094	<0.0002	0.121	32.9	0.0242	<0.000002	0.0023	0.015	-	3.55	0.00179	2.3	<0.00002	125	0.327	75.3	0.000015	<0.005	<0.005	0.00176
RSEM-R5B-EOP	8/9/2018 13:45	UA9169	0.119	<0.0002	0.157	34.0	0.026	<0.000002	0.0023	0.0132	-	4.07	0.00306	2.33	<0.00002	172	0.463	156	0.000022	<0.005	<0.005	0.00202
RSEM-R5B-EOP	8/10/2018 10:05	UB1627	0.107	<0.0002	0.212	41.3	0.0325	<0.000002	0.0021	0.0136	-	4.89	0.00493	2.21	<0.00002	259	0.724	275	0.000032	<0.005	<0.005	0.00207
RSEM-R5B-EOP	8/11/2018 16:40	UB4072	0.1	<0.0002	0.229	43.4	0.0196	<0.000002	0.0019	0.0128	-	5.21	0.00545	2.04	<0.00002	293	0.828	324	0.000041	<0.005	<0.005	0.00175
RSEM-R5B-EOP	8/12/2018 15:50	UB4557	0.102	<0.0002	0.205	38.7	0.016	<0.000002	0.0019	0.0111	-	4.66	0.00479	1.84	<0.00002	245	0.722	261	0.000034	<0.005	<0.005	0.00188
RSEM-R5B-EOP	8/13/2018 0:15	UB4586	0.096	<0.0002	0.194	35.6	0.015	<0.000002	0.0021	0.0099	-	4.39	0.0038	1.53	<0.00002	218	0.616	218	0.000029	<0.005	<0.005	0.00171
RSEM-R5B-EOP	8/14/2018 14:50	UC1794	0.202	<0.0002	0.19	36.3	0.0248	<0.000002	0.0022	0.0113	-	4.70	0.00405	1.43	<0.00002	212	0.627	227	0.000022	<0.005	<0.005	0.00194
RSEM-R5B-EOP	8/15/2018 12:15	UC1589	0.216	<0.0002	0.166	33.8	0.0296	<0.000002	0.0021	0.0118	-	4.09	0.00348	1.33	<0.00002	185	0.546	177	0.000021	<0.005	<0.005	0.00186
RSEM-R5B-EOP	8/16/2018 12:14	UC2156	0.156	<0.0002	0.165	32.5	0.0232	<0.000002	0.0023	0.0099	-	4.28	0.00308	1.52	<0.00002	172	0.513	162	0.00002	<0.005	<0.005	0.00182
RSEM-R5B-EOP	8/17/2018 6:47	UC4875	0.104	<0.0002	0.155	31.8	0.0187	<0.000002	0.0024	0.0086	-	4.27	0.00296	1.21	<0.00002	165	0.474	152	0.00002	<0.005	<0.005	0.00179
RSEM-R5B-EOP	8/18/2018 9:46	UC8577	0.205	<0.0002	0.153	30.2	0.0247	<0.000002	0.0022	0.0097	-	3.90	0.00281	1.1	<0.00002	157	0.436	134	0.000016	<0.005	<0.005	0.00178
RSEM-R5B-EOP	8/19/2018 12:55	UC8612	0.113	<0.0002	0.162	32.9	0.0152	<0.000002	0.0022	0.009	-	4.09	0.00346	1.11	<0.00002	168	0.489	156	0.00002	<0.005	<0.005	0.00183
RSEM-R5B-EOP	8/20/2018 11:27	UD1950	0.103	<0.0002	0.144	37.1	0.013	<0.000002	0.0021	0.0089	-	4.04	0.00307	1.18	<0.00002	171	0.525	147	0.000021	<0.005	<0.005	0.00177
RSEM-R5B-EOP	8/21/2018 9:24	UD2057	0.091	<0.0002	0.146	38.9	0.0126	<0.000002	0.0021	0.0088	-	4.30	0.00324	0.928	0.000038	180	0.541	158	0.000023	<0.005	<0.005	0.00177
RSEM-R5B-EOP	8/22/2018 11:34	UD5024	0.142	<0.0002	0.165	37.8	0.0155	0.0000029	0.0021	0.0094	-	4.05	0.00323	0.901	<0.00002	176	0.486	176	0.000017	<0.005	<0.005	0.00174
RSEM-R5B-EOP	8/23/2018 9:41	UD6753	0.129	<0.0002	0.152	38.4	0.0166	0.0000054	0.0023	0.0091	-	4.08	0.00327	0.857	0.000052	173	0.481	170	0.000021	<0.005	<0.005	0.0017
RSEM-R5B-EOP	8/24/2018 8:49	UD8196	0.122	<0.0002	0.163	49.6	0.02	0.000005	0.002	0.0084	-	4.23	0.00379	1.84	<0.00002	193	0.584	211	0.000023	<0.005	<0.005	0.00174
RSEM-R5B-EOP	8/25/2018 8:45	UE1792	0.198	<0.0002	0.141	45.0	0.0204	<0.000002	0.0022	0.0086	-	4.22	0.00363	1.05	<0.00002	184	0.555	188	0.000016	<0.005	<0.005	0.00178
RSEM-R5B-EOP	8/26/2018 10:15	UE1804	0.133	<0.0002	0.137	38.5	0.0116	<0.000002	0.0022	0.0081	-	4.03	0.00273	1.45	0.000049	149	0.456	126	0.000016	<0.005	<0.005	0.0018

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	6/25/2018	TS9112	<0.005	<0.005	<0.0001	0.0313	<0.0005	0.00035	0.0859	<0.0001	<0.001	0.092	0.000014	56.3	<0.001	0.00049	0.00198	<0.01	<0.0002	0.0815	21.1	0.0143
RSEM-R5B-EOP	6/25/2018	TS9110	<0.005	<0.005	<0.0001	0.0318	<0.0005	0.00037	0.0869	<0.0001	<0.001	0.095	0.000016	55.6	<0.001	0.00049	0.00213	<0.01	<0.0002	0.0807	20.8	0.0145
RSEM-R5B-EOP	6/26/2018 16:00	TT0849	<0.005	0.59	0.00015	0.0286	<0.0005	0.00012	0.123	<0.0001	<0.001	0.111	0.00333	104	<0.001	0.0589	0.00458	<0.01	<0.0002	0.101	34.9	0.798
RSEM-R5B-EOP	6/27/2018 12:40	TT1140	<0.005	2.31	<0.0001	9.61	<0.01	<0.002	0.14	0.0037	<0.02	<1	0.0137	182	<0.02	0.186	0.223	0.56	<0.004	0.19	71.0	1.9
RSEM-R5B-EOP	6/28/2018 12:50	TT3458	<0.005	1.57	<0.0001	0.879	<0.001	<0.0002	0.105	0.00104	<0.002	0.206	0.00975	172	<0.002	0.136	0.0836	0.687	<0.0004	0.206	68.2	1.55
RSEM-R5B-EOP	6/29/2018 10:50	TT6312	<0.005	1.2	<0.0001	0.0483	<0.0005	0.00011	0.105	0.00028	<0.001	0.214	0.00759	158	<0.001	0.113	0.0274	<0.01	<0.0002	0.197	63.0	1.23
RSEM-R5B-EOP	6/30/2018	TU0475	<0.005	0.719	<0.0001	0.0689	<0.0005	0.00013	0.0931	0.00011	<0.001	0.21	0.00458	148	<0.001	0.0759	0.012	<0.01	<0.0002	0.186	57.9	0.895
RSEM-R5B-EOP	7/1/2018 0:00	TU0435	<0.005	0.464	<0.0001	0.074	<0.0005	0.00016	0.0892	<0.0001	<0.001	0.193	0.00326	134	<0.001	0.0583	0.00687	<0.01	<0.0002	0.167	53.0	0.685
RSEM-R5B-EOP	7/2/2018 17:15	TU1419	<0.005	0.0702	0.00022	0.0859	<0.0005	0.00017	0.0921	<0.0001	<0.001	0.156	0.000747	112	<0.001	0.023	0.00184	<0.01	<0.0002	0.129	37.3	0.37
RSEM-R5B-EOP	7/3/2018 15:50	TU4428	<0.005	0.0414	<0.0001	0.106	<0.0005	0.00018	0.0896	<0.0001	<0.001	0.149	0.000521	110	<0.001	0.0213	0.00159	<0.01	<0.0002	0.13	38.2	0.338
RSEM-R5B-EOP	7/4/2018 16:30	TU6246	<0.005	0.0238	<0.0001	0.128	<0.0005	0.00019	0.0889	<0.0001	<0.001	0.157	<0.00001	96.0	<0.001	0.0138	0.001	<0.01	<0.0002	0.128	38.5	0.162
RSEM-R5B-EOP	7/5/2018 13:45	TU8087	<0.005	0.0059	<0.0001	0.132	<0.0005	0.00019	0.0875	<0.0001	<0.001	0.148	<0.00001	88.2	<0.001	0.00858	0.00097	<0.01	<0.0002	0.122	35.1	0.0624
RSEM-R5B-EOP	7/6/2018 10:30	TU8093	<0.005	<0.005	<0.0001	0.156	<0.0005	0.0002	0.0902	<0.0001	<0.001	0.15	<0.00001	87.2	<0.001	0.00604	0.00096	<0.01	<0.0002	0.13	35.8	0.033
RSEM-R5B-EOP	7/7/2018 7:45	TV0770	<0.005	0.0056	<0.0001	0.117	<0.0005	0.00021	0.0919	<0.0001	<0.001	0.196	<0.00001	112	<0.001	0.00437	0.00095	<0.01	<0.0002	0.163	37.4	0.0319
RSEM-R5B-EOP	7/8/2018 10:30	TV1575	<0.005	<0.005	<0.0001	0.0943	<0.0005	0.00022	0.0886	<0.0001	<0.001	0.164	<0.00001	97.3	<0.001	0.00322	0.00079	<0.01	<0.0002	0.146	33.9	0.0216
RSEM-R5B-EOP	7/9/2018 17:50	TV3538	<0.005	<0.005	<0.0001	0.106	<0.0005	0.0002	0.0874	<0.0001	<0.001	0.151	<0.00001	84.0	<0.001	0.00231	0.00099	<0.01	<0.0002	0.139	32.5	0.0115
RSEM-R5B-EOP	7/10/2018 14:05	TV5659	<0.005	<0.005	0.0001	0.105	<0.0005	0.00028	0.0901	<0.0001	<0.001	0.138	<0.00001	74.4	<0.001	0.0018	0.00124	<0.01	<0.0002	0.124	32.4	0.0063
RSEM-R5B-EOP	7/11/2018 13:15	TV9386	<0.005	<0.005	<0.0001	0.107	<0.0005	0.00023	0.0885	<0.0001	<0.001	0.16	<0.00001	61.9	<0.001	0.00074	0.00112	<0.01	<0.0002	0.129	31.2	<0.001
RSEM-R5B-EOP	7/12/2018 0:00	TV9381	<0.005	<0.005	<0.0001	0.0995	<0.0005	0.00025	0.0891	<0.0001	<0.001	0.149	<0.00001	56.3	<0.001	0.00048	0.00116	0.01	<0.0002	0.126	28.6	<0.001
RSEM-R5B-EOP	7/13/2018 0:00	TV9675	<0.005	<0.005	<0.0001	0.0925	<0.0005	0.00024	0.0912	<0.0001	<0.001	0.148	<0.00001	55.0	<0.001	0.00038	0.00134	0.013	<0.0002	0.116	28.6	<0.001
RSEM-R5B-EOP	7/14/2018 14:00	TW3845	<0.005	<0.005	<0.0001	0.086	<0.0005	0.00022	0.0864	<0.0001	<0.001	0.149	<0.00001	61.2	<0.001	0.00047	0.00138	<0.01	<0.0002	0.126	32.7	<0.001
RSEM-R5B-EOP	7/15/2018 15:15	TW3842	<0.005	<0.005	<0.0001	0.0912	<0.001	0.00022	0.0844	<0.0002	<0.002	0.195	<0.00002	95.5	<0.002	0.00092	0.0031	<0.02	<0.0004	0.165	38.4	0.0045
RSEM-R5B-EOP	7/16/2018 6:45	TW5085	<0.01	<0.01	<0.0002	0.083	<0.001	0.00023	0.0823	<0.0002	<0.002	0.249	<0.00002	129	<0.002	0.00081	0.0011	<0.02	<0.0004	0.203	43.8	0.0028
RSEM-R5B-EOP	7/17/2018 9:25	TW5975	<0.01	<0.01	<0.0002	0.0876	<0.001	0.00024	0.0793	<0.0002	<0.002	0.269	<0.00002	133	<0.002	0.00081	0.0018	<0.02	<0.0004	0.214	45.7	0.0038
RSEM-R5B-EOP	7/18/2018 9:15	TW8366	<0.005	<0.005	<0.0001	0.082	<0.0005	0.00028	0.0772	<0.0001	<0.001	0.238	<0.00001	110	<0.001	0.00041	0.00151	<0.01	<0.0002	0.191	39.4	0.0016
RSEM-R5B-EOP	7/19/2018 12:00	TX0645	<0.01	<0.01	<0.0002	0.0813	<0.001	0.00022	0.0736	<0.0002	<0.002	0.174	<0.00002	92.6	<0.002	<0.0004	0.0014	<0.02	<0.0004	0.15	36.4	<0.002
RSEM-R5B-EOP	7/20/2018 11:55	TX2836	<0.005	0.006	0.00015	0.0605	<0.0005	0.0003	0.0897	<0.0001	<0.001	0.185	0.000015	110	<0.001	0.00027	0.00128	<0.01	<0.0002	0.17	33.5	0.0013
RSEM-R5B-EOP	7/21/2018 17:20	TX5553	<0.005	0.278	<0.0001	0.0653	<0.0005	0.00018	0.116	<0.0001	<0.001	0.148	0.00206	122	<0.001	0.0404	0.00218	<0.01	<0.0002	0.134	38.3	0.562
RSEM-R5B-EOP	7/22/2018 12:00	TX5559	<0.005	0.212	<0.0001	0.0657	<0.0005	0.0002	0.105	<0.0001	<0.001	0.158	0.00171	130	<0.001	0.0346	0.00253	0.011	<0.0002	0.143	38.3	0.494
RSEM-R5B-EOP	7/23/2018 17:00	TY1080	<0.005	0.0632	0.00026	0.0726	<0.0005	0.00016	0.103	<0.0001	<0.001	0.187	0.000953	142	<0.001	0.0317	0.00103	<0.01	<0.0002	0.174	42.6	0.617
RSEM-R5B-EOP	7/24/2018 17:40	TY1081	<0.01	0.031	<0.0002	0.113	<0.001	0.0002	0.085	<0.0002	<0.002	0.196	0.000466	175	<0.002	0.0196	<0.001	<0.02	<0.0004	0.203	44.8	0.427
RSEM-R5B-EOP	7/25/2018 19:30	TY3339	<0.005	0.0153	<0.0001	0.147	<0.0005	0.00017	0.0893	<0.0001	<0.001	0.162	0.000049	145	<0.001	0.0116	0.00101	<0.01	<0.0002	0.17	43.5	0.195
RSEM-R5B-EOP	7/26/2018 17:15	TY5332	<0.005	0.0075	<0.0001	0.141	<0.0005	0.00017	0.0836	<0.0001	<0.001	0.184	<0.00001	126	<0.001	0.00557	0.00086	<0.01	<0.0002	0.174	39.6	0.0563
RSEM-R5B-EOP	7/27/2018 8:33	TY5340	<0.005	<0.005	<0.0001	0.122	<0.0005	0.0002	0.084	<0.0001	<0.001	0.192	0.000014	129	<0.001	0.00455	0.0009	<0.01	<0.0002	0.172	39.9	0.0398
RSEM-R5B-EOP	7/28/2018 15:34	TZ1781	<0.005	<0.005	<0.0001	0.128	<0.0005	0.0002	0.086	<0.0001	<0.001	0.162	<0.00001	95.8	<0.001	0.00262	0.00101	<0.01	<0.0002	0.169	36.8	0.0149
RSEM-R5B-EOP	7/29/2018 12:50	TZ1785	<0.005	<0.005	<0.0001	0.14	<0.0005	0.0002	0.092	<0.0001	<0.001	0.158	<0.00001	88.9	<0.001	0.00171	0.00129	<0.01	<0.0002	0.164	36.0	0.0044
RSEM-R5B-EOP	7/30/2018 12:40	TZ3235	<0.005	0.0069	0.00024	0.0801	<0.0005	0.00028	0.132	<0.0001	<0.001	0.125	0.000082	111	<0.001	0.00267	0.00115	<0.01	<0.0002	0.118	31.0	0.167
RSEM-R5B-EOP	7/31/2018 17:21	TZ5897	<0.005	0.0105	<0.0001	0.117	<0.005	<0.001	0.094	<0.001	<0.01	<0.5	0.00011	121	<0.01	0.0065	<0.005	<0.1	<0.002	0.12	35.0	0.209
RSEM-R5B-EOP	8/1/2018 16:15	TZ8460	<0.005	<0.005	<0.0001	0.072	<0.0005	0.00029	0.108	<0.0001	<0.001	0.135	<0.00001	129	<0.001	0.00306	0.00093	<0.01	<0.0002	0.135	33.1	0.0775
RSEM-R5B-EOP	8/2/2018 16:46	UA0955	<0.005	<0.005	<0.0001	0.0681	<0.0005	0.00026	0.1	<0.0001	<0.001	0.138	<0.00001	106	<0.001	0.00079	0.0007	<0.01	<0.0002	0.138	33.0	0.0022
RSEM-R5B-EOP	8/3/2018 12:57	UA1047	<0.005	<0.005	<0.0001	0.0619	<0.0005	0.00026	0.103	<0.0001	<0.001	0.129	<0.00001	100	<0.001	0.00027	0.00078	<0.01	<0.0002	0.136	32.5	<0.001
RSEM-R5B-EOP	8/4/2018 17:03	UA3789	<0.005	<0.005	<0.0001	0.051	<0.0005	0.00025	0.0966	<0.0001	<0.001	0.12	<0.00001	76.9	<0.001	0.00066	0.00092	0.013	<0.0002	0.126	29.4	0.0015
RSEM-R5B-EOP	8/5/2018 16:19	UA3788	<0.005	<0.005	<0.0001	0.0542	<0.0005	0.00021	0.0961	<0.0001	<0.001	0.13	<0.00001	84.8	<0.001	0.00115	0.00084	<0.01	<0.0002	0.134	29.8	0.0032
RSEM-R5B-EOP	8/6/2018 16:42	UA3839	<0.005	<0.005	<0.0001	0.0548	<0.0005	0.00026	0.1	<0.0001	<0.001	0.135	<0.00001	103	<0.001	0.00129	0.0009	<0.01	<0.0002	0.141	32.2	0.0052
RSEM-R5B-EOP	8/7/2018 12:45	UA4367	<0.005	0.0052	<0.0001	0.0544	<0.0005	0.00024	0.0981	<0.0001	<0.001	0.115	<0.00001	70.7	<0.001	0.00079	0.00127	<0.01	<0.0002	0.123	31.2	0.003
RSEM-R5B-EOP	8/8/2018 8:35	UA6827	<0.005	<0.005	<0.0001	0.0491	<0.0005	0.00024	0.0997	<0.0001	<0.001	0.112	<0.00001	67.6	<0.001	0.00062	0.001	<0.01	<0.0002	0.121	28.6	0.0039
RSEM-R5B-EOP	8/9/2018 13:45	UA9169	<0.005	<0.005	<0.0001	0.041	<0.0005	0.00026	0.1	<0.0001	<0.001	0.152	<0.00001	95.1	<0.001	<0.0002	0.00096	0.01	<0.0002	0.155	35.1	0.001
RSEM-R5B-EOP	8/10/2018 10:05	UB1627	<0.005	<0.005	<0.0001	0.0386	<0.0005	0.00024	0.0954	<0.0001	<0.001	0.214	<0.00001	151	<0.001	0.00022	0.00088	0.011	<0.0002	0.212	40.5	0.0013
RSEM-R5B-EOP	8/11/2018 16:40	UB4072	<0.005	<0.005	<0.0001	0.037	<0.0005	0.00023	0.0867	<0.0001	<0.001	0.23	0.000012	174	<0.001	0.0007	0.00092	0.013	<0.0002	0.229	42.8	0.0054
RSEM-R5B-EOP	8/12/2018 15:50	UB4557	<0.005	<0.005	<0.0001	0.04	<0.001	0.00024	0.0877	<0.0002	<0.002	0.209	<0.00002	142	<0.002	0.0006	0.0013	<0.02	<0.0004	0.195	38.3	0.0063
RSEM-R5B-EOP	8/13/2018 0:15	UB4586	<0.005	<0.005	<0.0001	0.0328	<0.0005	0.00025	0.0931	<0.0001	<0.001	0.189	<0.00001	123	<0.001	0.00055	0.00085	0.018	<0.0002	0.188	36.0	0.0082
RSEM-R5B-EOP	8/14/2018 14:50	UC1794	<0.005	0.0067	0.00023	0.0372	<0.0005	0.00028	0.0938	<0.0001	<0.001	0.172	<0.00001	107	<0.001	0.00071	0.00084	0.026	<0.0002	0.163	34.0	0.0083
RSEM-R5B-EOP	8/15/2018 12:15	UC1589	<0.005	0.0104	<0.0001	0.0479	<0.0005	0.00026	0.0927	<0.0001	<0.001	0.171	<0.00001	99.8	<0.001	0.00049	0.00091	0.019	<0.0002	0.169	33.0	0.0028
RSEM-R5B-EOP	8/16/2018 12:14	UC2156	<0.005	0.0053	<0.0001	0.0349	<0.0005	0.00029	0.0964	<0.0001	<0.001	0.155	<0.00001	90.5	<0.001	0.00071	0.00071	0.025	<0.0002	0.156	33.2	0.0128
RSEM-R5B-EOP	8/17/2018 6:47	UC4875	<0.005	<0.005	<0.0001	0.0326	<0.0005	0.00026	0.0947	<0.0001	<0.001	0.143	<0.00001	85.6	<0.001	<0.0002	0.00113	0.023	<0.0002	0.15	35.4	0.0015
RSEM-R5B-EOP	8/18/2018 9:46	UC8577	<0.005	0.0075	<0.0001	0.0309	<0.0005	0.00034	0.0975	<0.0001	<0.001	0.143	<0.00001	85.5	<0.001	0.00059	0.00086	0.026	<0.0002	0.154	31.5	0.0046
RSEM-R5B-EOP	8/19/2018 12:55	UC8612	<0.005	<0.005	<0.0001	0.0286	<0.0005	0.00031	0.0953	<0.0001	<0.001	0.15	<0.00001	96.6	<0.001	0.00042	0.00102	0.021	<0.0002	0.162	33.4	0.0031
RSEM-R5B-EOP	8/20/2018 11:27	UD1950	<0.005	<0.005	<0.0001	0.0244	<0.0005	0.00026	0.102	<0.0001	<0.001	0.157	<0.00001	88.3	<0.001	0.00047	0.00095	0.027	<0.0002	0.164	33.9	0.0058
RSEM-R5B-EOP	8/21/2018 9:24	UD2057	<0.005	<0.005	<0.0001	0.0265	<0.0005	0.00027	0.101	<0.0001	<0.001	0.162	0.00001	92.6	<0.001	0.00049	0.00135	0.027	<0.0002	0.161	37.5	0.008
RSEM-R5B-EOP	8/22/2018 11:34	UD5024	<0.005	0.013	<0.0001	0.0401	<0.0005	0.00032	0.0902	<0.0001	<0.001	0.152	<0.00001	102	<0.001	0.00062	0.00099	0.033	<0.0002	0.154	38.8	0.0058
RSEM-R5B-EOP	8/23/2018 9:41	UD6753	<0.005	0.006	<0.0001	0.0286	<0.0005	0.00033	0.0944	<0.0001	<0.001	0.173	<0.00001	102	<0.001	<0.0002	0.00107	0.025	<0.0002	0.159	40.1	0.0011
RSEM-R5B-EOP	8/24/2018 8:49	UD8196	<0.005	<0.005	<0.0001	0.0403	<0.0005	0.00029	0.0987	<0.0001	<0.001	0.191	<0.00001	129	<0.001	0.0003	0.0008	0.023	<0.0002	0.161	47.3	0.0021
RSEM-R5B-EOP	8/25/2018 8:45	UE1792	<0.005	0.0054	<0.0001	0.263	0.00195	0.00034	0.0923	<0.0001	<0.001	0.202	<0.00001	114	<0.001	0.00037	0.00085	0.031	<0.0002	0.157	43.0	0.0032
RSEM-R5B-EOP	8/26/2018 10:15	UE1804	<0.005	<0.005	<0.0001	0.0393	<0.0005	0.00031	0.102	<0.0001	<0.001	0.131	<0.00001	91.1	<0.001	0.0003	0.00122	0.025	<0.0002	0.131	35.3	0.002

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	6/25/2018	TS9112	<0.000002	0.0034	0.0073	-	2.77	0.00114	1.7	<0.00002	81.6	0.248	44.8	0.000018	<0.005	<0.005	0.00165	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/25/2018	TS9110	<0.000002	0.0035	0.007	-	2.71	0.00113	1.62	<0.00002	84.4	0.254	43.3	0.000018	<0.005	<0.005	0.00169	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	6/26/2018 16:00	TT0849	<0.000002	0.0015	0.201	-	3.09	0.00312	2.78	<0.00002	78.0	0.406	159	0.000026	<0.005	<0.005	0.00149	<0.005	0.57	<0.0001
RSEM-R5B-EOP	6/27/2018 12:40	TT1140	<0.000002	<0.02	0.655	-	4.0	0.0069	5.88	<0.0004	138	0.6	315	<0.0002	<0.1	<0.1	0.0187	<0.1	2.61	<0.002
RSEM-R5B-EOP	6/28/2018 12:50	TT3458	<0.000002	<0.002	0.475	-	4.58	0.00657	4.72	<0.00004	149	0.712	309	0.000053	<0.01	<0.01	0.0069	<0.01	1.65	<0.0002
RSEM-R5B-EOP	6/29/2018 10:50	TT6312	<0.000002	0.0015	0.375	-	4.83	0.00658	4.48	<0.00002	144	0.673	283	0.000065	<0.005	<0.005	0.00506	<0.005	1.15	<0.0001
RSEM-R5B-EOP	6/30/2018	TU0475	<0.000002	0.0017	0.259	-	4.65	0.00557	4.4	<0.00002	148	0.606	255	0.000053	<0.005	<0.005	0.00533	<0.005	0.649	<0.0001
RSEM-R5B-EOP	7/1/2018 0:00	TU0435	<0.000002	0.0019	0.2	-	4.34	0.005	4.08	<0.00002	143	0.548	208	0.000049	<0.005	<0.005	0.00479	<0.005	0.431	<0.0001
RSEM-R5B-EOP	7/2/2018 17:15	TU1419	<0.000002	0.0028	0.0869	-	3.72	0.00361	3.26	<0.00002	122	0.438	136	0.000025	<0.005	<0.005	0.00375	<0.005	0.0401	<0.0001
RSEM-R5B-EOP	7/3/2018 15:50	TU4428	<0.000002	0.0027	0.0822	-	3.90	0.00352	3.47	<0.00002	124	0.44	148	0.000028	<0.005	<0.005	0.00352	<0.005	0.0274	<0.0001
RSEM-R5B-EOP	7/4/2018 16:30	TU6246	<0.000002	0.0028	0.0631	-	3.85	0.003	3.7	<0.00002	129	0.437	132	0.00002	<0.005	<0.005	0.0033	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/5/2018 13:45	TU8087	<0.000002	0.0028	0.05	-	3.60	0.00263	4.12	<0.00002	120	0.404	112	0.000024	<0.005	<0.005	0.00344	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/6/2018 10:30	TU8093	<0.000002	0.0028	0.0406	-	3.69	0.00288	3.89	<0.00002	138	0.435	124	0.000024	<0.005	<0.005	0.0034	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/7/2018 7:45	TV0770	<0.000002	0.0028	0.0285	-	4.42	0.00427	3.14	<0.00002	198	0.505	197	0.000032	<0.005	<0.005	0.00327	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/8/2018 10:30	TV1575	<0.000002	0.0027	0.0232	-	4.17	0.00345	3.2	<0.00002	168	0.437	159	0.000025	<0.005	<0.005	0.00286	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/9/2018 17:50	TV3538	<0.000002	0.0028	0.0191	-	4.07	0.00312	2.83	<0.00002	160	0.406	139	0.000022	<0.005	<0.005	0.0027	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/10/2018 14:05	TV5659	<0.000002	0.0029	0.0183	-	3.93	0.00293	2.45	<0.00002	160	0.412	117	0.000018	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/11/2018 13:15	TV9386	<0.000002	0.0028	0.0145	-	4.14	0.00244	2.44	<0.00002	148	0.342	104	0.00002	<0.005	<0.005	0.00239	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/12/2018 0:00	TV9381	<0.000002	0.0028	0.0113	-	3.89	0.00215	2.31	<0.00002	133	0.309	84.2	0.000018	<0.005	<0.005	0.00223	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/13/2018 0:00	TV9675	<0.000002	0.0028	0.0103	-	3.90	0.00192	2.17	<0.00002	130	0.304	79.9	0.000019	<0.005	<0.005	0.00213	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/14/2018 14:00	TW3845	<0.000002	0.0028	0.0098	-	3.81	0.00247	1.9	<0.00002	155	0.368	101	0.000014	<0.005	<0.005	0.00221	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/15/2018 15:15	TW3842	<0.000002	0.0026	0.0113	-	4.35	0.00465	1.86	<0.00004	235	0.544	198	0.000024	<0.01	<0.01	0.00239	<0.01	<0.01	<0.0002
RSEM-R5B-EOP	7/16/2018 6:45	TW5085	<0.000002	0.0025	0.011	-	4.74	0.00634	1.82	<0.00004	307	0.713	278	0.000026	<0.01	<0.01	0.00263	<0.01	<0.01	<0.0002
RSEM-R5B-EOP	7/17/2018 9:25	TW5975	<0.000002	0.0025	0.0099	-	4.98	0.00674	1.62	<0.00004	334	0.767	306	0.00003	<0.01	<0.01	0.00252	<0.01	<0.01	<0.0002
RSEM-R5B-EOP	7/18/2018 9:15	TW8366	<0.000002	0.0026	0.008	-	4.77	0.00581	1.39	<0.00002	271	0.697	250	0.000028	<0.005	<0.005	0.0024	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/19/2018 12:00	TX0645	<0.000002	0.0025	0.0077	-	4.40	0.00426	1.17	<0.00004	236	0.503	200	0.000025	<0.01	<0.01	0.00208	<0.01	<0.01	<0.0002
RSEM-R5B-EOP	7/20/2018 11:55	TX2836	<0.000002	0.0027	0.0083	-	4.48	0.00465	1.33	<0.00002	242	0.582	218	0.000025	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/21/2018 17:20	TX5553	<0.000002	0.0018	0.155	-	3.79	0.00332	3.12	<0.00002	135	0.489	224	0.000024	<0.005	<0.005	0.00207	<0.005	0.281	<0.0001
RSEM-R5B-EOP	7/22/2018 12:00	TX5559	<0.000002	0.0017	0.14	-	3.82	0.00337	2.95	<0.00002	141	0.518	237	0.000027	<0.005	<0.005	0.00217	<0.005	0.208	<0.0001
RSEM-R5B-EOP	7/23/2018 17:00	TY1080	<0.000002	0.0021	0.126	-	4.08	0.00414	2.89	<0.00002	169	0.599	257	0.00003	<0.005	<0.005	0.00304	<0.005	0.0519	<0.0001
RSEM-R5B-EOP	7/24/2018 17:40	TY1081	<0.000002	<0.002	0.0894	-	4.26	0.00529	3.19	<0.00004	216	0.664	293	0.000042	<0.01	<0.01	0.00342	<0.01	0.012	<0.0002
RSEM-R5B-EOP	7/25/2018 19:30	TY3339	<0.000002	0.0021	0.0573	-	4.23	0.00404	2.71	<0.00002	194	0.6	223	0.000024	<0.005	<0.005	0.0032	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/26/2018 17:15	TY5332	<0.000002	0.0022	0.0369	-	4.01	0.00378	2.66	<0.00002	185	0.604	207	0.000023	<0.005	<0.005	0.00292	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/27/2018 8:33	TY5340	<0.000002	0.0022	0.034	-	4.02	0.00383	2.53	<0.00002	185	0.604	209	0.000023	<0.005	<0.005	0.00287	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/28/2018 15:34	TZ1781	<0.000002	0.0022	0.0247	-	3.89	0.00276	2.42	<0.00002	164	0.473	155	0.000024	<0.005	<0.005	0.00238	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/29/2018 12:50	TZ1785	<0.000002	0.0022	0.0193	-	3.96	0.00263	2.33	<0.00002	163	0.459	145	0.000024	<0.005	<0.005	0.00224	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/30/2018 12:40	TZ3235	<0.000002	0.0027	0.0149	-	3.92	0.00212	2.1	<0.00002	112	0.532	133	0.000014	<0.005	<0.005	0.00184	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	7/31/2018 17:21	TZ5897	<0.000002	<0.01	0.031	-	3.81	0.0027	2.81	<0.0002	125	0.454	140	<0.0001	<0.05	<0.05	0.0022	<0.05	<0.05	<0.001
RSEM-R5B-EOP	8/1/2018 16:15	TZ8460	<0.000002	0.0024	0.0209	-	4.14	0.00255	3.16	<0.00002	130	0.487	167	0.000022	<0.005	<0.005	0.00245	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/2/2018 16:46	UA0955	<0.000002	0.0026	0.0158	-	3.89	0.00252	3.28	<0.00002	136	0.454	157	0.000024	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/3/2018 12:57	UA1047	<0.000002	0.0023	0.0135	-	3.81	0.00264	2.9	<0.00002	134	0.436	141	0.000021	<0.005	<0.005	0.00219	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/4/2018 17:03	UA3789	<0.000002	0.0022	0.0148	-	3.46	0.00196	2.48	<0.00002	115	0.34	99.8	0.000018	<0.005	<0.005	0.00204	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/5/2018 16:19	UA3788	<0.000002	0.0023	0.0164	-	3.52	0.00224	2.61	<0.00002	125	0.369	118	0.00002	<0.005	<0.005	0.00216	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/6/2018 16:42	UA3839	<0.000002	0.0023	0.0167	-	3.76	0.00288	2.69	<0.00002	139	0.43	150	0.000024	<0.005	<0.005	0.0023	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/7/2018 12:45	UA4367	<0.000002	0.0022	0.015	-	3.57	0.00187	2.18	<0.00002	123	0.324	87.0	0.000018	<0.005	<0.005	0.00193	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/8/2018 8:35	UA6827	<0.000002	0.0022	0.0126	-	3.46	0.00169	2.37	<0.00002	111	0.303	72.7	0.000014	<0.005	<0.005	0.00191	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/9/2018 13:45	UA9169	<0.000002	0.0021	0.0111	-	4.10	0.00293	2.08	<0.00002	167	0.447	152	0.000022	<0.005	<0.005	0.002	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/10/2018 10:05	UB1627	<0.000002	0.0018	0.0113	-	4.71	0.00474	1.99	<0.00002	239	0.684	261	0.000035	<0.005	<0.005	0.00204	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/11/2018 16:40	UB4072	<0.000002	0.0016	0.0113	-	5.37	0.00523	1.87	<0.00002	280	0.823	336	0.000044	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/12/2018 15:50	UB4557	<0.000002	<0.002	0.0103	-	4.67	0.00451	1.65	<0.00004	235	0.656	248	0.000037	<0.01	<0.01	0.00172	<0.01	<0.01	<0.0002
RSEM-R5B-EOP	8/13/2018 0:15	UB4586	<0.000002	0.0019	0.0096	-	4.49	0.00382	1.44	<0.00002	212	0.591	219	0.00003	<0.005	<0.005	0.00174	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/14/2018 14:50	UC1794	<0.000002	0.002	0.0094	-	4.45	0.00358	1.06	<0.00002	201	0.568	196	0.00002	<0.005	<0.005	0.00182	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/15/2018 12:15	UC1589	<0.000002	0.0021	0.0092	-	4.25	0.00336	1.19	<0.00002	193	0.539	186	0.000018	<0.005	<0.005	0.00179	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/16/2018 12:14	UC2156	<0.000002	0.0021	0.0092	-	3.98	0.00302	1.31	<0.00002	183	0.469	153	0.00002	<0.005	<0.005	0.00177	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/17/2018 6:47	UC4875	<0.000002	0.0022	0.0078	-	4.10	0.00279	1.02	<0.00002	178	0.455	137	0.00002	<0.005	<0.005	0.00172	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/18/2018 9:46	UC8577	<0.000002	0.0023	0.0088	-	3.95	0.00295	0.958	<0.00002	160	0.45	142	0.000015	<0.005	<0.005	0.00178	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/19/2018 12:55	UC8612	<0.000002	0.0022	0.0083	-	4.08	0.0032	0.977	<0.00002	170	0.497	163	0.00002	<0.005	<0.005	0.00182	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/20/2018 11:27	UD1950	<0.000002	0.0021	0.0084	-	4.02	0.00295	1.19	<0.00002	163	0.491	141	0.000019	<0.005	<0.005	0.00172	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/21/2018 9:24	UD2057	<0.000002	0.0022	0.0086	-	4.43	0.0032	0.957	<0.00002	177	0.523	161	0.000024	<0.005	<0.005	0.0018	<0.005	0.0078	<0.0001
RSEM-R5B-EOP	8/22/2018 11:34	UD5024	0.0000027	0.0023	0.0088	-	4.18	0.00362	0.863	<0.00002	181	0.497	178	0.000017	<0.005	<0.005	0.00184	<0.005	0.0063	<0.0001
RSEM-R5B-EOP	8/23/2018 9:41	UD6753	0.0000032	0.0023	0.0078	-	4.66	0.00346	0.835	<0.00002	178	0.504	187	0.000021	<0.005	<0.005	0.0018	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/24/2018 8:49	UD8196	0.000006	0.0022	0.0083	-	4.61	0.00404	1.77	<0.00002	191	0.566	229	0.000028	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/25/2018 8:45	UE1792	<0.000002	0.0023	0.008	-	4.10	0.00367	1.19	<0.00002	179	0.527	200	0.00002	<0.005	<0.005	0.00187	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/26/2018 10:15	UE1804	<0.000002	0.0022	0.0074	-	3.75	0.00268	1.45	<0.00002	144	0.411	131	0.000017	<0.005	<0.005	0.00184	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	8/27/2018 11:00	UE2120	8.19	1360	2.19	898	<4.0	411	392	236	<1.0	288	<1.0	<1.0	50.1	0.380	0.50	354
RSEM-R5B-EOP	8/28/2018 9:45	UE5265	8.08	1380	2.02	914	<4.0	400	386	223	<1.0	272	<1.0	<1.0	47.3	0.370	0.58	394
RSEM-R5B-EOP	8/29/2018 1:25	UF1105	8.25	1500	1.79	1010	<4.0	422	411	213	<1.0	260	<1.0	<1.0	57.9	0.450	0.53	481
RSEM-R5B-EOP	8/30/2018 9:15	UF1079	8.31	1530	1.58	1030	<4.0	440	417	240	2.1	288	2.5	<1.0	54.5	0.450	0.54	506
RSEM-R5B-EOP	8/31/2018 9:00	UF3968	8.23	1470	0.94	968	<4.0	396	378	237	<1.0	290	<1.0	<1.0	50.9	0.430	0.56	403
RSEM-R5B-EOP	9/1/2018 3:15	UF6670	8.36	1350	0.71	876	<4.0	408	364	246	4.1	290	5.0	<1.0	54.1	0.390	0.50	371
RSEM-R5B-EOP	9/2/2018 9:45	UF7756	8.23	1830	0.65	1250	<4.0	558	525	221	<1.0	270	<1.0	<1.0	48.4	0.600	0.58	657
RSEM-R5B-EOP	9/3/2018 9:50	UG0440	8.29	1730	0.56	1280	<4.0	479	490	220	<1.0	269	<1.0	<1.0	50.6	0.570	0.64	610
RSEM-R5B-EOP	9/4/2018 15:30	UG0435	8.29	1810	0.44	1350	<4.0	531	532	211	<1.0	257	<1.0	<1.0	49.1	0.600	0.62	672
RSEM-R5B-EOP	9/5/2018 13:10	UG2835	8.32	1760	0.50	1190	<4.0	498	489	209	1.7	251	2.0	<1.0	52.3	0.620	0.60	650
RSEM-R5B-EOP	9/6/2018 10:10	UG2790	8.34	1740	0.51	1130	<4.0	487	486	211	1.8	253	2.1	<1.0	52.3	0.590	0.60	634
RSEM-R5B-EOP	9/7/2018 9:50	UG5295	8.27	1740	0.56	1210	<4.0	503	493	195	<1.0	238	<1.0	<1.0	50.4	0.520	0.61	620
RSEM-R5B-EOP	9/8/2018 9:20	UG8751	8.20	1510	9.60	1020	32.0	455	426	143	<1.0	174	<1.0	<1.0	48.8	0.480	0.67	411
RSEM-R5B-EOP	9/9/2018 7:00	UG8730	5.25	1590	14.5	1150	12.8	554	552	<1.0	<1.0	<1.0	<1.0	<1.0	36.0	1.50	0.64	783
RSEM-R5B-EOP	9/10/2018 6:10	UH0972	6.02	2150	7.87	1670	9.0	674	753	4.2	<1.0	5.1	<1.0	<1.0	40.7	1.70	0.72	1100
RSEM-R5B-EOP	9/11/2018 11:45	UH0969	7.45	2060	10.2	1510	10.0	636	707	62.4	<1.0	76.1	<1.0	<1.0	41.8	<0.020	0.69	954
RSEM-R5B-EOP	9/12/2018 11:35	UH7643	7.87	2030	5.44	1430	4.8	636	696	98.2	<1.0	120	<1.0	<1.0	44.4	1.20	0.60	903
RSEM-R5B-EOP	9/13/2018 11:45	UH7732	7.93	2030	4.14	1430	<4.0	637	662	116	<1.0	142	<1.0	<1.0	43.7	1.20	0.62	878
RSEM-R5B-EOP	9/14/2018 9:20	UI0648	8.07	1860	4.41	1320	5.5	528	557	168	<1.0	205	<1.0	<1.0	47.0	1.10	0.65	740
RSEM-R5B-EOP	9/15/2018 7:35	UI5251	8.14	1840	1.84	1290	<4.0	573	541	175	<1.0	214	<1.0	<1.0	43.1	1.00	0.61	732
RSEM-R5B-EOP	9/16/2018 9:00	UI5527	8.16	1710	1.24	1330	<4.0	551	511	192	<1.0	235	<1.0	<1.0	52.6	0.940	0.61	614
RSEM-R5B-EOP	9/17/2018 9:51	UI5115	8.17	1680	3.20	1140	4.8	521	265	195	<1.0	238	<1.0	<1.0	54.0	0.880	0.62	599
RSEM-R5B-EOP	9/18/2018 8:40	UI9106	8.14	1560	3.90	908	5.0	465	501	199	<1.0	243	<1.0	<1.0	47.5	0.760	0.60	530
RSEM-R5B-EOP	9/19/2018 9:00	UJ0841	8.13	1430	2.76	1000	4.8	436	487	158	<1.0	192	<1.0	<1.0	47.3	0.830	0.60	525
RSEM-R5B-EOP	9/20/2018 10:16	UJ3870	8.15	1370	1.44	874	<4.0	431	425	173	<1.0	211	<1.0	<1.0	44.9	0.760	0.58	437
RSEM-R5B-EOP	9/21/2018 11:00	UJ7161	8.26	1280	2.49	826	7.5	389	402	168	<1.0	205	<1.0	<1.0	47.7	0.640	0.68	341
RSEM-R5B-EOP	9/22/2018 10:40	UK0062	8.12	1200	2.25	788	4.0	372	381	159	<1.0	193	<1.0	<1.0	46.8	0.070	0.53	304
RSEM-R5B-EOP	9/23/2018 9:30	UK1525	8.11	1190	0.70	802	<4.0	341	361	174	<1.0	212	<1.0	<1.0	45.3	0.570	0.54	350
RSEM-R5B-EOP	9/24/2018 8:45	UK0550	8.15	1210	0.93	784	<4.0	352	361	162	<1.0	198	<1.0	<1.0	44.5	0.490	0.54	368
RSEM-R5B-EOP	9/25/2018 10:30	UK2336	8.21	1290	1.48	862	<4.0	358	355	153	<1.0	187	<1.0	<1.0	46.6	0.500	0.65	378
RSEM-R5B-EOP	9/26/2018 12:30	UK5503	7.97	1400	1.33	942	<4.0	363	384	164	<1.0	200	<1.0	<1.0	44.5	0.450	0.57	464
RSEM-R5B-EOP	9/27/2018 9:50	UK8655	8.12	1420	0.90	974	<4.0	365	392	154	<1.0	188	<1.0	<1.0	43.2	0.470	0.56	480
RSEM-R5B-EOP	9/28/2018 10:45	UL0968	8.22	1410	0.59	946	<4.0	370	346	152	<1.0	185	<1.0	<1.0	45.7	1.00	0.64	500
RSEM-R5B-EOP	9/29/2018 16:25	UL4208	8.16	1230	0.80	792	<4.0	339	328	153	<1.0	187	<1.0	<1.0	46.0	0.480	0.54	387
RSEM-R5B-EOP	9/30/2018 13:20	UL4214	8.18	1220	1.15	778	<4.0	335	313	146	<1.0	178	<1.0	<1.0	45.3	0.420	0.53	384
RSEM-R5B-EOP	10/1/2018 11:00	UL6710	8.18	1160	1.04	720	<4.0	323	321	163	<1.0	199	<1.0	<1.0	44.2	0.400	0.58	337
RSEM-R5B-EOP	10/2/2018 11:53	UL6716	8.06	1140	0.91	710	<4.0	314	316	163	<1.0	199	<1.0	<1.0	43.3	0.390	0.59	328
RSEM-R5B-EOP	10/3/2018 11:50	UM2668	7.81	1180	1.62	784	<4.0	344	363	140	<1.0	171	<1.0	<1.0	46.6	0.380	0.53	386
RSEM-R5B-EOP	10/3/2018 11:50	UM2669	7.92	1190	1.35	778	<4.0	343	365	138	<1.0	169	<1.0	<1.0	46.1	0.390	0.53	381
RSEM-R5B-EOP	10/4/2018 10:50	UM6147	7.95	1230	0.80	792	<4.0	332	350	121	<1.0	148	<1.0	<1.0	44.5	0.380	0.56	325
RSEM-R5B-EOP	10/5/2018 10:10	UM6131	7.85	1200	0.88	790	<4.0	337	358	111	<1.0	136	<1.0	<1.0	43.8	0.400	0.58	402
RSEM-R5B-EOP	10/5/2018 10:10	UM6132	7.93	1240	1.05	798	<4.0	336	359	113	<1.0	138	<1.0	<1.0	42.4	0.390	0.56	412
RSEM-R5B-EOP	10/6/2018 16:45	UM9334	7.90	1260	0.82	814	<4.0	343	354	93.6	<1.0	114	<1.0	<1.0	46.8	0.400	0.59	424
RSEM-R5B-EOP	10/7/2018 12:20	UM9326	7.87	1250	0.61	822	<4.0	342	354	89.9	<1.0	110	<1.0	<1.0	43.9	0.410	0.61	468
RSEM-R5B-EOP	10/8/2018 12:45	UM9332	7.92	1240	0.48	826	<4.0	332	340	89.6	<1.0	109	<1.0	<1.0	45.3	0.400	0.61	437
RSEM-R5B-EOP	10/9/2018 9:45	UM9809	7.92	1170	0.51	754	<4.0	328	318	92.2	<1.0	112	<1.0	<1.0	45.9	0.380	0.57	396
RSEM-R5B-EOP	10/10/2018 9:10	UN2721	7.99	1020	0.35	652	<4.0	270	291	110	<1.0	134	<1.0	<1.0	46.0	0.330	0.40	311
RSEM-R5B-EOP	10/11/2018 10:15	UN4652	8.06	1060	0.55	664	<4.0	273	300	111	<1.0	135	<1.0	<1.0	39.5	0.350	0.44	305
RSEM-R5B-EOP	10/12/2018 9:00	UN7468	8.08	1020	1.70	636	<4.0	263	279	97.6	<1.0	119	<1.0	<1.0	44.5	0.360	0.43	342
RSEM-R5B-EOP	10/13/2018 12:30	UN9931	8.11	1120	1.74	698	6.8	296	303	98.1	<1.0	120	<1.0	<1.0	44.3	0.420	0.55	376
RSEM-R5B-EOP	10/14/2018 13:15	UN9928	8.09	1110	1.84	718	<4.0	291	303	94.3	<1.0	115	<1.0	<1.0	44.6	0.440	0.53	388
RSEM-R5B-EOP	10/15/2018 17:30	UO4613	7.99	1160	0.82	734	<4.0	283	288	84.5	<1.0	103	<1.0	<1.0	44.8	0.420	0.54	377
RSEM-R5B-EOP	10/16/2018 12:50	UO9191	7.97	1180	0.77	764	<4.0	302	297	77.2	<1.0	94.2	<1.0	<1.0	46.3	0.400	0.53	407
RSEM-R5B-EOP	10/17/2018 15:50	UO9201	7.98	1190	0.80	768	<4.0	294	292	68.5	<1.0	83.6	<1.0	<1.0	47.0	0.390	0.56	383
RSEM-R5B-EOP	10/18/2018 17:55	UP3095	7.93	1190	0.68	774	<4.0	270	278	70.1	<1.0	85.6	<1.0	<1.0	51.7	0.460	0.55	396
RSEM-R5B-EOP	10/19/2018 10:35	UP3099	7.92	1170	0.76	760	<4.0	271	275	70.8	<1.0	86.4	<1.0	<1.0	51.9	0.480	0.53	397
RSEM-R5B-EOP	10/20/2018 9:50	UP6167	8.01	1070	0.86	664	<4.0	231	232	72.0	<1.0	87.8	<1.0	<1.0	39.0	0.430	0.51	324
RSEM-R5B-EOP	10/21/2018 17:16	UP5458	8.09	1140	0.73	718	<4.0	235	239	70.8	<1.0	86.4	<1.0	<1.0	39.6	0.470	0.51	373
RSEM-R5B-EOP	10/22/2018 10:00	UP6173	8.01	1180	0.49	736	<4.0	272	269	70.4	<1.0	85.9	<1.0	<1.0	43.0	0.480	0.55	378
RSEM-R5B-EOP	10/23/2018 12:20	UP9910	8.21	999	0.75	620	<4.0	194	205	79.5	<1.0	97.0	<1.0	<1.0	36.7	0.400	0.51	265
RSEM-R5B-EOP	10/23/2018 12:20	UP9908	8.25	1000	0.78	616	<4.0	195	198	78.9	<1.0	96.3	<1.0	<1.0	37.7	0.340	0.45	307
RSEM-R5B-EOP	10/24/2018 13:35	UQ3376	8.07	943	0.74	600	<4.0	188	188	84.4	<1.0	103	<1.0	<1.0	38.5	0.330	0.42	322
RSEM-R5B-EOP	10/25/2018 12:15	UQ3348	8.09	944	1.15	584	<4.0	177	182	88.0	<1.0	107	<1.0	<1.0	40.6	0.320	0.44	311
RSEM-R5B-EOP	10/26/2018 12:00	UQ5568	8.14	914	0.58	572	<4.0	196	194	103	<1.0	125	<1.0	<1.0	35.8	0.350	0.35	259

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	8/27/2018 11:00	UE2120	<0.020	<0.0050	0.331	0.331	<0.0050	2.27	1.73	0.0689	<0.0005	0.00032	0.107	<0.0001	<0.001	0.159	0.000013	99.9	<0.001	0.00063	0.00254
RSEM-R5B-EOP	8/28/2018 9:45	UE5265	<0.020	<0.0050	0.300	0.300	<0.0050	1.54	2.74	0.055	<0.0005	0.00032	0.102	<0.0001	<0.001	0.137	0.00001	96.7	<0.001	0.0006	0.00111
RSEM-R5B-EOP	8/29/2018 1:25	UF1105	0.30	<0.0050	0.221	0.221	<0.0050	1.7	1.70	0.0617	<0.0005	0.00032	0.0939	<0.0001	<0.001	0.151	<0.00001	101	<0.001	0.00056	0.00134
RSEM-R5B-EOP	8/30/2018 9:15	UF1079	0.22	<0.0050	0.196	0.196	<0.0050	2.4	1.58	0.0411	<0.0005	0.0003	0.0911	<0.0001	<0.001	0.156	<0.00001	104	<0.001	0.00045	0.00115
RSEM-R5B-EOP	8/31/2018 9:00	UF3968	0.023	0.0064	0.203	0.209	<0.0050	2.6	1.81	0.0391	<0.0005	0.00034	0.0901	<0.0001	<0.001	0.143	<0.00001	94.1	<0.001	0.00035	0.00113
RSEM-R5B-EOP	9/1/2018 3:15	UF6670	<0.020	<0.0050	0.194	0.194	<0.0050	2.06	1.67	0.0371	<0.0005	0.0003	0.0944	<0.0001	<0.001	0.15	<0.00001	90.6	<0.001	0.00031	0.00117
RSEM-R5B-EOP	9/2/2018 9:45	UF7756	0.070	0.0052	0.241	0.246	<0.0050	3.1	2.3	0.0251	<0.0005	0.00029	0.0787	<0.0001	<0.001	0.211	<0.00001	131	<0.001	0.00046	0.00107
RSEM-R5B-EOP	9/3/2018 9:50	UG0440	0.030	0.0134	0.194	0.207	0.0197	2.2	2.3	0.0258	<0.0005	0.00031	0.0821	<0.0001	<0.001	0.21	0.00001	111	<0.001	0.00039	0.00117
RSEM-R5B-EOP	9/4/2018 15:30	UG0435	0.044	0.0110	0.248	0.259	<0.0050	2.0	1.9	0.0183	<0.0005	0.0003	0.0716	<0.0001	<0.001	0.168	<0.00001	124	<0.001	0.00038	0.00089
RSEM-R5B-EOP	9/5/2018 13:10	UG2835	0.065	0.0084	0.229	0.237	<0.0050	1.9	2.5	0.0225	<0.0005	0.00031	0.0785	<0.0001	<0.001	0.221	<0.00001	116	<0.001	0.0004	0.00212
RSEM-R5B-EOP	9/6/2018 10:10	UG2790	0.040	0.0074	0.233	0.240	<0.0050	2.2	1.9	0.0197	<0.0005	0.00029	0.0771	<0.0001	<0.001	0.204	<0.00001	113	<0.001	0.0004	0.00098
RSEM-R5B-EOP	9/7/2018 9:50	UG5295	0.12	0.0069	0.369	0.376	<0.0050	1.5	1.6	0.0189	<0.0005	0.0003	0.0744	<0.0001	<0.001	0.173	<0.00001	113	<0.001	0.00038	0.0009
RSEM-R5B-EOP	9/8/2018 9:20	UG8751	0.10	0.0073	0.275	0.282	<0.0050	2.0	2.2	0.483	<0.0005	0.00104	0.101	<0.0001	<0.001	0.158	0.000053	108	0.001	0.00102	0.00324
RSEM-R5B-EOP	9/9/2018 7:00	UG8730	0.28	0.0128	0.486	0.499	<0.0050	0.86	1.4	4.8	<0.0005	0.00023	0.125	0.00179	<0.001	0.128	0.0067	136	0.0018	0.103	0.101
RSEM-R5B-EOP	9/10/2018 6:10	UH0972	0.52	0.0114	0.640	0.651	<0.0050	2.0	1.5	2.22	<0.0005	0.00017	0.0658	0.00129	<0.001	0.188	0.00692	162	<0.001	0.133	0.0695
RSEM-R5B-EOP	9/11/2018 11:45	UH0969	0.49	0.0166	0.754	0.770	<0.0050	1.2	1.6	0.6	<0.0005	0.00029	0.0646	0.00043	<0.001	0.187	0.00426	150	<0.001	0.0949	0.0164
RSEM-R5B-EOP	9/12/2018 11:35	UH7643	0.43	0.0147	0.754	0.769	<0.0050	1.5	2.4	0.23	<0.0005	0.00027	0.0633	0.00013	<0.001	0.193	0.00258	150	<0.001	0.0683	0.00548
RSEM-R5B-EOP	9/13/2018 11:45	UH7732	0.38	0.0120	0.734	0.746	<0.0050	2.0	1.2	0.193	<0.0005	0.00028	0.063	<0.0001	<0.001	0.195	0.00196	151	<0.001	0.0587	0.00373
RSEM-R5B-EOP	9/14/2018 9:20	UI0648	0.37	0.0138	0.749	0.762	0.0053	1.2	0.98	0.242	<0.0005	0.00027	0.0722	<0.0001	<0.001	0.181	0.00122	130	<0.001	0.0413	0.00361
RSEM-R5B-EOP	9/15/2018 7:35	UI5251	0.13	0.0129	0.782	0.795	0.0056	1.4	2.0	0.196	<0.0005	0.00023	0.0736	<0.0001	<0.001	0.172	0.00115	137	<0.001	0.0388	0.00365
RSEM-R5B-EOP	9/16/2018 9:00	UI5527	0.28	0.0127	0.793	0.806	0.0135	1.3	1.8	0.227	<0.0005	0.00025	0.0859	<0.0001	<0.001	0.16	0.00146	131	<0.001	0.0403	0.00464
RSEM-R5B-EOP	9/17/2018 9:51	UI5115	0.27	0.0185	0.758	0.777	0.0100	1.9	1.2	0.117	<0.0005	0.00028	0.0788	<0.0001	<0.001	0.153	0.000673	126	<0.001	0.025	0.00173
RSEM-R5B-EOP	9/18/2018 8:40	UI9106	0.25	0.0165	0.877	0.894	0.0117	1.6	0.96	0.115	<0.0005	0.0003	0.0761	<0.0001	<0.001	0.163	0.000361	113	<0.001	0.0143	0.00139
RSEM-R5B-EOP	9/19/2018 9:00	UJ0841	0.26	0.0111	0.649	0.660	<0.0050	1.7	1.7	0.119	<0.0005	0.0003	0.0605	<0.0001	<0.001	0.139	0.000286	107	<0.001	0.0125	0.00136
RSEM-R5B-EOP	9/20/2018 10:16	UJ3870	0.14	0.0087	0.597	0.605	<0.0050	3.61	1.45	0.14	<0.0005	0.00034	0.0647	<0.0001	<0.001	0.129	0.000312	106	<0.001	0.0129	0.00143
RSEM-R5B-EOP	9/21/2018 11:00	UJ7161	0.055	0.0123	0.617	0.629	<0.0050	2.21	1.15	0.149	<0.0005	0.00034	0.0595	<0.0001	<0.001	0.127	0.000214	90.6	<0.001	0.00848	0.00147
RSEM-R5B-EOP	9/22/2018 10:40	UK0062	0.16	<0.0050	0.559	0.559	<0.0050	1.51	1.43	0.0902	<0.0005	0.00029	0.0564	<0.0001	<0.001	0.114	0.000125	87.8	<0.001	0.00449	0.00126
RSEM-R5B-EOP	9/23/2018 9:30	UK1525	0.16	0.0127	0.588	0.600	<0.0050	1.95	1.70	0.0673	<0.0005	0.00027	0.0546	<0.0001	<0.001	0.117	0.000097	78.7	<0.001	0.00337	0.00085
RSEM-R5B-EOP	9/24/2018 8:45	UK0550	0.11	0.0070	0.548	0.555	<0.0050	2.16	1.16	0.0812	<0.0005	0.00029	0.0552	<0.0001	<0.001	0.127	0.000083	80.0	<0.001	0.0028	0.00117
RSEM-R5B-EOP	9/25/2018 10:30	UK2336	0.17	0.0105	0.562	0.572	<0.0050	2.06	1.13	0.0793	<0.0005	0.00031	0.0543	<0.0001	<0.001	0.129	0.000069	75.6	<0.001	0.00265	0.00146
RSEM-R5B-EOP	9/26/2018 12:30	UK5503	0.17	0.0079	0.532	0.540	<0.0050	1.43	0.59	0.0893	0.00057	0.00033	0.0545	<0.0001	<0.001	0.141	0.000061	78.5	<0.001	0.00239	0.00088
RSEM-R5B-EOP	9/27/2018 9:50	UK8655	0.17	0.0098	0.480	0.490	<0.0050	1.73	1.43	0.0613	0.00062	0.00032	0.0502	<0.0001	<0.001	0.149	0.000067	78.0	<0.001	0.00221	0.00097
RSEM-R5B-EOP	9/28/2018 10:45	UL0968	0.13	0.0370	0.621	0.658	<0.0050	1.5	1.31	0.0741	0.00061	0.00034	0.0472	<0.0001	<0.001	0.153	0.000078	78.7	<0.001	0.00245	0.00092
RSEM-R5B-EOP	9/29/2018 16:25	UL4208	0.10	0.0126	0.468	0.481	<0.0050	<0.50	1.6	0.063	0.00055	0.00032	0.0489	<0.0001	<0.001	0.128	0.000055	73.6	<0.001	0.00183	0.00093
RSEM-R5B-EOP	9/30/2018 13:20	UL4214	0.089	0.0109	0.499	0.510	<0.0050	0.87	1.4	0.0552	0.00056	0.00032	0.0453	<0.0001	<0.001	0.13	0.00005	71.8	<0.001	0.00178	0.00104
RSEM-R5B-EOP	10/1/2018 11:00	UL6710	0.090	0.0067	0.507	0.514	<0.0050	1.6	1.5	0.0562	0.00056	0.00028	0.0524	<0.0001	<0.001	0.115	0.000055	69.4	<0.001	0.00236	0.00088
RSEM-R5B-EOP	10/2/2018 11:53	UL6716	0.085	0.0080	0.566	0.574	<0.0050	4.1	1.7	0.0479	0.00054	0.00034	0.0533	<0.0001	<0.001	0.117	0.000063	69.2	<0.001	0.00257	0.00088
RSEM-R5B-EOP	10/3/2018 11:50	UM2668	0.14	0.0100	0.725	0.735	<0.0050	1.3	0.80	0.0467	<0.0005	0.00028	0.0452	<0.0001	<0.001	0.132	0.000113	74.5	<0.001	0.00571	0.00091
RSEM-R5B-EOP	10/3/2018 11:50	UM2669	0.11	0.0096	0.674	0.683	<0.0050	1.1	0.66	0.046	0.00051	0.00028	0.0464	<0.0001	<0.001	0.13	0.000106	73.2	<0.001	0.00578	0.00109
RSEM-R5B-EOP	10/4/2018 10:50	UM6147	0.14	0.0111	0.681	0.692	<0.0050	1.5	1.5	0.0448	0.00058	0.00034	0.0394	<0.0001	<0.001	0.145	0.000069	71.2	<0.001	0.00311	0.00081
RSEM-R5B-EOP	10/5/2018 10:10	UM6131	0.088	0.0135	0.696	0.709	<0.0050	1.4	1.7	0.0475	0.00056	0.00025	0.0371	<0.0001	<0.001	0.151	0.000063	69.4	<0.001	0.00313	0.00098
RSEM-R5B-EOP	10/5/2018 10:10	UM6132	0.10	0.0124	0.695	0.708	<0.0050	1.2	1.7	0.0432	0.00055	0.00026	0.0359	<0.0001	<0.001	0.141	0.00006	70.0	<0.001	0.00307	0.00092
RSEM-R5B-EOP	10/6/2018 16:45	UM9334	0.11	0.0145	0.773	0.788	<0.0050	<0.50	<0.50	0.0556	0.00054	0.00034	0.0309	<0.0001	<0.001	0.133	0.000045	72.9	<0.001	0.00199	0.00113
RSEM-R5B-EOP	10/7/2018 12:20	UM9326	0.13	0.0151	0.775	0.790	<0.0050	<0.50	<0.50	0.047	0.00054	0.00037	0.0289	<0.0001	<0.001	0.136	0.000037	72.3	0.0014	0.0016	0.00086
RSEM-R5B-EOP	10/8/2018 12:45	UM9332	0.12	0.0147	0.799	0.813	<0.0050	<0.50	<0.50	0.0421	0.00053	0.0004	0.0274	<0.0001	<0.001	0.132	0.000032	70.2	0.0014	0.00132	0.00086
RSEM-R5B-EOP	10/9/2018 9:45	UM9809	0.099	0.0149	0.807	0.822	<0.0050	0.57	<0.50	0.0449	<0.0005	0.0004	0.0261	<0.0001	<0.001	0.129	0.000029	69.7	0.0012	0.00103	0.00084
RSEM-R5B-EOP	10/10/2018 9:10	UN2721	0.11	0.0116	0.780	0.791	<0.0050	0.54	<0.50	0.0485	<0.0005	0.00045	0.0292	<0.0001	<0.001	0.114	0.000029	55.3	<0.001	0.00116	0.00086
RSEM-R5B-EOP	10/11/2018 10:15	UN4652	0.097	0.0145	0.828	0.843	<0.0050	1.7	1.9	0.0475	<0.0005	0.00037	0.026	<0.0001	<0.001	0.112	0.000049	56.6	<0.001	0.00154	0.0008
RSEM-R5B-EOP	10/12/2018 9:00	UN7468	0.10	0.0136	0.793	0.806	<0.0050	1.7	2.0	0.073	<0.0005	0.00038	0.0247	<0.0001	<0.001	0.101	0.000049	54.1	<0.001	0.00142	0.00164
RSEM-R5B-EOP	10/13/2018 12:30	UN9931	0.095	0.0146	0.797	0.811	<0.0050	1.4	1.3	0.125	<0.0005	0.00034	0.0277	<0.0001	<0.001	0.115	0.000127	62.6	<0.001	0.0042	0.00144
RSEM-R5B-EOP	10/14/2018 13:15	UN9928	0.086	0.0168	0.800	0.817	<0.0050	1.1	1.1	0.123	<0.0005	0.00031	0.0237	<0.0001	<0.001	0.119	0.000124	58.6	<0.001	0.00423	0.00149
RSEM-R5B-EOP	10/15/2018 17:30	UO4613	0.051	0.0173	0.855	0.872	<0.0050	1.2	1.4	0.0985	<0.0005	0.0003	0.0212	<0.0001	<0.001	0.133	0.000077	55.8	<0.001	0.00244	0.00125
RSEM-R5B-EOP	10/16/2018 12:50	UO9191	0.070	0.0206	0.870	0.890	<0.0050	1.5	1.4	0.0911	0.00052	0.00038	0.0214	<0.0001	<0.001	0.143	0.000065	56.5	<0.001	0.0019	0.00155
RSEM-R5B-EOP	10/17/2018 15:50	UO9201	0.061	0.0206	0.890	0.910	<0.0050	1.4	1.7	0.0742	0.00051	0.00035	0.0197	<0.0001	<0.001	0.141	0.000041	52.0	<0.001	0.00118	0.00115
RSEM-R5B-EOP	10/18/2018 17:55	UP3095	0.084	0.0239	0.893	0.917	<0.0050	1.5	1.4	0.0623	0.00052	0.00038	0.02	<0.0001	<0.001	0.135	0.000026	48.6	<0.001	0.00086	0.00105
RSEM-R5B-EOP	10/19/2018 10:35	UP3099	0.075	0.0231	0.870	0.893	<0.0050	1.2	1.6	0.0572	0.00051	0.00037	0.0208	<0.0001	<0.001	0.133	0.000025	47.5	<0.001	0.00081	0.00101
RSEM-R5B-EOP	10/20/2018 9:50	UP6167	0.15	0.0163	0.651	0.668	<0.0050	2.0	1.6	0.0499	<0.0005	0.00041	0.0177	<0.0001	<0.001	0.121	<0.00001	37.7	<0.001	0.00054	0.00095
RSEM-R5B-EOP	10/21/2018 17:16	UP5458	<0.020	0.0158	0.728	0.743	<0.0050	1.9	1.5	0.0641	<0.0005	0.00039	0.0212	<0.0001	<0.001	0.141	0.000016	41.3	<0.001	0.00057	0.00084
RSEM-R5B-EOP	10/22/2018 10:00	UP6173	0.090	0.0233	0.810	0.833	<0.0050	1.9	1.6	0.0531	0.00051	0.00037	0.0216	<0.0001	<0.001	0.137	0.000021	47.1	<0.001	0.00078	0.00103
RSEM-R5B-EOP	10/23/2018 12:20	UP9910	0.13	0.0185	0.619	0.637	<0.0050	1.8	1.5	0.0481	<0.0005	0.00041	0.0177	<0.0001	<0.001	0.099	<0.00001	31.9	<0.001	0.00038	0.00072
RSEM-R5B-EOP	10/23/2018 12:20	UP9908	0.17	0.0169	0.622	0.639	<0.0050	1.8	1.7	0.0489	<0.0005	0.00043	0.0184	<0.0001	<0.001	0.1	0.00001	32.2	<0.001	0.00038	0.00072
RSEM-R5B-EOP	10/24/2018 13:35	UQ3376	0.089	0.0130	0.575	0.588	<0.0050	1.9	1.6	0.0458	<0.0005	0.00042	0.0173	<0.0001	<0.001	0.119	<0.00001	29.0	<0.001	0.00039	0.00068
RSEM-R5B-EOP	10/25/2018 12:15	UQ3348	0.096	0.0115	0.561	0.572	<0.0050	2.1	1.6	0.0567	<0.0005	0.00038	0.0162	<0.0001	<0.001	0.11	<0.00001	26.9	<0.001	0.00035	0.0008
RSEM-R5B-EOP	10/26/2018 12:00	UQ5568	0.11	0.0104	0.553	0.563	<0.0050	1.6	1.9	0.0556	<0.0005	0.00041	0.0199	<0.0001	<0.001	0.11	0.000017	32.5	<0.001	0.00054	0.00095

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	8/27/2018 11:00	UE2120	0.126	<0.0002	0.143	39.2	0.013	<0.000002	0.0021	0.008	-	3.79	0.00277	1.94	<0.00002	151	0.468	135	0.000018	<0.005	<0.005	0.00184
RSEM-R5B-EOP	8/28/2018 9:45	UE5265	0.111	<0.0002	0.14	38.5	0.0109	<0.000002	0.0022	0.0083	-	3.88	0.00297	1.59	<0.00002	154	0.434	148	0.000019	<0.005	<0.005	0.00178
RSEM-R5B-EOP	8/29/2018 1:25	UF1105	0.101	<0.0002	0.147	41.1	0.0088	<0.000002	0.0023	0.008	-	3.96	0.00314	1.58	<0.00002	163	0.458	163	0.000022	<0.005	<0.005	0.0018
RSEM-R5B-EOP	8/30/2018 9:15	UF1079	0.074	<0.0002	0.14	43.9	0.007	<0.000002	0.0023	0.0077	-	3.90	0.00319	1.19	<0.00002	166	0.513	168	0.000021	<0.005	<0.005	0.00191
RSEM-R5B-EOP	8/31/2018 9:00	UF3968	0.083	<0.0002	0.141	39.1	0.0054	0.0000025	0.0022	0.0074	-	3.83	0.00305	1.01	<0.00002	151	0.443	147	0.000022	<0.005	<0.005	0.00189
RSEM-R5B-EOP	9/1/2018 3:15	UF6670	0.07	<0.0002	0.142	44.0	0.0045	<0.000002	0.0024	0.0076	-	4.29	0.00249	1.09	<0.00002	176	0.474	140	0.000022	<0.005	<0.005	0.00201
RSEM-R5B-EOP	9/2/2018 9:45	UF7756	0.057	<0.0002	0.162	56.0	0.0106	<0.000002	0.0025	0.0081	-	4.43	0.00376	1.35	<0.00002	221	0.592	236	0.000029	<0.005	<0.005	0.00211
RSEM-R5B-EOP	9/3/2018 9:50	UG0440	0.055	<0.0002	0.152	49.4	0.007	<0.000002	0.0025	0.0077	-	4.21	0.00369	1.2	<0.00002	193	0.499	226	0.000026	<0.005	<0.005	0.00195
RSEM-R5B-EOP	9/4/2018 15:30	UG0435	0.048	<0.0002	0.127	53.8	0.0073	<0.000002	0.0024	0.0065	-	4.25	0.00414	1.08	<0.00002	206	0.585	231	0.000023	<0.005	<0.005	0.00179
RSEM-R5B-EOP	9/5/2018 13:10	UG2835	0.057	<0.0002	0.144	50.8	0.007	<0.000002	0.0027	0.0074	-	4.18	0.0037	1.26	<0.00002	198	0.519	231	0.000027	<0.005	<0.005	0.00191
RSEM-R5B-EOP	9/6/2018 10:10	UG2790	0.053	<0.0002	0.137	49.6	0.0071	<0.000002	0.0027	0.0071	-	4.13	0.00368	1.24	<0.00002	191	0.506	219	0.000024	<0.005	<0.005	0.00183
RSEM-R5B-EOP	9/7/2018 9:50	UG5295	0.044	<0.0002	0.127	53.8	0.0083	<0.000002	0.003	0.0064	-	4.32	0.00402	1.29	<0.00002	192	0.548	221	0.000023	<0.005	<0.005	0.00184
RSEM-R5B-EOP	9/8/2018 9:20	UG8751	1.26	0.00076	0.105	44.7	0.0426	<0.000002	0.0032	0.0074	-	4.13	0.00351	2.07	<0.00002	155	0.486	187	0.000026	<0.005	0.0096	0.0018
RSEM-R5B-EOP	9/9/2018 7:00	UG8730	0.833	<0.0002	0.155	52.0	1.21	0.0000036	<0.001	0.345	-	3.38	0.0033	3.47	<0.00002	113	0.533	253	0.000036	<0.005	<0.005	0.00869
RSEM-R5B-EOP	9/10/2018 6:10	UH0972	0.605	<0.0002	0.224	65.5	1.47	0.0000039	<0.001	0.444	-	3.74	0.00545	4.72	<0.00002	182	0.616	367	0.00006	<0.005	<0.005	0.00617
RSEM-R5B-EOP	9/11/2018 11:45	UH0969	0.601	<0.0002	0.208	63.3	1.12	0.0000026	0.0016	0.324	-	3.83	0.00531	4.55	0.000022	193	0.575	340	0.000053	<0.005	<0.005	0.00332
RSEM-R5B-EOP	9/12/2018 11:35	UH7643	0.325	<0.0002	0.178	63.2	0.864	0.0000022	0.0023	0.225	-	3.96	0.00497	3.97	<0.00002	199	0.627	303	0.000035	<0.005	<0.005	0.00298
RSEM-R5B-EOP	9/13/2018 11:45	UH7732	0.286	<0.0002	0.182	63.3	0.76	<0.000002	0.0034	0.193	-	4.09	0.00474	4.05	<0.00002	202	0.618	295	0.000035	<0.005	<0.005	0.00306
RSEM-R5B-EOP	9/14/2018 9:20	UI0648	0.302	<0.0002	0.171	49.5	0.545	0.0000026	0.0046	0.145	-	4.23	0.00374	4.04	<0.00002	167	0.499	250	0.000031	<0.005	<0.005	0.0027
RSEM-R5B-EOP	9/15/2018 7:35	UI5251	0.161	<0.0002	0.168	56.0	0.521	<0.000002	0.0051	0.126	-	4.59	0.0041	3.72	<0.00002	192	0.583	252	0.000022	<0.005	<0.005	0.00297
RSEM-R5B-EOP	9/16/2018 9:00	UI5527	0.189	<0.0002	0.163	54.1	0.515	<0.000002	0.005	0.132	-	4.58	0.00395	4.13	<0.00002	181	0.567	223	0.000038	<0.005	<0.005	0.00291
RSEM-R5B-EOP	9/17/2018 9:51	UI5115	0.137	<0.0002	0.133	49.9	0.412	<0.000002	0.0053	0.0886	-	4.25	0.00351	3.66	<0.00002	170	0.523	207	0.000016	<0.005	<0.005	0.00244
RSEM-R5B-EOP	9/18/2018 8:40	UI9106	0.096	<0.0002	0.129	44.4	0.275	<0.000002	0.0052	0.0549	-	4.21	0.0032	3.67	<0.00002	150	0.429	187	0.000012	<0.005	<0.005	0.0022
RSEM-R5B-EOP	9/19/2018 9:00	UJ0841	0.145	<0.0002	0.113	41.1	0.229	0.0000026	0.0044	0.048	-	3.85	0.00299	3.44	<0.00002	126	0.409	179	0.000013	<0.005	<0.005	0.00208
RSEM-R5B-EOP	9/20/2018 10:16	UJ3870	0.173	<0.0002	0.112	40.4	0.214	<0.000002	0.0036	0.0502	-	3.91	0.00259	3.99	<0.00002	117	0.379	164	0.000012	<0.005	<0.005	0.00219
RSEM-R5B-EOP	9/21/2018 11:00	UJ7161	0.223	<0.0002	0.101	39.6	0.136	<0.000002	0.0032	0.0355	-	3.66	0.00232	3.77	<0.00002	117	0.372	139	0.000013	<0.005	<0.005	0.00194
RSEM-R5B-EOP	9/22/2018 10:40	UK0062	0.101	<0.0002	0.0839	37.2	0.0764	<0.000002	0.0032	0.0224	-	3.65	0.00227	4.05	<0.00002	106	0.33	132	0.000012	<0.005	<0.005	0.00182
RSEM-R5B-EOP	9/23/2018 9:30	UK1525	0.059	<0.0002	0.0895	35.2	0.0577	<0.000002	0.0032	0.0181	-	3.59	0.00216	4.12	<0.00002	108	0.298	131	0.000011	<0.005	<0.005	0.00172
RSEM-R5B-EOP	9/24/2018 8:45	UK0550	0.08	<0.0002	0.0904	37.0	0.048	<0.000002	0.0033	0.0166	-	3.70	0.00223	4	<0.00002	117	0.305	138	0.000011	<0.005	<0.005	0.00181
RSEM-R5B-EOP	9/25/2018 10:30	UK2336	0.064	<0.0002	0.0927	41.1	0.0474	<0.000002	0.0036	0.0153	-	3.80	0.0024	3.5	<0.00002	142	0.34	143	0.000011	<0.005	<0.005	0.00188
RSEM-R5B-EOP	9/26/2018 12:30	UK5503	0.07	<0.0002	0.104	40.7	0.0471	0.000002	0.0036	0.0131	-	4.19	0.00255	3.85	<0.00002	154	0.319	172	0.000011	<0.005	<0.005	0.00189
RSEM-R5B-EOP	9/27/2018 9:50	UK8655	0.055	<0.0002	0.0986	41.3	0.0416	<0.000002	0.0038	0.0129	-	3.91	0.00269	3.66	<0.00002	160	0.325	174	0.000012	<0.005	<0.005	0.00195
RSEM-R5B-EOP	9/28/2018 10:45	UL0968	0.072	<0.0002	0.0976	42.2	0.0389	0.0000028	0.0037	0.0137	-	3.89	0.00258	3.65	<0.00002	174	0.318	172	0.000013	<0.005	<0.005	0.00181
RSEM-R5B-EOP	9/29/2018 16:25	UL4208	0.063	<0.0002	0.0871	37.7	0.0307	0.0000024	0.0031	0.0114	-	3.59	0.0022	3.6	<0.00002	142	0.282	133	0.000014	<0.005	<0.005	0.00168
RSEM-R5B-EOP	9/30/2018 13:20	UL4214	0.076	<0.0002	0.0877	37.8	0.03	<0.000002	0.0031	0.011	-	3.67	0.00227	3.68	<0.00002	142	0.277	130	0.000011	<0.005	<0.005	0.00161
RSEM-R5B-EOP	10/1/2018 11:00	UL6710	0.08	<0.0002	0.0851	36.3	0.0485	<0.000002	0.0032	0.0131	-	3.70	0.00205	3.52	<0.00002	123	0.296	125	0.000011	<0.005	<0.005	0.0016
RSEM-R5B-EOP	10/2/2018 11:53	UL6716	0.068	<0.0002	0.0972	34.2	0.0505	<0.000002	0.0032	0.014	-	3.69	0.00216	3.82	<0.00002	113	0.267	123	0.00001	<0.005	<0.005	0.00166
RSEM-R5B-EOP	10/3/2018 11:50	UM2668	0.254	<0.0002	0.0912	38.3	0.125	<0.000002	0.0034	0.0233	-	3.68	0.00238	3.49	<0.00002	116	0.328	134	0.000011	<0.005	<0.005	0.00177
RSEM-R5B-EOP	10/3/2018 11:50	UM2669	0.253	<0.0002	0.0892	38.8	0.125	<0.000002	0.0034	0.0238	-	3.73	0.00231	3.47	<0.00002	118	0.335	136	<0.00001	<0.005	<0.005	0.00179
RSEM-R5B-EOP	10/4/2018 10:50	UM6147	0.096	<0.0002	0.0916	37.3	0.0601	<0.000002	0.0038	0.0155	-	4.00	0.00289	3.21	<0.00002	117	0.318	141	0.000012	<0.005	<0.005	0.0017
RSEM-R5B-EOP	10/5/2018 10:10	UM6131	0.095	<0.0002	0.0952	39.8	0.0586	<0.000002	0.0039	0.0158	-	3.96	0.00312	2.88	<0.00002	120	0.326	146	0.000013	<0.005	<0.005	0.00173
RSEM-R5B-EOP	10/5/2018 10:10	UM6132	0.092	<0.0002	0.0921	39.1	0.0571	<0.000002	0.0037	0.0155	-	3.99	0.00294	2.95	<0.00002	118	0.324	144	0.000011	<0.005	<0.005	0.00167
RSEM-R5B-EOP	10/6/2018 16:45	UM9334	0.083	<0.0002	0.0922	39.2	0.0343	<0.000002	0.0058	0.0132	-	4.41	0.00323	3.95	<0.00002	114	0.335	151	0.00001	<0.005	<0.005	0.00168
RSEM-R5B-EOP	10/7/2018 12:20	UM9326	0.064	<0.0002	0.0925	39.1	0.0261	<0.000002	0.0066	0.0118	-	4.38	0.00336	4.22	<0.00002	114	0.336	149	<0.00001	<0.005	<0.005	0.00161
RSEM-R5B-EOP	10/8/2018 12:45	UM9332	0.049	<0.0002	0.092	38.1	0.0209	<0.000002	0.0067	0.011	-	4.43	0.00325	4.47	<0.00002	114	0.329	150	0.00001	<0.005	<0.005	0.00161
RSEM-R5B-EOP	10/9/2018 9:45	UM9809	0.057	<0.0002	0.0871	37.4	0.0171	<0.000002	0.0059	0.0093	-	4.77	0.00289	5.01	<0.00002	112	0.297	155	<0.00001	<0.005	<0.005	0.00156
RSEM-R5B-EOP	10/10/2018 9:10	UN2721	0.052	<0.0002	0.0868	32.0	0.0218	<0.000002	0.0056	0.0093	-	4.18	0.00253	4.65	<0.00002	98.1	0.258	117	0.000014	<0.005	<0.005	0.00154
RSEM-R5B-EOP	10/11/2018 10:15	UN4652	0.045	<0.0002	0.0862	31.9	0.0295	<0.000002	0.0056	0.0102	-	4.14	0.0027	4.4	<0.00002	94.4	0.254	120	0.00001	<0.005	<0.005	0.00154
RSEM-R5B-EOP	10/12/2018 9:00	UN7468	0.087	<0.0002	0.0782	31.1	0.0285	<0.000002	0.0051	0.0094	-	3.89	0.00254	3.76	<0.00002	91.9	0.276	110	<0.00001	<0.005	<0.005	0.00147
RSEM-R5B-EOP	10/13/2018 12:30	UN9931	0.125	<0.0002	0.0823	33.9	0.0691	<0.000002	0.0051	0.0189	-	4.06	0.0028	3.41	<0.00002	105	0.282	128	0.000011	<0.005	<0.005	0.00199
RSEM-R5B-EOP	10/14/2018 13:15	UN9928	0.075	<0.0002	0.0853	35.1	0.0638	0.0000044	0.0052	0.0196	-	4.02	0.00295	3.13	<0.00002	109	0.282	134	0.000011	<0.005	<0.005	0.002
RSEM-R5B-EOP	10/15/2018 17:30	UO4613	0.044	<0.0002	0.0997	34.9	0.035	0.000003	0.0055	0.0136	-	4.03	0.00304	3.34	<0.00002	120	0.318	135	0.000011	<0.005	<0.005	0.00176
RSEM-R5B-EOP	10/16/2018 12:50	UO9191	0.052	<0.0002	0.097	39.0	0.0254	<0.000002	0.0061	0.0119	-	4.24	0.00346	3.05	<0.00002	140	0.303	150	0.00001	<0.005	<0.005	0.00178
RSEM-R5B-EOP	10/17/2018 15:50	UO9201	0.029	<0.0002	0.0979	39.9	0.014	0.0000026	0.006	0.0089	-	4.33	0.00348	2.7	<0.00002	147	0.306	156	<0.00001	<0.005	<0.005	0.00149
RSEM-R5B-EOP	10/18/2018 17:55	UP3095	0.023	<0.0002	0.0943	36.1	0.0094	<0.000002	0.006	0.0084	-	4.09	0.00338	2.59	<0.00002	134	0.284	143	0.000011	<0.005	<0.005	0.00156
RSEM-R5B-EOP	10/19/2018 10:35	UP3099	0.02	<0.0002	0.0926	37.1	0.0085	<0.000002	0.0059	0.0092	-	4.25	0.00333	2.58	<0.00002	137	0.285	143	0.000011	<0.005	<0.005	0.00162
RSEM-R5B-EOP	10/20/2018 9:50	UP6167	0.027	<0.0002	0.0884	33.3	0.0054	<0.000002	0.0043	0.0093	-	3.80	0.00266	3	<0.00002	131	0.239	128	0.00001	<0.005	<0.005	0.00154
RSEM-R5B-EOP	10/21/2018 17:16	UP5458	0.025	<0.0002	0.0958	32.0	0.0052	0.0000046	0.0051	0.0094	-	4.08	0.00264	2.82	<0.00002	124	0.259	136	0.000011	<0.005	<0.005	0.00154
RSEM-R5B-EOP	10/22/2018 10:00	UP6173	0.023	<0.0002	0.095	37.5	0.0079	<0.000002	0.0056	0.0101	-	4.11	0.00335	2.49	<0.00002	139	0.277	145	<0.00001	<0.005	<0.005	0.0017
RSEM-R5B-EOP	10/23/2018 12:20	UP9910	0.019	<0.0002	0.0826	27.8	0.0042	0.0000022	0.0039	0.0074	-	3.35	0.00207	3.47	<0.00002	109	0.223	109	<0.00001	<0.005	<0.005	0.00146
RSEM-R5B-EOP	10/23/2018 12:20	UP9908	0.02	<0.0002	0.083	27.9	0.0043	0.0000026	0.0041	0.0075	-	3.37	0.00215	3.31	<0.00002	108	0.229	111	<0.00001	<0.005	<0.005	0.0015
RSEM-R5B-EOP	10/24/2018 13:35	UQ3376	0.02	<0.0002	0.0906	28.0	0.0045	<0.000002	0.0037	0.0069	-	3.52	0.00201	3.02	<0.00002	113	0.19	100	0.00001	<0.005	<0.005	0.00148
RSEM-R5B-EOP	10/25/2018 12:15	UQ3348	0.027	<0.0002	0.0857	26.5	0.0045	0.0000061	0.0034	0.0065	-	3.30	0.00172	2.83	<0.00002	108	0.169	91.8	<0.00001	<0.005	<0.005	0.00139
RSEM-R5B-EOP	10/26/2018 12:00	UQ5568	0.029	<0.0002	0.0899	27.8	0.0086	0.0000035	0.0034	0.0071	-	3.35	0.00179	3.11	<0.00002	108	0.182	91.4	<0.00001	<0.005	<0.005	0.00153

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	8/27/2018 11:00	UE2120	<0.005	<0.005	<0.0001	0.0285	<0.0005	0.00032	0.102	<0.0001	<0.001	0.136	<0.00001	95.3	<0.001	0.00043	0.00096	0.027	<0.0002	0.135	37.3	0.005
RSEM-R5B-EOP	8/28/2018 9:45	UE5265	<0.005	<0.005	<0.0001	0.0776	0.0006	0.0003	0.096	<0.0001	<0.001	0.146	<0.00001	93.2	<0.001	0.00046	0.00121	0.026	<0.0002	0.134	37.2	0.0056
RSEM-R5B-EOP	8/29/2018 1:25	UF1105	<0.005	<0.005	<0.0001	0.0313	<0.0005	0.0003	0.09	<0.0001	<0.001	0.155	<0.00001	96.1	<0.001	<0.0002	0.001	0.02	<0.0002	0.147	41.5	<0.001
RSEM-R5B-EOP	8/30/2018 9:15	UF1079	<0.005	<0.005	<0.0001	0.0278	<0.0005	0.00028	0.0889	<0.0001	<0.001	0.161	<0.00001	97.5	<0.001	<0.0002	0.00089	0.018	<0.0002	0.149	42.1	<0.001
RSEM-R5B-EOP	8/31/2018 9:00	UF3968	<0.005	<0.005	<0.0001	0.0295	<0.0005	0.00035	0.0841	<0.0001	<0.001	0.15	<0.00001	86.0	<0.001	<0.0002	0.00094	0.018	<0.0002	0.149	39.8	<0.001
RSEM-R5B-EOP	9/1/2018 3:15	UF6670	<0.005	<0.005	<0.0001	0.0251	<0.0005	0.00028	0.0917	<0.0001	<0.001	0.143	<0.00001	85.3	<0.001	0.00025	0.00099	0.026	<0.0002	0.136	36.7	0.0031
RSEM-R5B-EOP	9/2/2018 9:45	UF7756	<0.005	<0.005	<0.0001	0.0273	<0.0005	0.00029	0.0836	<0.0001	<0.001	0.22	<0.00001	125	<0.001	0.0004	0.00105	0.012	<0.0002	0.165	51.6	0.0058
RSEM-R5B-EOP	9/3/2018 9:50	UG0440	<0.005	<0.005	<0.0001	0.0183	<0.0005	0.00027	0.078	<0.0001	<0.001	0.189	<0.00001	111	<0.001	0.00033	0.001	<0.01	<0.0002	0.144	51.8	0.0039
RSEM-R5B-EOP	9/4/2018 15:30	UG0435	<0.005	<0.005	<0.0001	0.0165	<0.0005	0.00027	0.0728	<0.0001	<0.001	0.208	<0.00001	124	<0.001	0.00037	0.00117	<0.01	<0.0002	0.144	54.0	0.0056
RSEM-R5B-EOP	9/5/2018 13:10	UG2835	<0.005	<0.005	<0.0001	0.0162	<0.0005	0.00028	0.0743	<0.0001	<0.001	0.207	<0.00001	112	<0.001	<0.0002	0.00093	0.011	<0.0002	0.146	50.6	<0.001
RSEM-R5B-EOP	9/6/2018 10:10	UG2790	<0.005	<0.005	<0.0001	0.0162	<0.0005	0.0003	0.0755	<0.0001	<0.001	0.211	<0.00001	113	<0.001	<0.0002	0.00093	0.012	<0.0002	0.141	49.7	<0.001
RSEM-R5B-EOP	9/7/2018 9:50	UG5295	<0.005	<0.005	<0.0001	0.0149	<0.0005	0.00028	0.0744	<0.0001	<0.001	0.206	<0.00001	115	<0.001	0.00026	0.00084	0.011	<0.0002	0.135	50.2	<0.001
RSEM-R5B-EOP	9/8/2018 9:20	UG8751	<0.005	0.007	0.00031	0.0177	<0.0005	0.00035	0.0763	<0.0001	<0.001	0.167	0.000016	99.5	<0.001	0.00039	0.00147	<0.01	<0.0002	0.102	43.1	0.0077
RSEM-R5B-EOP	9/9/2018 7:00	UG8730	<0.005	1.18	<0.0001	2.78	<0.0005	<0.0001	0.121	0.00158	<0.001	0.126	0.00674	133	<0.001	0.106	0.102	0.013	<0.0002	0.155	53.4	1.23
RSEM-R5B-EOP	9/10/2018 6:10	UH0972	<0.005	1.58	<0.0001	0.759	<0.0005	0.00022	0.0699	0.00087	<0.001	0.198	0.00683	182	<0.001	0.135	0.0628	0.17	<0.0002	0.225	72.6	1.5
RSEM-R5B-EOP	9/11/2018 11:45	UH0969	<0.005	1.05	<0.0001	0.0436	<0.0005	0.00016	0.0664	0.00015	<0.001	0.205	0.00422	166	<0.001	0.109	0.00731	<0.01	<0.0002	0.218	70.9	1.19
RSEM-R5B-EOP	9/12/2018 11:35	UH7643	<0.005	0.536	<0.0001	0.0394	<0.0005	0.00016	0.0645	<0.0001	<0.001	0.216	0.00258	172	<0.001	0.0702	0.00289	<0.01	<0.0002	0.203	64.7	0.852
RSEM-R5B-EOP	9/13/2018 11:45	UH7732	<0.005	0.392	<0.0001	0.0597	<0.0005	0.00016	0.0655	<0.0001	<0.001	0.193	0.00201	162	<0.001	0.0599	0.00187	<0.01	<0.0002	0.199	62.6	0.738
RSEM-R5B-EOP	9/14/2018 9:20	UI0648	<0.005	0.262	<0.0001	0.123	<0.0005	0.00018	0.0712	<0.0001	<0.001	0.191	0.00114	132	<0.001	0.0418	0.00151	<0.01	<0.0002	0.183	55.1	0.56
RSEM-R5B-EOP	9/15/2018 7:35	UI5251	<0.005	0.199	<0.0001	0.0925	<0.0005	0.00018	0.0714	<0.0001	<0.001	0.186	0.00118	131	<0.001	0.0397	0.00241	<0.01	<0.0002	0.175	51.9	0.508
RSEM-R5B-EOP	9/16/2018 9:00	UI5527	<0.005	0.265	<0.0001	0.0882	<0.0005	0.00018	0.0804	<0.0001	<0.001	0.157	0.00146	123	<0.001	0.0396	0.00267	<0.01	<0.0002	0.159	49.4	0.474
RSEM-R5B-EOP	9/17/2018 9:51	UI5115	<0.005	0.113	<0.0001	0.0593	0.00114	0.00136	0.215	<0.0001	<0.001	0.133	0.00003	74.4	0.0056	0.0016	0.00117	<0.01	<0.0002	0.0349	19.2	0.0685
RSEM-R5B-EOP	9/18/2018 8:40	UI9106	<0.005	0.0617	<0.0001	0.0754	<0.0005	0.00023	0.0699	<0.0001	<0.001	0.156	0.000339	121	<0.001	0.0145	0.00089	<0.01	<0.0002	0.139	48.6	0.284
RSEM-R5B-EOP	9/19/2018 9:00	UJ0841	<0.005	0.0422	<0.0001	0.068	<0.0005	0.00021	0.0566	<0.0001	<0.001	0.152	0.000275	116	<0.001	0.0126	0.00085	<0.01	<0.0002	0.13	48.1	0.236
RSEM-R5B-EOP	9/20/2018 10:16	UJ3870	<0.005	0.0495	<0.0001	0.0768	<0.0005	0.00022	0.0606	<0.0001	<0.001	0.138	0.000304	99.1	<0.001	0.0134	0.00093	<0.01	<0.0002	0.116	43.1	0.225
RSEM-R5B-EOP	9/21/2018 11:00	UJ7161	<0.005	0.0291	<0.0001	0.0743	<0.0005	0.00023	0.0597	<0.0001	<0.001	0.14	0.000195	95.0	<0.001	0.00826	0.00099	<0.01	<0.0002	0.111	40.0	0.135
RSEM-R5B-EOP	9/22/2018 10:40	UK0062	<0.005	0.0168	<0.0001	0.0562	<0.0005	0.00023	0.057	<0.0001	<0.001	0.117	0.000122	88.4	<0.001	0.00452	0.00074	<0.01	<0.0002	0.0882	38.8	0.0747
RSEM-R5B-EOP	9/23/2018 9:30	UK1525	<0.005	0.0146	<0.0001	0.0553	<0.0005	0.00023	0.0556	<0.0001	<0.001	0.118	0.000095	82.2	<0.001	0.00344	0.00066	<0.01	<0.0002	0.0913	37.8	0.0573
RSEM-R5B-EOP	9/24/2018 8:45	UK0550	<0.005	0.0123	<0.0001	0.0558	<0.0005	0.00026	0.0551	<0.0001	<0.001	0.118	0.000074	80.2	<0.001	0.00295	0.00086	<0.01	<0.0002	0.0877	39.0	0.0482
RSEM-R5B-EOP	9/25/2018 10:30	UK2336	<0.005	0.0095	<0.0001	0.0567	<0.0005	0.00028	0.0535	<0.0001	<0.001	0.136	0.000066	78.5	<0.001	0.00264	0.00074	<0.01	<0.0002	0.0956	38.7	0.0458
RSEM-R5B-EOP	9/26/2018 12:30	UK5503	<0.005	0.0075	<0.0001	0.057	0.00058	0.0003	0.0532	<0.0001	<0.001	0.157	0.000063	82.9	<0.001	0.00257	0.00075	<0.01	<0.0002	0.106	43.0	0.0508
RSEM-R5B-EOP	9/27/2018 9:50	UK8655	<0.005	0.0096	<0.0001	0.048	0.00061	0.00028	0.0481	<0.0001	<0.001	0.154	0.000061	83.0	<0.001	0.00227	0.00089	<0.01	<0.0002	0.0991	45.0	0.0398
RSEM-R5B-EOP	9/28/2018 10:45	UL0968	<0.005	0.0106	<0.0001	0.0482	0.00061	0.0003	0.0464	<0.0001	<0.001	0.145	0.000072	72.7	<0.001	0.00246	0.00084	<0.01	<0.0002	0.0991	39.9	0.0376
RSEM-R5B-EOP	9/29/2018 16:25	UL4208	<0.005	0.0077	<0.0001	0.0485	0.0006	0.00032	0.0512	<0.0001	<0.001	0.145	0.000052	69.3	<0.001	0.00181	0.00081	<0.01	<0.0002	0.0957	37.7	0.0298
RSEM-R5B-EOP	9/30/2018 13:20	UL4214	<0.005	0.008	<0.0001	0.0438	0.00062	0.00029	0.0486	<0.0001	<0.001	0.135	0.000055	65.2	<0.001	0.00172	0.00113	<0.01	<0.0002	0.0978	36.5	0.0288
RSEM-R5B-EOP	10/1/2018 11:00	UL6710	<0.005	0.0112	<0.0001	0.0352	0.00059	0.0003	0.0541	<0.0001	<0.001	0.123	0.00006	69.4	<0.001	0.00244	0.00085	<0.01	<0.0002	0.095	35.8	0.0479
RSEM-R5B-EOP	10/2/2018 11:53	UL6716	<0.005	0.0131	<0.0001	0.0352	0.00054	0.00026	0.0488	<0.0001	<0.001	0.116	0.000052	69.1	<0.001	0.00233	0.00082	<0.01	<0.0002	0.0883	34.8	0.0464
RSEM-R5B-EOP	10/3/2018 11:50	UM2668	<0.005	0.0255	<0.0001	0.0267	0.00052	0.00026	0.0463	<0.0001	<0.001	0.124	0.000091	78.7	<0.001	0.00579	0.00074	<0.01	<0.0002	0.0933	40.4	0.123
RSEM-R5B-EOP	10/3/2018 11:50	UM2669	<0.005	0.0262	<0.0001	0.0272	0.00052	0.00024	0.0473	<0.0001	<0.001	0.129	0.000093	77.9	<0.001	0.00582	0.0007	<0.01	<0.0002	0.093	41.4	0.126
RSEM-R5B-EOP	10/4/2018 10:50	UM6147	<0.005	0.0155	<0.0001	0.0323	0.00056	0.00027	0.0387	<0.0001	<0.001	0.131	0.000055	73.6	<0.001	0.00296	0.00063	<0.01	<0.0002	0.0924	40.3	0.0586
RSEM-R5B-EOP	10/5/2018 10:10	UM6131	<0.005	0.0147	<0.0001	0.037	0.00055	0.00025	0.0367	<0.0001	<0.001	0.132	0.000051	74.8	<0.001	0.00298	0.00067	<0.01	<0.0002	0.0915	41.7	0.0563
RSEM-R5B-EOP	10/5/2018 10:10	UM6132	<0.005	0.0139	<0.0001	0.0364	0.00055	0.00026	0.0369	<0.0001	<0.001	0.131	0.000052	75.6	<0.001	0.00295	0.00067	<0.01	<0.0002	0.0934	41.3	0.0558
RSEM-R5B-EOP	10/6/2018 16:45	UM9334	<0.005	0.0101	<0.0001	0.0583	0.00054	0.00031	0.0313	<0.0001	<0.001	0.135	0.000025	74.4	<0.001	0.00178	0.0005	<0.01	<0.0002	0.0957	41.0	0.0289
RSEM-R5B-EOP	10/7/2018 12:20	UM9326	<0.005	0.0081	<0.0001	0.0275	0.00054	0.00035	0.0298	<0.0001	<0.001	0.138	0.000028	74.6	0.0012	0.00146	0.00063	<0.01	<0.0002	0.0964	40.8	0.0235
RSEM-R5B-EOP	10/8/2018 12:45	UM9332	<0.005	0.0076	<0.0001	0.026	0.00052	0.00036	0.0286	<0.0001	<0.001	0.139	0.000029	70.7	0.0013	0.0012	0.00122	<0.01	<0.0002	0.0985	39.7	0.0183
RSEM-R5B-EOP	10/9/2018 9:45	UM9809	<0.005	0.0058	<0.0001	0.0225	<0.0005	0.00038	0.0271	<0.0001	<0.001	0.13	0.000022	65.4	0.0012	0.00102	0.00068	<0.01	<0.0002	0.096	37.5	0.0156
RSEM-R5B-EOP	10/10/2018 9:10	UN2721	<0.005	0.0091	<0.0001	0.0216	<0.0005	0.0004	0.0277	<0.0001	<0.001	0.099	0.000025	61.6	<0.001	0.00104	0.00099	<0.01	<0.0002	0.0788	33.2	0.02
RSEM-R5B-EOP	10/11/2018 10:15	UN4652	<0.005	0.0081	<0.0001	0.035	<0.0005	0.00037	0.0251	<0.0001	<0.001	0.111	0.000041	61.3	<0.001	0.00159	0.00075	<0.01	<0.0002	0.0859	35.7	0.0293
RSEM-R5B-EOP	10/12/2018 9:00	UN7468	<0.005	0.0079	<0.0001	0.0404	<0.0005	0.00035	0.0239	<0.0001	<0.001	0.112	0.000042	56.8	<0.001	0.00135	0.00116	<0.01	<0.0002	0.0846	33.4	0.0255
RSEM-R5B-EOP	10/13/2018 12:30	UN9931	<0.005	0.011	<0.0001	0.0706	<0.0005	0.00028	0.026	<0.0001	<0.001	0.119	0.000113	63.9	<0.001	0.00379	0.00102	<0.01	<0.0002	0.0898	34.9	0.0663
RSEM-R5B-EOP	10/14/2018 13:15	UN9928	<0.005	0.0111	<0.0001	0.0828	<0.0005	0.00026	0.0234	<0.0001	<0.001	0.124	0.000115	62.4	<0.001	0.00387	0.00112	<0.01	<0.0002	0.0935	35.8	0.0603
RSEM-R5B-EOP	10/15/2018 17:30	UO4613	<0.005	0.0067	<0.0001	0.092	<0.0005	0.00029	0.021	<0.0001	<0.001	0.137	0.00008	57.3	<0.001	0.0026	0.00181	0.04	<0.0002	0.0956	35.2	0.0361
RSEM-R5B-EOP	10/16/2018 12:50	UO9191	<0.005	0.0063	<0.0001	0.0645	<0.0005	0.00032	0.0188	<0.0001	<0.001	0.119	0.000053	55.1	<0.001	0.00177	0.00094	<0.01	<0.0002	0.0754	38.7	0.022
RSEM-R5B-EOP	10/17/2018 15:50	UO9201	<0.005	<0.005	<0.0001	0.0612	0.00053	0.00032	0.0195	<0.0001	<0.001	0.143	0.000036	53.0	<0.001	0.00106	0.00104	<0.01	<0.0002	0.0855	38.7	0.011
RSEM-R5B-EOP	10/18/2018 17:55	UP3095	<0.005	<0.005	<0.0001	0.0532	0.00053	0.00037	0.0199	<0.0001	<0.001	0.137	0.000025	49.2	<0.001	0.00069	0.00085	<0.01	<0.0002	0.0968	37.6	0.0047
RSEM-R5B-EOP	10/19/2018 10:35	UP3099	<0.005	<0.005	<0.0001	0.049	0.00051	0.00039	0.021	<0.0001	<0.001	0.136	0.000023	48.4	<0.001	0.00069	0.00088	<0.01	<0.0002	0.0953	37.4	0.0052
RSEM-R5B-EOP	10/20/2018 9:50	UP6167	<0.005	<0.005	<0.0001	0.037	<0.0005	0.00042	0.0179	<0.0001	<0.001	0.128	<0.00001	37.0	<0.001	0.00047	0.00162	<0.01	<0.0002	0.0945	33.9	0.0037
RSEM-R5B-EOP	10/21/2018 17:16	UP5458	<0.005	<0.005	<0.0001	0.042	<0.0005	0.00037	0.0214	<0.0001	<0.001	0.137	0.000015	42.3	<0.001	0.00053	0.0008	<0.01	<0.0002	0.0941	32.4	0.0035
RSEM-R5B-EOP	10/22/2018 10:00	UP6173	<0.005	<0.005	<0.0001	0.0441	0.00051	0.00039	0.0215	<0.0001	<0.001	0.139	0.000019	46.3	<0.001	0.00071	0.00144	<0.01	<0.0002	0.0955	37.2	0.006
RSEM-R5B-EOP	10/23/2018 12:20	UP9910	<0.005	<0.005	<0.0001	0.0343	<0.0005	0.00041	0.0177	<0.0001	<0.001	0.101	<0.00001	33.0	<0.001	0.00036	0.00083	<0.01	<0.0002	0.086	29.6	0.0028
RSEM-R5B-EOP	10/23/2018 12:20	UP9908	<0.005	<0.005	<0.0001	0.0334	<0.0005	0.00039	0.0177	<0.0001	<0.001	0.102	<0.00001	31.6	<0.001	0.00034	0.00068	<0.01	<0.0002	0.0836	28.9	0.0027
RSEM-R5B-EOP	10/24/2018 13:35	UQ3376	<0.005	<0.005	<0.0001	0.0349	<0.0005	0.0004	0.0167	<0.0001	<0.001	0.114	<0.00001	29.2	<0.001	0.00032	0.0007	<0.01	<0.0002	0.0893	27.8	0.0027
RSEM-R5B-EOP	10/25/2018 12:15	UQ3348	<0.005	<0.005	<0.0001	0.0356	<0.0005	0.00039	0.0168	<0.0001	<0.001	0.113	<0.00001	28.3	<0.001	0.00031	0.00114	<0.01	<0.0002	0.0889	27.0	0.0028
RSEM-R5B-EOP	10/26/2018 12:00	UQ5568	<0.005	<0.005	<0.0001	0.0402	<0.0005	0.00038	0.019	<0.0001	<0.001	0.104	0.000013	31.6	<0.001	0.00045	0.00064	<0.01	<0.0002	0.0859	27.9	0.0049

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	8/27/2018 11:00	UE2120	<0.000002	0.0023	0.0079	-	3.78	0.00278	1.87	<0.00002	147	0.428	141	0.000018	<0.005	<0.005	0.00183	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/28/2018 9:45	UE5265	<0.000002	0.0022	0.0078	-	3.69	0.00299	1.47	<0.00002	150	0.423	138	0.000014	<0.005	<0.005	0.00174	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/29/2018 1:25	UF1105	<0.000002	0.0023	0.0073	-	4.07	0.00332	1.55	<0.00002	165	0.461	171	0.00002	<0.005	<0.005	0.0018	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/30/2018 9:15	UF1079	<0.000002	0.0023	0.0072	-	3.95	0.00333	1.18	<0.00002	168	0.464	175	0.000022	<0.005	<0.005	0.00179	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	8/31/2018 9:00	UF3968	<0.000002	0.0024	0.0067	-	3.96	0.0032	0.967	<0.00002	159	0.44	161	0.000021	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/1/2018 3:15	UF6670	<0.000002	0.0023	0.0068	-	3.78	0.00277	1.07	<0.00002	145	0.408	128	0.000018	<0.005	<0.005	0.00184	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/2/2018 9:45	UF7756	<0.000002	0.0027	0.008	-	4.52	0.00395	1.5	<0.00002	212	0.562	246	0.000028	<0.005	<0.005	0.00213	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/3/2018 9:50	UG0440	<0.000002	0.0024	0.0074	-	4.21	0.00359	0.984	<0.00002	205	0.524	207	0.000026	<0.005	<0.005	0.00198	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/4/2018 15:30	UG0435	<0.000002	0.0026	0.0072	-	4.37	0.00394	1.26	<0.00002	212	0.574	238	0.000032	<0.005	<0.005	0.00202	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/5/2018 13:10	UG2835	<0.000002	0.0027	0.0068	-	4.16	0.00378	1.17	<0.00002	198	0.51	227	0.000025	<0.005	<0.005	0.0019	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/6/2018 10:10	UG2790	<0.000002	0.0028	0.007	-	4.15	0.00369	1.21	<0.00002	192	0.516	224	0.000026	<0.005	<0.005	0.00192	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/7/2018 9:50	UG5295	<0.000002	0.0029	0.0071	-	4.20	0.00378	1.4	<0.00002	188	0.509	227	0.000023	<0.005	<0.005	0.0018	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/8/2018 9:20	UG8751	<0.000002	0.0033	0.0054	-	4.06	0.00321	1.35	<0.00002	154	0.48	188	0.000017	<0.005	<0.005	0.00171	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/9/2018 7:00	UG8730	<0.000002	<0.001	0.354	-	3.51	0.00331	3.31	<0.00002	115	0.521	260	0.000037	<0.005	<0.005	0.00803	<0.005	1.19	<0.0001
RSEM-R5B-EOP	9/10/2018 6:10	UH0972	<0.000002	<0.001	0.454	-	4.17	0.00566	4.84	<0.00002	206	0.629	387	0.000065	<0.005	<0.005	0.00485	<0.005	1.34	<0.0001
RSEM-R5B-EOP	9/11/2018 11:45	UH0969	<0.000002	0.0015	0.355	-	4.30	0.00548	4.48	<0.00002	221	0.583	364	0.000054	<0.005	<0.005	0.003	<0.005	0.926	<0.0001
RSEM-R5B-EOP	9/12/2018 11:35	UH7643	0.0000031	0.0024	0.227	-	4.40	0.00468	4.36	<0.00002	203	0.587	326	0.000043	<0.005	<0.005	0.00295	<0.005	0.521	<0.0001
RSEM-R5B-EOP	9/13/2018 11:45	UH7732	<0.000002	0.0033	0.195	-	4.57	0.00461	4.44	<0.00002	210	0.565	314	0.00004	<0.005	<0.005	0.00302	<0.005	0.368	<0.0001
RSEM-R5B-EOP	9/14/2018 9:20	UI0648	<0.000002	0.005	0.138	-	4.50	0.00384	4.2	<0.00002	179	0.505	282	0.00003	<0.005	<0.005	0.00284	<0.005	0.195	<0.0001
RSEM-R5B-EOP	9/15/2018 7:35	UI5251	<0.000002	0.005	0.137	-	4.28	0.00399	3.87	<0.00002	173	0.499	252	0.000032	<0.005	<0.005	0.0027	<0.005	0.218	<0.0001
RSEM-R5B-EOP	9/16/2018 9:00	UI5527	<0.000002	0.0047	0.136	-	4.29	0.00369	4.05	<0.00002	159	0.458	221	0.000027	<0.005	<0.005	0.0025	<0.005	0.29	<0.0001
RSEM-R5B-EOP	9/17/2018 9:51	UI5115	<0.000002	0.0167	0.009	-	4.52	0.00531	3.48	<0.00002	91.4	0.495	70.0	0.000012	<0.005	<0.005	0.00225	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	9/18/2018 8:40	UI9106	<0.000002	0.0053	0.0538	-	4.22	0.00322	3.61	<0.00002	163	0.464	186	0.000013	<0.005	<0.005	0.00223	<0.005	0.0465	<0.0001
RSEM-R5B-EOP	9/19/2018 9:00	UJ0841	<0.000002	0.0044	0.0489	-	4.17	0.00303	3.52	<0.00002	145	0.466	185	0.000012	<0.005	<0.005	0.00217	<0.005	0.0325	<0.0001
RSEM-R5B-EOP	9/20/2018 10:16	UJ3870	<0.000002	0.0036	0.052	-	3.94	0.00265	3.56	<0.00002	123	0.422	168	0.000011	<0.005	<0.005	0.00218	<0.005	0.0373	<0.0001
RSEM-R5B-EOP	9/21/2018 11:00	UJ7161	<0.000002	0.0034	0.0349	-	3.61	0.00249	4.16	<0.00002	116	0.398	140	0.000011	<0.005	<0.005	0.00212	<0.005	0.0194	<0.0001
RSEM-R5B-EOP	9/22/2018 10:40	UK0062	<0.000002	0.0033	0.0229	-	3.66	0.00222	3.85	<0.00002	111	0.366	132	0.000012	<0.005	<0.005	0.00182	<0.005	0.0118	<0.0001
RSEM-R5B-EOP	9/23/2018 9:30	UK1525	0.0000022	0.0033	0.0187	-	3.73	0.00228	4.09	<0.00002	113	0.317	135	0.000011	<0.005	<0.005	0.00183	<0.005	0.0118	<0.0001
RSEM-R5B-EOP	9/24/2018 8:45	UK0550	<0.000002	0.0035	0.0171	-	3.78	0.00228	3.68	<0.00002	125	0.354	133	0.00001	<0.005	<0.005	0.00186	<0.005	0.0084	<0.0001
RSEM-R5B-EOP	9/25/2018 10:30	UK2336	<0.000002	0.0036	0.015	-	3.87	0.0025	3.79	<0.00002	137	0.32	151	0.000011	<0.005	<0.005	0.0019	<0.005	0.0087	<0.0001
RSEM-R5B-EOP	9/26/2018 12:30	UK5503	<0.000002	0.0041	0.0143	-	4.27	0.00278	3.74	<0.00002	162	0.355	181	0.000011	<0.005	<0.005	0.00207	<0.005	0.0069	<0.0001
RSEM-R5B-EOP	9/27/2018 9:50	UK8655	<0.000002	0.0038	0.0128	-	3.93	0.00281	3.25	<0.00002	165	0.333	169	0.00001	<0.005	<0.005	0.002	<0.005	0.0073	<0.0001
RSEM-R5B-EOP	9/28/2018 10:45	UL0968	<0.000002	0.0036	0.0134	-	3.96	0.00268	3.55	<0.00002	161	0.311	173	0.000014	<0.005	<0.005	0.00192	<0.005	0.0096	<0.0001
RSEM-R5B-EOP	9/29/2018 16:25	UL4208	<0.000002	0.0034	0.0117	-	3.86	0.00236	3.61	<0.00002	141	0.285	145	0.000011	<0.005	<0.005	0.00177	<0.005	0.0071	<0.0001
RSEM-R5B-EOP	9/30/2018 13:20	UL4214	<0.000002	0.0033	0.0109	-	3.78	0.00223	3.63	<0.00002	138	0.282	142	0.000014	<0.005	<0.005	0.00172	<0.005	0.0077	0.00011
RSEM-R5B-EOP	10/1/2018 11:00	UL6710	<0.000002	0.0034	0.0133	-	3.81	0.00212	3.74	<0.00002	121	0.279	130	0.000011	<0.005	<0.005	0.0017	<0.005	0.0103	<0.0001
RSEM-R5B-EOP	10/2/2018 11:53	UL6716	<0.000002	0.0032	0.0125	-	3.63	0.00213	3.56	<0.00002	117	0.286	117	0.00001	<0.005	<0.005	0.00166	<0.005	0.0092	<0.0001
RSEM-R5B-EOP	10/3/2018 11:50	UM2668	<0.000002	0.0036	0.0232	-	3.66	0.00251	3.54	<0.00002	121	0.346	135	<0.00001	<0.005	<0.005	0.00177	<0.005	0.0175	<0.0001
RSEM-R5B-EOP	10/3/2018 11:50	UM2669	<0.000002	0.0037	0.0232	-	3.74	0.00251	3.56	<0.00002	124	0.357	134	<0.00001	<0.005	<0.005	0.00179	<0.005	0.0176	<0.0001
RSEM-R5B-EOP	10/4/2018 10:50	UM6147	<0.000002	0.0039	0.0146	-	3.87	0.00291	3.32	<0.00002	118	0.34	141	0.000011	<0.005	<0.005	0.00186	<0.005	0.0098	<0.0001
RSEM-R5B-EOP	10/5/2018 10:10	UM6131	<0.000002	0.0039	0.0151	-	3.94	0.00299	3.13	<0.00002	119	0.351	146	0.000011	<0.005	<0.005	0.00188	<0.005	0.0087	<0.0001
RSEM-R5B-EOP	10/5/2018 10:10	UM6132	<0.000002	0.0039	0.0149	-	3.93	0.00301	3.11	<0.00002	119	0.351	145	0.000011	<0.005	<0.005	0.00187	<0.005	0.0087	<0.0001
RSEM-R5B-EOP	10/6/2018 16:45	UM9334	<0.000002	0.0057	0.0119	-	4.29	0.00315	4.09	<0.00002	113	0.369	150	0.00001	<0.005	<0.005	0.00165	<0.005	0.006	<0.0001
RSEM-R5B-EOP	10/7/2018 12:20	UM9326	<0.000002	0.0066	0.011	-	4.40	0.00321	4.5	<0.00002	115	0.371	150	<0.00001	<0.005	<0.005	0.00162	<0.005	0.0055	<0.0001
RSEM-R5B-EOP	10/8/2018 12:45	UM9332	<0.000002	0.0066	0.0102	-	4.37	0.00315	4.63	<0.00002	113	0.367	145	0.00001	<0.005	<0.005	0.00158	<0.005	0.0057	<0.0001
RSEM-R5B-EOP	10/9/2018 9:45	UM9809	<0.000002	0.0063	0.0096	-	4.23	0.00297	4.64	<0.00002	109	0.345	135	<0.00001	<0.005	<0.005	0.00155	<0.005	0.0054	<0.0001
RSEM-R5B-EOP	10/10/2018 9:10	UN2721	<0.000002	0.005	0.0079	-	4.41	0.00267	4.97	<0.00002	99.9	0.249	119	<0.00001	<0.005	<0.005	0.00156	<0.005	0.0067	<0.0001
RSEM-R5B-EOP	10/11/2018 10:15	UN4652	0.0000046	0.0055	0.0101	-	4.30	0.00273	4.17	<0.00002	108	0.276	119	<0.00001	<0.005	<0.005	0.00161	<0.005	0.0062	<0.0001
RSEM-R5B-EOP	10/12/2018 9:00	UN7468	<0.000002	0.0069	0.0093	-	4.00	0.00274	3.78	<0.00002	99.2	0.285	116	<0.00001	<0.005	<0.005	0.00155	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/13/2018 12:30	UN9931	0.0000029	0.0051	0.0177	-	4.12	0.00267	3.44	<0.00002	105	0.32	127	0.00001	<0.005	<0.005	0.00198	<0.005	0.0072	<0.0001
RSEM-R5B-EOP	10/14/2018 13:15	UN9928	<0.000002	0.0053	0.0185	-	4.17	0.00287	3.28	<0.00002	109	0.319	131	0.000011	<0.005	<0.005	0.00203	<0.005	0.008	<0.0001
RSEM-R5B-EOP	10/15/2018 17:30	UO4613	<0.000002	0.0056	0.0144	-	4.11	0.00316	3.26	<0.00002	121	0.279	138	0.000013	<0.005	<0.005	0.0018	<0.005	0.0081	<0.0001
RSEM-R5B-EOP	10/16/2018 12:50	UO9191	<0.000002	0.0055	0.0114	-	4.25	0.00339	2.68	<0.00002	139	0.283	146	<0.00001	<0.005	<0.005	0.00161	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/17/2018 15:50	UO9201	<0.000002	0.0062	0.0081	-	4.22	0.0035	2.52	<0.00002	144	0.287	150	0.00001	<0.005	<0.005	0.00152	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/18/2018 17:55	UP3095	<0.000002	0.006	0.0084	-	4.21	0.00342	2.65	<0.00002	139	0.288	147	0.00001	<0.005	<0.005	0.00157	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/19/2018 10:35	UP3099	0.000004	0.0059	0.0088	-	4.23	0.00334	2.73	<0.00002	139	0.294	145	0.000011	<0.005	<0.005	0.00161	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/20/2018 9:50	UP6167	<0.000002	0.0045	0.0086	-	3.75	0.00264	2.91	<0.00002	132	0.238	128	<0.00001	<0.005	<0.005	0.00159	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/21/2018 17:16	UP5458	0.0000035	0.0049	0.0088	-	4.15	0.0027	2.78	<0.00002	126	0.256	141	0.00001	<0.005	<0.005	0.00154	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/22/2018 10:00	UP6173	<0.000002	0.0057	0.0097	-	3.98	0.00319	2.52	<0.00002	137	0.279	142	<0.00001	<0.005	<0.005	0.00171	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/23/2018 12:20	UP9910	<0.000002	0.0041	0.007	-	3.43	0.00214	3.07	<0.00002	116	0.211	111	<0.00001	<0.005	<0.005	0.00147	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/23/2018 12:20	UP9908	<0.000002	0.004	0.0071	-	3.38	0.00207	3.06	<0.00002	113	0.212	110	<0.00001	<0.005	<0.005	0.00143	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/24/2018 13:35	UQ3376	0.0000047	0.0036	0.0064	-	3.44	0.00201	3.01	<0.00002	111	0.181	99.2	0.000011	<0.005	<0.005	0.00153	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/25/2018 12:15	UQ3348	0.0000043	0.0035	0.0064	-	3.37	0.00192	3.05	<0.00002	111	0.177	95.0	<0.00001	<0.005	<0.005	0.00145	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/26/2018 12:00	UQ5568	<0.000002	0.0033	0.0069	-	3.36	0.00181	2.99	<0.00002	108	0.177	89.6	<0.00001	<0.005	<0.005	0.00151	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	D-SO_4
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	10/26/2018 12:00	UQ5565	8.11	923	0.65	562	<4.0	189	190	102	<1.0	125	<1.0	<1.0	36.7	0.360	0.36	244
RSEM-R5B-EOP	10/27/2018 13:40	UQ8569	8.22	877	0.66	574	<4.0	223	230	144	<1.0	176	<1.0	<1.0	38.4	0.330	0.33	224
RSEM-R5B-EOP	10/28/2018 14:25	UQ8585	8.30	884	0.86	556	<4.0	227	239	159	<1.0	194	<1.0	<1.0	38.5	0.310	0.32	200
RSEM-R5B-EOP	10/28/2018 14:25	UQ8586	8.34	884	1.00	558	<4.0	224	236	161	1.8	192	2.1	<1.0	37.7	0.310	0.32	198
RSEM-R5B-EOP	10/29/2018 12:15	UR1746	8.39	887	1.15	538	<4.0	215	224	165	2.6	195	3.1	<1.0	39.8	0.320	0.47	224
RSEM-R5B-EOP	10/30/2018 12:20	UR2638	8.32	875	1.20	542	<4.0	225	244	189	1.4	228	1.6	<1.0	36.9	0.300	0.37	186
RSEM-R5B-EOP	10/31/2018 15:45	UR7289	8.31	848	0.86	500	<4.0	228	229	185	1.3	222	1.5	<1.0	33.6	0.300	0.34	192
RSEM-R5B-EOP	11/1/2018 12:30	US0228	8.17	767	0.92	496	<4.0	193	199	128	<1.0	156	<1.0	<1.0	28.3	0.310	0.29	182
RSEM-R5B-EOP	11/2/2018 9:20	US0227	8.23	803	0.99	470	<4.0	209	220	157	<1.0	191	<1.0	<1.0	29.5	0.320	0.27	206
RSEM-R5B-EOP	11/3/2018 16:40	US3565	8.11	773	1.18	446	<4.0	191	187	123	<1.0	150	<1.0	<1.0	28.1	0.310	0.30	207
RSEM-R5B-EOP	11/4/2018 13:25	US3568	8.16	800	1.37	468	<4.0	189	185	119	<1.0	145	<1.0	<1.0	29.8	0.320	0.33	212
RSEM-R5B-EOP	11/5/2018 17:50	US7027	8.05	833	1.22	486	<4.0	187	181	109	<1.0	132	<1.0	<1.0	26.3	0.340	0.34	238
RSEM-R5B-EOP	11/6/2018 15:13	US9399	8.10	965	1.07	570	<4.0	215	213	109	<1.0	133	<1.0	<1.0	34.0	0.340	0.42	281
RSEM-R5B-EOP	11/7/2018 14:00	UT1524	8.15	1130	1.21	678	<4.0	257	262	142	<1.0	174	<1.0	<1.0	38.5	0.340	0.46	288
RSEM-R5B-EOP	11/8/2018 7:00	UT3576	8.25	1210	1.35	-	<4.0	318	316	173	<1.0	211	<1.0	<1.0	39.8	0.350	0.47	341
RSEM-R5B-EOP	11/10/2018 10:05	UT4955	8.27	1270	0.68	814	<4.0	343	329	194	<1.0	236	<1.0	<1.0	40.9	0.300	0.49	361
RSEM-R5B-EOP	11/11/2018 9:35	UT4847	8.29	1280	0.65	840	<4.0	348	342	192	<1.0	235	<1.0	<1.0	39.6	0.290	0.48	369
RSEM-R5B-EOP	11/12/2018 10:15	UT6583	8.23	1300	0.93	880	<4.0	381	373	190	<1.0	232	<1.0	<1.0	38.2	0.290	0.40	396
RSEM-R5B-EOP	11/13/2018 12:30	UT9227	8.26	1420	0.50	1000	<4.0	431	420	180	<1.0	220	<1.0	<1.0	35.3	0.290	0.42	477
RSEM-R5B-EOP	11/14/2018 13:40	UU0939	8.16	1650	0.79	1060	<4.0	459	452	172	<1.0	210	<1.0	<1.0	35.6	0.350	0.45	497
RSEM-R5B-EOP	11/15/2018 12:30	UU0900	8.22	1530	0.57	1060	<4.0	483	481	181	<1.0	220	<1.0	<1.0	101	0.370	0.46	550
RSEM-R5B-EOP	11/16/2018 12:10	UU3466	8.22	1570	0.60	990	<4.0	492	463	179	<1.0	219	<1.0	<1.0	37.9	0.370	0.47	578
RSEM-R5B-EOP	11/17/2018 13:55	UU6432	8.18	1060	8.36	614	16.8	377	346	382	<1.0	466	<1.0	<1.0	45.8	0.250	0.32	141
RSEM-R5B-EOP	11/18/2018 13:10	UU6365	8.18	1680	0.55	1210	<4.0	540	518	195	<1.0	237	<1.0	<1.0	39.4	0.390	0.46	619
RSEM-R5B-EOP	11/19/2018 12:20	UU8729	8.20	1730	0.94	1150	4.8	539	530	200	<1.0	244	<1.0	<1.0	39.7	0.390	0.50	630
RSEM-R5B-EOP	11/20/2018 12:10	UU8804	8.22	1770	0.82	1270	<4.0	545	490	203	<1.0	248	<1.0	<1.0	40.3	0.400	0.50	663
RSEM-R5B-EOP	11/21/2018 12:35	UV2697	8.20	1810	0.85	1280	4.0	565	574	205	<1.0	251	<1.0	<1.0	42.9	0.390	0.51	672
RSEM-R5B-EOP	11/22/2018 14:05	UV5072	8.27	1830	0.42	1360	<4.0	564	586	210	<1.0	256	<1.0	<1.0	43.6	0.410	0.51	785
RSEM-R5B-EOP	11/23/2018 14:55	UV5085	8.18	1930	0.48	1400	<4.0	571	577	177	<1.0	216	<1.0	<1.0	41.7	0.410	0.51	829
RSEM-R5B-EOP	11/24/2018 11:30	UV7551	8.05	1920	0.76	1380	<4.0	504	505	114	<1.0	139	<1.0	<1.0	39.7	0.410	0.53	810
RSEM-R5B-EOP	11/25/2018 13:15	UV7534	8.21	1780	0.55	1210	<4.0	474	463	171	<1.0	208	<1.0	<1.0	40.0	0.380	0.51	658
RSEM-R5B-EOP	11/26/2018 14:55	UV9445	8.20	1780	0.91	1240	<4.0	450	453	182	<1.0	222	<1.0	<1.0	42.5	0.410	0.61	663
RSEM-R5B-EOP	11/27/2018 13:45	UW1675	8.30	1790	0.43	1250	<4.0	394	427	192	<1.0	234	<1.0	<1.0	45.9	0.420	0.75	683
RSEM-R5B-EOP	11/28/2018 17:55	UW6192	8.31	1820	0.55	1190	<4.0	348	347	221	<1.0	270	<1.0	<1.0	41.0	0.470	1.0	600
RSEM-R5B-EOP	11/29/2018 15:00	UW6195	8.21	1810	0.57	1210	<4.0	350	342	215	<1.0	262	<1.0	<1.0	41.5	0.460	1.0	599
RSEM-R5B-EOP	11/30/2018 13:15	UW6185	8.28	1800	0.57	1180	<4.0	356	346	216	<1.0	263	<1.0	<1.0	41.4	0.460	1.1	602
RSEM-R5B-EOP	12/1/2018 17:40	UW8611	8.21	1830	0.44	1240	<4.0	359	364	214	<1.0	261	<1.0	<1.0	41.7	0.510	1.1	640
RSEM-R5B-EOP	12/2/2018 14:40	UW8614	8.24	1820	0.36	1210	<4.0	355	351	215	<1.0	263	<1.0	<1.0	40.8	0.520	1.1	611
RSEM-R5B-EOP	12/3/2018 11:15	UW8508	8.19	1870	0.36	1280	<4.0	351	373	211	<1.0	258	<1.0	<1.0	41.6	0.520	1.1	657
RSEM-R5B-EOP	12/4/2018 13:10	UX4641	8.02	1990	0.39	1340	<4.0	375	387	218	<1.0	266	<1.0	<1.0	46.5	0.520	1.2	743
RSEM-R5B-EOP	12/5/2018 15:00	UX4957	8.09	2070	0.42	1430	<4.0	394	383	227	<1.0	276	<1.0	<1.0	45.9	0.550	1.4	754
RSEM-R5B-EOP	12/6/2018 9:20	UX6856	8.30	2180	0.37	1460	<4.0	367	378	237	<1.0	289	<1.0	<1.0	47.6	0.570	1.7	812
RSEM-R5B-EOP	12/7/2018 12:50	UX6859	8.41	2260	0.45	1500	<4.0	393	389	244	4.4	287	5.3	<1.0	48.5	0.650	1.9	866
RSEM-R5B-EOP	12/8/2018 15:05	UX7494	8.27	2310	0.47	1570	<4.0	407	387	240	<1.0	292	<1.0	<1.0	45.0	0.600	2.2	875
RSEM-R5B-EOP	12/9/2018 14:45	UX7486	8.15	2400	0.50	1660	<4.0	428	408	233	<1.0	285	<1.0	<1.0	46.1	0.610	2.5	922
RSEM-R5B-EOP	12/10/2018 15:00	UY5755	8.13	2500	0.45	1750	<4.0	433	413	222	<1.0	271	<1.0	<1.0	45.6	0.670	2.9	1030
RSEM-R5B-EOP	12/11/2018 11:05	UY1785	8.20	2540	1.79	1720	<4.0	328	329	235	<1.0	286	<1.0	<1.0	48.6	0.660	4.5	969
RSEM-R5B-EOP	12/12/2018 8:18	UY3860	8.43	2290	2.81	1500	6.0	296	298	237	4.8	278	5.7	<1.0	51.8	0.600	3.7	884
RSEM-R5B-EOP	12/13/2018 16:25	UY7667	8.20	1970	1.10	1300	<4.0	263	283	246	<1.0	300	<1.0	<1.0	51.7	0.500	2.8	647
RSEM-R5B-EOP	12/14/2018 10:30	UY7660	8.28	1810	1.19	1180	<4.0	250	257	249	<1.0	303	<1.0	<1.0	50.3	0.460	2.4	539
RSEM-R5B-EOP	12/15/2018 15:40	UZ0621	8.25	1650	2.62	1030	4.8	258	248	247	<1.0	301	<1.0	<1.0	45.8	0.410	2.0	476
RSEM-R5B-EOP	12/16/2018 9:35	UZ0624	8.30	1610	2.11	1010	<4.0	258	249	248	<1.0	303	<1.0	<1.0	46.3	0.390	1.8	444
RSEM-R5B-EOP	12/17/2018 13:30	UZ1472	8.20	1500	1.03	952	<4.0	269	250	243	<1.0	296	<1.0	<1.0	44.9	0.370	1.6	404
RSEM-R5B-EOP	12/18/2018 15:00	UZ3636	8.28	1410	1.29	890	<4.0	268	249	235	<1.0	287	<1.0	<1.0	40.3	0.380	1.3	398
RSEM-R5B-EOP	12/19/2018 8:25	UZ3482	8.29	1380	1.08	858	<4.0	258	255	239	<1.0	292	<1.0	<1.0	38.6	0.370	1.1	349
RSEM-R5B-EOP	12/20/2018 15:57	UZ8199	8.43	1320	1.59	838	<4.0	270	260	247	4.7	289	5.6	<1.0	43.1	0.350	0.93	343
RSEM-R5B-EOP	12/21/2018 11:42	UZ8195	8.38	1290	1.57	786	<4.0	261	276	242	3.5	287	4.2	<1.0	43.0	0.330	0.84	321
RSEM-R5B-EOP	12/22/2018 8:55	UZ8833	8.38	1260	1.34	774	<4.0	248	264	249	2.7	297	3.2	<1.0	44.8	0.320	0.80	315
RSEM-R5B-EOP	12/23/2018 11:05	UZ8808	8.25	1260	1.23	772	<4.0	268	270	251	<1.0	307	<1.0	<1.0	48.3	0.330	0.86	265
RSEM-R5B-EOP	12/23/2018 11:05	UZ8806	8.39	1260	1.34	758	<4.0	260	280	254	2.7	304	3.3	<1.0	49.3	0.330	0.79	208
RSEM-R5B-EOP	12/24/2018 14:20	UZ9931	8.25	1270	1.23	744	<4.0	260	283	264	<1.0	322	<1.0	<1.0	53.1	0.360	0.82	275
RSEM-R5B-EOP	12/25/2018 11:35	UZ9980	8.28	1240	1.27	744	<4.0	256	284	269	<1.0	328	<1.0	<1.0	54.8	0.330	0.82	257
RSEM-R5B-EOP	12/25/2018 11:35	UZ9977	8.32	1240	1.31	724	<4.0	250	280	273	1.4	330	1.7	<1.0	54.2	0.340	0.87	248

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	10/26/2018 12:00	UQ5565	0.11	0.0117	0.546	0.557	<0.0050	1.6	2.0	0.0516	<0.0005	0.00038	0.0183	<0.0001	<0.001	0.108	0.000016	31.0	<0.001	0.00052	0.00093
RSEM-R5B-EOP	10/27/2018 13:40	UQ8569	0.070	0.0101	0.573	0.583	<0.0050	0.53	0.63	0.0601	<0.0005	0.00036	0.0285	<0.0001	<0.001	0.098	0.000037	40.7	<0.001	0.00111	0.00083
RSEM-R5B-EOP	10/28/2018 14:25	UQ8585	0.099	0.0111	0.554	0.565	<0.0050	0.75	0.96	0.0599	<0.0005	0.00032	0.0318	<0.0001	<0.001	0.094	0.000074	43.8	<0.001	0.00117	0.00075
RSEM-R5B-EOP	10/28/2018 14:25	UQ8586	0.079	0.0109	0.561	0.572	<0.0050	0.89	<0.50	0.0595	<0.0005	0.00036	0.0319	<0.0001	<0.001	0.094	0.000037	42.4	<0.001	0.00122	0.00085
RSEM-R5B-EOP	10/29/2018 12:15	UR1746	0.082	0.0107	0.568	0.579	<0.0050	0.67	0.90	0.0637	<0.0005	0.0003	0.0331	<0.0001	<0.001	0.096	0.000032	42.6	<0.001	0.0012	0.00084
RSEM-R5B-EOP	10/30/2018 12:20	UR2638	0.11	<0.0050	0.578	0.578	<0.0050	<0.50	0.78	0.0742	<0.0005	0.00033	0.0414	<0.0001	<0.001	0.078	0.000067	49.2	<0.001	0.00237	0.00092
RSEM-R5B-EOP	10/31/2018 15:45	UR7289	0.14	0.0110	0.551	0.562	<0.0050	0.78	0.83	0.0654	<0.0005	0.00036	0.0394	<0.0001	<0.001	0.08	0.000051	49.4	<0.001	0.00183	0.00088
RSEM-R5B-EOP	11/1/2018 12:30	US0228	0.15	0.0119	0.397	0.409	<0.0050	4.46	3.99	0.136	<0.0005	0.00033	0.0338	<0.0001	<0.001	0.094	0.000034	36.9	<0.001	0.0012	0.0008
RSEM-R5B-EOP	11/2/2018 9:20	US0227	0.14	0.0105	0.506	0.517	<0.0050	4.05	2.17	0.0596	<0.0005	0.00031	0.0363	<0.0001	<0.001	0.092	0.000047	42.4	<0.001	0.00173	0.0009
RSEM-R5B-EOP	11/3/2018 16:40	US3565	0.17	0.0135	0.446	0.460	<0.0050	1.66	2.17	0.108	<0.0005	0.00036	0.0306	<0.0001	<0.001	0.084	0.000029	36.9	<0.001	0.00099	0.00071
RSEM-R5B-EOP	11/4/2018 13:25	US3568	0.21	0.0144	0.445	0.459	<0.0050	2.27	1.86	0.0781	<0.0005	0.00041	0.0291	<0.0001	<0.001	0.088	0.000024	35.4	<0.001	0.00094	0.00094
RSEM-R5B-EOP	11/5/2018 17:50	US7027	0.25	<0.0050	0.460	0.460	<0.0050	1.65	1.53	0.0745	<0.0005	0.00043	0.0276	<0.0001	<0.001	0.091	0.00002	32.1	<0.001	0.00074	0.00089
RSEM-R5B-EOP	11/6/2018 15:13	US9399	0.28	0.0097	0.458	0.467	<0.0050	4.02	1.24	0.0509	<0.0005	0.00042	0.0269	<0.0001	<0.001	0.089	0.000021	34.0	<0.001	0.00074	0.00103
RSEM-R5B-EOP	11/7/2018 14:00	UT1524	0.19	0.0115	0.561	0.573	<0.0050	2.39	2.10	0.0457	<0.0005	0.00039	0.028	<0.0001	<0.001	0.091	0.000035	43.8	<0.001	0.00129	0.00088
RSEM-R5B-EOP	11/8/2018 7:00	UT3576	0.30	0.0110	0.610	0.621	<0.0050	1.4	1.84	0.0529	<0.0005	0.00043	0.0328	<0.0001	<0.001	0.091	0.000052	56.2	<0.001	0.00148	0.00089
RSEM-R5B-EOP	11/10/2018 10:05	UT4955	0.18	0.0118	0.608	0.620	<0.0050	1.8	2.14	0.0416	<0.0005	0.00039	0.0361	<0.0001	<0.001	0.089	0.000048	62.7	<0.001	0.00113	0.00071
RSEM-R5B-EOP	11/11/2018 9:35	UT4847	0.20	0.0076	0.591	0.598	<0.0050	2.1	1.66	0.038	<0.0005	0.0004	0.0371	<0.0001	<0.001	0.087	0.000048	64.0	<0.001	0.00113	0.00073
RSEM-R5B-EOP	11/12/2018 10:15	UT6583	0.30	0.0097	0.568	0.577	<0.0050	1.5	1.84	0.07	<0.01	<0.002	0.037	<0.002	<0.02	<1	<0.0002	69.5	<0.02	<0.004	<0.01
RSEM-R5B-EOP	11/13/2018 12:30	UT9227	0.24	0.0127	0.573	0.586	<0.0050	2.4	1.48	0.0424	<0.0005	0.00031	0.0409	<0.0001	<0.001	0.101	0.000048	81.2	<0.001	0.00115	0.00076
RSEM-R5B-EOP	11/14/2018 13:40	UU0939	0.39	0.0152	0.593	0.609	<0.0050	1.9	2.5	0.0408	<0.0005	0.00029	0.0406	<0.0001	<0.001	0.108	0.000052	92.1	<0.001	0.00121	0.00064
RSEM-R5B-EOP	11/15/2018 12:30	UU0900	0.36	0.0145	0.621	0.636	<0.0050	2.4	3.4	0.0431	<0.0005	0.00027	0.0425	<0.0001	<0.001	0.102	0.000062	97.8	<0.001	0.00148	0.00088
RSEM-R5B-EOP	11/16/2018 12:10	UU3466	0.41	0.0148	0.677	0.691	<0.0050	2.2	2.6	0.0413	<0.0005	0.00027	0.0447	<0.0001	<0.001	0.129	0.000064	101	<0.001	0.00143	0.00074
RSEM-R5B-EOP	11/17/2018 13:55	UU6432	0.045	0.0064	0.936	0.943	<0.0050	1.2	0.97	0.308	<0.0005	0.00059	0.0999	<0.0001	<0.001	0.096	0.000158	98.5	<0.001	0.0033	0.00205
RSEM-R5B-EOP	11/18/2018 13:10	UU6365	0.37	0.0170	0.733	0.750	<0.0050	1.8	1.6	0.045	<0.0005	0.0003	0.0463	<0.0001	<0.001	0.126	0.00007	108	<0.001	0.00149	0.00082
RSEM-R5B-EOP	11/19/2018 12:20	UU8729	0.44	0.0147	0.729	0.744	<0.0050	1.4	1.2	0.0472	<0.0005	0.00029	0.0455	<0.0001	<0.001	0.117	0.000068	108	<0.001	0.0014	0.00092
RSEM-R5B-EOP	11/20/2018 12:10	UU8804	0.33	0.0126	0.743	0.756	<0.0050	1.8	0.91	0.0423	<0.0005	0.00029	0.0445	<0.0001	<0.001	0.119	0.000066	109	<0.001	0.00124	0.0008
RSEM-R5B-EOP	11/21/2018 12:35	UV2697	0.34	0.0195	0.834	0.853	<0.0050	2.1	1.3	0.0466	<0.0005	0.00033	0.045	<0.0001	<0.001	0.127	0.000062	112	<0.001	0.00104	0.00107
RSEM-R5B-EOP	11/22/2018 14:05	UV5072	0.34	0.0121	0.745	0.757	<0.0050	1.8	1.9	0.0407	<0.0005	0.00028	0.0431	<0.0001	<0.001	0.118	0.000063	110	<0.001	0.00134	0.00088
RSEM-R5B-EOP	11/23/2018 14:55	UV5085	0.42	0.0157	0.752	0.767	<0.0050	1.9	1.7	0.0383	<0.0005	0.00029	0.0359	<0.0001	<0.001	0.147	0.000056	104	<0.001	0.00117	0.00088
RSEM-R5B-EOP	11/24/2018 11:30	UV7551	0.57	0.0143	0.675	0.689	<0.0050	<0.50	<0.50	0.036	0.00062	0.00032	0.0225	<0.0001	<0.001	0.152	0.000043	79.2	<0.001	0.00092	0.00103
RSEM-R5B-EOP	11/25/2018 13:15	UV7534	0.47	0.0131	0.748	0.761	0.0108	<0.50	<0.50	0.0296	0.00054	0.00032	0.0289	<0.0001	<0.001	0.142	0.000046	79.0	<0.001	0.00112	0.0007
RSEM-R5B-EOP	11/26/2018 14:55	UV9445	0.51	0.0122	0.723	0.735	<0.0050	0.75	0.92	0.0421	<0.001	0.00042	0.0285	<0.0002	<0.002	0.147	0.000043	75.0	<0.002	0.00112	0.001
RSEM-R5B-EOP	11/27/2018 13:45	UW1675	0.42	0.0143	0.745	0.760	<0.0050	1.1	<0.50	0.0321	0.00058	0.00044	0.0291	<0.0001	<0.001	0.141	0.000038	68.2	<0.001	0.00111	0.00065
RSEM-R5B-EOP	11/28/2018 17:55	UW6192	0.47	0.0125	0.695	0.708	<0.0050	0.73	<0.50	0.0608	0.00052	0.0005	0.0335	<0.0001	<0.001	0.186	0.000072	63.0	<0.001	0.00194	0.00107
RSEM-R5B-EOP	11/29/2018 15:00	UW6195	0.51	0.0120	0.688	0.700	<0.0050	0.69	<0.50	0.0691	0.00053	0.00053	0.0344	<0.0001	<0.001	0.191	0.000071	63.1	<0.001	0.00202	0.00098
RSEM-R5B-EOP	11/30/2018 13:15	UW6185	0.54	0.0129	0.681	0.694	<0.0050	1.2	0.61	0.067	0.00057	0.00047	0.0346	<0.0001	<0.001	0.185	0.000108	60.1	<0.001	0.00291	0.00111
RSEM-R5B-EOP	12/1/2018 17:40	UW8611	0.93	0.0202	0.671	0.691	<0.0050	1.3	2.0	0.0571	0.00071	0.00046	0.0363	<0.0001	<0.001	0.182	0.000099	62.3	<0.001	0.00275	0.00123
RSEM-R5B-EOP	12/2/2018 14:40	UW8614	0.86	0.0207	0.646	0.667	<0.0050	1.3	2.1	0.0698	0.00066	0.00046	0.0373	<0.0001	<0.001	0.187	0.000133	62.4	<0.001	0.00348	0.00122
RSEM-R5B-EOP	12/3/2018 11:15	UW8508	0.80	0.0208	0.668	0.689	<0.0050	1.3	0.87	0.0565	0.00077	0.00043	0.0353	<0.0001	<0.001	0.182	0.000097	61.0	<0.001	0.00253	0.00111
RSEM-R5B-EOP	12/4/2018 13:10	UX4641	1.0	0.0231	0.684	0.707	<0.0050	1.5	1.6	0.0543	0.00088	0.00048	0.0373	<0.0001	<0.001	0.215	0.000098	68.5	<0.001	0.00279	0.0013
RSEM-R5B-EOP	12/5/2018 15:00	UX4957	1.4	0.0194	0.683	0.702	<0.0050	2.4	1.8	0.0485	0.00098	0.00051	0.0374	<0.0001	<0.001	0.229	0.000086	72.8	<0.001	0.00251	0.0012
RSEM-R5B-EOP	12/6/2018 9:20	UX6856	1.7	0.0177	0.692	0.709	<0.0050	1.4	1.5	0.0463	<0.001	0.00055	0.037	<0.0002	<0.002	0.221	0.000084	66.7	<0.002	0.0022	0.0012
RSEM-R5B-EOP	12/7/2018 12:50	UX6859	2.1	0.0186	0.702	0.720	<0.0050	1.7	1.5	0.0462	0.00097	0.00057	0.04	<0.0001	<0.001	0.246	0.000072	72.6	<0.001	0.00182	0.00115
RSEM-R5B-EOP	12/8/2018 15:05	UX7494	2.5	0.0182	0.747	0.765	<0.0050	1.3	2.3	0.0446	0.001	0.00065	0.0365	<0.0001	<0.001	0.259	0.000061	73.7	<0.001	0.0017	0.00122
RSEM-R5B-EOP	12/9/2018 14:45	UX7486	1.7	0.0161	0.773	0.789	<0.0050	2.2	2.2	0.05	0.00096	0.00065	0.0343	<0.0001	<0.001	0.267	0.00006	72.5	<0.001	0.00171	0.00139
RSEM-R5B-EOP	12/10/2018 15:00	UY5755	2.7	0.0135	0.698	0.711	<0.0050	1.3	1.7	0.0628	<0.001	0.00072	0.0301	<0.0002	<0.002	0.298	0.000091	75.5	<0.002	0.0015	0.0019
RSEM-R5B-EOP	12/11/2018 11:05	UY1785	6.2	0.0355	0.572	0.607	<0.0050	1.3	1.7	0.118	0.00091	0.00147	0.0261	<0.0001	<0.001	0.339	0.000026	53.1	0.0023	0.00111	0.00153
RSEM-R5B-EOP	12/12/2018 8:18	UY3860	3.9	0.0503	0.597	0.648	<0.0050	1.6	1.7	0.113	<0.001	0.00163	0.0285	<0.0002	<0.002	0.296	0.000039	49.0	0.0023	0.00112	0.0017
RSEM-R5B-EOP	12/13/2018 16:25	UY7667	3.0	0.0636	0.654	0.717	<0.0050	1.3	1.5	0.0845	<0.001	0.00159	0.0295	<0.0002	<0.002	0.247	0.000028	48.3	0.0024	0.00103	0.0022
RSEM-R5B-EOP	12/14/2018 10:30	UY7660	2.7	0.0621	0.658	0.720	<0.0050	2.5	2.5	0.0909	0.00095	0.00149	0.0319	<0.0001	<0.001	0.232	0.000037	45.3	0.0024	0.00102	0.00171
RSEM-R5B-EOP	12/15/2018 15:40	UZ0621	1.8	0.0630	0.609	0.672	<0.0050	1.9	2.1	0.0954	0.00102	0.00141	0.0359	<0.0001	<0.001	0.223	0.000045	48.1	0.0021	0.00106	0.00131
RSEM-R5B-EOP	12/16/2018 9:35	UZ0624	1.8	0.0602	0.653	0.714	<0.0050	2.1	1.9	0.0762	0.00111	0.0014	0.0363	<0.0001	<0.001	0.207	0.000044	48.1	0.002	0.00101	0.00134
RSEM-R5B-EOP	12/17/2018 13:30	UZ1472	1.5	0.0636	0.675	0.738	<0.0050	1.9	1.7	0.0756	0.00123	0.00131	0.0381	<0.0001	<0.001	0.2	0.000042	48.9	0.0019	0.00095	0.00116
RSEM-R5B-EOP	12/18/2018 15:00	UZ3636	1.1	0.0687	0.658	0.727	<0.0050	1.1	2.2	0.0564	0.00123	0.00118	0.0385	<0.0001	<0.001	0.196	0.000036	51.1	0.0019	0.00088	0.00117
RSEM-R5B-EOP	12/19/2018 8:25	UZ3482	1.1	0.0644	0.713	0.777	0.0061	2.1	2.4	0.0704	0.00115	0.0011	0.0383	<0.0001	<0.001	0.16	0.000047	46.9	0.0015	0.00084	0.00115
RSEM-R5B-EOP	12/20/2018 15:57	UZ8199	0.97	0.0604	0.727	0.788	<0.0050	1.4	1.7	0.0501	0.00112	0.00105	0.0389	<0.0001	<0.001	0.181	0.000041	50.2	0.0014	0.00091	0.00109
RSEM-R5B-EOP	12/21/2018 11:42	UZ8195	0.74	0.0618	0.732	0.794	<0.0050	1.4	1.4	0.0549	0.00109	0.00105	0.0386	<0.0001	<0.001	0.174	0.000039	47.3	0.0013	0.0008	0.00102
RSEM-R5B-EOP	12/22/2018 8:55	UZ8833	0.79	0.0690	0.713	0.782	<0.0050	1.4	1.6	0.0457	0.00105	0.00106	0.0373	<0.0001	<0.001	0.153	0.000042	44.6	0.0012	0.00074	0.00104
RSEM-R5B-EOP	12/23/2018 11:05	UZ8808	0.93	0.0769	0.742	0.819	<0.0050	1.1	1.2	0.0581	0.00109	0.00115	0.0394	<0.0001	<0.001	0.169	0.000041	48.1	0.0015	0.0008	0.00121
RSEM-R5B-EOP	12/23/2018 11:05	UZ8806	0.59	0.0781	0.737	0.815	<0.0050	1.3	1.5	0.0588	0.00106	0.00115	0.0384	<0.0001	<0.001	0.178	0.000038	47.8	0.0015	0.0008	0.00117
RSEM-R5B-EOP	12/24/2018 14:20	UZ9931	0.53	0.0786	0.777	0.855	<0.0050	1.9	2.4	0.0558	0.00112	0.00134	0.0407	<0.0001	<0.001	0.182	0.000039	49.3	0.0016	0.00083	0.0011
RSEM-R5B-EOP	12/25/2018 11:35	UZ9980	0.41	0.0820	0.803	0.885	<0.0050	2.8	3.0	0.0896	0.00111	0.00127	0.0402	<0.0001	<0.001	0.19	0.00004	50.9	0.0019	0.00085	0.00113
RSEM-R5B-EOP	12/25/2018 11:35	UZ9977	0.39	0.0836	0.801	0.885	<0.0050	2.7	3.2	0.0572	0.0011	0.00127	0.0408	<0.0001	<0.001	0.177	0.000041	48.7	0.0015	0.00079	0.00096

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	10/26/2018 12:00	UQ5565	0.026	<0.0002	0.0864	27.1	0.0084	0.0000064	0.0033	0.0071	-	3.37	0.00176	2.87	<0.00002	103	0.178	87.7	<0.00001	<0.005	<0.005	0.00143
RSEM-R5B-EOP	10/27/2018 13:40	UQ8569	0.039	<0.0002	0.0829	29.4	0.0202	0.0000043	0.003	0.0091	-	3.47	0.00174	3.1	<0.00002	102	0.192	88.6	0.00001	<0.005	<0.005	0.00155
RSEM-R5B-EOP	10/28/2018 14:25	UQ8585	0.047	<0.0002	0.0823	28.6	0.021	<0.000002	0.003	0.0087	-	3.30	0.00165	3.2	<0.00002	95.8	0.196	78.5	0.00001	<0.005	<0.005	0.00151
RSEM-R5B-EOP	10/28/2018 14:25	UQ8586	0.046	<0.0002	0.0826	28.8	0.0221	0.000005	0.0028	0.0093	-	3.41	0.00178	3.1	<0.00002	95.8	0.202	82.5	0.00001	<0.005	<0.005	0.00153
RSEM-R5B-EOP	10/29/2018 12:15	UR1746	0.043	<0.0002	0.0874	26.5	0.0218	0.0000036	0.0028	0.009	-	3.16	0.00169	3.2	<0.00002	89.7	0.22	72.9	<0.00001	<0.005	<0.005	0.00158
RSEM-R5B-EOP	10/30/2018 12:20	UR2638	0.089	<0.0002	0.0693	24.8	0.0416	<0.000002	0.0025	0.0127	-	3.14	0.00165	3.18	<0.00002	84.8	0.244	63.8	<0.00001	<0.005	<0.005	0.00148
RSEM-R5B-EOP	10/31/2018 15:45	UR7289	0.068	<0.0002	0.0749	25.4	0.0343	0.0000042	0.0026	0.011	-	3.01	0.00154	3.37	<0.00002	84.8	0.217	65.3	0.00001	<0.005	<0.005	0.00152
RSEM-R5B-EOP	11/1/2018 12:30	US0228	0.041	<0.0002	0.0795	24.5	0.0207	0.0000041	0.0027	0.0093	-	2.80	0.00143	3.13	<0.00002	84.0	0.203	69.5	<0.00001	<0.005	<0.005	0.00126
RSEM-R5B-EOP	11/2/2018 9:20	US0227	0.048	<0.0002	0.082	25.1	0.03	<0.000002	0.0026	0.011	-	2.83	0.00155	3.22	<0.00002	83.4	0.215	65.6	<0.00001	<0.005	<0.005	0.00143
RSEM-R5B-EOP	11/3/2018 16:40	US3565	0.037	<0.0002	0.068	24.0	0.0164	<0.000002	0.0025	0.0082	-	2.84	0.0014	2.97	<0.00002	90.9	0.177	72.6	<0.00001	<0.005	<0.005	0.00121
RSEM-R5B-EOP	11/4/2018 13:25	US3568	0.036	<0.0002	0.0707	24.4	0.0141	0.000005	0.0026	0.0081	-	2.88	0.00153	2.95	<0.00002	98.4	0.18	81.7	<0.00001	<0.005	<0.005	0.00122
RSEM-R5B-EOP	11/5/2018 17:50	US7027	0.039	<0.0002	0.0748	26.1	0.0108	<0.000002	0.0028	0.008	-	2.72	0.0015	2.94	<0.00002	107	0.195	84.6	<0.00001	<0.005	<0.005	0.00129
RSEM-R5B-EOP	11/6/2018 15:13	US9399	0.036	<0.0002	0.0737	31.7	0.0126	<0.000002	0.0029	0.0083	-	3.15	0.0015	3.41	<0.00002	115	0.2	108	0.000011	<0.005	<0.005	0.00159
RSEM-R5B-EOP	11/7/2018 14:00	UT1524	0.036	<0.0002	0.08	35.8	0.0236	<0.000002	0.0031	0.01	-	2.90	0.00155	3.36	<0.00002	123	0.241	115	0.000011	<0.005	<0.005	0.00176
RSEM-R5B-EOP	11/8/2018 7:00	UT3576	0.062	<0.0002	0.08	43.2	0.0283	<0.000002	0.0034	0.0109	-	3.54	0.00165	3.85	<0.00002	140	0.305	138	0.000012	<0.005	<0.005	0.00202
RSEM-R5B-EOP	11/10/2018 10:05	UT4955	0.041	<0.0002	0.0755	45.2	0.0264	<0.000002	0.0032	0.0086	-	3.24	0.00158	3.72	<0.00002	140	0.324	133	0.000012	<0.005	<0.005	0.00188
RSEM-R5B-EOP	11/11/2018 9:35	UT4847	0.042	<0.0002	0.0733	45.7	0.0269	<0.000002	0.0032	0.0085	-	3.23	0.00154	3.62	<0.00002	141	0.33	135	0.000012	<0.005	<0.005	0.00183
RSEM-R5B-EOP	11/12/2018 10:15	UT6583	<0.2	<0.004	0.083	50.3	0.03	<0.000002	<0.02	<0.02	-	3.2	<0.002	3.7	<0.0004	150	0.31	3800	<0.0002	<0.1	<0.1	<0.002
RSEM-R5B-EOP	11/13/2018 12:30	UT9227	0.046	<0.0002	0.0762	55.4	0.0263	<0.000002	0.0035	0.0081	-	3.38	0.00168	3.84	<0.00002	163	0.416	182	0.000012	<0.005	<0.005	0.00171
RSEM-R5B-EOP	11/14/2018 13:40	UU0939	0.043	<0.0002	0.0823	55.6	0.0266	<0.000002	0.0034	0.0078	-	3.63	0.00197	3.76	<0.00002	168	0.415	208	0.000012	<0.005	<0.005	0.00178
RSEM-R5B-EOP	11/15/2018 12:30	UU0900	0.04	<0.0002	0.0814	57.9	0.0312	<0.000002	0.0035	0.0088	-	3.60	0.00228	3.75	<0.00002	168	0.417	208	0.000014	<0.005	<0.005	0.00184
RSEM-R5B-EOP	11/16/2018 12:10	UU3466	0.039	<0.0002	0.0855	58.4	0.0302	<0.000002	0.0036	0.009	-	3.70	0.00227	4.03	<0.00002	175	0.448	212	0.000016	<0.005	<0.005	0.00193
RSEM-R5B-EOP	11/17/2018 13:55	UU6432	0.726	0.00027	0.136	31.9	0.0756	<0.000002	0.0024	0.015	-	3.92	0.00226	5.16	<0.00002	121	0.335	50.0	0.000019	<0.005	<0.005	0.0021
RSEM-R5B-EOP	11/18/2018 13:10	UU6365	0.053	<0.0002	0.0983	65.6	0.0359	<0.000002	0.0038	0.0105	-	3.69	0.00239	4.03	<0.00002	198	0.521	235	0.000015	<0.005	<0.005	0.00207
RSEM-R5B-EOP	11/19/2018 12:20	UU8729	0.043	<0.0002	0.0909	65.5	0.0336	<0.000002	0.0038	0.0108	-	3.75	0.00243	3.83	<0.00002	197	0.533	241	0.000015	<0.005	<0.005	0.00208
RSEM-R5B-EOP	11/20/2018 12:10	UU8804	0.036	<0.0002	0.0927	66.3	0.03	<0.000002	0.0037	0.0108	-	3.80	0.00234	3.71	<0.00002	200	0.528	245	0.000014	<0.005	<0.005	0.00212
RSEM-R5B-EOP	11/21/2018 12:35	UV2697	0.045	<0.0002	0.0903	69.4	0.0252	<0.000002	0.0039	0.0109	-	3.94	0.00264	3.65	<0.00002	199	0.558	247	0.000014	<0.005	<0.005	0.00224
RSEM-R5B-EOP	11/22/2018 14:05	UV5072	0.03	<0.0002	0.0864	70.1	0.0331	<0.000002	0.0035	0.0116	-	3.78	0.00234	3.23	<0.00002	198	0.551	248	0.000015	<0.005	<0.005	0.00218
RSEM-R5B-EOP	11/23/2018 14:55	UV5085	0.031	<0.0002	0.108	75.7	0.0307	<0.000002	0.0035	0.0099	-	3.77	0.00233	3.82	<0.00002	215	0.57	276	0.000011	<0.005	<0.005	0.00206
RSEM-R5B-EOP	11/24/2018 11:30	UV7551	0.044	<0.0002	0.107	74.4	0.0236	<0.000002	0.0037	0.008	-	3.84	0.00242	4.24	<0.00002	231	0.533	290	0.000013	<0.005	<0.005	0.00181
RSEM-R5B-EOP	11/25/2018 13:15	UV7534	0.026	<0.0002	0.107	67.1	0.0259	<0.000002	0.0043	0.0095	-	3.90	0.0024	4.19	<0.00002	213	0.474	242	0.000011	<0.005	<0.005	0.00203
RSEM-R5B-EOP	11/26/2018 14:55	UV9445	0.051	<0.0004	0.103	63.7	0.0253	<0.000002	0.0074	0.0108	-	4.20	0.00242	4.3	<0.00004	233	0.428	243	<0.00002	<0.01	<0.01	0.00226
RSEM-R5B-EOP	11/27/2018 13:45	UW1675	0.027	<0.0002	0.0969	54.2	0.0237	<0.000002	0.0117	0.01	-	3.63	0.00268	3.99	<0.00002	221	0.451	227	0.000013	<0.005	<0.005	0.00222
RSEM-R5B-EOP	11/28/2018 17:55	UW6192	0.038	<0.0002	0.116	46.2	0.0388	<0.000002	0.0235	0.0115	-	3.83	0.00262	4.25	<0.00002	266	0.336	228	0.000013	<0.005	<0.005	0.00254
RSEM-R5B-EOP	11/29/2018 15:00	UW6195	0.038	<0.0002	0.117	46.7	0.0394	<0.000002	0.0229	0.0117	-	4.01	0.00265	4.26	<0.00002	268	0.337	236	0.000014	<0.005	<0.005	0.00256
RSEM-R5B-EOP	11/30/2018 13:15	UW6185	0.035	<0.0002	0.115	50.1	0.0526	<0.000002	0.0238	0.0155	-	3.67	0.00251	3.82	<0.00002	272	0.37	215	0.000013	<0.005	<0.005	0.00252
RSEM-R5B-EOP	12/1/2018 17:40	UW8611	0.025	<0.0002	0.11	49.4	0.0474	<0.000002	0.0259	0.0164	-	3.88	0.00275	3.8	<0.00002	278	0.398	225	0.000016	<0.005	<0.005	0.00255
RSEM-R5B-EOP	12/2/2018 14:40	UW8614	0.029	<0.0002	0.11	48.5	0.0603	<0.000002	0.0259	0.0178	-	3.83	0.00266	3.79	<0.00002	278	0.388	223	0.000015	<0.005	<0.005	0.00253
RSEM-R5B-EOP	12/3/2018 11:15	UW8508	0.025	<0.0002	0.111	48.4	0.0433	<0.000002	0.0261	0.0151	-	3.76	0.00283	3.65	<0.00002	273	0.397	226	0.000013	<0.005	<0.005	0.00243
RSEM-R5B-EOP	12/4/2018 13:10	UX4641	0.032	<0.0002	0.121	49.5	0.0451	0.0000031	0.0311	0.0165	-	4.09	0.00343	4.11	<0.00002	315	0.414	261	0.000019	<0.005	<0.005	0.00287
RSEM-R5B-EOP	12/5/2018 15:00	UX4957	0.028	<0.0002	0.126	51.7	0.0418	0.0000034	0.0409	0.0172	-	4.40	0.00394	4.28	<0.00002	345	0.439	276	0.000019	<0.005	<0.005	0.00294
RSEM-R5B-EOP	12/6/2018 9:20	UX6856	0.028	<0.0004	0.122	48.7	0.0352	0.0000046	0.0499	0.0159	-	4.15	0.00436	3.86	<0.00004	333	0.455	267	<0.00002	<0.01	<0.01	0.00276
RSEM-R5B-EOP	12/7/2018 12:50	UX6859	0.027	<0.0002	0.123	51.4	0.0307	<0.000002	0.0559	0.0132	-	5.06	0.00473	4.51	<0.00002	369	0.452	317	0.000021	<0.005	<0.005	0.00311
RSEM-R5B-EOP	12/8/2018 15:05	UX7494	0.03	<0.0002	0.128	54.3	0.0286	<0.000002	0.0663	0.0133	-	5.06	0.00504	4.68	<0.00002	410	0.434	323	0.000018	<0.005	<0.005	0.00309
RSEM-R5B-EOP	12/9/2018 14:45	UX7486	0.031	<0.0002	0.122	60.0	0.0276	0.0000032	0.0746	0.0132	-	5.68	0.00534	4.43	<0.00002	445	0.446	373	0.000018	<0.005	<0.005	0.00308
RSEM-R5B-EOP	12/10/2018 15:00	UY5755	0.064	<0.0004	0.116	59.3	0.0235	<0.000002	0.0865	0.013	-	4.84	0.00559	3.83	<0.00004	425	0.444	343	0.000021	<0.01	<0.01	0.00312
RSEM-R5B-EOP	12/11/2018 11:05	UY1785	0.069	<0.0002	0.101	47.5	0.0162	<0.000002	0.148	0.0089	-	5.84	0.00645	4.44	<0.00002	515	0.358	388	0.000018	<0.005	<0.005	0.00361
RSEM-R5B-EOP	12/12/2018 8:18	UY3860	0.106	<0.0004	0.0849	42.1	0.0219	<0.000002	0.118	0.0089	-	5.42	0.00563	4.19	<0.00004	416	0.342	302	<0.00002	<0.01	<0.01	0.00299
RSEM-R5B-EOP	12/13/2018 16:25	UY7667	0.069	<0.0004	0.0791	34.6	0.0197	<0.000002	0.0879	0.0082	-	4.88	0.00477	4.37	<0.00004	323	0.287	222	<0.00002	<0.01	<0.01	0.00279
RSEM-R5B-EOP	12/14/2018 10:30	UY7660	0.077	<0.0002	0.0832	33.3	0.0203	<0.000002	0.0768	0.0079	-	4.67	0.00433	4.58	<0.00002	299	0.293	198	0.000015	<0.005	<0.005	0.00281
RSEM-R5B-EOP	12/15/2018 15:40	UZ0621	0.082	<0.0002	0.0858	33.6	0.022	<0.000002	0.0623	0.0079	-	4.53	0.00395	4.71	<0.00002	273	0.285	172	0.000015	<0.005	<0.005	0.00273
RSEM-R5B-EOP	12/16/2018 9:35	UZ0624	0.051	<0.0002	0.0805	33.5	0.0217	<0.000002	0.0576	0.0076	-	4.40	0.0039	4.72	<0.00002	262	0.287	165	0.000014	<0.005	<0.005	0.00269
RSEM-R5B-EOP	12/17/2018 13:30	UZ1472	0.048	<0.0002	0.0785	35.6	0.0217	<0.000002	0.048	0.0074	-	4.36	0.00371	4.83	<0.00002	243	0.296	161	0.000012	<0.005	<0.005	0.00269
RSEM-R5B-EOP	12/18/2018 15:00	UZ3636	0.059	<0.0002	0.073	34.0	0.0213	<0.000002	0.0377	0.0075	-	4.51	0.00364	4.93	<0.00002	222	0.261	146	0.000012	<0.005	<0.005	0.0025
RSEM-R5B-EOP	12/19/2018 8:25	UZ3482	0.046	<0.0002	0.0683	34.2	0.0211	<0.000002	0.0323	0.0071	-	4.20	0.00331	4.39	<0.00002	203	0.285	131	<0.00001	<0.005	<0.005	0.00269
RSEM-R5B-EOP	12/20/2018 15:57	UZ8199	0.045	<0.0002	0.0736	35.0	0.0214	<0.000002	0.0256	0.0076	-	4.28	0.00357	4.84	<0.00002	197	0.256	132	0.000013	<0.005	<0.005	0.0028
RSEM-R5B-EOP	12/21/2018 11:42	UZ8195	0.04	<0.0002	0.0715	34.6	0.019	<0.000002	0.023	0.007	-	4.10	0.0035	4.92	<0.00002	188	0.248	120	0.000013	<0.005	<0.005	0.00273
RSEM-R5B-EOP	12/22/2018 8:55	UZ8833	0.039	0.00055	0.059	33.3	0.0188	<0.000002	0.0201	0.0068	-	4.00	0.00337	4.56	<0.00002	169	0.255	112	0.000013	<0.005	<0.005	0.00266
RSEM-R5B-EOP	12/23/2018 11:05	UZ8808	0.035	<0.0002	0.0704	35.8	0.0207	<0.000002	0.02	0.0074	-	4.55	0.00352	4.95	<0.00002	189	0.244	116	0.000011	<0.005	<0.005	0.00272
RSEM-R5B-EOP	12/23/2018 11:05	UZ8806	0.036	<0.0002	0.0718	34.2	0.0208	<0.000002	0.0195	0.0071	-	4.34	0.00358	4.95	<0.00002	179	0.238	117	0.000011	<0.005	<0.005	0.00274
RSEM-R5B-EOP	12/24/2018 14:20	UZ9931	0.038	<0.0002	0.0721	33.4	0.0209	<0.000002	0.0193	0.0069	-	4.59	0.00368	5.07	<0.00002	184	0.244	110	0.000013	<0.005	<0.005	0.00271
RSEM-R5B-EOP	12/25/2018 11:35	UZ9980	0.04	<0.0002	0.0747	31.3	0.0208	<0.000002	0.0183	0.0078	-	4.64	0.00368	5.09	<0.00002	179	0.237	105	0.000011	<0.005	<0.005	0.00253
RSEM-R5B-EOP	12/25/2018 11:35	UZ9977	0.037	<0.0002	0.0712	31.1	0.0203	<0.000002	0.0184	0.0068	-	4.51	0.00367	4.75	<0.00002	175	0.233	96.9	0.000012	<0.005	<0.005	0.0025

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	10/26/2018 12:00	UQ5565	<0.005	<0.005	<0.0001	0.0417	<0.0005	0.00037	0.0189	<0.0001	<0.001	0.11	0.000013	31.1	<0.001	0.00043	0.00078	<0.01	<0.0002	0.0898	27.2	0.0053
RSEM-R5B-EOP	10/27/2018 13:40	UQ8569	<0.005	0.0052	<0.0001	0.0462	<0.0005	0.00033	0.0278	<0.0001	<0.001	0.1	0.00003	44.1	<0.001	0.001	0.00298	<0.01	<0.0002	0.085	29.1	0.0189
RSEM-R5B-EOP	10/28/2018 14:25	UQ8585	<0.005	0.0052	<0.0001	0.0464	<0.0005	0.00031	0.032	<0.0001	<0.001	0.099	0.00003	47.1	<0.001	0.00108	0.00069	<0.01	<0.0002	0.0859	29.4	0.0199
RSEM-R5B-EOP	10/28/2018 14:25	UQ8586	<0.005	0.0057	<0.0001	0.0472	<0.0005	0.00032	0.0325	<0.0001	<0.001	0.099	0.00003	47.5	<0.001	0.00114	0.00074	<0.01	<0.0002	0.0851	28.5	0.0197
RSEM-R5B-EOP	10/29/2018 12:15	UR1746	<0.005	0.0056	<0.0001	0.054	<0.0005	0.0003	0.0333	<0.0001	<0.001	0.097	0.000031	44.2	<0.001	0.00118	0.0008	<0.01	<0.0002	0.0871	27.6	0.0202
RSEM-R5B-EOP	10/30/2018 12:20	UR2638	<0.005	0.0107	<0.0001	0.047	<0.0005	0.00031	0.0408	<0.0001	<0.001	0.095	0.000049	51.3	<0.001	0.00235	0.00118	<0.01	<0.0002	0.085	28.1	0.0409
RSEM-R5B-EOP	10/31/2018 15:45	UR7289	<0.005	0.0087	<0.0001	0.0445	<0.0005	0.00033	0.0389	<0.0001	<0.001	0.079	0.000041	50.1	<0.001	0.00175	0.00066	<0.01	<0.0002	0.0767	25.1	0.0329
RSEM-R5B-EOP	11/1/2018 12:30	US0228	<0.005	0.0056	<0.0001	0.08	<0.0005	0.00035	0.031	<0.0001	<0.001	0.084	0.000026	39.9	<0.001	0.00106	0.00064	<0.01	<0.0002	0.0653	24.1	0.0173
RSEM-R5B-EOP	11/2/2018 9:20	US0227	<0.005	0.0077	<0.0001	0.0411	<0.0005	0.00032	0.0353	<0.0001	<0.001	0.082	0.000039	47.8	<0.001	0.00153	0.0007	<0.01	<0.0002	0.0725	24.4	0.0253
RSEM-R5B-EOP	11/3/2018 16:40	US3565	<0.005	<0.005	<0.0001	0.049	<0.0005	0.00037	0.0314	<0.0001	<0.001	0.086	0.000019	35.5	<0.001	0.00095	0.00062	<0.01	<0.0002	0.0678	23.8	0.015
RSEM-R5B-EOP	11/4/2018 13:25	US3568	<0.005	<0.005	<0.0001	0.0445	<0.0005	0.0004	0.0294	<0.0001	<0.001	0.092	0.00002	33.7	<0.001	0.00081	0.00074	<0.01	<0.0002	0.0722	24.4	0.0122
RSEM-R5B-EOP	11/5/2018 17:50	US7027	<0.005	<0.005	<0.0001	0.0394	<0.0005	0.0004	0.0267	<0.0001	<0.001	0.086	0.000014	31.1	<0.001	0.00062	0.00068	<0.01	<0.0002	0.071	25.0	0.0088
RSEM-R5B-EOP	11/6/2018 15:13	US9399	<0.005	<0.005	<0.0001	0.0239	<0.0005	0.00038	0.0249	<0.0001	<0.001	0.093	0.000018	32.8	<0.001	0.00066	0.00077	<0.01	<0.0002	0.0708	31.9	0.0101
RSEM-R5B-EOP	11/7/2018 14:00	UT1524	<0.005	0.0051	<0.0001	0.0299	<0.0005	0.00037	0.0272	<0.0001	<0.001	0.093	0.000033	44.4	<0.001	0.00126	0.001	<0.01	<0.0002	0.081	36.7	0.0226
RSEM-R5B-EOP	11/8/2018 7:00	UT3576	<0.005	0.0067	<0.0001	0.0286	<0.0005	0.00038	0.0307	<0.0001	<0.001	0.096	0.000033	57.5	<0.001	0.00025	0.00088	<0.01	<0.0002	0.0873	41.7	<0.001
RSEM-R5B-EOP	11/10/2018 10:05	UT4955	<0.005	0.0063	<0.0001	0.0242	<0.0005	0.00036	0.0364	<0.0001	<0.001	0.094	0.000044	63.7	<0.001	0.00111	0.0006	<0.01	<0.0002	0.0876	41.2	0.0258
RSEM-R5B-EOP	11/11/2018 9:35	UT4847	<0.005	0.0065	<0.0001	0.0241	<0.0005	0.0004	0.0384	<0.0001	<0.001	0.094	0.000044	66.0	<0.001	0.00113	0.00067	<0.01	<0.0002	0.0878	43.1	0.0262
RSEM-R5B-EOP	11/12/2018 10:15	UT6583	<0.1	<0.1	<0.002	0.0259	<0.0005	0.00033	0.0395	<0.0001	<0.001	0.086	0.000048	70.5	<0.001	0.00114	0.00055	<0.01	<0.0002	0.0749	47.7	0.0264
RSEM-R5B-EOP	11/13/2018 12:30	UT9227	<0.005	0.0088	<0.0001	0.0237	<0.0005	0.0003	0.0385	<0.0001	<0.001	0.101	0.00005	78.0	<0.001	0.00113	0.00062	<0.01	<0.0002	0.077	54.6	0.0256
RSEM-R5B-EOP	11/14/2018 13:40	UU0939	<0.005	0.0084	<0.0001	0.0256	<0.0005	0.00026	0.0396	<0.0001	<0.001	0.099	0.000049	90.1	<0.001	0.0012	0.00063	<0.01	<0.0002	0.0758	55.0	0.0254
RSEM-R5B-EOP	11/15/2018 12:30	UU0900	<0.005	0.01	<0.0001	0.0349	<0.0005	0.00026	0.0415	<0.0001	<0.001	0.116	0.000061	99.2	<0.001	0.00148	0.00075	<0.01	<0.0002	0.086	56.7	0.0303
RSEM-R5B-EOP	11/16/2018 12:10	UU3466	<0.005	0.0114	<0.0001	0.0338	<0.0005	0.00027	0.0433	<0.0001	<0.001	0.117	0.00006	95.4	<0.001	0.00132	0.00091	<0.01	<0.0002	0.0861	54.6	0.0261
RSEM-R5B-EOP	11/17/2018 13:55	UU6432	<0.005	0.0269	0.0001	0.0544	<0.0005	0.00019	0.0815	<0.0001	<0.001	0.098	0.000099	91.0	<0.001	0.00299	0.0007	<0.01	<0.0002	0.137	28.9	0.0668
RSEM-R5B-EOP	11/18/2018 13:10	UU6365	<0.005	0.012	<0.0001	0.0281	<0.0005	0.00027	0.0458	<0.0001	<0.001	0.103	0.000066	106	<0.001	0.00149	0.00068	<0.01	<0.0002	0.0858	61.7	0.034
RSEM-R5B-EOP	11/19/2018 12:20	UU8729	<0.005	0.0113	<0.0001	0.0268	<0.0005	0.00025	0.0433	<0.0001	<0.001	0.135	0.000064	107	<0.001	0.00134	0.00084	<0.01	<0.0002	0.0984	64.0	0.0321
RSEM-R5B-EOP	11/20/2018 12:10	UU8804	<0.005	0.0109	<0.0001	0.0247	<0.0005	0.00023	0.0421	<0.0001	<0.001	0.121	0.000055	103	<0.001	0.00114	0.0007	<0.01	<0.0002	0.0862	56.5	0.0292
RSEM-R5B-EOP	11/21/2018 12:35	UV2697	<0.005	0.0115	<0.0001	0.0253	<0.0005	0.00028	0.0434	<0.0001	<0.001	0.134	0.000046	113	<0.001	0.00089	0.00082	<0.01	<0.0002	0.106	70.9	0.0195
RSEM-R5B-EOP	11/22/2018 14:05	UV5072	<0.005	0.0116	<0.0001	0.0316	<0.0005	0.00025	0.0438	<0.0001	<0.001	0.128	0.00006	114	<0.001	0.00116	0.00072	<0.01	<0.0002	0.0942	73.5	0.0251
RSEM-R5B-EOP	11/23/2018 14:55	UV5085	<0.005	0.0102	<0.0001	0.0269	<0.0005	0.00027	0.0368	<0.0001	<0.001	0.137	0.000056	106	<0.001	0.00117	0.00072	<0.01	<0.0002	0.0967	76.1	0.0289
RSEM-R5B-EOP	11/24/2018 11:30	UV7551	<0.005	0.009	<0.0001	0.0169	0.00061	0.00027	0.0209	<0.0001	<0.001	0.143	0.000041	78.4	<0.001	0.0008	0.00077	<0.01	<0.0002	0.101	75.1	0.0199
RSEM-R5B-EOP	11/25/2018 13:15	UV7534	<0.005	0.0091	<0.0001	0.0209	0.00052	0.00031	0.0281	<0.0001	<0.001	0.138	0.000045	78.3	<0.001	0.00107	0.00055	<0.01	<0.0002	0.104	64.8	0.024
RSEM-R5B-EOP	11/26/2018 14:55	UV9445	<0.01	<0.01	<0.0002	0.0207	0.00058	0.0004	0.0272	<0.0001	<0.001	0.149	0.000032	75.8	<0.001	0.00108	0.00055	<0.01	<0.0002	0.115	63.9	0.0231
RSEM-R5B-EOP	11/27/2018 13:45	UW1675	<0.005	0.0076	<0.0001	0.0262	0.00056	0.0004	0.0274	<0.0001	<0.001	0.172	0.000035	75.9	<0.001	0.00104	0.00062	<0.01	<0.0002	0.114	57.8	0.0216
RSEM-R5B-EOP	11/28/2018 17:55	UW6192	<0.005	0.0124	<0.0001	0.0425	0.00054	0.00048	0.0327	<0.0001	<0.001	0.194	0.000078	59.6	<0.001	0.00199	0.00091	<0.01	<0.0002	0.113	48.1	0.0376
RSEM-R5B-EOP	11/29/2018 15:00	UW6195	<0.005	0.0127	<0.0001	0.0406	0.00055	0.00047	0.0326	<0.0001	<0.001	0.184	0.000076	60.0	<0.001	0.00196	0.00085	<0.01	<0.0002	0.108	46.7	0.0371
RSEM-R5B-EOP	11/30/2018 13:15	UW6185	<0.005	0.0179	<0.0001	0.0495	0.00056	0.00046	0.0341	<0.0001	<0.001	0.192	0.00011	61.2	<0.001	0.00287	0.00093	<0.01	<0.0002	0.113	46.9	0.0501
RSEM-R5B-EOP	12/1/2018 17:40	UW8611	<0.005	0.0199	<0.0001	0.0487	0.00067	0.00045	0.0347	<0.0001	<0.001	0.198	0.000102	61.8	<0.001	0.00261	0.00094	<0.01	<0.0002	0.119	50.8	0.046
RSEM-R5B-EOP	12/2/2018 14:40	UW8614	<0.005	0.0229	0.00097	0.0547	0.00066	0.00045	0.0358	<0.0001	<0.001	0.193	0.000117	60.1	<0.001	0.0033	0.00107	<0.01	<0.0002	0.118	48.8	0.0572
RSEM-R5B-EOP	12/3/2018 11:15	UW8508	<0.005	0.0188	<0.0001	0.0449	0.00077	0.00043	0.0359	<0.0001	<0.001	0.206	0.000096	64.8	<0.001	0.0026	0.00091	<0.01	<0.0002	0.122	51.4	0.0438
RSEM-R5B-EOP	12/4/2018 13:10	UX4641	<0.005	0.0196	<0.0001	0.0459	0.0009	0.00047	0.0373	<0.0001	<0.001	0.203	0.000096	69.6	<0.001	0.00275	0.00114	<0.01	<0.0002	0.124	51.8	0.0451
RSEM-R5B-EOP	12/5/2018 15:00	UX4957	<0.005	0.0175	<0.0001	0.0387	0.00097	0.00051	0.0356	<0.0001	<0.001	0.226	0.000086	69.9	<0.001	0.00251	0.00105	<0.01	<0.0002	0.125	50.6	0.0416
RSEM-R5B-EOP	12/6/2018 9:20	UX6856	<0.01	0.017	<0.0002	0.0414	0.00096	0.00052	0.0367	<0.0001	<0.001	0.236	0.000078	69.7	<0.001	0.00213	0.00098	<0.01	<0.0002	0.13	49.4	0.0338
RSEM-R5B-EOP	12/7/2018 12:50	UX6859	<0.005	0.0131	<0.0001	0.0416	0.00096	0.00058	0.0373	<0.0001	<0.001	0.255	0.000071	72.3	<0.001	0.00186	0.00099	<0.01	<0.0002	0.13	50.7	0.0298
RSEM-R5B-EOP	12/8/2018 15:05	UX7494	<0.005	0.0128	<0.0001	0.0368	0.00099	0.00064	0.0361	<0.0001	<0.001	0.257	0.000067	73.4	<0.001	0.00176	0.00104	<0.01	<0.0002	0.13	49.5	0.027
RSEM-R5B-EOP	12/9/2018 14:45	UX7486	<0.005	0.0136	<0.0001	0.0387	0.00096	0.00069	0.0326	<0.0001	<0.001	0.249	0.000066	72.6	<0.001	0.00168	0.00128	<0.01	<0.0002	0.12	55.0	0.0262
RSEM-R5B-EOP	12/10/2018 15:00	UY5755	<0.01	0.013	<0.0002	0.0389	<0.001	0.00098	0.0307	<0.0002	<0.002	0.283	0.00007	69.8	<0.002	0.00142	0.0016	<0.02	<0.0004	0.119	58.1	0.0229
RSEM-R5B-EOP	12/11/2018 11:05	UY1785	<0.005	0.0059	<0.0001	0.0517	0.00088	0.00141	0.0229	<0.0001	<0.001	0.323	0.000014	54.4	0.0021	0.00098	0.00125	<0.01	<0.0002	0.0947	47.0	0.0148
RSEM-R5B-EOP	12/12/2018 8:18	UY3860	<0.01	<0.01	<0.0002	0.0524	<0.001	0.00162	0.0252	<0.0002	<0.002	0.298	0.000034	48.9	0.0022	0.001	0.0015	<0.02	<0.0004	0.0876	42.8	0.0197
RSEM-R5B-EOP	12/13/2018 16:25	UY7667	<0.01	<0.01	<0.0002	0.0498	0.00097	0.00158	0.0279	<0.0001	<0.001	0.268	0.000048	49.4	0.0024	0.00104	0.0016	<0.01	<0.0002	0.0874	38.7	0.0188
RSEM-R5B-EOP	12/14/2018 10:30	UY7660	<0.005	0.0073	<0.0001	0.0469	0.00096	0.00146	0.0292	<0.0001	<0.001	0.246	0.000042	46.3	0.0021	0.00093	0.0015	<0.01	<0.0002	0.0879	34.4	0.0177
RSEM-R5B-EOP	12/15/2018 15:40	UZ0621	<0.005	0.007	<0.0001	0.0404	0.00104	0.00138	0.0325	<0.0001	<0.001	0.215	0.000033	46.2	0.002	0.00101	0.00122	<0.01	<0.0002	0.0813	32.1	0.0208
RSEM-R5B-EOP	12/16/2018 9:35	UZ0624	<0.005	0.0069	<0.0001	0.0368	0.00112	0.00135	0.034	<0.0001	<0.001	0.207	0.000035	46.6	0.002	0.00099	0.00125	<0.01	<0.0002	0.0787	32.2	0.021
RSEM-R5B-EOP	12/17/2018 13:30	UZ1472	<0.005	0.0071	<0.0001	0.0319	0.00118	0.00125	0.0356	<0.0001	<0.001	0.189	0.00003	46.2	0.0018	0.0009	0.00123	<0.01	<0.0002	0.0732	32.6	0.0206
RSEM-R5B-EOP	12/18/2018 15:00	UZ3636	<0.005	0.0064	<0.0001	0.0299	0.00117	0.00114	0.0354	<0.0001	<0.001	0.176	0.000047	46.4	0.0016	0.00082	0.00103	<0.01	<0.0002	0.0742	32.2	0.0196
RSEM-R5B-EOP	12/19/2018 8:25	UZ3482	<0.005	0.0064	<0.0001	0.0297	0.00115	0.00107	0.0366	<0.0001	<0.001	0.165	0.000046	46.4	0.0014	0.00082	0.00101	<0.01	<0.0002	0.0717	33.7	0.02
RSEM-R5B-EOP	12/20/2018 15:57	UZ8199	<0.005	0.0061	<0.0001	0.0312	0.0011	0.00095	0.0372	<0.0001	<0.001	0.168	0.000033	47.1	0.0013	0.00084	0.00127	<0.01	<0.0002	0.0738	34.6	0.0192
RSEM-R5B-EOP	12/21/2018 11:42	UZ8195	<0.005	0.0056	<0.0001	0.04	0.00107	0.00097	0.0373	<0.0001	<0.001	0.168	0.000031	50.4	0.0015	0.00079	0.00114	0.032	<0.0002	0.0687	36.4	0.0192
RSEM-R5B-EOP	12/22/2018 8:55	UZ8833	<0.005	0.0057	<0.0001	0.0301	0.00104	0.00098	0.0372	<0.0001	<0.001	0.164	0.000034	47.6	0.0012	0.00076	0.00101	<0.01	<0.0002	0.0685	35.3	0.019
RSEM-R5B-EOP	12/23/2018 11:05	UZ8808	<0.005	0.006	<0.0001	0.029	0.00105	0.00116	0.0377	<0.0001	<0.001	0.17	0.000033	48.3	0.0015	0.00082	0.00102	<0.01	<0.0002	0.0683	36.2	0.0209
RSEM-R5B-EOP	12/23/2018 11:05	UZ8806	<0.005	0.0066	<0.0001	0.0322	0.00105	0.00114	0.0376	<0.0001	<0.001	0.179	0.000031	54.1	0.0014	0.00083	0.00101	<0.01	<0.0002	0.0712	35.1	0.0211
RSEM-R5B-EOP	12/24/2018 14:20	UZ9931	<0.005	0.0063	<0.0001	0.038	0.00121	0.00131	0.0418	<0.0001	<0.001	0.192	0.000034	53.5	0.0017	0.00085	0.00121	<0.01	<0.0002	0.077	36.2	0.0218
RSEM-R5B-EOP	12/25/2018 11:35	UZ9980	<0.005	0.0069	<0.0001	0.0357	0.00118	0.00122	0.0411	<0.0001	<0.001	0.2	0.000036	56.4	0.0018	0.00088	0.00098	<0.01	<0.0002	0.0785	34.7	0.0217
RSEM-R5B-EOP	12/25/2018 11:35	UZ9977	<0.005	0.0063	<0.0001	0.0355	0.00116	0.00121	0.0409	<0.0001	<0.001	0.19	0.000037	56.4	0.0016	0.00086	0.00108	<0.01	<0.0002	0.0795	33.8	0.0209

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	10/26/2018 12:00	UQ5565	<0.000002	0.0033	0.0067	-	3.39	0.00186	2.92	<0.00002	103	0.179	90.1	0.00001	<0.005	<0.005	0.00154	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/27/2018 13:40	UQ8569	<0.000002	0.0029	0.0082	-	3.57	0.00177	3.48	<0.00002	102	0.205	88.5	0.00001	<0.005	<0.005	0.00156	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/28/2018 14:25	UQ8585	<0.000002	0.0028	0.0085	-	3.49	0.00181	3.47	<0.00002	97.4	0.206	80.8	<0.00001	<0.005	<0.005	0.00157	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/28/2018 14:25	UQ8586	<0.000002	0.0028	0.0084	-	3.52	0.00184	3.42	<0.00002	97.7	0.205	81.4	0.000011	<0.005	<0.005	0.00158	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/29/2018 12:15	UR1746	<0.000002	0.0029	0.0091	-	3.27	0.00176	3.1	<0.00002	93.7	0.22	74.8	<0.00001	<0.005	<0.005	0.00164	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	10/30/2018 12:20	UR2638	<0.000002	0.0099	0.0128	-	3.14	0.00165	3.4	<0.00002	97.6	0.25	69.5	<0.00001	<0.005	<0.005	0.00148	<0.005	0.0095	<0.0001
RSEM-R5B-EOP	10/31/2018 15:45	UR7289	<0.000002	0.0026	0.0107	-	3.08	0.00154	3.19	<0.00002	88.4	0.241	66.1	0.00001	<0.005	<0.005	0.00145	<0.005	0.006	<0.0001
RSEM-R5B-EOP	11/1/2018 12:30	US0228	0.0000042	0.0024	0.0078	-	2.82	0.00136	2.98	<0.00002	86.0	0.186	67.4	<0.00001	<0.005	<0.005	0.00114	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	11/2/2018 9:20	US0227	<0.000002	0.0024	0.0097	-	2.92	0.0015	3.27	<0.00002	85.4	0.2	70.1	<0.00001	<0.005	<0.005	0.00133	<0.005	0.006	<0.0001
RSEM-R5B-EOP	11/3/2018 16:40	US3565	<0.000002	0.0029	0.0076	-	2.77	0.0014	2.83	<0.00002	88.8	0.21	73.1	<0.00001	<0.005	<0.005	0.00116	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	11/4/2018 13:25	US3568	<0.000002	0.0028	0.0075	-	2.78	0.00146	2.85	<0.00002	96.5	0.208	78.4	<0.00001	<0.005	<0.005	0.00123	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	11/5/2018 17:50	US7027	<0.000002	0.0028	0.0072	-	2.80	0.00147	2.83	<0.00002	102	0.192	82.8	<0.00001	<0.005	<0.005	0.00128	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	11/6/2018 15:13	US9399	<0.000002	0.003	0.0075	-	2.87	0.00148	2.82	<0.00002	116	0.206	101	<0.00001	<0.005	<0.005	0.00153	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	11/7/2018 14:00	UT1524	<0.000002	0.0032	0.0098	-	2.97	0.00162	3.91	<0.00002	126	0.248	118	0.000011	<0.005	<0.005	0.00178	<0.005	0.0051	<0.0001
RSEM-R5B-EOP	11/8/2018 7:00	UT3576	<0.000002	0.0033	0.0098	-	3.46	0.00175	3.98	<0.00002	133	0.284	132	0.000012	<0.005	<0.005	0.00214	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	11/10/2018 10:05	UT4955	<0.000002	0.0032	0.0081	-	3.39	0.00153	4.15	<0.00002	130	0.309	133	0.000013	<0.005	<0.005	0.00192	<0.005	0.0053	<0.0001
RSEM-R5B-EOP	11/11/2018 9:35	UT4847	<0.000002	0.0032	0.0079	-	3.41	0.00165	4.13	<0.00002	136	0.317	140	0.000011	<0.005	<0.005	0.00189	<0.005	0.0056	<0.0001
RSEM-R5B-EOP	11/12/2018 10:15	UT6583	<0.000002	0.0033	0.0081	-	3.38	0.00154	3.75	<0.00002	145	0.362	156	0.000011	<0.005	<0.005	0.00178	<0.005	0.0068	<0.0001
RSEM-R5B-EOP	11/13/2018 12:30	UT9227	<0.000002	0.0033	0.0081	-	3.25	0.00174	3.62	<0.00002	155	0.401	177	0.000011	<0.005	<0.005	0.00174	<0.005	0.0075	<0.0001
RSEM-R5B-EOP	11/14/2018 13:40	UU0939	<0.000002	0.0035	0.0078	-	3.44	0.00208	3.64	<0.00002	167	0.4	197	0.000012	<0.005	<0.005	0.00172	<0.005	0.0074	<0.0001
RSEM-R5B-EOP	11/15/2018 12:30	UU0900	<0.000002	0.0036	0.0092	-	3.59	0.00229	3.91	<0.00002	177	0.414	212	0.000013	<0.005	<0.005	0.00189	<0.005	0.0091	<0.0001
RSEM-R5B-EOP	11/16/2018 12:10	UU3466	<0.000002	0.0037	0.0092	-	3.62	0.00219	3.99	<0.00002	167	0.428	213	0.000013	<0.005	<0.005	0.00173	<0.005	0.009	<0.0001
RSEM-R5B-EOP	11/17/2018 13:55	UU6432	<0.000002	0.0022	0.0135	-	3.69	0.00214	5.03	<0.00002	108	0.318	44.6	<0.00001	<0.005	<0.005	0.00212	<0.005	0.0147	<0.0001
RSEM-R5B-EOP	11/18/2018 13:10	UU6365	<0.000002	0.0038	0.0107	-	3.69	0.00239	3.76	<0.00002	188	0.51	230	0.000015	<0.005	<0.005	0.00202	<0.005	0.0109	<0.0001
RSEM-R5B-EOP	11/19/2018 12:20	UU8729	<0.000002	0.0036	0.0107	-	3.64	0.0025	3.83	<0.00002	182	0.537	230	0.000014	<0.005	<0.005	0.00207	<0.005	0.0105	<0.0001
RSEM-R5B-EOP	11/20/2018 12:10	UU8804	<0.000002	0.0035	0.0099	-	3.75	0.00239	3.95	<0.00002	164	0.586	231	0.000014	<0.005	<0.005	0.00209	<0.005	0.0094	<0.0001
RSEM-R5B-EOP	11/21/2018 12:35	UV2697	<0.000002	0.004	0.0109	-	4.01	0.00247	3.71	<0.00002	205	0.56	246	0.000015	<0.005	<0.005	0.00222	<0.005	0.0095	<0.0001
RSEM-R5B-EOP	11/22/2018 14:05	UV5072	<0.000002	0.0067	0.0112	-	3.94	0.00245	3.44	<0.00002	207	0.558	259	0.000014	<0.005	<0.005	0.00225	<0.005	0.0097	<0.0001
RSEM-R5B-EOP	11/23/2018 14:55	UV5085	<0.000002	0.0036	0.0102	-	3.90	0.00239	3.59	<0.00002	218	0.57	275	0.000013	<0.005	<0.005	0.00213	<0.005	0.0095	<0.0001
RSEM-R5B-EOP	11/24/2018 11:30	UV7551	<0.000002	0.0037	0.0077	-	3.92	0.00235	4.05	<0.00002	233	0.522	293	0.000012	<0.005	<0.005	0.00178	<0.005	0.0073	<0.0001
RSEM-R5B-EOP	11/25/2018 13:15	UV7534	<0.000002	0.0042	0.0091	-	3.79	0.00243	4.13	<0.00002	207	0.474	237	0.000011	<0.005	<0.005	0.00201	<0.005	0.0079	<0.0001
RSEM-R5B-EOP	11/26/2018 14:55	UV9445	<0.000002	0.0076	0.0102	-	3.90	0.0025	4.25	<0.00002	239	0.474	244	0.000014	<0.005	<0.005	0.00214	<0.005	0.0068	<0.0001
RSEM-R5B-EOP	11/27/2018 13:45	UW1675	<0.000002	0.012	0.0097	-	3.99	0.00267	4.59	<0.00002	243	0.403	256	0.000012	<0.005	<0.005	0.00231	<0.005	0.0066	<0.0001
RSEM-R5B-EOP	11/28/2018 17:55	UW6192	<0.000002	0.023	0.0117	-	3.57	0.00266	3.85	<0.00002	262	0.355	217	<0.00001	<0.005	<0.005	0.00254	<0.005	0.0119	<0.0001
RSEM-R5B-EOP	11/29/2018 15:00	UW6195	<0.000002	0.0231	0.0115	-	3.52	0.00269	3.68	<0.00002	256	0.357	214	<0.00001	<0.005	<0.005	0.00252	<0.005	0.0118	<0.0001
RSEM-R5B-EOP	11/30/2018 13:15	UW6185	<0.000002	0.0227	0.0144	-	3.60	0.00268	3.73	<0.00002	255	0.37	218	0.000011	<0.005	<0.005	0.00253	<0.005	0.0161	<0.0001
RSEM-R5B-EOP	12/1/2018 17:40	UW8611	<0.000002	0.0256	0.0149	-	3.86	0.00267	3.81	<0.00002	285	0.396	229	0.000014	<0.005	<0.005	0.00248	<0.005	0.0191	<0.0001
RSEM-R5B-EOP	12/2/2018 14:40	UW8614	<0.000002	0.0261	0.0167	-	3.74	0.00261	3.71	<0.00002	282	0.378	222	0.000013	<0.005	<0.005	0.00253	<0.005	0.021	<0.0001
RSEM-R5B-EOP	12/3/2018 11:15	UW8508	<0.000002	0.0267	0.015	-	3.92	0.00295	3.86	<0.00002	289	0.413	233	0.000014	<0.005	<0.005	0.00251	<0.005	0.0181	0.00015
RSEM-R5B-EOP	12/4/2018 13:10	UX4641	<0.000002	0.0316	0.0165	-	4.29	0.00364	4.09	<0.00002	324	0.421	266	0.000016	<0.005	<0.005	0.00282	<0.005	0.019	<0.0001
RSEM-R5B-EOP	12/5/2018 15:00	UX4957	0.0000028	0.04	0.0168	-	4.40	0.00412	4.28	<0.00002	340	0.427	284	0.000018	<0.005	<0.005	0.00297	<0.005	0.0173	0.00011
RSEM-R5B-EOP	12/6/2018 9:20	UX6856	<0.000002	0.0481	0.0151	-	4.43	0.00436	4.25	<0.00002	339	0.408	277	0.00002	<0.005	<0.005	0.00295	<0.005	0.014	<0.0001
RSEM-R5B-EOP	12/7/2018 12:50	UX6859	0.000004	0.0575	0.0143	-	4.60	0.00507	4.24	<0.00002	351	0.438	293	0.000019	<0.005	<0.005	0.00301	<0.005	0.0136	<0.0001
RSEM-R5B-EOP	12/8/2018 15:05	UX7494	0.0000024	0.066	0.0132	-	4.59	0.00518	4.51	<0.00002	361	0.434	307	0.000022	<0.005	<0.005	0.00313	<0.005	0.0122	<0.0001
RSEM-R5B-EOP	12/9/2018 14:45	UX7486	<0.000002	0.0751	0.0129	-	5.08	0.00552	4.31	<0.00002	403	0.444	335	0.00002	<0.005	<0.005	0.00315	<0.005	0.0126	<0.0001
RSEM-R5B-EOP	12/10/2018 15:00	UY5755	<0.000002	0.0861	0.0124	-	4.86	0.00523	3.77	<0.00004	392	0.487	337	<0.00002	<0.01	<0.01	0.00309	<0.01	0.012	<0.0002
RSEM-R5B-EOP	12/11/2018 11:05	UY1785	<0.000002	0.142	0.0083	-	5.93	0.00639	4.56	<0.00002	517	0.338	392	0.000014	<0.005	<0.005	0.00332	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	12/12/2018 8:18	UY3860	<0.000002	0.122	0.0085	-	5.42	0.0055	4.1	<0.00004	419	0.35	308	<0.00002	<0.01	<0.01	0.00307	<0.01	<0.01	<0.0002
RSEM-R5B-EOP	12/13/2018 16:25	UY7667	<0.000002	0.0941	0.0083	-	5.28	0.00484	4.68	<0.00002	366	0.29	248	0.000015	<0.005	<0.005	0.00286	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	12/14/2018 10:30	UY7660	<0.000002	0.0771	0.0074	-	4.70	0.00463	4.72	<0.00002	288	0.297	202	0.000014	<0.005	<0.005	0.00288	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	12/15/2018 15:40	UZ0621	<0.000002	0.0622	0.0077	-	4.47	0.0042	4.57	<0.00002	257	0.29	171	0.000011	<0.005	<0.005	0.00274	<0.005	0.0053	<0.0001
RSEM-R5B-EOP	12/16/2018 9:35	UZ0624	<0.000002	0.0573	0.0075	-	4.45	0.00418	4.53	<0.00002	244	0.292	165	0.000011	<0.005	<0.005	0.00274	<0.005	0.0058	<0.0001
RSEM-R5B-EOP	12/17/2018 13:30	UZ1472	<0.000002	0.0483	0.0069	-	4.30	0.00384	4.47	<0.00002	224	0.291	151	<0.00001	<0.005	<0.005	0.0026	<0.005	0.0057	<0.0001
RSEM-R5B-EOP	12/18/2018 15:00	UZ3636	<0.000002	0.0391	0.0067	-	4.20	0.0035	4.43	<0.00002	206	0.291	139	<0.00001	<0.005	<0.005	0.00256	<0.005	0.0054	<0.0001
RSEM-R5B-EOP	12/19/2018 8:25	UZ3482	<0.000002	0.0339	0.007	-	4.21	0.0034	4.45	<0.00002	200	0.288	135	<0.00001	<0.005	<0.005	0.00266	<0.005	0.0055	<0.0001
RSEM-R5B-EOP	12/20/2018 15:57	UZ8199	<0.000002	0.0246	0.0072	-	4.33	0.00326	4.73	<0.00002	194	0.254	123	0.000014	<0.005	<0.005	0.0027	<0.005	0.0054	<0.0001
RSEM-R5B-EOP	12/21/2018 11:42	UZ8195	<0.000002	0.021	0.0073	-	4.48	0.00339	5.06	<0.00002	200	0.248	127	0.000013	<0.005	<0.005	0.00257	<0.005	0.0054	<0.0001
RSEM-R5B-EOP	12/22/2018 8:55	UZ8833	<0.000002	0.0197	0.0067	-	4.24	0.00338	5.09	<0.00002	187	0.241	116	0.000012	<0.005	<0.005	0.00271	<0.005	<0.005	<0.0001
RSEM-R5B-EOP	12/23/2018 11:05	UZ8808	<0.000002	0.0179	0.0073	-	4.69	0.00359	5.14	<0.00002	193	0.237	117	0.000011	<0.005	<0.005	0.0026	<0.005	0.0056	<0.0001
RSEM-R5B-EOP	12/23/2018 11:05	UZ8806	<0.000002	0.0184	0.0073	-	4.54	0.0038	5.57	<0.00002	191	0.238	117	0.000012	<0.005	<0.005	0.00272	<0.005	0.0061	<0.0001
RSEM-R5B-EOP	12/24/2018 14:20	UZ9931	<0.000002	0.0205	0.0077	-	5.01	0.00412	5.43	<0.00002	202	0.256	120	0.000012	<0.005	<0.005	0.00305	<0.005	0.0066	<0.0001
RSEM-R5B-EOP	12/25/2018 11:35	UZ9980	<0.000002	0.0196	0.0076	-	5.17	0.00381	5.49	<0.00002	200	0.25	115	0.000012	<0.005	<0.005	0.00275	<0.005	0.0062	<0.0001
RSEM-R5B-EOP	12/25/2018 11:35	UZ9977	<0.000002	0.0204	0.0073	-	4.90	0.00406	5.55	<0.00002	195	0.248	109	0.000014	<0.005	<0.005	0.00299	<0.005	0.0062	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	12/26/2018 10:25	UZ9924	8.22	1230	1.58	740	<4.0	252	266	269	<1.0	328	<1.0	<1.0	54.8	0.360	0.82	272
RSEM-R5B-EOP	12/27/2018 13:25	VA2810	8.26	1250	0.97	758	<4.0	230	247	266	<1.0	324	<1.0	<1.0	55.6	0.320	0.94	248
RSEM-R5B-EOP	12/28/2018 15:20	VA3075	8.23	1260	1.51	766	<4.0	241	247	269	<1.0	328	<1.0	<1.0	56.2	0.330	0.91	283
RSEM-R5B-EOP	12/28/2018 15:20	VA3076	8.25	1230	1.38	758	<4.0	245	248	265	<1.0	323	<1.0	<1.0	56.5	0.330	0.92	232
RSEM-R5B-EOP	12/29/2018 12:05	VA3063	8.20	1270	1.26	790	<4.0	257	252	268	<1.0	327	<1.0	<1.0	57.3	0.330	0.86	277
RSEM-R5B-EOP	12/30/2018 11:15	VA3023	8.17	1280	1.65	774	<4.0	257	254	266	<1.0	325	<1.0	<1.0	54.2	0.330	0.90	280
RSEM-R5B-EOP	12/30/2018 11:15	VA3022	8.15	1280	1.42	768	<4.0	260	253	267	<1.0	326	<1.0	<1.0	55.1	0.320	0.90	266
RSEM-R5B-EOP	12/31/2018 13:35	VA5854	8.28	1280	1.64	818	<4.0	232	246	264	<1.0	322	<1.0	<1.0	52.0	0.340	0.87	292
RSEM-R5B-SP	1/1/2018 11:45	ST3045	8.17	1470	0.87	810	<4.0	470	483	448	<1.0	547	<1.0	<1.0	104	0.240	0.405	192
RSEM-R5B-SP	1/2/2018 12:05	ST4212	8.14	1490	1.00	882	<4.0	479	476	475	<1.0	580	<1.0	<1.0	106	0.180	0.434	203
RSEM-R5B-SP	1/3/2018 14:30	ST6562	8.15	1450	0.99	892	<4.0	481	475	429	<1.0	524	<1.0	<1.0	106	0.200	0.446	207
RSEM-R5B-SP	1/3/2018 14:30	ST6563	8.16	1430	1.01	896	<4.0	496	467	420	<1.0	512	<1.0	<1.0	105	0.180	0.447	207
RSEM-R5B-SP	1/4/2018 11:45	ST7410	8.14	1170	0.93	762	4.5	591	530	337	<1.0	412	<1.0	<1.0	46.9	0.240	0.284	256
RSEM-R5B-SP	1/5/2018 11:20	ST8672	8.17	1150	1.50	730	<4.0	558	549	354	<1.0	432	<1.0	<1.0	50.2	0.220	0.294	218
RSEM-R5B-SP	1/6/2018 12:00	ST9398	8.16	1190	1.46	716	<4.0	547	516	385	<1.0	470	<1.0	<1.0	51.3	0.230	0.306	237
RSEM-R5B-SP	1/6/2018 12:00	ST9399	8.18	1190	1.36	752	<4.0	557	511	386	<1.0	471	<1.0	<1.0	51.0	0.230	0.312	236
RSEM-R5B-SP	1/7/2018 12:00	ST9341	8.17	1220	1.50	766	<4.0	546	510	389	<1.0	475	<1.0	<1.0	53.0	0.210	0.312	229
RSEM-R5B-SP	1/7/2018 12:00	ST9342	8.17	1210	1.68	766	<4.0	545	509	382	<1.0	466	<1.0	<1.0	53.1	0.230	0.310	241
RSEM-R5B-SP	1/8/2018 11:30	SU1308	8.17	1190	2.45	746	<4.0	543	503	385	<1.0	470	<1.0	<1.0	49.9	0.220	0.278	234
RSEM-R5B-SP	1/9/2018 15:45	SU3310	8.11	1190	1.48	790	<4.0	522	560	365	<1.0	445	<1.0	<1.0	47.5	0.180	0.125	209
RSEM-R5B-SP	1/10/2018 13:09	SU4769	8.24	1240	1.88	770	<4.0	519	575	388	<1.0	473	<1.0	<1.0	47.0	0.230	0.289	237
RSEM-R5B-SP	1/11/2018 11:35	SU5522	8.40	1280	1.15	852	<4.0	534	529	395	8.1	462	9.7	<1.0	52.1	0.250	0.314	239
RSEM-R5B-SP	1/12/2018 17:15	SU7328	8.21	1300	1.00	856	<4.0	525	534	381	<1.0	464	<1.0	<1.0	55.0	0.270	0.323	243
RSEM-R5B-SP	1/13/2018 12:53	SU7314	8.28	1430	1.75	884	<4.0	532	538	424	<1.0	517	<1.0	<1.0	78.0	0.280	0.389	245
RSEM-R5B-SP	1/14/2018 10:15	SU7324	8.19	1400	1.40	902	<4.0	547	550	390	<1.0	476	<1.0	<1.0	75.8	0.280	0.382	238
RSEM-R5B-SP	1/15/2018 18:15	SU9368	8.13	1440	2.42	918	<4.0	635	609	436	<1.0	532	<1.0	<1.0	81.0	0.250	0.401	255
RSEM-R5B-SP	1/16/2018 13:02	SV1342	8.17	1430	1.69	902	<4.0	622	634	409	<1.0	499	<1.0	<1.0	75.6	0.260	0.407	271
RSEM-R5B-SP	1/17/2018 9:26	SV3533	8.19	1100	6.72	732	8.8	489	491	323	<1.0	394	<1.0	<1.0	40.5	0.200	0.263	218
RSEM-R5B-SP	1/18/2018 15:03	SV4469	8.17	1090	2.63	772	6.0	492	508	315	<1.0	384	<1.0	<1.0	42.4	0.210	0.289	222
RSEM-R5B-SP	1/19/2018 11:14	SV4480	8.21	1100	1.56	764	4.5	507	503	312	<1.0	381	<1.0	<1.0	41.8	0.210	0.285	227
RSEM-R5B-SP	1/20/2018 11:06	SV7273	8.24	1170	1.38	774	<4.0	566	595	352	<1.0	430	<1.0	<1.0	40.8	0.220	0.277	234
RSEM-R5B-SP	1/20/2018 11:23	SV7274	8.22	1140	1.40	780	<4.0	563	565	343	<1.0	418	<1.0	<1.0	40.1	0.210	0.283	235
RSEM-R5B-SP	1/21/2018 8:31	SV8261	8.29	1180	2.35	758	<4.0	564	552	373	<1.0	455	<1.0	<1.0	41.6	0.210	0.288	204
RSEM-R5B-SP	1/22/2018 12:40	SV9405	8.22	1220	1.17	824	<4.0	587	580	373	<1.0	455	<1.0	<1.0	45.7	0.220	0.291	245
RSEM-R5B-SP	1/23/2018 12:30	SV9421	8.24	1290	1.05	814	<4.0	573	569	397	<1.0	484	<1.0	<1.0	61.1	0.220	0.344	239
RSEM-R5B-SP	1/24/2018 11:10	SW0798	8.19	1220	1.25	752	<4.0	545	571	359	<1.0	438	<1.0	<1.0	47.5	0.240	0.313	242
RSEM-R5B-SP	1/24/2018 11:10	SW0799	8.20	1260	1.12	780	<4.0	556	559	371	<1.0	453	<1.0	<1.0	53.9	0.250	0.333	240
RSEM-R5B-SP	1/25/2018 13:55	SW2684	8.18	1270	1.22	838	<4.0	577	554	367	<1.0	447	<1.0	<1.0	55.0	0.210	0.328	249
RSEM-R5B-SP	1/26/2018 11:55	SW3614	8.23	1270	1.62	842	<4.0	549	560	309	<1.0	377	<1.0	<1.0	57.1	0.220	0.337	244
RSEM-R5B-SP	1/27/2018 16:45	SW6654	8.22	1290	1.55	866	<4.0	548	572	347	<1.0	423	<1.0	<1.0	62.9	0.250	0.347	243
RSEM-R5B-SP	1/28/2018 11:25	SW6657	8.19	1310	4.58	846	8.0	568	562	342	<1.0	417	<1.0	<1.0	62.9	0.250	0.356	247
RSEM-R5B-SP	1/28/2018 11:25	SW6658	8.17	1280	4.28	860	8.0	546	570	349	<1.0	426	<1.0	<1.0	63.5	0.250	0.352	247
RSEM-R5B-SP	3/13/2018 11:23	TC2461	8.18	1190	10.7	784	15.5	494	510	276	<1.0	337	<1.0	<1.0	36.0	0.280	0.31	355
RSEM-R5B-SP	3/14/2018 11:58	TC7632	8.20	1230	4.82	906	6.8	527	519	279	<1.0	340	<1.0	<1.0	38.1	0.240	0.34	317
RSEM-R5B-SP	3/15/2018 16:15	TC8867	8.19	812	31.6	504	22.0	323	318	188	<1.0	230	<1.0	<1.0	27.7	0.210	0.21	196
RSEM-R5B-SP	3/16/2018 16:00	TD1265	8.14	627	38.2	364	18.5	217	242	148	<1.0	180	<1.0	<1.0	21.1	0.180	0.15	128
RSEM-R5B-SP	3/17/2018 14:40	TD2176	8.35	645	25.8	372	17.3	238	233	156	1.2	187	1.5	<1.0	21.5	0.180	0.15	148
RSEM-R5B-SP	3/18/2018 10:45	TD1670	8.37	1270	12.0	754	9.0	418	446	207	3.4	245	4.0	<1.0	57.0	0.280	0.60	358
RSEM-R5B-SP	3/23/2018 10:50	TD9509	8.39	1620	13.8	1120	12.5	409	448	231	4.0	272	4.7	<1.0	68.9	0.540	0.48	513
RSEM-R5B-SP	3/24/2018 10:25	TE2569	8.43	1260	2.76	868	7.5	427	413	292	6.3	341	7.5	<1.0	61.9	0.470	0.41	289
RSEM-R5B-SP	3/25/2018 9:40	TE2566	8.36	1290	2.36	844	10.3	429	409	314	4.3	373	5.2	<1.0	75.6	0.460	0.44	271
RSEM-R5B-SP	3/26/2018 10:30	TE2572	8.15	1310	1.89	874	5.0	421	383	321	<1.0	392	<1.0	<1.0	93.1	0.330	0.46	246
RSEM-R5B-SP	3/27/2018 13:00	TE6114	8.18	1280	2.73	726	14.8	420	362	313	<1.0	382	<1.0	<1.0	89.0	0.300	0.46	198
RSEM-R5B-SP	3/28/2018 13:25	TE7736	8.19	1290	0.66	214	<4.0	409	391	346	<1.0	422	<1.0	<1.0	90.5	0.290	0.44	198
RSEM-R5B-SP	3/29/2018 12:20	TE7727	8.22	1260	0.73	834	<4.0	400	401	338	<1.0	413	<1.0	<1.0	85.2	0.250	0.41	198
RSEM-R5B-SP	5/10/2018 10:30	TK5583	8.36	1270	1.95	872	2.5	324	371	269	3.4	320	4.1	<1.0	66.7	0.400	0.40	283
RSEM-R5B-SP	11/9/2018 6:10	UT3613	8.12	1240	1.37	782	<4.0	334	335	182	<1.0	222	<1.0	<1.0	41.7	0.350	0.48	314
RSEM-R6E-EOP	3/17/2018 13:00	TD1673	8.23	844	17.6	462	11.3	183	183	136	<1.0	166	<1.0	<1.0	77.5	0.300	0.90	152
RSEM-R6E-EOP	3/18/2018 9:55	TD1668	8.16	694	27.2	378	19.5	190	199	121	<1.0	147	<1.0	<1.0	52.0	0.350	0.55	146
RSEM-R6E-EOP	3/19/2018 12:30	TD4112	8.20	764	23.2	442	15.8	174	175	123	<1.0	149	<1.0	<1.0	62.6	0.400	0.90	157
RSEM-R6E-EOP	3/21/2018 6:40	TD7839	8.29	818	21.6	424	16.5	180	180	144	<1.0	176	<1.0	<1.0	57.1	0.440	0.94	155
RSEM-R6E-EOP	3/22/2018 11:30	TD7853	8.42	776	12.0	434	10.3	224	216	193	2.8	229	3.3	<1.0	46.1	0.330	0.73	130
RSEM-R6E-EOP	3/22/2018 11:35	TD7856	8.41	767	10.1	420	11.0	224	214	186	3.0	220	3.5	<1.0	43.9	0.320	0.71	125

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	12/26/2018 10:25	UZ9924	0.50	0.0815	0.799	0.881	<0.0050	2.6	3.0	0.0646	0.00109	0.00128	0.0383	<0.0001	<0.001	0.185	0.000037	51.1	0.0016	0.00079	0.001
RSEM-R5B-EOP	12/27/2018 13:25	VA2810	0.52	0.0724	0.774	0.846	<0.0050	4.2	4.3	0.0556	0.00113	0.00126	0.0399	<0.0001	<0.001	0.177	0.000042	45.3	0.0015	0.00074	0.00101
RSEM-R5B-EOP	12/28/2018 15:20	VA3075	0.47	0.0765	0.793	0.870	<0.0050	4.3	4.2	0.0518	0.00119	0.00137	0.0424	<0.0001	<0.001	0.183	0.000039	45.6	0.0015	0.00078	0.00114
RSEM-R5B-EOP	12/28/2018 15:20	VA3076	0.56	0.0758	0.797	0.873	<0.0050	4.2	4.4	0.055	0.00122	0.00139	0.0431	<0.0001	<0.001	0.192	0.00004	45.7	0.0016	0.00079	0.00114
RSEM-R5B-EOP	12/29/2018 12:05	VA3063	0.51	0.0769	0.790	0.867	<0.0050	-	4.0	0.0672	0.00119	0.0014	0.0443	<0.0001	<0.001	0.199	0.000043	48.6	0.0016	0.00071	0.00172
RSEM-R5B-EOP	12/30/2018 11:15	VA3023	0.58	0.0746	0.767	0.842	<0.0050	4.1	4.0	0.0818	0.00118	0.00138	0.0469	<0.0001	<0.001	0.198	0.000042	46.8	0.0014	0.00068	0.00121
RSEM-R5B-EOP	12/30/2018 11:15	VA3022	0.58	0.0768	0.766	0.843	<0.0050	4.2	4.1	0.0704	0.00119	0.00143	0.0474	<0.0001	<0.001	0.2	0.000041	47.2	0.0017	0.00069	0.0012
RSEM-R5B-EOP	12/31/2018 13:35	VA5854	0.64	0.0719	0.736	0.808	<0.0050	2.8	2.9	0.0698	0.00104	0.00123	0.0439	<0.0001	<0.001	0.173	0.000031	42.8	0.0013	0.00063	0.001
RSEM-R5B-SP	1/1/2018 11:45	ST3045	0.061	<0.0050	0.969	0.969	0.0052	1.81	2.08	0.0527	<0.0005	0.00025	0.127	<0.0001	<0.001	0.096	0.000035	119	<0.001	0.00113	0.00138
RSEM-R5B-SP	1/2/2018 12:05	ST4212	0.067	0.0076	1.02	1.02	<0.0050	2.53	1.85	0.03	<0.0005	0.00023	0.129	<0.0001	<0.001	0.1	0.000038	119	<0.001	0.00114	0.00129
RSEM-R5B-SP	1/3/2018 14:30	ST6562	0.064	0.0053	1.02	1.03	<0.0050	2.48	1.80	0.0292	<0.0005	0.00025	0.132	<0.0001	<0.001	0.097	0.00004	119	<0.001	0.00115	0.00137
RSEM-R5B-SP	1/3/2018 14:30	ST6563	0.067	<0.0050	1.02	1.02	<0.0050	2.72	1.58	0.0271	<0.0005	0.00024	0.128	<0.0001	<0.001	0.087	0.000041	124	<0.001	0.00113	0.0146
RSEM-R5B-SP	1/4/2018 11:45	ST7410	0.054	<0.0050	1.11	1.11	<0.0050	2.21	1.73	0.0389	<0.0005	0.00022	0.0775	<0.0001	<0.001	0.075	0.000084	149	<0.001	0.0019	0.0012
RSEM-R5B-SP	1/5/2018 11:20	ST8672	0.037	0.0055	1.00	1.01	<0.0050	2.83	1.26	0.031	<0.0005	0.00023	0.0746	<0.0001	<0.001	0.069	0.000092	142	<0.001	0.00184	0.00123
RSEM-R5B-SP	1/6/2018 12:00	ST9398	0.044	<0.0050	1.04	1.04	<0.0050	2.40	2.21	0.0345	<0.0005	0.00023	0.0756	<0.0001	<0.001	0.066	0.000086	135	<0.001	0.00193	0.00123
RSEM-R5B-SP	1/6/2018 12:00	ST9399	0.045	0.0060	1.02	1.03	0.0257	2.55	1.11	0.0405	<0.0005	0.00025	0.0764	<0.0001	<0.001	0.064	0.000085	141	<0.001	0.00188	0.00124
RSEM-R5B-SP	1/7/2018 12:00	ST9341	0.057	0.0050	1.03	1.04	<0.0050	2.71	1.69	0.0508	<0.0005	0.00026	0.0769	<0.0001	<0.001	0.067	0.000079	136	<0.001	0.0019	0.00121
RSEM-R5B-SP	1/7/2018 12:00	ST9342	0.058	0.0055	1.03	1.03	<0.0050	2.78	1.41	0.0419	<0.0005	0.00033	0.0785	<0.0001	<0.001	0.068	0.000072	134	<0.001	0.00198	0.0012
RSEM-R5B-SP	1/8/2018 11:30	SU1308	0.046	0.0068	1.03	1.04	<0.0050	1.71	2.00	0.0353	<0.0005	0.00027	0.0767	<0.0001	<0.001	0.071	0.000065	140	<0.001	0.00186	0.00106
RSEM-R5B-SP	1/9/2018 15:45	SU3310	0.029	0.0058	1.04	1.05	<0.0050	2.72	2.09	0.0247	<0.0005	0.00027	0.0699	<0.0001	<0.001	0.066	0.000057	136	<0.001	0.00165	0.00114
RSEM-R5B-SP	1/10/2018 13:09	SU4769	0.17	0.0078	1.01	1.02	0.0071	2.77	2.26	0.0403	<0.0005	0.00033	0.0782	<0.0001	<0.001	0.082	0.000064	130	<0.001	0.00167	0.00241
RSEM-R5B-SP	1/11/2018 11:35	SU5522	0.18	0.0085	1.09	1.09	0.0101	2.47	2.05	0.0342	<0.0005	0.00031	0.0749	<0.0001	<0.001	0.083	0.000062	134	<0.001	0.00162	0.00261
RSEM-R5B-SP	1/12/2018 17:15	SU7328	0.097	0.0070	1.07	1.07	0.0055	2.09	1.31	0.0234	<0.0005	0.00032	0.0818	<0.0001	<0.001	0.082	0.000054	130	<0.001	0.00139	0.00255
RSEM-R5B-SP	1/13/2018 12:53	SU7314	0.088	0.0070	1.03	1.03	0.0172	2.24	1.66	0.0332	<0.0005	0.00036	0.0883	<0.0001	<0.001	0.084	0.000075	131	<0.001	0.00158	0.00178
RSEM-R5B-SP	1/14/2018 10:15	SU7324	0.077	0.0067	1.08	1.09	<0.0050	2.23	1.41	0.0373	<0.0005	0.00031	0.0875	<0.0001	<0.001	0.091	0.00006	135	<0.001	0.00147	0.00197
RSEM-R5B-SP	1/15/2018 18:15	SU9368	0.065	0.0065	1.08	1.09	<0.0050	2.43	1.75	0.0325	<0.0005	0.00034	0.0906	<0.0001	<0.001	0.101	0.000062	158	<0.001	0.00142	0.00197
RSEM-R5B-SP	1/16/2018 13:02	SV1342	0.083	0.0070	1.09	1.10	<0.0050	2.25	2.14	0.0245	<0.0005	0.00031	0.089	<0.0001	<0.001	0.093	0.000061	158	<0.001	0.0013	0.00184
RSEM-R5B-SP	1/17/2018 9:26	SV3533	0.045	0.0064	1.04	1.04	0.0403	2.30	2.23	0.098	<0.0005	0.0003	0.0586	<0.0001	<0.001	0.067	0.000138	118	<0.001	0.00265	0.00161
RSEM-R5B-SP	1/18/2018 15:03	SV4469	0.072	0.0076	0.971	0.978	<0.0050	1.26	1.67	0.078	<0.0005	0.0003	0.0595	<0.0001	<0.001	0.074	0.000143	120	<0.001	0.00286	0.00189
RSEM-R5B-SP	1/19/2018 11:14	SV4480	0.067	0.0059	0.979	0.984	<0.0050	1.66	1.75	0.0838	<0.0005	0.0003	0.0597	<0.0001	<0.001	0.083	0.000126	122	<0.001	0.00258	0.00167
RSEM-R5B-SP	1/20/2018 11:06	SV7273	0.070	0.0069	1.05	1.06	<0.0050	2.23	1.63	0.0526	<0.0005	0.00031	0.0609	<0.0001	<0.001	0.066	0.000119	142	<0.001	0.00235	0.00211
RSEM-R5B-SP	1/20/2018 11:23	SV7274	0.072	0.0058	1.03	1.04	<0.0050	2.19	1.53	0.0599	<0.0005	0.00033	0.0617	<0.0001	<0.001	0.068	0.000127	143	<0.001	0.0024	0.00172
RSEM-R5B-SP	1/21/2018 8:31	SV8261	0.073	0.0056	1.04	1.05	<0.0050	1.49	1.16	0.0548	<0.0005	0.00029	0.0608	<0.0001	<0.001	0.068	0.000117	142	<0.001	0.00235	0.00193
RSEM-R5B-SP	1/22/2018 12:40	SV9405	0.065	0.0068	1.09	1.10	<0.0050	1.57	1.49	0.0525	<0.0005	0.0003	0.0664	<0.0001	<0.001	0.067	0.0001	150	<0.001	0.00191	0.00189
RSEM-R5B-SP	1/23/2018 12:30	SV9421	0.077	0.0059	1.12	1.13	<0.0050	-	1.47	0.054	<0.0005	0.00029	0.0678	<0.0001	<0.001	0.071	0.000078	144	<0.001	0.00169	0.00154
RSEM-R5B-SP	1/24/2018 11:10	SW0798	0.16	0.0072	1.12	1.13	0.0892	2.06	1.69	0.0521	<0.0005	0.00029	0.0669	<0.0001	<0.001	0.086	0.000082	138	<0.001	0.00147	0.00258
RSEM-R5B-SP	1/24/2018 11:10	SW0799	0.10	0.0062	1.15	1.16	<0.0050	1.30	2.21	0.0469	<0.0005	0.00033	0.0691	<0.0001	<0.001	0.084	0.000078	140	<0.001	0.00142	0.00235
RSEM-R5B-SP	1/25/2018 13:55	SW2684	0.11	0.0061	1.18	1.19	<0.0050	1.72	1.66	0.0406	<0.0005	0.00027	0.0646	<0.0001	<0.001	0.099	0.000079	150	<0.001	0.00139	0.00221
RSEM-R5B-SP	1/26/2018 11:55	SW3614	0.15	<0.0050	1.14	1.14	<0.0050	2.14	1.63	0.0697	<0.0005	0.00033	0.0675	<0.0001	<0.001	0.093	0.000084	134	<0.001	0.00161	0.00272
RSEM-R5B-SP	1/27/2018 16:45	SW6654	0.089	0.0066	1.11	1.12	<0.0050	1.74	1.81	0.0533	<0.0005	0.00031	0.0688	<0.0001	<0.001	0.074	0.000078	140	<0.001	0.00135	0.00274
RSEM-R5B-SP	1/28/2018 11:25	SW6657	0.087	0.0053	1.12	1.13	<0.0050	1.93	1.44	0.0697	<0.0005	0.00031	0.0755	<0.0001	<0.001	0.078	0.000082	146	<0.001	0.00126	0.00301
RSEM-R5B-SP	1/28/2018 11:25	SW6658	0.087	0.0062	1.09	1.09	<0.0050	1.93	1.56	0.164	<0.0005	0.00045	0.0728	<0.0001	<0.001	0.087	0.000091	137	<0.001	0.00148	0.00376
RSEM-R5B-SP	3/13/2018 11:23	TC2461	0.085	0.0101	0.575	0.585	0.0074	2.42	2.02	0.223	<0.0005	0.00044	0.0507	<0.0001	<0.001	0.088	0.000181	125	<0.001	0.00701	0.00571
RSEM-R5B-SP	3/14/2018 11:58	TC7632	0.095	0.0120	0.739	0.751	0.0075	2.77	2.57	0.0644	<0.0005	0.0005	0.0541	<0.0001	<0.001	0.11	0.000111	133	<0.001	0.00597	0.0224
RSEM-R5B-SP	3/15/2018 16:15	TC8867	0.21	0.0139	0.535	0.549	0.0515	2.85	2.93	0.492	<0.0005	0.00089	0.0564	<0.0001	<0.001	0.055	0.000066	79.1	0.001	0.00172	0.0038
RSEM-R5B-SP	3/16/2018 16:00	TD1265	0.20	0.0231	0.547	0.570	0.0088	4.13	2.05	1.3	<0.0005	0.00104	0.0621	<0.0001	<0.001	<0.05	0.000065	55.2	0.0022	0.00149	0.00766
RSEM-R5B-SP	3/17/2018 14:40	TD2176	0.20	0.0156	0.548	0.563	<0.0050	2.95	2.11	0.394	<0.0005	0.0007	0.0533	<0.0001	<0.001	<0.05	0.00005	60.3	<0.001	0.00122	0.00555
RSEM-R5B-SP	3/18/2018 10:45	TD1670	0.39	0.0157	0.614	0.629	0.0113	4.81	5.24	0.122	<0.0005	0.00188	0.0545	<0.0001	<0.001	0.165	0.000094	107	0.0014	0.00576	0.0884
RSEM-R5B-SP	3/23/2018 10:50	TD9509	0.56	0.0192	0.761	0.780	<0.0050	2.53	2.09	0.385	<0.0005	0.00034	0.0459	<0.0001	<0.001	0.125	0.000413	100	<0.001	0.0184	0.00153
RSEM-R5B-SP	3/24/2018 10:25	TE2569	0.35	<0.0050	0.912	0.912	<0.0050	2.01	1.61	0.0504	<0.0005	0.00022	0.0398	<0.0001	<0.001	0.094	0.000315	109	<0.001	0.0123	0.00116
RSEM-R5B-SP	3/25/2018 9:40	TE2566	0.34	0.0098	0.937	0.947	<0.0050	2.26	1.38	0.0704	<0.0005	0.00031	0.0492	<0.0001	<0.001	0.098	0.0003	112	<0.001	0.0109	0.00794
RSEM-R5B-SP	3/26/2018 10:30	TE2572	0.28	0.0105	0.889	0.899	<0.0050	1.36	0.52	0.0281	<0.0005	0.00027	0.0525	<0.0001	<0.001	0.095	0.000188	110	<0.001	0.00789	0.00093
RSEM-R5B-SP	3/27/2018 13:00	TE6114	0.27	0.0098	0.984	0.994	<0.0050	1.44	1.45	0.0582	<0.0005	0.00028	0.0622	<0.0001	<0.001	0.102	0.000201	108	<0.001	0.00755	0.0013
RSEM-R5B-SP	3/28/2018 13:25	TE7736	0.20	0.0083	0.971	0.980	0.0059	1.57	1.28	0.0305	<0.0005	0.00023	0.0613	<0.0001	<0.001	0.101	0.000185	106	<0.001	0.0066	0.00113
RSEM-R5B-SP	3/29/2018 12:20	TE7727	0.17	0.0078	0.983	0.990	0.0051	1.37	1.02	0.0291	<0.0005	0.00025	0.0646	<0.0001	<0.001	0.097	0.000185	103	<0.001	0.00605	0.00098
RSEM-R5B-SP	5/10/2018 10:30	TK5583	0.065	0.0127	0.641	0.654	<0.0050	<0.50	<0.50	0.0414	0.000253	0.000207	0.0875	<0.00001	<0.00001	0.122	<0.000005	73.2	<0.0001	0.00411	0.00067
RSEM-R5B-SP	11/9/2018 6:10	UT3613	0.19	<0.0050	0.630	0.630	<0.0050	1.7	1.57	0.0461	<0.0005	0.00044	0.0333	<0.0001	<0.001	0.09	0.000048	60.1	<0.001	0.00124	0.00081
RSEM-R6E-EOP	3/17/2018 13:00	TD1673	0.32	0.0680	0.710	0.778	0.0240	5.07	3.28	0.447	0.00083	0.00105	0.098	<0.0001	<0.001	0.092	0.000046	52.3	0.0024	0.00311	0.0025
RSEM-R6E-EOP	3/18/2018 9:55	TD1668	0.30	0.0432	0.585	0.628	0.115	4.16	2.92	1	0.00069	0.00075	0.109	<0.0001	<0.001	0.074	0.000163	53.9	0.0034	0.0107	0.00214
RSEM-R6E-EOP	3/19/2018 12:30	TD4112	0.35	0.0692	0.615	0.684	<0.0050	2.70	2.21	1.15	0.00113	0.00152	0.117	<0.0001	<0.001	0.109	0.000071	48.6	0.0043	0.00621	0.00206
RSEM-R6E-EOP	3/21/2018 6:40	TD7839	0.52	0.0891	0.692	0.781	<0.0050	2.24	1.88	0.436	0.00142	0.00181	0.12	<0.0001	<0.001	0.123	0.000081	48.9	0.0043	0.00728	0.00239
RSEM-R6E-EOP	3/22/2018 11:30	TD7853	0.22	0.0664	0.640	0.706	<0.0050	2.02	1.79	0.259	0.00111	0.00136	0.134	<0.0001	<0.001	0.105	0.000086	62.3	0.0028	0.00584	0.00206
RSEM-R6E-EOP	3/22/2018 11:35	TD7856	0.22	0.0660	0.648	0.714	<0.0050	2.76	1.82	0.227	0.00108	0.00136	0.132	<0.0001	<0.001	0.098	0.000103	60.8	0.0028	0.00599	0.00201

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	12/26/2018 10:25	UZ9924	0.047	<0.0002	0.0712	30.3	0.0198	<0.000002	0.018	0.0068	-	4.70	0.00379	5.11	<0.00002	186	0.226	98.2	0.000013	<0.005	<0.005	0.00253
RSEM-R5B-EOP	12/27/2018 13:25	VA2810	0.041	<0.0002	0.0708	28.5	0.0184	<0.000002	0.0179	0.0065	-	4.37	0.00352	4.72	<0.00002	168	0.237	93.0	<0.00001	<0.005	<0.005	0.00259
RSEM-R5B-EOP	12/28/2018 15:20	VA3075	0.046	<0.0002	0.07	30.9	0.0192	<0.000002	0.0184	0.0069	-	4.41	0.00393	4.87	<0.00002	182	0.25	99.2	0.000012	<0.005	<0.005	0.00284
RSEM-R5B-EOP	12/28/2018 15:20	VA3076	0.048	<0.0002	0.0725	31.7	0.0198	<0.000002	0.0187	0.0069	-	4.47	0.00402	5	<0.00002	183	0.255	102	0.000012	<0.005	<0.005	0.00284
RSEM-R5B-EOP	12/29/2018 12:05	VA3063	0.051	<0.0002	0.0773	33.0	0.0183	<0.000002	0.0185	0.0068	-	4.65	0.00377	5.62	<0.00002	182	0.271	107	0.000012	<0.005	<0.005	0.00293
RSEM-R5B-EOP	12/30/2018 11:15	VA3023	0.045	<0.0002	0.0768	34.1	0.0183	<0.000002	0.0181	0.0065	-	4.53	0.00366	5.39	<0.00002	182	0.267	108	0.000012	<0.005	<0.005	0.0029
RSEM-R5B-EOP	12/30/2018 11:15	VA3022	0.047	<0.0002	0.0747	34.6	0.0188	<0.000002	0.0182	0.0067	-	4.60	0.00368	5.3	<0.00002	187	0.263	110	0.000012	<0.005	<0.005	0.00301
RSEM-R5B-EOP	12/31/2018 13:35	VA5854	0.046	<0.0002	0.0648	30.3	0.0169	<0.000002	0.0157	0.0058	-	4.15	0.00315	4.38	<0.00002	168	0.212	98.2	0.000011	<0.005	<0.005	0.00263
RSEM-R5B-SP	1/1/2018 11:45	ST3045	0.036	<0.0002	0.136	41.8	0.0153	<0.00001	0.0033	0.0154	-	4.64	0.00352	4.49	<0.00002	148	0.458	62.2	0.000014	<0.005	<0.005	0.00395
RSEM-R5B-SP	1/2/2018 12:05	ST4212	0.043	<0.0002	0.149	44.0	0.0157	<0.00001	0.0034	0.0155	-	5.36	0.0036	5.42	<0.00002	146	0.46	71.9	0.000016	<0.005	<0.005	0.00398
RSEM-R5B-SP	1/3/2018 14:30	ST6562	0.039	<0.0002	0.154	44.5	0.016	-	0.0034	0.0177	-	5.08	0.00376	5.3	<0.00002	157	0.455	73.3	0.000017	<0.005	<0.005	0.00406
RSEM-R5B-SP	1/3/2018 14:30	ST6563	0.041	<0.0002	0.153	45.4	0.0147	-	0.0032	0.0164	-	5.29	0.0035	5.16	<0.00002	158	0.453	68.1	0.000015	<0.005	<0.005	0.00405
RSEM-R5B-SP	1/4/2018 11:45	ST7410	0.072	<0.0002	0.058	53.3	0.0237	-	0.0027	0.0202	-	5.98	0.00552	6	<0.00002	74.0	0.514	88.4	0.000021	<0.005	<0.005	0.00441
RSEM-R5B-SP	1/5/2018 11:20	ST8672	0.049	<0.0002	0.058	49.3	0.0215	-	0.0026	0.0191	-	5.52	0.00522	5.7	<0.00002	72.0	0.492	79.8	0.000024	<0.005	<0.005	0.00416
RSEM-R5B-SP	1/6/2018 12:00	ST9398	0.042	<0.0002	0.0603	50.8	0.0234	-	0.0027	0.0201	-	5.76	0.00521	5.28	<0.00002	75.3	0.482	81.3	0.00002	<0.005	<0.005	0.00412
RSEM-R5B-SP	1/6/2018 12:00	ST9399	0.04	<0.0002	0.0599	49.8	0.0223	-	0.0027	0.0201	-	5.58	0.00517	5.53	<0.00002	73.3	0.479	80.1	0.00002	<0.005	<0.005	0.00418
RSEM-R5B-SP	1/7/2018 12:00	ST9341	0.043	<0.0002	0.063	50.4	0.0372	-	0.0028	0.0195	-	5.70	0.00487	5.25	<0.00002	80.6	0.484	83.4	0.000021	<0.005	<0.005	0.0042
RSEM-R5B-SP	1/7/2018 12:00	ST9342	0.041	<0.0002	0.0661	51.0	0.0437	-	0.0029	0.0193	-	5.72	0.00504	5.22	<0.00002	80.7	0.478	84.1	0.00002	<0.005	<0.005	0.0042
RSEM-R5B-SP	1/8/2018 11:30	SU1308	0.039	<0.0002	0.0621	47.0	0.0414	<0.00001	0.0029	0.0184	-	5.35	0.00487	5.24	<0.00002	71.6	0.46	79.4	0.00002	<0.005	<0.005	0.00435
RSEM-R5B-SP	1/9/2018 15:45	SU3310	0.044	<0.0002	0.0567	44.0	0.036	-	0.0027	0.0171	-	4.97	0.00458	5.07	0.000158	65.0	0.449	74.4	0.000018	<0.005	<0.005	0.00399
RSEM-R5B-SP	1/10/2018 13:09	SU4769	0.043	<0.0002	0.0691	47.0	0.0413	-	0.0032	0.0187	-	5.33	0.00513	5.5	0.000022	73.7	0.507	82.6	0.000018	<0.005	<0.005	0.00466
RSEM-R5B-SP	1/11/2018 11:35	SU5522	0.038	<0.0002	0.0673	48.5	0.047	-	0.0031	0.0181	-	5.11	0.00504	5.46	0.000136	73.3	0.458	80.3	0.000017	<0.005	<0.005	0.00448
RSEM-R5B-SP	1/12/2018 17:15	SU7328	0.026	<0.0002	0.0749	48.3	0.0356	-	0.0034	0.0194	-	5.64	0.00516	5.55	<0.00002	76.1	0.547	83.3	0.000019	<0.005	<0.005	0.00485
RSEM-R5B-SP	1/13/2018 12:53	SU7314	0.052	<0.0002	0.108	49.4	0.0386	-	0.0033	0.0198	-	5.50	0.00487	5.57	0.000021	107	0.552	83.2	0.00002	<0.005	<0.005	0.00485
RSEM-R5B-SP	1/14/2018 10:15	SU7324	0.029	<0.0002	0.103	50.9	0.0372	-	0.0034	0.02	-	5.83	0.00495	5.64	<0.00002	106	0.538	85.6	0.000021	<0.005	<0.005	0.00497
RSEM-R5B-SP	1/15/2018 18:15	SU9368	0.03	<0.0002	0.0999	58.6	0.0356	-	0.0037	0.0196	-	5.98	0.00504	6.65	<0.00002	118	0.579	95.0	0.00002	<0.005	<0.005	0.00473
RSEM-R5B-SP	1/16/2018 13:02	SV1342	0.031	<0.0002	0.105	55.0	0.0318	-	0.0035	0.0187	-	5.78	0.00453	6.43	<0.00002	113	0.576	92.0	0.000019	<0.005	<0.005	0.00467
RSEM-R5B-SP	1/17/2018 9:26	SV3533	0.079	<0.0002	0.0418	47.4	0.0267	-	0.0026	0.023	-	5.06	0.00487	5.44	<0.00002	56.6	0.414	69.3	0.000017	<0.005	<0.005	0.00422
RSEM-R5B-SP	1/18/2018 15:03	SV4469	0.032	<0.0002	0.0453	46.6	0.0278	<0.00001	0.0028	0.0243	-	5.04	0.00504	5.16	0.000028	56.1	0.432	72.5	0.000015	<0.005	<0.005	0.00462
RSEM-R5B-SP	1/19/2018 11:14	SV4480	0.022	<0.0002	0.0476	49.1	0.0254	<0.00001	0.0029	0.0243	-	5.19	0.00499	5.51	<0.00002	58.9	0.437	80.3	0.000017	<0.005	<0.005	0.00464
RSEM-R5B-SP	1/20/2018 11:06	SV7273	0.018	<0.0002	0.049	51.1	0.0238	-	0.0029	0.0225	-	6.18	0.00546	6.25	<0.00002	57.9	0.443	88.1	0.000018	<0.005	<0.005	0.00475
RSEM-R5B-SP	1/20/2018 11:23	SV7274	0.015	<0.0002	0.0479	49.8	0.0236	-	0.0028	0.0228	-	6.00	0.00551	6.45	<0.00002	57.6	0.454	86.8	0.000018	<0.005	<0.005	0.00478
RSEM-R5B-SP	1/21/2018 8:31	SV8261	0.012	<0.0002	0.0491	51.1	0.0241	-	0.0029	0.0229	-	6.28	0.00537	6.35	<0.00002	58.5	0.457	88.9	0.000018	<0.005	<0.005	0.0048
RSEM-R5B-SP	1/22/2018 12:40	SV9405	0.015	<0.0002	0.0563	51.7	0.0212	-	0.0033	0.0219	-	6.33	0.00547	6.43	<0.00002	63.6	0.48	88.7	0.00002	<0.005	<0.005	0.00481
RSEM-R5B-SP	1/23/2018 12:30	SV9421	0.018	<0.0002	0.0775	51.6	0.017	<0.00001	0.0033	0.0211	-	6.26	0.00526	6.3	<0.00002	80.3	0.469	85.6	0.000019	<0.005	<0.005	0.00477
RSEM-R5B-SP	1/24/2018 11:10	SW0798	0.024	<0.0002	0.0637	48.5	0.0165	<0.00001	0.0033	0.0217	-	5.54	0.00493	6.07	<0.00002	67.2	0.488	85.8	0.000019	<0.005	<0.005	0.005
RSEM-R5B-SP	1/24/2018 11:10	SW0799	0.026	<0.0002	0.067	49.9	0.0158	<0.00001	0.0033	0.0226	-	5.72	0.00504	6.14	<0.00002	75.8	0.5	85.2	0.000023	<0.005	<0.005	0.00511
RSEM-R5B-SP	1/25/2018 13:55	SW2684	0.023	<0.0002	0.0724	49.3	0.0151	-	0.0033	0.0204	-	5.31	0.00653	4.95	<0.00002	74.2	0.479	83.4	0.000017	<0.005	<0.005	0.00512
RSEM-R5B-SP	1/26/2018 11:55	SW3614	0.07	<0.0002	0.0744	52.3	0.0193	-	0.0033	0.0226	-	5.74	0.00568	5.25	<0.00002	84.1	0.54	88.6	0.000016	<0.005	<0.005	0.00485
RSEM-R5B-SP	1/27/2018 16:45	SW6654	0.035	<0.0002	0.0692	48.5	0.0146	<0.00001	0.0035	0.0204	-	5.89	0.00488	5.47	<0.00002	82.5	0.514	75.8	0.000017	<0.005	<0.005	0.00521
RSEM-R5B-SP	1/28/2018 11:25	SW6657	0.078	<0.0002	0.0723	49.4	0.0144	<0.00001	0.0037	0.0202	-	5.96	0.00494	5.78	<0.00002	80.9	0.531	76.9	0.000018	<0.005	<0.005	0.00534
RSEM-R5B-SP	1/28/2018 11:25	SW6658	0.248	<0.0002	0.0778	49.7	0.0193	<0.00001	0.0035	0.0214	-	6.01	0.00504	5.97	<0.00002	84.9	0.502	84.9	0.000021	<0.005	<0.005	0.00494
RSEM-R5B-SP	3/13/2018 11:23	TC2461	0.253	<0.0002	0.0508	44.1	0.0635	-	0.0023	0.0373	-	6.14	0.0129	5	<0.00002	62.2	0.49	112	0.000026	<0.005	0.0066	0.00405
RSEM-R5B-SP	3/14/2018 11:58	TC7632	0.106	<0.0002	0.057	47.5	0.0547	-	0.0028	0.0345	-	6.74	0.0129	5.65	<0.00002	72.1	0.562	125	0.000023	<0.005	<0.005	0.00442
RSEM-R5B-SP	3/15/2018 16:15	TC8867	0.704	0.00048	0.0446	30.5	0.0464	-	0.0025	0.0155	-	4.04	0.00554	3.77	<0.00002	48.8	0.308	73.2	0.00003	<0.005	0.0161	0.00284
RSEM-R5B-SP	3/16/2018 16:00	TD1265	1.16	0.00067	0.0309	19.3	0.0452	-	0.0022	0.0112	-	2.93	0.00325	5.32	<0.00002	31.9	0.205	43.1	0.000036	<0.005	0.0384	0.00188
RSEM-R5B-SP	3/17/2018 14:40	TD2176	0.361	0.00033	0.0301	21.3	0.0369	-	0.0022	0.0108	-	3.11	0.00344	2.92	<0.00002	34.2	0.218	47.0	0.00002	<0.005	0.0108	0.00194
RSEM-R5B-SP	3/18/2018 10:45	TD1670	0.157	<0.0002	0.0632	36.9	0.12	-	0.0035	0.0287	-	5.53	0.00957	3.84	<0.00002	87.6	0.533	122	0.000024	<0.005	<0.005	0.00369
RSEM-R5B-SP	3/23/2018 10:50	TD9509	0.286	<0.0002	0.129	38.3	0.305	<0.000002	0.0033	0.0738	-	4.13	0.00509	3.84	<0.00002	173	0.529	163	0.000036	<0.005	0.0138	0.00317
RSEM-R5B-SP	3/24/2018 10:25	TE2569	0.066	<0.0002	0.0921	37.4	0.196	-	0.0033	0.0539	-	4.14	0.00376	4.13	<0.00002	108	0.429	95.7	0.000028	<0.005	<0.005	0.00298
RSEM-R5B-SP	3/25/2018 9:40	TE2566	0.093	<0.0002	0.107	36.2	0.173	-	0.0035	0.0492	-	4.23	0.00377	4.29	<0.00002	114	0.441	88.5	0.000031	<0.005	<0.005	0.00318
RSEM-R5B-SP	3/26/2018 10:30	TE2572	0.021	<0.0002	0.132	35.8	0.128	<0.000002	0.0036	0.0405	-	4.19	0.00376	4.39	<0.00002	130	0.424	74.4	0.000024	<0.005	<0.005	0.00322
RSEM-R5B-SP	3/27/2018 13:00	TE6114	0.082	<0.0002	0.144	36.5	0.114	-	0.0035	0.0387	-	4.10	0.00341	4.69	<0.00002	136	0.422	72.9	0.000025	<0.005	<0.005	0.00335
RSEM-R5B-SP	3/28/2018 13:25	TE7736	0.032	<0.0002	0.139	35.2	0.1	-	0.0033	0.0345	-	4.04	0.00324	4.75	<0.00002	125	0.424	70.8	0.000023	<0.005	<0.005	0.00328
RSEM-R5B-SP	3/29/2018 12:20	TE7727	0.033	<0.0002	0.137	34.8	0.0861	-	0.0034	0.0325	-	3.97	0.0033	4.49	<0.00002	125	0.425	63.0	0.000023	<0.005	<0.005	0.00339
RSEM-R5B-SP	5/10/2018 10:30	TK5583	<0.005	<0.00002	0.114	34.3	0.0253	<0.000002	0.00349	0.0286	0.01	3.89	0.0026	3.41	<0.00001	147	0.392	100	0.0000238	<0.0002	<0.002	0.00305
RSEM-R5B-SP	11/9/2018 6:10	UT3613	0.051	<0.0002	0.0796	44.7	0.0258	<0.000002	0.0035	0.0096	-	3.49	0.00162	3.86	<0.00002	142	0.328	140	0.000012	<0.005	<0.005	0.00199
RSEM-R6E-EOP	3/17/2018 13:00	TD1673	0.334	0.00024	0.0365	12.8	0.0996	-	0.0102	0.0128	-	4.49	0.00223	3.57	<0.00002	89.1	0.345	51.7	0.000018	<0.005	0.0125	0.00207
RSEM-R6E-EOP	3/18/2018 9:55	TD1668	0.691	0.00039	0.0339	13.4	0.178	-	0.0062	0.0337	-	3.28	0.00181	5.43	<0.00002	53.8	0.301	44.0	0.000026	<0.005	0.052	0.00209
RSEM-R6E-EOP	3/19/2018 12:30	TD4112	0.59	0.00039	0.0373	12.8	0.143	-	0.0109	0.0237	-	3.61	0.00397	5.38	<0.00002	80.9	0.292	52.9	0.000025	<0.005	0.0353	0.00253
RSEM-R6E-EOP	3/21/2018 6:40	TD7839	0.457	0.00036	0.0437	14.1	0.157	-	0.0132	0.0287	-	3.21	0.00608	3.83	<0.00002	97.3	0.291	55.0	0.000018	<0.005	0.0071	0.00271
RSEM-R6E-EOP	3/22/2018 11:30	TD7853	0.232	0.00021	0.029	16.5	0.127	-	0.0093	0.0224	-	3.00	0.00456	4	<0.00002	72.9	0.287	42.7	0.000014	<0.005	<0.005	0.00233
RSEM-R6E-EOP	3/22/2018 11:35	TD7856	0.19	0.0002	0.0293	17.6	0.128	-	0.009	0.0226	-	3.02	0.00456	3.84	<0.00002	71.2	0.289	44.5	0.000012	<0.005	<0.005	0.00233

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	12/26/2018 10:25	UZ9924	<0.005	0.0065	<0.0001	0.0366	0.00119	0.00128	0.0405	<0.0001	<0.001	0.196	0.000035	50.9	0.0017	0.00086	0.00121	<0.01	<0.0002	0.0748	33.7	0.0207
RSEM-R5B-EOP	12/27/2018 13:25	VA2810	<0.005	0.006	<0.0001	0.0395	0.00114	0.00127	0.0384	<0.0001	<0.001	0.188	0.000028	48.6	0.0016	0.0007	0.00137	<0.01	<0.0002	0.0726	30.6	0.0162
RSEM-R5B-EOP	12/28/2018 15:20	VA3075	<0.005	0.0073	<0.0001	0.0362	0.00113	0.00126	0.0407	<0.0001	<0.001	0.181	0.000036	46.8	0.0015	0.00072	0.00091	<0.01	<0.0002	0.0722	31.7	0.0174
RSEM-R5B-EOP	12/28/2018 15:20	VA3076	<0.005	0.0073	<0.0001	0.0348	0.00117	0.00127	0.0413	<0.0001	<0.001	0.18	0.000037	47.9	0.0014	0.00072	0.00108	<0.01	<0.0002	0.0712	31.2	0.0174
RSEM-R5B-EOP	12/29/2018 12:05	VA3063	<0.005	0.0078	<0.0001	0.0325	0.00115	0.00129	0.0415	<0.0001	<0.001	0.179	0.000035	47.1	0.0014	0.00067	0.00104	<0.01	<0.0002	0.0699	32.6	0.0171
RSEM-R5B-EOP	12/30/2018 11:15	VA3023	<0.005	0.0072	<0.0001	0.0304	0.00112	0.00125	0.0444	<0.0001	<0.001	0.178	0.000038	46.5	0.0014	0.00065	0.00101	<0.01	<0.0002	0.0694	33.5	0.0173
RSEM-R5B-EOP	12/30/2018 11:15	VA3022	<0.005	0.0077	<0.0001	0.0313	0.00117	0.00129	0.0449	<0.0001	<0.001	0.181	0.000035	46.6	0.0014	0.00066	0.00087	<0.01	<0.0002	0.0702	33.1	0.0173
RSEM-R5B-EOP	12/31/2018 13:35	VA5854	<0.005	0.0068	<0.0001	0.031	0.0011	0.00133	0.0444	<0.0001	<0.001	0.182	0.00003	45.6	0.0014	0.0006	0.00097	<0.01	<0.0002	0.0661	32.1	0.0162
RSEM-R5B-SP	1/1/2018 11:45	ST3045	<0.005	0.0095	<0.0001	0.0161	<0.0005	0.00023	0.126	<0.0001	<0.001	0.112	<0.00001	120	<0.001	0.00081	0.00077	<0.01	<0.0002	0.16	44.6	0.0068
RSEM-R5B-SP	1/2/2018 12:05	ST4212	<0.005	0.0094	<0.0001	0.0154	<0.0005	0.00022	0.125	<0.0001	<0.001	0.105	<0.00001	118	<0.001	0.00091	0.00094	<0.01	<0.0002	0.154	43.7	0.0084
RSEM-R5B-SP	1/3/2018 14:30	ST6562	<0.005	0.0109	<0.0001	0.014	<0.0005	0.00025	0.13	<0.0001	<0.001	0.109	0.000032	120	<0.001	0.00103	0.00116	0.016	<0.0002	0.152	42.4	0.0099
RSEM-R5B-SP	1/3/2018 14:30	ST6563	<0.005	0.01	<0.0001	0.0137	<0.0005	0.0002	0.131	<0.0001	<0.001	0.102	0.000028	116	<0.001	0.00098	0.00121	<0.01	<0.0002	0.152	42.9	0.0094
RSEM-R5B-SP	1/4/2018 11:45	ST7410	<0.005	0.0156	<0.0001	0.0109	<0.0005	0.00022	0.0785	<0.0001	<0.001	0.069	0.000046	131	<0.001	0.00172	0.00106	<0.01	<0.0002	0.0642	49.1	0.0211
RSEM-R5B-SP	1/5/2018 11:20	ST8672	<0.005	0.0163	<0.0001	0.0148	<0.0005	0.00021	0.0722	<0.0001	<0.001	0.073	0.000013	137	<0.001	0.00158	0.00089	<0.01	<0.0002	0.0589	50.0	0.0143
RSEM-R5B-SP	1/6/2018 12:00	ST9398	<0.005	0.0159	<0.0001	0.0131	<0.0005	0.0002	0.0772	<0.0001	<0.001	0.074	0.000059	129	<0.001	0.00173	0.00109	<0.01	<0.0002	0.0613	47.1	0.0196
RSEM-R5B-SP	1/6/2018 12:00	ST9399	<0.005	0.016	<0.0001	0.019	<0.0005	0.00022	0.0765	<0.0001	<0.001	0.073	0.000036	128	<0.001	0.00172	0.00088	<0.01	<0.0002	0.062	46.5	0.0184
RSEM-R5B-SP	1/7/2018 12:00	ST9341	<0.005	0.0136	<0.0001	0.0122	<0.0005	0.00026	0.0811	<0.0001	<0.001	0.075	0.000074	128	<0.001	0.00174	0.00102	<0.01	<0.0002	0.0679	46.1	0.0333
RSEM-R5B-SP	1/7/2018 12:00	ST9342	<0.005	0.0133	<0.0001	0.0115	<0.0005	0.00027	0.0797	<0.0001	<0.001	0.074	0.000069	127	<0.001	0.00183	0.001	<0.01	<0.0002	0.0664	46.5	0.0403
RSEM-R5B-SP	1/8/2018 11:30	SU1308	<0.005	0.0112	<0.0001	0.0123	<0.0005	0.00027	0.0728	<0.0001	<0.001	0.073	<0.00001	126	<0.001	0.00137	0.00137	<0.01	<0.0002	0.0624	45.5	0.0211
RSEM-R5B-SP	1/9/2018 15:45	SU3310	<0.005	0.0104	<0.0001	0.0092	<0.0005	0.00027	0.0768	<0.0001	<0.001	0.075	0.000061	146	<0.001	0.00173	0.00095	<0.01	<0.0002	0.0637	47.3	0.0372
RSEM-R5B-SP	1/10/2018 13:09	SU4769	<0.005	0.0157	<0.0001	0.0103	<0.0005	0.00035	0.0789	<0.0001	<0.001	0.081	0.000059	150	<0.001	0.00175	0.00202	<0.01	<0.0002	0.0642	48.4	0.0402
RSEM-R5B-SP	1/11/2018 11:35	SU5522	<0.005	0.0159	<0.0001	0.0095	<0.0005	0.00032	0.0796	<0.0001	<0.001	0.082	0.000066	132	<0.001	0.00173	0.00256	<0.01	<0.0002	0.0712	48.5	0.0457
RSEM-R5B-SP	1/12/2018 17:15	SU7328	<0.005	0.016	<0.0001	0.009	<0.0005	0.00033	0.0809	<0.0001	<0.001	0.088	0.000038	129	<0.001	0.00122	0.00204	<0.01	<0.0002	0.0773	51.3	0.0281
RSEM-R5B-SP	1/13/2018 12:53	SU7314	<0.005	0.0164	<0.0001	0.009	<0.0005	0.00032	0.0878	<0.0001	<0.001	0.095	0.00006	133	<0.001	0.00146	0.00166	<0.01	<0.0002	0.115	50.0	0.0336
RSEM-R5B-SP	1/14/2018 10:15	SU7324	<0.005	0.0138	<0.0001	0.0085	<0.0005	0.00032	0.0851	<0.0001	<0.001	0.098	0.000018	135	<0.001	0.00129	0.00141	<0.01	<0.0002	0.105	51.4	0.027
RSEM-R5B-SP	1/15/2018 18:15	SU9368	<0.005	0.0145	<0.0001	0.0086	<0.0005	0.00033	0.095	<0.0001	<0.001	0.098	0.000057	153	<0.001	0.00135	0.00174	<0.01	<0.0002	0.109	55.2	0.0312
RSEM-R5B-SP	1/16/2018 13:02	SV1342	<0.005	0.0157	<0.0001	0.0092	<0.0005	0.00031	0.0888	<0.0001	<0.001	0.097	0.000042	161	<0.001	0.00121	0.00147	<0.01	<0.0002	0.104	56.0	0.0269
RSEM-R5B-SP	1/17/2018 9:26	SV3533	<0.005	0.0245	<0.0001	0.0501	<0.0005	0.00027	0.0565	<0.0001	<0.001	0.065	0.000013	117	<0.001	0.00204	0.00074	<0.01	<0.0002	0.0454	48.2	0.0145
RSEM-R5B-SP	1/18/2018 15:03	SV4469	<0.005	0.0234	<0.0001	0.0498	<0.0005	0.00027	0.0603	<0.0001	<0.001	0.075	0.000135	124	<0.001	0.00269	0.0014	<0.01	<0.0002	0.0494	48.1	0.026
RSEM-R5B-SP	1/19/2018 11:14	SV4480	<0.005	0.0231	<0.0001	0.0534	<0.0005	0.00029	0.0608	<0.0001	<0.001	0.092	0.000124	124	<0.001	0.00253	0.00155	<0.01	<0.0002	0.0525	47.2	0.0247
RSEM-R5B-SP	1/20/2018 11:06	SV7273	<0.005	0.0203	<0.0001	0.0401	<0.0005	0.0003	0.0611	<0.0001	<0.001	0.065	0.000122	150	<0.001	0.0024	0.0017	<0.01	<0.0002	0.0491	53.3	0.0236
RSEM-R5B-SP	1/20/2018 11:23	SV7274	<0.005	0.0209	<0.0001	0.0435	<0.0005	0.0003	0.0621	<0.0001	<0.001	0.064	0.000124	142	<0.001	0.0025	0.00179	<0.01	<0.0002	0.0494	51.1	0.0237
RSEM-R5B-SP	1/21/2018 8:31	SV8261	<0.005	0.0197	<0.0001	0.0409	<0.0005	0.00033	0.0608	<0.0001	<0.001	0.064	0.000088	138	<0.001	0.00212	0.00157	0.011	<0.0002	0.0501	50.6	0.0203
RSEM-R5B-SP	1/22/2018 12:40	SV9405	<0.005	0.0175	<0.0001	0.0364	<0.0005	0.00031	0.0678	<0.0001	<0.001	0.073	0.000098	141	<0.001	0.00206	0.00197	<0.01	<0.0002	0.0581	55.5	0.023
RSEM-R5B-SP	1/23/2018 12:30	SV9421	<0.005	0.0148	<0.0001	0.0302	<0.0005	0.00029	0.0687	<0.0001	<0.001	0.077	0.000087	135	<0.001	0.00196	0.00176	<0.01	<0.0002	0.0762	56.1	0.0189
RSEM-R5B-SP	1/24/2018 11:10	SW0798	<0.005	0.0183	<0.0001	0.0276	<0.0005	0.00031	0.0663	<0.0001	<0.001	0.072	0.00008	142	<0.001	0.00165	0.00239	<0.01	<0.0002	0.0636	52.7	0.0157
RSEM-R5B-SP	1/24/2018 11:10	SW0799	<0.005	0.0182	<0.0001	0.0238	<0.0005	0.00029	0.0676	<0.0001	<0.001	0.074	0.000075	136	<0.001	0.00151	0.00175	<0.01	<0.0002	0.0733	53.5	0.0139
RSEM-R5B-SP	1/25/2018 13:55	SW2684	<0.005	0.0142	<0.0001	0.0266	<0.0005	0.00031	0.0703	<0.0001	<0.001	0.093	0.000077	142	<0.001	0.00131	0.00182	<0.01	<0.0002	0.0752	48.6	0.013
RSEM-R5B-SP	1/26/2018 11:55	SW3614	<0.005	0.0176	<0.0001	0.0237	<0.0005	0.00029	0.0678	<0.0001	<0.001	0.083	0.000074	135	<0.001	0.00123	0.00219	<0.01	<0.0002	0.0787	54.1	0.0097
RSEM-R5B-SP	1/27/2018 16:45	SW6654	<0.005	0.0159	<0.0001	0.0218	<0.0005	0.00032	0.0699	<0.0001	<0.001	0.09	0.000076	142	<0.001	0.00123	0.00256	<0.01	<0.0002	0.0833	53.1	0.0108
RSEM-R5B-SP	1/28/2018 11:25	SW6657	<0.005	0.0177	<0.0001	0.0198	<0.0005	0.00032	0.0718	<0.0001	<0.001	0.091	0.000075	138	<0.001	0.00108	0.00264	<0.01	<0.0002	0.0831	52.9	0.0081
RSEM-R5B-SP	1/28/2018 11:25	SW6658	<0.005	0.0218	<0.0001	0.0193	<0.0005	0.0003	0.0715	<0.0001	<0.001	0.091	0.000071	141	<0.001	0.00111	0.00278	<0.01	<0.0002	0.0824	53.0	0.008
RSEM-R5B-SP	3/13/2018 11:23	TC2461	<0.005	0.0264	0.00018	<0.003	<0.0005	0.00026	0.0439	<0.0001	<0.001	0.088	0.00016	127	<0.001	0.00729	0.00194	<0.01	<0.0002	0.051	46.7	0.059
RSEM-R5B-SP	3/14/2018 11:58	TC7632	<0.005	0.0172	<0.0001	0.0032	<0.0005	0.00036	0.0527	<0.0001	<0.001	0.115	0.000017	131	<0.001	0.00495	0.00868	<0.01	<0.0002	0.0567	46.6	0.0354
RSEM-R5B-SP	3/15/2018 16:15	TC8867	<0.005	0.0111	0.00027	0.004	<0.0005	0.00051	0.0462	<0.0001	<0.001	0.058	0.000032	81.7	<0.001	0.00044	0.00189	<0.01	<0.0002	0.0381	27.6	0.0092
RSEM-R5B-SP	3/16/2018 16:00	TD1265	<0.005	0.0147	0.0014	<0.003	<0.0005	0.00048	0.0439	<0.0001	<0.001	<0.05	0.000033	62.1	<0.001	0.0006	0.00444	<0.01	<0.0002	0.0304	21.0	0.0192
RSEM-R5B-SP	3/17/2018 14:40	TD2176	<0.005	0.0093	0.00039	<0.003	<0.0005	0.00046	0.0438	<0.0001	<0.001	<0.05	0.000035	57.5	<0.001	0.00071	0.00379	<0.01	<0.0002	0.0295	21.6	0.0218
RSEM-R5B-SP	3/18/2018 10:45	TD1670	<0.005	0.0214	<0.0001	<0.003	<0.0005	0.00153	0.0532	<0.0001	<0.001	0.176	0.000092	112	<0.001	0.00609	0.0845	<0.01	<0.0002	0.0651	40.4	0.127
RSEM-R5B-SP	3/23/2018 10:50	TD9509	<0.005	0.0879	0.00026	0.019	<0.0005	0.00021	0.041	<0.0001	<0.001	0.134	0.000408	108	<0.001	0.0194	0.00103	<0.01	<0.0002	0.143	43.3	0.323
RSEM-R5B-SP	3/24/2018 10:25	TE2569	<0.005	0.0712	<0.0001	0.0205	<0.0005	0.00021	0.0387	<0.0001	<0.001	0.097	0.000274	106	<0.001	0.0118	0.00066	<0.01	<0.0002	0.0904	35.7	0.185
RSEM-R5B-SP	3/25/2018 9:40	TE2566	<0.005	0.0663	<0.0001	0.0206	<0.0005	0.00028	0.0453	<0.0001	<0.001	0.097	0.000232	105	<0.001	0.0104	0.0056	<0.01	<0.0002	0.104	35.8	0.162
RSEM-R5B-SP	3/26/2018 10:30	TE2572	<0.005	0.0349	<0.0001	0.0159	<0.0005	0.00025	0.0494	<0.0001	<0.001	0.089	0.000013	96.9	<0.001	0.00594	<0.0005	<0.01	<0.0002	0.134	34.2	0.0678
RSEM-R5B-SP	3/27/2018 13:00	TE6114	<0.005	0.0406	<0.0001	0.0198	<0.0005	0.00023	0.0527	<0.0001	<0.001	0.094	<0.00001	85.1	<0.001	0.00294	<0.0005	<0.01	<0.0002	0.142	36.4	0.0111
RSEM-R5B-SP	3/28/2018 13:25	TE7736	<0.005	0.0369	<0.0001	0.0201	<0.0005	0.00024	0.0587	<0.0001	<0.001	0.093	0.000028	94.4	<0.001	0.00497	0.00053	<0.01	<0.0002	0.137	37.6	0.0499
RSEM-R5B-SP	3/29/2018 12:20	TE7727	<0.005	0.0372	<0.0001	0.0217	<0.0005	0.00023	0.0602	<0.0001	<0.001	0.088	0.000013	97.2	<0.001	0.00421	<0.0005	<0.01	<0.0002	0.136	38.4	0.0374
RSEM-R5B-SP	5/10/2018 10:30	TK5583	<0.0002	<0.001	<0.0001	0.0466	0.000254	0.000221	0.0893	<0.00001	<0.000005	0.129	<0.000005	84.1	0.00011	0.00419	0.000655	0.0048	<0.000005	0.125	39.2	0.0266
RSEM-R5B-SP	11/9/2018 6:10	UT3613	<0.005	0.0057	<0.0001	0.0248	<0.0005	0.00039	0.0326	<0.0001	<0.001	0.103	0.000036	61.9	<0.001	0.00065	0.00061	<0.01	<0.0002	0.0906	43.7	0.0037
RSEM-R6E-EOP	3/17/2018 13:00	TD1673	<0.005	<0.005	0.00036	0.0279	0.00086	0.00084	0.0869	<0.0001	<0.001	0.094	0.000031	51.9	0.0019	0.00276	0.00148	<0.01	<0.0002	0.0377	13.0	0.0947
RSEM-R6E-EOP	3/18/2018 9:55	TD1668	<0.005	0.0212	0.00158	0.03	0.00064	0.00047	0.0931	<0.0001	<0.001	0.068	0.00013	54.6	0.0023	0.0109	0.0041	<0.01	<0.0002	0.0336	15.1	0.183
RSEM-R6E-EOP	3/19/2018 12:30	TD4112	<0.005	0.0081	0.00064	0.0392	0.00113	0.0012	0.0907	<0.0001	<0.001	0.109	0.000052	48.0	0.0028	0.00564	0.00136	<0.01	<0.0002	0.0358	13.3	0.138
RSEM-R6E-EOP	3/21/2018 6:40	TD7839	<0.005	0.0085	0.00091	0.0602	0.00147	0.00167	0.106	<0.0001	<0.001	0.136	0.000053	49.2	0.0034	0.0062	0.00141	<0.01	<0.0002	0.0433	13.7	0.138
RSEM-R6E-EOP	3/22/2018 11:30	TD7853	<0.005	0.0104	0.00014	0.0647	0.00103	0.0013	0.116	<0.0001	<0.001	0.09	0.000066	60.2	0.0023	0.00541	0.00137	<0.01	<0.0002	0.0268	16.0	0.118
RSEM-R6E-EOP	3/22/2018 11:35	TD7856	<0.005	0.0111	<0.0001	0.066	0.00101	0.00127	0.118	<0.0001	<0.001	0.09	0.000067	60.7	0.0022	0.00516	0.00131	<0.01	<0.0002	0.027	15.2	0.112

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R5B-EOP	12/26/2018 10:25	UZ9924	<0.000002	0.0193	0.0075	-	5.12	0.00398	4.93	<0.00002	208	0.236	109	0.000011	<0.005	<0.005	0.00274	<0.005	0.0066	<0.0001
RSEM-R5B-EOP	12/27/2018 13:25	VA2810	<0.000002	0.0192	0.0067	-	4.79	0.00372	4.86	<0.00002	191	0.223	103	0.000012	<0.005	<0.005	0.00268	<0.005	0.0058	<0.0001
RSEM-R5B-EOP	12/28/2018 15:20	VA3075	<0.000002	0.0187	0.0067	-	4.48	0.00339	4.73	<0.00002	183	0.254	99.5	0.00001	<0.005	<0.005	0.00267	<0.005	0.0062	<0.0001
RSEM-R5B-EOP	12/28/2018 15:20	VA3076	<0.000002	0.0185	0.0067	-	4.51	0.00345	4.79	<0.00002	182	0.255	98.8	0.00001	<0.005	<0.005	0.00267	<0.005	0.0063	<0.0001
RSEM-R5B-EOP	12/29/2018 12:05	VA3063	<0.000002	0.0188	0.0066	-	4.46	0.00357	4.73	<0.00002	183	0.256	102	0.000011	<0.005	<0.005	0.00275	<0.005	0.0063	<0.0001
RSEM-R5B-EOP	12/30/2018 11:15	VA3023	<0.000002	0.0182	0.0064	-	4.48	0.00348	4.75	<0.00002	185	0.253	104	<0.00001	<0.005	<0.005	0.00283	<0.005	0.0064	<0.0001
RSEM-R5B-EOP	12/30/2018 11:15	VA3022	<0.000002	0.0184	0.0063	-	4.43	0.00346	4.72	<0.00002	185	0.256	103	0.000011	<0.005	<0.005	0.00284	<0.005	0.006	<0.0001
RSEM-R5B-EOP	12/31/2018 13:35	VA5854	<0.000002	0.0167	0.0059	-	4.32	0.00359	4.81	<0.00002	179	0.222	112	0.000013	<0.005	<0.005	0.00278	<0.005	0.0056	<0.0001
RSEM-R5B-SP	1/1/2018 11:45	ST3045	<0.00001	0.0032	0.0145	-	5.22	0.00367	5.49	<0.00002	153	0.428	73.7	0.000016	<0.005	<0.005	0.00381	<0.005	<0.005	<0.0001
RSEM-R5B-SP	1/2/2018 12:05	ST4212	<0.00001	0.0035	0.0159	-	4.93	0.00385	4.67	<0.00002	150	0.483	69.3	0.000012	<0.005	<0.005	0.00421	<0.005	<0.005	<0.0001
RSEM-R5B-SP	1/3/2018 14:30	ST6562	-	0.0035	0.0167	-	5.06	0.00374	5.61	<0.00002	146	0.473	70.1	0.000017	<0.005	<0.005	0.00409	<0.005	0.0104	<0.0001
RSEM-R5B-SP	1/3/2018 14:30	ST6563	-	0.0035	0.0166	-	4.86	0.00385	5.4	<0.00002	149	0.478	68.4	0.000017	<0.005	<0.005	0.00408	<0.005	0.0082	<0.0001
RSEM-R5B-SP	1/4/2018 11:45	ST7410	-	0.0028	0.0211	-	5.74	0.00545	5.42	<0.00002	73.8	0.506	87.1	0.000019	<0.005	<0.005	0.0044	<0.005	0.011	<0.0001
RSEM-R5B-SP	1/5/2018 11:20	ST8672	-	0.0027	0.0191	-	5.74	0.00536	5.72	<0.00002	72.9	0.489	84.7	0.000024	<0.005	<0.005	0.00403	<0.005	<0.005	<0.0001
RSEM-R5B-SP	1/6/2018 12:00	ST9398	-	0.0028	0.0199	-	5.21	0.00541	5.49	<0.00002	69.5	0.515	75.9	0.000018	<0.005	<0.005	0.00435	<0.005	0.0132	<0.0001
RSEM-R5B-SP	1/6/2018 12:00	ST9399	-	0.003	0.0192	-	5.43	0.00556	5.54	<0.00002	70.0	0.512	79.0	0.000022	<0.005	<0.005	0.00437	<0.005	0.0086	<0.0001
RSEM-R5B-SP	1/7/2018 12:00	ST9341	-	0.0031	0.0186	-	5.36	0.00533	5.39	<0.00002	71.8	0.507	80.7	0.000019	<0.005	<0.005	0.00452	<0.005	0.014	<0.0001
RSEM-R5B-SP	1/7/2018 12:00	ST9342	-	0.003	0.0188	-	5.25	0.00544	5.31	<0.00002	73.1	0.506	81.2	0.000018	<0.005	<0.005	0.00441	<0.005	0.0141	<0.0001
RSEM-R5B-SP	1/8/2018 11:30	SU1308	<0.00001	0.003	0.018	-	5.37	0.00527	5.03	<0.00002	71.4	0.465	78.3	0.00002	<0.005	<0.005	0.00431	<0.005	<0.005	<0.0001
RSEM-R5B-SP	1/9/2018 15:45	SU3310	-	0.0029	0.0194	-	5.39	0.00508	5.29	<0.00002	73.5	0.461	78.1	0.000019	<0.005	<0.005	0.00416	<0.005	0.0106	<0.0001
RSEM-R5B-SP	1/10/2018 13:09	SU4769	-	0.003	0.0193	-	5.57	0.00526	5.78	<0.00002	74.6	0.5	87.3	0.000018	<0.005	<0.005	0.00425	<0.005	0.0138	<0.0001
RSEM-R5B-SP	1/11/2018 11:35	SU5522	-	0.0032	0.0186	-	5.61	0.00517	5.47	<0.00002	77.3	0.522	87.8	0.000019	<0.005	<0.005	0.00476	<0.005	0.0147	<0.0001
RSEM-R5B-SP	1/12/2018 17:15	SU7328	-	0.0034	0.0199	-	5.67	0.00535	5.54	<0.00002	81.5	0.541	87.3	0.000021	<0.005	<0.005	0.00504	<0.005	0.0107	<0.0001
RSEM-R5B-SP	1/13/2018 12:53	SU7314	-	0.0033	0.0196	-	5.83	0.00515	5.59	<0.00002	105	0.553	86.4	0.000023	<0.005	<0.005	0.00489	<0.005	0.0143	<0.0001
RSEM-R5B-SP	1/14/2018 10:15	SU7324	-	0.0033	0.0198	-	5.81	0.00513	5.85	<0.00002	103	0.535	87.7	0.000021	<0.005	<0.005	0.00496	<0.005	0.0051	<0.0001
RSEM-R5B-SP	1/15/2018 18:15	SU9368	-	0.0036	0.019	-	6.61	0.00497	6.12	<0.00002	116	0.55	102	0.000019	<0.005	<0.005	0.00474	<0.005	0.0125	<0.0001
RSEM-R5B-SP	1/16/2018 13:02	SV1342	-	0.0037	0.0187	-	5.82	0.0048	6.37	<0.00002	117	0.577	92.1	0.000023	<0.005	<0.005	0.00481	<0.005	0.0109	<0.0001
RSEM-R5B-SP	1/17/2018 9:26	SV3533	-	0.0028	0.0217	-	5.68	0.00503	5.87	<0.00002	54.2	0.445	77.3	0.000017	<0.005	<0.005	0.00433	<0.005	<0.005	<0.0001
RSEM-R5B-SP	1/18/2018 15:03	SV4469	<0.00001	0.0029	0.0227	-	5.34	0.00497	5.76	<0.00002	57.6	0.453	79.3	0.000015	<0.005	<0.005	0.00451	<0.005	0.0228	<0.0001
RSEM-R5B-SP	1/19/2018 11:14	SV4480	<0.00001	0.0029	0.0244	-	5.26	0.00502	5.7	<0.00002	61.5	0.448	80.0	0.000018	<0.005	<0.005	0.00469	<0.005	0.0232	<0.0001
RSEM-R5B-SP	1/20/2018 11:06	SV7273	-	0.0031	0.0239	-	6.22	0.00553	6.47	<0.00002	60.0	0.465	87.7	0.000018	<0.005	<0.005	0.00473	<0.005	0.0204	<0.0001
RSEM-R5B-SP	1/20/2018 11:23	SV7274	-	0.003	0.0237	-	6.14	0.00527	6.23	<0.00002	59.7	0.459	85.6	0.000018	<0.005	<0.005	0.00486	<0.005	0.0209	<0.0001
RSEM-R5B-SP	1/21/2018 8:31	SV8261	-	0.0028	0.0211	-	5.91	0.00522	5.93	<0.00002	58.0	0.459	84.1	0.000018	<0.005	<0.005	0.00478	<0.005	0.0149	<0.0001
RSEM-R5B-SP	1/22/2018 12:40	SV9405	-	0.0033	0.0233	-	6.28	0.00563	5.81	<0.00002	70.9	0.488	85.6	0.000018	<0.005	<0.005	0.00508	<0.005	0.0186	<0.0001
RSEM-R5B-SP	1/23/2018 12:30	SV9421	<0.00001	0.0033	0.0237	-	6.34	0.00526	5.77	<0.00002	86.3	0.48	83.3	0.000021	<0.005	<0.005	0.00496	<0.005	0.0163	<0.0001
RSEM-R5B-SP	1/24/2018 11:10	SW0798	<0.00001	0.0032	0.0229	-	5.80	0.00519	5.7	<0.00002	76.6	0.479	80.0	0.000019	<0.005	<0.005	0.00494	<0.005	0.0169	<0.0001
RSEM-R5B-SP	1/24/2018 11:10	SW0799	<0.00001	0.0032	0.0226	-	5.82	0.00523	5.47	<0.00002	84.2	0.478	79.6	0.00002	<0.005	<0.005	0.00477	<0.005	0.0147	<0.0001
RSEM-R5B-SP	1/25/2018 13:55	SW2684	-	0.0034	0.021	-	5.97	0.00504	5.39	<0.00002	74.1	0.502	87.0	0.00002	<0.005	<0.005	0.00507	<0.005	0.0182	<0.0001
RSEM-R5B-SP	1/26/2018 11:55	SW3614	-	0.0034	0.0221	-	6.01	0.0053	5.66	<0.00002	87.1	0.497	84.2	0.000019	<0.005	<0.005	0.00502	<0.005	0.0157	<0.0001
RSEM-R5B-SP	1/27/2018 16:45	SW6654	<0.00001	0.0036	0.0219	-	6.18	0.00539	6.07	<0.00002	88.6	0.525	86.7	0.000021	<0.005	<0.005	0.00509	<0.005	0.0166	<0.0001
RSEM-R5B-SP	1/28/2018 11:25	SW6657	<0.00001	0.0036	0.0222	-	6.37	0.00529	5.93	<0.00002	89.4	0.527	86.9	0.00002	<0.005	<0.005	0.00517	<0.005	0.0175	<0.0001
RSEM-R5B-SP	1/28/2018 11:25	SW6658	<0.00001	0.0037	0.0222	-	6.34	0.00532	6.04	<0.00002	90.3	0.538	90.2	0.000024	<0.005	<0.005	0.00514	<0.005	0.0168	<0.0001
RSEM-R5B-SP	3/13/2018 11:23	TC2461	-	0.0021	0.0393	-	5.97	0.0139	4.51	<0.00002	65.0	0.493	109	0.000022	<0.005	<0.005	0.00422	<0.005	0.0212	<0.0001
RSEM-R5B-SP	3/14/2018 11:58	TC7632	-	0.0029	0.0331	-	6.86	0.013	5.64	<0.00002	69.9	0.551	126	0.000022	<0.005	<0.005	0.0043	<0.005	<0.005	<0.0001
RSEM-R5B-SP	3/15/2018 16:15	TC8867	-	0.0024	0.0125	-	3.89	0.00546	2.93	<0.00002	44.6	0.3	70.2	0.000017	<0.005	<0.005	0.00261	<0.005	<0.005	<0.0001
RSEM-R5B-SP	3/16/2018 16:00	TD1265	-	0.0022	0.0095	-	2.91	0.00387	2.18	<0.00002	33.9	0.22	48.3	0.000015	<0.005	<0.005	0.00201	<0.005	0.0051	<0.0001
RSEM-R5B-SP	3/17/2018 14:40	TD2176	-	0.0023	0.01	-	3.01	0.00359	2.05	<0.00002	34.6	0.217	48.3	0.000015	<0.005	<0.005	0.00196	<0.005	0.0057	<0.0001
RSEM-R5B-SP	3/18/2018 10:45	TD1670	-	0.0038	0.0305	-	5.89	0.0102	3.72	<0.00002	93.7	0.573	137	0.000022	<0.005	<0.005	0.00383	<0.005	0.0214	<0.0001
RSEM-R5B-SP	3/23/2018 10:50	TD9509	<0.000002	0.0035	0.0762	-	4.43	0.00551	3.61	<0.00002	202	0.543	183	0.000031	<0.005	<0.005	0.00338	<0.005	0.079	<0.0001
RSEM-R5B-SP	3/24/2018 10:25	TE2569	-	0.0034	0.0515	-	4.05	0.0039	4.13	<0.00002	105	0.436	94.8	0.00003	<0.005	<0.005	0.00318	<0.005	0.0586	<0.0001
RSEM-R5B-SP	3/25/2018 9:40	TE2566	-	0.0033	0.0482	-	4.16	0.00339	4.14	<0.00002	117	0.415	85.5	0.000026	<0.005	<0.005	0.00301	<0.005	0.0537	<0.0001
RSEM-R5B-SP	3/26/2018 10:30	TE2572	<0.000002	0.0034	0.0373	-	4.08	0.00378	4.25	<0.00002	132	0.402	74.2	0.000022	<0.005	<0.005	0.00316	<0.005	<0.005	<0.0001
RSEM-R5B-SP	3/27/2018 13:00	TE6114	-	0.0033	0.0306	-	4.19	0.0033	4.66	<0.00002	136	0.382	75.0	0.000023	<0.005	<0.005	0.00304	<0.005	<0.005	<0.0001
RSEM-R5B-SP	3/28/2018 13:25	TE7736	-	0.0033	0.0334	-	4.24	0.00323	4.7	<0.00002	138	0.399	74.0	0.000024	<0.005	<0.005	0.00315	<0.005	0.0058	<0.0001
RSEM-R5B-SP	3/29/2018 12:20	TE7727	-	0.0033	0.0315	-	4.23	0.00322	4.68	<0.00002	139	0.395	71.5	0.000022	<0.005	<0.005	0.0032	<0.005	<0.005	<0.0001
RSEM-R5B-SP	5/10/2018 10:30	TK5583	<0.000002	0.00341	0.0295	<0.002	4.06	0.00262	3.49	<0.000005	167	0.412	102	0.0000249	<0.0002	<0.0005	0.0032	<0.0002	0.00061	<0.0001
RSEM-R5B-SP	11/9/2018 6:10	UT3613	<0.000002	0.0032	0.0087	-	3.52	0.00169	4.1	<0.00002	137	0.299	136	0.000012	<0.005	<0.005	0.00202	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	3/17/2018 13:00	TD1673	-	0.0102	0.0122	-	4.39	0.00231	2.73	<0.00002	91.7	0.338	53.7	0.000011	<0.005	<0.005	0.00214	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	3/18/2018 9:55	TD1668	-	0.0066	0.0351	-	3.33	0.00187	3.09	<0.00002	59.6	0.305	49.1	0.000011	<0.005	<0.005	0.00206	<0.005	0.0147	<0.0001
RSEM-R6E-EOP	3/19/2018 12:30	TD4112	-	0.0112	0.0233	-	3.41	0.00415	2.83	<0.00002	87.7	0.299	53.3	0.00001	<0.005	<0.005	0.00254	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	3/21/2018 6:40	TD7839	-	0.0129	0.0259	-	3.16	0.006	3.44	<0.00002	94.9	0.304	55.8	0.00001	<0.005	<0.005	0.00262	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	3/22/2018 11:30	TD7853	-	0.0084	0.02	-	2.99	0.0048	3.4	<0.00002	68.2	0.267	44.5	<0.00001	<0.005	<0.005	0.00207	<0.005	0.0063	<0.0001
RSEM-R6E-EOP	3/22/2018 11:35	TD7856	-	0.0085	0.019	-	2.92	0.00462	3.46	<0.00002	64.9	0.268	43.6	<0.00001	<0.005	<0.005	0.00211	<0.005	0.0061	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	3/23/2018 10:20	TD9507	8.34	850	6.85	504	7.0	194	214	181	1.4	218	1.6	<1.0	62.4	0.380	0.90	172
RSEM-R6E-EOP	3/24/2018 6:45	TE2568	8.41	915	4.58	576	6.5	196	201	193	2.9	228	3.4	<1.0	66.8	0.380	1.1	175
RSEM-R6E-EOP	3/25/2018 10:05	TE2565	8.40	997	4.27	602	5.0	225	238	231	4.9	270	5.9	<1.0	66.2	0.410	1.1	183
RSEM-R6E-EOP	3/26/2018 10:00	TE2570	8.45	1050	3.12	668	6.0	238	232	237	4.9	277	5.8	<1.0	73.5	0.360	1.1	197
RSEM-R6E-EOP	3/27/2018 11:15	TE6113	8.47	1070	2.35	628	<4.0	261	266	257	6.7	297	8.0	<1.0	63.0	0.350	1.1	189
RSEM-R6E-EOP	3/28/2018 9:00	TE7732	8.40	1080	1.64	546	<4.0	259	291	268	4.5	316	5.3	<1.0	68.4	0.360	1.0	197
RSEM-R6E-EOP	3/28/2018 9:00	TE7735	8.26	1110	1.53	690	4.5	265	269	267	<1.0	326	<1.0	<1.0	70.4	0.350	1.0	199
RSEM-R6E-EOP	3/29/2018 11:50	TE7726	8.39	1160	1.70	638	<4.0	265	272	279	4.2	330	5.1	<1.0	70.8	0.360	1.1	209
RSEM-R6E-EOP	3/30/2018 13:45	TE9240	8.31	1180	0.57	744	4.0	259	263	283	<1.0	345	<1.0	<1.0	79.2	0.370	1.1	224
RSEM-R6E-EOP	3/31/2018 11:50	TF0121	8.30	1140	9.90	618	5.8	221	228	286	<1.0	349	<1.0	<1.0	72.5	0.340	1.2	219
RSEM-R6E-EOP	4/1/2018 13:55	TF0158	8.35	1210	6.40	774	6.8	253	262	287	2.2	345	2.6	<1.0	74.5	0.370	1.2	249
RSEM-R6E-EOP	4/2/2018 12:00	TF2036	8.19	1260	4.58	784	4.0	273	269	280	<1.0	342	<1.0	<1.0	76.6	0.380	1.2	262
RSEM-R6E-EOP	4/2/2018 12:00	TF2035	8.23	1270	4.89	804	<4.0	283	270	282	<1.0	343	<1.0	<1.0	78.3	0.380	1.2	259
RSEM-R6E-EOP	4/3/2018 11:45	TF4119	8.29	1240	6.46	780	5.8	281	264	276	<1.0	337	<1.0	<1.0	71.0	0.360	1.1	240
RSEM-R6E-EOP	4/4/2018 9:20	TF4122	8.36	1270	5.22	792	4.3	287	262	272	3.3	323	3.9	<1.0	74.7	0.380	1.2	250
RSEM-R6E-EOP	4/5/2018	TF7754	8.35	1300	6.36	852	5.5	239	242	261	3.5	310	4.2	<1.0	92.9	0.400	1.4	298
RSEM-R6E-EOP	4/5/2018 11:40	TF7747	8.37	1310	6.02	794	<4.0	238	238	276	2.7	330	3.2	<1.0	87.5	0.430	1.4	275
RSEM-R6E-EOP	4/6/2018 17:46	TF9865	8.43	1340	9.32	852	5.8	211	216	257	5.7	300	6.8	<1.0	94.3	0.430	1.5	283
RSEM-R6E-EOP	4/7/2018 11:50	TG1019	8.32	1370	7.54	852	4.8	220	214	265	1.9	319	2.3	<1.0	101	0.440	1.5	301
RSEM-R6E-EOP	4/9/2018 15:00	TG2637	8.32	1230	10.5	602	7.0	167	154	249	<1.0	304	<1.0	<1.0	93.3	0.410	1.5	233
RSEM-R6E-EOP	4/10/2018 17:55	TG4217	8.06	704	22.7	376	10.5	161	153	135	<1.0	165	<1.0	<1.0	52.6	0.290	0.82	137
RSEM-R6E-EOP	4/11/2018 15:45	TG5967	8.20	919	13.9	580	7.0	169	168	177	<1.0	216	<1.0	<1.0	62.4	0.350	0.98	198
RSEM-R6E-EOP	4/12/2018 16:45	TG7674	8.26	972	13.6	540	8.0	192	191	180	<1.0	220	<1.0	<1.0	72.5	0.330	1.1	221
RSEM-R6E-EOP	4/13/2018 6:34	TG7678	8.27	1040	14.4	660	8.8	213	203	192	<1.0	234	<1.0	<1.0	75.3	0.560	1.1	217
RSEM-R6E-EOP	4/14/2018 16:15	TH0424	8.1	916	46.6	560	34.5	186	191	128	<1.0	156	<1.0	<1.0	47.1	0.35	0.72	253
RSEM-R6E-EOP	4/15/2018 15:00	TH0429	7.99	807	4.7	542	29	172	175	102	<1.0	125	<1.0	<1.0	40	0.31	0.59	242
RSEM-R6E-EOP	4/16/2018 12:20	TH3029	8.06	959	79.1	560	42.5	166	167	145	<1.0	177	<1.0	<1.0	51.2	0.350	0.83	219
RSEM-R6E-EOP	4/17/2018 11:55	TH3044	8.13	1110	32.1	678	14.8	188	186	155	<1.0	190	<1.0	<1.0	55.7	0.360	0.92	279
RSEM-R6E-EOP	4/18/2018 12:15	TH5886	8.32	1110	24.3	664	17.8	200	192	168	<1.0	205	<1.0	<1.0	66.1	0.350	0.97	259
RSEM-R6E-EOP	4/19/2018 15:40	TH5946	8.26	1040	18.8	634	13.0	198	192	132	<1.0	161	<1.0	<1.0	53.1	0.350	0.78	292
RSEM-R6E-EOP	4/21/2018 16:00	TH8459	8.31	1350	51.9	760	21.5	145	145	132	<1.0	161	<1.0	<1.0	66.3	0.360	1.1	385
RSEM-R6E-EOP	4/24/2018 15:40	TI1788	8.29	1230	30.9	814	10.3	182	170	175	<1.0	213	<1.0	<1.0	55.7	0.340	0.94	272
RSEM-R6E-EOP	4/25/2018 15:55	TI3535	8.25	1150	26.0	718	11.3	194	183	176	<1.0	215	<1.0	<1.0	55.4	0.320	0.92	283
RSEM-R6E-EOP	4/26/2018 12:25	TI3464	8.27	1100	30.2	602	23	188	188	182	<1.0	222	<1.0	<1.0	51.5	0.300	0.90	273
RSEM-R6E-EOP	4/27/2018 9:20	TI4638	8.31	1110	16.4	692	10.5	202	198	192	2.1	229	2.5	<1.0	57.5	0.300	0.89	264
RSEM-R6E-EOP	4/28/2018 13:20	TI5378	8.35	1100	18.1	672	16.5	224	218	215	2.8	256	3.3	<1.0	58.7	0.300	0.91	235
RSEM-R6E-EOP	4/28/2018 13:20	TI5382	8.35	1100	16.7	862	15.0	232	219	215	2.0	258	2.4	<1.0	56.5	0.310	0.91	251
RSEM-R6E-EOP	4/29/2018 13:45	TI7035	8.27	1150	17.4	716	10.8	210	197	217	<1.0	264	<1.0	<1.0	60.5	0.330	1.0	279
RSEM-R6E-EOP	4/29/2018 13:45	TI7033	8.35	1160	16.2	708	11.0	203	210	216	2.3	258	2.7	<1.0	60.8	0.320	1.0	281
RSEM-R6E-EOP	4/30/2018 11:25	TI8577	8.41	1170	6.50	758	12.5	220	216	208	3.8	244	4.6	<1.0	62.3	0.320	1.0	273
RSEM-R6E-EOP	5/1/2018 11:40	TJ1442	8.40	1180	16.4	784	19.3	224	213	212	3.8	250	4.6	<1.0	62.0	0.340	1.0	271
RSEM-R6E-EOP	5/2/2018 9:20	TJ1501	8.27	1180	14.4	758	14.5	224	231	215	<1.0	262	<1.0	<1.0	62.3	0.350	1.1	257
RSEM-R6E-EOP	5/3/2018 12:30	TJ4282	8.36	1160	7.71	802	13.5	223	211	224	3.1	266	3.7	<1.0	25.1	0.180	1.1	262
RSEM-R6E-EOP	5/4/2018 16:30	TJ5495	8.21	1140	6.55	710	15.3	227	223	203	<1.0	248	<1.0	<1.0	65.1	0.350	1.1	244
RSEM-R6E-EOP	5/4/2018 16:30	TJ5494	8.30	1140	5.46	718	<4.0	225	223	205	1.7	246	2.0	<1.0	67.3	0.360	1.0	258
RSEM-R6E-EOP	5/5/2018 12:30	TJ6368	8.24	1100	7.28	858	12.0	233	229	207	<1.0	253	<1.0	<1.0	59.7	0.360	0.99	255
RSEM-R6E-EOP	5/6/2018 14:30	TJ7044	8.32	1100	8.85	726	11.3	244	221	196	1.8	235	2.2	<1.0	60.9	0.390	0.99	244
RSEM-R6E-EOP	5/7/2018 8:30	TJ8507	8.31	1100	5.25	714	9.4	225	223	197	1.9	235	2.2	<1.0	62.2	0.380	0.99	259
RSEM-R6E-EOP	6/26/2018 14:50	TT0847	8.17	1120	38.4	676	31.0	278	266	125	<1.0	152	<1.0	<1.0	93.9	0.610	1.5	252
RSEM-R6E-EOP	6/28/2018 12:30	TT3459	8.00	1330	9.99	872	8.0	295	289	130	<1.0	158	<1.0	<1.0	93.9	0.620	1.8	273
RSEM-R6E-EOP	6/29/2018 10:15	TT6307	8.23	1540	14.6	1000	10.0	278	277	153	<1.0	187	<1.0	<1.0	97.0	0.610	1.8	442
RSEM-R6E-EOP	7/1/2018 0:00	TU0433	8.11	1560	7.71	988	6.0	279	276	177	<1.0	216	<1.0	<1.0	95.4	0.600	1.7	414
RSEM-R6E-EOP	7/2/2018 14:20	TU1417	8.13	1470	19.3	944	16.3	302	306	175	<1.0	214	<1.0	<1.0	103	0.620	1.7	422
RSEM-R6E-EOP	7/3/2018 15:10	TU4426	8.19	1450	10.2	966	8.3	298	312	180	<1.0	219	<1.0	<1.0	96.6	0.620	1.8	396
RSEM-R6E-EOP	7/4/2018 15:30	TU6242	8.23	1450	7.36	956	7.5	313	299	179	<1.0	218	<1.0	<1.0	95.4	0.610	1.6	223
RSEM-R6E-EOP	7/5/2018 11:50	TU8085	8.25	1430	5.72	912	5.0	322	316	188	<1.0	229	<1.0	<1.0	97.9	0.610	1.6	375
RSEM-R6E-EOP	7/6/2018 10:00	TU8089	8.25	1430	7.04	924	6.5	321	310	194	<1.0	237	<1.0	<1.0	96.6	0.640	1.6	341
RSEM-R6E-EOP	7/7/2018 7:15	TV0769	8.26	1440	9.33	930	7.3	307	312	199	<1.0	243	<1.0	<1.0	90.6	0.600	1.7	327
RSEM-R6E-EOP	7/8/2018 9:40	TV1573	8.29	1410	6.94	904	7.5	307	306	198	<1.0	242	<1.0	<1.0	90.3	0.590	1.7	337
RSEM-R6E-EOP	7/9/2018 13:00	TV1646	8.23	1360	15.4	870	13.3	296	299	197	<1.0	240	<1.0	<1.0	90.2	0.550	1.6	326
RSEM-R6E-EOP	7/10/2018 13:25	TV5660	8.22	1360	12.7	854	10.3	288	285	192	<1.0	234	<1.0	<1.0	96.3	0.540	1.6	286
RSEM-R6E-EOP	7/11/2018 11:45	TV9384	8.28	1330	11.4	928	11.3	283	282	199	<1.0	242	<1.0	<1.0	87.2	0.530	1.6	322
RSEM-R6E-EOP	7/12/2018 0:00	TV9383	8.26	1310	11.5	812	14.3	278	277	192	<1.0	234	<1.0	<1.0	88.7	0.510	1.6	306

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	3/23/2018 10:20	TD9507	0.23	0.0804	0.593	0.673	0.0105	2.85	2.79	0.184	0.00122	0.00151	0.115	<0.0001	<0.001	0.112	0.000064	53.3	0.0031	0.00516	0.00164
RSEM-R6E-EOP	3/24/2018 6:45	TE2568	0.26	0.0836	0.717	0.800	<0.0050	2.71	2.11	0.156	0.00123	0.0018	0.111	<0.0001	<0.001	0.119	0.000045	55.5	0.0026	0.0042	0.00144
RSEM-R6E-EOP	3/25/2018 10:05	TE2565	0.30	0.0891	0.743	0.832	0.0168	2.62	2.21	0.19	0.00131	0.00193	0.123	<0.0001	<0.001	0.133	0.000054	63.0	0.0021	0.00377	0.00151
RSEM-R6E-EOP	3/26/2018 10:00	TE2570	0.30	0.0920	0.767	0.859	0.0092	3.69	2.69	0.163	0.00122	0.00199	0.122	<0.0001	<0.001	0.14	0.000054	66.9	0.0022	0.00398	0.00145
RSEM-R6E-EOP	3/27/2018 11:15	TE6113	0.25	0.0941	0.770	0.864	0.0055	2.67	1.49	0.143	0.00121	0.0018	0.136	<0.0001	<0.001	0.151	0.000122	72.7	0.0017	0.00585	0.00142
RSEM-R6E-EOP	3/28/2018 9:00	TE7732	0.29	0.0966	0.724	0.821	0.0076	2.94	2.46	0.101	0.00132	0.00198	0.142	<0.0001	<0.001	0.17	0.000138	72.0	0.0017	0.00641	0.00144
RSEM-R6E-EOP	3/28/2018 9:00	TE7735	0.26	0.0970	0.713	0.810	0.0068	2.66	2.82	0.0913	0.00133	0.00196	0.144	<0.0001	<0.001	0.162	0.000139	74.5	0.0016	0.00628	0.00134
RSEM-R6E-EOP	3/29/2018 11:50	TE7726	0.28	0.100	0.707	0.808	0.0070	3.22	2.74	0.0863	0.00134	0.00202	0.14	<0.0001	<0.001	0.171	0.000152	73.5	0.0016	0.00714	0.00143
RSEM-R6E-EOP	3/30/2018 13:45	TE9240	0.31	0.0835	0.709	0.792	0.0493	3.08	2.93	0.125	0.0015	0.00214	0.144	<0.0001	<0.001	0.175	0.00015	72.3	0.0016	0.00675	0.00157
RSEM-R6E-EOP	3/31/2018 11:50	TF0121	0.32	0.119	0.611	0.731	0.0532	3.23	3.38	0.226	0.00161	0.00228	0.175	<0.0001	<0.001	0.177	0.000096	62.3	0.0015	0.00422	0.00212
RSEM-R6E-EOP	4/1/2018 13:55	TF0158	0.31	0.103	0.655	0.758	0.0531	3.05	2.47	0.248	0.00149	0.00215	0.161	<0.0001	<0.001	0.171	0.000153	71.5	0.0014	0.00661	0.00196
RSEM-R6E-EOP	4/2/2018 12:00	TF2036	0.34	0.103	0.673	0.777	0.0136	2.02	2.05	0.141	0.00144	0.00187	0.15	<0.0001	<0.001	0.18	0.000211	73.9	0.0014	0.0086	0.00199
RSEM-R6E-EOP	4/2/2018 12:00	TF2035	0.28	0.102	0.697	0.799	0.0134	2.68	2.84	0.144	0.00149	0.00196	0.155	<0.0001	<0.001	0.189	0.000212	76.4	0.0015	0.00903	0.00196
RSEM-R6E-EOP	4/3/2018 11:45	TF4119	0.39	0.101	0.577	0.677	0.0084	3.75	2.16	0.196	0.0016	0.00234	0.177	<0.0001	<0.001	0.202	0.000169	76.3	0.0015	0.00838	0.00222
RSEM-R6E-EOP	4/4/2018 9:20	TF4122	0.44	0.102	0.564	0.666	0.0084	3.30	2.61	0.255	0.0017	0.00251	0.185	<0.0001	<0.001	0.218	0.000183	77.8	0.0016	0.00878	0.0022
RSEM-R6E-EOP	4/5/2018	TF7754	0.40	0.109	0.525	0.633	0.0078	1.11	<0.50	0.206	0.00182	0.00264	0.153	<0.0001	<0.001	0.225	0.000158	63.1	0.0015	0.00846	0.00203
RSEM-R6E-EOP	4/5/2018 11:40	TF7747	0.47	0.105	0.455	0.560	0.0196	<0.50	<0.50	0.349	0.0018	0.00255	0.152	<0.0001	<0.001	0.223	0.000158	64.0	0.0016	0.00767	0.00183
RSEM-R6E-EOP	4/6/2018 17:46	TF9865	0.47	0.114	0.483	0.598	0.0059	<0.50	<0.50	0.612	0.00193	0.00275	0.152	<0.0001	<0.001	0.236	0.000134	55.9	0.0021	0.00743	0.00184
RSEM-R6E-EOP	4/7/2018 11:50	TG1019	0.53	0.116	0.545	0.661	0.0051	<0.50	0.65	0.416	0.00196	0.00286	0.153	<0.0001	<0.001	0.234	0.000149	57.0	0.0018	0.00872	0.00192
RSEM-R6E-EOP	4/9/2018 15:00	TG2637	0.47	0.121	0.507	0.628	0.0102	<0.50	<0.50	0.211	0.00197	0.003	0.119	<0.0001	<0.001	0.222	0.000076	45.2	0.0018	0.00391	0.002
RSEM-R6E-EOP	4/10/2018 17:55	TG4217	0.30	0.0570	0.472	0.529	<0.0050	2.46	1.17	0.267	0.00118	0.00146	0.126	<0.0001	<0.001	0.102	0.000059	47.1	0.0036	0.0031	0.00238
RSEM-R6E-EOP	4/11/2018 15:45	TG5967	0.39	0.0865	0.696	0.783	<0.0050	2.31	1.33	0.24	<0.005	0.002	0.119	<0.001	<0.01	<0.5	<0.0001	47.9	<0.01	0.0053	<0.005
RSEM-R6E-EOP	4/12/2018 16:45	TG7674	0.39	0.0917	0.847	0.939	0.0315	2.28	1.69	0.416	0.00151	0.00191	0.154	<0.0001	<0.001	0.151	0.000057	54.7	0.0039	0.00537	0.00227
RSEM-R6E-EOP	4/13/2018 6:34	TG7678	0.35	0.116	0.961	1.08	0.0327	3.04	2.58	0.493	0.00162	0.00222	0.152	<0.0001	<0.001	0.158	0.000057	62.2	0.004	0.00474	0.00217
RSEM-R6E-EOP	4/14/2018 16:15	TH0424	0.38	0.0639	1.55	1.61	<0.0050	2.03	0.82	1.59	0.00126	0.00165	0.149	<0.0001	<0.001	0.119	0.000076	52.3	0.0049	0.00666	0.00291
RSEM-R6E-EOP	4/15/2018 15:00	TH0429	0.38	0.0427	1.01	1.05	<0.0050	1.61	0.81	1.28	0.00091	0.00121	0.155	<0.0001	<0.001	0.097	0.000128	49.2	0.0037	0.00814	0.00306
RSEM-R6E-EOP	4/16/2018 12:20	TH3029	0.47	0.125	1.81	1.94	0.0365	1.32	2.14	2.61	0.0017	0.00277	0.196	0.0001	<0.001	0.144	0.00008	48.4	0.0083	0.00471	0.0038
RSEM-R6E-EOP	4/17/2018 11:55	TH3044	0.59	0.123	2.32	2.44	0.0052	1.91	2.47	1.29	0.0018	0.00232	0.153	<0.0001	<0.001	0.161	0.000085	54.9	0.0068	0.00537	0.0026
RSEM-R6E-EOP	4/18/2018 12:15	TH5886	0.37	0.137	2.28	2.41	0.0092	1.58	1.61	0.723	0.00192	0.00241	0.142	<0.0001	<0.001	0.173	0.000039	59.2	0.0068	0.00281	0.00228
RSEM-R6E-EOP	4/19/2018 15:40	TH5946	0.40	0.103	1.26	1.36	0.0066	1.99	1.36	0.651	0.00142	0.00206	0.118	<0.0001	<0.001	0.145	0.000044	57.1	0.006	0.00383	0.00203
RSEM-R6E-EOP	4/21/2018 16:00	TH8459	0.48	0.190	2.00	2.19	0.0054	1.67	0.74	1.41	0.00173	0.00269	0.127	<0.0001	<0.001	0.166	0.00004	42.0	0.0059	0.00183	0.0024
RSEM-R6E-EOP	4/24/2018 15:40	TI1788	0.44	0.165	2.54	2.71	0.0076	2.87	2.02	0.411	0.00139	0.00214	0.144	<0.0001	<0.001	0.145	0.00003	53.5	0.0037	0.00171	0.00235
RSEM-R6E-EOP	4/25/2018 15:55	TI3535	0.27	0.159	1.84	1.99	<0.0050	5.40	2.24	0.371	0.00133	0.00214	0.147	<0.0001	<0.001	0.144	0.000039	57.3	0.0034	0.00203	0.00225
RSEM-R6E-EOP	4/26/2018 12:25	TI3464	0.33	0.161	1.80	1.96	0.0100	2.07	2.62	0.437	0.00133	0.00223	0.146	<0.0001	<0.001	0.137	0.000052	55.4	0.0034	0.00183	0.00255
RSEM-R6E-EOP	4/27/2018 9:20	TI4638	0.33	0.155	1.77	1.93	0.0071	2.66	1.99	0.472	0.00145	0.00208	0.144	<0.0001	<0.001	0.143	0.000028	59.7	0.0036	0.00151	0.00188
RSEM-R6E-EOP	4/28/2018 13:20	TI5378	0.27	0.157	1.71	1.87	0.0241	2.17	2.27	0.266	0.0015	0.0021	0.147	<0.0001	<0.001	0.143	0.00003	66.4	0.0035	0.00143	0.00194
RSEM-R6E-EOP	4/28/2018 13:20	TI5382	0.30	0.155	1.71	1.86	0.0172	2.03	1.59	0.309	0.00148	0.0022	0.15	<0.0001	<0.001	0.145	0.000031	68.9	0.0038	0.00146	0.00188
RSEM-R6E-EOP	4/29/2018 13:45	TI7035	0.30	0.168	1.66	1.83	0.0064	2.07	1.94	0.55	0.00176	0.0023	0.144	<0.0001	<0.001	0.161	0.000026	61.2	0.0054	0.00126	0.00211
RSEM-R6E-EOP	4/29/2018 13:45	TI7033	0.30	0.170	0.296	0.467	<0.0050	1.88	1.60	0.504	0.00168	0.00218	0.134	<0.0001	<0.001	0.161	0.000025	59.3	0.0052	0.00122	0.00185
RSEM-R6E-EOP	4/30/2018 11:25	TI8577	0.30	0.163	1.69	1.85	<0.0050	1.70	2.09	0.32	0.00183	0.00231	0.145	<0.0001	<0.001	0.171	0.000025	62.9	0.0052	0.00131	0.0019
RSEM-R6E-EOP	5/1/2018 11:40	TJ1442	0.30	0.158	1.68	1.84	<0.0050	13.8	1.97	0.546	0.00191	0.0025	0.145	<0.0001	<0.001	0.156	0.000031	64.1	0.0059	0.00123	0.00196
RSEM-R6E-EOP	5/2/2018 9:20	TJ1501	0.24	0.156	1.62	1.78	<0.0050	2.24	2.48	0.306	0.00188	0.00208	0.139	<0.0001	<0.001	0.169	0.000021	64.5	0.0054	0.00103	0.00162
RSEM-R6E-EOP	5/3/2018 12:30	TJ4282	0.17	0.0077	<0.020	<0.020	<0.0050	2.13	2.08	0.186	0.00183	0.00224	0.134	<0.0001	<0.001	0.148	0.000019	63.8	0.0051	0.00103	0.00145
RSEM-R6E-EOP	5/4/2018 16:30	TJ5495	0.10	0.138	1.52	1.66	<0.0050	1.75	1.84	0.199	0.00174	0.00205	0.126	<0.0001	<0.001	0.149	0.000012	63.9	0.0045	0.00104	0.00133
RSEM-R6E-EOP	5/4/2018 16:30	TJ5494	0.10	0.139	1.52	1.66	<0.0050	2.20	1.73	0.171	0.00172	0.00202	0.124	<0.0001	<0.001	0.148	<0.00001	63.9	0.0044	0.00101	0.00132
RSEM-R6E-EOP	5/5/2018 12:30	TJ6368	0.074	0.125	1.41	1.53	<0.0050	2.35	2.20	0.159	0.0017	0.00187	0.123	<0.0001	<0.001	0.147	0.000011	65.2	0.0044	0.00138	0.0012
RSEM-R6E-EOP	5/6/2018 14:30	TJ7044	0.11	0.118	1.40	1.51	<0.0050	1.78	2.17	0.345	0.00173	0.00198	0.129	<0.0001	<0.001	0.167	0.00001	67.2	0.0045	0.0017	0.00332
RSEM-R6E-EOP	5/7/2018 8:30	TJ8507	0.064	0.111	1.34	1.45	<0.0050	2.13	1.95	0.127	0.00167	0.00188	0.115	<0.0001	<0.001	0.158	<0.00001	61.9	0.0039	0.00126	0.0014
RSEM-R6E-EOP	6/26/2018 14:50	TT0847	0.14	0.116	1.94	2.05	<0.0050	2.38	2.14	1.82	0.00137	0.00199	0.162	<0.0001	<0.001	0.223	0.000102	77.4	0.0075	0.00514	0.00305
RSEM-R6E-EOP	6/28/2018 12:30	TT3459	0.27	0.195	3.50	3.69	<0.0050	2.43	2.04	0.212	0.00155	0.00171	0.137	<0.0001	<0.001	0.256	0.000074	82.7	0.0071	0.00441	0.00184
RSEM-R6E-EOP	6/29/2018 10:15	TT6307	0.44	0.341	5.02	5.36	0.0067	2.39	2.47	0.326	0.00188	0.00204	0.151	<0.0001	<0.001	0.279	0.000081	78.0	0.0083	0.00418	0.00242
RSEM-R6E-EOP	7/1/2018 0:00	TU0433	0.38	0.375	5.19	5.57	<0.0050	2.67	1.97	0.307	0.00186	0.00197	0.144	<0.0001	<0.001	0.291	0.000079	78.4	0.0075	0.0032	0.00208
RSEM-R6E-EOP	7/2/2018 14:20	TU1417	0.34	0.339	4.41	4.75	<0.0050	2.75	1.90	0.7	0.00177	0.00212	0.15	<0.0001	<0.001	0.277	0.000115	83.9	0.0066	0.00458	0.00245
RSEM-R6E-EOP	7/3/2018 15:10	TU4426	0.32	0.336	4.09	4.43	<0.0050	3.20	2.41	0.284	0.00164	0.00192	0.131	<0.0001	<0.001	0.242	0.000121	83.7	0.0056	0.00487	0.00209
RSEM-R6E-EOP	7/4/2018 15:30	TU6242	0.25	0.311	3.88	4.19	<0.0050	3.25	2.42	0.189	0.00173	0.00194	0.135	<0.0001	<0.001	0.274	0.000132	88.5	0.0054	0.00482	0.00213
RSEM-R6E-EOP	7/5/2018 11:50	TU8085	0.26	0.310	1.11	1.42	0.0054	3.09	1.63	0.132	0.00165	0.00195	0.143	<0.0001	<0.001	0.228	0.000111	92.3	0.0051	0.00448	0.00195
RSEM-R6E-EOP	7/6/2018 10:00	TU8089	0.27	0.319	3.77	4.09	0.0102	2.61	1.86	0.17	0.00163	0.00208	0.139	<0.0001	<0.001	0.256	0.000097	92.6	0.0048	0.00379	0.00194
RSEM-R6E-EOP	7/7/2018 7:15	TV0769	0.24	0.310	3.60	3.91	0.0051	2.4	-	0.344	0.00166	0.00212	0.135	<0.0001	<0.001	0.278	0.000084	86.9	0.0048	0.00298	0.00222
RSEM-R6E-EOP	7/8/2018 9:40	TV1573	0.21	0.289	3.64	3.93	<0.0050	-	-	0.36	0.00163	0.002	0.13	<0.0001	<0.001	0.271	0.000053	86.6	0.0041	0.00232	0.00197
RSEM-R6E-EOP	7/9/2018 13:00	TV1646	0.19	0.267	3.35	3.61	0.0115	2.8	2.83	0.463	0.00148	0.00191	0.125	<0.0001	<0.001	0.251	0.000026	83.5	0.0036	0.00194	0.00198
RSEM-R6E-EOP	7/10/2018 13:25	TV5660	0.18	0.251	3.64	3.89	0.0501	2.3	3.7	0.498	0.00153	0.00198	0.128	<0.0001	<0.001	0.245	0.000016	80.4	0.0037	0.00165	0.00213
RSEM-R6E-EOP	7/11/2018 11:45	TV9384	0.15	0.224	2.91	3.13	<0.0050	2.2	3.4	0.254	0.00145	0.00194	0.123	<0.0001	<0.001	0.276	0.000017	77.6	0.0029	0.00131	0.00196
RSEM-R6E-EOP	7/12/2018 0:00	TV9383	0.10	0.247	2.85	3.09	0.0083	1.7	3.4	0.218	0.0014	0.00187	0.118	<0.0001	<0.001	0.266	0.000018	75.0	0.0026	0.00103	0.00179

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	3/23/2018 10:20	TD9507	0.093	<0.0002	0.0326	14.7	0.119	<0.000002	0.0112	0.02	-	3.14	0.00524	3.24	<0.00002	92.8	0.31	50.3	0.000011	<0.005	<0.005	0.00227
RSEM-R6E-EOP	3/24/2018 6:45	TE2568	0.066	<0.0002	0.0347	14.0	0.099	-	0.012	0.0158	-	3.19	0.00575	3.35	<0.00002	99.0	0.275	52.3	0.000011	<0.005	<0.005	0.00243
RSEM-R6E-EOP	3/25/2018 10:05	TE2565	0.067	<0.0002	0.0356	16.5	0.0913	-	0.0123	0.0143	-	3.38	0.00591	3.83	<0.00002	109	0.268	55.3	0.000011	<0.005	<0.005	0.00258
RSEM-R6E-EOP	3/26/2018 10:00	TE2570	0.05	<0.0002	0.0386	17.2	0.0978	<0.000002	0.0127	0.015	-	3.84	0.00559	3.9	<0.00002	127	0.279	60.9	0.000011	<0.005	<0.005	0.00246
RSEM-R6E-EOP	3/27/2018 11:15	TE6113	0.052	<0.0002	0.0383	19.3	0.127	-	0.0117	0.0199	-	3.51	0.00506	4.05	<0.00002	118	0.296	64.3	0.000012	<0.005	<0.005	0.00248
RSEM-R6E-EOP	3/28/2018 9:00	TE7732	0.035	<0.0002	0.042	19.4	0.137	-	0.0121	0.0219	-	3.65	0.00552	4.19	<0.00002	121	0.298	69.7	0.000012	<0.005	<0.005	0.00253
RSEM-R6E-EOP	3/28/2018 9:00	TE7735	0.035	<0.0002	0.0412	19.1	0.134	-	0.0118	0.0215	-	3.43	0.00538	4.36	<0.00002	119	0.3	68.4	0.000012	<0.005	<0.005	0.00251
RSEM-R6E-EOP	3/29/2018 11:50	TE7726	0.034	<0.0002	0.0474	19.9	0.147	-	0.0128	0.0241	-	3.66	0.00553	4.07	<0.00002	136	0.315	75.5	0.000012	<0.005	<0.005	0.00251
RSEM-R6E-EOP	3/30/2018 13:45	TE9240	0.05	<0.0002	0.0464	19.1	0.136	-	0.0127	0.0227	-	3.64	0.00569	4.35	<0.00002	146	0.283	76.7	0.000013	<0.005	<0.005	0.00247
RSEM-R6E-EOP	3/31/2018 11:50	TF0121	0.129	0.00033	0.0407	15.9	0.0908	-	0.0132	0.0147	-	3.27	0.00508	4.42	<0.00002	148	0.246	68.0	0.000014	<0.005	<0.005	0.00232
RSEM-R6E-EOP	4/1/2018 13:55	TF0158	0.111	0.00022	0.0471	18.1	0.133	-	0.0131	0.0224	-	3.60	0.00451	4.63	<0.00002	148	0.297	78.3	0.000015	<0.005	0.0063	0.00243
RSEM-R6E-EOP	4/2/2018 12:00	TF2036	0.065	<0.0002	0.0538	21.4	0.171	-	0.0136	0.0296	-	3.93	0.00454	4.23	<0.00002	164	0.363	93.4	0.000014	<0.005	<0.005	0.0026
RSEM-R6E-EOP	4/2/2018 12:00	TF2035	0.066	<0.0002	0.0556	22.3	0.179	-	0.014	0.0309	-	4.08	0.00478	4.34	<0.00002	171	0.373	95.5	0.000013	<0.005	<0.005	0.00264
RSEM-R6E-EOP	4/3/2018 11:45	TF4119	0.107	<0.0002	0.0506	21.9	0.155	-	0.0144	0.028	-	3.87	0.00446	4.68	<0.00002	175	0.369	96.3	0.000016	<0.005	<0.005	0.00267
RSEM-R6E-EOP	4/4/2018 9:20	TF4122	0.115	<0.0002	0.0578	22.5	0.16	-	0.0161	0.0298	-	4.22	0.00469	4.84	<0.00002	191	0.402	106	0.000016	<0.005	<0.005	0.00285
RSEM-R6E-EOP	4/5/2018	TF7754	0.082	<0.0002	0.059	19.7	0.142	<0.000002	0.0168	0.0287	-	3.67	0.00534	4.07	<0.00002	208	0.333	98.3	0.000015	<0.005	<0.005	0.00296
RSEM-R6E-EOP	4/5/2018 11:40	TF7747	0.124	<0.0002	0.0593	18.9	0.141	-	0.0163	0.0261	-	3.90	0.00498	4.65	<0.00002	196	0.324	108	0.000015	<0.005	0.0062	0.00294
RSEM-R6E-EOP	4/6/2018 17:46	TF9865	0.156	<0.0002	0.0615	17.4	0.126	-	0.0174	0.0258	-	3.66	0.00597	4.57	<0.00002	217	0.324	98.6	0.000016	<0.005	0.0137	0.00289
RSEM-R6E-EOP	4/7/2018 11:50	TG1019	0.118	<0.0002	0.0659	18.9	0.141	-	0.0175	0.0305	-	3.82	0.00624	4.18	<0.00002	227	0.328	104	0.000016	<0.005	0.0109	0.00288
RSEM-R6E-EOP	4/9/2018 15:00	TG2637	0.203	<0.0002	0.0516	13.2	0.0646	-	0.0181	0.015	-	3.37	0.00555	3.69	<0.00002	216	0.282	79.9	0.000014	<0.005	<0.005	0.00254
RSEM-R6E-EOP	4/10/2018 17:55	TG4217	0.385	0.00031	0.0273	10.5	0.0794	-	0.0104	0.0124	-	3.09	0.00362	3.13	<0.00002	87.6	0.285	44.6	0.000014	<0.005	<0.005	0.00175
RSEM-R6E-EOP	4/11/2018 15:45	TG5967	0.261	<0.002	0.041	12.0	0.1	-	0.015	0.02	-	3.08	0.0052	3.31	<0.0002	127	0.285	3480	<0.0001	<0.05	<0.05	0.0021
RSEM-R6E-EOP	4/12/2018 16:45	TG7674	0.393	0.00031	0.0432	13.5	0.116	-	0.0136	0.0191	-	3.31	0.005	3.67	<0.00002	126	0.309	67.7	0.000018	<0.005	0.0094	0.0026
RSEM-R6E-EOP	4/13/2018 6:34	TG7678	0.39	0.00028	0.043	14.0	0.105	-	0.0141	0.0172	-	3.54	0.00567	4.34	<0.00002	134	0.324	67.3	0.000019	<0.005	0.0114	0.00262
RSEM-R6E-EOP	4/14/2018 16:15	TH0424	1.04	0.00115	0.045	13.5	0.152	-	0.0093	0.0244	-	3.38	0.00684	5.63	<0.00002	114	0.322	85.2	0.000034	<0.005	0.0484	0.00244
RSEM-R6E-EOP	4/15/2018 15:00	TH0429	0.979	0.0008	0.04	11.9	0.169	-	0.0062	0.0277	-	2.91	0.00497	4.73	<0.00002	90.9	0.297	76.1	0.000033	<0.005	0.0343	0.002
RSEM-R6E-EOP	4/16/2018 12:20	TH3029	1.58	0.00124	0.0474	11.0	0.125	-	0.0121	0.0169	-	3.85	0.0104	7.79	0.000029	123	0.295	84.6	0.000047	<0.005	0.0712	0.00252
RSEM-R6E-EOP	4/17/2018 11:55	TH3044	0.635	0.00057	0.0545	12.3	0.116	-	0.013	0.0197	-	3.61	0.0117	5.18	<0.00002	155	0.326	106	0.000029	<0.005	0.0306	0.00252
RSEM-R6E-EOP	4/18/2018 12:15	TH5886	0.506	0.00042	0.0456	12.6	0.0835	0.0000048	0.0148	0.0121	-	3.78	0.011	4.66	<0.00002	152	0.339	102	0.000025	<0.005	0.0167	0.00247
RSEM-R6E-EOP	4/19/2018 15:40	TH5946	0.384	0.00035	0.0468	13.5	0.0917	-	0.0133	0.0156	-	3.60	0.00896	4.37	<0.00002	135	0.323	106	0.000022	<0.005	0.0191	0.00229
RSEM-R6E-EOP	4/21/2018 16:00	TH8459	0.912	0.00076	0.0607	9.64	0.0495	-	0.0138	0.0088	-	3.78	0.015	5.36	<0.00002	192	0.273	133	0.000034	<0.005	0.0393	0.00233
RSEM-R6E-EOP	4/24/2018 15:40	TI1788	0.526	0.00046	0.054	11.8	0.0508	0.0000021	0.0119	0.0072	-	3.05	0.0148	3.63	<0.00002	194	0.247	113	0.000021	<0.005	0.0053	0.00229
RSEM-R6E-EOP	4/25/2018 15:55	TI3535	0.484	0.00042	0.0494	12.3	0.0562	0.0000023	0.0115	0.0085	-	2.92	0.013	3.96	<0.00002	164	0.249	110	0.00002	<0.005	0.006	0.00224
RSEM-R6E-EOP	4/26/2018 12:25	TI3464	0.641	0.00049	0.0421	11.9	0.0506	0.0000022	0.0109	0.0075	-	2.87	0.0124	3.73	<0.00002	156	0.239	89.7	0.000023	<0.005	0.0078	0.00216
RSEM-R6E-EOP	4/27/2018 9:20	TI4638	0.38	0.00031	0.0439	12.9	0.044	0.0000023	0.0111	0.0069	-	3.00	0.0122	4.18	<0.00002	152	0.257	93.0	0.00002	<0.005	0.009	0.00224
RSEM-R6E-EOP	4/28/2018 13:20	TI5378	0.328	0.0003	0.0425	14.1	0.0402	0.0000032	0.0116	0.007	-	3.12	0.0112	4.04	<0.00002	148	0.27	87.6	0.000018	<0.005	<0.005	0.00233
RSEM-R6E-EOP	4/28/2018 13:20	TI5382	0.346	0.00031	0.0418	14.5	0.0396	0.0000031	0.0116	0.0069	-	3.12	0.0113	4.37	<0.00002	148	0.267	91.4	0.000018	<0.005	0.0061	0.00228
RSEM-R6E-EOP	4/29/2018 13:45	TI7035	0.416	0.00034	0.0442	13.9	0.036	0.0000023	0.0144	0.0065	-	3.31	0.0116	4.67	<0.00002	160	0.268	90.9	0.000023	<0.005	0.0169	0.00245
RSEM-R6E-EOP	4/29/2018 13:45	TI7033	0.336	0.00029	0.0433	13.3	0.034	0.0000025	0.0138	0.0062	-	3.10	0.0116	4.32	<0.00002	153	0.258	87.9	0.000021	<0.005	0.0108	0.00236
RSEM-R6E-EOP	4/30/2018 11:25	TI8577	0.329	0.00027	0.0448	15.2	0.0346	0.0000021	0.0143	0.0065	-	3.76	0.0126	4.11	<0.00002	176	0.285	97.1	0.00002	<0.005	0.0068	0.00246
RSEM-R6E-EOP	5/1/2018 11:40	TJ1442	0.519	0.00036	0.0464	15.6	0.0351	0.000003	0.0167	0.0063	-	3.88	0.0113	4.98	<0.00002	175	0.335	94.9	0.000022	<0.005	0.0136	0.00258
RSEM-R6E-EOP	5/2/2018 9:20	TJ1501	0.238	0.00024	0.0413	15.2	0.0287	0.0000022	0.0148	0.0058	-	3.68	0.0102	4.23	<0.00002	160	0.279	90.6	0.000018	<0.005	0.0067	0.00248
RSEM-R6E-EOP	5/3/2018 12:30	TJ4282	0.166	<0.0002	0.0418	15.5	0.023	<0.000002	0.0157	0.0061	-	3.37	0.0106	3.88	<0.00002	160	0.338	85.8	0.000016	<0.005	<0.005	0.00261
RSEM-R6E-EOP	5/4/2018 16:30	TJ5495	0.161	<0.0002	0.0402	16.3	0.0214	0.0000027	0.0149	0.0082	-	3.28	0.00976	3.28	<0.00002	146	0.329	81.5	0.000015	<0.005	<0.005	0.00253
RSEM-R6E-EOP	5/4/2018 16:30	TJ5494	0.152	<0.0002	0.0406	16.0	0.0203	0.0000025	0.0147	0.0082	-	3.24	0.00957	3.69	<0.00002	144	0.335	80.8	0.000016	<0.005	<0.005	0.0025
RSEM-R6E-EOP	5/5/2018 12:30	TJ6368	0.115	<0.0002	0.0418	17.2	0.024	<0.000002	0.0141	0.0102	-	3.18	0.00905	3.6	<0.00002	136	0.339	79.6	0.000014	<0.005	<0.005	0.00244
RSEM-R6E-EOP	5/6/2018 14:30	TJ7044	0.157	<0.0002	0.0446	18.6	0.0231	0.000002	0.014	0.0133	-	3.74	0.00849	4.22	<0.00002	147	0.295	88.1	0.000017	<0.005	0.0062	0.00238
RSEM-R6E-EOP	5/7/2018 8:30	TJ8507	0.065	<0.0002	0.0432	17.0	0.0126	<0.000002	0.0136	0.0128	-	3.43	0.00833	3.54	<0.00002	133	0.286	83.3	0.000015	<0.005	<0.005	0.00254
RSEM-R6E-EOP	6/26/2018 14:50	TT0847	1.34	0.00077	0.0551	20.7	0.162	0.000004	0.017	0.023	-	5.68	0.00757	7.69	0.00003	118	0.562	94.1	0.000046	<0.005	0.0709	0.00267
RSEM-R6E-EOP	6/28/2018 12:30	TT3459	0.214	<0.0002	0.0682	21.6	0.133	0.0000029	0.0214	0.021	-	5.91	0.0135	4.23	<0.00002	167	0.631	132	0.000024	<0.005	<0.005	0.00309
RSEM-R6E-EOP	6/29/2018 10:15	TT6307	0.34	0.00029	0.0736	20.1	0.12	0.0000034	0.0266	0.0198	-	6.63	0.0185	4.56	<0.00002	223	0.524	157	0.000028	<0.005	0.0066	0.00329
RSEM-R6E-EOP	7/1/2018 0:00	TU0433	0.2	<0.0002	0.0709	20.2	0.0902	0.0000026	0.0268	0.0179	-	6.55	0.0184	4.7	<0.00002	224	0.497	153	0.000029	<0.005	0.0075	0.00325
RSEM-R6E-EOP	7/2/2018 14:20	TU1417	0.484	0.00034	0.0713	22.3	0.128	<0.000002	0.024	0.0229	-	6.57	0.0144	5.18	<0.00002	197	0.576	132	0.000033	<0.005	0.0187	0.00324
RSEM-R6E-EOP	7/3/2018 15:10	TU4426	0.218	<0.0002	0.0648	21.7	0.12	0.0000023	0.0221	0.0241	-	6.10	0.0125	4.4	<0.00002	185	0.544	127	0.000025	<0.005	0.0087	0.00296
RSEM-R6E-EOP	7/4/2018 15:30	TU6242	0.215	<0.0002	0.0681	22.2	0.109	0.0000025	0.0214	0.0242	-	6.43	0.0134	4.64	<0.00002	191	0.509	129	0.000025	<0.005	<0.005	0.00307
RSEM-R6E-EOP	7/5/2018 11:50	TU8085	0.105	<0.0002	0.0672	22.2	0.0932	<0.000002	0.0212	0.0244	-	6.71	0.0133	4.71	<0.00002	175	0.528	134	0.000025	<0.005	<0.005	0.00309
RSEM-R6E-EOP	7/6/2018 10:00	TU8089	0.141	<0.0002	0.0688	21.7	0.0802	0.0000027	0.0215	0.0222	-	6.72	0.0128	4.99	<0.00002	176	0.519	132	0.000027	<0.005	<0.005	0.00308
RSEM-R6E-EOP	7/7/2018 7:15	TV0769	0.257	0.0002	0.0671	21.8	0.0595	<0.000002	0.0225	0.0199	-	6.35	0.0121	5.58	<0.00002	185	0.565	126	0.000028	<0.005	0.0084	0.00332
RSEM-R6E-EOP	7/8/2018 9:40	TV1573	0.253	<0.0002	0.0627	22.2	0.0431	<0.000002	0.0205	0.0169	-	6.37	0.0111	4.92	<0.00002	188	0.498	126	0.000029	<0.005	0.0092	0.003
RSEM-R6E-EOP	7/9/2018 13:00	TV1646	0.294	0.0002	0.0591	21.2	0.0315	<0.000002	0.0187	0.0148	-	6.11	0.00904	5.14	<0.00002	167	0.469	118	0.000029	<0.005	0.0086	0.00278
RSEM-R6E-EOP	7/10/2018 13:25	TV5660	0.361	0.00022	0.0598	21.2	0.0224	<0.000002	0.0184	0.0146	-	5.82	0.0098	5.01	<0.00002	165	0.457	110	0.000029	<0.005	0.0155	0.00277
RSEM-R6E-EOP	7/11/2018 11:45	TV9384	0.289	0.0002	0.0623	21.6	0.0172	<0.000002	0.0177	0.013	-	5.66	0.00865	4.19	<0.00002	169	0.48	103	0.000023	<0.005	<0.005	0.00284
RSEM-R6E-EOP	7/12/2018 0:00	TV9383	0.25	<0.0002	0.0599	22.1	0.0129	<0.000002	0.0169	0.0116	-	5.44	0.00833	4.09	<0.00002	166	0.465	99.9	0.000024	<0.005	<0.005	0.00277

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	3/23/2018 10:20	TD9507	<0.005	0.0058	0.00012	0.0668	0.00128	0.00156	0.114	<0.0001	<0.001	0.118	0.000062	59.3	0.0028	0.00522	0.00125	<0.01	<0.0002	0.0359	16.0	0.119
RSEM-R6E-EOP	3/24/2018 6:45	TE2568	<0.005	<0.005	<0.0001	0.0636	0.00126	0.00194	0.11	<0.0001	<0.001	0.119	0.000042	56.8	0.0024	0.00413	0.00116	<0.01	<0.0002	0.0346	14.5	0.102
RSEM-R6E-EOP	3/25/2018 10:05	TE2565	<0.005	0.0062	<0.0001	0.0744	0.00127	0.00198	0.115	<0.0001	<0.001	0.137	0.00005	67.6	0.0019	0.00367	0.00111	<0.01	<0.0002	0.0366	16.8	0.0902
RSEM-R6E-EOP	3/26/2018 10:00	TE2570	<0.005	0.0075	0.00015	0.0696	0.00127	0.00207	0.12	<0.0001	<0.001	0.145	0.000053	64.6	0.0019	0.0039	0.00126	<0.01	<0.0002	0.0399	17.2	0.0942
RSEM-R6E-EOP	3/27/2018 11:15	TE6113	<0.005	0.0221	<0.0001	0.0536	0.00127	0.00185	0.138	<0.0001	<0.001	0.151	0.00012	73.7	0.0015	0.00564	0.00125	<0.01	<0.0002	0.0403	20.0	0.124
RSEM-R6E-EOP	3/28/2018 9:00	TE7732	<0.005	0.0257	<0.0001	0.0451	0.00139	0.00195	0.139	<0.0001	<0.001	0.159	0.000137	83.8	0.0015	0.00623	0.00132	<0.01	<0.0002	0.043	19.8	0.133
RSEM-R6E-EOP	3/28/2018 9:00	TE7735	<0.005	0.0251	<0.0001	0.046	0.00135	0.00191	0.139	<0.0001	<0.001	0.154	0.000137	73.1	0.0015	0.00632	0.00127	<0.01	<0.0002	0.043	21.0	0.135
RSEM-R6E-EOP	3/29/2018 11:50	TE7726	<0.005	0.0315	<0.0001	0.0576	0.00139	0.00199	0.135	<0.0001	<0.001	0.167	0.000154	73.9	0.0016	0.00722	0.00134	<0.01	<0.0002	0.046	21.4	0.144
RSEM-R6E-EOP	3/30/2018 13:45	TE9240	<0.005	0.0329	0.00011	0.0305	0.00151	0.00215	0.144	<0.0001	<0.001	0.165	0.000148	72.0	0.0013	0.00645	0.00137	<0.01	<0.0002	0.0472	20.3	0.132
RSEM-R6E-EOP	3/31/2018 11:50	TF0121	<0.005	0.0191	0.00014	0.0256	0.00169	0.00237	0.172	<0.0001	<0.001	0.182	0.000091	64.9	0.0012	0.00424	0.0017	<0.01	<0.0002	0.0422	16.1	0.0931
RSEM-R6E-EOP	4/1/2018 13:55	TF0158	<0.005	0.032	0.00017	0.0303	0.00154	0.00217	0.157	<0.0001	<0.001	0.185	0.000149	74.4	0.0011	0.00653	0.00151	<0.01	<0.0002	0.0487	18.6	0.135
RSEM-R6E-EOP	4/2/2018 12:00	TF2036	<0.005	0.0467	0.00013	0.0339	0.00144	0.00196	0.154	<0.0001	<0.001	0.198	0.000199	73.9	0.0011	0.00842	0.00155	<0.01	<0.0002	0.0558	20.6	0.169
RSEM-R6E-EOP	4/2/2018 12:00	TF2035	<0.005	0.0479	0.00014	0.0325	0.00148	0.00201	0.157	<0.0001	<0.001	0.198	0.000204	73.9	0.0011	0.00859	0.00158	<0.01	<0.0002	0.0537	20.9	0.171
RSEM-R6E-EOP	4/3/2018 11:45	TF4119	<0.005	0.0386	0.00025	0.0402	0.00144	0.00203	0.157	<0.0001	<0.001	0.185	0.000144	72.2	<0.001	0.00691	0.00156	<0.01	<0.0002	0.0464	20.3	0.142
RSEM-R6E-EOP	4/4/2018 9:20	TF4122	<0.005	0.0386	0.00021	0.0448	0.00151	0.00212	0.158	<0.0001	<0.001	0.187	0.00015	70.4	<0.001	0.00711	0.00148	<0.01	<0.0002	0.0504	21.0	0.143
RSEM-R6E-EOP	4/5/2018	TF7754	<0.005	0.0351	0.0002	0.0521	0.0018	0.00239	0.142	<0.0001	<0.001	0.228	0.000151	63.9	0.0013	0.00843	0.00178	<0.05	<0.0002	0.0555	20.1	0.141
RSEM-R6E-EOP	4/5/2018 11:40	TF7747	<0.005	0.033	0.00039	0.0597	0.00179	0.00244	0.146	<0.0001	<0.001	0.235	0.000147	64.0	0.0012	0.00809	0.00156	<0.01	<0.0002	0.0576	19.1	0.138
RSEM-R6E-EOP	4/6/2018 17:46	TF9865	<0.005	0.0263	0.00076	0.0481	0.00196	0.00272	0.14	<0.0001	<0.001	0.24	0.000127	57.3	0.0012	0.00704	0.0014	<0.01	<0.0002	0.0618	17.6	0.122
RSEM-R6E-EOP	4/7/2018 11:50	TG1019	<0.005	0.0322	0.00031	0.0538	0.00196	0.00272	0.142	<0.0001	<0.001	0.242	0.000151	57.2	0.0012	0.00761	0.00156	<0.01	<0.0002	0.0642	17.3	0.135
RSEM-R6E-EOP	4/9/2018 15:00	TG2637	<0.005	0.0192	0.00012	0.0518	0.00194	0.0029	0.108	<0.0001	<0.001	0.234	0.000056	42.0	0.0012	0.00325	0.00142	<0.01	<0.0002	0.0531	12.0	0.0571
RSEM-R6E-EOP	4/10/2018 17:55	TG4217	<0.005	0.0102	0.00018	0.027	0.00119	0.00131	0.112	<0.0001	<0.001	0.112	0.000041	45.9	0.0029	0.00254	0.0012	<0.01	<0.0002	0.0283	9.40	0.0703
RSEM-R6E-EOP	4/11/2018 15:45	TG5967	<0.05	<0.05	<0.001	0.0278	0.00153	0.00173	0.125	<0.0001	<0.001	0.147	0.000068	48.2	0.0029	0.00505	0.00142	<0.01	<0.0002	0.0408	11.5	0.0973
RSEM-R6E-EOP	4/12/2018 16:45	TG7674	<0.005	0.011	0.00023	0.0416	0.00155	0.00157	0.142	<0.0001	<0.001	0.144	0.000044	54.7	0.0031	0.00456	0.00125	<0.01	<0.0002	0.0431	13.3	0.104
RSEM-R6E-EOP	4/13/2018 6:34	TG7678	<0.005	0.0091	0.00037	0.0424	0.00163	0.00199	0.139	<0.0001	<0.001	0.154	0.000044	59.0	0.003	0.00408	0.00141	<0.01	<0.0002	0.042	13.6	0.0931
RSEM-R6E-EOP	4/14/2018 16:15	TH0424	0.0057	0.0115	0.00236	0.0328	0.00124	0.00116	0.103	<0.0001	<0.001	0.116	0.000045	54	0.0026	0.00476	0.00101	<0.01	<0.0002	0.0421	13.7	0.123
RSEM-R6E-EOP	4/15/2018 15:00	TH0429	<0.005	0.03	0.00057	0.0245	0.00083	0.0007	0.113	<0.0001	<0.001	0.097	0.00008	49.6	0.0017	0.00638	0.00107	<0.01	<0.0002	0.0386	12.4	0.141
RSEM-R6E-EOP	4/16/2018 12:20	TH3029	0.0084	0.015	0.00511	0.0172	0.00179	0.00182	0.12	<0.0001	<0.001	0.15	0.000035	49.0	0.0056	0.00319	0.00131	0.024	<0.0002	0.0453	11.0	0.0998
RSEM-R6E-EOP	4/17/2018 11:55	TH3044	<0.005	0.0205	0.00067	0.0219	0.00182	0.00207	0.119	<0.0001	<0.001	0.173	0.000055	54.4	0.0049	0.00469	0.00133	<0.01	<0.0002	0.0541	12.2	0.106
RSEM-R6E-EOP	4/18/2018 12:15	TH5886	<0.005	0.0059	0.00089	0.0329	0.00182	0.00213	0.117	<0.0001	<0.001	0.173	0.000016	56.2	0.0057	0.00196	0.00124	<0.01	<0.0002	0.0465	12.5	0.0653
RSEM-R6E-EOP	4/19/2018 15:40	TH5946	<0.005	0.005	0.00049	0.0347	0.00144	0.00179	0.096	<0.0001	<0.001	0.152	0.000026	55.7	0.005	0.00297	0.0011	<0.01	<0.0002	0.0472	12.9	0.076
RSEM-R6E-EOP	4/21/2018 16:00	TH8459	0.0058	0.0067	0.00074	0.0505	0.00188	0.0023	0.0878	<0.0001	<0.001	0.17	0.000012	41.5	0.0044	0.00081	0.00216	<0.01	<0.0002	0.0643	10.1	0.0223
RSEM-R6E-EOP	4/24/2018 15:40	TI1788	<0.005	0.0057	0.00022	0.0267	0.00144	0.00182	0.11	<0.0001	<0.001	0.135	0.000019	50.4	0.0032	0.0011	0.0013	0.012	<0.0002	0.0524	10.8	0.0385
RSEM-R6E-EOP	4/25/2018 15:55	TI3535	<0.005	0.0053	0.0002	0.0272	0.00132	0.00175	0.119	<0.0001	<0.001	0.143	0.000021	53.6	0.0027	0.00116	0.00166	<0.01	<0.0002	0.0496	11.9	0.0339
RSEM-R6E-EOP	4/26/2018 12:25	TI3464	<0.005	0.0086	0.00016	0.0367	0.0014	0.00179	0.114	<0.0001	<0.001	0.133	0.000017	54.4	0.0027	0.00087	0.00102	<0.01	<0.0002	0.0436	12.8	0.0263
RSEM-R6E-EOP	4/27/2018 9:20	TI4638	<0.005	<0.005	0.00023	0.0322	0.00147	0.00192	0.118	<0.0001	<0.001	0.149	0.000015	57.4	0.0029	0.00096	0.00113	<0.01	<0.0002	0.0444	13.3	0.0309
RSEM-R6E-EOP	4/28/2018 13:20	TI5378	<0.005	0.0053	0.00022	0.0261	0.00144	0.00197	0.127	<0.0001	<0.001	0.141	0.000017	64.9	0.0031	0.00097	0.00139	<0.01	<0.0002	0.0404	13.7	0.0228
RSEM-R6E-EOP	4/28/2018 13:20	TI5382	<0.005	0.0052	0.0002	0.0269	0.00146	0.00193	0.131	<0.0001	<0.001	0.143	0.000019	64.9	0.0033	0.00096	0.00124	<0.01	<0.0002	0.0418	13.8	0.023
RSEM-R6E-EOP	4/29/2018 13:45	TI7035	<0.005	<0.005	0.00048	0.0285	0.00176	0.00202	0.12	<0.0001	<0.001	0.174	0.000013	57.8	0.0043	0.00082	0.0011	<0.01	<0.0002	0.0424	12.8	0.0194
RSEM-R6E-EOP	4/29/2018 13:45	TI7033	<0.005	<0.005	0.0003	0.0288	0.00172	0.00199	0.12	<0.0001	<0.001	0.163	0.000013	62.1	0.0043	0.00079	0.00105	<0.01	<0.0002	0.0442	13.2	0.0191
RSEM-R6E-EOP	4/30/2018 11:25	TI8577	<0.005	<0.005	0.00019	0.0301	0.00181	0.0021	0.123	<0.0001	<0.001	0.156	0.000016	62.6	0.0044	0.00078	0.00112	<0.01	<0.0002	0.0454	14.5	0.0144
RSEM-R6E-EOP	5/1/2018 11:40	TJ1442	<0.005	<0.005	0.00038	0.0288	0.00181	0.00203	0.123	<0.0001	<0.001	0.141	0.000012	61.8	0.0047	0.00063	0.00099	<0.01	<0.0002	0.0409	14.2	0.0121
RSEM-R6E-EOP	5/2/2018 9:20	TJ1501	<0.005	<0.005	0.0002	0.0325	0.00187	0.00198	0.126	<0.0001	<0.001	0.164	0.000014	66.8	0.0053	0.00063	0.0011	<0.01	<0.0002	0.0447	15.6	0.01
RSEM-R6E-EOP	5/3/2018 12:30	TJ4282	<0.005	<0.005	0.00011	0.0255	0.00185	0.00197	0.12	<0.0001	<0.001	0.15	<0.00001	59.0	0.0048	<0.0002	0.00085	<0.01	<0.0002	0.043	15.5	<0.001
RSEM-R6E-EOP	5/4/2018 16:30	TJ5495	<0.005	<0.005	0.00028	0.0281	0.00178	0.00192	0.12	<0.0001	<0.001	0.159	<0.00001	62.2	0.0046	<0.0002	0.00104	<0.01	<0.0002	0.0427	16.6	<0.001
RSEM-R6E-EOP	5/4/2018 16:30	TJ5494	<0.005	<0.005	0.00018	0.0278	0.00176	0.0019	0.12	<0.0001	<0.001	0.154	<0.00001	61.9	0.0046	<0.0002	0.00103	<0.01	<0.0002	0.0411	16.7	0.001
RSEM-R6E-EOP	5/5/2018 12:30	TJ6368	<0.005	<0.005	0.00011	0.0289	0.00171	0.00173	0.117	<0.0001	<0.001	0.155	<0.00001	63.8	0.004	0.00067	0.00101	<0.01	<0.0002	0.0423	17.0	0.004
RSEM-R6E-EOP	5/6/2018 14:30	TJ7044	<0.005	<0.005	0.00027	0.0334	0.00168	0.00185	0.113	<0.0001	<0.001	0.164	<0.00001	61.1	0.0038	0.00086	0.00106	<0.01	<0.0002	0.0442	16.7	0.0042
RSEM-R6E-EOP	5/7/2018 8:30	TJ8507	<0.005	<0.005	0.00016	0.0319	0.00164	0.00195	0.11	<0.0001	<0.001	0.165	<0.00001	60.6	0.0037	0.0006	0.00107	<0.01	<0.0002	0.0434	17.6	0.002
RSEM-R6E-EOP	6/26/2018 14:50	TT0847	0.0071	0.0108	0.00419	0.0659	0.00134	0.00126	0.123	<0.0001	<0.001	0.217	0.000043	74.4	0.0049	0.00331	0.00123	<0.01	<0.0002	0.0539	19.5	0.118
RSEM-R6E-EOP	6/28/2018 12:30	TT3459	<0.005	<0.005	0.00012	0.0621	0.0016	0.00161	0.135	<0.0001	<0.001	0.224	0.000065	81.2	0.0073	0.00367	0.00128	<0.01	<0.0002	0.0635	20.9	0.111
RSEM-R6E-EOP	6/29/2018 10:15	TT6307	<0.005	0.006	0.00017	0.091	0.00185	0.00193	0.136	<0.0001	<0.001	0.283	0.00004	77.4	0.0079	0.00022	0.00141	<0.01	<0.0002	0.0739	20.4	0.002
RSEM-R6E-EOP	7/1/2018 0:00	TU0433	<0.005	0.0053	0.00025	0.0479	0.00186	0.00192	0.136	<0.0001	<0.001	0.286	0.000072	78.2	0.0065	0.00209	0.00145	<0.01	<0.0002	0.0701	19.6	0.0588
RSEM-R6E-EOP	7/2/2018 14:20	TU1417	<0.005	0.0078	0.00067	0.0433	0.00177	0.00181	0.132	<0.0001	<0.001	0.254	0.000085	87.6	0.006	0.00361	0.00175	<0.01	<0.0002	0.0687	21.2	0.0948
RSEM-R6E-EOP	7/3/2018 15:10	TU4426	<0.005	0.0081	0.00023	0.0519	0.00166	0.00183	0.131	<0.0001	<0.001	0.26	0.000109	89.1	0.0058	0.00466	0.00157	<0.01	<0.0002	0.0671	21.6	0.105
RSEM-R6E-EOP	7/4/2018 15:30	TU6242	<0.005	0.008	0.00011	0.053	0.00169	0.00194	0.121	<0.0001	<0.001	0.269	0.000101	82.9	0.0053	0.00276	0.00141	<0.01	<0.0002	0.0671	22.2	0.0479
RSEM-R6E-EOP	7/5/2018 11:50	TU8085	<0.005	0.006	<0.0001	0.061	0.00163	0.0018	0.127	<0.0001	<0.001	0.258	0.000094	89.4	0.0049	0.00269	0.00142	<0.01	<0.0002	0.0645	22.4	0.0506
RSEM-R6E-EOP	7/6/2018 10:00	TU8089	<0.005	<0.005	<0.0001	0.0618	0.00162	0.00197	0.126	<0.0001	<0.001	0.265	0.000077	88.3	0.0046	0.00237	0.00152	<0.01	<0.0002	0.0653	21.7	0.0442
RSEM-R6E-EOP	7/7/2018 7:15	TV0769	<0.005	0.0054	0.00029	0.0635	0.00166	0.00189	0.123	<0.0001	<0.001	0.28	0.000057	88.9	0.0041	0.00207	0.00152	<0.01	<0.0002	0.0675	21.7	0.0367
RSEM-R6E-EOP	7/8/2018 9:40	TV1573	<0.005	<0.005	0.00023	0.0624	0.0016	0.00186	0.12	<0.0001	<0.001	0.273	0.000021	86.6	0.0036	0.00147	0.0013	<0.01	<0.0002	0.0648	21.7	0.0174
RSEM-R6E-EOP	7/9/2018 13:00	TV1646	<0.005	<0.005	0.00048	0.0637	0.00154	0.00178	0.116	<0.0001	<0.001	0.269	<0.00001	82.9	0.0032	0.00103	0.00124	<0.01	<0.0002	0.0619	22.4	0.0062
RSEM-R6E-EOP	7/10/2018 13:25	TV5660	<0.005	<0.005	0.00037	0.0567	0.00153	0.00198	0.116	<0.0001	<0.001	0.235	<0.00001	79.3	0.003	0.001	0.00139	<0.01	<0.0002	0.0573	21.2	0.0067
RSEM-R6E-EOP	7/11/2018 11:45	TV9384	<0.005	<0.005	0.00033	0.0596	0.00156	0.00181	0.118	<0.0001	<0.001	0.284	<0.00001	77.1	0.0026	0.00024	0.0012	<0.01	<0.0002	0.0607	21.8	<0.001
RSEM-R6E-EOP	7/12/2018 0:00	TV9383	<0.005	<0.005	0.00012	0.0577	0.00152	0.00181	0.115	<0.0001	<0.001	0.284	<0.00001	76.5	0.0024	0.00021	0.00124	<0.01	<0.0002	0.0587	21.0	<0.001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	3/23/2018 10:20	TD9507	<0.000002	0.0116	0.0201	-	3.37	0.00542	3.46	<0.00002	102	0.322	55.5	0.00001	<0.005	<0.005	0.00242	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	3/24/2018 6:45	TE2568	-	0.0119	0.0162	-	3.46	0.00594	3.3	<0.00002	104	0.275	55.2	0.000011	<0.005	<0.005	0.00248	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	3/25/2018 10:05	TE2565	-	0.0122	0.0139	-	3.42	0.00595	3.82	<0.00002	111	0.278	59.5	<0.00001	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	3/26/2018 10:00	TE2570	<0.000002	0.0127	0.0141	-	3.82	0.00574	3.76	<0.00002	125	0.292	63.4	0.00001	<0.005	<0.005	0.0025	<0.005	0.0057	<0.0001
RSEM-R6E-EOP	3/27/2018 11:15	TE6113	-	0.0117	0.0197	-	3.74	0.00516	4.26	<0.00002	123	0.297	66.9	0.000011	<0.005	<0.005	0.00244	<0.005	0.0198	<0.0001
RSEM-R6E-EOP	3/28/2018 9:00	TE7732	-	0.0124	0.0217	-	3.65	0.00571	4.73	<0.00002	125	0.306	71.9	0.000011	<0.005	<0.005	0.00249	<0.005	0.0251	<0.0001
RSEM-R6E-EOP	3/28/2018 9:00	TE7735	-	0.0121	0.0221	-	3.73	0.00545	4.23	<0.00002	131	0.291	72.0	0.000012	<0.005	<0.005	0.00249	<0.005	0.0253	<0.0001
RSEM-R6E-EOP	3/29/2018 11:50	TE7726	-	0.0125	0.0249	-	3.88	0.00533	4.08	<0.00002	152	0.296	76.1	0.000013	<0.005	<0.005	0.00253	<0.005	0.0311	<0.0001
RSEM-R6E-EOP	3/30/2018 13:45	TE9240	-	0.0128	0.0221	-	3.71	0.00533	4.34	<0.00002	144	0.293	77.9	0.000012	<0.005	<0.005	0.00255	<0.005	0.0302	<0.0001
RSEM-R6E-EOP	3/31/2018 11:50	TF0121	-	0.0135	0.0146	-	3.27	0.00516	4.06	<0.00002	152	0.249	69.9	0.000011	<0.005	<0.005	0.0024	<0.005	0.0172	<0.0001
RSEM-R6E-EOP	4/1/2018 13:55	TF0158	-	0.0133	0.0222	-	3.66	0.00489	4.52	<0.00002	147	0.303	81.5	0.000012	<0.005	<0.005	0.00248	<0.005	0.03	<0.0001
RSEM-R6E-EOP	4/2/2018 12:00	TF2036	-	0.0129	0.0288	-	3.93	0.00465	4.3	<0.00002	156	0.351	92.3	0.000013	<0.005	<0.005	0.00276	<0.005	0.0429	<0.0001
RSEM-R6E-EOP	4/2/2018 12:00	TF2035	-	0.0132	0.029	-	3.96	0.00475	4.27	<0.00002	152	0.341	89.9	0.000013	<0.005	<0.005	0.00276	<0.005	0.042	<0.0001
RSEM-R6E-EOP	4/3/2018 11:45	TF4119	-	0.0126	0.0239	-	3.43	0.00404	4.08	<0.00002	157	0.31	85.4	0.00001	<0.005	<0.005	0.00241	<0.005	0.0302	<0.0001
RSEM-R6E-EOP	4/4/2018 9:20	TF4122	-	0.0136	0.0244	-	3.54	0.00414	4.04	<0.00002	172	0.319	92.0	0.00001	<0.005	<0.005	0.00253	<0.005	0.0302	<0.0001
RSEM-R6E-EOP	4/5/2018	TF7754	<0.000002	0.0159	0.0289	-	3.55	0.00514	3.66	<0.00002	199	0.324	94.4	0.000012	<0.005	<0.005	0.00291	<0.005	0.0365	<0.0001
RSEM-R6E-EOP	4/5/2018 11:40	TF7747	-	0.016	0.0272	-	3.60	0.00542	3.68	<0.00002	200	0.333	95.5	0.000012	<0.005	<0.005	0.00293	<0.005	0.0273	<0.0001
RSEM-R6E-EOP	4/6/2018 17:46	TF9865	-	0.0172	0.0242	-	3.56	0.00616	3.62	<0.00002	209	0.329	97.4	0.000012	<0.005	<0.005	0.00297	<0.005	0.0215	<0.0001
RSEM-R6E-EOP	4/7/2018 11:50	TG1019	-	0.0176	0.0263	-	3.73	0.0059	3.64	<0.00002	205	0.335	107	0.000012	<0.005	<0.005	0.00299	<0.005	0.0242	<0.0001
RSEM-R6E-EOP	4/9/2018 15:00	TG2637	-	0.0171	0.0122	-	3.15	0.00565	3.61	<0.00002	189	0.272	80.8	0.000011	<0.005	<0.005	0.00255	<0.005	0.0078	<0.0001
RSEM-R6E-EOP	4/10/2018 17:55	TG4217	-	0.0099	0.0104	-	3.02	0.0037	3.01	<0.00002	79.4	0.28	48.3	0.00001	<0.005	<0.005	0.00175	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/11/2018 15:45	TG5967	-	0.013	0.0177	-	3.00	0.00473	3.08	<0.00002	124	0.273	61.6	0.000011	<0.005	<0.005	0.00228	<0.005	0.0127	<0.0001
RSEM-R6E-EOP	4/12/2018 16:45	TG7674	-	0.0136	0.0169	-	3.17	0.00502	3	<0.00002	125	0.304	67.0	0.000011	<0.005	<0.005	0.00257	<0.005	0.0054	<0.0001
RSEM-R6E-EOP	4/13/2018 6:34	TG7678	-	0.0142	0.0153	-	3.36	0.0056	3.26	<0.00002	128	0.318	69.0	0.00001	<0.005	<0.005	0.00248	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/14/2018 16:15	TH0424	-	0.0094	0.0185	-	2.87	0.00664	2.71	<0.00002	117	0.316	81.3	0.000011	<0.005	<0.005	0.00221	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/15/2018 15:00	TH0429	-	0.0064	0.0217	-	2.46	0.00478	2.24	<0.00002	96.3	0.296	74.3	<0.00001	<0.005	<0.005	0.00173	<0.005	0.014	<0.0001
RSEM-R6E-EOP	4/16/2018 12:20	TH3029	-	0.0123	0.0132	-	3.28	0.0107	2.79	<0.00002	127	0.299	85.4	0.000011	<0.005	<0.005	0.00242	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/17/2018 11:55	TH3044	-	0.013	0.0174	-	3.33	0.0122	2.98	<0.00002	154	0.315	108	0.000012	<0.005	<0.005	0.0025	<0.005	0.0112	<0.0001
RSEM-R6E-EOP	4/18/2018 12:15	TH5886	-	0.0148	0.0099	-	3.66	0.0101	3.27	<0.00002	145	0.326	95.7	0.000014	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/19/2018 15:40	TH5946	-	0.0134	0.0135	-	3.46	0.00927	2.86	<0.00002	132	0.33	103	0.000014	<0.005	<0.005	0.0022	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/21/2018 16:00	TH8459	-	0.0149	0.006	-	3.59	0.016	2.62	<0.00002	209	0.283	138	0.000014	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/24/2018 15:40	TI1788	<0.000002	0.0128	0.0055	-	3.04	0.0148	3.06	<0.00002	179	0.244	114	0.000012	<0.005	<0.005	0.0024	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/25/2018 15:55	TI3535	<0.000002	0.0111	0.0066	-	2.81	0.0128	3.03	<0.00002	171	0.241	103	0.000011	<0.005	<0.005	0.00208	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/26/2018 12:25	TI3464	<0.000002	0.0121	0.0053	-	2.74	0.0117	2.99	<0.00002	161	0.265	91.6	0.000012	<0.005	<0.005	0.00212	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/27/2018 9:20	TI4638	<0.000002	0.0122	0.0059	-	2.94	0.0125	3.23	<0.00002	165	0.254	91.6	0.000012	<0.005	<0.005	0.00226	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/28/2018 13:20	TI5378	<0.000002	0.0116	0.0058	-	2.93	0.0104	3.5	<0.00002	145	0.254	86.9	0.000012	<0.005	<0.005	0.00225	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/28/2018 13:20	TI5382	<0.000002	0.0114	0.0059	-	2.93	0.0107	3.69	<0.00002	145	0.254	88.1	0.000011	<0.005	<0.005	0.00226	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/29/2018 13:45	TI7035	<0.000002	0.0145	0.005	-	2.96	0.0118	3.36	<0.00002	157	0.27	87.5	0.000013	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/29/2018 13:45	TI7033	<0.000002	0.0141	0.0053	-	2.97	0.0114	3.4	<0.00002	157	0.263	86.4	0.000015	<0.005	<0.005	0.00248	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	4/30/2018 11:25	TI8577	<0.000002	0.0154	0.0054	-	3.48	0.0117	3.68	<0.00002	170	0.322	96.5	0.000012	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	5/1/2018 11:40	TJ1442	<0.000002	0.0158	0.0048	-	3.60	0.0107	3.63	<0.00002	163	0.31	92.3	0.000012	<0.005	<0.005	0.00236	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	5/2/2018 9:20	TJ1501	<0.000002	0.0154	0.0052	-	3.65	0.0109	3.91	<0.00002	170	0.287	90.1	0.000013	<0.005	<0.005	0.00257	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	5/3/2018 12:30	TJ4282	<0.000002	0.0157	0.005	-	3.37	0.0109	3.34	<0.00002	158	0.315	84.6	0.000013	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	5/4/2018 16:30	TJ5495	<0.000002	0.0139	0.008	-	3.52	0.00933	3.64	<0.00002	152	0.284	86.4	0.000013	<0.005	<0.005	0.00257	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	5/4/2018 16:30	TJ5494	<0.000002	0.014	0.008	-	3.58	0.00987	3.63	<0.00002	154	0.286	88.8	0.000014	<0.005	<0.005	0.0026	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	5/5/2018 12:30	TJ6368	<0.000002	0.0133	0.0103	-	3.45	0.00891	3.51	<0.00002	138	0.288	84.9	0.000013	<0.005	<0.005	0.0025	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	5/6/2018 14:30	TJ7044	<0.000002	0.0133	0.0118	-	3.37	0.00826	3.54	<0.00002	135	0.291	83.6	0.000013	<0.005	<0.005	0.00254	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	5/7/2018 8:30	TJ8507	<0.000002	0.0134	0.0115	-	3.47	0.00822	3.52	<0.00002	136	0.287	86.8	0.000015	<0.005	<0.005	0.00253	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	6/26/2018 14:50	TT0847	<0.000002	0.0165	0.0183	-	4.93	0.00761	3.4	<0.00002	114	0.546	90.1	0.000019	<0.005	<0.005	0.0025	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	6/28/2018 12:30	TT3459	<0.000002	0.0228	0.021	-	6.09	0.0134	3.69	<0.00002	172	0.623	135	0.000018	<0.005	<0.005	0.003	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	6/29/2018 10:15	TT6307	<0.000002	0.0262	0.0156	-	6.48	0.0176	4.03	<0.00002	227	0.526	158	0.000023	<0.005	<0.005	0.00327	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/1/2018 0:00	TU0433	<0.000002	0.0257	0.0162	-	6.24	0.0186	4.18	<0.00002	221	0.488	146	0.000024	<0.005	<0.005	0.00326	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/2/2018 14:20	TU1417	<0.000002	0.0239	0.0218	-	6.14	0.017	4.19	<0.00002	190	0.533	123	0.000024	<0.005	<0.005	0.00344	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/3/2018 15:10	TU4426	<0.000002	0.0224	0.0246	-	6.52	0.0142	4.21	<0.00002	185	0.543	132	0.000024	<0.005	<0.005	0.00324	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/4/2018 15:30	TU6242	<0.000002	0.022	0.0215	-	6.41	0.0132	4.25	<0.00002	188	0.552	133	0.000021	<0.005	<0.005	0.00295	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/5/2018 11:50	TU8085	<0.000002	0.0222	0.0209	-	6.42	0.0126	4.92	<0.00002	175	0.587	128	0.000023	<0.005	<0.005	0.00333	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/6/2018 10:00	TU8089	<0.000002	0.0222	0.0192	-	6.20	0.0124	5	<0.00002	176	0.567	125	0.000025	<0.005	<0.005	0.0033	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/7/2018 7:15	TV0769	<0.000002	0.0213	0.0169	-	6.68	0.0115	4.62	<0.00002	189	0.49	134	0.000024	<0.005	<0.005	0.00304	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/8/2018 9:40	TV1573	<0.000002	0.0205	0.0146	-	6.51	0.0107	4.54	<0.00002	182	0.488	132	0.000023	<0.005	<0.005	0.00294	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/9/2018 13:00	TV1646	<0.000002	0.0191	0.0133	-	6.19	0.00973	4.42	<0.00002	177	0.487	123	0.000024	<0.005	<0.005	0.00281	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/10/2018 13:25	TV5660	<0.000002	0.0199	0.0133	-	5.89	0.00945	4.03	<0.00002	177	0.518	113	0.00002	<0.005	<0.005	0.00282	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/11/2018 11:45	TV9384	<0.000002	0.0191	0.0116	-	6.11	0.009	4.34	<0.00002	170	0.466	115	0.000023	<0.005	<0.005	0.00284	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/12/2018 0:00	TV9383	<0.000002	0.0182	0.0111	-	5.84	0.00854	4.37	<0.00002	164	0.453	113	0.000024	<0.005	<0.005	0.00279	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	7/13/2018 0:00	TV9677	8.24	1290	9.62	714	12.3	283	272	200	<1.0	245	<1.0	<1.0	86.8	0.500	1.6	284
RSEM-R6E-EOP	7/14/2018 12:00	TW3844	8.25	1260	15.2	780	12.5	287	293	191	<1.0	233	<1.0	<1.0	83.8	0.490	1.5	253
RSEM-R6E-EOP	7/15/2018 12:50	TW3841	8.23	1240	10.8	774	8.5	289	292	190	<1.0	231	<1.0	<1.0	83.3	0.490	1.4	284
RSEM-R6E-EOP	7/16/2018 14:15	TW5087	8.26	1240	12.7	764	17.8	304	296	207	<1.0	252	<1.0	<1.0	86.5	0.490	1.5	267
RSEM-R6E-EOP	7/17/2018 8:15	TW5973	8.22	1230	8.16	760	9.0	288	288	202	<1.0	246	<1.0	<1.0	96.8	0.480	1.5	211
RSEM-R6E-EOP	7/18/2018 8:00	TW8362	8.24	1220	13.0	774	11.3	287	279	188	<1.0	230	<1.0	<1.0	86.2	0.500	1.4	264
RSEM-R6E-EOP	7/19/2018 10:15	TX0643	8.31	1180	14.5	734	13.0	278	285	192	1.9	230	2.2	<1.0	85.8	0.490	1.4	310
RSEM-R6E-EOP	7/20/2018 11:15	TX2834	8.20	1060	18.7	644	19.8	288	281	169	<1.0	206	<1.0	<1.0	84.3	0.440	1.2	287
RSEM-R6E-EOP	7/21/2018 8:55	TX5555	8.22	1040	27.2	638	19.8	243	249	139	<1.0	170	<1.0	<1.0	78.0	0.540	1.3	227
RSEM-R6E-EOP	7/22/2018 7:00	TX5557	8.22	1120	9.32	712	8.5	240	244	136	<1.0	165	<1.0	<1.0	80.1	0.570	1.3	270
RSEM-R6E-EOP	7/23/2018 15:46	TX8484	8.13	1100	12.5	698	8.5	247	251	128	<1.0	156	<1.0	<1.0	70.7	0.570	1.3	313
RSEM-R6E-EOP	7/24/2018 17:00	TY1083	8.15	1110	8.59	702	6.3	257	249	134	<1.0	163	<1.0	<1.0	61.8	0.600	1.2	302
RSEM-R6E-EOP	7/25/2018 18:16	TY3337	8.25	1180	7.14	734	4.0	249	257	139	<1.0	170	<1.0	<1.0	65.2	0.560	1.2	297
RSEM-R6E-EOP	7/26/2018 16:00	TY5331	8.17	1220	9.63	762	6.8	244	240	168	<1.0	205	<1.0	<1.0	67.1	0.500	1.2	306
RSEM-R6E-EOP	7/27/2018 6:45	TY5338	8.22	1180	11.3	738	10.0	242	238	175	<1.0	214	<1.0	<1.0	68.7	0.510	1.2	271
RSEM-R6E-EOP	7/28/2018 14:40	TZ1779	8.33	1090	5.39	682	9.3	228	229	175	1.9	209	2.3	<1.0	68.8	0.490	0.99	237
RSEM-R6E-EOP	7/29/2018 12:00	TZ1783	8.33	992	5.79	602	13.8	220	238	181	2.3	215	2.7	<1.0	64.3	0.470	0.85	203
RSEM-R6E-EOP	7/30/2018 10:40	TZ3233	8.01	1560	15.9	920	13.0	445	475	150	<1.0	183	<1.0	<1.0	191	0.460	3.4	266
RSEM-R6E-EOP	7/31/2018 17:50	TZ5900	8.09	1140	12.7	688	18.8	314	332	146	<1.0	178	<1.0	<1.0	140	0.410	1.8	216
RSEM-R6E-EOP	8/1/2018 15:24	TZ8461	8.03	849	13.5	522	12.0	256	259	125	<1.0	153	<1.0	<1.0	99.7	0.310	1.1	149
RSEM-R6E-EOP	8/2/2018 15:50	UA0959	8.01	944	5.15	564	15.0	276	268	135	<1.0	164	<1.0	<1.0	115	0.340	1.5	151
RSEM-R6E-EOP	8/3/2018 12:21	UA1045	8.14	1120	12.7	642	10.0	303	307	153	<1.0	187	<1.0	<1.0	139	0.400	2.0	185
RSEM-R6E-EOP	8/4/2018 16:13	UA3787	8.25	1160	7.92	660	7.3	307	313	166	<1.0	202	<1.0	<1.0	139	0.400	2.0	187
RSEM-R6E-EOP	8/5/2018 15:24	UA3840	8.26	1150	7.99	672	5.8	301	303	172	<1.0	210	<1.0	<1.0	132	0.410	2.0	190
RSEM-R6E-EOP	8/6/2018 16:03	UA3786	8.29	1110	9.12	650	8.8	296	299	182	<1.0	222	<1.0	<1.0	119	0.400	1.7	191
RSEM-R6E-EOP	8/7/2018 11:40	UA4365	8.24	1100	10.9	672	12.3	301	294	186	<1.0	227	<1.0	<1.0	106	0.400	1.6	194
RSEM-R6E-EOP	8/8/2018 8:00	UA6825	8.17	1150	5.34	664	4.8	307	296	198	<1.0	242	<1.0	<1.0	115	0.380	1.6	196
RSEM-R6E-EOP	8/9/2018 12:30	UA9165	8.14	1110	10.6	642	9.0	284	276	198	<1.0	241	<1.0	<1.0	97.6	0.390	1.5	199
RSEM-R6E-EOP	8/10/2018 8:30	UB1623	8.17	1060	7.88	648	7.0	280	285	193	<1.0	235	<1.0	<1.0	98.3	0.390	1.4	192
RSEM-R6E-EOP	8/11/2018 15:35	UB4069	8.13	905	10.2	500	15.0	244	245	187	<1.0	228	<1.0	<1.0	73.2	0.340	0.99	157
RSEM-R6E-EOP	8/12/2018 15:20	UB4559	8.22	839	8.09	482	12.0	227	233	171	<1.0	208	<1.0	<1.0	73.1	0.320	0.89	137
RSEM-R6E-EOP	8/13/2018 11:20	UB4588	8.25	810	6.99	462	7.3	228	234	182	<1.0	222	<1.0	<1.0	65.9	0.310	0.74	128
RSEM-R6E-EOP	8/14/2018 14:17	UC1796	8.18	765	9.64	450	8.3	238	227	191	<1.0	233	<1.0	<1.0	60.7	0.300	0.69	123
RSEM-R6E-EOP	8/15/2018 11:36	UC1591	8.05	739	10.9	432	11.8	224	218	182	<1.0	223	<1.0	<1.0	56.1	0.300	0.65	112
RSEM-R6E-EOP	8/16/2018 8:26	UC2158	8.21	757	7.90	440	7.5	222	213	188	<1.0	230	<1.0	<1.0	61.1	0.310	0.63	112
RSEM-R6E-EOP	8/17/2018 6:00	UC4871	8.20	764	4.97	428	7.0	227	219	184	<1.0	224	<1.0	<1.0	57.9	0.320	0.76	111
RSEM-R6E-EOP	8/18/2018 8:55	UC8575	8.16	799	10.5	456	8.3	201	202	199	<1.0	242	<1.0	<1.0	55.5	0.400	0.78	124
RSEM-R6E-EOP	8/19/2018 12:05	UC8611	8.12	820	7.07	482	11.3	190	191	204	<1.0	249	<1.0	<1.0	60.3	0.350	0.83	119
RSEM-R6E-EOP	8/20/2018 10:35	UD1952	8.24	844	12.1	500	9.8	181	173	211	<1.0	257	<1.0	<1.0	68.2	0.370	0.89	125
RSEM-R6E-EOP	8/21/2018 8:28	UD2059	8.23	829	5.80	474	5.0	193	181	208	<1.0	254	<1.0	<1.0	64.8	0.370	0.81	122
RSEM-R6E-EOP	8/22/2018 10:29	UD5026	8.43	827	9.44	450	8.8	176	177	213	4.5	249	5.4	<1.0	62.2	0.380	0.94	114
RSEM-R6E-EOP	8/23/2018 10:30	UD6752	8.35	748	6.46	444	5.0	165	174	192	2.4	228	2.9	<1.0	57.8	0.360	0.70	103
RSEM-R6E-EOP	8/24/2018 9:32	UD8198	8.34	750	8.55	438	6.0	176	189	206	<1.0	251	<1.0	<1.0	57.4	0.330	0.67	98.9
RSEM-R6E-EOP	8/25/2018 9:30	UE1790	8.31	768	6.03	424	<4.0	191	188	208	1.4	251	1.7	<1.0	53.3	0.350	0.65	110
RSEM-R6E-EOP	8/26/2018 11:00	UE1803	8.44	809	10.3	476	6.5	202	203	233	4.0	275	4.8	<1.0	52.8	0.340	0.68	116
RSEM-R6E-EOP	8/27/2018 10:31	UE2122	8.30	862	12.6	476	7.3	232	220	242	<1.0	295	<1.0	<1.0	63.3	0.340	0.83	109
RSEM-R6E-EOP	8/28/2018 10:40	UE5267	8.40	873	10.6	492	6.3	225	223	254	3.9	301	4.7	<1.0	50.1	0.330	0.80	124
RSEM-R6E-EOP	8/29/2018 12:13	UF1104	8.51	897	8.81	540	<4.0	259	268	265	8.2	303	9.9	<1.0	61.3	0.350	0.83	127
RSEM-R6E-EOP	8/30/2018 9:50	UF1078	8.39	834	9.49	504	<4.0	262	278	264	5.1	310	6.1	<1.0	51.3	0.300	0.67	108
RSEM-R6E-EOP	8/31/2018 8:10	UF3970	8.30	794	8.46	406	11.0	263	268	263	<1.0	321	<1.0	<1.0	42.8	0.290	0.51	97.1
RSEM-R6E-EOP	9/1/2018 3:20	UF6669	8.38	720	5.10	398	10.3	264	245	222	4.3	261	5.1	<1.0	47.5	0.270	0.40	83.6
RSEM-R6E-EOP	9/2/2018 9:15	UF7758	8.26	770	5.97	436	6.3	275	261	249	<1.0	304	<1.0	<1.0	43.3	0.280	0.44	95.8
RSEM-R6E-EOP	9/3/2018 9:30	UF9061	8.21	744	6.04	454	7.3	284	263	239	<1.0	292	<1.0	<1.0	38.8	0.280	0.43	84.9
RSEM-R6E-EOP	9/4/2018 15:00	UG0433	8.09	726	10.3	444	15.5	266	260	242	<1.0	296	<1.0	<1.0	39.8	0.260	0.39	89.1
RSEM-R6E-EOP	9/5/2018 11:55	UG2833	8.21	704	13.1	412	15.8	253	227	231	<1.0	282	<1.0	<1.0	43.3	0.280	0.44	80.0
RSEM-R6E-EOP	9/6/2018 11:00	UG2788	8.14	682	7.84	370	10.5	233	220	218	<1.0	266	<1.0	<1.0	39.4	0.280	0.42	84.6
RSEM-R6E-EOP	9/7/2018 8:30	UG5293	8.23	636	13.8	386	11.0	207	213	195	<1.0	238	<1.0	<1.0	41.7	0.240	0.37	76.4
RSEM-R6E-EOP	9/8/2018 17:00	UG8745	8.08	791	28.4	468	24.8	274	272	120	<1.0	147	<1.0	<1.0	95.1	0.380	1.1	150
RSEM-R6E-EOP	9/9/2018 17:50	UG8717	8.05	1060	15.1	620	8.8	246	231	118	<1.0	144	<1.0	<1.0	80.9	0.550	1.5	275
RSEM-R6E-EOP	9/10/2018 6:40	UH0970	8.05	1030	11.9	626	5.3	222	234	116	<1.0	142	<1.0	<1.0	68.2	0.530	1.1	232
RSEM-R6E-EOP	9/11/2018 10:58	UH0968	8.08	1000	20.1	604	12.5	201	208	128	<1.0	156	<1.0	<1.0	74.2	0.460	1.1	228
RSEM-R6E-EOP	9/12/2018 10:35	UH7645	8.05	777	12.8	454	8.3	180	183	125	<1.0	153	<1.0	<1.0	55.4	0.380	0.74	168
RSEM-R6E-EOP	9/13/2018 12:30	UH7734	8.03	765	10.7	432	7.0	189	192	136	<1.0	166	<1.0	<1.0	62.8	0.340	0.72	142

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	7/13/2018 0:00	TV9677	0.13	0.203	2.86	3.06	0.0100	1.7	2.1	0.202	0.00141	0.00187	0.119	<0.0001	<0.001	0.269	0.000015	76.1	0.0026	0.00085	0.00184
RSEM-R6E-EOP	7/14/2018 12:00	TW3844	0.057	0.173	2.80	2.97	<0.0050	2.3	2.2	0.237	0.00137	0.00173	0.124	<0.0001	<0.001	0.23	0.00002	77.6	0.0025	0.00102	0.00188
RSEM-R6E-EOP	7/15/2018 12:50	TW3841	0.11	0.156	2.97	3.12	<0.0050	2.2	2.5	0.233	0.00139	0.00169	0.127	<0.0001	<0.001	0.225	0.000013	77.6	0.0023	0.00089	0.00179
RSEM-R6E-EOP	7/16/2018 14:15	TW5087	0.098	0.141	2.65	2.80	<0.0050	2.4	2.4	0.295	0.00148	0.00186	0.135	<0.0001	<0.001	0.266	0.000025	81.8	0.0023	0.00103	0.00191
RSEM-R6E-EOP	7/17/2018 8:15	TW5973	0.091	0.135	2.92	3.06	<0.0050	2.6	2.6	0.243	0.00146	0.00175	0.127	<0.0001	<0.001	0.281	0.000016	78.0	0.0022	0.00077	0.00175
RSEM-R6E-EOP	7/18/2018 8:00	TW8362	0.083	0.115	2.57	2.69	<0.0050	1.1	2.1	0.258	0.00143	0.00179	0.131	<0.0001	<0.001	0.263	0.000012	78.0	0.0022	0.00077	0.00184
RSEM-R6E-EOP	7/19/2018 10:15	TX0643	0.093	0.101	2.57	2.67	0.0521	1.8	1.8	0.227	0.0013	0.00163	0.126	<0.0001	<0.001	0.234	0.000016	74.3	0.0019	0.00082	0.00184
RSEM-R6E-EOP	7/20/2018 11:15	TX2834	0.088	0.0832	1.91	1.99	0.0429	2.4	2.2	0.959	0.00109	0.00148	0.136	<0.0001	<0.001	0.225	0.00004	82.0	0.0024	0.00112	0.00206
RSEM-R6E-EOP	7/21/2018 8:55	TX5555	0.18	0.0852	2.11	2.20	0.0131	2.3	2.6	0.854	0.00131	0.00159	0.151	<0.0001	<0.001	0.2	0.000053	68.7	0.0053	0.00249	0.00241
RSEM-R6E-EOP	7/22/2018 7:00	TX5557	0.081	0.119	2.51	2.63	0.0089	2.0	2.0	0.319	0.00145	0.00144	0.145	<0.0001	<0.001	0.216	0.000034	67.5	0.0065	0.00227	0.00159
RSEM-R6E-EOP	7/23/2018 15:46	TX8484	0.12	0.139	2.88	3.02	<0.0050	2.3	2.5	0.454	0.00148	0.00144	0.156	<0.0001	<0.001	0.216	0.000038	70.1	0.0075	0.00248	0.00183
RSEM-R6E-EOP	7/24/2018 17:00	TY1083	0.24	0.159	3.32	3.48	<0.0050	1.9	1.5	0.215	0.00148	0.00136	0.16	<0.0001	<0.001	0.187	0.000037	72.7	0.0075	0.00271	0.00165
RSEM-R6E-EOP	7/25/2018 18:16	TY3337	0.16	0.195	3.28	3.47	<0.0050	1.6	1.7	0.221	0.00158	0.00163	0.164	<0.0001	<0.001	0.233	0.000031	70.1	0.0077	0.00205	0.00145
RSEM-R6E-EOP	7/26/2018 16:00	TY5331	0.22	0.307	3.98	4.29	0.0063	2.3	2.0	0.361	0.00169	0.00214	0.168	<0.0001	<0.001	0.256	0.000026	68.5	0.008	0.00168	0.00184
RSEM-R6E-EOP	7/27/2018 6:45	TY5338	0.19	0.320	3.67	3.99	0.0106	2.3	1.7	0.403	0.00164	0.00206	0.17	<0.0001	<0.001	0.28	0.000026	67.9	0.007	0.00138	0.00217
RSEM-R6E-EOP	7/28/2018 14:40	TZ1779	0.14	0.281	3.18	3.46	0.0074	2.7	3.8	0.293	0.00149	0.00187	0.172	<0.0001	<0.001	0.235	0.00002	64.0	0.0056	0.00093	0.00156
RSEM-R6E-EOP	7/29/2018 12:00	TZ1783	0.14	0.256	2.48	2.73	<0.0050	2.8	3.8	0.398	0.00129	0.00172	0.171	<0.0001	<0.001	0.226	0.000025	61.3	0.0044	0.00086	0.00166
RSEM-R6E-EOP	7/30/2018 10:40	TZ3233	0.20	0.257	2.09	2.35	<0.0050	2.7	3.5	0.62	0.00149	0.00163	0.223	<0.0001	<0.001	0.246	0.000112	142	0.0061	0.00197	0.00194
RSEM-R6E-EOP	7/31/2018 17:50	TZ5900	<0.020	0.195	1.66	1.85	0.0053	1.4	2.4	0.41	0.00113	0.00143	0.165	<0.0001	<0.001	0.231	0.000054	96.9	0.0045	0.00116	0.00168
RSEM-R6E-EOP	8/1/2018 15:24	TZ8461	0.027	0.124	1.03	1.15	<0.0050	2.2	2.9	0.524	0.00072	0.00108	0.14	<0.0001	<0.001	0.197	0.00003	78.3	0.0033	0.00071	0.00137
RSEM-R6E-EOP	8/2/2018 15:50	UA0959	0.21	0.148	1.08	1.23	<0.0050	3.09	2.85	0.494	0.00099	0.00149	0.337	<0.0001	<0.001	0.225	0.000026	83.8	0.0032	0.00068	0.00168
RSEM-R6E-EOP	8/3/2018 12:21	UA1045	0.24	0.230	1.28	1.51	0.0185	2.98	3.47	0.648	0.00145	0.00207	0.458	<0.0001	<0.001	0.244	0.000028	92.5	0.0035	0.00078	0.00175
RSEM-R6E-EOP	8/4/2018 16:13	UA3787	0.18	0.226	1.28	1.51	<0.0050	2.52	2.64	0.276	0.00142	0.00199	0.402	<0.0001	<0.001	0.224	0.000029	94.2	0.0029	0.00072	0.00157
RSEM-R6E-EOP	8/5/2018 15:24	UA3840	0.17	0.216	1.29	1.50	<0.0050	3.37	3.02	0.247	0.0015	0.00201	0.388	<0.0001	<0.001	0.231	0.000021	89.0	0.0029	0.00074	0.00174
RSEM-R6E-EOP	8/6/2018 16:03	UA3786	0.16	0.194	1.26	1.45	0.0082	2.70	2.94	0.426	0.00138	0.00175	0.323	<0.0001	<0.001	0.212	0.000026	88.0	0.0029	0.00068	0.00177
RSEM-R6E-EOP	8/7/2018 11:40	UA4365	0.11	0.189	1.34	1.53	<0.0050	2.94	3.37	0.283	0.00145	0.00182	0.346	<0.0001	<0.001	0.213	0.000026	87.5	0.0028	0.00063	0.00187
RSEM-R6E-EOP	8/8/2018 8:00	UA6825	0.11	0.187	1.49	1.67	<0.0050	3.46	3.54	0.135	0.00157	0.00176	0.372	<0.0001	<0.001	0.221	0.000017	87.4	0.0027	0.00055	0.00169
RSEM-R6E-EOP	8/9/2018 12:30	UA9165	0.11	0.160	1.44	1.60	<0.0050	2.64	2.64	0.257	0.00163	0.0019	0.365	<0.0001	<0.001	0.203	0.000021	81.3	0.0027	0.00061	0.00198
RSEM-R6E-EOP	8/10/2018 8:30	UB1623	0.11	0.140	1.38	1.52	0.0071	3.41	3.57	0.235	0.00168	0.00182	0.364	<0.0001	<0.001	0.206	0.000018	79.9	0.0023	0.00063	0.00192
RSEM-R6E-EOP	8/11/2018 15:35	UB4069	<0.020	0.0875	0.985	1.07	<0.0050	2.90	2.45	0.451	0.00124	0.00167	0.297	<0.0001	<0.001	0.195	0.000026	68.9	0.0021	0.00064	0.00202
RSEM-R6E-EOP	8/12/2018 15:20	UB4559	0.040	0.0820	0.860	0.942	0.0068	3.26	2.90	0.386	0.00111	0.00132	0.276	<0.0001	<0.001	0.192	0.000031	64.4	0.0017	0.0005	0.0017
RSEM-R6E-EOP	8/13/2018 11:20	UB4588	0.027	0.0671	0.832	0.899	0.0167	3.72	2.90	0.41	0.00099	0.00123	0.26	<0.0001	<0.001	0.168	0.000019	64.4	0.0016	0.00047	0.00279
RSEM-R6E-EOP	8/14/2018 14:17	UC1796	<0.020	0.0477	0.759	0.807	0.0050	2.99	3.14	0.402	0.00091	0.00123	0.256	<0.0001	<0.001	0.175	0.000017	67.8	0.0014	0.0005	0.0016
RSEM-R6E-EOP	8/15/2018 11:36	UC1591	<0.020	0.0542	0.776	0.830	<0.0050	3.07	4.31	0.846	0.00096	0.00128	0.28	<0.0001	<0.001	0.171	0.000014	62.8	0.0019	0.00051	0.00226
RSEM-R6E-EOP	8/16/2018 8:26	UC2158	<0.020	0.0605	0.757	0.818	0.0077	4.55	2.85	0.337	0.00103	0.0015	0.317	<0.0001	<0.001	0.19	0.000011	63.8	0.0012	0.00041	0.00336
RSEM-R6E-EOP	8/17/2018 6:00	UC4871	0.049	0.0686	0.788	0.857	0.0051	2.94	2.96	0.21	0.0011	0.00152	0.347	<0.0001	<0.001	0.191	<0.00001	64.2	0.0012	0.00037	0.00311
RSEM-R6E-EOP	8/18/2018 8:55	UC8575	0.042	0.0788	0.865	0.944	<0.0050	3.03	2.60	0.556	0.00131	0.0018	0.519	<0.0001	<0.001	0.19	<0.00001	56.4	0.0014	0.00039	0.00386
RSEM-R6E-EOP	8/19/2018 12:05	UC8611	0.10	0.100	0.939	1.04	0.0086	2.76	2.36	0.438	0.00153	0.00207	0.604	<0.0001	<0.001	0.193	<0.00001	52.6	0.0013	0.00039	0.00411
RSEM-R6E-EOP	8/20/2018 10:35	UD1952	0.24	0.111	0.986	1.10	<0.0050	2.87	2.09	0.473	0.00161	0.00195	0.644	<0.0001	<0.001	0.2	0.000055	49.0	0.0013	0.00044	0.00435
RSEM-R6E-EOP	8/21/2018 8:28	UD2059	0.12	0.104	0.946	1.05	<0.0050	2.03	1.74	0.107	0.00157	0.00183	0.594	<0.0001	<0.001	0.208	<0.00001	53.1	<0.001	0.0004	0.004
RSEM-R6E-EOP	8/22/2018 10:29	UD5026	0.30	0.105	0.938	1.04	<0.0050	3.66	2.70	0.346	0.0017	0.00229	0.557	<0.0002	<0.002	0.208	<0.00002	48.1	<0.002	0.00043	0.004
RSEM-R6E-EOP	8/23/2018 10:30	UD6752	0.26	0.0962	0.822	0.918	0.0076	2.80	2.73	0.17	0.00145	0.00202	0.453	<0.0001	<0.001	0.209	<0.00001	45.5	<0.001	0.00034	0.0031
RSEM-R6E-EOP	8/24/2018 9:32	UD8198	0.23	0.0853	0.804	0.890	0.0092	3.55	2.31	0.316	0.0013	0.00197	0.395	<0.0001	<0.001	0.206	<0.00001	47.7	<0.001	0.00036	0.00274
RSEM-R6E-EOP	8/25/2018 9:30	UE1790	0.15	0.0808	0.824	0.905	<0.0050	2.90	2.62	0.12	0.00137	0.00215	0.406	<0.0001	<0.001	0.168	<0.00001	52.1	<0.001	0.00036	0.00246
RSEM-R6E-EOP	8/26/2018 11:00	UE1803	0.13	0.0842	0.825	0.909	<0.0050	2.80	1.46	0.768	0.00139	0.00202	0.397	<0.0001	<0.001	0.193	0.000015	54.6	0.0014	0.00061	0.00232
RSEM-R6E-EOP	8/27/2018 10:31	UE2122	0.16	0.0875	0.834	0.922	<0.0050	2.75	1.70	0.879	0.0015	0.00206	0.427	<0.0001	<0.001	0.201	0.00002	62.6	0.0015	0.00094	0.00303
RSEM-R6E-EOP	8/28/2018 10:40	UE5267	0.083	0.0836	0.841	0.925	<0.0050	3.46	2.81	0.177	0.00137	0.00193	0.39	<0.0001	<0.001	0.162	0.000017	60.8	<0.001	0.00082	0.00202
RSEM-R6E-EOP	8/29/2018 12:13	UF1104	0.30	0.0725	0.677	0.750	0.0104	2.3	3.07	0.383	0.00124	0.00198	0.378	<0.0001	<0.001	0.158	0.000019	70.6	0.0013	0.00094	0.00193
RSEM-R6E-EOP	8/30/2018 9:50	UF1078	0.19	0.0616	0.587	0.649	0.0122	2.8	2.18	0.304	0.00102	0.00174	0.357	<0.0001	<0.001	0.135	0.000017	72.9	0.0014	0.00075	0.00174
RSEM-R6E-EOP	8/31/2018 8:10	UF3970	0.083	0.0504	0.587	0.637	0.0159	3.0	2.42	0.617	0.00091	0.00187	0.349	<0.0001	<0.001	0.125	0.000023	73.7	0.0014	0.0008	0.00157
RSEM-R6E-EOP	9/1/2018 3:20	UF6669	0.038	0.0388	0.533	0.572	<0.0050	3.11	1.62	0.33	0.00071	0.00144	0.269	<0.0001	<0.001	0.152	0.000022	74.5	0.0011	0.0007	0.00184
RSEM-R6E-EOP	9/2/2018 9:15	UF7758	0.10	0.0438	0.562	0.606	0.0083	3.6	2.6	0.147	0.00079	0.00144	0.286	<0.0001	<0.001	0.144	0.000022	76.4	<0.001	0.0006	0.00155
RSEM-R6E-EOP	9/3/2018 9:30	UF9061	0.038	0.0426	0.543	0.586	<0.0050	3.3	2.7	0.195	0.00071	0.00133	0.279	<0.0001	<0.001	0.139	0.000015	79.3	<0.001	0.00052	0.0014
RSEM-R6E-EOP	9/4/2018 15:00	UG0433	0.071	0.0419	0.535	0.577	0.0058	2.7	1.9	0.347	0.00071	0.00138	0.279	<0.0001	<0.001	0.117	0.000016	73.7	0.0013	0.00051	0.00124
RSEM-R6E-EOP	9/5/2018 11:55	UG2833	0.11	0.0434	0.569	0.613	0.0145	3.0	3.9	0.425	0.00071	0.00134	0.279	<0.0001	<0.001	0.133	0.000015	71.5	0.0014	0.00052	0.00145
RSEM-R6E-EOP	9/6/2018 11:00	UG2788	0.064	0.0383	0.543	0.582	<0.0050	2.3	1.8	0.22	0.00067	0.00118	0.249	<0.0001	<0.001	0.129	<0.00001	65.4	0.001	0.00041	0.00129
RSEM-R6E-EOP	9/7/2018 8:30	UG5293	0.086	0.0304	0.551	0.582	<0.0050	2.5	2.0	0.417	0.0006	0.00106	0.211	<0.0001	<0.001	0.117	0.000016	56.2	0.0011	0.00043	0.00133
RSEM-R6E-EOP	9/8/2018 17:00	UG8745	0.15	0.0388	0.749	0.788	<0.0050	1.8	2.0	1.34	0.00062	0.0011	0.207	<0.0001	<0.001	0.095	0.000091	84.9	0.0039	0.00263	0.00207
RSEM-R6E-EOP	9/9/2018 17:50	UG8717	0.43	0.137	1.80	1.94	<0.0050	3.2	2.6	0.716	0.0014	0.0023	0.251	<0.0001	<0.001	0.161	0.000053	73.4	0.0083	0.00283	0.00194
RSEM-R6E-EOP	9/10/2018 6:40	UH0970	0.45	0.135	1.63	1.76	0.0120	3.0	2.5	0.241	0.00133	0.002	0.236	<0.0001	<0.001	0.156	0.000046	66.2	0.0071	0.00238	0.00175
RSEM-R6E-EOP	9/11/2018 10:58	UH0968	0.41	0.212	1.72	1.93	<0.0050	2.7	2.6	0.332	0.00142	0.00236	0.222	<0.0001	<0.001	0.156	0.000052	58.5	0.0075	0.00191	0.00249
RSEM-R6E-EOP	9/12/2018 10:35	UH7645	0.21	0.134	1.27	1.41	0.0185	2.3	2.8	0.413	0.00082	0.00129	0.157	<0.0001	<0.001	0.112	0.000048	51.9	0.0049	0.00179	0.0019
RSEM-R6E-EOP	9/13/2018 12:30	UH7734	0.20	0.120	1.29	1.41	0.0160	2.5	2.8	0.369	0.00079	0.00112	0.155	<0.0001	<0.001	0.115	0.00006	53.8	0.0043	0.00218	0.00173

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	7/13/2018 0:00	TV9677	0.205	<0.0002	0.0622	22.5	0.0104	<0.000002	0.0171	0.0111	-	5.57	0.00824	4.23	<0.00002	169	0.485	102	0.000023	<0.005	<0.005	0.00285
RSEM-R6E-EOP	7/14/2018 12:00	TW3844	0.281	0.00021	0.0547	22.7	0.0258	<0.000002	0.0159	0.0108	-	5.26	0.00685	3.99	<0.00002	160	0.499	91.4	0.000024	<0.005	<0.005	0.00258
RSEM-R6E-EOP	7/15/2018 12:50	TW3841	0.191	<0.0002	0.0531	23.2	0.0204	0.0000025	0.0164	0.0103	-	5.44	0.00675	4.05	<0.00002	163	0.513	92.3	0.000023	<0.005	<0.005	0.00261
RSEM-R6E-EOP	7/16/2018 14:15	TW5087	0.351	0.00022	0.0569	24.3	0.0248	<0.000002	0.0171	0.0104	-	5.47	0.0069	4.65	<0.00002	169	0.532	99.3	0.000025	<0.005	0.0055	0.00287
RSEM-R6E-EOP	7/17/2018 8:15	TW5973	0.183	<0.0002	0.0516	22.7	0.0151	<0.000002	0.0163	0.0098	-	5.70	0.0071	4.49	<0.00002	160	0.497	103	0.000025	<0.005	<0.005	0.00278
RSEM-R6E-EOP	7/18/2018 8:00	TW8362	0.266	<0.0002	0.0548	22.3	0.016	<0.000002	0.0162	0.0093	-	5.74	0.00677	4.74	<0.00002	156	0.534	97.7	0.000024	<0.005	<0.005	0.00286
RSEM-R6E-EOP	7/19/2018 10:15	TX0643	0.376	0.00024	0.0505	22.4	0.0166	0.0000029	0.0148	0.0089	-	5.18	0.00582	4.2	<0.00002	150	0.501	92.3	0.000023	<0.005	<0.005	0.00262
RSEM-R6E-EOP	7/20/2018 11:15	TX2834	0.796	0.00041	0.0453	20.3	0.052	0.0000026	0.0114	0.0085	-	5.36	0.00444	5.55	<0.00002	109	0.529	83.0	0.000034	<0.005	0.0293	0.00253
RSEM-R6E-EOP	7/21/2018 8:55	TX5555	0.709	0.00047	0.0457	17.4	0.102	0.000003	0.015	0.0125	-	5.32	0.00534	5.34	<0.00002	111	0.496	84.3	0.000028	<0.005	0.0223	0.00254
RSEM-R6E-EOP	7/22/2018 7:00	TX5557	0.177	<0.0002	0.0509	17.2	0.0856	<0.000002	0.0178	0.0124	-	5.74	0.00696	3.99	<0.00002	132	0.51	96.7	0.000017	<0.005	<0.005	0.00255
RSEM-R6E-EOP	7/23/2018 15:46	TX8484	0.306	0.00021	0.0532	17.4	0.105	0.000002	0.0179	0.0133	-	6.04	0.00747	4.56	<0.00002	121	0.533	97.7	0.000024	<0.005	0.0107	0.00292
RSEM-R6E-EOP	7/24/2018 17:00	TY1083	0.14	<0.0002	0.0508	18.3	0.0762	<0.000002	0.018	0.0153	-	6.29	0.00842	4.03	<0.00002	130	0.499	103	0.000018	<0.005	<0.005	0.00278
RSEM-R6E-EOP	7/25/2018 18:16	TY3337	0.128	<0.0002	0.0605	17.9	0.053	<0.000002	0.0196	0.0122	-	6.56	0.00965	4.54	<0.00002	146	0.539	111	0.000015	<0.005	<0.005	0.00304
RSEM-R6E-EOP	7/26/2018 16:00	TY5331	0.22	<0.0002	0.0557	17.8	0.045	<0.000002	0.0224	0.0098	-	6.27	0.0113	4.76	<0.00002	168	0.473	114	0.000022	<0.005	0.0063	0.00292
RSEM-R6E-EOP	7/27/2018 6:45	TY5338	0.264	0.00022	0.0532	17.5	0.0346	0.000002	0.0217	0.0085	-	5.83	0.0107	4.79	<0.00002	160	0.443	106	0.000022	<0.005	0.0113	0.00269
RSEM-R6E-EOP	7/28/2018 14:40	TZ1779	0.179	<0.0002	0.046	16.6	0.0215	0.0000021	0.0192	0.0062	-	5.21	0.00852	4.43	<0.00002	134	0.387	85.1	0.000019	<0.005	0.0061	0.00248
RSEM-R6E-EOP	7/29/2018 12:00	TZ1783	0.304	0.00026	0.0389	16.2	0.0214	<0.000002	0.016	0.0055	-	4.49	0.00651	4.45	<0.00002	111	0.345	68.6	0.00002	<0.005	0.009	0.00216
RSEM-R6E-EOP	7/30/2018 10:40	TZ3233	0.474	0.00031	0.0546	22.1	0.127	0.0000037	0.017	0.0114	-	8.68	0.00709	4.37	<0.00002	120	2.03	97.2	0.000045	<0.005	0.0253	0.00234
RSEM-R6E-EOP	7/31/2018 17:50	TZ5900	0.426	0.00028	0.0406	17.5	0.0627	0.0000026	0.014	0.0068	-	6.09	0.00513	3.96	<0.00002	93.5	1.09	68.7	0.000032	<0.005	0.0119	0.00163
RSEM-R6E-EOP	8/1/2018 15:24	TZ8461	0.36	0.00023	0.0246	14.7	0.043	<0.000002	0.0103	0.0036	-	4.90	0.00288	3.82	<0.00002	64.5	0.651	46.6	0.000029	<0.005	0.0123	0.00114
RSEM-R6E-EOP	8/2/2018 15:50	UA0959	0.295	<0.0002	0.0299	16.3	0.0409	<0.000002	0.0132	0.0039	-	4.99	0.00372	3.39	<0.00002	84.5	0.881	50.5	0.000025	<0.005	0.018	0.00135
RSEM-R6E-EOP	8/3/2018 12:21	UA1045	0.319	0.00022	0.0367	17.6	0.0482	0.0000022	0.0171	0.0046	-	5.63	0.00497	4.15	<0.00002	109	1.09	62.6	0.000027	<0.005	0.0137	0.00183
RSEM-R6E-EOP	8/4/2018 16:13	UA3787	0.208	<0.0002	0.0351	17.4	0.045	<0.000002	0.0156	0.0046	-	5.72	0.00482	3.77	<0.00002	101	1.03	59.2	0.000026	<0.005	0.0063	0.00204
RSEM-R6E-EOP	8/5/2018 15:24	UA3840	0.205	<0.0002	0.0355	19.1	0.0376	<0.000002	0.0163	0.0047	-	5.51	0.00493	3.65	<0.00002	114	0.971	63.2	0.000025	<0.005	<0.005	0.00211
RSEM-R6E-EOP	8/6/2018 16:03	UA3786	0.29	0.0002	0.0336	18.6	0.0311	<0.000002	0.0149	0.0043	-	5.05	0.00443	4.24	<0.00002	98.4	0.825	58.6	0.000025	<0.005	0.0132	0.00212
RSEM-R6E-EOP	8/7/2018 11:40	UA4365	0.242	0.00021	0.0339	20.0	0.0297	<0.000002	0.0158	0.0042	-	5.06	0.00473	3.96	<0.00002	109	0.786	64.7	0.000022	<0.005	0.01	0.00232
RSEM-R6E-EOP	8/8/2018 8:00	UA6825	0.147	<0.0002	0.0361	21.6	0.0288	<0.000002	0.0173	0.004	-	5.21	0.00478	3.66	<0.00002	118	0.825	67.4	0.000021	<0.005	<0.005	0.00221
RSEM-R6E-EOP	8/9/2018 12:30	UA9165	0.278	0.0002	0.0358	19.7	0.0258	<0.000002	0.0169	0.0044	-	5.23	0.00455	4.04	<0.00002	114	0.713	68.3	0.000024	<0.005	<0.005	0.00238
RSEM-R6E-EOP	8/10/2018 8:30	UB1623	0.199	<0.0002	0.0365	19.5	0.0251	0.000002	0.0167	0.0045	-	5.26	0.00437	4.32	<0.00002	117	0.664	67.0	0.000021	<0.005	<0.005	0.00237
RSEM-R6E-EOP	8/11/2018 15:35	UB4069	0.52	0.00034	0.0296	17.5	0.0256	0.0000021	0.0137	0.0041	-	4.35	0.00313	4.15	<0.00002	88.7	0.493	49.6	0.000025	<0.005	0.0146	0.00186
RSEM-R6E-EOP	8/12/2018 15:20	UB4559	0.264	0.00021	0.0255	16.0	0.0186	<0.000002	0.0122	0.0034	-	3.92	0.00283	3.78	<0.00002	78.4	0.452	44.5	0.000022	<0.005	0.0129	0.00175
RSEM-R6E-EOP	8/13/2018 11:20	UB4588	0.256	<0.0002	0.0237	16.4	0.0176	<0.000002	0.011	0.0035	-	3.95	0.00221	3.91	0.000026	73.2	0.404	40.7	0.00002	<0.005	0.0103	0.00157
RSEM-R6E-EOP	8/14/2018 14:17	UC1796	0.282	0.00021	0.0239	16.7	0.0187	<0.000002	0.0105	0.0036	-	3.82	0.00212	4.41	<0.00002	65.6	0.403	42.5	0.000019	<0.005	0.0095	0.00157
RSEM-R6E-EOP	8/15/2018 11:36	UC1591	0.371	0.00026	0.0227	16.4	0.015	<0.000002	0.0101	0.0037	-	3.66	0.00218	4.8	<0.00002	65.0	0.386	37.9	0.000023	<0.005	0.023	0.00161
RSEM-R6E-EOP	8/16/2018 8:26	UC2158	0.185	<0.0002	0.0243	15.3	0.0108	<0.000002	0.0106	0.0033	-	3.79	0.00236	4.36	<0.00002	67.6	0.384	40.3	0.000016	<0.005	0.0054	0.00161
RSEM-R6E-EOP	8/17/2018 6:00	UC4871	0.111	<0.0002	0.0256	16.1	0.0089	<0.000002	0.0113	0.0033	-	3.90	0.00245	4.1	<0.00002	73.1	0.406	42.3	0.000015	<0.005	<0.005	0.00169
RSEM-R6E-EOP	8/18/2018 8:55	UC8575	0.177	<0.0002	0.0277	14.6	0.0082	<0.000002	0.0127	0.0036	-	4.02	0.00288	4.38	<0.00002	83.6	0.402	37.1	0.000018	<0.005	0.0077	0.00186
RSEM-R6E-EOP	8/19/2018 12:05	UC8611	0.153	<0.0002	0.0294	14.2	0.0081	<0.000002	0.0135	0.0037	-	4.11	0.00314	4.23	<0.00002	92.3	0.416	36.4	0.00002	<0.005	0.0071	0.00195
RSEM-R6E-EOP	8/20/2018 10:35	UD1952	0.186	<0.0002	0.0279	14.1	0.0084	<0.000002	0.0138	0.004	-	4.08	0.00299	3.85	<0.00002	101	0.452	37.8	0.00002	<0.005	0.013	0.00199
RSEM-R6E-EOP	8/21/2018 8:28	UD2059	0.077	<0.0002	0.0277	14.8	0.0092	<0.000002	0.0136	0.0038	-	4.04	0.00299	3.21	0.000064	101	0.441	36.6	0.000015	<0.005	<0.005	0.00192
RSEM-R6E-EOP	8/22/2018 10:29	UD5026	0.176	<0.0004	0.0291	13.5	0.0116	0.0000035	0.0137	0.0035	-	3.84	0.0032	3.98	0.000048	102	0.366	33.5	0.000022	<0.01	<0.01	0.00194
RSEM-R6E-EOP	8/23/2018 10:30	UD6752	0.09	<0.0002	0.0244	12.4	0.0078	0.0000037	0.0129	0.003	-	3.44	0.00264	3.49	0.00004	86.9	0.317	30.7	0.000016	<0.005	<0.005	0.00173
RSEM-R6E-EOP	8/24/2018 9:32	UD8198	0.148	<0.0002	0.0263	13.7	0.0078	0.0000041	0.0122	0.0027	-	3.32	0.0024	4.03	0.000036	81.8	0.312	30.4	0.000015	<0.005	0.0055	0.00175
RSEM-R6E-EOP	8/25/2018 9:30	UE1790	0.097	<0.0002	0.0245	14.9	0.0078	<0.000002	0.0126	0.0029	-	3.35	0.00269	2.99	<0.00002	87.9	0.339	33.0	0.000012	<0.005	<0.005	0.00182
RSEM-R6E-EOP	8/26/2018 11:00	UE1803	0.27	<0.0002	0.0296	15.9	0.0128	<0.000002	0.0124	0.004	-	3.41	0.00267	5.49	0.000022	91.5	0.354	34.2	0.000021	<0.005	0.0174	0.00197
RSEM-R6E-EOP	8/27/2018 10:31	UE2122	0.308	0.00026	0.0347	18.3	0.0201	<0.000002	0.0127	0.0054	-	3.55	0.00284	6.03	<0.00002	99.1	0.447	38.2	0.000021	<0.005	0.0224	0.00206
RSEM-R6E-EOP	8/28/2018 10:40	UE5267	0.2	<0.0002	0.0311	17.7	0.0185	0.0000025	0.0127	0.0049	-	3.39	0.00279	4.42	<0.00002	92.1	0.396	37.0	0.000016	<0.005	<0.005	0.00194
RSEM-R6E-EOP	8/29/2018 12:13	UF1104	0.214	<0.0002	0.0308	20.1	0.0228	<0.000002	0.0119	0.0054	-	3.60	0.00255	5.18	<0.00002	87.2	0.444	39.5	0.000017	<0.005	0.0084	0.00206
RSEM-R6E-EOP	8/30/2018 9:50	UF1078	0.201	<0.0002	0.0252	19.5	0.0191	<0.000002	0.0098	0.0044	-	3.12	0.0022	4.67	<0.00002	69.2	0.396	31.8	0.000016	<0.005	0.0065	0.00192
RSEM-R6E-EOP	8/31/2018 8:10	UF3970	0.35	0.00021	0.0218	19.2	0.0205	0.0000026	0.0093	0.0039	-	2.84	0.00194	5.21	<0.00002	57.3	0.35	30.9	0.000019	<0.005	0.0135	0.0018
RSEM-R6E-EOP	9/1/2018 3:20	UF6669	0.376	0.00024	0.0203	19.0	0.0198	0.0000023	0.0082	0.0038	-	2.85	0.00148	4.65	<0.00002	56.5	0.307	25.7	0.000018	<0.005	0.006	0.00145
RSEM-R6E-EOP	9/2/2018 9:15	UF7758	0.165	<0.0002	0.0222	20.3	0.0165	0.0000024	0.0083	0.0035	-	2.80	0.00164	4.6	<0.00002	63.0	0.327	28.9	0.000013	<0.005	<0.005	0.0016
RSEM-R6E-EOP	9/3/2018 9:30	UF9061	0.181	<0.0002	0.0216	20.8	0.0145	0.0000026	0.0075	0.0034	-	2.76	0.00147	4.72	<0.00002	60.0	0.318	27.6	0.000014	<0.005	<0.005	0.00157
RSEM-R6E-EOP	9/4/2018 15:00	UG0433	0.232	<0.0002	0.0196	19.9	0.0153	<0.000002	0.0075	0.003	-	2.77	0.00159	4.36	<0.00002	58.3	0.314	25.8	0.000012	<0.005	0.0103	0.0015
RSEM-R6E-EOP	9/5/2018 11:55	UG2833	0.242	<0.0002	0.0206	18.2	0.0151	0.0000021	0.0081	0.0033	-	2.83	0.00149	5.24	<0.00002	56.9	0.282	27.8	0.000016	<0.005	0.0121	0.00149
RSEM-R6E-EOP	9/6/2018 11:00	UG2788	0.144	<0.0002	0.0188	16.9	0.011	0.0000032	0.0078	0.0028	-	2.73	0.00138	4.36	<0.00002	53.4	0.264	25.6	0.000013	<0.005	<0.005	0.00142
RSEM-R6E-EOP	9/7/2018 8:30	UG5293	0.279	<0.0002	0.0162	16.2	0.0138	<0.000002	0.0073	0.0027	-	2.86	0.00129	4.35	<0.00002	49.5	0.242	22.5	0.000015	<0.005	0.0097	0.0014
RSEM-R6E-EOP	9/8/2018 17:00	UG8745	0.925	0.00051	0.0272	15.1	0.123	0.0000027	0.0079	0.0123	-	4.46	0.0027	5.02	<0.00002	41.7	0.767	44.2	0.000029	<0.005	0.0384	0.00182
RSEM-R6E-EOP	9/9/2018 17:50	UG8717	0.384	0.00025	0.0503	15.1	0.11	0.0000024	0.0188	0.0152	-	5.11	0.011	4.53	<0.00002	117	0.629	92.4	0.000019	<0.005	0.0147	0.00259
RSEM-R6E-EOP	9/10/2018 6:40	UH0970	0.212	<0.0002	0.0502	13.8	0.0935	0.000004	0.0182	0.0136	-	4.58	0.00995	3.67	<0.00002	106	0.502	90.0	0.000017	<0.005	<0.005	0.0023
RSEM-R6E-EOP	9/11/2018 10:58	UH0968	0.446	0.00028	0.0461	13.2	0.0543	0.0000037	0.0209	0.0102	-	4.76	0.00846	4.36	<0.00002	124	0.407	85.1	0.00002	<0.005	<0.005	0.00229
RSEM-R6E-EOP	9/12/2018 10:35	UH7645	0.295	<0.0002	0.0262	12.4	0.0436	0.0000025	0.0134	0.008	-	3.54	0.00458	4.13	<0.00002	76.2	0.3	49.2	0.000016	<0.005	0.0105	0.00166
RSEM-R6E-EOP	9/13/2018 12:30	UH7734	0.237	<0.0002	0.0262	13.2	0.0507	0.000004	0.0134	0.0092	-	3.41	0.0038	4.25	<0.00002	74.2	0.316	46.8	0.000016	<0.005	0.0073	0.00171

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	7/13/2018 0:00	TV9677	<0.005	<0.005	0.00012	0.0605	0.0015	0.00175	0.118	<0.0001	<0.001	0.293	<0.00001	75.0	0.0023	0.0002	0.00123	<0.01	<0.0002	0.0568	20.6	<0.001
RSEM-R6E-EOP	7/14/2018 12:00	TW3844	<0.005	<0.005	0.00017	0.046	0.00146	0.00168	0.117	<0.0001	<0.001	0.263	<0.00001	78.4	0.0022	0.00064	0.00134	<0.01	<0.0002	0.0552	23.7	0.0083
RSEM-R6E-EOP	7/15/2018 12:50	TW3841	<0.005	<0.005	0.00016	0.0436	0.00147	0.00166	0.122	<0.0001	<0.001	0.253	<0.00001	78.2	0.0021	0.00054	0.00151	<0.01	<0.0002	0.0537	23.5	0.0061
RSEM-R6E-EOP	7/16/2018 14:15	TW5087	<0.005	<0.005	0.00019	0.0425	0.00145	0.00166	0.12	<0.0001	<0.001	0.264	<0.00001	78.9	0.0019	0.00044	0.00221	<0.01	<0.0002	0.0553	24.0	0.0044
RSEM-R6E-EOP	7/17/2018 8:15	TW5973	<0.005	<0.005	0.00014	0.0394	0.00144	0.00162	0.117	<0.0001	<0.001	0.264	<0.00001	76.7	0.0018	0.00043	0.00122	<0.01	<0.0002	0.0544	23.4	0.0037
RSEM-R6E-EOP	7/18/2018 8:00	TW8362	<0.005	<0.005	0.00033	0.0379	0.00141	0.00162	0.119	<0.0001	<0.001	0.253	<0.00001	75.7	0.0018	0.00039	0.00177	<0.01	<0.0002	0.0519	21.7	0.0042
RSEM-R6E-EOP	7/19/2018 10:15	TX0643	<0.005	<0.005	0.00014	0.0394	0.00136	0.00143	0.114	<0.0001	<0.001	0.217	<0.00001	76.2	0.0016	0.00036	0.00114	<0.01	<0.0002	0.0461	23.1	0.003
RSEM-R6E-EOP	7/20/2018 11:15	TX2834	<0.005	0.006	0.00096	0.0413	0.00102	0.00105	0.115	<0.0001	<0.001	0.197	0.000018	77.9	0.0011	0.00067	0.00138	<0.01	<0.0002	0.0456	21.1	0.0299
RSEM-R6E-EOP	7/21/2018 8:55	TX5555	<0.005	0.0058	0.00059	0.0847	0.0014	0.00133	0.131	<0.0001	<0.001	0.238	0.000032	69.9	0.0045	0.0019	0.00123	<0.01	<0.0002	0.0489	18.0	0.0876
RSEM-R6E-EOP	7/22/2018 7:00	TX5557	<0.005	<0.005	0.00036	0.0662	0.00149	0.00138	0.133	<0.0001	<0.001	0.26	0.000031	68.7	0.0066	0.00208	0.00132	<0.01	<0.0002	0.0553	17.7	0.0802
RSEM-R6E-EOP	7/23/2018 15:46	TX8484	<0.005	<0.005	0.00044	0.0566	0.00146	0.00126	0.147	<0.0001	<0.001	0.21	0.000029	71.4	0.0071	0.00207	0.00114	<0.01	<0.0002	0.0549	17.6	0.0884
RSEM-R6E-EOP	7/24/2018 17:00	TY1083	<0.005	<0.005	<0.0001	0.109	0.00145	0.0013	0.155	<0.0001	<0.001	0.229	0.000055	69.4	0.0072	0.00181	0.00116	<0.01	<0.0002	0.0599	18.3	0.0511
RSEM-R6E-EOP	7/25/2018 18:16	TY3337	<0.005	<0.005	0.00023	0.0777	0.00161	0.0016	0.159	<0.0001	<0.001	0.194	0.000026	71.3	0.0079	0.00122	0.00113	<0.01	<0.0002	0.0554	19.2	0.0228
RSEM-R6E-EOP	7/26/2018 16:00	TY5331	<0.005	<0.005	0.00034	0.0846	0.00169	0.00195	0.157	<0.0001	<0.001	0.257	0.000016	66.9	0.0073	0.00083	0.00117	<0.01	<0.0002	0.0544	17.6	0.0139
RSEM-R6E-EOP	7/27/2018 6:45	TY5338	<0.005	<0.005	0.00029	0.0814	0.00161	0.00196	0.158	<0.0001	<0.001	0.257	0.000017	66.4	0.0067	0.00089	0.00121	<0.01	<0.0002	0.0499	17.6	0.0174
RSEM-R6E-EOP	7/28/2018 14:40	TZ1779	<0.005	<0.005	0.0002	0.0715	0.00151	0.00171	0.161	<0.0001	<0.001	0.232	0.000017	63.7	0.0054	0.00041	0.0011	<0.01	<0.0002	0.0444	17.0	0.0035
RSEM-R6E-EOP	7/29/2018 12:00	TZ1783	<0.005	<0.005	0.00038	0.0786	0.00142	0.00155	0.167	<0.0001	<0.001	0.237	0.000016	66.0	0.0042	0.00055	0.00118	<0.01	<0.0002	0.0394	17.6	0.0101
RSEM-R6E-EOP	7/30/2018 10:40	TZ3233	<0.005	0.0051	0.00068	0.0459	0.00149	0.00141	0.213	<0.0001	<0.001	0.259	0.000099	150	0.0051	0.00177	0.00113	<0.01	<0.0002	0.0611	24.5	0.121
RSEM-R6E-EOP	7/31/2018 17:50	TZ5900	<0.005	<0.005	0.00025	0.0579	0.00113	0.00127	0.159	<0.0001	<0.001	0.238	0.000041	102	0.0042	0.00084	0.00105	<0.01	<0.0002	0.0411	18.5	0.0427
RSEM-R6E-EOP	8/1/2018 15:24	TZ8461	<0.005	<0.005	0.00031	0.0878	0.00073	0.00084	0.131	<0.0001	<0.001	0.208	0.000019	80.7	0.0028	0.00043	0.00087	<0.01	<0.0002	0.0254	13.9	0.0283
RSEM-R6E-EOP	8/2/2018 15:50	UA0959	<0.005	<0.005	0.00023	0.0721	0.00095	0.00136	0.31	<0.0001	<0.001	0.211	<0.00001	84.1	0.0024	0.00029	0.00093	<0.01	<0.0002	0.0256	14.2	0.0135
RSEM-R6E-EOP	8/3/2018 12:21	UA1045	<0.005	<0.005	0.00049	0.0568	0.00141	0.00198	0.424	<0.0001	<0.001	0.254	0.000018	94.6	0.0028	0.00051	0.00119	<0.01	<0.0002	0.0344	17.1	0.039
RSEM-R6E-EOP	8/4/2018 16:13	UA3787	<0.005	<0.005	0.00024	0.0425	0.00145	0.00187	0.396	<0.0001	<0.001	0.243	0.000019	97.0	0.0027	0.0006	0.00142	<0.01	<0.0002	0.0354	17.3	0.0335
RSEM-R6E-EOP	8/5/2018 15:24	UA3840	<0.005	<0.005	0.00015	0.039	0.00147	0.00175	0.372	<0.0001	<0.001	0.228	0.000019	92.9	0.0024	0.00051	0.00139	<0.01	<0.0002	0.0342	17.2	0.0242
RSEM-R6E-EOP	8/6/2018 16:03	UA3786	<0.005	<0.005	0.00031	0.035	0.00142	0.0016	0.327	<0.0001	<0.001	0.233	0.000019	88.7	0.0024	0.00051	0.00126	<0.01	<0.0002	0.0353	18.9	0.0225
RSEM-R6E-EOP	8/7/2018 11:40	UA4365	<0.005	<0.005	0.00024	0.0329	0.00154	0.00165	0.339	<0.0001	<0.001	0.239	0.000019	85.4	0.0024	0.0005	0.00154	<0.01	<0.0002	0.0342	19.5	0.0233
RSEM-R6E-EOP	8/8/2018 8:00	UA6825	<0.005	<0.005	<0.0001	0.032	0.00154	0.00182	0.355	<0.0001	<0.001	0.232	0.000013	86.2	0.0025	0.00045	0.00144	<0.01	<0.0002	0.0337	19.6	0.019
RSEM-R6E-EOP	8/9/2018 12:30	UA9165	<0.005	<0.005	0.00016	0.0359	0.00151	0.00165	0.347	<0.0001	<0.001	0.211	<0.00001	77.6	0.0023	0.00029	0.00132	<0.01	<0.0002	0.0341	19.9	0.0036
RSEM-R6E-EOP	8/10/2018 8:30	UB1623	<0.005	<0.005	0.00017	0.0355	0.00148	0.0017	0.352	<0.0001	<0.001	0.215	0.000011	81.4	0.002	0.00043	0.00135	<0.01	<0.0002	0.0359	19.9	0.0148
RSEM-R6E-EOP	8/11/2018 15:35	UB4069	<0.005	<0.005	0.00036	0.0345	0.00114	0.00128	0.278	<0.0001	<0.001	0.196	0.000012	69.4	0.0015	0.00033	0.00115	<0.01	<0.0002	0.0274	17.4	0.0112
RSEM-R6E-EOP	8/12/2018 15:20	UB4559	<0.005	<0.005	0.00035	0.0353	0.00106	0.00121	0.264	<0.0001	<0.001	0.195	<0.00001	65.9	0.0012	0.0003	0.00133	<0.01	<0.0002	0.0253	16.6	0.0087
RSEM-R6E-EOP	8/13/2018 11:20	UB4588	<0.005	<0.005	0.00039	0.0354	0.00097	0.00113	0.256	<0.0001	<0.001	0.18	0.000012	67.1	0.001	0.00031	0.00242	<0.01	<0.0002	0.0244	16.2	0.0103
RSEM-R6E-EOP	8/14/2018 14:17	UC1796	<0.005	<0.005	0.00029	0.0372	0.00091	0.00102	0.236	<0.0001	<0.001	0.169	0.000011	64.9	<0.001	0.00031	0.00112	<0.01	<0.0002	0.0214	15.8	0.0091
RSEM-R6E-EOP	8/15/2018 11:36	UC1591	<0.005	<0.005	0.00187	0.0369	0.00094	0.00111	0.246	<0.0001	<0.001	0.179	<0.00001	61.4	<0.001	0.00028	0.00167	<0.01	<0.0002	0.0222	15.6	0.0076
RSEM-R6E-EOP	8/16/2018 8:26	UC2158	<0.005	<0.005	0.00036	0.0339	0.00105	0.00133	0.28	<0.0001	<0.001	0.185	<0.00001	59.2	<0.001	0.00031	0.00315	<0.01	<0.0002	0.0249	16.0	0.0076
RSEM-R6E-EOP	8/17/2018 6:00	UC4871	<0.005	<0.005	0.00017	0.0334	0.00108	0.00133	0.326	<0.0001	<0.001	0.178	<0.00001	59.8	<0.001	0.0003	0.00311	<0.01	<0.0002	0.024	16.8	0.0056
RSEM-R6E-EOP	8/18/2018 8:55	UC8575	<0.005	<0.005	0.00027	0.0202	0.00137	0.00188	0.534	<0.0001	<0.001	0.189	<0.00001	56.8	<0.001	0.00032	0.00365	<0.01	<0.0002	0.0269	14.7	0.007
RSEM-R6E-EOP	8/19/2018 12:05	UC8611	<0.005	<0.005	0.00035	0.0152	0.00156	0.00202	0.608	<0.0001	<0.001	0.202	<0.00001	52.4	<0.001	0.00037	0.00394	<0.01	<0.0002	0.029	14.6	0.0067
RSEM-R6E-EOP	8/20/2018 10:35	UD1952	<0.005	<0.005	0.00059	0.0334	0.00159	0.00189	0.656	<0.0001	<0.001	0.213	<0.00001	47.1	<0.001	0.00034	0.00413	<0.01	<0.0002	0.0306	13.4	0.0068
RSEM-R6E-EOP	8/21/2018 8:28	UD2059	<0.005	<0.005	<0.0001	0.0115	0.00158	0.00188	0.628	<0.0001	<0.001	0.216	<0.00001	49.6	<0.001	0.00035	0.00388	<0.01	<0.0002	0.0304	13.9	0.0075
RSEM-R6E-EOP	8/22/2018 10:29	UD5026	<0.01	<0.005	0.00061	0.0146	0.00175	0.00259	0.53	<0.0001	<0.001	0.206	<0.00001	49.3	<0.001	0.00032	0.00351	<0.01	<0.0002	0.0289	13.2	0.0021
RSEM-R6E-EOP	8/23/2018 10:30	UD6752	<0.005	<0.005	0.00013	0.0413	0.00159	0.0021	0.494	<0.0001	<0.001	0.204	<0.00001	48.9	<0.001	0.00021	0.00247	<0.01	<0.0002	0.0274	12.7	<0.001
RSEM-R6E-EOP	8/24/2018 9:32	UD8198	<0.005	<0.005	0.00025	0.0226	0.00137	0.00202	0.423	<0.0001	<0.001	0.191	<0.00001	52.7	<0.001	0.00023	0.00218	<0.01	<0.0002	0.0259	13.9	0.0015
RSEM-R6E-EOP	8/25/2018 9:30	UE1790	<0.005	<0.005	<0.0001	0.205	0.00253	0.002	0.399	<0.0001	<0.001	0.209	<0.00001	51.2	<0.001	0.00031	0.00236	<0.01	<0.0002	0.0268	14.7	0.0056
RSEM-R6E-EOP	8/26/2018 11:00	UE1803	<0.005	<0.005	0.00073	0.0313	0.00145	0.00193	0.384	<0.0001	<0.001	0.18	<0.00001	55.0	<0.001	0.00045	0.00177	0.01	<0.0002	0.0293	16.0	0.0096
RSEM-R6E-EOP	8/27/2018 10:31	UE2122	<0.005	<0.005	0.00088	0.0205	0.00147	0.00188	0.406	<0.0001	<0.001	0.175	0.000013	60.0	<0.001	0.00076	0.00179	0.031	<0.0002	0.0316	17.0	0.0165
RSEM-R6E-EOP	8/28/2018 10:40	UE5267	<0.005	<0.005	0.00011	0.0382	0.00141	0.00179	0.372	<0.0001	<0.001	0.17	0.00001	60.1	<0.001	0.00066	0.00195	0.025	<0.0002	0.0295	17.7	0.0148
RSEM-R6E-EOP	8/29/2018 12:13	UF1104	<0.005	<0.005	0.00023	0.0386	0.00126	0.00201	0.381	<0.0001	<0.001	0.161	0.000011	74.4	<0.001	0.00035	0.00148	<0.01	<0.0002	0.031	20.0	0.0024
RSEM-R6E-EOP	8/30/2018 9:50	UF1078	<0.005	<0.005	0.00028	0.0312	0.00106	0.00187	0.367	<0.0001	<0.001	0.142	0.00001	77.7	<0.001	0.00037	0.00123	<0.01	<0.0002	0.026	20.5	0.0031
RSEM-R6E-EOP	8/31/2018 8:10	UF3970	<0.005	<0.005	0.00046	0.0332	0.00095	0.00171	0.345	<0.0001	<0.001	0.129	0.000012	75.4	<0.001	0.00048	0.00113	<0.01	<0.0002	0.0221	19.4	0.008
RSEM-R6E-EOP	9/1/2018 3:20	UF6669	<0.005	<0.005	0.00028	0.0348	0.00074	0.00149	0.292	<0.0001	<0.001	0.141	0.000012	68.8	<0.001	0.00047	0.00107	<0.01	<0.0002	0.0182	17.7	0.0091
RSEM-R6E-EOP	9/2/2018 9:15	UF7758	<0.005	<0.005	0.00011	0.031	0.00084	0.00155	0.315	<0.0001	<0.001	0.138	0.000013	73.0	<0.001	0.00046	0.00133	<0.01	<0.0002	0.0207	19.0	0.0101
RSEM-R6E-EOP	9/3/2018 9:30	UF9061	<0.005	<0.005	0.00012	0.0263	0.00074	0.00128	0.28	<0.0001	<0.001	0.139	0.000011	73.4	<0.001	0.00041	0.00123	<0.01	<0.0002	0.0225	19.5	0.0096
RSEM-R6E-EOP	9/4/2018 15:00	UG0433	<0.005	<0.005	0.00029	0.0272	0.00069	0.00127	0.259	<0.0001	<0.001	0.13	<0.00001	71.3	<0.001	0.00035	0.00096	<0.01	<0.0002	0.0195	19.9	0.007
RSEM-R6E-EOP	9/5/2018 11:55	UG2833	<0.005	<0.005	0.00033	0.0423	0.00072	0.0012	0.25	<0.0001	<0.001	0.136	<0.00001	60.7	0.001	<0.0002	0.00082	<0.01	<0.0002	0.0208	18.3	<0.001
RSEM-R6E-EOP	9/6/2018 11:00	UG2788	<0.005	<0.005	0.00019	0.0429	0.00071	0.00116	0.23	<0.0001	<0.001	0.13	<0.00001	59.7	<0.001	<0.0002	0.00079	<0.01	<0.0002	0.0191	17.2	0.0014
RSEM-R6E-EOP	9/7/2018 8:30	UG5293	<0.005	<0.005	0.00023	0.0332	0.00058	0.00096	0.214	<0.0001	<0.001	0.123	<0.00001	59.4	<0.001	0.0002	0.00087	<0.01	<0.0002	0.0167	15.7	0.0029
RSEM-R6E-EOP	9/8/2018 17:00	UG8745	<0.005	0.0069	0.00254	0.047	0.00061	0.00072	0.187	<0.0001	<0.001	0.094	0.00006	84.0	0.0021	0.00204	0.00096	<0.01	<0.0002	0.0261	15.1	0.11
RSEM-R6E-EOP	9/9/2018 17:50	UG8717	<0.005	<0.005	0.00055	0.0769	0.00136	0.00196	0.232	<0.0001	<0.001	0.165	0.000045	68.8	0.0074	0.00236	0.00119	<0.01	<0.0002	0.0476	14.4	0.0997
RSEM-R6E-EOP	9/10/2018 6:40	UH0970	<0.005	<0.005	0.00014	0.0851	0.00135	0.002	0.221	<0.0001	<0.001	0.153	0.000035	68.5	0.0071	0.00217	0.00126	<0.01	<0.0002	0.0468	15.2	0.0898
RSEM-R6E-EOP	9/11/2018 10:58	UH0968	<0.005	0.0084	0.00026	0.0919	0.00141	0.00228	0.199	<0.0001	<0.001	0.16	0.000028	60.8	0.0074	0.00154	0.00165	<0.01	<0.0002	0.0416	13.7	0.0435
RSEM-R6E-EOP	9/12/2018 10:35	UH7645	<0.005	0.0057	0.00085	0.0855	0.00083	0.00119	0.159	<0.0001	<0.001	0.119	0.000036	53.2	0.0045	0.00156	0.00135	<0.01	<0.0002	0.0271	12.3	0.04
RSEM-R6E-EOP	9/13/2018 12:30	UH7734	<0.005	0.0061	0.00024	0.0639	0.00078	0.00114	0.155	<0.0001	<0.001	0.111	0.000039	55.0	0.0037	0.00186	0.00112	<0.01	<0.0002	0.0259	13.3	0.0415

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	7/13/2018 0:00	TV9677	<0.000002	0.0182	0.0103	-	5.79	0.00846	4.46	<0.00002	165	0.447	113	0.000024	<0.005	<0.005	0.00277	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/14/2018 12:00	TW3844	<0.000002	0.0171	0.0099	-	5.51	0.00749	4	<0.00002	163	0.529	103	0.000019	<0.005	<0.005	0.00282	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/15/2018 12:50	TW3841	<0.000002	0.0171	0.0096	-	5.42	0.00716	4.02	<0.00002	162	0.522	103	0.000018	<0.005	<0.005	0.00281	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/16/2018 14:15	TW5087	<0.000002	0.0169	0.009	-	5.40	0.00693	4.05	<0.00002	166	0.527	101	0.000019	<0.005	<0.005	0.00277	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/17/2018 8:15	TW5973	<0.000002	0.0167	0.0085	-	5.43	0.00661	4.02	<0.00002	163	0.519	100	0.00002	<0.005	<0.005	0.00276	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/18/2018 8:00	TW8362	<0.000002	0.0159	0.0079	-	5.53	0.00689	4.09	<0.00002	152	0.536	96.7	0.00002	<0.005	<0.005	0.00277	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/19/2018 10:15	TX0643	<0.000002	0.0149	0.0076	-	5.42	0.00601	4.04	<0.00002	153	0.494	100	0.000019	<0.005	<0.005	0.00254	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/20/2018 11:15	TX2834	<0.000002	0.0112	0.0069	-	4.86	0.00437	3.35	<0.00002	113	0.539	81.8	0.000021	<0.005	<0.005	0.00238	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/21/2018 8:55	TX5555	<0.000002	0.0154	0.0111	-	5.14	0.00612	3.64	<0.00002	116	0.476	91.2	0.000017	<0.005	<0.005	0.00265	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/22/2018 7:00	TX5557	<0.000002	0.0176	0.0121	-	5.76	0.00789	4.06	<0.00002	137	0.466	101	0.000017	<0.005	<0.005	0.00269	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/23/2018 15:46	TX8484	<0.000002	0.0183	0.0123	-	6.17	0.00797	3.69	<0.00002	126	0.527	102	0.000015	<0.005	<0.005	0.00297	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/24/2018 17:00	TY1083	<0.000002	0.0173	0.0136	-	6.16	0.00822	3.79	<0.00002	131	0.492	106	0.000015	<0.005	<0.005	0.0029	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/25/2018 18:16	TY3337	<0.000002	0.0194	0.0112	-	6.46	0.00997	3.47	<0.00002	149	0.495	109	0.000013	<0.005	<0.005	0.00301	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/26/2018 16:00	TY5331	<0.000002	0.022	0.008	-	6.03	0.0112	3.84	<0.00002	166	0.459	112	0.000016	<0.005	<0.005	0.00285	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/27/2018 6:45	TY5338	<0.000002	0.0215	0.0072	-	5.83	0.0107	3.99	<0.00002	161	0.43	106	0.000016	<0.005	<0.005	0.00267	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/28/2018 14:40	TZ1779	<0.000002	0.0185	0.0058	-	5.07	0.00795	3.75	<0.00002	138	0.365	86.8	0.000015	<0.005	<0.005	0.00232	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/29/2018 12:00	TZ1783	<0.000002	0.0166	0.0053	-	4.73	0.00649	3.71	<0.00002	124	0.342	77.6	0.000015	<0.005	<0.005	0.0022	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/30/2018 10:40	TZ3233	<0.000002	0.017	0.0102	-	8.92	0.00679	3.27	<0.00002	127	2.3	98.6	0.000034	<0.005	<0.005	0.00231	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	7/31/2018 17:50	TZ5900	<0.000002	0.0149	0.0055	-	6.17	0.00566	2.95	<0.00002	102	1.16	71.6	0.000026	<0.005	<0.005	0.00176	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/1/2018 15:24	TZ8461	<0.000002	0.0106	0.003	-	4.82	0.00281	2.86	<0.00002	63.1	0.688	48.2	0.000023	<0.005	<0.005	0.00113	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/2/2018 15:50	UA0959	<0.000002	0.012	0.0027	-	4.91	0.00337	2.94	<0.00002	73.5	0.804	50.4	0.00002	<0.005	<0.005	0.00132	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/3/2018 12:21	UA1045	<0.000002	0.0161	0.0038	-	5.80	0.00492	3.23	<0.00002	106	1.04	64.2	0.000023	<0.005	<0.005	0.00182	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/4/2018 16:13	UA3787	<0.000002	0.016	0.0041	-	5.46	0.00489	3.33	<0.00002	100	1.04	65.5	0.000021	<0.005	<0.005	0.00203	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/5/2018 15:24	UA3840	<0.000002	0.0161	0.0039	-	5.41	0.00449	3.45	<0.00002	97.4	0.979	65.7	0.000022	<0.005	<0.005	0.00217	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/6/2018 16:03	UA3786	<0.000002	0.0152	0.0038	-	5.14	0.00469	3.4	<0.00002	102	0.85	64.4	0.000019	<0.005	<0.005	0.00221	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/7/2018 11:40	UA4365	<0.000002	0.0155	0.0039	-	4.96	0.0049	3.28	<0.00002	110	0.779	66.7	0.000019	<0.005	<0.005	0.00221	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/8/2018 8:00	UA6825	<0.000002	0.0161	0.0036	-	5.19	0.00505	3.49	<0.00002	111	0.762	64.2	0.000022	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/9/2018 12:30	UA9165	<0.000002	0.0156	0.0036	-	5.10	0.00465	3.58	<0.00002	110	0.669	63.9	0.000019	<0.005	<0.005	0.00236	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/10/2018 8:30	UB1623	<0.000002	0.015	0.0037	-	4.86	0.00421	3.78	<0.00002	107	0.638	64.9	0.00002	<0.005	<0.005	0.0023	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/11/2018 15:35	UB4069	<0.000002	0.012	0.0032	-	4.25	0.00298	3.32	<0.00002	84.2	0.475	47.3	0.000017	<0.005	<0.005	0.00183	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/12/2018 15:20	UB4559	<0.000002	0.0113	0.003	-	4.17	0.00276	3.19	<0.00002	81.2	0.429	46.0	0.000017	<0.005	<0.005	0.00166	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/13/2018 11:20	UB4588	<0.000002	0.0106	0.003	-	3.82	0.0022	3.28	<0.00002	68.6	0.405	40.9	0.000014	<0.005	<0.005	0.00157	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/14/2018 14:17	UC1796	<0.000002	0.0101	0.0029	-	3.55	0.00206	3.26	<0.00002	66.7	0.398	38.0	0.000014	<0.005	<0.005	0.00148	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/15/2018 11:36	UC1591	<0.000002	0.0097	0.0028	-	3.53	0.00209	3.2	<0.00002	65.2	0.374	37.8	0.000014	<0.005	<0.005	0.0015	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/16/2018 8:26	UC2158	<0.000002	0.0104	0.0031	-	3.79	0.00225	3.3	<0.00002	72.2	0.377	37.8	0.000014	<0.005	<0.005	0.00157	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/17/2018 6:00	UC4871	<0.000002	0.0107	0.0031	-	3.63	0.00228	3.17	<0.00002	75.6	0.391	37.1	0.000012	<0.005	<0.005	0.00157	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/18/2018 8:55	UC8575	<0.000002	0.013	0.0034	-	3.79	0.00288	3.42	<0.00002	83.0	0.413	40.8	0.000013	<0.005	<0.005	0.00185	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/19/2018 12:05	UC8611	<0.000002	0.014	0.0035	-	4.04	0.00329	3.44	<0.00002	94.1	0.423	41.3	0.000015	<0.005	<0.005	0.00195	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/20/2018 10:35	UD1952	<0.000002	0.0139	0.0037	-	4.06	0.0031	3.08	<0.00002	97.1	0.433	36.5	0.000012	<0.005	<0.005	0.00187	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/21/2018 8:28	UD2059	<0.000002	0.0142	0.0037	-	4.21	0.00291	3.23	<0.00002	96.8	0.435	36.6	0.000013	<0.005	<0.005	0.0019	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/22/2018 10:29	UD5026	<0.000002	0.0147	0.0033	-	4.07	0.00359	3.56	0.000053	100	0.381	37.1	0.000015	<0.005	<0.005	0.00203	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/23/2018 10:30	UD6752	<0.000002	0.0139	0.0026	-	3.78	0.00275	3.55	0.000021	88.6	0.344	35.9	0.000014	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/24/2018 9:32	UD8198	<0.000002	0.013	0.0024	-	3.51	0.00254	3.75	<0.00002	82.2	0.323	33.4	0.000013	<0.005	<0.005	0.00178	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/25/2018 9:30	UE1790	<0.000002	0.0133	0.0027	-	3.23	0.00268	3.52	<0.00002	83.7	0.327	33.8	0.000011	<0.005	<0.005	0.00149	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/26/2018 11:00	UE1803	<0.000002	0.0128	0.0034	-	3.08	0.00271	3.93	<0.00002	90.3	0.336	35.9	0.000012	<0.005	<0.005	0.00192	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/27/2018 10:31	UE2122	<0.000002	0.0129	0.0046	-	3.17	0.00274	4.09	<0.00002	94.0	0.4	38.5	0.000013	<0.005	<0.005	0.00203	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/28/2018 10:40	UE5267	<0.000002	0.0127	0.0047	-	3.32	0.00277	4.01	<0.00002	91.9	0.389	37.4	0.00001	<0.005	<0.005	0.00196	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/29/2018 12:13	UF1104	<0.000002	0.0119	0.0048	-	3.49	0.00281	4.77	<0.00002	86.5	0.446	42.8	0.000012	<0.005	<0.005	0.00206	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/30/2018 9:50	UF1078	<0.000002	0.0105	0.0037	-	3.12	0.00228	4.84	<0.00002	72.2	0.402	36.5	0.000011	<0.005	<0.005	0.00188	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	8/31/2018 8:10	UF3970	<0.000002	0.0093	0.0034	-	2.81	0.00189	4.62	<0.00002	60.5	0.346	30.0	0.000011	<0.005	<0.005	0.0017	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/1/2018 3:20	UF6669	<0.000002	0.0084	0.0031	-	2.60	0.00165	4.06	<0.00002	51.4	0.288	24.6	0.000012	<0.005	<0.005	0.00146	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/2/2018 9:15	UF7758	<0.000002	0.0089	0.0031	-	2.67	0.00179	4.56	<0.00002	58.4	0.313	30.0	0.000013	<0.005	<0.005	0.00167	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/3/2018 9:30	UF9061	<0.000002	0.0075	0.003	-	2.65	0.00153	4.12	<0.00002	57.4	0.303	25.7	0.000012	<0.005	<0.005	0.00155	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/4/2018 15:00	UG0433	<0.000002	0.0075	0.0029	-	2.63	0.00149	4.39	<0.00002	57.3	0.323	26.6	<0.00001	<0.005	<0.005	0.00156	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/5/2018 11:55	UG2833	<0.000002	0.0082	0.0026	-	2.66	0.00144	4.41	<0.00002	57.7	0.276	26.6	0.00001	<0.005	<0.005	0.00148	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/6/2018 11:00	UG2788	<0.000002	0.0079	0.0024	-	2.70	0.00133	4.09	<0.00002	55.1	0.254	26.0	0.00001	<0.005	<0.005	0.00137	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/7/2018 8:30	UG5293	<0.000002	0.0074	0.0021	-	2.53	0.0012	3.78	<0.00002	48.6	0.228	23.5	0.000011	<0.005	<0.005	0.00132	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/8/2018 17:00	UG8745	<0.000002	0.0078	0.0106	-	4.19	0.0026	2.46	<0.00002	41.8	0.775	45.6	0.000016	<0.005	<0.005	0.00166	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/9/2018 17:50	UG8717	<0.000002	0.0187	0.0141	-	4.98	0.0101	3.2	<0.00002	114	0.626	90.8	0.000016	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/10/2018 6:40	UH0970	<0.000002	0.0177	0.0127	-	4.80	0.0108	3.5	<0.00002	122	0.505	93.5	0.000014	<0.005	<0.005	0.00237	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/11/2018 10:58	UH0968	<0.000002	0.0202	0.0089	-	4.64	0.0086	3.79	<0.00002	134	0.399	87.2	0.000015	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/12/2018 10:35	UH7645	<0.000002	0.0139	0.0079	-	3.50	0.00447	3.44	<0.00002	78.4	0.33	51.0	0.000014	<0.005	<0.005	0.00166	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/13/2018 12:30	UH7734	0.0000028	0.0142	0.0082	-	3.40	0.0041	3.64	<0.00002	73.1	0.318	47.7	0.00001	<0.005	<0.005	0.00175	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	D-SO_4
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	9/14/2018 9:10	UI0650	8.01	776	4.69	464	4.5	191	201	148	<1.0	180	<1.0	<1.0	52.9	0.380	0.76	163
RSEM-R6E-EOP	9/15/2018 7:00	UI5253	8.08	870	7.29	508	5.8	218	216	168	<1.0	206	<1.0	<1.0	52.3	0.380	0.75	178
RSEM-R6E-EOP	9/16/2018 11:10	UI5529	8.23	932	1.94	560	<4.0	227	229	176	<1.0	214	<1.0	<1.0	57.8	0.400	0.86	210
RSEM-R6E-EOP	9/17/2018 11:10	UI5114	8.25	996	1.27	572	<4.0	252	238	193	<1.0	235	<1.0	<1.0	59.7	0.110	0.92	229
RSEM-R6E-EOP	9/18/2018 9:50	UI9108	8.24	1060	9.49	646	9.8	260	267	211	<1.0	258	<1.0	<1.0	58.1	0.420	0.97	202
RSEM-R6E-EOP	9/19/2018 10:10	UJ0843	8.29	1040	9.25	646	15.0	249	270	220	<1.0	269	<1.0	<1.0	60.4	0.410	0.98	238
RSEM-R6E-EOP	9/20/2018 11:00	UJ3869	8.19	873	1.59	518	6.5	247	234	160	<1.0	195	<1.0	<1.0	52.5	0.360	0.83	166
RSEM-R6E-EOP	9/21/2018 10:30	UJ7163	8.35	986	7.06	676	14.0	283	271	236	2.6	281	3.1	<1.0	55.2	0.360	0.88	197
RSEM-R6E-EOP	9/22/2018 11:25	UK0064	8.29	1010	9.14	568	10.8	281	287	238	<1.0	291	<1.0	<1.0	53.9	0.370	0.92	199
RSEM-R6E-EOP	9/23/2018 10:00	UK1527	8.15	775	5.96	416	17.8	234	238	205	<1.0	250	<1.0	<1.0	40.9	0.340	0.59	127
RSEM-R6E-EOP	9/24/2018 8:30	UK0552	8.20	809	7.60	474	14.8	237	239	212	<1.0	258	<1.0	<1.0	42.9	0.330	0.67	149
RSEM-R6E-EOP	9/25/2018 9:30	UK2338	8.22	677	7.05	388	6.8	202	207	183	<1.0	223	<1.0	<1.0	34.5	0.270	0.46	112
RSEM-R6E-EOP	9/26/2018 12:00	UK5505	8.08	681	5.04	406	6.8	207	220	186	<1.0	227	<1.0	<1.0	42.2	0.310	0.51	119
RSEM-R6E-EOP	9/27/2018 8:40	UK8653	8.22	682	5.02	400	8.3	197	202	178	<1.0	217	<1.0	<1.0	37.3	0.260	0.53	116
RSEM-R6E-EOP	9/28/2018 10:00	UL0964	8.27	738	1.83	428	8.3	218	202	192	<1.0	235	<1.0	<1.0	43.0	0.270	0.58	123
RSEM-R6E-EOP	9/29/2018 11:00	UL4206	8.18	783	3.64	460	7.0	219	208	195	<1.0	238	<1.0	<1.0	43.8	0.350	0.65	139
RSEM-R6E-EOP	9/30/2018 12:45	UL4212	8.19	814	4.87	468	6.0	231	215	202	<1.0	246	<1.0	<1.0	45.3	0.310	0.65	147
RSEM-R6E-EOP	10/1/2018 10:30	UL6712	8.19	863	3.83	526	6.5	226	230	220	<1.0	269	<1.0	<1.0	42.4	<0.020	0.71	158
RSEM-R6E-EOP	10/2/2018 12:30	UL6718	8.22	880	2.36	512	5.3	226	231	234	<1.0	285	<1.0	<1.0	43.8	0.320	0.73	154
RSEM-R6E-EOP	10/3/2018 12:40	UM2671	8.18	875	2.29	514	5.0	222	241	241	<1.0	294	<1.0	<1.0	45.5	0.300	0.74	173
RSEM-R6E-EOP	10/4/2018 12:00	UM6149	8.28	887	4.41	510	4.5	230	239	243	<1.0	296	<1.0	<1.0	44.8	0.290	0.75	163
RSEM-R6E-EOP	10/5/2018 9:45	UM6134	8.27	876	5.51	496	4.8	235	247	245	<1.0	299	<1.0	<1.0	43.8	0.300	0.72	158
RSEM-R6E-EOP	10/6/2018 15:50	UM9336	8.26	869	3.54	498	<4.0	257	247	253	<1.0	308	<1.0	<1.0	49.6	0.280	0.69	139
RSEM-R6E-EOP	10/7/2018 13:00	UM9328	8.26	844	3.13	476	4.0	250	256	255	<1.0	311	<1.0	<1.0	49.1	0.280	0.66	140
RSEM-R6E-EOP	10/8/2018 13:15	UM9333	8.09	845	6.76	498	8.3	265	265	249	<1.0	304	<1.0	<1.0	43.1	0.270	0.64	136
RSEM-R6E-EOP	10/9/2018 9:15	UM9811	8.27	888	3.33	534	7.3	300	283	260	<1.0	317	<1.0	<1.0	39.0	0.280	0.63	150
RSEM-R6E-EOP	10/9/2018 12:14	UN2723	8.18	881	4.0	534	6.8	289	306	254	<1.0	310	<1.0	<1.0	42.3	0.280	0.64	152
RSEM-R6E-EOP	10/10/2018 9:25	UN2720	8.16	882	1.3	546	<4.0	298	321	253	<1.0	308	<1.0	<1.0	43.6	0.270	0.61	156
RSEM-R6E-EOP	10/11/2018 9:35	UN4653	8.28	871	2.0	528	<4.0	300	319	243	<1.0	297	<1.0	<1.0	36.6	0.280	0.59	149
RSEM-R6E-EOP	10/11/2018 9:35	UN4654	8.26	862	1.4	526	4.0	295	323	242	<1.0	295	<1.0	<1.0	40.8	0.280	0.60	146
RSEM-R6E-EOP	10/12/2018 9:35	UN7470	8.10	874	6.67	450	12.3	317	307	229	<1.0	279	<1.0	<1.0	56.0	0.270	0.80	160
RSEM-R6E-EOP	10/13/2018 11:45	UN9933	8.14	877	3.24	514	9.5	316	332	231	<1.0	282	<1.0	<1.0	57.0	0.280	0.84	155
RSEM-R6E-EOP	10/14/2018 11:40	UN9926	8.22	881	3.45	536	6.5	314	337	234	<1.0	286	<1.0	<1.0	59.1	0.290	0.85	156
RSEM-R6E-EOP	10/14/2018 11:50	UN9929	8.17	884	1.88	528	6.8	336	336	230	<1.0	280	<1.0	<1.0	56.4	0.270	0.87	151
RSEM-R6E-EOP	10/15/2018 15:15	UO4610	8.21	864	2.43	504	6.8	320	338	238	<1.0	291	<1.0	<1.0	55.7	0.260	0.82	146
RSEM-R6E-EOP	10/16/2018 11:45	UO9189	8.19	868	3.06	518	4.3	352	340	239	<1.0	291	<1.0	<1.0	54.9	0.260	0.74	143
RSEM-R6E-EOP	10/17/2018 14:50	UO9199	8.23	832	3.30	498	5.8	338	332	229	<1.0	279	<1.0	<1.0	54.1	0.240	0.75	139
RSEM-R6E-EOP	10/18/2018 17:30	UP3093	8.28	826	1.29	512	4.3	328	321	227	<1.0	277	<1.0	<1.0	57.3	0.310	0.70	136
RSEM-R6E-EOP	10/19/2018 9:21	UP3097	8.31	825	1.37	506	4.3	340	320	230	1.7	276	2.1	<1.0	52.2	0.300	0.69	137
RSEM-R6E-EOP	10/19/2018 9:21	UP3096	8.29	826	1.89	502	4.0	338	328	229	<1.0	280	<1.0	<1.0	54.9	0.300	0.66	144
RSEM-R6E-EOP	10/20/2018 8:15	UP6165	8.29	834	1.13	492	<4.0	335	328	230	<1.0	280	<1.0	<1.0	49.1	0.290	0.82	132
RSEM-R6E-EOP	10/21/2018 16:15	UP5457	8.34	818	1.32	492	4.3	316	309	230	1.7	277	2.0	<1.0	47.6	0.320	0.81	131
RSEM-R6E-EOP	10/21/2018 16:15	UP5456	8.34	824	2.09	490	4.8	305	314	230	1.5	277	1.8	<1.0	46.7	0.270	0.81	130
RSEM-R6E-EOP	10/22/2018 9:00	UP6171	8.33	810	1.17	484	<4.0	313	320	226	1.6	271	2.0	<1.0	47.6	0.310	0.81	128
RSEM-R6E-EOP	10/23/2018 11:30	UP9909	8.33	822	1.75	484	<4.0	304	315	227	1.8	273	2.1	<1.0	46.4	0.310	0.81	131
RSEM-R6E-EOP	10/24/2018 13:05	UQ3377	8.38	917	2.60	572	5.8	329	334	244	3.2	289	3.9	<1.0	46.9	0.260	0.72	171
RSEM-R6E-EOP	10/25/2018 11:40	UQ3350	8.30	938	2.92	578	4.5	338	345	243	1.9	292	2.3	<1.0	48.3	0.250	0.76	180
RSEM-R6E-EOP	10/26/2018 12:30	UQ5567	8.25	1070	1.52	722	4.3	385	393	240	<1.0	293	<1.0	<1.0	38.5	0.270	0.63	230
RSEM-R6E-EOP	10/27/2018 13:15	UQ8571	8.22	1090	2.75	738	8.5	395	428	250	<1.0	305	<1.0	<1.0	38.1	0.280	0.53	242
RSEM-R6E-EOP	10/28/2018 15:00	UQ8588	8.24	1110	3.62	788	7.3	410	436	251	<1.0	306	<1.0	<1.0	37.7	0.280	0.51	246
RSEM-R6E-EOP	10/29/2018 12:45	UR1748	8.34	1110	4.57	764	4.5	414	423	251	3.1	298	3.8	<1.0	38.8	0.270	0.58	242
RSEM-R6E-EOP	10/30/2018 11:08	UR2636	8.34	1160	2.83	786	5.3	408	429	249	2.7	297	3.2	<1.0	36.3	0.290	0.69	242
RSEM-R6E-EOP	10/30/2018 11:08	UR2635	8.32	1160	2.81	798	5.5	408	428	247	2.1	296	2.5	<1.0	36.7	0.290	0.59	207
RSEM-R6E-EOP	10/31/2018 11:40	UR7287	8.34	1280	2.11	828	5.3	443	448	248	2.9	296	3.5	<1.0	34.4	0.330	0.60	334
RSEM-R6E-EOP	11/1/2018 8:45	UR8080	8.29	1320	2.26	858	6.0	460	419	254	<1.0	309	<1.0	<1.0	41.7	0.340	0.74	313
RSEM-R6E-EOP	11/2/2018 8:30	US0224	8.32	1280	1.90	852	6.5	440	450	249	2.7	298	3.3	<1.0	39.8	0.350	0.63	328
RSEM-R6E-EOP	11/2/2018 8:30	US0223	8.31	1280	2.12	834	6.3	448	477	251	2.1	301	2.5	<1.0	39.6	0.340	0.69	342
RSEM-R6E-EOP	11/3/2018 15:55	US3563	8.29	1320	3.39	860	5.0	482	457	257	<1.0	313	<1.0	<1.0	47.8	0.340	0.81	329
RSEM-R6E-EOP	11/4/2018 12:50	US3566	8.30	1310	3.54	864	5.0	488	460	258	<1.0	315	<1.0	<1.0	48.5	0.340	0.78	342
RSEM-R6E-EOP	11/5/2018 16:10	US7125	8.27	1330	3.31	862	5.3	476	447	257	<1.0	314	<1.0	<1.0	48.0	0.360	0.90	363
RSEM-R6E-EOP	11/5/2018 16:10	US7025	8.27	1330	3.41	860	5.0	483	455	258	<1.0	315	<1.0	<1.0	47.7	0.360	0.94	368
RSEM-R6E-EOP	11/6/2018 13:45	US9397	8.21	1330	3.27	868	7.5	486	480	250	<1.0	305	<1.0	<1.0	48.6	0.370	0.94	331
RSEM-R6E-EOP	11/7/2018 14:55	UT1526	8.17	1300	2.85	852	<4.0	464	467	268	<1.0	327	<1.0	<1.0	47.0	0.330	0.97	306

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	9/14/2018 9:10	UI0650	0.23	0.127	1.29	1.42	0.0067	2.2	2.1	0.151	0.00078	0.00104	0.154	<0.0001	<0.001	0.104	0.000056	55.8	0.0036	0.00233	0.00138
RSEM-R6E-EOP	9/15/2018 7:00	UI5253	0.12	0.153	1.41	1.56	0.0136	2.4	2.6	0.177	0.00093	0.00108	0.166	<0.0001	<0.001	0.126	0.00007	61.2	0.0031	0.00301	0.00211
RSEM-R6E-EOP	9/16/2018 11:10	UI5529	0.14	0.164	1.42	1.58	0.0066	2.4	2.7	0.0779	0.00093	0.00082	0.156	<0.0001	<0.001	0.131	0.000059	62.6	0.0023	0.00317	0.00125
RSEM-R6E-EOP	9/17/2018 11:10	UI5114	0.26	0.175	1.49	1.67	<0.0050	2.8	2.3	0.0757	0.00103	0.00081	0.155	<0.0001	<0.001	0.142	0.000057	68.6	0.0022	0.00339	0.00197
RSEM-R6E-EOP	9/18/2018 9:50	UI9108	0.19	0.184	1.47	1.66	<0.0050	3.1	2.3	0.242	0.00102	0.00132	0.159	<0.0001	<0.001	0.171	0.000059	68.8	0.0032	0.00302	0.00233
RSEM-R6E-EOP	9/19/2018 10:10	UJ0843	0.37	0.177	1.45	1.63	0.0186	4.9	2.7	0.228	0.00108	0.00135	0.162	<0.0001	<0.001	0.158	0.000061	66.8	0.0032	0.0029	0.00385
RSEM-R6E-EOP	9/20/2018 11:00	UJ3869	0.058	0.0601	0.956	1.02	<0.0050	2.79	2.47	0.113	0.00103	0.00125	0.203	<0.0001	<0.001	0.118	0.000029	69.4	0.0046	0.00126	0.00127
RSEM-R6E-EOP	9/21/2018 10:30	UJ7163	0.24	0.131	1.29	1.42	<0.0050	3.46	3.49	0.218	0.00087	0.00128	0.165	<0.0001	<0.001	0.144	0.000014	75.9	0.0025	0.00239	0.00207
RSEM-R6E-EOP	9/22/2018 11:25	UK0064	0.20	0.107	1.25	1.36	0.0066	2.96	3.86	0.155	0.00089	0.00117	0.159	<0.0001	<0.001	0.137	0.000038	76.5	0.0025	0.00211	0.00226
RSEM-R6E-EOP	9/23/2018 10:00	UK1527	0.13	0.0647	0.862	0.927	0.0099	3.65	2.61	0.161	0.0006	0.00091	0.142	<0.0001	<0.001	0.094	0.000038	64.7	0.0015	0.00136	0.00163
RSEM-R6E-EOP	9/24/2018 8:30	UK0552	0.071	0.0663	0.883	0.949	0.0127	4.34	2.63	0.16	0.00068	0.00102	0.148	<0.0001	<0.001	0.11	0.000038	64.9	0.0017	0.00135	0.00196
RSEM-R6E-EOP	9/25/2018 9:30	UK2338	0.034	0.0455	0.653	0.698	<0.0050	3.18	2.28	0.147	0.00053	0.00086	0.135	<0.0001	<0.001	0.08	<0.00001	55.1	0.0013	0.00091	0.00169
RSEM-R6E-EOP	9/26/2018 12:00	UK5505	0.076	0.0415	0.694	0.735	<0.0050	5.40	1.72	0.128	0.00057	0.0009	0.144	<0.0001	<0.001	0.092	0.00002	57.9	0.0015	0.00075	0.00127
RSEM-R6E-EOP	9/27/2018 8:40	UK8653	0.058	0.0472	0.689	0.737	<0.0050	3.43	1.77	0.103	0.00058	0.00089	0.136	<0.0001	<0.001	0.093	0.000015	54.9	0.0014	0.00066	0.00114
RSEM-R6E-EOP	9/28/2018 10:00	UL0964	0.043	0.0515	0.742	0.794	<0.0050	2.5	1.79	0.15	0.00067	0.00111	0.142	<0.0001	<0.001	0.107	0.000017	59.6	0.0017	0.00075	0.00137
RSEM-R6E-EOP	9/29/2018 11:00	UL4206	0.057	0.0520	0.861	0.913	<0.0050	1.5	2.8	0.148	0.00075	0.0012	0.142	<0.0001	<0.001	0.119	0.000014	60.1	0.0017	0.00072	0.00137
RSEM-R6E-EOP	9/30/2018 12:45	UL4212	0.096	0.0483	0.888	0.936	<0.0050	1.5	2.5	0.115	0.00074	0.00126	0.139	<0.0001	<0.001	0.125	0.000017	63.0	0.0017	0.00089	0.00128
RSEM-R6E-EOP	10/1/2018 10:30	UL6712	0.10	0.0520	0.903	0.955	<0.0050	2.4	1.9	0.107	0.00082	0.00134	0.153	<0.0001	<0.001	0.127	<0.00001	60.9	0.0018	0.00093	0.00122
RSEM-R6E-EOP	10/2/2018 12:30	UL6718	0.10	0.0504	0.932	0.983	<0.0050	2.5	2.6	0.106	0.00082	0.00125	0.159	<0.0001	<0.001	0.132	0.000023	61.8	0.0017	0.00089	0.00155
RSEM-R6E-EOP	10/3/2018 12:40	UM2671	0.081	0.0459	0.926	0.972	<0.0050	2.0	1.7	0.0722	0.00077	0.00122	0.145	<0.0001	<0.001	0.136	<0.00001	59.9	0.0016	0.00078	0.00122
RSEM-R6E-EOP	10/4/2018 12:00	UM6149	0.078	0.0413	0.928	0.969	<0.0050	1.9	2.4	0.066	0.00082	0.00119	0.153	<0.0001	<0.001	0.139	0.000021	62.6	0.0015	0.00079	0.00124
RSEM-R6E-EOP	10/5/2018 9:45	UM6134	0.082	0.0365	0.943	0.980	<0.0050	2.0	2.1	0.0973	0.00076	0.00117	0.154	<0.0001	<0.001	0.151	0.000026	63.4	0.0014	0.00079	0.00123
RSEM-R6E-EOP	10/6/2018 15:50	UM9336	0.071	0.0351	0.936	0.971	<0.0050	1.2	1.0	0.0831	0.00065	0.00103	0.153	<0.0001	<0.001	0.119	0.00002	70.0	0.0013	0.00074	0.00123
RSEM-R6E-EOP	10/7/2018 13:00	UM9328	0.066	0.0320	0.935	0.967	<0.0050	1.2	1.0	0.111	0.00062	0.00096	0.156	<0.0001	<0.001	0.12	0.000021	68.5	0.0012	0.00073	0.00123
RSEM-R6E-EOP	10/8/2018 13:15	UM9333	0.056	0.0291	0.935	0.964	<0.0050	0.84	1.0	0.205	0.00062	0.00092	0.171	<0.0001	<0.001	0.116	0.000024	72.2	0.0012	0.00081	0.00147
RSEM-R6E-EOP	10/9/2018 9:15	UM9811	0.046	0.0248	0.888	0.913	<0.0050	1.3	1.4	0.191	0.00055	0.00092	0.167	<0.0001	<0.001	0.116	0.000024	84.0	0.0012	0.00074	0.00162
RSEM-R6E-EOP	10/9/2018 12:14	UN2723	0.066	0.0219	0.860	0.882	<0.0050	1.4	1.3	0.185	0.0006	0.00102	0.175	<0.0001	<0.001	0.115	0.000023	77.9	0.0013	0.00082	0.00147
RSEM-R6E-EOP	10/10/2018 9:25	UN2720	0.12	0.0205	0.863	0.884	<0.0050	1.2	1.2	0.167	0.00055	0.00092	0.17	<0.0001	<0.001	0.103	0.000021	82.2	0.0011	0.00078	0.00126
RSEM-R6E-EOP	10/11/2018 9:35	UN4653	0.60	0.0230	0.890	0.913	<0.0050	2.4	2.5	0.121	0.00055	0.00082	0.168	<0.0001	<0.001	0.104	0.000021	82.8	0.0012	0.00073	0.00121
RSEM-R6E-EOP	10/11/2018 9:35	UN4654	0.047	0.0230	0.889	0.912	<0.0050	2.5	2.6	0.11	0.00053	0.00087	0.17	<0.0001	<0.001	0.103	0.000021	81.2	0.0012	0.00074	0.00121
RSEM-R6E-EOP	10/12/2018 9:35	UN7470	0.065	0.0210	0.876	0.897	<0.0050	2.9	2.7	0.154	0.00061	0.00082	0.172	<0.0001	<0.001	0.089	0.000029	89.1	0.0011	0.00095	0.00221
RSEM-R6E-EOP	10/13/2018 11:45	UN9933	0.047	0.0147	0.855	0.870	<0.0050	2.1	1.9	0.158	<0.0005	0.00069	0.171	<0.0001	<0.001	0.086	0.000037	88.5	0.0011	0.00124	0.0015
RSEM-R6E-EOP	10/14/2018 11:40	UN9926	0.056	0.0150	0.888	0.903	<0.0050	2.1	2.2	0.105	<0.0005	0.00061	0.168	<0.0001	<0.001	0.082	0.000037	86.3	0.001	0.00136	0.00128
RSEM-R6E-EOP	10/14/2018 11:50	UN9929	0.050	0.0138	0.880	0.894	<0.0050	2.1	2.0	0.0937	<0.0005	0.00062	0.17	<0.0001	<0.001	0.086	0.000038	94.2	0.001	0.0014	0.00137
RSEM-R6E-EOP	10/15/2018 15:15	UO4610	<0.020	0.0128	0.952	0.965	<0.0050	2.8	2.4	0.116	<0.0005	0.00053	0.162	<0.0001	<0.001	0.075	0.000032	89.9	<0.001	0.00134	0.00113
RSEM-R6E-EOP	10/16/2018 11:45	UO9189	0.028	0.0172	0.995	1.01	<0.0050	2.4	2.5	0.0687	<0.0005	0.00051	0.166	<0.0001	<0.001	0.08	0.000035	100	<0.001	0.0014	0.0012
RSEM-R6E-EOP	10/17/2018 14:50	UO9199	0.040	0.0121	1.03	1.04	<0.0050	2.1	2.2	0.07	<0.0005	0.00048	0.162	<0.0001	<0.001	0.081	0.000028	95.1	<0.001	0.00127	0.00103
RSEM-R6E-EOP	10/18/2018 17:30	UP3093	<0.020	0.0136	1.06	1.07	<0.0050	2.2	2.5	0.0602	<0.0005	0.00048	0.16	<0.0001	<0.001	0.074	0.000017	91.6	<0.001	0.00122	0.00106
RSEM-R6E-EOP	10/19/2018 9:21	UP3097	<0.020	0.0172	1.11	1.12	<0.0050	2.1	2.3	0.0659	<0.0005	0.00049	0.164	<0.0001	<0.001	0.081	0.000011	95.1	<0.001	0.0012	0.0011
RSEM-R6E-EOP	10/19/2018 9:21	UP3096	0.021	0.0115	1.07	1.08	<0.0050	2.0	2.3	0.0876	<0.0005	0.00047	0.162	<0.0001	<0.001	0.079	0.000012	94.2	<0.001	0.00122	0.00115
RSEM-R6E-EOP	10/20/2018 8:15	UP6165	<0.020	0.0121	1.11	1.12	<0.0050	2.7	2.6	0.0558	<0.0005	0.00046	0.161	<0.0001	<0.001	0.082	<0.00001	93.1	<0.001	0.00111	0.0011
RSEM-R6E-EOP	10/21/2018 16:15	UP5457	<0.020	0.0087	1.09	1.10	<0.0050	2.6	2.2	0.0905	<0.0005	0.00047	0.171	<0.0001	<0.001	0.079	<0.00001	88.2	<0.001	0.00099	0.00109
RSEM-R6E-EOP	10/21/2018 16:15	UP5456	<0.020	0.0082	1.11	1.11	<0.0050	2.4	2.1	0.0743	<0.0005	0.00042	0.166	<0.0001	<0.001	0.076	<0.00001	86.5	<0.001	0.00091	0.00106
RSEM-R6E-EOP	10/22/2018 9:00	UP6171	<0.020	0.0124	1.10	1.11	<0.0050	2.6	2.3	0.0716	<0.0005	0.00041	0.152	<0.0001	<0.001	0.082	<0.00001	85.5	<0.001	0.00094	0.00106
RSEM-R6E-EOP	10/23/2018 11:30	UP9909	<0.020	0.0141	1.10	1.11	<0.0050	2.5	2.3	0.0787	<0.0005	0.00043	0.149	<0.0001	<0.001	0.069	<0.00001	85.1	<0.001	0.00087	0.00094
RSEM-R6E-EOP	10/24/2018 13:05	UQ3377	0.039	0.0152	0.982	0.997	<0.0050	2.6	2.2	0.0791	<0.0005	0.00058	0.157	<0.0001	<0.001	0.096	0.000012	88.1	<0.001	0.00085	0.00104
RSEM-R6E-EOP	10/25/2018 11:40	UQ3350	0.026	0.0192	0.954	0.973	<0.0050	2.1	1.8	0.175	0.00056	0.00064	0.16	<0.0001	<0.001	0.103	0.000015	91.9	0.001	0.00088	0.00121
RSEM-R6E-EOP	10/26/2018 12:30	UQ5567	0.11	0.0266	0.892	0.919	<0.0050	2.1	2.5	0.0889	0.00053	0.00061	0.147	<0.0001	<0.001	0.099	0.000037	101	<0.001	0.00136	0.00137
RSEM-R6E-EOP	10/27/2018 13:15	UQ8571	0.068	0.0195	0.870	0.889	<0.0050	2.23	1.24	0.0955	<0.0005	0.00061	0.145	<0.0001	<0.001	0.089	0.000058	102	<0.001	0.00171	0.0012
RSEM-R6E-EOP	10/28/2018 15:00	UQ8588	0.057	0.0198	0.888	0.908	<0.0050	2.43	1.89	0.0871	<0.0005	0.0006	0.151	<0.0001	<0.001	0.093	0.000065	104	<0.001	0.00196	0.00112
RSEM-R6E-EOP	10/29/2018 12:45	UR1748	0.073	0.0207	0.891	0.911	<0.0050	1.59	1.60	0.111	<0.0005	0.00057	0.147	<0.0001	<0.001	0.099	0.00006	107	<0.001	0.00203	0.00121
RSEM-R6E-EOP	10/30/2018 11:08	UR2636	0.072	0.0188	0.905	0.923	<0.0050	2.47	2.08	0.0978	<0.0005	0.00056	0.146	<0.0001	<0.001	0.088	0.000064	106	<0.001	0.00233	0.00123
RSEM-R6E-EOP	10/30/2018 11:08	UR2635	0.072	0.0190	0.898	0.917	<0.0050	2.26	2.51	0.0957	<0.0005	0.00057	0.144	<0.0001	<0.001	0.087	0.000064	106	<0.001	0.00236	0.00118
RSEM-R6E-EOP	10/31/2018 11:40	UR7287	0.084	0.0171	0.890	0.908	<0.0050	1.70	1.60	0.0817	0.00054	0.00055	0.135	<0.0001	<0.001	0.111	0.000078	113	<0.001	0.003	0.00122
RSEM-R6E-EOP	11/1/2018 8:45	UR8080	0.19	0.0178	0.893	0.910	<0.0050	1.89	1.37	0.0896	0.00055	0.00062	0.14	<0.0001	<0.001	0.121	0.000084	116	<0.001	0.00337	0.0013
RSEM-R6E-EOP	11/2/2018 8:30	US0224	0.088	0.0154	0.959	0.974	<0.0050	2.93	2.95	0.0819	0.00054	0.00047	0.131	<0.0001	<0.001	0.123	0.000076	110	<0.001	0.00321	0.00129
RSEM-R6E-EOP	11/2/2018 8:30	US0223	0.092	0.0162	0.887	0.903	<0.0050	3.80	4.16	0.0982	0.00053	0.00044	0.138	<0.0001	<0.001	0.122	0.000079	115	<0.001	0.00313	0.00131
RSEM-R6E-EOP	11/3/2018 15:55	US3563	0.095	0.0148	0.889	0.904	<0.0050	1.98	2.62	0.112	0.00051	0.0005	0.135	<0.0001	<0.001	0.123	0.000069	121	<0.001	0.0034	0.00144
RSEM-R6E-EOP	11/4/2018 12:50	US3566	0.11	0.0166	0.897	0.913	<0.0050	3.38	2.56	0.0998	0.00052	0.0005	0.135	<0.0001	<0.001	0.127	0.000069	124	<0.001	0.0033	0.00135
RSEM-R6E-EOP	11/5/2018 16:10	US7125	0.094	0.0087	0.930	0.939	<0.0050	3.02	1.93	0.083	0.00053	0.00052	0.134	<0.0001	<0.001	0.12	0.000072	119	<0.001	0.00321	0.00124
RSEM-R6E-EOP	11/5/2018 16:10	US7025	0.090	0.0057	0.932	0.938	<0.0050	2.57	1.50	0.078	0.00053	0.00053	0.137	<0.0001	<0.001	0.12	0.000074	122	<0.001	0.00326	0.00134
RSEM-R6E-EOP	11/6/2018 13:45	US9397	0.092	0.0131	0.938	0.951	<0.0050	3.43	1.41	0.0575	0.00054	0.00055	0.134	<0.0001	<0.001	0.135	0.000068	123	<0.001	0.00325	0.0012
RSEM-R6E-EOP	11/7/2018 14:55	UT1526	0.14	0.0121	1.12	1.14	<0.0050	2.23	2.69	0.0584	<0.0005	0.00046	0.15	<0.0001	<0.001	0.112	0.00005	118	<0.001	0.00275	0.00106

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	9/14/2018 9:10	UI0650	0.117	<0.0002	0.0248	12.7	0.0596	0.0000034	0.0138	0.0099	-	3.33	0.00385	3.87	<0.00002	69.4	0.291	48.9	0.000014	<0.005	<0.005	0.00159
RSEM-R6E-EOP	9/15/2018 7:00	UI5253	0.245	<0.0002	0.0289	15.9	0.0863	<0.000002	0.017	0.0122	-	3.77	0.00405	3.91	<0.00002	91.8	0.341	59.6	0.000013	<0.005	<0.005	0.00201
RSEM-R6E-EOP	9/16/2018 11:10	UI5529	0.121	<0.0002	0.0306	17.2	0.103	<0.000002	0.0177	0.0128	-	3.85	0.00404	3.82	<0.00002	102	0.358	68.1	0.000013	<0.005	<0.005	0.00206
RSEM-R6E-EOP	9/17/2018 11:10	UI5114	0.088	<0.0002	0.031	19.6	0.116	<0.000002	0.0189	0.0143	-	4.05	0.00376	3.85	<0.00002	113	0.392	71.6	0.000016	<0.005	<0.005	0.00205
RSEM-R6E-EOP	9/18/2018 9:50	UI9108	0.321	0.00032	0.0354	21.4	0.103	0.0000031	0.0205	0.0127	-	4.32	0.00373	4.37	<0.00002	121	0.355	81.2	0.000018	<0.005	<0.005	0.0024
RSEM-R6E-EOP	9/19/2018 10:10	UJ0843	0.313	0.00036	0.0361	20.1	0.0921	0.0000023	0.0194	0.0124	-	4.49	0.00339	4.46	<0.00002	109	0.344	72.4	0.000019	<0.005	<0.005	0.00233
RSEM-R6E-EOP	9/20/2018 11:00	UJ3869	0.124	<0.0002	0.0297	17.9	0.0558	<0.000002	0.0149	0.0073	-	4.16	0.00465	3.71	<0.00002	79.2	0.406	65.8	0.000013	<0.005	<0.005	0.00218
RSEM-R6E-EOP	9/21/2018 10:30	UJ7163	0.356	0.0003	0.0305	22.7	0.0848	0.0000028	0.0161	0.0106	-	4.05	0.00279	4.33	<0.00002	108	0.375	66.7	0.000016	<0.005	<0.005	0.00226
RSEM-R6E-EOP	9/22/2018 11:25	UK0064	0.242	0.00022	0.0285	21.8	0.0779	0.0000023	0.0153	0.01	-	4.14	0.00285	4.54	<0.00002	99.5	0.353	67.5	0.000016	<0.005	<0.005	0.00224
RSEM-R6E-EOP	9/23/2018 10:00	UK1527	0.307	0.00025	0.02	17.6	0.0481	0.0000036	0.0105	0.0062	-	3.34	0.00189	4.29	<0.00002	66.4	0.263	45.3	0.000015	<0.005	<0.005	0.00172
RSEM-R6E-EOP	9/24/2018 8:30	UK0552	0.266	0.00024	0.0228	18.1	0.0502	<0.000002	0.0119	0.0064	-	3.59	0.00196	4.35	<0.00002	77.5	0.277	50.2	0.000014	<0.005	<0.005	0.00186
RSEM-R6E-EOP	9/25/2018 9:30	UK2338	0.216	<0.0002	0.0176	15.7	0.0339	<0.000002	0.0099	0.0045	-	3.07	0.0014	3.8	<0.00002	59.0	0.231	34.6	0.000015	<0.005	<0.005	0.00149
RSEM-R6E-EOP	9/26/2018 12:00	UK5505	0.121	<0.0002	0.0196	15.3	0.0264	0.0000029	0.01	0.0041	-	3.30	0.00152	4.27	<0.00002	64.1	0.216	37.6	0.000013	<0.005	<0.005	0.00157
RSEM-R6E-EOP	9/27/2018 8:40	UK8653	0.103	<0.0002	0.0191	14.6	0.0203	0.0000034	0.0106	0.0036	-	3.07	0.00147	4.15	<0.00002	63.9	0.216	35.7	0.000011	<0.005	<0.005	0.00151
RSEM-R6E-EOP	9/28/2018 10:00	UL0964	0.146	<0.0002	0.0219	16.7	0.0204	0.0000033	0.0117	0.0041	-	3.45	0.00164	4.25	<0.00002	80.6	0.245	41.7	0.000013	<0.005	<0.005	0.00158
RSEM-R6E-EOP	9/29/2018 11:00	UL4206	0.134	<0.0002	0.0242	16.9	0.0184	0.0000036	0.012	0.0042	-	3.67	0.00195	4.28	<0.00002	84.5	0.251	42.8	0.000012	<0.005	<0.005	0.00163
RSEM-R6E-EOP	9/30/2018 12:45	UL4212	0.081	<0.0002	0.0252	17.9	0.0216	<0.000002	0.0125	0.0047	-	3.80	0.00194	4.27	<0.00002	92.2	0.257	46.4	0.000012	<0.005	<0.005	0.00172
RSEM-R6E-EOP	10/1/2018 10:30	UL6712	0.07	<0.0002	0.0258	17.9	0.0239	<0.000002	0.0129	0.0051	-	3.72	0.00195	3.99	<0.00002	95.0	0.308	47.4	0.000012	<0.005	<0.005	0.00177
RSEM-R6E-EOP	10/2/2018 12:30	UL6718	0.095	<0.0002	0.028	17.3	0.0225	0.000003	0.013	0.0051	-	3.91	0.00189	4.36	<0.00002	89.1	0.271	50.9	0.000011	<0.005	<0.005	0.0018
RSEM-R6E-EOP	10/3/2018 12:40	UM2671	0.071	<0.0002	0.0249	17.7	0.0205	0.0000025	0.0115	0.0046	-	3.46	0.00181	3.92	<0.00002	91.7	0.288	46.8	0.000011	<0.005	<0.005	0.00174
RSEM-R6E-EOP	10/4/2018 12:00	UM6149	0.063	<0.0002	0.0256	17.8	0.0203	<0.000002	0.0119	0.0049	-	3.57	0.00187	3.87	<0.00002	90.7	0.297	47.0	<0.00001	<0.005	<0.005	0.00166
RSEM-R6E-EOP	10/5/2018 9:45	UM6134	0.092	<0.0002	0.0272	18.7	0.0205	<0.000002	0.0109	0.005	-	3.72	0.00186	3.73	<0.00002	85.3	0.308	46.3	0.000012	<0.005	<0.005	0.00167
RSEM-R6E-EOP	10/6/2018 15:50	UM9336	0.076	<0.0002	0.024	20.1	0.019	<0.000002	0.0104	0.0047	-	3.46	0.00167	4.06	<0.00002	80.3	0.313	44.7	<0.00001	<0.005	<0.005	0.00176
RSEM-R6E-EOP	10/7/2018 13:00	UM9328	0.086	<0.0002	0.0239	19.2	0.0186	<0.000002	0.0095	0.0047	-	3.50	0.0016	4.06	<0.00002	75.5	0.297	42.6	<0.00001	<0.005	<0.005	0.00169
RSEM-R6E-EOP	10/8/2018 13:15	UM9333	0.158	<0.0002	0.0257	20.6	0.0212	<0.000002	0.0088	0.005	-	3.41	0.00158	4.42	<0.00002	74.5	0.305	41.9	0.000012	<0.005	<0.005	0.00177
RSEM-R6E-EOP	10/9/2018 9:15	UM9811	0.185	<0.0002	0.0244	22.0	0.0293	<0.000002	0.0078	0.0044	-	3.60	0.00148	4.99	<0.00002	70.3	0.312	51.6	0.000012	<0.005	<0.005	0.00195
RSEM-R6E-EOP	10/9/2018 12:14	UN2723	0.19	<0.0002	0.0245	22.9	0.0317	<0.000002	0.0087	0.0053	-	3.51	0.00155	4.52	<0.00002	73.3	0.321	54.3	0.000011	<0.005	0.0066	0.00199
RSEM-R6E-EOP	10/10/2018 9:25	UN2720	0.132	<0.0002	0.0239	22.5	0.0329	<0.000002	0.0078	0.005	-	3.38	0.00152	4.49	<0.00002	67.6	0.318	54.2	0.000011	<0.005	<0.005	0.00197
RSEM-R6E-EOP	10/11/2018 9:35	UN4653	0.111	<0.0002	0.023	22.6	0.0307	<0.000002	0.0075	0.005	-	3.33	0.00147	4.47	<0.00002	64.8	0.318	53.8	0.00001	<0.005	<0.005	0.00197
RSEM-R6E-EOP	10/11/2018 9:35	UN4654	0.108	<0.0002	0.0233	22.4	0.031	0.0000024	0.0077	0.0048	-	3.36	0.00145	4.39	<0.00002	64.7	0.318	53.1	0.00001	<0.005	<0.005	0.00198
RSEM-R6E-EOP	10/12/2018 9:35	UN7470	0.248	0.00021	0.0228	22.9	0.0373	0.0000024	0.0066	0.0063	-	3.51	0.00127	4.18	0.000071	56.5	0.455	46.4	<0.00001	<0.005	<0.005	0.00188
RSEM-R6E-EOP	10/13/2018 11:45	UN9933	0.191	<0.0002	0.0217	23.1	0.0388	0.0000026	0.0061	0.0066	-	3.53	0.00131	4.04	<0.00002	53.1	0.43	45.7	0.000011	<0.005	<0.005	0.00192
RSEM-R6E-EOP	10/14/2018 11:40	UN9926	0.182	<0.0002	0.0219	23.9	0.0424	<0.000002	0.0059	0.0073	-	3.57	0.00132	3.63	<0.00002	51.9	0.436	47.0	0.000011	<0.005	<0.005	0.00199
RSEM-R6E-EOP	10/14/2018 11:50	UN9929	0.167	<0.0002	0.0219	24.6	0.0438	<0.000002	0.0061	0.0075	-	3.70	0.00131	3.94	<0.00002	54.6	0.443	48.1	<0.00001	<0.005	<0.005	0.00206
RSEM-R6E-EOP	10/15/2018 15:15	UO4610	0.12	<0.0002	0.0196	23.1	0.0388	<0.000002	0.0056	0.007	-	3.52	0.00113	3.66	<0.00002	46.7	0.459	41.8	<0.00001	<0.005	<0.005	0.00191
RSEM-R6E-EOP	10/16/2018 11:45	UO9189	0.087	<0.0002	0.0199	24.9	0.0392	<0.000002	0.0057	0.0073	-	3.65	0.00129	3.11	<0.00002	49.7	0.447	44.1	<0.00001	<0.005	<0.005	0.00202
RSEM-R6E-EOP	10/17/2018 14:50	UO9199	0.068	<0.0002	0.0197	24.3	0.0345	<0.000002	0.0053	0.007	-	3.58	0.0012	3.65	<0.00002	47.1	0.447	42.0	<0.00001	<0.005	<0.005	0.00192
RSEM-R6E-EOP	10/18/2018 17:30	UP3093	0.048	<0.0002	0.0188	24.1	0.0308	0.0000069	0.0052	0.0071	-	3.63	0.00113	3.52	<0.00002	46.0	0.436	41.2	<0.00001	<0.005	<0.005	0.00196
RSEM-R6E-EOP	10/19/2018 9:21	UP3097	0.053	<0.0002	0.0203	24.9	0.0282	<0.000002	0.0054	0.0071	-	3.68	0.00121	3.74	<0.00002	47.4	0.442	42.7	<0.00001	<0.005	<0.005	0.00196
RSEM-R6E-EOP	10/19/2018 9:21	UP3096	0.05	<0.0002	0.0205	24.9	0.0284	0.0000026	0.0054	0.0072	-	3.74	0.00119	3.78	<0.00002	47.0	0.451	42.6	<0.00001	<0.005	<0.005	0.00197
RSEM-R6E-EOP	10/20/2018 8:15	UP6165	0.035	<0.0002	0.02	25.0	0.0244	<0.000002	0.0052	0.0069	-	3.62	0.00124	3.38	<0.00002	47.5	0.437	41.8	<0.00001	<0.005	<0.005	0.00199
RSEM-R6E-EOP	10/21/2018 16:15	UP5457	0.071	<0.0002	0.0199	23.2	0.0209	0.000004	0.0051	0.0066	-	3.93	0.00107	3.69	<0.00002	43.0	0.43	44.3	<0.00001	<0.005	<0.005	0.00182
RSEM-R6E-EOP	10/21/2018 16:15	UP5456	0.059	<0.0002	0.0194	21.6	0.0197	0.0000035	0.0048	0.0064	-	3.61	0.00105	3.71	<0.00002	40.9	0.415	40.6	<0.00001	<0.005	<0.005	0.0018
RSEM-R6E-EOP	10/22/2018 9:00	UP6171	0.046	<0.0002	0.0199	24.3	0.0192	<0.000002	0.0048	0.0067	-	3.48	0.00107	3.26	<0.00002	44.9	0.414	38.9	<0.00001	<0.005	<0.005	0.0019
RSEM-R6E-EOP	10/23/2018 11:30	UP9909	0.057	<0.0002	0.0184	22.2	0.0251	0.0000021	0.0048	0.0058	-	3.42	0.00101	3.9	<0.00002	41.3	0.454	40.4	<0.00001	<0.005	<0.005	0.00179
RSEM-R6E-EOP	10/24/2018 13:05	UQ3377	0.091	<0.0002	0.0233	26.4	0.091	0.0000035	0.0058	0.0057	-	3.69	0.00126	3.79	<0.00002	62.1	0.415	54.4	0.00001	<0.005	<0.005	0.00198
RSEM-R6E-EOP	10/25/2018 11:40	UQ3350	0.187	<0.0002	0.0237	26.4	0.104	0.0000045	0.0062	0.0057	-	3.59	0.00145	4.01	<0.00002	63.7	0.437	60.1	0.000013	<0.005	<0.005	0.00209
RSEM-R6E-EOP	10/26/2018 12:30	UQ5567	0.128	<0.0002	0.0253	32.1	0.206	<0.000002	0.0061	0.0066	-	3.64	0.00167	3.98	<0.00002	79.8	0.429	86.2	0.000012	<0.005	<0.005	0.00225
RSEM-R6E-EOP	10/27/2018 13:15	UQ8571	0.187	<0.0002	0.0246	34.0	0.219	0.0000049	0.0054	0.0072	-	3.49	0.00164	3.84	<0.00002	76.4	0.413	97.5	0.000013	<0.005	<0.005	0.00231
RSEM-R6E-EOP	10/28/2018 15:00	UQ8588	0.17	<0.0002	0.0263	36.6	0.222	<0.000002	0.0055	0.0079	-	3.56	0.00178	4.04	<0.00002	80.7	0.401	100	0.000013	<0.005	<0.005	0.0023
RSEM-R6E-EOP	10/29/2018 12:45	UR1748	0.151	<0.0002	0.0289	35.6	0.23	<0.000002	0.0056	0.0082	-	3.39	0.00176	4.34	<0.00002	79.2	0.467	101	0.000011	<0.005	<0.005	0.00246
RSEM-R6E-EOP	10/30/2018 11:08	UR2636	0.147	<0.0002	0.0236	34.8	0.223	0.0000042	0.0054	0.0091	-	3.56	0.00193	3.37	<0.00002	82.2	0.478	101	0.000012	<0.005	<0.005	0.00248
RSEM-R6E-EOP	10/30/2018 11:08	UR2635	0.149	<0.0002	0.0238	34.6	0.22	<0.000002	0.0053	0.0093	-	3.53	0.00189	3.34	<0.00002	81.2	0.459	100	0.000011	<0.005	<0.005	0.00253
RSEM-R6E-EOP	10/31/2018 11:40	UR7287	0.16	<0.0002	0.0355	39.3	0.225	0.0000026	0.0055	0.0128	-	3.67	0.00231	3.84	<0.00002	99.6	0.466	125	0.000014	<0.005	<0.005	0.0029
RSEM-R6E-EOP	11/1/2018 8:45	UR8080	0.173	<0.0002	0.0415	41.3	0.223	<0.000002	0.0054	0.0135	-	4.07	0.00231	3.99	<0.00002	108	0.552	139	0.000014	<0.005	<0.005	0.00302
RSEM-R6E-EOP	11/2/2018 8:30	US0224	0.132	<0.0002	0.0397	40.4	0.213	<0.000002	0.0049	0.0126	-	3.75	0.00203	3.53	<0.00002	102	0.551	122	0.000013	<0.005	<0.005	0.00297
RSEM-R6E-EOP	11/2/2018 8:30	US0223	0.138	<0.0002	0.0383	39.3	0.211	0.0000026	0.0052	0.0122	-	3.62	0.00215	3.66	<0.00002	100	0.531	118	0.000012	<0.005	<0.005	0.00306
RSEM-R6E-EOP	11/3/2018 15:55	US3563	0.143	<0.0002	0.0373	44.0	0.215	<0.000002	0.0045	0.0132	-	4.17	0.00205	3.79	<0.00002	119	0.566	136	0.000015	<0.005	<0.005	0.0029
RSEM-R6E-EOP	11/4/2018 12:50	US3566	0.128	<0.0002	0.0379	43.5	0.208	<0.000002	0.0047	0.0127	-	4.04	0.00218	3.86	<0.00002	117	0.577	133	0.000014	<0.005	<0.005	0.00305
RSEM-R6E-EOP	11/5/2018 16:10	US7125	0.119	<0.0002	0.0388	43.6	0.208	<0.000002	0.0052	0.0127	-	3.92	0.00203	3.61	<0.00002	115	0.643	132	0.000014	<0.005	<0.005	0.00294
RSEM-R6E-EOP	11/5/2018 16:10	US7025	0.118	0.00026	0.0399	43.4	0.211	<0.000002	0.005	0.013	-	4.03	0.00208	3.69	<0.00002	116	0.664	133	0.000015	<0.005	<0.005	0.003
RSEM-R6E-EOP	11/6/2018 13:45	US9397	0.101	<0.0002	0.0408	43.4	0.212	<0.000002	0.0048	0.0128	-	4.19	0.00215	3.82	<0.00002	116	0.603	136	0.000014	<0.005	<0.005	0.00314
RSEM-R6E-EOP	11/7/2018 14:55	UT1526	0.075	<0.0002	0.0353	40.9	0.181	<0.000002	0.0045	0.0114	-	3.67	0.0018	4.1	<0.00002	98.4	0.625	111	0.000012	<0.005	<0.005	0.00274

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	9/14/2018 9:10	UI0650	<0.005	0.0056	<0.0001	0.0594	0.00082	0.00097	0.156	<0.0001	<0.001	0.107	0.000051	57.7	0.0036	0.00216	0.00119	<0.01	<0.0002	0.0265	13.7	0.0541
RSEM-R6E-EOP	9/15/2018 7:00	UI5253	<0.005	0.0071	<0.0001	0.0442	0.00091	0.00085	0.155	<0.0001	<0.001	0.123	0.000056	61.7	0.0023	0.0029	0.00129	<0.01	<0.0002	0.0277	15.1	0.0826
RSEM-R6E-EOP	9/16/2018 11:10	UI5529	<0.005	0.0054	<0.0001	0.0666	0.00095	0.00075	0.155	<0.0001	<0.001	0.131	0.000058	64.7	0.002	0.0031	0.0011	<0.01	<0.0002	0.0313	16.4	0.102
RSEM-R6E-EOP	9/17/2018 11:10	UI5114	<0.005	0.0064	<0.0001	0.0347	0.00101	0.0008	0.156	<0.0001	<0.001	0.137	0.000056	66.5	0.0019	0.00319	0.00113	<0.01	<0.0002	0.0341	17.4	0.108
RSEM-R6E-EOP	9/18/2018 9:50	UI9108	<0.005	0.0079	0.00014	0.0539	0.00102	0.00113	0.133	<0.0001	<0.001	0.157	0.000023	70.3	0.0027	0.00247	0.0013	<0.01	<0.0002	0.0345	22.2	0.0873
RSEM-R6E-EOP	9/19/2018 10:10	UJ0843	<0.005	0.0139	0.00018	0.0646	0.00104	0.0012	0.147	<0.0001	<0.001	0.164	0.000043	70.7	0.0029	0.00263	0.00421	<0.01	<0.0002	0.0359	22.6	0.0814
RSEM-R6E-EOP	9/20/2018 11:00	UJ3869	<0.005	<0.005	<0.0001	0.0454	0.00101	0.0012	0.192	<0.0001	<0.001	0.123	0.000015	63.9	0.0047	0.00121	0.001	<0.01	<0.0002	0.0309	18.2	0.0499
RSEM-R6E-EOP	9/21/2018 10:30	UJ7163	<0.005	0.0059	0.00013	0.0565	0.00092	0.00107	0.155	<0.0001	<0.001	0.155	0.000021	72.2	0.0023	0.00185	0.00127	0.01	<0.0002	0.0331	22.0	0.0654
RSEM-R6E-EOP	9/22/2018 11:25	UK0064	<0.005	0.006	<0.0001	0.0432	0.00087	0.00105	0.155	<0.0001	<0.001	0.135	0.000026	78.1	0.0024	0.00191	0.00144	<0.01	<0.0002	0.0287	22.4	0.0645
RSEM-R6E-EOP	9/23/2018 10:00	UK1527	<0.005	0.0059	0.00014	0.0318	0.00063	0.00075	0.139	<0.0001	<0.001	0.099	0.00002	66.2	0.0013	0.0011	0.00106	<0.01	<0.0002	0.0223	17.6	0.0371
RSEM-R6E-EOP	9/24/2018 8:30	UK0552	<0.005	0.0052	0.00015	0.0305	0.00068	0.00086	0.142	<0.0001	<0.001	0.103	0.000021	65.6	0.0015	0.00117	0.00133	<0.01	<0.0002	0.0215	18.2	0.0407
RSEM-R6E-EOP	9/25/2018 9:30	UK2338	<0.005	<0.005	<0.0001	0.0284	0.00054	0.00074	0.13	<0.0001	<0.001	0.084	0.000015	57.3	0.001	0.0007	0.00141	<0.01	<0.0002	0.0182	15.4	0.0255
RSEM-R6E-EOP	9/26/2018 12:00	UK5505	<0.005	<0.005	<0.0001	0.0374	0.00058	0.00089	0.135	<0.0001	<0.001	0.095	0.000015	59.8	0.0012	0.00071	0.00139	<0.01	<0.0002	0.0202	17.1	0.0231
RSEM-R6E-EOP	9/27/2018 8:40	UK8653	<0.005	<0.005	<0.0001	0.0399	0.00056	0.00084	0.128	<0.0001	<0.001	0.092	0.000011	54.5	0.0028	0.00059	0.00088	0.051	<0.0002	0.0197	15.9	0.016
RSEM-R6E-EOP	9/28/2018 10:00	UL0964	<0.005	<0.005	<0.0001	0.0417	0.00068	0.001	0.135	<0.0001	<0.001	0.101	<0.00001	55.8	0.0014	0.00052	0.00096	<0.01	<0.0002	0.0201	15.1	0.0131
RSEM-R6E-EOP	9/29/2018 11:00	UL4206	<0.005	<0.005	0.00015	0.0419	0.00078	0.00116	0.141	<0.0001	<0.001	0.122	<0.00001	56.0	0.0016	0.00056	0.00096	<0.01	<0.0002	0.0247	16.5	0.0124
RSEM-R6E-EOP	9/30/2018 12:45	UL4212	<0.005	<0.005	<0.0001	0.0407	0.0008	0.00115	0.141	<0.0001	<0.001	0.125	0.000015	58.1	0.0017	0.00078	0.00153	<0.01	<0.0002	0.0262	17.0	0.0171
RSEM-R6E-EOP	10/1/2018 10:30	UL6712	<0.005	<0.005	0.0001	0.036	0.00084	0.00128	0.149	<0.0001	<0.001	0.139	0.000014	62.1	0.0017	0.00089	0.00096	<0.01	<0.0002	0.0296	18.1	0.0199
RSEM-R6E-EOP	10/2/2018 12:30	UL6718	<0.005	0.0053	<0.0001	0.0338	0.00081	0.00119	0.142	<0.0001	<0.001	0.131	<0.00001	62.6	0.0015	0.00076	0.00154	<0.01	<0.0002	0.026	18.1	0.0182
RSEM-R6E-EOP	10/3/2018 12:40	UM2671	<0.005	<0.005	<0.0001	0.031	0.00081	0.00128	0.153	<0.0001	<0.001	0.139	<0.00001	64.4	0.0016	0.00076	0.00152	<0.01	<0.0002	0.0276	19.5	0.0189
RSEM-R6E-EOP	10/4/2018 12:00	UM6149	<0.005	<0.005	<0.0001	0.0317	0.00082	0.00117	0.153	<0.0001	<0.001	0.148	<0.00001	66.3	0.0014	0.00061	0.00109	<0.01	<0.0002	0.0298	17.8	0.0131
RSEM-R6E-EOP	10/5/2018 9:45	UM6134	<0.005	<0.005	<0.0001	0.0302	0.00075	0.00113	0.152	<0.0001	<0.001	0.138	<0.00001	66.7	0.0013	0.00061	0.00108	<0.01	<0.0002	0.0279	19.5	0.0126
RSEM-R6E-EOP	10/6/2018 15:50	UM9336	<0.005	<0.005	0.00011	0.0257	0.00065	0.00099	0.154	<0.0001	<0.001	0.126	0.000014	67.4	0.0011	0.00066	0.00096	<0.01	<0.0002	0.0264	19.0	0.0158
RSEM-R6E-EOP	10/7/2018 13:00	UM9328	<0.005	<0.005	0.00013	0.0262	0.00061	0.00091	0.158	<0.0001	<0.001	0.124	0.000014	70.8	0.001	0.00064	0.0014	<0.01	<0.0002	0.0259	19.4	0.015
RSEM-R6E-EOP	10/8/2018 13:15	UM9333	<0.005	<0.005	0.00014	0.0247	0.00056	0.00085	0.162	<0.0001	<0.001	0.113	0.000011	72.9	<0.001	0.00063	0.00102	<0.01	<0.0002	0.0248	20.1	0.0152
RSEM-R6E-EOP	10/9/2018 9:15	UM9811	<0.005	<0.005	0.00016	0.0228	0.00056	0.00088	0.162	<0.0001	<0.001	0.111	0.000014	77.5	<0.001	0.00068	0.00119	<0.01	<0.0002	0.0251	21.7	0.0255
RSEM-R6E-EOP	10/9/2018 12:14	UN2723	<0.005	0.0058	0.00015	0.0222	0.00057	0.00079	0.165	<0.0001	<0.001	0.1	0.000018	86.2	<0.001	0.00061	0.00099	<0.01	<0.0002	0.0245	22.0	0.0259
RSEM-R6E-EOP	10/10/2018 9:25	UN2720	<0.005	<0.005	<0.0001	0.0226	0.00053	0.00083	0.159	<0.0001	<0.001	0.097	0.000015	91.0	<0.001	0.00064	0.00095	<0.01	<0.0002	0.0232	22.7	0.0279
RSEM-R6E-EOP	10/11/2018 9:35	UN4653	<0.005	0.0053	<0.0001	0.0229	0.00052	0.00073	0.166	<0.0001	<0.001	0.102	<0.00001	86.9	<0.001	0.00072	0.00113	<0.01	<0.0002	0.0242	24.8	0.0282
RSEM-R6E-EOP	10/11/2018 9:35	UN4654	<0.005	<0.005	0.00012	0.0221	0.00054	0.00075	0.171	<0.0001	<0.001	0.103	<0.00001	87.8	<0.001	0.00072	0.0012	<0.01	<0.0002	0.0243	25.2	0.0284
RSEM-R6E-EOP	10/12/2018 9:35	UN7470	<0.005	0.0121	0.00011	0.0213	0.00052	0.00065	0.16	<0.0001	<0.001	0.093	<0.00001	84.0	<0.001	0.00056	0.00149	<0.01	<0.0002	0.0226	23.7	0.0131
RSEM-R6E-EOP	10/13/2018 11:45	UN9933	<0.005	<0.005	0.00012	0.0229	<0.0005	0.00059	0.161	<0.0001	<0.001	0.085	0.000025	94.1	<0.001	0.00098	0.00146	<0.01	<0.0002	0.0222	23.6	0.0313
RSEM-R6E-EOP	10/14/2018 11:40	UN9926	<0.005	<0.005	<0.0001	0.0244	<0.0005	0.00053	0.159	<0.0001	<0.001	0.083	0.000024	95.2	<0.001	0.00119	0.00102	<0.01	<0.0002	0.0219	24.0	0.0363
RSEM-R6E-EOP	10/14/2018 11:50	UN9929	<0.005	<0.005	<0.0001	0.024	<0.0005	0.00054	0.157	<0.0001	<0.001	0.084	0.000023	94.5	<0.001	0.00115	0.00132	<0.01	<0.0002	0.0224	24.3	0.0351
RSEM-R6E-EOP	10/15/2018 15:15	UO4610	<0.005	<0.005	0.00011	0.0317	<0.0005	0.0005	0.165	<0.0001	<0.001	0.082	<0.00001	94.4	<0.001	0.00123	0.0009	<0.01	<0.0002	0.0215	24.9	0.0292
RSEM-R6E-EOP	10/16/2018 11:45	UO9189	<0.005	<0.005	<0.0001	0.0311	<0.0005	0.0005	0.159	<0.0001	<0.001	0.076	<0.00001	94.7	<0.001	0.00126	0.00096	<0.01	<0.0002	0.0165	25.1	0.0295
RSEM-R6E-EOP	10/17/2018 14:50	UO9199	<0.005	<0.005	<0.0001	0.0361	<0.0005	0.00045	0.158	<0.0001	<0.001	0.078	0.00001	91.9	<0.001	0.00114	0.00115	<0.01	<0.0002	0.0162	24.9	0.0234
RSEM-R6E-EOP	10/18/2018 17:30	UP3093	<0.005	<0.005	<0.0001	0.0321	<0.0005	0.00044	0.154	<0.0001	<0.001	0.08	<0.00001	87.5	<0.001	0.00089	0.00127	<0.01	<0.0002	0.0201	24.7	0.0115
RSEM-R6E-EOP	10/19/2018 9:21	UP3097	<0.005	<0.005	<0.0001	0.0323	<0.0005	0.00045	0.152	<0.0001	<0.001	0.082	<0.00001	88.0	<0.001	0.00087	0.00086	0.013	<0.0002	0.0201	24.4	0.0126
RSEM-R6E-EOP	10/19/2018 9:21	UP3096	<0.005	<0.005	<0.0001	0.0326	<0.0005	0.00045	0.156	<0.0001	<0.001	0.082	<0.00001	89.7	<0.001	0.0009	0.00084	<0.01	<0.0002	0.0204	25.3	0.0127
RSEM-R6E-EOP	10/20/2018 8:15	UP6165	<0.005	<0.005	<0.0001	0.0318	<0.0005	0.00046	0.155	<0.0001	<0.001	0.082	<0.00001	90.7	<0.001	0.00099	0.00114	<0.01	<0.0002	0.0203	24.8	0.0168
RSEM-R6E-EOP	10/21/2018 16:15	UP5457	<0.005	<0.005	0.00011	0.0302	<0.0005	0.00041	0.159	<0.0001	<0.001	0.077	<0.00001	85.0	<0.001	0.00081	0.00091	<0.01	<0.0002	0.0204	23.5	0.0126
RSEM-R6E-EOP	10/21/2018 16:15	UP5456	<0.005	<0.005	<0.0001	0.0314	<0.0005	0.00041	0.161	<0.0001	<0.001	0.084	<0.00001	87.8	<0.001	0.00085	0.0009	<0.01	<0.0002	0.0211	22.9	0.0122
RSEM-R6E-EOP	10/22/2018 9:00	UP6171	<0.005	<0.005	<0.0001	0.0315	<0.0005	0.0004	0.153	<0.0001	<0.001	0.083	<0.00001	87.0	<0.001	0.00089	0.00105	<0.01	<0.0002	0.0205	24.9	0.0131
RSEM-R6E-EOP	10/23/2018 11:30	UP9909	<0.005	<0.005	<0.0001	0.0296	<0.0005	0.00041	0.152	<0.0001	<0.001	0.073	<0.00001	86.2	<0.001	0.0008	0.00089	<0.01	<0.0002	0.0191	24.2	0.0179
RSEM-R6E-EOP	10/24/2018 13:05	UQ3377	<0.005	<0.005	<0.0001	0.0228	0.00052	0.00055	0.151	<0.0001	<0.001	0.096	<0.00001	91.2	<0.001	0.00081	0.00088	<0.01	<0.0002	0.0234	25.9	0.0819
RSEM-R6E-EOP	10/25/2018 11:40	UQ3350	<0.005	<0.005	<0.0001	0.0226	0.00053	0.00054	0.152	<0.0001	<0.001	0.098	0.00001	92.3	<0.001	0.00081	0.00135	<0.01	<0.0002	0.0237	27.8	0.0948
RSEM-R6E-EOP	10/26/2018 12:30	UQ5567	<0.005	<0.005	<0.0001	0.019	0.00054	0.00058	0.149	<0.0001	<0.001	0.098	0.000019	105	<0.001	0.00128	0.00085	<0.01	<0.0002	0.0268	31.6	0.181
RSEM-R6E-EOP	10/27/2018 13:15	UQ8571	<0.005	<0.005	<0.0001	0.0163	<0.0005	0.00051	0.148	<0.0001	<0.001	0.102	0.000048	112	<0.001	0.00155	0.00095	<0.01	<0.0002	0.0258	35.8	0.211
RSEM-R6E-EOP	10/28/2018 15:00	UQ8588	<0.005	<0.005	<0.0001	0.0175	<0.0005	0.00052	0.15	<0.0001	<0.001	0.095	0.000046	115	<0.001	0.00176	0.00085	<0.01	<0.0002	0.0266	36.3	0.212
RSEM-R6E-EOP	10/29/2018 12:45	UR1748	<0.005	<0.005	0.00011	0.0187	<0.0005	0.00053	0.142	<0.0001	<0.001	0.089	0.000048	111	<0.001	0.0019	0.00092	<0.01	<0.0002	0.0264	35.3	0.214
RSEM-R6E-EOP	10/30/2018 11:08	UR2636	<0.005	<0.005	<0.0001	0.0175	<0.0005	0.00049	0.143	<0.0001	<0.001	0.104	0.000052	109	<0.001	0.00219	0.00085	<0.01	<0.0002	0.029	38.2	0.217
RSEM-R6E-EOP	10/30/2018 11:08	UR2635	<0.005	<0.005	<0.0001	0.017	<0.0005	0.00048	0.142	<0.0001	<0.001	0.101	0.000053	108	<0.001	0.00223	0.00139	<0.01	<0.0002	0.0283	38.4	0.22
RSEM-R6E-EOP	10/31/2018 11:40	UR7287	<0.005	0.0056	<0.0001	0.0204	0.00054	0.0005	0.133	<0.0001	<0.001	0.112	0.000063	113	<0.001	0.0029	0.00091	<0.01	<0.0002	0.0367	40.0	0.231
RSEM-R6E-EOP	11/1/2018 8:45	UR8080	<0.005	0.0063	<0.0001	0.0216	0.00054	0.00047	0.13	<0.0001	<0.001	0.122	0.000067	101	<0.001	0.003	0.00134	<0.01	<0.0002	0.036	40.2	0.2
RSEM-R6E-EOP	11/2/2018 8:30	US0224	<0.005	0.0065	<0.0001	0.0259	0.00053	0.00044	0.129	<0.0001	<0.001	0.123	0.000018	113	<0.001	0.00265	0.00144	<0.01	<0.0002	0.0372	40.7	0.15
RSEM-R6E-EOP	11/2/2018 8:30	US0223	<0.005	0.0061	<0.0001	0.0264	0.00052	0.00047	0.129	<0.0001	<0.001	0.119	0.000031	122	<0.001	0.00287	0.00126	<0.01	<0.0002	0.0368	41.9	0.168
RSEM-R6E-EOP	11/3/2018 15:55	US3563	<0.005	0.0057	<0.0001	0.022	0.00054	0.00047	0.135	<0.0001	<0.001	0.119	0.000055	115	<0.001	0.00298	0.00102	<0.01	<0.0002	0.0375	41.4	0.195
RSEM-R6E-EOP	11/4/2018 12:50	US3566	<0.005	0.0056	0.00015	0.0227	0.00052	0.00046	0.135	<0.0001	<0.001	0.124	0.000057	115	<0.001	0.00293	0.00095	<0.01	<0.0002	0.0383	41.7	0.196
RSEM-R6E-EOP	11/5/2018 16:10	US7125	<0.005	0.0055	<0.0001	0.0188	0.00053	0.00046	0.129	<0.0001	<0.001	0.121	0.000053	111	<0.001	0.00289	0.00092	<0.01	<0.0002	0.0369	41.2	0.185
RSEM-R6E-EOP	11/5/2018 16:10	US7025	<0.005	0.0055	<0.0001	0.0218	0.00053	0.00047	0.131	<0.0001	<0.001	0.116	0.000045	114	<0.001	0.00297	0.00124	<0.01	<0.0002	0.0374	41.5	0.192
RSEM-R6E-EOP	11/6/2018 13:45	US9397	<0.005	0.0051	<0.0001	0.0241	0.00054	0.00048	0.131	<0.0001	<0.001	0.127	0.000059	118	<0.001	0.00312	0.00095	<0.01	<0.0002	0.0381	44.9	0.198
RSEM-R6E-EOP	11/7/2018 14:55	UT1526	<0.005	0.0061	<0.0001	0.0214	<0.0005	0.00042	0.148	<0.0001	<0.001	0.117	0.000042	119	<0.001	0.00267	0.00101	<0.01	<0.0002	0.0363	41.1	0.174

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	9/14/2018 9:10	UI0650	<0.000002	0.0145	0.0095	-	3.48	0.0038	3.92	<0.00002	72.3	0.292	54.2	0.000012	<0.005	<0.005	0.00168	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/15/2018 7:00	UI5253	<0.000002	0.0163	0.0118	-	3.68	0.00395	3.83	<0.00002	85.5	0.306	57.8	0.000014	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/16/2018 11:10	UI5529	0.0000024	0.0174	0.0131	-	3.68	0.00402	4.02	<0.00002	93.5	0.318	70.2	0.000015	<0.005	<0.005	0.00191	<0.005	0.0054	<0.0001
RSEM-R6E-EOP	9/17/2018 11:10	UI5114	<0.000002	0.0184	0.0136	-	4.00	0.00383	4.08	<0.00002	101	0.335	73.9	0.000014	<0.005	<0.005	0.00199	<0.005	<0.005	0.00023
RSEM-R6E-EOP	9/18/2018 9:50	UI9108	<0.000002	0.0208	0.0114	-	4.27	0.00371	3.94	<0.00002	127	0.369	76.0	0.000014	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/19/2018 10:10	UJ0843	<0.000002	0.019	0.0126	-	5.18	0.0035	4.17	<0.00002	126	0.365	75.9	0.000015	<0.005	<0.005	0.0024	<0.005	0.0079	<0.0001
RSEM-R6E-EOP	9/20/2018 11:00	UJ3869	<0.000002	0.0153	0.0073	-	4.25	0.00472	3.22	<0.00002	80.5	0.447	65.8	0.000012	<0.005	<0.005	0.00219	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/21/2018 10:30	UJ7163	<0.000002	0.0162	0.0093	-	4.04	0.00298	4.61	<0.00002	100	0.393	63.6	0.000012	<0.005	<0.005	0.00236	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/22/2018 11:25	UK0064	<0.000002	0.0163	0.0095	-	4.00	0.00273	4.14	<0.00002	104	0.388	64.8	0.000013	<0.005	<0.005	0.0022	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/23/2018 10:00	UK1527	<0.000002	0.0114	0.0057	-	3.44	0.00188	4.16	<0.00002	68.9	0.272	45.4	0.00001	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/24/2018 8:30	UK0552	<0.000002	0.0126	0.006	-	3.49	0.0019	3.96	<0.00002	77.4	0.306	46.4	0.000011	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/25/2018 9:30	UK2338	<0.000002	0.0103	0.0038	-	3.17	0.00157	4.08	<0.00002	58.0	0.218	37.5	0.00001	<0.005	<0.005	0.00155	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/26/2018 12:00	UK5505	<0.000002	0.0111	0.0042	-	3.50	0.00162	4.08	<0.00002	65.6	0.241	39.8	0.000012	<0.005	<0.005	0.00169	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/27/2018 8:40	UK8653	<0.000002	0.0109	0.0035	-	3.22	0.00156	3.21	<0.00002	68.3	0.222	35.7	<0.00001	<0.005	<0.005	0.00154	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/28/2018 10:00	UL0964	<0.000002	0.0116	0.0036	-	3.33	0.00164	4.06	<0.00002	71.8	0.23	41.7	0.000011	<0.005	<0.005	0.00161	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/29/2018 11:00	UL4206	<0.000002	0.0133	0.0038	-	3.82	0.0019	3.93	<0.00002	83.1	0.25	45.1	0.000011	<0.005	<0.005	0.00174	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	9/30/2018 12:45	UL4212	<0.000002	0.0133	0.0045	-	3.97	0.00194	4.13	<0.00002	89.0	0.261	50.0	0.000011	<0.005	<0.005	0.00174	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/1/2018 10:30	UL6712	<0.000002	0.0134	0.0052	-	3.96	0.00203	4.29	<0.00002	95.0	0.28	53.8	0.00001	<0.005	<0.005	0.00185	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/2/2018 12:30	UL6718	<0.000002	0.0124	0.0048	-	3.82	0.00193	3.96	<0.00002	93.1	0.287	50.0	0.00001	<0.005	<0.005	0.00171	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/3/2018 12:40	UM2671	<0.000002	0.013	0.0048	-	3.69	0.00191	4.06	<0.00002	100	0.319	51.0	<0.00001	<0.005	<0.005	0.00179	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/4/2018 12:00	UM6149	<0.000002	0.0126	0.0042	-	3.49	0.00198	4.2	<0.00002	87.8	0.301	45.2	<0.00001	<0.005	<0.005	0.0019	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/5/2018 9:45	UM6134	<0.000002	0.0116	0.0045	-	3.65	0.00187	4.04	<0.00002	87.7	0.327	46.6	<0.00001	<0.005	<0.005	0.00185	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/6/2018 15:50	UM9336	<0.000002	0.01	0.0045	-	3.34	0.00162	4.28	<0.00002	78.2	0.33	42.7	<0.00001	<0.005	<0.005	0.00168	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/7/2018 13:00	UM9328	<0.000002	0.0093	0.0043	-	3.28	0.00154	4.21	<0.00002	74.9	0.331	41.2	<0.00001	<0.005	<0.005	0.00167	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/8/2018 13:15	UM9333	<0.000002	0.0085	0.0044	-	3.30	0.00147	4.12	<0.00002	69.8	0.34	40.6	<0.00001	<0.005	<0.005	0.0017	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/9/2018 9:15	UM9811	<0.000002	0.0083	0.0044	-	3.32	0.00158	4.02	<0.00002	70.9	0.339	46.1	<0.00001	<0.005	<0.005	0.00185	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/9/2018 12:14	UN2723	<0.000002	0.0081	0.0042	-	3.67	0.00154	4.55	<0.00002	72.7	0.311	54.1	0.00001	<0.005	<0.005	0.00194	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/10/2018 9:25	UN2720	<0.000002	0.0078	0.0043	-	3.62	0.00149	4.57	<0.00002	68.5	0.315	55.9	<0.00001	<0.005	<0.005	0.00198	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/11/2018 9:35	UN4653	<0.000002	0.0075	0.0048	-	3.42	0.00138	3.95	<0.00002	72.3	0.332	50.9	<0.00001	<0.005	<0.005	0.00199	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/11/2018 9:35	UN4654	<0.000002	0.0076	0.0049	-	3.48	0.00148	3.98	<0.00002	73.3	0.343	53.2	0.000011	<0.005	<0.005	0.00208	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/12/2018 9:35	UN7470	0.0000033	0.007	0.0048	-	3.48	0.00126	3.82	<0.00002	59.5	0.437	46.6	<0.00001	<0.005	<0.005	0.00191	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/13/2018 11:45	UN9933	<0.000002	0.0063	0.0059	-	3.54	0.0013	3.83	<0.00002	53.1	0.48	46.2	<0.00001	<0.005	<0.005	0.00193	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/14/2018 11:40	UN9926	<0.000002	0.0062	0.0067	-	3.61	0.00131	3.79	<0.00002	51.7	0.473	46.0	<0.00001	<0.005	<0.005	0.00199	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/14/2018 11:50	UN9929	<0.000002	0.0061	0.0067	-	3.57	0.0013	3.8	<0.00002	51.9	0.472	45.5	<0.00001	<0.005	<0.005	0.00197	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/15/2018 15:15	UO4610	0.0000031	0.0058	0.007	-	3.68	0.00127	4	<0.00002	51.0	0.427	46.4	0.00001	<0.005	<0.005	0.00198	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/16/2018 11:45	UO9189	<0.000002	0.0056	0.0071	-	3.62	0.00127	3.31	<0.00002	50.5	0.437	43.7	<0.00001	<0.005	<0.005	0.002	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/17/2018 14:50	UO9199	<0.000002	0.0054	0.0066	-	3.62	0.0012	3.31	<0.00002	49.5	0.427	42.4	<0.00001	<0.005	<0.005	0.00192	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/18/2018 17:30	UP3093	<0.000002	0.0053	0.0064	-	3.58	0.00117	3.59	<0.00002	47.9	0.441	42.5	<0.00001	<0.005	<0.005	0.00194	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/19/2018 9:21	UP3097	<0.000002	0.0051	0.0063	-	3.57	0.00116	3.61	<0.00002	46.5	0.433	41.7	<0.00001	<0.005	<0.005	0.00188	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/19/2018 9:21	UP3096	<0.000002	0.0052	0.0064	-	3.72	0.00117	3.66	<0.00002	47.9	0.445	43.1	<0.00001	<0.005	<0.005	0.00192	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/20/2018 8:15	UP6165	<0.000002	0.0052	0.0064	-	3.56	0.00119	3.31	<0.00002	46.8	0.433	41.1	<0.00001	<0.005	<0.005	0.00197	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/21/2018 16:15	UP5457	0.0000028	0.0048	0.0061	-	3.74	0.0011	3.48	<0.00002	45.1	0.412	40.2	<0.00001	<0.005	<0.005	0.00179	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/21/2018 16:15	UP5456	<0.000002	0.0049	0.0061	-	3.68	0.00112	3.67	<0.00002	42.3	0.42	41.3	<0.00001	<0.005	<0.005	0.00182	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/22/2018 9:00	UP6171	<0.000002	0.0049	0.0062	-	3.55	0.00108	3.23	<0.00002	46.0	0.427	40.1	<0.00001	<0.005	<0.005	0.00187	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/23/2018 11:30	UP9909	<0.000002	0.0049	0.006	-	3.52	0.00105	3.48	<0.00002	46.3	0.452	42.3	<0.00001	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/24/2018 13:05	UQ3377	0.0000024	0.0059	0.0054	-	3.64	0.00134	3.83	<0.00002	60.4	0.416	57.9	0.00001	<0.005	<0.005	0.00198	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/25/2018 11:40	UQ3350	0.0000021	0.0061	0.0054	-	3.75	0.00144	3.88	<0.00002	65.1	0.416	60.4	0.00001	<0.005	<0.005	0.00203	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/26/2018 12:30	UQ5567	0.0000037	0.0063	0.0061	-	3.54	0.00169	3.99	<0.00002	77.9	0.426	85.8	0.000011	<0.005	<0.005	0.00231	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/27/2018 13:15	UQ8571	<0.000002	0.0057	0.0066	-	3.71	0.00167	4.26	<0.00002	80.6	0.432	102	0.000012	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/28/2018 15:00	UQ8588	<0.000002	0.0057	0.0072	-	3.72	0.00179	4.16	<0.00002	80.8	0.438	104	0.000012	<0.005	<0.005	0.00239	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/29/2018 12:45	UR1748	<0.000002	0.0055	0.0077	-	3.57	0.00178	3.97	<0.00002	78.1	0.426	104	0.00001	<0.005	<0.005	0.00242	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/30/2018 11:08	UR2636	<0.000002	0.0057	0.0088	-	3.52	0.00195	3.6	<0.00002	89.4	0.482	109	0.000012	<0.005	<0.005	0.00252	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/30/2018 11:08	UR2635	0.0000054	0.0057	0.009	-	3.53	0.00189	3.55	<0.00002	89.8	0.477	108	0.000012	<0.005	<0.005	0.0025	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	10/31/2018 11:40	UR7287	0.0000062	0.0056	0.0113	-	3.81	0.00214	3.45	<0.00002	107	0.509	133	0.000013	<0.005	<0.005	0.00288	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/1/2018 8:45	UR8080	<0.000002	0.0051	0.0122	-	3.81	0.00207	3.21	<0.00002	106	0.525	131	0.000012	<0.005	<0.005	0.00294	<0.005	0.005	<0.0001
RSEM-R6E-EOP	11/2/2018 8:30	US0224	0.0000034	0.0047	0.0113	-	3.98	0.00214	3.59	<0.00002	110	0.533	132	0.000013	<0.005	<0.005	0.00285	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/2/2018 8:30	US0223	<0.000002	0.0047	0.0117	-	3.89	0.00219	3.5	<0.00002	112	0.522	128	0.000012	<0.005	<0.005	0.00284	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/3/2018 15:55	US3563	<0.000002	0.0051	0.0122	-	3.93	0.00205	3.39	<0.00002	111	0.645	133	0.000011	<0.005	<0.005	0.0029	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/4/2018 12:50	US3566	<0.000002	0.0051	0.012	-	3.96	0.00201	3.43	<0.00002	111	0.643	135	0.000012	<0.005	<0.005	0.0029	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/5/2018 16:10	US7125	<0.000002	0.0051	0.0119	-	3.93	0.00198	3.32	<0.00002	111	0.629	130	0.000012	<0.005	<0.005	0.00288	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/5/2018 16:10	US7025	<0.000002	0.0129	0.0122	-	3.96	0.00205	3.41	<0.00002	112	0.641	131	0.00001	<0.005	<0.005	0.00292	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/6/2018 13:45	US9397	<0.000002	0.0051	0.0127	-	3.99	0.00219	3.38	<0.00002	120	0.609	133	0.000013	<0.005	<0.005	0.00323	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/7/2018 14:55	UT1526	<0.000002	0.0047	0.0116	-	3.78	0.0019	4.02	<0.00002	102	0.632	115	0.000011	<0.005	<0.005	0.00279	<0.005	0.0055	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	11/8/2018 6:20	UT3573	8.20	1280	2.45	-	<4.0	483	477	288	<1.0	352	<1.0	<1.0	48.6	0.340	0.99	307
RSEM-R6E-EOP	11/8/2018 6:20	UT3572	8.19	1280	2.87	-	4.3	488	466	287	<1.0	350	<1.0	<1.0	48.2	0.330	1.0	282
RSEM-R6E-EOP	11/9/2018 5:40	UT3611	8.16	1240	2.41	800	<4.0	501	485	301	<1.0	368	<1.0	<1.0	46.9	0.330	0.89	275
RSEM-R6E-EOP	11/10/2018 9:40	UT4953	8.12	1200	1.86	790	<4.0	489	495	300	<1.0	365	<1.0	<1.0	46.8	0.320	1.0	254
RSEM-R6E-EOP	11/11/2018 9:00	UT4844	8.14	1150	1.83	734	<4.0	457	469	300	<1.0	366	<1.0	<1.0	45.7	0.310	1.0	231
RSEM-R6E-EOP	11/11/2018 9:05	UT4845	8.12	1150	1.56	768	<4.0	455	458	297	<1.0	363	<1.0	<1.0	45.6	0.310	0.95	222
RSEM-R6E-EOP	11/12/2018 9:40	UT6581	8.11	1140	1.55	712	<4.0	427	456	302	<1.0	369	<1.0	<1.0	44.8	0.320	0.84	225
RSEM-R6E-EOP	11/13/2018 11:50	UT9229	8.17	1110	1.44	764	<4.0	447	445	282	<1.0	344	<1.0	<1.0	44.1	0.300	0.81	236
RSEM-R6E-EOP	11/14/2018 13:00	UU0938	8.19	1180	1.82	782	<4.0	472	468	300	<1.0	366	<1.0	<1.0	44.3	0.320	0.82	262
RSEM-R6E-EOP	11/14/2018 13:00	UU0941	8.16	1180	1.85	732	<4.0	479	468	293	<1.0	358	<1.0	<1.0	43.3	0.320	0.84	257
RSEM-R6E-EOP	11/15/2018 10:50	UU0902	8.17	1160	1.72	712	<4.0	465	462	298	<1.0	363	<1.0	<1.0	43.5	0.330	0.87	251
RSEM-R6E-EOP	11/16/2018 11:35	UU3468	8.10	1160	0.91	686	<4.0	482	447	282	<1.0	344	<1.0	<1.0	47.0	0.340	0.81	255
RSEM-R6E-EOP	11/17/2018 12:20	UU6434	8.14	1280	1.75	834	<4.0	526	491	318	<1.0	388	<1.0	<1.0	51.0	0.350	0.84	290
RSEM-R6E-EOP	11/18/2018 12:10	UU6364	8.12	1290	1.64	840	<4.0	521	495	314	<1.0	384	<1.0	<1.0	50.2	0.360	0.88	204
RSEM-R6E-EOP	11/18/2018 12:10	UU6367	8.17	1270	1.54	834	<4.0	521	498	319	<1.0	389	<1.0	<1.0	49.3	0.340	0.81	286
RSEM-R6E-EOP	11/19/2018 11:40	UU8731	8.22	1220	1.43	806	<4.0	495	481	305	<1.0	372	<1.0	<1.0	48.0	0.080	0.77	294
RSEM-R6E-EOP	11/20/2018 11:30	UU8806	8.27	1210	1.34	742	<4.0	478	448	307	<1.0	375	<1.0	<1.0	45.7	0.320	0.72	269
RSEM-R6E-EOP	11/21/2018 12:00	UV2695	8.17	1190	1.55	756	<4.0	466	471	303	<1.0	369	<1.0	<1.0	47.2	0.320	0.74	273
RSEM-R6E-EOP	11/21/2018 12:00	UV2699	8.25	1190	1.53	748	<4.0	457	475	305	<1.0	372	<1.0	<1.0	46.5	0.330	0.74	265
RSEM-R6E-EOP	11/22/2018 12:40	UV5074	8.28	1170	0.45	756	<4.0	429	449	307	<1.0	375	<1.0	<1.0	45.9	0.340	0.76	285
RSEM-R6E-EOP	11/23/2018 13:15	UV5087	8.19	1160	0.48	750	<4.0	443	449	308	<1.0	376	<1.0	<1.0	44.0	0.340	0.75	281
RSEM-R6E-EOP	11/24/2018 10:50	UV7553	8.16	1100	2.03	698	<4.0	453	445	306	<1.0	373	<1.0	<1.0	35.6	0.310	0.64	222
RSEM-R6E-EOP	11/25/2018 12:40	UV7536	8.19	1100	2.34	712	<4.0	461	455	324	<1.0	396	<1.0	<1.0	29.5	0.290	0.57	221
RSEM-R6E-EOP	11/26/2018 14:00	UV9444	8.10	1090	2.17	750	<4.0	471	476	344	<1.0	419	<1.0	<1.0	28.2	0.310	0.48	208
RSEM-R6E-EOP	11/27/2018 11:50	UW1673	8.17	1080	1.28	718	<4.0	439	504	355	<1.0	433	<1.0	<1.0	28.3	0.300	0.49	192
RSEM-R6E-EOP	11/27/2018 11:50	UW1672	8.19	1090	1.04	714	<4.0	452	510	350	<1.0	427	<1.0	<1.0	28.0	0.310	0.52	183
RSEM-R6E-EOP	11/28/2018 13:50	UW6190	8.19	1080	0.71	676	<4.0	467	444	376	<1.0	459	<1.0	<1.0	24.5	0.310	0.45	178
RSEM-R6E-EOP	11/29/2018 11:40	UW6193	8.18	1060	0.87	648	<4.0	446	427	375	<1.0	458	<1.0	<1.0	22.9	0.300	0.41	168
RSEM-R6E-EOP	11/30/2018 11:25	UW6182	8.19	1320	11.0	840	14.3	410	423	299	<1.0	365	<1.0	<1.0	61.8	0.340	1.1	285
RSEM-R6E-EOP	12/1/2018 16:40	UW8610	8.21	1260	5.90	786	7.5	379	382	299	<1.0	365	<1.0	<1.0	68.0	0.350	1.1	230
RSEM-R6E-EOP	12/2/2018 13:45	UW8612	8.15	1220	2.71	774	4.0	391	381	289	<1.0	353	<1.0	<1.0	67.2	0.350	1.2	233
RSEM-R6E-EOP	12/3/2018 10:40	UW8511	8.18	1220	2.05	762	<4.0	380	391	299	<1.0	364	<1.0	<1.0	67.1	0.360	1.1	226
RSEM-R6E-EOP	12/3/2018 10:40	UW8509	8.20	1230	2.36	784	<4.0	384	387	299	<1.0	364	<1.0	<1.0	66.3	0.360	1.1	216
RSEM-R6E-EOP	12/4/2018 12:15	UX4643	8.14	1270	1.64	812	<4.0	429	429	325	<1.0	396	<1.0	<1.0	67.0	0.350	1.1	233
RSEM-R6E-EOP	12/5/2018 13:50	UX4955	8.08	1270	1.54	810	<4.0	462	445	347	<1.0	424	<1.0	<1.0	61.2	0.360	0.95	239
RSEM-R6E-EOP	12/5/2018 13:50	UX4959	8.15	1250	1.61	828	365	451	450	349	<1.0	425	<1.0	<1.0	61.2	0.360	0.95	235
RSEM-R6E-EOP	12/6/2018 16:35	UX6857	8.19	1280	0.99	848	<4.0	445	470	317	<1.0	387	<1.0	<1.0	61.2	0.380	0.99	249
RSEM-R6E-EOP	12/7/2018 13:15	UX6861	8.16	1360	0.82	876	<4.0	486	476	326	<1.0	398	<1.0	<1.0	59.4	0.390	0.98	278
RSEM-R6-EOP	6/25/2018	TS9108	8.29	1070	18.2	636	12.5	240	256	195	<1.0	238	<1.0	<1.0	97.1	0.510	1.6	194
RSEM-R6-EOP	11/24/2018 10:50	UV7549	8.19	1100	1.83	700	<4.0	440	441	310	<1.0	378	<1.0	<1.0	35.5	0.310	0.64	221
RSEM-R6-EP-US-SD	8/30/2018 10:15	UF1076	8.23	767	2.31	490	4.3	433	282	234	<1.0	286	<1.0	<1.0	33.8	0.390	0.38	129
RSEM-R6E-SP	1/1/2018 11:10	ST3043	8.13	1760	1.01	1090	<4.0	337	369	338	<1.0	413	<1.0	<1.0	111	0.420	1.98	411
RSEM-R6E-SP	1/2/2018 11:30	ST4210	8.17	1730	1.61	1080	<4.0	354	367	341	<1.0	416	<1.0	<1.0	110	0.370	2.00	425
RSEM-R6E-SP	1/3/2018 11:45	ST6560	8.10	1770	1.46	1120	<4.0	340	342	338	<1.0	412	<1.0	<1.0	107	0.370	1.95	421
RSEM-R6E-SP	1/4/2018 13:00	ST7408	8.34	1760	2.04	1090	11.3	368	347	331	2.3	399	2.7	<1.0	110	0.460	1.93	408
RSEM-R6E-SP	1/5/2018 15:00	ST8670	8.39	1790	0.53	1170	5.5	366	371	355	4.6	422	5.5	<1.0	113	0.400	1.97	411
RSEM-R6E-SP	1/6/2018 12:00	ST9396	8.28	1800	1.19	634	4.8	333	364	356	<1.0	435	<1.0	<1.0	115	0.390	1.93	427
RSEM-R6E-SP	1/7/2018 12:00	ST9339	8.26	1790	0.66	1150	<4.0	369	345	362	<1.0	442	<1.0	<1.0	116	0.430	1.93	438
RSEM-R6E-SP	1/8/2018 10:55	SU1307	8.22	1820	0.86	1170	<4.0	376	375	355	<1.0	433	<1.0	<1.0	115	0.390	1.92	454
RSEM-R6E-SP	1/9/2018 14:20	SU3308	8.29	1840	1.80	1150	5.8	365	380	357	<1.0	435	<1.0	<1.0	106	0.400	0.964	421
RSEM-R6E-SP	1/10/2018 11:35	SU4767	8.31	1870	0.64	1080	<4.0	341	379	350	1.4	423	1.7	<1.0	102	0.420	1.75	448
RSEM-R6E-SP	1/11/2018 0:40	SU5520	8.48	1900	0.55	1190	<4.0	357	359	344	10.1	395	12.2	<1.0	100	0.410	1.74	487
RSEM-R6E-SP	1/12/2018 16:40	SU7326	8.37	1860	0.77	1210	<4.0	361	366	345	4.7	410	5.6	<1.0	103	0.440	1.68	467
RSEM-R6E-SP	1/12/2018 17:03	SU7330	8.28	1840	0.75	1170	<4.0	354	364	346	<1.0	422	<1.0	<1.0	101	0.410	1.69	438
RSEM-R6E-SP	1/13/2018 11:46	SU7311	8.34	1870	0.58	1190	<4.0	366	364	344	3.3	411	4.0	<1.0	102	0.440	1.69	467
RSEM-R6E-SP	1/14/2018 9:35	SU7322	8.36	1870	1.01	1190	4.0	362	368	345	4.9	409	5.8	<1.0	101	0.440	1.66	467
RSEM-R6E-SP	1/15/2018 15:20	SU9366	8.32	1880	0.99	1180	<4.0	402	408	365	3.8	436	4.5	<1.0	104	0.390	1.71	489
RSEM-R6E-SP	1/16/2018 11:20	SV1338	8.47	1890	0.95	1180	<4.0	406	417	376	10.5	433	12.5	<1.0	99.5	0.400	1.75	466
RSEM-R6E-SP	1/16/2018 11:55	SV1340	8.46	1900	0.49	1190	<4.0	438	424	381	10.2	440	12.2	<1.0	99.1	0.400	1.74	464
RSEM-R6E-SP	1/17/2018 8:45	SV3531	8.49	1900	0.68	1230	<4.0	420	411	380	12.0	434	14.4	<1.0	103	0.390	1.77	469
RSEM-R6E-SP	1/18/2018 14:46	SV4470	8.34	1860	0.45	1230	<4.0	377	405	351	3.7	419	4.5	<1.0	106	0.400	1.73	458
RSEM-R6E-SP	1/19/2018 10:46	SV4479	8.35	1850	0.82	1220	<4.0	383	378	350	4.4	416	5.3	<1.0	107	0.390	1.74	436

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	11/8/2018 6:20	UT3573	0.097	0.0106	1.14	1.15	<0.0050	2.3	2.1	0.0801	<0.0005	0.00048	0.164	<0.0001	<0.001	0.104	0.000054	124	<0.001	0.00269	0.0011
RSEM-R6E-EOP	11/8/2018 6:20	UT3572	0.11	0.0094	1.13	1.14	<0.0050	2.8	2.0	0.0796	<0.0005	0.00049	0.163	<0.0001	<0.001	0.105	0.000054	125	<0.001	0.0027	0.00125
RSEM-R6E-EOP	11/9/2018 5:40	UT3611	0.051	0.0095	1.23	1.24	<0.0050	2.4	1.99	0.0826	<0.0005	0.00047	0.18	<0.0001	<0.001	0.107	0.000047	130	<0.001	0.00261	0.00114
RSEM-R6E-EOP	11/10/2018 9:40	UT4953	0.090	0.0050	1.27	1.28	<0.0050	2.6	2.11	0.0677	<0.0005	0.00042	0.174	<0.0001	<0.001	0.102	0.00005	127	<0.001	0.00241	0.00104
RSEM-R6E-EOP	11/11/2018 9:00	UT4844	0.064	0.0110	1.29	1.30	<0.0050	2.3	1.61	0.0682	<0.0005	0.0004	0.163	<0.0001	<0.001	0.096	0.000045	119	<0.001	0.0022	0.00108
RSEM-R6E-EOP	11/11/2018 9:05	UT4845	0.063	0.0058	1.28	1.29	<0.0050	2.0	1.99	0.0727	<0.0005	0.00042	0.163	<0.0001	<0.001	0.099	0.000046	119	<0.001	0.00219	0.00106
RSEM-R6E-EOP	11/12/2018 9:40	UT6581	0.074	0.0077	1.24	1.25	<0.0050	2.2	1.64	0.0679	<0.0005	0.00044	0.147	<0.0001	<0.001	0.106	0.000039	111	<0.001	0.00197	0.00106
RSEM-R6E-EOP	11/13/2018 11:50	UT9229	0.085	0.0120	1.20	1.22	<0.0050	2.2	0.87	0.0736	<0.0005	0.00048	0.15	<0.0001	<0.001	0.106	0.000036	115	<0.001	0.00199	0.00103
RSEM-R6E-EOP	11/14/2018 13:00	UU0938	0.080	0.0142	1.05	1.06	<0.0050	2.5	3.1	0.0651	<0.0005	0.00043	0.143	<0.0001	<0.001	0.106	0.000045	122	<0.001	0.0025	0.00099
RSEM-R6E-EOP	11/14/2018 13:00	UU0941	0.10	0.0159	1.09	1.10	<0.0050	2.1	3.1	0.0568	<0.0005	0.00046	0.151	<0.0001	<0.001	0.109	0.000045	123	<0.001	0.00264	0.00106
RSEM-R6E-EOP	11/15/2018 10:50	UU0902	0.093	0.0112	1.13	1.14	<0.0050	2.1	2.9	0.0646	<0.0005	0.00042	0.14	<0.0001	<0.001	0.104	0.000047	120	<0.001	0.00287	0.00102
RSEM-R6E-EOP	11/16/2018 11:35	UU3468	0.14	0.0180	1.44	1.46	<0.0050	2.2	3.2	0.0728	<0.0005	0.00042	0.144	<0.0001	<0.001	0.127	0.000051	127	<0.001	0.00317	0.00097
RSEM-R6E-EOP	11/17/2018 12:20	UU6434	0.17	0.0307	1.74	1.77	<0.0050	2.5	1.9	0.0938	<0.0005	0.00048	0.154	<0.0001	<0.001	0.134	0.000079	134	<0.001	0.00439	0.00144
RSEM-R6E-EOP	11/18/2018 12:10	UU6364	0.17	0.0301	1.76	1.79	<0.0050	2.4	2.4	0.0899	<0.0005	0.00048	0.154	<0.0001	<0.001	0.131	0.000074	132	<0.001	0.00445	0.00136
RSEM-R6E-EOP	11/18/2018 12:10	UU6367	0.15	0.0258	1.59	1.62	<0.0050	2.2	2.0	0.0873	<0.0005	0.0005	0.154	<0.0001	<0.001	0.133	0.000056	132	<0.001	0.0037	0.00121
RSEM-R6E-EOP	11/19/2018 11:40	UU8731	0.15	0.0275	1.79	1.81	<0.0050	2.3	1.7	0.0716	<0.0005	0.00042	0.152	<0.0001	<0.001	0.109	0.000073	127	<0.001	0.00447	0.00123
RSEM-R6E-EOP	11/20/2018 11:30	UU8806	0.17	0.0259	1.76	1.78	<0.0050	2.0	2.0	0.0777	<0.0005	0.00039	0.153	<0.0001	<0.001	0.102	0.000074	122	<0.001	0.00428	0.00119
RSEM-R6E-EOP	11/21/2018 12:00	UV2695	0.16	0.0234	1.68	1.71	<0.0050	2.0	1.8	0.0747	<0.0005	0.00037	0.149	<0.0001	<0.001	0.104	0.000068	120	<0.001	0.0038	0.00107
RSEM-R6E-EOP	11/21/2018 12:00	UV2699	0.17	0.0246	1.65	1.68	<0.0050	2.2	1.9	0.0723	<0.0005	0.00036	0.144	<0.0001	<0.001	0.106	0.00006	117	<0.001	0.00369	0.00109
RSEM-R6E-EOP	11/22/2018 12:40	UV5074	0.16	0.0185	1.55	1.57	<0.0050	2.4	2.2	0.0424	<0.0005	0.00033	0.129	<0.0001	<0.001	0.096	0.000049	110	<0.001	0.00321	0.00115
RSEM-R6E-EOP	11/23/2018 13:15	UV5087	0.16	0.0174	1.49	1.51	<0.0050	2.7	2.4	0.0367	<0.0005	0.0004	0.122	<0.0001	<0.001	0.115	0.000048	112	<0.001	0.00274	0.00085
RSEM-R6E-EOP	11/24/2018 10:50	UV7553	0.14	0.0145	1.36	1.37	<0.0050	0.80	0.95	0.0844	<0.0005	0.00046	0.124	<0.0001	<0.001	0.105	0.000047	114	<0.001	0.00239	0.00335
RSEM-R6E-EOP	11/25/2018 12:40	UV7536	0.14	0.0129	1.23	1.25	0.0092	1.3	1.2	0.0637	<0.0005	0.00045	0.133	<0.0001	<0.001	0.103	0.000045	115	<0.001	0.00216	0.00115
RSEM-R6E-EOP	11/26/2018 14:00	UV9444	0.15	0.0096	1.17	1.18	<0.0050	1.9	2.1	0.077	<0.0005	0.00046	0.154	<0.0001	<0.001	0.097	0.000041	119	<0.001	0.00195	0.00121
RSEM-R6E-EOP	11/27/2018 11:50	UW1673	0.11	0.0129	1.13	1.14	<0.0050	2.9	2.3	0.0365	<0.0005	0.00046	0.154	<0.0001	<0.001	0.082	0.000038	113	<0.001	0.00169	0.00115
RSEM-R6E-EOP	11/27/2018 11:50	UW1672	0.13	0.0111	1.12	1.13	<0.0050	3.3	3.2	0.038	<0.0005	0.00044	0.159	<0.0001	<0.001	0.083	0.000037	116	<0.001	0.00174	0.00124
RSEM-R6E-EOP	11/28/2018 13:50	UW6190	0.084	0.0093	1.06	1.07	<0.0050	2.2	1.6	0.0579	<0.0005	0.00043	0.159	<0.0001	<0.001	0.094	0.000036	121	<0.001	0.00148	0.00153
RSEM-R6E-EOP	11/29/2018 11:40	UW6193	0.096	0.0109	0.974	0.985	<0.0050	1.9	1.7	0.0545	<0.0005	0.0004	0.152	<0.0001	<0.001	0.089	0.000033	114	<0.001	0.00135	0.00119
RSEM-R6E-EOP	11/30/2018 11:25	UW6183	0.15	0.0818	0.896	0.978	<0.0050	2.0	1.7	0.63	0.00077	0.00127	0.122	<0.0001	<0.001	0.153	0.000069	103	0.0023	0.00243	0.00198
RSEM-R6E-EOP	11/30/2018 11:25	UW6182	0.15	0.0780	0.902	0.980	<0.0050	2.0	1.6	0.546	0.00072	0.00117	0.117	<0.0001	<0.001	0.141	0.000067	98.2	0.0036	0.0024	0.0019
RSEM-R6E-EOP	12/1/2018 16:40	UW8610	0.29	0.0904	0.827	0.917	<0.0050	2.3	2.9	0.172	0.00087	0.00138	0.116	<0.0001	<0.001	0.145	0.000053	94.4	0.0023	0.00204	0.00157
RSEM-R6E-EOP	12/2/2018 13:45	UW8612	0.27	0.0672	0.864	0.931	<0.0050	2.2	2.8	0.145	0.00085	0.00116	0.114	<0.0001	<0.001	0.145	0.000072	97.1	0.0017	0.00238	0.00166
RSEM-R6E-EOP	12/3/2018 10:40	UW8511	0.28	0.0777	0.897	0.975	<0.0050	1.4	1.9	0.101	0.00078	0.00104	0.108	<0.0001	<0.001	0.139	0.000067	93.0	0.0015	0.00234	0.00157
RSEM-R6E-EOP	12/3/2018 10:40	UW8509	0.27	0.0820	0.898	0.980	<0.0050	1.6	1.6	0.0965	0.00077	0.00106	0.11	<0.0001	<0.001	0.139	0.000064	94.4	0.0014	0.0024	0.00138
RSEM-R6E-EOP	12/4/2018 12:15	UX4643	0.24	0.0723	1.03	1.10	<0.0050	2.2	2.5	0.0658	0.00074	0.00098	0.12	<0.0001	<0.001	0.138	0.000073	108	0.0012	0.00275	0.00164
RSEM-R6E-EOP	12/5/2018 13:50	UX4955	0.25	0.0556	1.04	1.10	<0.0050	3.1	3.2	0.0634	0.0007	0.00095	0.135	<0.0001	<0.001	0.138	0.000076	118	0.0011	0.003	0.00171
RSEM-R6E-EOP	12/5/2018 13:50	UX4959	0.23	0.0522	1.04	1.09	<0.0050	3.3	2.6	0.0692	0.00069	0.00088	0.134	<0.0001	<0.001	0.134	0.000075	115	0.001	0.00293	0.00163
RSEM-R6E-EOP	12/6/2018 16:35	UX6857	0.27	0.0652	0.952	1.02	<0.0050	2.5	2.6	0.0661	0.00076	0.00102	0.143	<0.0001	<0.001	0.142	0.000073	111	0.0011	0.00267	0.0018
RSEM-R6E-EOP	12/7/2018 13:15	UX6861	0.26	0.0658	0.966	1.03	<0.0050	2.6	2.8	0.0672	0.00072	0.00102	0.143	<0.0001	<0.001	0.161	0.000065	120	0.0012	0.0026	0.00164
RSEM-R6-EOP	6/25/2018	TS9108	0.10	0.0642	1.68	1.74	<0.0050	2.59	2.14	0.674	0.00143	0.00177	0.116	<0.0001	<0.001	0.252	0.000022	62.9	0.0027	0.00054	0.0023
RSEM-R6-EOP	11/24/2018 10:50	UV7549	0.14	0.0137	1.34	1.35	<0.0050	0.86	1.0	0.0666	<0.0005	0.00041	0.121	<0.0001	<0.001	0.103	0.000045	110	<0.001	0.00231	0.00114
RSEM-R6-EP-US-SD	8/30/2018 10:15	UF1076	0.078	0.0286	1.61	1.63	<0.0050	1.9	2.26	17.2	<0.01	0.0088	0.83	<0.002	<0.02	<1	0.00099	119	0.03	0.0152	0.068
RSEM-R6E-SP	1/1/2018 11:10	ST3043	0.64	0.174	1.95	2.13	0.0082	3.50	2.39	0.0618	0.00134	0.00176	0.13	<0.0001	<0.001	0.187	0.000088	91.8	0.0034	0.00354	0.00341
RSEM-R6E-SP	1/2/2018 11:30	ST4210	0.59	0.183	1.98	2.16	<0.0050	3.75	3.29	0.0605	0.00133	0.00166	0.146	<0.0001	<0.001	0.201	0.0001	95.8	0.0035	0.00391	0.00868
RSEM-R6E-SP	1/3/2018 11:45	ST6560	0.54	0.163	1.82	1.98	<0.0050	4.08	2.58	0.0427	0.00128	0.00168	0.132	<0.0001	<0.001	0.178	0.000093	89.8	0.0033	0.00432	0.00662
RSEM-R6E-SP	1/4/2018 13:00	ST7408	0.60	0.169	2.05	2.22	<0.0050	3.94	3.20	0.0794	0.00129	0.00177	0.138	<0.0001	<0.001	0.192	0.000107	99.2	0.0037	0.0043	0.00841
RSEM-R6E-SP	1/5/2018 15:00	ST8670	0.48	0.144	1.80	1.94	<0.0050	4.57	3.40	0.0423	0.00127	0.00162	0.132	<0.0001	<0.001	0.19	0.000105	97.1	0.0034	0.00467	0.00953
RSEM-R6E-SP	1/6/2018 12:00	ST9396	0.56	0.147	1.85	1.99	<0.0050	4.42	3.34	0.0544	0.00121	0.00157	0.138	<0.0001	<0.001	0.212	0.00011	91.3	0.0032	0.00472	0.00339
RSEM-R6E-SP	1/7/2018 12:00	ST9339	0.56	0.140	1.82	1.96	<0.0050	4.14	3.62	0.0411	0.00124	0.00151	0.131	<0.0001	<0.001	0.186	0.000123	98.5	0.0032	0.00532	0.00727
RSEM-R6E-SP	1/8/2018 10:55	SU1307	0.53	0.137	1.94	2.08	<0.0050	3.21	3.48	0.0408	0.00126	0.00147	0.13	<0.0001	<0.001	0.211	0.000116	105	0.003	0.00531	0.00272
RSEM-R6E-SP	1/9/2018 14:20	SU3308	0.42	0.138	1.81	1.95	<0.0050	4.36	3.63	0.0368	0.00116	0.00141	0.124	<0.0001	<0.001	0.181	0.000112	100	0.0028	0.00546	0.00238
RSEM-R6E-SP	1/10/2018 11:35	SU4767	0.58	0.122	1.65	1.77	<0.0050	5.42	4.58	0.0453	0.00106	0.00128	0.118	<0.0001	<0.001	0.234	0.000141	91.8	0.0024	0.00596	0.00284
RSEM-R6E-SP	1/11/2018 0:40	SU5520	0.51	0.0991	1.65	1.75	0.0238	3.07	3.67	0.0371	0.00108	0.00117	0.11	<0.0001	<0.001	0.23	0.000115	94.9	0.0025	0.00547	0.00244
RSEM-R6E-SP	1/12/2018 16:40	SU7326	0.54	0.0890	1.64	1.73	0.0114	3.01	2.37	0.0366	0.00106	0.00118	0.119	<0.0001	<0.001	0.219	0.000118	95.2	0.002	0.00525	0.00222
RSEM-R6E-SP	1/12/2018 17:03	SU7330	0.54	0.0855	1.65	1.73	0.0077	3.48	2.80	0.0366	0.00104	0.00115	0.117	<0.0001	<0.001	0.218	0.000115	93.9	0.002	0.00517	0.00215
RSEM-R6E-SP	1/13/2018 11:46	SU7311	0.53	0.0797	1.65	1.73	0.0110	3.27	3.21	0.0317	0.00103	0.00116	0.117	<0.0001	<0.001	0.212	0.000114	97.0	0.002	0.00501	0.00221
RSEM-R6E-SP	1/14/2018 9:35	SU7322	0.50	0.0859	1.63	1.72	<0.0050	3.13	2.59	0.0336	0.00108	0.00121	0.115	<0.0001	<0.001	0.224	0.000112	96.3	0.002	0.00499	0.00205
RSEM-R6E-SP	1/15/2018 15:20	SU9366	0.51	0.0833	1.64	1.73	<0.0050	3.09	2.57	0.0391	0.00116	0.00122	0.117	<0.0001	<0.001	0.226	0.000112	105	0.0021	0.00528	0.00221
RSEM-R6E-SP	1/16/2018 11:20	SV1338	0.52	0.0880	1.75	1.84	<0.0050	3.54	3.31	0.0375	0.00111	0.00109	0.116	<0.0001	<0.001	0.196	0.000114	109	0.002	0.00475	0.00196
RSEM-R6E-SP	1/16/2018 11:55	SV1340	0.52	0.0887	1.75	1.84	<0.0050	3.88	3.31	0.0387	0.00112	0.00112	0.126	<0.0001	<0.001	0.201	0.000123	121	0.0022	0.00538	0.00227
RSEM-R6E-SP	1/17/2018 8:45	SV3531	0.47	0.0811	1.82	1.90	<0.0050	3.80	3.28	0.043	0.00115	0.00115	0.127	<0.0001	<0.001	0.314	0.000118	111	0.0023	0.00484	0.00224
RSEM-R6E-SP	1/18/2018 14:46	SV4470	0.52	0.0887	1.70	1.79	<0.0050	3.15	3.21	0.0369	0.00106	0.00112	0.116	<0.0001	<0.001	0.295	0.000104	99.0	0.0023	0.00456	0.00234
RSEM-R6E-SP	1/19/2018 10:46	SV4479	0.50	0.0920	1.67	1.76	<0.0050	3.33	3.34	0.0394	0.00107	0.00118	0.118	<0.0001	<0.001	0.288	0.0001	101	0.0022	0.00428	0.00209

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	11/8/2018 6:20	UT3573	0.095	<0.0002	0.0328	42.0	0.178	<0.000002	0.0048	0.0117	-	4.21	0.00175	4.35	<0.00002	98.8	0.664	115	0.000012	<0.005	<0.005	0.00279
RSEM-R6E-EOP	11/8/2018 6:20	UT3572	0.102	<0.0002	0.0331	42.6	0.179	<0.000002	0.0048	0.0118	-	4.29	0.0018	4.5	<0.00002	99.1	0.665	117	0.000012	<0.005	<0.005	0.00286
RSEM-R6E-EOP	11/9/2018 5:40	UT3611	0.085	<0.0002	0.0329	43.0	0.167	<0.000002	0.0049	0.0119	-	4.40	0.00167	4.84	<0.00002	94.3	0.684	110	0.000015	<0.005	<0.005	0.00274
RSEM-R6E-EOP	11/10/2018 9:40	UT4953	0.067	<0.0002	0.0285	41.7	0.154	<0.000002	0.0046	0.0114	-	3.96	0.00155	4.53	<0.00002	88.2	0.636	92.4	0.000012	<0.005	<0.005	0.00264
RSEM-R6E-EOP	11/11/2018 9:00	UT4844	0.053	<0.0002	0.0259	38.8	0.135	<0.000002	0.0045	0.011	-	3.83	0.00145	4.34	<0.00002	82.5	0.595	84.1	0.000012	<0.005	<0.005	0.0025
RSEM-R6E-EOP	11/11/2018 9:05	UT4845	0.05	<0.0002	0.0279	38.5	0.133	<0.000002	0.0045	0.011	-	3.84	0.00145	4.36	<0.00002	82.7	0.6	82.9	0.000012	<0.005	<0.005	0.00248
RSEM-R6E-EOP	11/12/2018 9:40	UT6581	0.041	<0.0002	0.0299	36.3	0.128	<0.000002	0.0046	0.0101	-	3.62	0.00139	4.37	<0.00002	80.9	0.558	78.9	0.000011	<0.005	<0.005	0.00239
RSEM-R6E-EOP	11/13/2018 11:50	UT9229	0.053	<0.0002	0.0309	39.0	0.132	<0.000002	0.0049	0.0096	-	3.90	0.00138	4.52	<0.00002	86.7	0.571	86.8	0.000011	<0.005	<0.005	0.00239
RSEM-R6E-EOP	11/14/2018 13:00	UU0938	0.124	<0.0002	0.032	40.7	0.153	<0.000002	0.0048	0.0109	-	4.00	0.00161	4.42	<0.00002	93.9	0.557	99.8	0.000013	<0.005	<0.005	0.00254
RSEM-R6E-EOP	11/14/2018 13:00	UU0941	0.124	<0.0002	0.0326	41.6	0.157	<0.000002	0.0049	0.0107	-	4.08	0.00168	4.39	<0.00002	95.1	0.578	101	0.000012	<0.005	<0.005	0.00257
RSEM-R6E-EOP	11/15/2018 10:50	UU0902	0.154	<0.0002	0.0324	40.4	0.156	<0.000002	0.0045	0.0115	-	3.93	0.00163	4.32	<0.00002	91.3	0.548	93.8	0.000012	<0.005	<0.005	0.00238
RSEM-R6E-EOP	11/16/2018 11:35	UU3468	0.119	<0.0002	0.0333	40.0	0.159	<0.000002	0.0051	0.0123	-	4.33	0.00172	4.79	<0.00002	95.5	0.587	98.1	0.000012	<0.005	<0.005	0.0024
RSEM-R6E-EOP	11/17/2018 12:20	UU6434	0.113	<0.0002	0.0396	46.5	0.204	<0.000002	0.0066	0.016	-	4.40	0.0021	4.89	<0.00002	109	0.669	114	0.000014	<0.005	<0.005	0.00297
RSEM-R6E-EOP	11/18/2018 12:10	UU6364	0.117	<0.0002	0.0392	46.3	0.204	<0.000002	0.0066	0.0162	-	4.38	0.00212	4.85	<0.00002	110	0.664	113	0.000014	<0.005	<0.005	0.00293
RSEM-R6E-EOP	11/18/2018 12:10	UU6367	0.116	<0.0002	0.0394	46.3	0.19	<0.000002	0.0063	0.0146	-	4.37	0.00191	4.97	<0.00002	110	0.67	111	0.000013	<0.005	<0.005	0.00284
RSEM-R6E-EOP	11/19/2018 11:40	UU8731	0.094	<0.0002	0.0322	43.2	0.199	<0.000002	0.0062	0.0157	-	4.07	0.00212	4.57	<0.00002	97.5	0.622	107	0.000012	<0.005	<0.005	0.0028
RSEM-R6E-EOP	11/20/2018 11:30	UU8806	0.139	<0.0002	0.0303	42.1	0.192	<0.000002	0.0058	0.0153	-	3.93	0.00205	4.33	<0.00002	91.9	0.6	101	0.000012	<0.005	<0.005	0.0027
RSEM-R6E-EOP	11/21/2018 12:00	UV2695	0.242	<0.0002	0.0285	40.3	0.185	<0.000002	0.0053	0.0146	-	3.81	0.00201	4.25	<0.00002	85.8	0.586	93.9	<0.00001	<0.005	<0.005	0.00268
RSEM-R6E-EOP	11/21/2018 12:00	UV2699	0.222	<0.0002	0.0291	39.9	0.181	<0.000002	0.0051	0.0141	-	3.69	0.00197	4.09	<0.00002	84.0	0.573	92.7	<0.00001	<0.005	<0.005	0.0026
RSEM-R6E-EOP	11/22/2018 12:40	UV5074	0.121	<0.0002	0.0276	37.5	0.169	<0.000002	0.0049	0.0131	-	3.52	0.00178	3.75	<0.00002	77.8	0.537	82.9	0.00001	<0.005	<0.005	0.00263
RSEM-R6E-EOP	11/23/2018 13:15	UV5087	0.06	<0.0002	0.0355	39.8	0.158	<0.000002	0.0052	0.0116	-	3.63	0.00191	4.39	<0.00002	80.4	0.578	86.5	<0.00001	<0.005	<0.005	0.00293
RSEM-R6E-EOP	11/24/2018 10:50	UV7553	0.078	<0.0002	0.0311	40.8	0.146	<0.000002	0.0057	0.0104	-	3.68	0.00188	4.51	<0.00002	77.4	0.56	81.1	<0.00001	<0.005	<0.005	0.00342
RSEM-R6E-EOP	11/25/2018 12:40	UV7536	0.083	<0.0002	0.0305	42.1	0.149	<0.000002	0.0056	0.0096	-	3.54	0.00187	4.78	<0.00002	75.0	0.548	79.3	<0.00001	<0.005	<0.005	0.00358
RSEM-R6E-EOP	11/26/2018 14:00	UV9444	0.08	<0.0002	0.0286	42.0	0.148	<0.000002	0.0055	0.0087	-	3.51	0.00175	5.2	<0.00002	70.9	0.557	73.6	0.00001	<0.005	<0.005	0.00383
RSEM-R6E-EOP	11/27/2018 11:50	UW1673	0.061	<0.0002	0.0227	37.8	0.142	<0.000002	0.0049	0.0078	-	3.14	0.00165	4.47	<0.00002	65.1	0.528	64.5	0.000011	<0.005	<0.005	0.00351
RSEM-R6E-EOP	11/27/2018 11:50	UW1672	0.065	<0.0002	0.0231	39.5	0.145	<0.000002	0.0051	0.0081	-	3.23	0.00171	4.53	<0.00002	66.2	0.514	66.3	0.00001	<0.005	<0.005	0.00364
RSEM-R6E-EOP	11/28/2018 13:50	UW6190	0.087	<0.0002	0.0281	40.2	0.144	<0.000002	0.0044	0.0075	-	3.43	0.00148	5.25	<0.00002	68.0	0.461	63.0	0.000013	<0.005	<0.005	0.0038
RSEM-R6E-EOP	11/29/2018 11:40	UW6193	0.078	<0.0002	0.026	39.2	0.139	<0.000002	0.0038	0.0068	-	3.23	0.00125	5.03	<0.00002	64.0	0.435	58.1	0.000011	<0.005	<0.005	0.00344
RSEM-R6E-EOP	11/30/2018 11:25	UW6183	0.483	0.00029	0.0369	41.6	0.205	<0.000002	0.0122	0.01	-	5.09	0.00247	5.44	<0.00002	132	0.634	106	0.000021	<0.005	0.0127	0.00321
RSEM-R6E-EOP	11/30/2018 11:25	UW6182	0.455	0.00027	0.0353	39.9	0.198	<0.000002	0.0116	0.0098	-	4.72	0.00237	5.16	<0.00002	124	0.614	101	0.000018	<0.005	0.0166	0.0031
RSEM-R6E-EOP	12/1/2018 16:40	UW8610	0.12	<0.0002	0.0328	34.7	0.167	<0.000002	0.0153	0.0086	-	5.20	0.00288	4.71	<0.00002	127	0.591	89.9	0.000014	<0.005	<0.005	0.00297
RSEM-R6E-EOP	12/2/2018 13:45	UW8612	0.126	<0.0002	0.0324	36.1	0.163	<0.000002	0.0142	0.0099	-	5.12	0.00276	4.72	<0.00002	121	0.599	87.9	0.000013	<0.005	<0.005	0.00306
RSEM-R6E-EOP	12/3/2018 10:40	UW8511	0.064	<0.0002	0.0335	36.0	0.152	<0.000002	0.0133	0.0108	-	4.93	0.00265	4.46	<0.00002	115	0.593	85.5	0.000014	<0.005	<0.005	0.003
RSEM-R6E-EOP	12/3/2018 10:40	UW8509	0.071	<0.0002	0.0329	36.0	0.153	<0.000002	0.0135	0.0101	-	4.88	0.0026	4.47	<0.00002	114	0.592	85.4	0.000012	<0.005	<0.005	0.00307
RSEM-R6E-EOP	12/4/2018 12:15	UX4643	0.054	<0.0002	0.035	38.4	0.166	<0.000002	0.012	0.0114	-	5.14	0.00283	4.95	<0.00002	115	0.577	89.4	0.000015	<0.005	<0.005	0.00359
RSEM-R6E-EOP	12/5/2018 13:50	UX4955	0.059	<0.0002	0.0354	40.8	0.174	<0.000002	0.0119	0.0126	-	5.16	0.00275	5.27	<0.00002	117	0.591	89.6	0.000016	<0.005	<0.005	0.0037
RSEM-R6E-EOP	12/5/2018 13:50	UX4959	0.061	<0.0002	0.0349	40.0	0.17	<0.000002	0.0115	0.0123	-	4.99	0.00271	5.16	<0.00002	113	0.57	88.6	0.000014	<0.005	<0.005	0.00364
RSEM-R6E-EOP	12/6/2018 16:35	UX6857	0.056	<0.0002	0.0344	40.5	0.179	0.0000038	0.013	0.0113	-	5.01	0.00286	5.06	<0.00002	114	0.657	92.2	0.000015	<0.005	<0.005	0.00351
RSEM-R6E-EOP	12/7/2018 13:15	UX6861	0.058	<0.0002	0.0363	45.4	0.196	<0.000002	0.0119	0.0106	-	5.88	0.00291	5.67	<0.00002	137	0.588	113	0.000017	<0.005	<0.005	0.00381
RSEM-R6-EOP	6/25/2018	TS9108	0.557	0.00033	0.042	20.2	0.0165	0.0000022	0.0159	0.0052	-	4.87	0.00357	5.62	<0.00002	122	0.515	66.0	0.000035	<0.005	0.0136	0.0022
RSEM-R6-EOP	11/24/2018 10:50	UV7549	0.078	<0.0002	0.0306	39.8	0.14	<0.000002	0.0055	0.0104	-	3.55	0.00186	4.5	<0.00002	75.2	0.546	78.6	0.00001	<0.005	<0.005	0.00331
RSEM-R6-EP-US-SD	8/30/2018 10:15	UF1076	33.6	0.0149	0.068	33.3	0.333	<0.000002	<0.02	0.088	-	10.1	<0.002	37.2	<0.0004	49.0	0.519	<60	0.00041	<0.1	0.118	0.0027
RSEM-R6E-SP	1/1/2018 11:10	ST3043	0.027	<0.0002	0.0634	26.3	0.0745	<0.00001	0.0246	0.0158	-	5.13	0.01	3.63	<0.00002	249	0.515	133	0.000019	<0.005	<0.005	0.00352
RSEM-R6E-SP	1/2/2018 11:30	ST4210	0.067	<0.0002	0.0674	28.0	0.0799	<0.00001	0.0236	0.0173	-	5.40	0.00962	4.69	<0.00002	252	0.497	143	0.000022	<0.005	<0.005	0.00347
RSEM-R6E-SP	1/3/2018 11:45	ST6560	0.02	<0.0002	0.068	28.1	0.0807	-	0.0224	0.0188	-	5.27	0.0093	3.98	<0.00002	258	0.474	136	0.000021	<0.005	<0.005	0.00338
RSEM-R6E-SP	1/4/2018 13:00	ST7408	0.106	<0.0002	0.0663	29.3	0.0845	-	0.0234	0.0189	-	5.45	0.00974	4.59	<0.00002	275	0.499	149	0.000021	<0.005	<0.005	0.00354
RSEM-R6E-SP	1/5/2018 15:00	ST8670	0.014	<0.0002	0.0702	29.9	0.0883	-	0.0222	0.0202	-	5.45	0.00968	4.44	<0.00002	277	0.493	155	0.000022	<0.005	<0.005	0.00341
RSEM-R6E-SP	1/6/2018 12:00	ST9396	0.026	<0.0002	0.0742	25.5	0.0912	-	0.0232	0.0194	-	5.03	0.0095	4.42	<0.00002	235	0.526	148	0.000021	<0.005	<0.005	0.00353
RSEM-R6E-SP	1/7/2018 12:00	ST9339	0.022	<0.0002	0.0737	29.9	0.0956	-	0.0215	0.0224	-	5.42	0.00947	4.27	<0.00002	279	0.496	155	0.000021	<0.005	<0.005	0.00346
RSEM-R6E-SP	1/8/2018 10:55	SU1307	0.015	<0.0002	0.0737	27.7	0.0989	<0.00001	0.0214	0.0225	-	5.33	0.00924	4.68	<0.00002	260	0.503	155	0.000022	<0.005	<0.005	0.00341
RSEM-R6E-SP	1/9/2018 14:20	SU3308	0.017	<0.0002	0.0719	27.9	0.0976	-	0.0197	0.0225	-	4.98	0.00836	4.2	<0.00002	256	0.489	154	0.00002	<0.005	<0.005	0.00322
RSEM-R6E-SP	1/10/2018 11:35	SU4767	0.016	<0.0002	0.0795	27.2	0.107	-	0.0188	0.025	-	4.92	0.0083	4.14	0.000346	255	0.511	173	0.000022	<0.005	<0.005	0.00332
RSEM-R6E-SP	1/11/2018 0:40	SU5520	0.016	<0.0002	0.0873	29.2	0.101	-	0.0188	0.0235	-	4.80	0.00797	3.99	0.000033	265	0.52	178	0.000021	<0.005	<0.005	0.00366
RSEM-R6E-SP	1/12/2018 16:40	SU7326	0.018	<0.0002	0.088	29.9	0.101	-	0.0174	0.0238	-	4.81	0.0074	3.96	<0.00002	264	0.549	166	0.000024	<0.005	<0.005	0.00367
RSEM-R6E-SP	1/12/2018 17:03	SU7330	0.017	<0.0002	0.0848	29.0	0.101	-	0.0172	0.0237	-	4.70	0.00734	3.97	<0.00002	255	0.557	165	0.000022	<0.005	<0.005	0.00362
RSEM-R6E-SP	1/13/2018 11:46	SU7311	0.012	<0.0002	0.087	30.0	0.0969	-	0.0173	0.0238	-	5.01	0.00733	4	<0.00002	260	0.55	165	0.000021	<0.005	<0.005	0.00362
RSEM-R6E-SP	1/14/2018 9:35	SU7322	0.019	<0.0002	0.086	29.5	0.0956	-	0.0173	0.0233	-	4.95	0.00739	3.91	<0.00002	260	0.556	168	0.000023	<0.005	<0.005	0.00366
RSEM-R6E-SP	1/15/2018 15:20	SU9366	0.015	<0.0002	0.0804	34.2	0.102	-	0.0188	0.0236	-	5.11	0.0078	4.18	<0.00002	288	0.598	179	0.000022	<0.005	<0.005	0.00353
RSEM-R6E-SP	1/16/2018 11:20	SV1338	0.017	<0.0002	0.0781	32.5	0.0924	-	0.0178	0.0219	-	4.79	0.00654	4.45	<0.00002	269	0.585	160	0.000023	<0.005	<0.005	0.00341
RSEM-R6E-SP	1/16/2018 11:55	SV1340	0.011	<0.0002	0.0855	33.0	0.0989	-	0.0177	0.0238	-	5.56	0.00749	4.77	<0.00002	270	0.553	177	0.000022	<0.005	<0.005	0.00353
RSEM-R6E-SP	1/17/2018 8:45	SV3531	0.016	<0.0002	0.0976	34.9	0.0934	-	0.0193	0.0248	-	5.49	0.0077	5.01	0.000038	292	0.592	187	0.000023	<0.005	<0.005	0.00379
RSEM-R6E-SP	1/18/2018 14:46	SV4470	0.012	<0.0002	0.087	31.5	0.0865	<0.00001	0.0177	0.023	-	4.80	0.0074	4.09	<0.00002	273	0.514	164	0.000022	<0.005	<0.005	0.0034
RSEM-R6E-SP	1/19/2018 10:46	SV4479	0.011	<0.0002	0.0961	31.6	0.0851	<0.00001	0.0176	0.0221	-	5.09	0.00701	4.32	<0.00002	268	0.519	163	0.000022	<0.005	<0.005	0.00342

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	11/8/2018 6:20	UT3573	<0.005	0.0074	<0.0001	0.0324	<0.0005	0.00044	0.157	<0.0001	<0.001	0.117	<0.00001	121	<0.001	0.00199	0.0008	<0.01	<0.0002	0.0384	42.7	0.0834
RSEM-R6E-EOP	11/8/2018 6:20	UT3572	<0.005	0.0072	<0.0001	0.0301	<0.0005	0.00043	0.151	<0.0001	<0.001	0.119	<0.00001	119	<0.001	0.00195	0.00085	<0.01	<0.0002	0.0375	41.0	0.0826
RSEM-R6E-EOP	11/9/2018 5:40	UT3611	<0.005	0.0089	<0.0001	0.0378	<0.0005	0.00043	0.163	<0.0001	<0.001	0.118	<0.00001	127	<0.001	0.00195	0.00075	<0.01	<0.0002	0.0377	40.8	0.0771
RSEM-R6E-EOP	11/10/2018 9:40	UT4953	<0.005	0.0102	<0.0001	0.0394	<0.0005	0.00042	0.182	<0.0001	<0.001	0.104	0.000022	134	<0.001	0.00231	0.00097	<0.01	<0.0002	0.0347	39.0	0.136
RSEM-R6E-EOP	11/11/2018 9:00	UT4844	<0.005	0.0109	<0.0001	0.0362	<0.0005	0.00042	0.169	<0.0001	<0.001	0.102	0.000041	127	<0.001	0.00219	0.0009	<0.01	<0.0002	0.0324	36.5	0.129
RSEM-R6E-EOP	11/11/2018 9:05	UT4845	<0.005	0.0108	<0.0001	0.036	<0.0005	0.00045	0.175	<0.0001	<0.001	0.11	0.000027	122	<0.001	0.00219	0.00091	<0.01	<0.0002	0.033	37.0	0.129
RSEM-R6E-EOP	11/12/2018 9:40	UT6581	<0.005	0.0097	<0.0001	0.0348	<0.0005	0.00046	0.157	<0.0001	<0.001	0.101	0.000042	118	<0.001	0.00203	0.00096	<0.01	<0.0002	0.0303	39.1	0.13
RSEM-R6E-EOP	11/13/2018 11:50	UT9229	<0.005	0.0084	<0.0001	0.0296	<0.0005	0.00047	0.146	<0.0001	<0.001	0.106	0.000042	114	<0.001	0.00206	0.00105	<0.01	<0.0002	0.0301	38.9	0.139
RSEM-R6E-EOP	11/14/2018 13:00	UU0938	<0.005	0.0088	<0.0001	0.0293	<0.0005	0.00041	0.14	<0.0001	<0.001	0.105	0.00004	122	<0.001	0.00249	0.00114	<0.01	<0.0002	0.0318	39.8	0.149
RSEM-R6E-EOP	11/14/2018 13:00	UU0941	<0.005	0.0097	0.00011	0.0261	<0.0005	0.00041	0.141	<0.0001	<0.001	0.108	0.000041	121	<0.001	0.0025	0.001	<0.01	<0.0002	0.0312	40.1	0.149
RSEM-R6E-EOP	11/15/2018 10:50	UU0902	<0.005	0.0112	<0.0001	0.0266	<0.0005	0.00039	0.138	<0.0001	<0.001	0.107	0.000041	121	<0.001	0.00275	0.00079	<0.01	<0.0002	0.0316	38.7	0.152
RSEM-R6E-EOP	11/16/2018 11:35	UU3468	<0.005	0.0129	<0.0001	0.0362	<0.0005	0.00039	0.144	<0.0001	<0.001	0.117	<0.00001	116	<0.001	0.00269	0.0008	<0.01	<0.0002	0.0329	38.6	0.113
RSEM-R6E-EOP	11/17/2018 12:20	UU6434	<0.005	0.0182	<0.0001	0.0393	<0.0005	0.00039	0.151	<0.0001	<0.001	0.138	0.000069	126	<0.001	0.00446	0.00106	<0.01	<0.0002	0.0404	42.9	0.199
RSEM-R6E-EOP	11/18/2018 12:10	UU6364	<0.005	0.0184	<0.0001	0.0407	<0.0005	0.00042	0.152	<0.0001	<0.001	0.103	0.000062	128	<0.001	0.0043	0.00098	<0.01	<0.0002	0.0325	42.7	0.195
RSEM-R6E-EOP	11/18/2018 12:10	UU6367	<0.005	0.0154	<0.0001	0.0375	<0.0005	0.00045	0.152	<0.0001	<0.001	0.106	0.000048	129	<0.001	0.00357	0.00099	<0.01	<0.0002	0.0331	42.8	0.184
RSEM-R6E-EOP	11/19/2018 11:40	UU8731	<0.005	0.0188	<0.0001	0.0347	<0.0005	0.00037	0.15	<0.0001	<0.001	0.124	0.000072	125	<0.001	0.00436	0.00145	<0.01	<0.0002	0.035	41.2	0.199
RSEM-R6E-EOP	11/20/2018 11:30	UU8806	<0.005	0.0186	<0.0001	0.0296	<0.0005	0.00034	0.153	<0.0001	<0.001	0.103	0.000066	120	<0.001	0.00406	0.00096	<0.01	<0.0002	0.0304	36.0	0.196
RSEM-R6E-EOP	11/21/2018 12:00	UV2695	<0.005	0.018	<0.0001	0.0307	<0.0005	0.00032	0.148	<0.0001	<0.001	0.108	0.000059	120	<0.001	0.00374	0.00098	<0.01	<0.0002	0.0329	41.3	0.185
RSEM-R6E-EOP	11/21/2018 12:00	UV2699	<0.005	0.0177	<0.0001	0.0346	<0.0005	0.00032	0.144	<0.0001	<0.001	0.11	0.000056	121	<0.001	0.00371	0.0011	<0.01	<0.0002	0.0338	42.0	0.183
RSEM-R6E-EOP	11/22/2018 12:40	UV5074	<0.005	0.0138	<0.0001	0.0292	<0.0005	0.00032	0.132	<0.0001	<0.001	0.105	0.000042	114	<0.001	0.00325	0.00083	<0.01	<0.0002	0.0305	39.9	0.167
RSEM-R6E-EOP	11/23/2018 13:15	UV5087	<0.005	0.0113	<0.0001	0.0204	<0.0005	0.00039	0.123	<0.0001	<0.001	0.106	0.000041	113	<0.001	0.00282	0.00097	<0.01	<0.0002	0.0305	40.2	0.156
RSEM-R6E-EOP	11/24/2018 10:50	UV7553	<0.005	0.0101	0.00013	0.0133	<0.0005	0.00039	0.121	<0.0001	<0.001	0.103	0.000039	112	<0.001	0.00229	0.0009	<0.01	<0.0002	0.0302	40.0	0.141
RSEM-R6E-EOP	11/25/2018 12:40	UV7536	<0.005	0.0082	<0.0001	0.0098	<0.0005	0.00042	0.131	<0.0001	<0.001	0.098	0.000041	114	<0.001	0.00213	0.00103	<0.01	<0.0002	0.0289	41.4	0.145
RSEM-R6E-EOP	11/26/2018 14:00	UV9444	<0.005	0.0084	0.00013	0.0082	<0.0005	0.00043	0.151	<0.0001	<0.001	0.097	0.000037	119	<0.001	0.00186	0.00095	<0.01	<0.0002	0.0291	43.2	0.142
RSEM-R6E-EOP	11/27/2018 11:50	UW1673	<0.005	0.0073	0.00015	0.0095	<0.0005	0.00042	0.152	<0.0001	<0.001	0.092	0.000038	130	<0.001	0.0018	0.00115	<0.01	<0.0002	0.0284	43.4	0.149
RSEM-R6E-EOP	11/27/2018 11:50	UW1672	<0.005	0.0075	0.00013	0.0089	<0.0005	0.00042	0.151	<0.0001	<0.001	0.098	0.000038	132	<0.001	0.00178	0.00107	<0.01	<0.0002	0.0282	43.9	0.149
RSEM-R6E-EOP	11/28/2018 13:50	UW6190	<0.005	0.0066	<0.0001	0.0086	<0.0005	0.00038	0.152	<0.0001	<0.001	0.097	0.000034	111	<0.001	0.00148	0.00097	<0.01	<0.0002	0.0272	40.3	0.141
RSEM-R6E-EOP	11/29/2018 11:40	UW6193	<0.005	0.0063	<0.0001	0.0069	<0.0005	0.00036	0.149	<0.0001	<0.001	0.096	0.000026	106	<0.001	0.0013	0.00106	<0.01	<0.0002	0.0268	39.4	0.131
RSEM-R6E-EOP	11/30/2018 11:25	UW6183	<0.005	0.0109	0.00065	0.0453	0.00074	0.00101	0.105	<0.0001	<0.001	0.156	0.000041	101	0.0013	0.00203	0.00102	<0.01	<0.0002	0.0365	40.4	0.18
RSEM-R6E-EOP	11/30/2018 11:25	UW6182	<0.005	0.0098	0.00053	0.0436	0.00073	0.00099	0.105	<0.0001	<0.001	0.156	0.000047	103	0.0013	0.00209	0.00184	<0.01	<0.0002	0.0374	40.6	0.185
RSEM-R6E-EOP	12/1/2018 16:40	UW8610	<0.005	0.0089	0.00017	0.0478	0.00088	0.0013	0.11	<0.0001	<0.001	0.158	0.000051	93.4	0.0019	0.00188	0.00297	<0.01	<0.0002	0.0351	36.2	0.16
RSEM-R6E-EOP	12/2/2018 13:45	UW8612	<0.005	0.0162	0.00024	0.0384	0.00084	0.00111	0.11	<0.0001	<0.001	0.153	0.000062	92.5	0.0014	0.00225	0.00119	<0.01	<0.0002	0.0353	36.4	0.153
RSEM-R6E-EOP	12/3/2018 10:40	UW8511	<0.005	0.0147	0.00013	0.0342	0.00079	0.00102	0.107	<0.0001	<0.001	0.146	0.000063	95.4	0.0013	0.00235	0.00125	<0.01	<0.0002	0.0345	37.0	0.152
RSEM-R6E-EOP	12/3/2018 10:40	UW8509	<0.005	0.0118	0.0001	0.0295	0.00079	0.00102	0.107	<0.0001	<0.001	0.152	0.000057	94.0	0.0013	0.00235	0.00111	<0.01	<0.0002	0.0353	37.0	0.149
RSEM-R6E-EOP	12/4/2018 12:15	UX4643	<0.005	0.0134	<0.0001	0.0289	0.00076	0.00099	0.12	<0.0001	<0.001	0.145	0.000071	107	0.0011	0.00283	0.00156	<0.01	<0.0002	0.0345	39.6	0.17
RSEM-R6E-EOP	12/5/2018 13:50	UX4955	<0.005	0.0155	0.00022	0.0319	0.00071	0.00093	0.134	<0.0001	<0.001	0.138	0.000075	112	<0.001	0.00296	0.00153	<0.01	<0.0002	0.0349	40.2	0.172
RSEM-R6E-EOP	12/5/2018 13:50	UX4959	<0.005	0.0145	<0.0001	0.0273	0.0007	0.00084	0.133	<0.0001	<0.001	0.141	0.000071	114	<0.001	0.00282	0.00183	<0.01	<0.0002	0.0356	40.0	0.169
RSEM-R6E-EOP	12/6/2018 16:35	UX6857	<0.005	0.0134	<0.0001	0.037	0.00072	0.00098	0.138	<0.0001	<0.001	0.154	0.000049	115	0.001	0.00266	0.00148	<0.01	<0.0002	0.0361	44.6	0.172
RSEM-R6E-EOP	12/7/2018 13:15	UX6861	<0.005	0.0111	0.00014	0.0357	0.00076	0.00105	0.141	<0.0001	<0.001	0.161	0.000051	118	0.0011	0.00251	0.00162	<0.01	<0.0002	0.0368	44.2	0.178
RSEM-R6-EOP	6/25/2018	TS9108	<0.005	<0.005	0.00063	0.0282	0.00145	0.0015	0.0994	<0.0001	<0.001	0.258	<0.00001	68.7	0.0018	<0.0002	0.00137	<0.01	<0.0002	0.0434	20.5	<0.001
RSEM-R6-EOP	11/24/2018 10:50	UV7549	<0.005	0.0099	0.0001	0.0139	<0.0005	0.0004	0.12	<0.0001	<0.001	0.1	0.000036	111	<0.001	0.00225	0.00097	<0.01	<0.0002	0.0298	39.9	0.138
RSEM-R6-EP-US-SD	8/30/2018 10:15	UF1076	<0.1	0.387	0.0025	0.103	<0.0005	0.00033	0.18	<0.0001	<0.001	0.126	<0.00001	74.1	<0.001	0.00152	0.00071	<0.01	<0.0002	0.0318	23.5	0.0088
RSEM-R6E-SP	1/1/2018 11:10	ST3043	<0.005	0.0155	<0.0001	0.0305	0.00137	0.00174	0.135	<0.0001	<0.001	0.226	0.000086	101	0.0031	0.00356	0.0033	<0.01	<0.0002	0.0701	28.5	0.0754
RSEM-R6E-SP	1/2/2018 11:30	ST4210	<0.005	0.0156	<0.0001	0.0301	0.00138	0.00178	0.14	<0.0001	<0.001	0.198	0.000098	100	0.0034	0.00401	0.00384	<0.01	<0.0002	0.0676	28.1	0.0825
RSEM-R6E-SP	1/3/2018 11:45	ST6560	<0.005	0.0165	<0.0001	0.0266	0.00133	0.00159	0.136	<0.0001	<0.001	0.218	0.0001	93.7	0.0031	0.0043	0.00642	<0.01	<0.0002	0.0689	26.1	0.0827
RSEM-R6E-SP	1/4/2018 13:00	ST7408	<0.005	0.0185	<0.0001	0.0263	0.00125	0.00174	0.145	<0.0001	<0.001	0.208	0.000102	91.7	0.0034	0.00427	0.00604	<0.01	<0.0002	0.0744	28.7	0.0851
RSEM-R6E-SP	1/5/2018 15:00	ST8670	<0.005	0.0189	<0.0001	0.0269	0.00132	0.00163	0.135	<0.0001	<0.001	0.2	0.000111	99.8	0.0033	0.00464	0.00878	0.013	<0.0002	0.073	29.5	0.0872
RSEM-R6E-SP	1/6/2018 12:00	ST9396	<0.005	0.0186	<0.0001	0.025	0.00133	0.00161	0.138	<0.0001	<0.001	0.218	0.000114	101	0.003	0.00483	0.00306	0.013	<0.0002	0.0726	27.0	0.0902
RSEM-R6E-SP	1/7/2018 12:00	ST9339	<0.005	0.0205	<0.0001	0.0238	0.00122	0.00151	0.133	<0.0001	<0.001	0.204	0.000114	92.1	0.0029	0.00531	0.00629	<0.01	<0.0002	0.073	27.8	0.0973
RSEM-R6E-SP	1/8/2018 10:55	SU1307	<0.005	0.02	<0.0001	0.0246	0.00128	0.00144	0.133	<0.0001	<0.001	0.213	0.000123	103	0.003	0.00548	0.00275	0.021	<0.0002	0.0736	28.5	0.0995
RSEM-R6E-SP	1/9/2018 14:20	SU3308	<0.005	0.0204	<0.0001	0.0222	0.00117	0.0014	0.124	<0.0001	<0.001	0.193	0.000116	105	0.0029	0.00583	0.00228	<0.01	<0.0002	0.0731	28.4	0.104
RSEM-R6E-SP	1/10/2018 11:35	SU4767	<0.005	0.0282	0.00018	0.0296	0.00115	0.0014	0.122	<0.0001	<0.001	0.194	0.000133	104	0.0028	0.00664	0.00307	0.027	<0.0002	0.0775	29.0	0.112
RSEM-R6E-SP	1/11/2018 0:40	SU5520	<0.005	0.0269	<0.0001	0.0255	0.00107	0.0012	0.118	<0.0001	<0.001	0.258	0.00012	96.3	0.0021	0.00522	0.00235	<0.01	<0.0002	0.0908	28.8	0.1
RSEM-R6E-SP	1/12/2018 16:40	SU7326	<0.005	0.0265	<0.0001	0.0221	0.00112	0.00117	0.121	<0.0001	<0.001	0.22	0.000117	97.8	0.0019	0.00526	0.00214	<0.01	<0.0002	0.0868	29.6	0.1
RSEM-R6E-SP	1/12/2018 17:03	SU7330	<0.005	0.0275	<0.0001	0.0216	0.00108	0.00113	0.12	<0.0001	<0.001	0.231	0.000121	96.2	0.0018	0.00525	0.00228	<0.01	<0.0002	0.0845	30.1	0.0988
RSEM-R6E-SP	1/13/2018 11:46	SU7311	<0.005	0.0269	<0.0001	0.0206	0.00107	0.00114	0.115	<0.0001	<0.001	0.216	0.000116	96.8	0.0018	0.00517	0.00205	<0.01	<0.0002	0.0892	29.7	0.0959
RSEM-R6E-SP	1/14/2018 9:35	SU7322	<0.005	0.0222	<0.0001	0.0209	0.00112	0.00117	0.116	<0.0001	<0.001	0.224	0.000118	98.3	0.0019	0.00516	0.00201	<0.01	<0.0002	0.085	29.9	0.0964
RSEM-R6E-SP	1/15/2018 15:20	SU9366	<0.005	0.0217	<0.0001	0.0221	0.00111	0.00121	0.118	<0.0001	<0.001	0.196	0.000122	111	0.0018	0.00489	0.00206	<0.01	<0.0002	0.0832	31.5	0.0969
RSEM-R6E-SP	1/16/2018 11:20	SV1338	<0.005	0.0199	<0.0001	0.0228	0.00114	0.00116	0.118	<0.0001	<0.001	0.209	0.000114	112	0.0019	0.00492	0.00199	<0.01	<0.0002	0.0825	33.4	0.0937
RSEM-R6E-SP	1/16/2018 11:55	SV1340	<0.005	0.0216	<0.0001	0.0237	0.00114	0.00113	0.118	<0.0001	<0.001	0.208	0.000113	114	0.0019	0.00498	0.00187	<0.01	<0.0002	0.0824	33.9	0.0946
RSEM-R6E-SP	1/17/2018 8:45	SV3531	<0.005	0.0251	<0.0001	0.0242	0.00109	0.00112	0.117	<0.0001	<0.001	0.271	0.000109	109	0.0019	0.00416	0.00182	<0.01	<0.0002	0.0802	34.0	0.0799
RSEM-R6E-SP	1/18/2018 14:46	SV4470	<0.005	0.0215	<0.0001	0.0251	0.00111	0.00109	0.12	<0.0001	<0.001	0.286	0.000105	106	0.0019	0.00426	0.00178	<0.01	<0.0002	0.0871	34.2	0.0839
RSEM-R6E-SP	1/19/2018 10:46	SV4479	<0.005	0.021	<0.0001	0.0239	0.00108	0.00111	0.12	<0.0001	<0.001	0.291	0.000104	99.7	0.002	0.00434	0.00211	<0.01	<0.0002	0.0932	31.4	0.0852

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-EOP	11/8/2018 6:20	UT3573	<0.000002	0.0049	0.0107	-	4.26	0.00178	4.65	<0.00002	100	0.633	113	0.000014	<0.005	<0.005	0.00299	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/8/2018 6:20	UT3572	<0.000002	0.0047	0.0104	-	4.26	0.00177	4.37	<0.00002	96.9	0.61	113	0.000013	<0.005	<0.005	0.0029	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/9/2018 5:40	UT3611	<0.000002	0.0045	0.0104	-	4.12	0.00183	5.08	<0.00002	88.9	0.603	107	0.000014	<0.005	<0.005	0.00276	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/10/2018 9:40	UT4953	<0.000002	0.0046	0.0105	-	4.17	0.00151	5.03	<0.00002	83.4	0.614	89.2	0.000013	<0.005	<0.005	0.00268	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/11/2018 9:00	UT4844	<0.000002	0.0045	0.0102	-	3.91	0.00158	4.93	<0.00002	77.1	0.565	82.9	0.000013	<0.005	<0.005	0.00248	<0.005	0.0088	<0.0001
RSEM-R6E-EOP	11/11/2018 9:05	UT4845	<0.000002	0.0043	0.0105	-	3.96	0.00147	4.98	<0.00002	78.9	0.577	81.8	0.000013	<0.005	<0.005	0.00258	<0.005	0.0063	<0.0001
RSEM-R6E-EOP	11/12/2018 9:40	UT6581	<0.000002	0.005	0.0102	-	4.04	0.00146	4.66	<0.00002	85.1	0.607	87.4	0.000011	<0.005	<0.005	0.0025	<0.005	0.0089	<0.0001
RSEM-R6E-EOP	11/13/2018 11:50	UT9229	<0.000002	0.005	0.0102	-	3.85	0.00154	4.37	<0.00002	88.0	0.584	87.9	0.000011	<0.005	<0.005	0.00254	<0.005	0.0085	<0.0001
RSEM-R6E-EOP	11/14/2018 13:00	UU0938	<0.000002	0.0048	0.0105	-	3.99	0.00163	4.28	<0.00002	95.0	0.545	95.9	0.000012	<0.005	<0.005	0.00247	<0.005	0.0085	<0.0001
RSEM-R6E-EOP	11/14/2018 13:00	UU0941	<0.000002	0.0061	0.0104	-	4.01	0.00168	4.37	<0.00002	94.0	0.545	94.5	0.000011	<0.005	<0.005	0.00252	<0.005	0.0082	<0.0001
RSEM-R6E-EOP	11/15/2018 10:50	UU0902	<0.000002	0.0045	0.0109	-	3.81	0.00166	4.03	<0.00002	91.9	0.554	89.8	0.000011	<0.005	<0.005	0.00244	<0.005	0.0103	<0.0001
RSEM-R6E-EOP	11/16/2018 11:35	UU3468	<0.000002	0.0051	0.0121	-	4.25	0.00164	4.65	<0.00002	93.7	0.55	96.4	0.000012	<0.005	<0.005	0.00232	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/17/2018 12:20	UU6434	<0.000002	0.0062	0.0159	-	4.19	0.00209	5.07	<0.00002	98.2	0.624	105	0.000011	<0.005	<0.005	0.00308	<0.005	0.0165	<0.0001
RSEM-R6E-EOP	11/18/2018 12:10	UU6364	<0.000002	0.0064	0.0159	-	4.32	0.00211	4.48	<0.00002	101	0.654	107	0.000014	<0.005	<0.005	0.00284	<0.005	0.0166	<0.0001
RSEM-R6E-EOP	11/18/2018 12:10	UU6367	<0.000002	0.0063	0.0141	-	4.37	0.00188	4.64	<0.00002	102	0.644	107	0.000013	<0.005	<0.005	0.00271	<0.005	0.0127	<0.0001
RSEM-R6E-EOP	11/19/2018 11:40	UU8731	<0.000002	0.0062	0.0158	-	3.95	0.00223	4.46	<0.00002	92.0	0.632	102	0.000012	<0.005	<0.005	0.0028	<0.005	0.0179	<0.0001
RSEM-R6E-EOP	11/20/2018 11:30	UU8806	<0.000002	0.0057	0.0148	-	3.94	0.00204	4.99	<0.00002	76.2	0.689	97.7	<0.00001	<0.005	<0.005	0.0028	<0.005	0.0168	<0.0001
RSEM-R6E-EOP	11/21/2018 12:00	UV2695	<0.000002	0.0053	0.0145	-	3.66	0.00196	4.24	<0.00002	86.9	0.603	94.4	0.00001	<0.005	<0.005	0.00268	<0.005	0.0158	<0.0001
RSEM-R6E-EOP	11/21/2018 12:00	UV2699	<0.000002	0.0054	0.0143	-	3.74	0.0019	4.39	<0.00002	88.4	0.6	94.8	0.000013	<0.005	<0.005	0.00265	<0.005	0.0153	<0.0001
RSEM-R6E-EOP	11/22/2018 12:40	UV5074	<0.000002	0.0051	0.0133	-	3.73	0.00183	4.04	<0.00002	83.1	0.559	88.6	<0.00001	<0.005	<0.005	0.00273	<0.005	0.0102	<0.0001
RSEM-R6E-EOP	11/23/2018 13:15	UV5087	<0.000002	0.0054	0.0121	-	3.70	0.00192	4.1	<0.00002	81.9	0.563	86.4	<0.00001	<0.005	<0.005	0.00295	<0.005	0.0095	<0.0001
RSEM-R6E-EOP	11/24/2018 10:50	UV7553	<0.000002	0.0057	0.0101	-	3.55	0.00188	4.41	<0.00002	75.2	0.553	79.9	<0.00001	<0.005	<0.005	0.00337	<0.005	0.0087	<0.0001
RSEM-R6E-EOP	11/25/2018 12:40	UV7536	<0.000002	0.0056	0.0093	-	3.43	0.00183	4.55	<0.00002	74.3	0.544	78.5	<0.00001	<0.005	<0.005	0.00358	<0.005	0.0073	<0.0001
RSEM-R6E-EOP	11/26/2018 14:00	UV9444	<0.000002	0.0053	0.0085	-	3.52	0.0017	4.78	<0.00002	74.3	0.542	75.5	0.000012	<0.005	<0.005	0.00355	<0.005	0.0069	<0.0001
RSEM-R6E-EOP	11/27/2018 11:50	UW1673	<0.000002	0.005	0.0082	-	3.66	0.00171	5.51	<0.00002	76.4	0.49	74.8	0.000012	<0.005	<0.005	0.00355	<0.005	0.0075	<0.0001
RSEM-R6E-EOP	11/27/2018 11:50	UW1672	<0.000002	0.0051	0.008	-	3.82	0.00172	5.65	<0.00002	76.8	0.477	75.0	0.000013	<0.005	<0.005	0.00363	<0.005	0.0068	<0.0001
RSEM-R6E-EOP	11/28/2018 13:50	UW6190	<0.000002	0.0042	0.0073	-	3.19	0.00146	4.65	<0.00002	66.4	0.475	59.2	<0.00001	<0.005	<0.005	0.00376	<0.005	0.0062	<0.0001
RSEM-R6E-EOP	11/29/2018 11:40	UW6193	<0.000002	0.0039	0.0067	-	3.01	0.00138	4.66	<0.00002	63.6	0.448	55.6	<0.00001	<0.005	<0.005	0.00369	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	11/30/2018 11:25	UW6182	<0.000002	0.0115	0.0086	-	4.78	0.0025	4.26	<0.00002	125	0.615	106	0.000011	<0.005	<0.005	0.00327	<0.005	<0.005	<0.0001
RSEM-R6E-EOP	12/1/2018 16:40	UW8610	<0.000002	0.0153	0.0079	-	5.11	0.00273	4.57	<0.00002	131	0.589	91.5	0.000013	<0.005	<0.005	0.00295	<0.005	0.0078	<0.0001
RSEM-R6E-EOP	12/2/2018 13:45	UW8612	<0.000002	0.0142	0.0093	-	5.06	0.00266	4.38	<0.00002	122	0.595	88.3	0.000011	<0.005	<0.005	0.00298	<0.005	0.01	<0.0001
RSEM-R6E-EOP	12/3/2018 10:40	UW8511	<0.000002	0.0136	0.01	-	5.04	0.00271	4.39	<0.00002	118	0.597	86.7	0.000012	<0.005	<0.005	0.00307	<0.005	0.0111	<0.0001
RSEM-R6E-EOP	12/3/2018 10:40	UW8509	<0.000002	0.0133	0.0098	-	4.97	0.00265	4.3	<0.00002	118	0.592	87.5	0.000012	<0.005	<0.005	0.00308	<0.005	0.0102	<0.0001
RSEM-R6E-EOP	12/4/2018 12:15	UX4643	0.0000027	0.0126	0.0118	-	5.20	0.00278	4.82	<0.00002	117	0.58	94.7	0.000015	<0.005	<0.005	0.00358	<0.005	0.0138	<0.0001
RSEM-R6E-EOP	12/5/2018 13:50	UX4955	<0.000002	0.0118	0.0121	-	5.06	0.00286	5.12	<0.00002	114	0.584	92.2	0.000014	<0.005	<0.005	0.00367	<0.005	0.0146	<0.0001
RSEM-R6E-EOP	12/5/2018 13:50	UX4959	0.0000021	0.0119	0.012	-	4.93	0.00284	5.05	<0.00002	112	0.591	89.3	0.000015	<0.005	<0.005	0.00375	<0.005	0.0142	<0.0001
RSEM-R6E-EOP	12/6/2018 16:35	UX6857	0.0000029	0.0121	0.0117	-	5.35	0.00289	5.34	<0.00002	127	0.571	99.8	0.000015	<0.005	<0.005	0.00371	<0.005	0.0091	<0.0001
RSEM-R6E-EOP	12/7/2018 13:15	UX6861	<0.000002	0.012	0.0112	-	5.30	0.00291	5.44	<0.00002	126	0.565	106	0.000014	<0.005	<0.005	0.0037	<0.005	0.0089	<0.0001
RSEM-R6-EOP	6/25/2018	TS9108	<0.000002	0.0153	0.0041	-	4.74	0.00349	4.35	<0.00002	130	0.489	67.8	0.000027	<0.005	<0.005	0.00215	<0.005	<0.005	<0.0001
RSEM-R6-EOP	11/24/2018 10:50	UV7549	<0.000002	0.0057	0.0103	-	3.54	0.00185	4.43	<0.00002	75.6	0.552	79.3	<0.00001	<0.005	<0.005	0.0033	<0.005	0.0082	<0.0001
RSEM-R6-EP-US-SD	8/30/2018 10:15	UF1076	<0.000002	0.0026	0.013	-	3.42	0.00078	4.93	<0.00002	42.3	0.413	41.1	0.000016	<0.005	<0.005	0.00149	<0.005	<0.005	<0.0001
RSEM-R6E-SP	1/1/2018 11:10	ST3043	<0.00001	0.0239	0.0162	-	5.54	0.00997	4.35	<0.00002	267	0.485	153	0.00002	<0.005	<0.005	0.00345	<0.005	0.0145	<0.0001
RSEM-R6E-SP	1/2/2018 11:30	ST4210	<0.00001	0.0251	0.018	-	5.27	0.0106	4.07	<0.00002	260	0.552	144	0.000017	<0.005	<0.005	0.00358	<0.005	0.0161	<0.0001
RSEM-R6E-SP	1/3/2018 11:45	ST6560	-	0.0237	0.0189	-	5.04	0.00969	4.62	<0.00002	238	0.506	145	0.00002	<0.005	<0.005	0.00353	<0.005	0.0189	<0.0001
RSEM-R6E-SP	1/4/2018 13:00	ST7408	-	0.0244	0.0198	-	5.37	0.00986	4.34	<0.00002	258	0.506	152	0.000021	<0.005	<0.005	0.0036	<0.005	0.0198	<0.0001
RSEM-R6E-SP	1/5/2018 15:00	ST8670	-	0.0232	0.0201	-	5.65	0.00945	4.52	<0.00002	278	0.515	162	0.000021	<0.005	<0.005	0.00365	<0.005	0.0186	<0.0001
RSEM-R6E-SP	1/6/2018 12:00	ST9396	-	0.0237	0.0208	-	5.07	0.0106	4.83	<0.00002	251	0.529	153	0.00002	<0.005	<0.005	0.00363	<0.005	0.0199	<0.0001
RSEM-R6E-SP	1/7/2018 12:00	ST9339	-	0.0221	0.0223	-	5.26	0.00981	4.29	<0.00002	258	0.519	156	0.00002	<0.005	<0.005	0.00352	<0.005	0.0232	<0.0001
RSEM-R6E-SP	1/8/2018 10:55	SU1307	<0.00001	0.0214	0.0233	-	5.49	0.0091	4.41	<0.00002	275	0.506	157	0.000025	<0.005	<0.005	0.00348	<0.005	0.0206	<0.0001
RSEM-R6E-SP	1/9/2018 14:20	SU3308	-	0.0195	0.0244	-	5.29	0.00885	4.49	<0.00002	275	0.479	156	0.000021	<0.005	<0.005	0.00323	<0.005	0.0225	<0.0001
RSEM-R6E-SP	1/10/2018 11:35	SU4767	-	0.0188	0.0257	-	5.36	0.0087	4.01	0.00002	276	0.516	168	0.000024	<0.005	<0.005	0.00334	<0.005	0.026	<0.0001
RSEM-R6E-SP	1/11/2018 0:40	SU5520	-	0.0193	0.0232	-	4.93	0.00825	4.12	<0.00002	266	0.524	181	0.000021	<0.005	<0.005	0.00368	<0.005	0.0275	<0.0001
RSEM-R6E-SP	1/12/2018 16:40	SU7326	-	0.0177	0.0243	-	4.99	0.00775	4.15	<0.00002	266	0.565	170	0.000023	<0.005	<0.005	0.0037	<0.005	0.0252	<0.0001
RSEM-R6E-SP	1/12/2018 17:03	SU7330	-	0.0173	0.0241	-	4.82	0.00753	4.08	<0.00002	261	0.561	165	0.000024	<0.005	<0.005	0.00366	<0.005	0.025	<0.0001
RSEM-R6E-SP	1/13/2018 11:46	SU7311	-	0.017	0.0246	-	4.86	0.00765	3.96	<0.00002	261	0.55	163	0.000019	<0.005	<0.005	0.00374	<0.005	0.0306	<0.0001
RSEM-R6E-SP	1/14/2018 9:35	SU7322	-	0.0176	0.0241	-	4.80	0.00784	3.97	<0.00002	259	0.569	170	0.00002	<0.005	<0.005	0.00377	<0.005	0.0231	<0.0001
RSEM-R6E-SP	1/15/2018 15:20	SU9366	-	0.0176	0.0218	-	5.33	0.00855	4.55	<0.00002	276	0.55	183	0.000024	<0.005	<0.005	0.00352	<0.005	0.0209	0.00012
RSEM-R6E-SP	1/16/2018 11:20	SV1338	-	0.0185	0.0225	-	5.05	0.00747	4.46	<0.00002	279	0.595	167	0.000022	<0.005	<0.005	0.00349	<0.005	0.0203	<0.0001
RSEM-R6E-SP	1/16/2018 11:55	SV1340	-	0.0185	0.0228	-	5.00	0.00727	4.55	<0.00002	285	0.588	169	0.000023	<0.005	<0.005	0.0035	<0.005	0.0207	<0.0001
RSEM-R6E-SP	1/17/2018 8:45	SV3531	-	0.0172	0.0216	-	5.47	0.00715	5.04	<0.00002	275	0.543	176	0.000022	<0.005	<0.005	0.00339	<0.005	0.0214	<0.0001
RSEM-R6E-SP	1/18/2018 14:46	SV4470	<0.00001	0.0181	0.0214	-	5.50	0.00735	4.85	<0.00002	280	0.545	171	0.000022	<0.005	<0.005	0.00345	<0.005	0.0211	<0.0001
RSEM-R6E-SP	1/19/2018 10:46	SV4479	<0.00001	0.0176	0.0222	-	5.07	0.00732	4.44	<0.00002	264	0.536	161	0.000022	<0.005	<0.005	0.00346	<0.005	0.0213	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	1/20/2018 9:28	SV7271	8.43	1890	0.79	1250	<4.0	423	429	380	8.4	443	10.1	<1.0	104	0.390	1.71	441
RSEM-R6E-SP	1/21/2018 12:54	SV8259	8.39	1880	0.71	1220	<4.0	404	422	388	6.3	458	7.5	<1.0	106	0.380	1.73	429
RSEM-R6E-SP	1/22/2018 11:31	SV9403	8.40	1910	0.72	1230	<4.0	427	420	382	6.8	450	8.2	<1.0	114	0.390	1.75	457
RSEM-R6E-SP	1/23/2018 11:45	SV9419	8.38	1930	0.94	1240	<4.0	435	438	393	5.5	466	6.6	<1.0	112	0.400	1.75	454
RSEM-R6E-SP	1/24/2018 10:15	SW0796	8.40	1940	0.93	1240	<4.0	415	425	389	6.8	458	8.1	<1.0	108	0.430	1.81	472
RSEM-R6E-SP	1/25/2018 13:05	SW2682	8.42	1940	0.82	1280	<4.0	396	407	375	7.1	440	8.5	<1.0	118	0.430	1.77	464
RSEM-R6E-SP	1/26/2018 10:40	SW3612	8.30	1930	0.60	1280	<4.0	407	424	336	1.1	407	1.4	<1.0	106	0.410	1.92	468
RSEM-R6E-SP	1/27/2018 17:00	SW6652	8.34	1940	1.26	1280	<4.0	430	427	368	<1.0	449	<1.0	<1.0	115	0.440	1.94	449
RSEM-R6E-SP	1/28/2018 10:50	SW6655	8.35	1950	0.99	1260	<4.0	402	427	355	2.6	426	3.1	<1.0	117	0.430	1.83	445
RSEM-R6E-SP	1/29/2018	SW8097	8.30	1970	1.33	1280	<4.0	400	402	352	2.9	422	3.5	<1.0	111	0.440	1.94	478
RSEM-R6E-SP	1/30/2018 13:25	SX1383	8.42	2020	1.69	1310	<4.0	390	396	411	8.8	480	10.5	<1.0	115	0.450	2.02	472
RSEM-R6E-SP	1/31/2018 10:11	SX1385	8.41	2020	0.92	1330	4.5	391	409	404	7.8	474	9.4	<1.0	115	0.450	2.00	471
RSEM-R6E-SP	2/1/2018 13:17	SX3550	8.54	2180	3.44	1400	7.8	231	228	394	13.5	448	16.2	<1.0	159	0.540	2.49	485
RSEM-R6E-SP	2/2/2018 10:20	SX3506	8.60	2190	3.28	1370	4.5	245	237	399	15.6	449	18.7	<1.0	160	0.540	2.51	491
RSEM-R6E-SP	2/3/2018 10:28	SX6298	8.53	2170	5.86	1210	9.3	205	227	389	12.0	445	14.4	<1.0	157	0.560	2.60	437
RSEM-R6E-SP	2/4/2018 11:17	SX6309	8.52	2180	4.70	1360	8.8	210	233	397	11.7	456	14.0	<1.0	157	0.530	2.34	442
RSEM-R6E-SP	2/5/2018 9:50	SX8060	8.52	2170	3.48	1390	19.5	267	304	409	11.8	470	14.1	<1.0	158	0.540	2.35	487
RSEM-R6E-SP	2/6/2018 10:20	SX8062	8.51	2120	3.52	1340	4.8	315	367	420	12.6	482	15.1	<1.0	147	0.530	2.38	469
RSEM-R6E-SP	2/7/2018 13:56	SY0762	8.32	2080	3.81	1320	5.5	332	319	393	2.9	472	3.5	<1.0	141	0.490	2.24	482
RSEM-R6E-SP	2/7/2018 14:00	SY0764	8.30	2070	3.80	1370	5.0	341	321	387	2.0	467	2.3	<1.0	139	0.470	2.22	485
RSEM-R6E-SP	2/8/2018 13:50	SY2809	8.30	2060	2.52	1310	<4.0	340	345	371	2.0	447	2.4	<1.0	132	0.420	2.14	473
RSEM-R6E-SP	2/9/2018 12:40	SY2811	8.54	2130	2.08	1360	<4.0	364	382	413	17.4	461	20.9	<1.0	128	0.470	2.18	484
RSEM-R6E-SP	2/10/2018 16:49	SY5550	8.47	2090	1.97	1350	<4.0	373	395	406	11.1	469	13.3	<1.0	128	0.470	1.87	496
RSEM-R6E-SP	2/11/2018 14:00	SY5900	8.45	2110	1.65	1420	<4.0	402	409	414	11.6	477	13.9	<1.0	125	0.520	1.95	503
RSEM-R6E-SP	2/12/2018 12:30	SY5619	8.39	2100	1.61	1370	<4.0	419	405	410	7.4	482	8.9	<1.0	128	0.470	1.88	504
RSEM-R6E-SP	2/13/2018 12:25	SY7278	8.26	2080	1.59	1580	<4.0	418	398	416	<1.0	507	<1.0	<1.0	126	0.450	1.90	518
RSEM-R6E-SP	2/14/2018 13:45	SY9399	8.33	2100	1.60	1360	<4.0	424	429	401	3.9	480	4.7	<1.0	126	0.420	1.84	531
RSEM-R6E-SP	2/15/2018 13:10	SZ0952	8.29	2070	1.09	1330	<4.0	422	412	405	<1.0	495	<1.0	<1.0	123	0.420	1.86	481
RSEM-R6E-SP	2/16/2018 13:25	SZ0956	8.30	2100	1.22	1290	<4.0	406	416	411	1.4	498	1.7	<1.0	121	0.400	1.89	508
RSEM-R6E-SP	2/17/2018 10:20	SZ2077	8.32	2130	1.15	1260	<4.0	379	397	401	2.9	482	3.4	<1.0	125	0.440	1.8	513
RSEM-R6E-SP	2/18/2018 11:20	SZ2076	8.30	2020	1.57	1300	<4.0	420	424	385	1.7	466	2.0	<1.0	122	0.430	1.9	490
RSEM-R6E-SP	2/19/2018 13:20	SZ3784	8.33	2120	1.27	1360	<4.0	393	443	398	4.1	476	4.9	<1.0	127	0.450	1.8	538
RSEM-R6E-SP	2/20/2018 13:23	SZ5786	8.24	2100	1.40	1370	<4.0	451	449	386	<1.0	471	<1.0	<1.0	126	0.420	1.8	523
RSEM-R6E-SP	2/21/2018 12:10	SZ7677	8.37	2120	1.07	1380	4.3	449	400	408	5.7	483	6.9	<1.0	133	0.410	1.8	539
RSEM-R6E-SP	2/22/2018 10:30	SZ7674	8.38	2080	1.06	1330	4.0	432	398	397	6.4	469	7.6	<1.0	131	0.410	1.8	527
RSEM-R6E-SP	2/23/2018 14:08	SZ9581	8.28	2090	2.78	1370	14.0	406	397	351	<1.0	428	<1.0	<1.0	129	0.480	1.8	510
RSEM-R6E-SP	2/24/2018 14:55	TA2078	8.27	2120	2.03	1390	<4.0	409	398	402	<1.0	491	<1.0	<1.0	127	0.430	1.7	504
RSEM-R6E-SP	2/25/2018 12:25	TA2075	8.28	2140	1.68	1380	<4.0	426	418	407	<1.0	496	<1.0	<1.0	130	0.430	1.8	511
RSEM-R6E-SP	2/26/2018 18:30	TA3631	8.17	2140	0.96	1360	<4.3	435	406	402	<1.0	490	<1.0	<1.0	128	0.430	1.7	546
RSEM-R6E-SP	2/27/2018 16:30	TA7104	8.33	2160	0.80	1390	<4.0	392	393	410	4.2	490	5.1	<1.0	139	0.400	1.9	532
RSEM-R6E-SP	2/28/2018 15:45	TA7106	8.22	2140	0.84	1380	<4.0	392	391	407	<1.0	496	<1.0	<1.0	141	0.400	1.9	534
RSEM-R6E-SP	3/1/2018 9:25	TA7697	8.28	2160	0.83	1410	<4.0	392	387	384	<1.0	468	<1.0	<1.0	134	0.420	1.9	514
RSEM-R6E-SP	3/2/2018 17:20	TB0489	8.35	2190	0.96	1440	<4.0	390	376	406	4.5	484	5.4	<1.0	136	0.430	1.9	540
RSEM-R6E-SP	3/2/2018 17:25	TB0491	8.44	2210	0.56	1410	<4.0	404	379	419	9.1	489	10.9	<1.0	137	0.430	2.0	535
RSEM-R6E-SP	3/3/2018 10:50	TB1437	8.32	2180	0.67	1380	<4.0	380	398	403	3.7	483	4.4	<1.0	140	0.450	1.9	504
RSEM-R6E-SP	3/4/2018 16:20	TB1431	8.28	2170	0.82	1420	4.8	377	384	397	<1.0	484	<1.0	<1.0	138	0.440	2.0	507
RSEM-R6E-SP	3/5/2018 10:00	TB2019	8.34	2160	0.72	1460	<4.0	368	387	407	4.8	485	5.8	<1.0	136	0.440	1.8	512
RSEM-R6E-SP	3/6/2018 11:00	TB2841	8.33	2190	0.75	1410	<4.0	356	390	412	4.2	493	5.0	<1.0	136	0.450	1.8	507
RSEM-R6E-SP	3/7/2018 13:35	TB7063	8.31	2180	0.81	1390	<4.0	594	399	415	3.0	500	3.6	<1.0	128	0.440	1.8	536
RSEM-R6E-SP	3/8/2018 13:52	TB8241	8.27	2130	0.81	1340	<11	385	404	360	<1.0	440	<1.0	<1.0	132	0.450	1.8	495
RSEM-R6E-SP	3/9/2018 11:50	TB8237	8.25	2130	0.80	1390	<4.0	371	388	359	<1.0	438	<1.0	<1.0	136	0.440	1.8	512
RSEM-R6E-SP	3/10/2018 13:25	TC1325	8.33	2190	0.83	1420	<4.0	384	385	410	4.0	491	4.8	<1.0	140	0.450	1.8	565
RSEM-R6E-SP	3/11/2018 11:55	TC1321	8.30	1730	13.3	1080	16.3	279	286	315	<1.0	384	<1.0	<1.0	125	0.410	1.6	393
RSEM-R6E-SP	3/12/2018 13:25	TC2473	8.21	1010	8.17	570	8.8	205	224	171	<1.0	208	<1.0	<1.0	98.6	0.320	1.3	178
RSEM-R6E-SP	3/13/2018 12:15	TC2459	8.11	802	12.3	444	12.0	210	205	119	<1.0	145	<1.0	<1.0	104	0.290	1.4	110
RSEM-R6E-SP	3/14/2018 10:40	TC7630	8.13	747	10.4	388	7.8	210	221	103	<1.0	125	<1.0	<1.0	107	0.240	1.5	89.2
RSEM-R6E-SP	3/15/2018 14:50	TC8866	8.10	731	5.00	390	<4.0	198	214	97.2	<1.0	119	<1.0	<1.0	105	0.230	1.5	74.7
RSEM-R6E-SP	3/16/2018 13:00	TD1263	8.10	744	4.12	384	<4.0	203	212	104	<1.0	127	<1.0	<1.0	102	0.240	1.4	96.9
RSEM-R6E-SP	3/16/2018 14:45	TD1268	8.10	744	3.35	360	<4.0	203	207	106	<1.0	129	<1.0	<1.0	108	0.240	1.4	86.8
RSEM-R6E-SP	3/20/2018 10:13	TD4118	8.16	778	26.8	456	31.5	166	167	129	<1.0	158	<1.0	<1.0	60.5	0.410	0.92	152
RSEM-R6E-SP	4/8/2018 6:55	TG1022	8.36	1230	8.75	752	7.3	199	189	258	2.8	308	3.3	<1.0	98.3	0.430	1.5	230
RSEM-R6E-SP	4/20/2018 11:55	TH5942	8.25	1080	25.2	590	12.3	154	155	124	<1.0	151	<1.0	<1.0	57.9	0.310	0.81	301
RSEM-R6E-SP	4/22/2018 19:45	TH9251	8.03	780	22.5	448	8.8	121	119	102	<1.0	125	<1.0	<1.0	33.0	0.230	0.61	223

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	1/20/2018 9:28	SV7271	0.49	0.0845	1.76	1.85	<0.0050	3.68	3.15	0.0315	0.00107	0.00116	0.116	<0.0001	<0.001	0.199	0.000102	115	0.0022	0.00411	0.001
RSEM-R6E-SP	1/21/2018 12:54	SV8259	0.52	0.0803	1.81	1.89	<0.0050	3.41	3.06	0.0354	0.001	0.00103	0.107	<0.0001	<0.001	0.182	0.000092	109	0.0022	0.00403	0.00252
RSEM-R6E-SP	1/22/2018 11:31	SV9403	0.50	0.0847	1.83	1.92	<0.0050	3.18	2.89	0.0284	0.0011	0.00117	0.122	<0.0001	<0.001	0.197	0.0001	117	0.0022	0.00435	0.00235
RSEM-R6E-SP	1/23/2018 11:45	SV9419	0.50	0.0860	1.86	1.95	<0.0050	-	2.91	0.0338	0.00114	0.00126	0.124	<0.0001	<0.001	0.205	0.000101	120	0.0022	0.00429	0.00219
RSEM-R6E-SP	1/24/2018 10:15	SW0796	0.54	0.0929	2.15	2.25	<0.0050	3.22	3.81	0.0487	0.00112	0.00127	0.126	<0.0001	<0.001	0.215	0.000108	113	0.0023	0.00429	0.0026
RSEM-R6E-SP	1/25/2018 13:05	SW2682	0.51	0.0935	2.08	2.18	<0.0050	3.59	2.95	0.0371	0.00108	0.0013	0.12	<0.0001	<0.001	0.287	0.000097	104	0.0025	0.00455	0.00216
RSEM-R6E-SP	1/26/2018 10:40	SW3612	0.44	0.0827	1.88	1.96	<0.0050	3.60	3.01	0.0354	0.00109	0.00122	0.123	<0.0001	<0.001	0.245	0.0001	109	0.0023	0.00412	0.00215
RSEM-R6E-SP	1/27/2018 17:00	SW6652	0.49	0.0856	1.80	1.89	0.0052	4.16	3.16	0.0553	0.0012	0.00131	0.131	<0.0001	<0.001	0.194	0.000107	118	0.0024	0.00417	0.00219
RSEM-R6E-SP	1/28/2018 10:50	SW6655	0.41	0.0904	1.86	1.95	<0.0050	3.34	3.17	0.046	0.00112	0.00131	0.123	<0.0001	<0.001	0.227	0.000091	107	0.0022	0.00415	0.00247
RSEM-R6E-SP	1/29/2018	SW8097	0.58	0.0993	2.23	2.33	<0.0050	3.66	3.69	0.0537	0.00118	0.00138	0.113	<0.0001	<0.001	0.176	0.000087	106	0.0024	0.00403	0.00226
RSEM-R6E-SP	1/30/2018 13:25	SX1383	0.51	0.0923	2.60	2.70	0.0215	3.98	3.85	0.0827	0.00131	0.00164	0.113	<0.0001	<0.001	0.237	0.000088	103	0.0024	0.00372	0.00246
RSEM-R6E-SP	1/31/2018 10:11	SX1385	0.48	0.0904	2.21	2.30	0.0291	3.89	3.85	0.0841	0.00131	0.00155	0.11	<0.0001	<0.001	0.226	0.000078	103	0.0024	0.0036	0.00544
RSEM-R6E-SP	2/1/2018 13:17	SX3550	0.94	0.268	1.42	1.68	0.0354	5.61	5.17	0.374	<0.0025	0.00416	0.058	<0.0005	<0.005	0.321	<0.00005	55.8	<0.005	0.0032	<0.0025
RSEM-R6E-SP	2/2/2018 10:20	SX3506	0.87	0.255	1.48	1.73	0.0313	5.53	5.51	0.38	<0.0025	0.00411	0.0651	<0.0005	<0.005	0.3	<0.00005	59.9	<0.005	0.0033	0.0027
RSEM-R6E-SP	2/3/2018 10:28	SX6298	0.99	0.274	1.37	1.64	0.0075	7.09	5.54	0.276	<0.0025	0.00402	0.049	<0.0005	<0.005	0.306	<0.00005	48.9	<0.005	0.0033	0.0027
RSEM-R6E-SP	2/4/2018 11:17	SX6309	0.95	0.265	1.41	1.68	0.0149	7.42	6.21	0.285	0.0031	0.004	0.051	<0.0005	<0.005	0.298	<0.00005	50.2	<0.005	0.0032	0.0092
RSEM-R6E-SP	2/5/2018 9:50	SX8060	0.75	0.225	1.62	1.84	<0.0050	4.82	5.19	0.197	<0.0025	0.00363	0.0687	<0.0005	<0.005	0.344	<0.00005	66.2	<0.005	0.0034	0.0031
RSEM-R6E-SP	2/6/2018 10:20	SX8062	0.66	0.168	1.83	1.99	<0.0050	4.66	3.38	0.172	<0.0025	0.00331	0.0865	<0.0005	<0.005	0.303	<0.00005	79.8	<0.005	0.0031	0.0031
RSEM-R6E-SP	2/7/2018 13:56	SY0762	0.48	0.144	1.78	1.93	<0.0050	7.83	3.61	0.201	<0.0025	0.003	0.0938	<0.0005	<0.005	0.286	0.000056	83.1	<0.005	0.0033	0.003
RSEM-R6E-SP	2/7/2018 14:00	SY0764	0.49	0.145	1.78	1.92	<0.0050	13.4	3.70	0.243	<0.0025	0.00318	0.0928	<0.0005	<0.005	0.273	0.000059	86.4	<0.005	0.0034	0.0028
RSEM-R6E-SP	2/8/2018 13:50	SY2809	0.59	0.127	1.82	1.95	<0.0050	4.25	3.83	0.156	0.0017	0.00257	0.0986	<0.0001	<0.001	0.284	0.000071	88.5	0.0024	0.00358	0.00294
RSEM-R6E-SP	2/9/2018 12:40	SY2811	0.56	0.122	2.05	2.17	<0.0050	4.05	3.67	0.128	0.0016	0.00226	0.102	<0.0001	<0.001	0.266	0.000082	95.7	0.0025	0.00364	0.0028
RSEM-R6E-SP	2/10/2018 16:49	SY5550	0.54	0.107	1.89	1.99	<0.0050	4.88	3.29	0.098	<0.0025	0.00193	0.107	<0.0005	<0.005	<0.25	0.000087	96.7	<0.005	0.0038	0.0032
RSEM-R6E-SP	2/11/2018 14:00	SY5900	0.51	0.113	2.05	2.17	<0.0050	4.70	2.96	0.085	<0.0025	0.00208	0.113	<0.0005	<0.005	<0.25	0.000088	107	<0.005	0.004	0.003
RSEM-R6E-SP	2/12/2018 12:30	SY5619	0.52	0.106	2.09	2.20	<0.0050	4.21	3.22	0.077	<0.0025	0.00185	0.118	<0.0005	<0.005	<0.25	0.000097	110	<0.005	0.0041	0.0028
RSEM-R6E-SP	2/13/2018 12:25	SY7278	0.46	0.0992	1.70	1.80	<0.0050	4.37	3.23	0.104	<0.0025	0.00172	0.111	<0.0005	<0.005	0.251	0.0001	114	<0.005	0.0037	0.0036
RSEM-R6E-SP	2/14/2018 13:45	SY9399	0.45	0.0906	2.00	2.10	<0.0050	4.15	4.38	0.0715	0.00134	0.00165	0.101	<0.0001	<0.001	0.232	0.000086	113	0.0025	0.00399	0.00291
RSEM-R6E-SP	2/15/2018 13:10	SZ0952	0.47	0.0890	2.08	2.17	<0.0050	4.03	2.67	0.078	0.00141	0.00174	0.102	<0.0001	<0.001	0.25	0.000077	110	0.0027	0.00398	0.00282
RSEM-R6E-SP	2/16/2018 13:25	SZ0956	0.50	0.0947	1.83	1.92	<0.0050	3.28	3.08	0.0691	0.00131	0.00158	0.104	<0.0001	<0.001	0.237	0.000084	108	0.0026	0.00409	0.00245
RSEM-R6E-SP	2/17/2018 10:20	SZ2077	0.53	0.0850	1.81	1.90	<0.0050	3.85	4.47	0.0567	0.00125	0.00147	0.102	<0.0001	<0.001	0.219	0.000087	97.0	0.0021	0.00366	0.00239
RSEM-R6E-SP	2/18/2018 11:20	SZ2076	0.50	0.0854	1.81	1.90	<0.0050	3.76	3.98	0.0554	0.00131	0.00146	0.109	<0.0001	<0.001	0.248	0.000093	111	0.0022	0.00387	0.00248
RSEM-R6E-SP	2/19/2018 13:20	SZ3784	0.48	0.0800	1.71	1.79	<0.0050	3.34	3.62	0.0492	0.00123	0.00135	0.0983	<0.0001	<0.001	0.249	0.000089	105	0.0021	0.00357	0.00253
RSEM-R6E-SP	2/20/2018 13:23	SZ5786	0.50	0.0728	1.80	1.87	<0.0050	3.73	3.10	0.0549	0.00135	0.0015	0.111	<0.0001	<0.001	0.234	0.00009	124	0.0026	0.00384	0.00269
RSEM-R6E-SP	2/21/2018 12:10	SZ7677	0.49	0.0810	1.75	1.83	<0.0050	4.19	2.86	0.0618	0.00137	0.00149	0.111	<0.0001	<0.001	0.251	0.000086	125	0.0022	0.00368	0.00244
RSEM-R6E-SP	2/22/2018 10:30	SZ7674	0.50	0.0845	1.68	1.77	<0.0050	3.85	2.91	0.0541	0.00133	0.00149	0.107	<0.0001	<0.001	0.241	0.000082	119	0.0021	0.00349	0.0023
RSEM-R6E-SP	2/23/2018 14:08	SZ9581	0.49	0.0822	1.70	1.78	<0.0050	3.43	3.29	0.156	<0.0025	0.00149	0.0971	<0.0005	<0.005	<0.25	0.000096	108	<0.005	0.0033	0.0029
RSEM-R6E-SP	2/24/2018 14:55	TA2078	0.47	0.0665	1.80	1.86	<0.0050	6.27	3.89	0.0688	0.0013	0.00159	0.0918	<0.0002	<0.002	0.259	0.000075	108	0.0023	0.00321	0.0028
RSEM-R6E-SP	2/25/2018 12:25	TA2075	0.45	0.0607	1.80	1.86	<0.0050	4.75	3.93	0.0625	0.0013	0.00151	0.0901	<0.0002	<0.002	0.253	0.000077	113	0.0022	0.00319	0.0028
RSEM-R6E-SP	2/26/2018 18:30	TA3631	0.39	0.0531	1.56	1.62	<0.0050	3.42	3.32	0.0747	0.00133	0.00143	0.0899	<0.0001	<0.001	0.257	0.000074	114	0.0021	0.00299	0.00228
RSEM-R6E-SP	2/27/2018 16:30	TA7104	0.42	0.0549	1.68	1.73	<0.0050	3.80	3.47	0.049	0.00125	0.00127	0.0822	<0.0001	<0.001	0.244	0.000077	104	0.0018	0.00282	0.00228
RSEM-R6E-SP	2/28/2018 15:45	TA7106	0.41	0.0514	1.67	1.72	<0.0050	4.03	3.33	0.041	0.00134	0.00129	0.0858	<0.0001	<0.001	0.259	0.000074	104	0.002	0.00276	0.00224
RSEM-R6E-SP	3/1/2018 9:25	TA7697	0.41	0.0495	1.70	1.75	<0.0050	4.59	3.39	0.0507	0.0017	0.0014	0.0797	<0.0002	<0.002	0.247	0.00014	103	<0.002	0.00273	0.0026
RSEM-R6E-SP	3/2/2018 17:20	TB0489	0.33	0.0465	1.67	1.72	0.0053	3.31	3.53	0.0327	0.00126	0.00128	0.0809	<0.0001	<0.001	0.243	0.000076	102	0.0018	0.00262	0.00212
RSEM-R6E-SP	3/2/2018 17:25	TB0491	0.33	0.0468	1.68	1.72	0.0137	2.94	3.39	0.0399	0.0013	0.0013	0.0833	<0.0001	<0.001	0.254	0.000078	107	0.0018	0.00264	0.00221
RSEM-R6E-SP	3/3/2018 10:50	TB1437	0.36	0.0445	1.63	1.68	<0.0050	4.08	3.22	0.0376	0.00121	0.00131	0.0763	<0.0001	<0.001	0.242	0.00007	99.7	0.0017	0.00254	0.0022
RSEM-R6E-SP	3/4/2018 16:20	TB1431	0.37	0.0447	1.65	1.70	<0.0050	3.88	3.59	0.0382	0.00122	0.00129	0.0751	<0.0001	<0.001	0.229	0.00007	99.5	0.0017	0.00246	0.00242
RSEM-R6E-SP	3/5/2018 10:00	TB2019	0.38	0.0411	1.64	1.68	<0.0050	3.65	3.13	0.0336	0.0012	0.0013	0.0723	<0.0002	<0.002	0.254	0.000069	96.3	<0.002	0.00254	0.0023
RSEM-R6E-SP	3/6/2018 11:00	TB2841	0.35	0.0416	1.65	1.69	<0.0050	3.50	3.26	0.0331	0.0012	0.00126	0.0732	<0.0002	<0.002	0.236	0.000063	94.4	<0.002	0.00233	0.0026
RSEM-R6E-SP	3/7/2018 13:35	TB7063	0.28	0.0374	1.65	1.69	<0.0050	3.03	3.09	0.0456	0.0019	0.00198	0.11	<0.0002	<0.002	0.389	0.000123	160	0.0025	0.00376	0.0047
RSEM-R6E-SP	3/8/2018 13:52	TB8241	0.27	0.0355	1.66	1.70	<0.0050	2.69	3.06	0.033	0.00124	0.00126	0.0752	<0.0001	<0.001	0.238	0.000065	104	0.0017	0.00224	0.0026
RSEM-R6E-SP	3/9/2018 11:50	TB8237	0.29	0.0323	1.65	1.69	<0.0050	3.04	2.97	0.0368	0.00122	0.00116	0.0702	<0.0001	<0.001	0.229	0.000067	99.7	0.0016	0.00216	0.00228
RSEM-R6E-SP	3/10/2018 13:25	TC1325	0.29	0.0324	1.72	1.75	<0.0050	3.82	3.85	0.0373	0.00128	0.00116	0.0714	<0.0001	<0.001	0.247	0.000066	102	0.0016	0.00216	0.00227
RSEM-R6E-SP	3/11/2018 11:55	TC1321	0.44	0.0871	1.08	1.17	0.0088	6.46	5.67	0.18	0.00111	0.00094	0.133	<0.0001	<0.001	0.196	0.000055	74.3	<0.001	0.00194	0.00209
RSEM-R6E-SP	3/12/2018 13:25	TC2473	0.28	0.0819	0.846	0.928	0.0088	7.13	6.09	0.183	0.00059	0.00059	0.115	<0.0001	<0.001	0.102	0.000041	57.7	<0.001	0.00083	0.00153
RSEM-R6E-SP	3/13/2018 12:15	TC2459	0.22	0.0798	0.765	0.845	0.0087	7.08	6.20	0.153	<0.0005	0.00047	0.113	<0.0001	<0.001	0.062	0.000039	61.2	<0.001	0.00067	0.00166
RSEM-R6E-SP	3/14/2018 10:40	TC7630	0.20	0.0732	0.746	0.820	0.0141	6.07	5.84	0.139	<0.0005	0.00042	0.107	<0.0001	<0.001	0.057	0.000036	64.3	<0.001	0.00056	0.00125
RSEM-R6E-SP	3/15/2018 14:50	TC8866	0.25	0.0719	0.749	0.821	0.0214	5.88	5.43	0.062	<0.0005	0.00029	0.1	<0.0001	<0.001	0.05	0.000031	60.2	<0.001	0.00059	0.00147
RSEM-R6E-SP	3/16/2018 13:00	TD1263	0.18	0.0755	0.759	0.835	0.0059	6.92	4.45	0.125	<0.0005	0.00037	0.0953	<0.0001	<0.001	0.068	0.000035	61.4	<0.001	0.00082	0.00161
RSEM-R6E-SP	3/16/2018 14:45	TD1268	0.26	0.0734	0.755	0.828	0.0136	6.40	4.70	0.0629	<0.0005	0.00041	0.0964	<0.0001	<0.001	0.064	0.00003	61.1	<0.001	0.00081	0.00148
RSEM-R6E-SP	3/20/2018 10:13	TD4118	0.31	0.0773	0.658	0.735	<0.0050	3.50	2.39	0.982	0.0012	0.00166	0.108	<0.0001	<0.001	0.114	0.000068	46.4	0.0042	0.00572	0.00221
RSEM-R6E-SP	4/8/2018 6:55	TG1022	0.43	0.106	0.704	0.810	<0.0050	<0.50	<0.50	0.425	0.00193	0.00285	0.146	<0.0001	<0.001	0.224	0.000059	53.4	0.0023	0.00391	0.00305
RSEM-R6E-SP	4/20/2018 11:55	TH5942	0.42	0.132	1.37	1.50	0.0067	1.15	1.15	1.05	0.00155	0.00234	0.111	<0.0001	<0.001	0.145	0.000026	44.1	0.0062	0.00218	0.00198
RSEM-R6E-SP	4/22/2018 19:45	TH9251	0.26	0.0894	1.31	1.40	0.0073	2.31	1.90	0.544	0.00085	0.00119	0.0969	<0.0001	<0.001	0.089	0.000034	35.4	0.0026	0.00153	0.00185

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	1/20/2018 9:28	SV7271	0.011	<0.0002	0.0918	32.7	0.0811	-	0.0175	0.02	-	5.57	0.00766	4.75	<0.00002	266	0.529	172	0.000021	<0.005	<0.005	0.00354
RSEM-R6E-SP	1/21/2018 12:54	SV8259	0.016	<0.0002	0.0844	32.2	0.0804	-	0.0166	0.0203	-	5.50	0.00711	4.35	<0.00002	262	0.497	172	0.000021	<0.005	<0.005	0.00336
RSEM-R6E-SP	1/22/2018 11:31	SV9403	0.01	<0.0002	0.0955	32.6	0.0868	-	0.0177	0.0212	-	5.94	0.00739	4.96	<0.00002	265	0.546	180	0.000023	<0.005	<0.005	0.00358
RSEM-R6E-SP	1/23/2018 11:45	SV9419	0.04	<0.0002	0.0935	32.7	0.0859	<0.00001	0.018	0.0214	-	5.89	0.00765	5.15	<0.00002	265	0.557	182	0.000023	<0.005	<0.005	0.00365
RSEM-R6E-SP	1/24/2018 10:15	SW0796	0.02	<0.0002	0.0931	32.3	0.0883	<0.00001	0.019	0.0231	-	5.42	0.00792	4.79	<0.00002	274	0.588	165	0.000023	<0.005	<0.005	0.00385
RSEM-R6E-SP	1/25/2018 13:05	SW2682	0.013	<0.0002	0.0991	33.1	0.0933	-	0.0193	0.0222	-	5.22	0.00831	4.21	<0.00002	295	0.634	182	0.00002	<0.005	<0.005	0.00394
RSEM-R6E-SP	1/26/2018 10:40	SW3612	0.022	<0.0002	0.0939	32.8	0.0868	-	0.0197	0.0213	-	5.00	0.00902	4.33	<0.00002	272	0.595	169	0.000022	<0.005	<0.005	0.00392
RSEM-R6E-SP	1/27/2018 17:00	SW6652	0.062	<0.0002	0.0834	32.8	0.0855	<0.00001	0.0192	0.0213	-	5.24	0.00798	4.2	<0.00002	267	0.665	150	0.000026	<0.005	<0.005	0.00398
RSEM-R6E-SP	1/28/2018 10:50	SW6655	0.023	<0.0002	0.0873	32.8	0.0821	<0.00001	0.0186	0.0221	-	5.48	0.00786	4.56	<0.00002	275	0.587	160	0.000022	<0.005	<0.005	0.0037
RSEM-R6E-SP	1/29/2018	SW8097	0.037	<0.0002	0.0812	32.9	0.0792	-	0.0193	0.0206	-	5.55	0.00741	4.51	<0.00002	277	0.563	154	0.000019	<0.005	<0.005	0.00371
RSEM-R6E-SP	1/30/2018 13:25	SX1383	0.031	<0.0002	0.0969	32.5	0.0738	-	0.0208	0.0206	-	5.47	0.00766	4.42	<0.00002	297	0.593	160	0.000023	<0.005	<0.005	0.00415
RSEM-R6E-SP	1/31/2018 10:11	SX1385	0.042	<0.0002	0.0972	32.2	0.0712	-	0.0203	0.0201	-	5.05	0.00735	4.42	<0.00002	293	0.581	156	0.000024	<0.005	<0.005	0.00394
RSEM-R6E-SP	2/1/2018 13:17	SX3550	0.151	<0.001	0.143	22.2	0.0398	-	0.0275	0.021	-	5.43	0.00693	4.55	<0.0001	371	0.429	178	<0.00005	<0.025	<0.025	0.0037
RSEM-R6E-SP	2/2/2018 10:20	SX3506	0.118	<0.001	0.144	23.2	0.0463	-	0.0284	0.0212	-	5.40	0.00773	4.46	<0.0001	386	0.458	174	<0.00005	<0.025	<0.025	0.00379
RSEM-R6E-SP	2/3/2018 10:28	SX6298	0.13	<0.001	0.166	20.1	0.0409	-	0.0248	0.021	-	4.83	0.00644	4.41	<0.0001	360	0.419	145	<0.00005	<0.025	<0.025	0.00339
RSEM-R6E-SP	2/4/2018 11:17	SX6309	0.139	<0.001	0.153	20.6	0.0437	-	0.0234	0.0214	-	4.84	0.0065	4.05	<0.0001	353	0.414	141	<0.00005	<0.025	<0.025	0.00323
RSEM-R6E-SP	2/5/2018 9:50	SX8060	0.069	<0.001	0.142	24.7	0.0513	<0.00001	0.0265	0.0208	-	5.87	0.00802	4.14	<0.0001	373	0.47	177	<0.00005	<0.025	<0.025	0.0038
RSEM-R6E-SP	2/6/2018 10:20	SX8062	0.073	<0.001	0.119	28.0	0.0512	-	0.026	0.0188	-	5.99	0.00822	4.49	<0.0001	351	0.485	180	<0.00005	<0.025	<0.025	0.00388
RSEM-R6E-SP	2/7/2018 13:56	SY0762	0.092	<0.001	0.111	30.1	0.0595	-	0.024	0.0206	-	6.13	0.00834	4.53	<0.0001	361	0.493	185	<0.00005	<0.025	<0.025	0.00395
RSEM-R6E-SP	2/7/2018 14:00	SY0764	0.097	<0.001	0.116	30.4	0.0596	-	0.0245	0.0208	-	6.10	0.00789	4.78	<0.0001	364	0.492	179	<0.00005	<0.025	<0.025	0.00386
RSEM-R6E-SP	2/8/2018 13:50	SY2809	0.078	<0.0002	0.114	28.9	0.0629	-	0.0265	0.0208	-	5.72	0.00822	4.5	<0.00002	335	0.56	173	0.000026	<0.005	<0.005	0.00408
RSEM-R6E-SP	2/9/2018 12:40	SY2811	0.061	<0.0002	0.103	30.3	0.0675	-	0.0246	0.0212	-	5.62	0.00829	4.47	<0.00002	323	0.561	179	0.000025	<0.005	<0.005	0.00403
RSEM-R6E-SP	2/10/2018 16:49	SY5550	0.076	<0.001	0.099	31.9	0.0721	-	0.0217	0.0205	-	5.66	0.00808	4.29	<0.0001	317	0.538	192	<0.00005	<0.025	<0.025	0.00384
RSEM-R6E-SP	2/11/2018 14:00	SY5900	<0.05	<0.001	0.104	32.7	0.0777	-	0.0216	0.0214	-	6.05	0.0088	4.61	<0.0001	327	0.562	189	<0.00005	<0.025	<0.025	0.00395
RSEM-R6E-SP	2/12/2018 12:30	SY5619	0.062	<0.001	0.103	35.2	0.0827	-	0.0218	0.0224	-	5.98	0.009	4.68	<0.0001	328	0.572	199	<0.00005	<0.025	<0.025	0.00409
RSEM-R6E-SP	2/13/2018 12:25	SY7278	0.081	<0.001	0.105	32.4	0.0834	-	0.0217	0.0186	-	6.21	0.00782	-	<0.0001	283	0.602	204	<0.00005	<0.025	<0.025	0.00396
RSEM-R6E-SP	2/14/2018 13:45	SY9399	0.044	<0.0002	0.101	34.4	0.0787	-	0.0208	0.022	-	6.03	0.00789	4.6	<0.00002	332	0.56	190	0.000022	<0.005	<0.005	0.00388
RSEM-R6E-SP	2/15/2018 13:10	SZ0952	0.038	<0.0002	0.104	35.6	0.0781	-	0.0222	0.0229	-	6.35	0.00832	4.7	<0.00002	352	0.571	197	0.000023	<0.005	<0.005	0.00397
RSEM-R6E-SP	2/16/2018 13:25	SZ0956	0.036	<0.0002	0.105	33.3	0.0799	-	0.0204	0.0222	-	6.05	0.00752	4.69	<0.00002	321	0.573	192	0.000023	<0.005	<0.005	0.0039
RSEM-R6E-SP	2/17/2018 10:20	SZ2077	0.034	<0.0002	0.0961	33.1	0.0742	-	0.0201	0.0206	-	5.38	0.00744	4.13	<0.00002	320	0.574	183	0.00002	<0.005	<0.005	0.00385
RSEM-R6E-SP	2/18/2018 11:20	SZ2076	0.039	<0.0002	0.109	34.8	0.0789	-	0.022	0.0223	-	5.72	0.00786	4.67	<0.00002	336	0.622	195	0.000024	<0.005	<0.005	0.00416
RSEM-R6E-SP	2/19/2018 13:20	SZ3784	0.042	<0.0002	0.098	32.0	0.0744	-	0.0205	0.0213	-	5.43	0.00749	4.52	<0.00002	312	0.582	181	0.000021	<0.005	<0.005	0.00403
RSEM-R6E-SP	2/20/2018 13:23	SZ5786	0.044	<0.0002	0.11	34.3	0.0841	-	0.0211	0.0209	-	6.36	0.00741	5.31	<0.00002	337	0.638	211	0.000025	<0.005	<0.005	0.00417
RSEM-R6E-SP	2/21/2018 12:10	SZ7677	0.039	<0.0002	0.116	33.5	0.0819	-	0.0218	0.0205	-	6.39	0.00752	5.36	<0.00002	326	0.648	211	0.000026	<0.005	<0.005	0.00429
RSEM-R6E-SP	2/22/2018 10:30	SZ7674	0.029	<0.0002	0.114	32.8	0.0776	-	0.0211	0.0198	-	6.23	0.00701	5.2	<0.00002	323	0.627	203	0.000025	<0.005	<0.005	0.00412
RSEM-R6E-SP	2/23/2018 14:08	SZ9581	0.283	<0.001	0.103	32.8	0.0765	-	0.0196	0.0206	-	5.46	0.00773	4.67	<0.0001	324	0.59	178	<0.00005	<0.025	<0.025	0.00389
RSEM-R6E-SP	2/24/2018 14:55	TA2078	0.129	<0.0004	0.108	34.1	0.0725	-	0.0197	0.0202	-	5.87	0.00677	4.64	<0.00004	324	0.588	201	0.000024	<0.01	<0.01	0.00407
RSEM-R6E-SP	2/25/2018 12:25	TA2075	0.048	<0.0004	0.109	35.1	0.0711	-	0.0202	0.0203	-	6.04	0.00758	4.68	<0.00004	332	0.595	201	0.000025	<0.01	<0.01	0.00412
RSEM-R6E-SP	2/26/2018 18:30	TA3631	0.097	<0.0002	0.115	36.3	0.0724	-	0.0209	0.02	-	6.07	0.0069	4.96	<0.00002	346	0.618	215	0.000026	<0.005	<0.005	0.00423
RSEM-R6E-SP	2/27/2018 16:30	TA7104	0.024	<0.0002	0.112	32.3	0.0686	<0.000002	0.0202	0.0189	-	5.72	0.00646	4.18	<0.00002	331	0.584	196	0.000025	<0.005	<0.005	0.00412
RSEM-R6E-SP	2/28/2018 15:45	TA7106	0.027	<0.0002	0.119	32.0	0.0686	<0.000002	0.0209	0.0192	-	5.58	0.00643	4.3	<0.00002	323	0.607	194	0.000024	<0.005	<0.005	0.00419
RSEM-R6E-SP	3/1/2018 9:25	TA7697	0.057	0.00312	0.108	32.8	0.0678	-	0.0191	0.0194	-	5.53	0.0067	4.14	<0.00004	336	0.586	189	0.000035	<0.01	<0.01	0.00415
RSEM-R6E-SP	3/2/2018 17:20	TB0489	0.021	<0.0002	0.117	32.7	0.0662	-	0.0214	0.0176	-	5.34	0.00682	4.32	<0.00002	335	0.621	190	0.000023	<0.005	<0.005	0.00419
RSEM-R6E-SP	3/2/2018 17:25	TB0491	0.021	<0.0002	0.117	33.6	0.0688	-	0.0219	0.0181	-	5.43	0.00671	4.54	<0.00002	342	0.633	194	0.000023	<0.005	<0.005	0.00421
RSEM-R6E-SP	3/3/2018 10:50	TB1437	0.018	<0.0002	0.118	31.9	0.0707	-	0.0209	0.0171	-	5.25	0.00648	4.29	<0.00002	324	0.607	187	0.000022	<0.005	<0.005	0.00413
RSEM-R6E-SP	3/4/2018 16:20	TB1431	0.019	<0.0002	0.111	31.3	0.0668	-	0.0202	0.0168	-	5.06	0.00644	4.16	<0.00002	325	0.593	179	0.000023	<0.005	<0.005	0.00404
RSEM-R6E-SP	3/5/2018 10:00	TB2019	<0.02	<0.0004	0.11	31.0	0.0667	<0.000002	0.0201	0.0174	-	5.22	0.00648	4.06	<0.00004	308	0.577	174	0.000025	<0.01	<0.01	0.00379
RSEM-R6E-SP	3/6/2018 11:00	TB2841	<0.02	<0.0004	0.109	29.2	0.0636	<0.000002	0.02	0.0166	-	4.98	0.00607	3.97	<0.00004	301	0.579	162	0.000021	<0.01	<0.01	0.00391
RSEM-R6E-SP	3/7/2018 13:35	TB7063	0.028	<0.0004	0.169	47.0	0.0994	-	0.0314	0.026	-	7.81	0.0104	6.62	<0.00004	474	0.884	261	0.000034	<0.01	<0.01	0.00629
RSEM-R6E-SP	3/8/2018 13:52	TB8241	0.025	<0.0002	0.113	30.5	0.0651	-	0.0211	0.0177	-	5.18	0.0065	4.41	<0.00002	304	0.598	176	0.000024	<0.005	<0.005	0.00424
RSEM-R6E-SP	3/9/2018 11:50	TB8237	0.019	<0.0002	0.109	29.7	0.0616	-	0.0201	0.0162	-	4.92	0.00644	4.17	<0.00002	309	0.587	172	0.000023	<0.005	<0.005	0.00411
RSEM-R6E-SP	3/10/2018 13:25	TC1325	0.025	<0.0002	0.112	31.8	0.0621	-	0.0213	0.0168	-	5.34	0.00635	4.33	<0.00002	316	0.616	182	0.000024	<0.005	<0.005	0.00441
RSEM-R6E-SP	3/11/2018 11:55	TC1321	0.267	0.00024	0.0885	22.7	0.238	-	0.0189	0.0094	-	7.21	0.00357	3.91	<0.00002	249	0.47	127	0.000021	<0.005	<0.005	0.00349
RSEM-R6E-SP	3/12/2018 13:25	TC2473	0.263	<0.0002	0.0412	14.9	0.11	-	0.0129	0.0045	-	7.67	0.00194	2.96	<0.00002	110	0.392	60.5	0.00002	<0.005	<0.005	0.00193
RSEM-R6E-SP	3/13/2018 12:15	TC2459	0.193	<0.0002	0.0275	13.9	0.0895	-	0.0099	0.0033	-	7.54	0.00125	2.53	<0.00002	65.2	0.474	35.7	0.000017	<0.005	<0.005	0.00152
RSEM-R6E-SP	3/14/2018 10:40	TC7630	0.364	<0.0002	0.022	12.1	0.093	-	0.0082	0.0029	-	7.38	0.00098	2.46	<0.00002	49.2	0.552	29.3	0.00002	<0.005	<0.005	0.00127
RSEM-R6E-SP	3/15/2018 14:50	TC8866	0.108	<0.0002	0.0227	11.7	0.0879	-	0.0079	0.0032	-	7.05	0.00105	2.08	<0.00002	43.7	0.578	26.7	0.000017	<0.005	<0.005	0.00122
RSEM-R6E-SP	3/16/2018 13:00	TD1263	0.105	<0.0002	0.023	12.0	0.0876	-	0.0082	0.0039	-	6.28	0.00109	2.28	<0.00002	52.3	0.529	27.5	0.000016	<0.005	<0.005	0.00133
RSEM-R6E-SP	3/16/2018 14:45	TD1268	0.09	<0.0002	0.0249	12.3	0.0899	-	0.0082	0.0039	-	6.36	0.00117	2.26	<0.00002	53.2	0.528	28.6	0.000016	<0.005	<0.005	0.00136
RSEM-R6E-SP	3/20/2018 10:13	TD4118	0.634	0.0004	0.037	12.3	0.133	-	0.0116	0.0221	-	3.50	0.00412	4.87	<0.00002	84.7	0.28	54.1	0.000026	<0.005	0.0306	0.00243
RSEM-R6E-SP	4/8/2018 6:55	TG1022	0.192	<0.0002	0.0564	16.0	0.0738	-	0.017	0.0173	-	3.90	0.00624	4.3	<0.00002	203	0.302	84.0	0.000018	<0.005	0.0074	0.00283
RSEM-R6E-SP	4/20/2018 11:55	TH5942	0.576	0.00046	0.0455	10.6	0.0558	-	0.0131	0.0103	-	3.51	0.0101	4.56	<0.00002	154	0.271	105	0.000026	<0.005	0.0297	0.00211
RSEM-R6E-SP	4/22/2018 19:45	TH9251	0.446	0.00041	0.0345	7.81	0.0416	-	0.0075	0.0064	-	2.11	0.00915	2.92	<0.00002	113	0.17	71.8	0.000019	<0.005	0.0137	0.00147

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	1/20/2018 9:28	SV7271	<0.005	0.0174	<0.0001	0.0199	0.0011	0.00114	0.121	<0.0001	<0.001	0.203	0.000099	113	0.0022	0.00458	0.0023	<0.01	<0.0002	0.0933	35.8	0.0888
RSEM-R6E-SP	1/21/2018 12:54	SV8259	<0.005	0.0165	<0.0001	0.0193	0.00112	0.00118	0.119	<0.0001	<0.001	0.206	0.000097	116	0.0019	0.00367	0.00204	<0.01	<0.0002	0.0953	32.2	0.0761
RSEM-R6E-SP	1/22/2018 11:31	SV9403	<0.005	0.018	<0.0001	0.0196	0.00111	0.00115	0.12	<0.0001	<0.001	0.204	0.000098	110	0.0021	0.00463	0.00225	<0.01	<0.0002	0.0932	35.0	0.0918
RSEM-R6E-SP	1/23/2018 11:45	SV9419	<0.005	0.0179	<0.0001	0.0197	0.00112	0.00124	0.119	<0.0001	<0.001	0.203	0.000099	116	0.0024	0.0047	0.00216	<0.01	<0.0002	0.0936	36.0	0.0934
RSEM-R6E-SP	1/24/2018 10:15	SW0796	<0.005	0.0221	<0.0001	0.0195	0.00118	0.00126	0.129	<0.0001	<0.001	0.2	0.000103	112	0.0024	0.00486	0.0023	<0.01	<0.0002	0.0937	35.3	0.0916
RSEM-R6E-SP	1/25/2018 13:05	SW2682	<0.005	0.0165	<0.0001	0.0217	0.00116	0.00128	0.126	<0.0001	<0.001	0.221	0.000102	111	0.0021	0.00418	0.00191	<0.01	<0.0002	0.0892	31.4	0.0867
RSEM-R6E-SP	1/26/2018 10:40	SW3612	<0.005	0.0156	<0.0001	0.02	0.00119	0.00124	0.123	<0.0001	<0.001	0.231	0.000099	113	0.0022	0.00428	0.00213	<0.01	<0.0002	0.0903	34.7	0.0851
RSEM-R6E-SP	1/27/2018 17:00	SW6652	<0.005	0.0189	0.00014	0.0197	0.00121	0.00128	0.129	<0.0001	<0.001	0.237	0.000097	116	0.0022	0.00438	0.0022	<0.01	<0.0002	0.0921	33.6	0.0839
RSEM-R6E-SP	1/28/2018 10:50	SW6655	<0.005	0.0196	<0.0001	0.0247	0.00124	0.00144	0.132	<0.0001	<0.001	0.251	0.000096	115	0.0022	0.00434	0.00208	<0.01	<0.0002	0.0931	33.8	0.0848
RSEM-R6E-SP	1/29/2018	SW8097	<0.005	0.0158	<0.0001	0.0341	0.0013	0.00148	0.121	<0.0001	<0.001	0.208	0.000093	105	0.0022	0.00401	0.00207	<0.01	<0.0002	0.0918	34.2	0.0815
RSEM-R6E-SP	1/30/2018 13:25	SX1383	<0.005	0.0183	<0.0001	0.0402	0.00135	0.00173	0.112	<0.0001	<0.001	0.244	0.000081	105	0.0022	0.00375	0.00243	<0.01	<0.0002	0.105	32.4	0.0724
RSEM-R6E-SP	1/31/2018 10:11	SX1385	<0.005	0.0191	0.00015	0.038	0.00129	0.00171	0.109	<0.0001	<0.001	0.242	0.000073	108	0.0023	0.00372	0.00395	<0.01	<0.0002	0.0987	34.0	0.072
RSEM-R6E-SP	2/1/2018 13:17	SX3550	<0.025	<0.025	<0.0005	0.179	<0.0025	0.00435	0.0568	<0.0005	<0.005	0.362	<0.00005	54.3	<0.005	0.0031	<0.0025	<0.05	<0.001	0.162	22.4	0.0364
RSEM-R6E-SP	2/2/2018 10:20	SX3506	<0.025	<0.025	<0.0005	0.168	<0.0025	0.00413	0.0603	<0.0005	<0.005	0.352	<0.00005	56.3	<0.005	0.0031	<0.0025	<0.05	<0.001	0.155	23.5	0.0367
RSEM-R6E-SP	2/3/2018 10:28	SX6298	<0.025	<0.025	0.00102	0.167	0.0025	0.00464	0.0525	<0.0005	<0.005	0.316	<0.00005	54.8	<0.005	0.0033	<0.0025	<0.05	<0.001	0.173	21.9	0.039
RSEM-R6E-SP	2/4/2018 11:17	SX6309	<0.025	0.032	<0.0005	0.162	<0.0025	0.00423	0.0559	<0.0005	<0.005	0.329	<0.00005	56.4	<0.005	0.0036	<0.0025	<0.05	<0.001	0.173	22.4	0.0441
RSEM-R6E-SP	2/5/2018 9:50	SX8060	<0.025	0.033	<0.0005	0.144	<0.0025	0.00381	0.0658	<0.0005	<0.005	0.352	<0.00005	73.5	<0.005	0.0035	<0.0025	<0.05	<0.001	0.138	29.4	0.0492
RSEM-R6E-SP	2/6/2018 10:20	SX8062	<0.025	<0.025	<0.0005	0.122	<0.0025	0.00336	0.0853	<0.0005	<0.005	0.331	<0.00005	90.4	<0.005	0.003	0.0025	<0.05	<0.001	0.116	34.2	0.0483
RSEM-R6E-SP	2/7/2018 13:56	SY0762	<0.025	<0.025	<0.0005	0.0766	0.00178	0.00273	0.0862	<0.0001	<0.001	0.283	0.000056	80.8	0.002	0.00299	0.0019	<0.01	<0.0002	0.11	28.5	0.0525
RSEM-R6E-SP	2/7/2018 14:00	SY0764	<0.025	<0.025	<0.0005	0.0761	0.00176	0.00282	0.0843	<0.0001	<0.001	0.277	0.000055	80.9	0.0021	0.003	0.0019	<0.01	<0.0002	0.104	28.9	0.0531
RSEM-R6E-SP	2/8/2018 13:50	SY2809	<0.005	0.0135	0.00012	0.07	<0.0025	0.00256	0.0935	<0.0005	<0.005	0.279	<0.00005	86.1	<0.005	0.0028	<0.0025	0.084	<0.001	0.102	31.6	0.044
RSEM-R6E-SP	2/9/2018 12:40	SY2811	<0.005	0.0288	0.00025	0.056	<0.0025	0.00222	0.102	<0.0005	<0.005	0.251	0.000077	98.8	<0.005	0.0022	<0.0025	<0.05	<0.001	0.105	32.8	0.0278
RSEM-R6E-SP	2/10/2018 16:49	SY5550	<0.025	0.074	<0.0005	0.0453	0.00155	0.00206	0.108	<0.0001	<0.001	0.27	0.000081	103	0.0022	0.00308	0.00255	<0.01	<0.0002	0.114	33.4	0.0505
RSEM-R6E-SP	2/11/2018 14:00	SY5900	<0.025	0.12	<0.0005	0.0391	0.00152	0.00202	0.111	<0.0001	<0.001	0.256	0.000077	110	0.0023	0.00341	0.0024	<0.01	<0.0002	0.11	32.6	0.0586
RSEM-R6E-SP	2/12/2018 12:30	SY5619	<0.025	0.082	<0.0005	0.0358	0.00149	0.0018	0.111	<0.0001	<0.001	0.247	0.000083	108	0.0023	0.00319	0.00264	<0.01	<0.0002	0.106	33.1	0.0566
RSEM-R6E-SP	2/13/2018 12:25	SY7278	<0.025	<0.025	<0.0005	0.032	0.00145	0.00173	0.108	<0.0001	<0.001	0.244	0.000088	106	0.0023	0.00367	0.00228	<0.01	<0.0002	0.106	32.3	0.0725
RSEM-R6E-SP	2/14/2018 13:45	SY9399	<0.005	0.0163	0.00011	0.035	<0.0025	0.00164	0.106	<0.0005	<0.005	<0.25	0.000095	112	<0.005	0.0041	0.0029	<0.05	<0.001	0.105	36.2	0.0713
RSEM-R6E-SP	2/15/2018 13:10	SZ0952	<0.005	0.0163	0.00014	0.038	<0.0025	0.00178	0.102	<0.0005	<0.005	<0.25	0.000074	106	<0.005	0.0032	0.0029	<0.05	<0.001	0.104	35.5	0.0527
RSEM-R6E-SP	2/16/2018 13:25	SZ0956	<0.005	0.0151	0.0001	0.033	<0.0025	0.00165	0.106	<0.0005	<0.005	<0.25	0.000074	109	<0.005	0.0032	0.0025	<0.05	<0.001	0.104	35.0	0.0588
RSEM-R6E-SP	2/17/2018 10:20	SZ2077	<0.005	0.0159	<0.0001	0.0287	0.00133	0.00156	0.0991	<0.0001	<0.001	0.242	0.000083	105	0.0019	0.00318	0.00219	<0.01	<0.0002	0.113	32.6	0.0653
RSEM-R6E-SP	2/18/2018 11:20	SZ2076	<0.005	0.0191	<0.0001	0.0284	0.0013	0.00145	0.1	<0.0001	<0.001	0.276	0.000081	114	0.0019	0.0033	0.00217	<0.01	<0.0002	0.107	34.2	0.0677
RSEM-R6E-SP	2/19/2018 13:20	SZ3784	<0.005	0.0191	<0.0001	0.024	<0.0025	0.00147	0.104	<0.0005	<0.005	<0.25	0.000093	116	<0.005	0.0037	<0.0025	<0.05	<0.001	0.11	37.1	0.0718
RSEM-R6E-SP	2/20/2018 13:23	SZ5786	<0.005	0.0166	<0.0001	0.025	<0.0025	0.00163	0.102	<0.0005	<0.005	<0.25	0.000094	118	<0.005	0.0035	<0.0025	<0.05	<0.001	0.112	37.3	0.0711
RSEM-R6E-SP	2/21/2018 12:10	SZ7677	<0.005	0.0224	0.00013	0.0232	0.0013	0.00133	0.0948	<0.0002	<0.002	0.248	0.000083	105	<0.002	0.00337	0.0026	<0.02	<0.0004	0.109	33.3	0.0644
RSEM-R6E-SP	2/22/2018 10:30	SZ7674	<0.005	0.0188	<0.0001	0.0259	0.0013	0.00135	0.0952	<0.0002	<0.002	0.25	0.000082	103	<0.002	0.00341	0.0024	<0.02	<0.0004	0.111	34.3	0.0661
RSEM-R6E-SP	2/23/2018 14:08	SZ9581	<0.025	0.031	<0.0005	0.0235	0.00131	0.00149	0.0952	<0.0001	<0.001	0.246	0.000077	106	0.0019	0.00232	0.00232	<0.01	<0.0002	0.102	31.8	0.0497
RSEM-R6E-SP	2/24/2018 14:55	TA2078	<0.01	0.016	<0.0002	0.0227	0.0013	0.00141	0.0926	<0.0002	<0.002	0.239	0.000063	106	<0.002	0.0028	0.0023	0.096	<0.0004	0.111	32.6	0.0621
RSEM-R6E-SP	2/25/2018 12:25	TA2075	<0.01	0.018	<0.0002	0.0217	0.0013	0.00143	0.0903	<0.0002	<0.002	0.262	0.000073	112	<0.002	0.00282	0.0027	0.049	<0.0004	0.112	33.5	0.0628
RSEM-R6E-SP	2/26/2018 18:30	TA3631	<0.005	0.0151	0.00013	0.0215	0.0014	0.00126	0.0846	<0.0002	<0.002	0.254	0.00007	109	<0.002	0.00262	0.0018	<0.02	<0.0004	0.112	32.6	0.058
RSEM-R6E-SP	2/27/2018 16:30	TA7104	<0.005	0.0137	0.00016	0.0217	0.0014	0.00135	0.0824	<0.0002	<0.002	0.249	0.000088	103	<0.002	0.00258	0.0022	<0.02	0.00073	0.109	32.8	0.0601
RSEM-R6E-SP	2/28/2018 15:45	TA7106	<0.005	0.0149	0.0001	0.0204	0.0013	0.00125	0.0814	<0.0002	<0.002	0.248	0.000079	104	<0.002	0.0024	0.002	<0.02	<0.0004	0.115	31.7	0.0583
RSEM-R6E-SP	3/1/2018 9:25	TA7697	<0.01	0.026	<0.0002	0.0194	0.0013	0.00128	0.0797	<0.0002	<0.002	0.257	0.000081	102	<0.002	0.00249	0.0021	<0.02	<0.0004	0.111	32.2	0.0582
RSEM-R6E-SP	3/2/2018 17:20	TB0489	<0.005	0.0131	0.00012	0.0183	0.00124	0.0013	0.0774	<0.0001	<0.001	0.235	0.000073	98.6	0.0016	0.00223	0.00186	<0.01	<0.0002	0.111	31.4	0.057
RSEM-R6E-SP	3/2/2018 17:25	TB0491	<0.005	0.0135	<0.0001	0.0181	0.00125	0.0013	0.0776	<0.0001	<0.001	0.237	0.000061	101	0.0015	0.00228	0.002	<0.01	<0.0002	0.114	31.0	0.0578
RSEM-R6E-SP	3/3/2018 10:50	TB1437	<0.005	0.0113	0.00011	0.02	<0.0025	0.00129	0.0777	<0.0005	<0.005	0.259	0.000074	104	<0.005	0.0025	<0.0025	<0.05	<0.001	0.117	33.6	0.0656
RSEM-R6E-SP	3/4/2018 16:20	TB1431	<0.005	0.0113	0.00015	0.0175	0.00126	0.00126	0.0777	<0.0001	<0.001	0.242	0.000069	103	0.0014	0.00233	0.00245	<0.01	<0.0002	0.118	31.1	0.0658
RSEM-R6E-SP	3/5/2018 10:00	TB2019	<0.01	0.013	<0.0002	0.0171	0.00126	0.0013	0.0772	<0.0001	<0.001	0.243	0.00007	104	0.0015	0.00227	0.00195	<0.01	<0.0002	0.118	31.0	0.0653
RSEM-R6E-SP	3/6/2018 11:00	TB2841	<0.01	0.012	<0.0002	0.02	<0.0025	0.00134	0.0747	<0.0005	<0.005	0.278	0.000071	101	<0.005	0.0025	0.0027	<0.05	<0.001	0.121	33.7	0.0644
RSEM-R6E-SP	3/7/2018 13:35	TB7063	<0.01	0.023	<0.0002	0.0171	0.00131	0.00131	0.0795	<0.0001	<0.001	0.242	0.000069	108	0.0015	0.00219	0.00245	<0.01	<0.0002	0.122	31.3	0.0641
RSEM-R6E-SP	3/8/2018 13:52	TB8241	<0.005	0.011	<0.0001	0.019	0.0013	0.00122	0.0737	<0.0002	<0.002	0.27	0.000067	105	<0.002	0.00218	0.0023	<0.02	<0.0004	0.112	34.6	0.0618
RSEM-R6E-SP	3/9/2018 11:50	TB8237	<0.005	0.0106	<0.0001	0.0177	0.0013	0.00116	0.0702	<0.0002	<0.002	0.278	0.000062	99.7	<0.002	0.00211	0.0023	<0.02	<0.0004	0.112	33.8	0.0596
RSEM-R6E-SP	3/10/2018 13:25	TC1325	<0.005	0.0135	0.00011	0.0149	0.00131	0.00117	0.0721	<0.0001	<0.001	0.246	0.000062	102	0.0015	0.00192	0.00222	<0.01	<0.0002	0.113	31.7	0.0543
RSEM-R6E-SP	3/11/2018 11:55	TC1321	<0.005	0.0063	0.00021	0.0073	0.00112	0.0008	0.127	<0.0001	<0.001	0.202	0.000039	75.9	<0.001	0.00161	0.00166	<0.01	<0.0002	0.0924	23.5	0.229
RSEM-R6E-SP	3/12/2018 13:25	TC2473	<0.005	<0.005	0.00017	0.0051	0.00059	0.00044	0.105	<0.0001	<0.001	0.099	0.000026	62.9	<0.001	0.00076	0.00131	<0.01	<0.0002	0.0415	16.3	0.108
RSEM-R6E-SP	3/13/2018 12:15	TC2459	<0.005	<0.005	0.00023	0.005	<0.0005	0.00034	0.105	<0.0001	<0.001	0.06	0.000028	59.5	<0.001	0.00051	0.00124	<0.01	<0.0002	0.0268	13.7	0.0833
RSEM-R6E-SP	3/14/2018 10:40	TC7630	<0.005	<0.005	0.00011	0.0066	<0.0005	0.00031	0.109	<0.0001	<0.001	0.06	0.000025	67.5	<0.001	0.00043	0.00099	<0.01	<0.0002	0.0225	12.7	0.0874
RSEM-R6E-SP	3/15/2018 14:50	TC8866	<0.005	0.005	<0.0001	0.008	<0.0005	0.00025	0.106	<0.0001	<0.001	0.056	0.000028	66.4	<0.001	0.00055	0.00121	<0.01	<0.0002	0.0213	11.7	0.0887
RSEM-R6E-SP	3/16/2018 13:00	TD1263	<0.005	<0.005	<0.0001	0.0068	<0.0005	0.00036	0.0978	<0.0001	<0.001	0.06	0.000028	63.8	<0.001	0.00079	0.00119	<0.01	<0.0002	0.0222	12.7	0.0865
RSEM-R6E-SP	3/16/2018 14:45	TD1268	<0.005	<0.005	<0.0001	0.0066	<0.0005	0.00039	0.0963	<0.0001	<0.001	0.064	0.00003	62.3	<0.001	0.00074	0.00132	<0.01	<0.0002	0.0228	12.6	0.0856
RSEM-R6E-SP	3/20/2018 10:13	TD4118	<0.005	0.0069	0.00249	0.0401	0.00126	0.0014	0.0932	<0.0001	<0.001	0.12	0.00005	46.6	0.0028	0.005	0.00139	<0.01	<0.0002	0.0376	12.4	0.121
RSEM-R6E-SP	4/8/2018 6:55	TG1022	<0.005	0.0101	0.00034	0.0538	0.0019	0.00264	0.13	<0.0001	<0.001	0.23	0.000053	51.3	0.0015	0.00331	0.00191	<0.01	<0.0002	0.056	14.8	0.0667
RSEM-R6E-SP	4/20/2018 11:55	TH5942	<0.005	<0.005	0.00071	0.0463	0.00152	0.00211	0.0832	<0.0001	<0.001	0.139	<0.00001	44.6	0.0048	0.00108	0.00089	0.075	<0.0002	0.0462	10.6	0.0311
RSEM-R6E-SP	4/22/2018 19:45	TH9251	<0.005	0.006	0.00072	0.0199	0.00088	0.00094	0.0769	<0.0001	<0.001	0.088	0.000024	34.8	0.0018	0.00107	0.00083	<0.01	<0.0002	0.0338	7.88	0.0321

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	1/20/2018 9:28	SV7271	-	0.0179	0.0225	-	6.16	0.00728	4.74	<0.00002	291	0.538	194	0.000023	<0.005	<0.005	0.00367	<0.005	0.0185	<0.0001
RSEM-R6E-SP	1/21/2018 12:54	SV8259	-	0.0178	0.0187	-	5.45	0.00715	4.82	<0.00002	257	0.568	171	0.000024	<0.005	<0.005	0.00375	<0.005	0.0155	<0.0001
RSEM-R6E-SP	1/22/2018 11:31	SV9403	-	0.018	0.0224	-	5.43	0.0079	4.42	<0.00002	297	0.558	167	0.000021	<0.005	<0.005	0.0036	<0.005	0.0189	<0.0001
RSEM-R6E-SP	1/23/2018 11:45	SV9419	<0.00001	0.0183	0.0229	-	5.63	0.00805	4.71	<0.00002	302	0.553	178	0.000022	<0.005	<0.005	0.00364	<0.005	0.0197	<0.0001
RSEM-R6E-SP	1/24/2018 10:15	SW0796	<0.00001	0.0182	0.0238	-	5.66	0.00798	4.37	<0.00002	299	0.567	167	0.000024	<0.005	<0.005	0.00372	<0.005	0.0203	<0.0001
RSEM-R6E-SP	1/25/2018 13:05	SW2682	-	0.0197	0.0225	-	5.11	0.00816	4.56	<0.00002	275	0.592	171	0.000022	<0.005	<0.005	0.00387	<0.005	0.0201	<0.0001
RSEM-R6E-SP	1/26/2018 10:40	SW3612	-	0.0189	0.0232	-	5.56	0.00827	4.6	<0.00002	293	0.596	170	0.000022	<0.005	<0.005	0.00383	<0.005	0.0194	<0.0001
RSEM-R6E-SP	1/27/2018 17:00	SW6652	<0.00001	0.0198	0.0229	-	5.57	0.00856	4.83	<0.00002	286	0.611	168	0.000023	<0.005	<0.005	0.00387	<0.005	0.0188	<0.0001
RSEM-R6E-SP	1/28/2018 10:50	SW6655	<0.00001	0.0198	0.023	-	5.61	0.00827	4.87	<0.00002	289	0.612	169	0.000024	<0.005	<0.005	0.00387	<0.005	0.0197	<0.0001
RSEM-R6E-SP	1/29/2018	SW8097	-	0.0204	0.0208	-	5.59	0.00764	4.15	<0.00002	289	0.629	167	0.000021	<0.005	<0.005	0.00397	<0.005	0.016	<0.0001
RSEM-R6E-SP	1/30/2018 13:25	SX1383	-	0.0222	0.0216	-	5.49	0.00829	4.78	<0.00002	302	0.576	175	0.000022	<0.005	<0.005	0.00385	<0.005	0.021	<0.0001
RSEM-R6E-SP	1/31/2018 10:11	SX1385	-	0.0219	0.0204	-	5.61	0.00836	4.52	<0.00002	304	0.623	168	0.000021	<0.005	<0.005	0.00411	<0.005	0.017	<0.0001
RSEM-R6E-SP	2/1/2018 13:17	SX3550	-	0.0303	0.0212	-	5.23	0.00762	4.5	<0.0001	387	0.436	158	<0.00005	<0.025	<0.025	0.00411	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/2/2018 10:20	SX3506	-	0.0301	0.0214	-	5.19	0.00782	4.02	<0.0001	376	0.442	159	<0.00005	<0.025	<0.025	0.00412	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/3/2018 10:28	SX6298	-	0.0286	0.0225	-	5.30	0.00692	4.26	<0.0001	410	0.476	174	<0.00005	<0.025	<0.025	0.00382	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/4/2018 11:17	SX6309	-	0.0274	0.0214	-	5.75	0.00736	4.38	<0.0001	400	0.49	177	<0.00005	<0.025	<0.025	0.00398	<0.025	0.027	<0.0005
RSEM-R6E-SP	2/5/2018 9:50	SX8060	<0.00001	0.0288	0.0216	-	5.86	0.00726	4.87	<0.0001	437	0.491	178	<0.00005	<0.025	<0.025	0.00371	<0.025	0.029	<0.0005
RSEM-R6E-SP	2/6/2018 10:20	SX8062	-	0.0294	0.0205	-	6.13	0.00738	5.45	<0.0001	423	0.532	180	<0.00005	<0.025	<0.025	0.00383	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/7/2018 13:56	SY0762	-	0.0259	0.0179	-	5.62	0.00821	4.47	<0.00002	344	0.533	164	0.000022	<0.005	<0.005	0.00408	<0.005	0.0087	<0.0001
RSEM-R6E-SP	2/7/2018 14:00	SY0764	-	0.0257	0.0184	-	5.82	0.0081	4.41	<0.00002	350	0.535	168	0.00002	<0.005	<0.005	0.00396	<0.005	0.0088	<0.0001
RSEM-R6E-SP	2/8/2018 13:50	SY2809	-	0.0245	0.0192	-	5.92	0.00841	4.28	<0.0001	343	0.531	176	<0.00005	<0.025	<0.025	0.00388	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/9/2018 12:40	SY2811	-	0.024	0.0207	-	5.85	0.00805	4.5	<0.0001	338	0.573	177	<0.00005	<0.025	<0.025	0.00395	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/10/2018 16:49	SY5550	-	0.024	0.0207	-	6.40	0.00828	4.78	<0.00002	336	0.573	201	0.000023	<0.005	<0.005	0.00409	<0.005	0.0659	<0.0001
RSEM-R6E-SP	2/11/2018 14:00	SY5900	-	0.0235	0.021	-	6.18	0.00857	4.91	<0.00002	329	0.573	203	0.000023	<0.005	<0.005	0.00404	<0.005	0.101	<0.0001
RSEM-R6E-SP	2/12/2018 12:30	SY5619	-	0.0234	0.021	-	6.15	0.00848	4.67	<0.00002	333	0.585	193	0.000023	<0.005	<0.005	0.004	<0.005	0.0743	<0.0001
RSEM-R6E-SP	2/13/2018 12:25	SY7278	-	0.0227	0.021	-	5.82	0.00852	4.64	<0.00002	313	0.616	188	0.000025	<0.005	<0.005	0.0041	<0.005	0.0147	0.00011
RSEM-R6E-SP	2/14/2018 13:45	SY9399	-	0.021	0.0235	-	6.02	0.00863	4.49	<0.0001	348	0.607	191	<0.00005	<0.025	<0.025	0.00394	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/15/2018 13:10	SZ0952	-	0.0219	0.0221	-	5.91	0.00893	4.41	<0.0001	345	0.576	185	<0.00005	<0.025	<0.025	0.00399	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/16/2018 13:25	SZ0956	-	0.0204	0.023	-	5.89	0.00851	4.5	<0.0001	337	0.592	179	<0.00005	<0.025	<0.025	0.00389	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/17/2018 10:20	SZ2077	-	0.0209	0.0201	-	5.71	0.00791	4.79	<0.00002	294	0.585	200	0.000024	<0.005	<0.005	0.00404	<0.005	0.0168	<0.0001
RSEM-R6E-SP	2/18/2018 11:20	SZ2076	-	0.021	0.0211	-	5.66	0.00786	5.11	<0.00002	312	0.567	198	0.000022	<0.005	<0.005	0.00397	<0.005	0.0195	0.0001
RSEM-R6E-SP	2/19/2018 13:20	SZ3784	-	0.0206	0.0208	-	5.83	0.00805	4.46	<0.0001	353	0.599	201	<0.00005	<0.025	<0.025	0.00406	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/20/2018 13:23	SZ5786	-	0.02	0.0222	-	6.11	0.00807	4.74	<0.0001	341	0.609	204	<0.00005	<0.025	<0.025	0.00405	<0.025	<0.025	<0.0005
RSEM-R6E-SP	2/21/2018 12:10	SZ7677	-	0.0205	0.0214	-	5.28	0.008	4.32	<0.00004	323	0.582	176	0.000023	<0.01	<0.01	0.00415	<0.01	0.023	<0.0002
RSEM-R6E-SP	2/22/2018 10:30	SZ7674	-	0.021	0.0212	-	5.41	0.00797	4.29	<0.00004	329	0.602	180	0.000024	<0.01	<0.01	0.0041	<0.01	0.018	<0.0002
RSEM-R6E-SP	2/23/2018 14:08	SZ9581	-	0.0215	0.0204	-	5.56	0.00746	4.58	<0.00002	331	0.616	180	0.000025	<0.005	<0.005	0.00407	<0.005	0.0213	0.00011
RSEM-R6E-SP	2/24/2018 14:55	TA2078	-	0.0207	0.0191	-	5.77	0.00673	4.46	<0.00004	306	0.594	196	0.000029	<0.01	<0.01	0.00417	<0.01	0.019	<0.0002
RSEM-R6E-SP	2/25/2018 12:25	TA2075	-	0.0198	0.02	-	5.89	0.00707	4.73	<0.00004	320	0.604	201	0.000021	<0.01	<0.01	0.00412	<0.01	0.015	<0.0002
RSEM-R6E-SP	2/26/2018 18:30	TA3631	-	0.02	0.0182	-	6.03	0.00674	4.51	<0.00004	317	0.595	186	0.000022	<0.01	<0.01	0.00414	<0.01	0.013	<0.0002
RSEM-R6E-SP	2/27/2018 16:30	TA7104	<0.000002	0.0194	0.0185	-	5.56	0.00639	4.19	<0.00004	313	0.58	184	0.000025	<0.01	<0.01	0.00415	<0.01	0.016	<0.0002
RSEM-R6E-SP	2/28/2018 15:45	TA7106	<0.000002	0.0197	0.0183	-	5.43	0.00643	4.44	<0.00004	303	0.582	178	0.000024	<0.01	<0.01	0.00412	<0.01	0.014	<0.0002
RSEM-R6E-SP	3/1/2018 9:25	TA7697	-	0.0199	0.0187	-	5.52	0.00673	4.17	<0.00004	323	0.593	184	0.000021	<0.01	<0.01	0.00415	<0.01	0.013	<0.0002
RSEM-R6E-SP	3/2/2018 17:20	TB0489	-	0.0203	0.0169	-	5.11	0.00677	4.16	<0.00002	331	0.599	180	0.000025	<0.005	<0.005	0.00412	<0.005	0.0114	<0.0001
RSEM-R6E-SP	3/2/2018 17:25	TB0491	-	0.0206	0.0168	-	5.15	0.00658	4.31	<0.00002	323	0.603	187	0.000024	<0.005	<0.005	0.00416	<0.005	0.011	0.0001
RSEM-R6E-SP	3/3/2018 10:50	TB1437	-	0.0207	0.0183	-	5.41	0.00693	4.4	<0.0001	335	0.587	185	<0.00005	<0.025	<0.025	0.00404	<0.025	<0.025	<0.0005
RSEM-R6E-SP	3/4/2018 16:20	TB1431	-	0.0213	0.0169	-	5.45	0.00631	4.46	<0.00002	317	0.609	192	0.000023	<0.005	<0.005	0.00415	<0.005	0.0116	0.00011
RSEM-R6E-SP	3/5/2018 10:00	TB2019	<0.000002	0.0213	0.0167	-	5.38	0.00637	4.52	<0.00002	319	0.618	191	0.000024	<0.005	<0.005	0.00413	<0.005	0.0141	0.00011
RSEM-R6E-SP	3/6/2018 11:00	TB2841	<0.000002	0.0216	0.0186	-	5.63	0.00696	4.41	<0.0001	332	0.594	194	<0.00005	<0.025	<0.025	0.00405	<0.025	<0.025	<0.0005
RSEM-R6E-SP	3/7/2018 13:35	TB7063	-	0.0225	0.0169	-	5.59	0.00649	4.54	<0.00002	319	0.643	186	0.000026	<0.005	<0.005	0.00443	<0.005	0.0114	<0.0001
RSEM-R6E-SP	3/8/2018 13:52	TB8241	-	0.0208	0.0187	-	5.50	0.00655	4.44	<0.00004	343	0.604	187	0.000022	<0.01	<0.01	0.00438	<0.01	0.013	<0.0002
RSEM-R6E-SP	3/9/2018 11:50	TB8237	-	0.0203	0.0183	-	5.47	0.00643	4.05	<0.00004	332	0.594	184	0.000022	<0.01	<0.01	0.00422	<0.01	0.012	<0.0002
RSEM-R6E-SP	3/10/2018 13:25	TC1325	-	0.0216	0.0173	-	5.48	0.0067	4.31	<0.00002	320	0.636	184	0.000023	<0.005	<0.005	0.00449	<0.005	0.0125	0.00012
RSEM-R6E-SP	3/11/2018 11:55	TC1321	-	0.0192	0.0091	-	7.29	0.00354	3.56	<0.00002	259	0.461	135	0.000021	<0.005	<0.005	0.0035	<0.005	<0.005	<0.0001
RSEM-R6E-SP	3/12/2018 13:25	TC2473	-	0.0126	0.0046	-	7.86	0.00207	2.57	<0.00002	119	0.389	60.7	0.000017	<0.005	<0.005	0.00194	<0.005	<0.005	<0.0001
RSEM-R6E-SP	3/13/2018 12:15	TC2459	-	0.01	0.003	-	7.55	0.00143	2.14	<0.00002	66.1	0.47	35.6	0.000015	<0.005	<0.005	0.00149	<0.005	<0.005	<0.0001
RSEM-R6E-SP	3/14/2018 10:40	TC7630	-	0.0088	0.0027	-	7.95	0.00112	2.32	<0.00002	52.2	0.571	31.6	0.000015	<0.005	<0.005	0.00129	<0.005	<0.005	<0.0001
RSEM-R6E-SP	3/15/2018 14:50	TC8866	-	0.0079	0.0031	-	7.24	0.00096	2.2	<0.00002	44.6	0.603	27.1	0.000016	<0.005	<0.005	0.00124	<0.005	<0.005	<0.0001
RSEM-R6E-SP	3/16/2018 13:00	TD1263	-	0.0087	0.0037	-	6.71	0.0012	2.05	<0.00002	54.2	0.548	30.5	0.000014	<0.005	<0.005	0.0014	<0.005	<0.005	<0.0001
RSEM-R6E-SP	3/16/2018 14:45	TD1268	-	0.0087	0.0037	-	6.53	0.00127	2.03	<0.00002	54.1	0.545	30.5	0.000015	<0.005	<0.005	0.00136	<0.005	<0.005	<0.0001
RSEM-R6E-SP	3/20/2018 10:13	TD4118	-	0.0121	0.0211	-	3.22	0.00471	2.81	<0.00002	87.6	0.29	53.4	0.00001	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R6E-SP	4/8/2018 6:55	TG1022	-	0.0172	0.0138	-	3.66	0.00614	3.8	<0.00002	180	0.304	83.2	0.000011	<0.005	<0.005	0.00286	<0.005	0.0056	<0.0001
RSEM-R6E-SP	4/20/2018 11:55	TH5942	-	0.013	0.0074	-	3.30	0.00993	2.8	<0.00002	150	0.263	103	0.000011	<0.005	<0.005	0.00201	<0.005	<0.005	<0.0001
RSEM-R6E-SP	4/22/2018 19:45	TH9251	-	0.0075	0.0052	-	1.97	0.00976	1.83	<0.00002	120	0.169	72.3	<0.00001	<0.005	<0.005	0.00147	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	4/23/2018 12:10	TH9252	8.13	1140	81.5	648	33.0	168	165	149	<1.0	182	<1.0	<1.0	52.6	0.320	0.84	240
RSEM-R6E-SP	5/8/2018 12:50	TK0806	8.20	1120	10.1	694	16.0	219	222	183	<1.0	223	<1.0	<1.0	65.3	0.430	1.0	286
RSEM-R6E-SP	5/9/2018 16:15	TK3816	8.37	1140	11.2	804	18.0	215	223	179	2.6	212	3.1	<1.0	67.8	0.470	1.1	252
RSEM-R6E-SP	5/10/2018 13:50	TK5556	8.30	1160	22.0	712	16.3	316	244	191	<1.0	233	<1.0	<1.0	73.0	0.550	1.1	264
RSEM-R6E-SP	5/11/2018 6:46	TK5490	8.32	1130	9.68	636	14.8	248	227	181	<1.0	220	<1.0	<1.0	69.2	0.500	1.0	238
RSEM-R6E-SP	5/12/2018 13:00	TK7564	8.26	1180	26.1	692	26.5	236	208	189	<1.0	231	<1.0	<1.0	86.8	0.610	1.2	290
RSEM-R6E-SP	5/13/2018 7:20	TK7580	8.30	1170	14.7	648	17.3	234	215	187	<1.0	228	<1.0	<1.0	71.6	0.600	1.2	283
RSEM-R6E-SP	5/14/2018 10:40	TK8136	8.19	1200	16.8	708	17.5	208	198	179	<1.0	218	<1.0	<1.0	81.6	0.580	1.2	289
RSEM-R6E-SP	5/15/2018 12:50	TL0258	8.34	1190	11.0	704	13.0	216	212	178	1.5	214	1.8	<1.0	78.9	0.640	1.2	299
RSEM-R6E-SP	5/15/2018 12:50	TL0255	8.40	1180	11.9	692	14.3	225	195	178	2.1	211	2.6	<1.0	79.1	0.640	1.2	306
RSEM-R6E-SP	5/16/2018 11:10	TL2459	8.30	1180	0.70	702	13.8	204	202	174	<1.0	212	<1.0	<1.0	81.1	0.620	1.3	301
RSEM-R6E-SP	5/17/2018 13:00	TL6384	8.28	1190	6.79	718	10.0	207	198	165	<1.0	201	<1.0	<1.0	85.8	0.650	1.2	281
RSEM-R6E-SP	5/18/2018 5:20	TL6446	8.32	1180	8.88	706	15.0	215	218	165	1.7	197	2.0	<1.0	80.1	0.670	1.2	275
RSEM-R6E-SP	5/18/2018 5:20	TL6445	8.31	1190	9.64	698	15.5	209	210	167	1.6	200	1.9	<1.0	80.7	0.580	1.2	286
RSEM-R6E-SP	5/19/2018 15:40	TM0519	8.31	1160	9.01	682	20.0	214	203	165	1.0	199	1.2	<1.0	76.5	0.650	1.3	246
RSEM-R6E-SP	5/20/2018 11:00	TM2846	8.33	1140	10.4	676	29.8	212	201	169	1.7	202	2.1	<1.0	77.3	0.640	1.3	243
RSEM-R6E-SP	5/21/2018 15:30	TM2894	8.38	1150	11.4	630	39.8	199	183	162	2.5	192	3.0	<1.0	81.6	0.650	1.3	293
RSEM-R6E-SP	5/22/2018 13:15	TM6369	8.39	1140	78.9	636	68.8	212	197	188	3.1	221	3.7	<1.0	82.4	0.660	1.3	247
RSEM-R6E-SP	5/23/2018 14:00	TM6372	8.37	1030	32.8	634	64.0	219	220	197	3.0	234	3.6	<1.0	69.6	0.590	1.1	217
RSEM-R6E-SP	5/24/2018 15:40	TM7240	8.31	911	11.3	554	16.8	202	188	168	<1.0	205	<1.0	<1.0	64.5	0.510	1.0	185
RSEM-R6E-SP	5/25/2018 7:00	TM7246	8.28	891	7.22	538	8.3	211	202	169	<1.0	206	<1.0	<1.0	54.5	0.490	1.0	177
RSEM-R6E-SP	5/26/2018 8:45	TM9439	8.32	857	9.53	526	11.3	220	214	173	<1.0	211	<1.0	<1.0	50	0.490	0.97	190
RSEM-R6E-SP	5/27/2018 16:45	TN1162	8.31	857	16.4	496	14.0	208	209	163	1.1	196	1.3	<1.0	53.9	0.500	0.91	173
RSEM-R6E-SP	5/28/2018 9:40	TN1167	8.31	859	18.0	496	16.0	219	216	165	1.6	198	1.9	<1.0	54.2	0.500	0.90	178
RSEM-R6E-SP	5/29/2018 14:00	TN5954	8.36	917	30.5	540	23.3	243	221	190	2.2	227	2.7	<1.0	60.3	0.540	1.1	193
RSEM-R6E-SP	5/30/2018 12:20	TN9743	8.30	975	26.8	582	16.5	214	214	200	<1.0	244	<1.0	<1.0	65.4	0.550	1.2	186
RSEM-R6E-SP	5/31/2018	TN9634	8.38	987	20.3	578	11.8	215	215	206	2.8	244	3.3	<1.0	64.5	0.550	1.3	183
RSEM-R6E-SP	6/1/2018	TO0999	8.35	971	11.1	596	9.8	226	216	200	2.9	237	3.4	<1.0	65.7	0.540	1.3	186
RSEM-R6E-SP	6/2/2018 10:25	TO4778	8.27	981	24.1	582	16.3	235	231	213	<1.0	260	<1.0	<1.0	60.6	0.560	1.2	193
RSEM-R6E-SP	6/3/2018 14:15	TO4796	8.32	1010	22.2	582	12.5	249	229	222	<1.0	271	<1.0	<1.0	60.9	0.560	1.3	176
RSEM-R6E-SP	6/4/2018 14:45	TO7164	8.32	1160	27.1	656	24.5	324	296	202	1.4	243	1.7	<1.0	108	0.540	1.9	213
RSEM-R6E-SP	6/5/2018 17:50	TP0508	8.28	1220	12.1	746	11.0	378	366	196	<1.0	239	<1.0	<1.0	124	0.500	2.0	242
RSEM-R6E-SP	6/6/2018 10:20	TP0513	8.24	1240	15.3	728	12.8	366	364	197	<1.0	240	<1.0	<1.0	118	0.500	2.0	262
RSEM-R6E-SP	6/6/2018 10:20	TP0512	8.27	1240	15.6	724	13.5	373	357	199	<1.0	243	<1.0	<1.0	116	0.500	2.0	242
RSEM-R6E-SP	6/7/2018 13:30	TP6773	8.23	1280	8.63	768	18.0	326	367	206	<1.0	251	<1.0	<1.0	113	0.460	2.0	238
RSEM-R6E-SP	6/8/2018 17:25	TP8928	8.19	1200	22.7	720	23.5	312	299	211	<1.0	257	<1.0	<1.0	99.3	0.440	1.9	258
RSEM-R6E-SP	6/9/2018 19:00	TP8994	8.12	1230	14.7	746	10.8	312	308	205	<1.0	250	<1.0	<1.0	114	0.440	2.0	240
RSEM-R6E-SP	6/10/2018 10:50	TP9975	8.21	1270	8.82	778	13.5	314	311	205	<1.0	250	<1.0	<1.0	135	0.460	2.1	209
RSEM-R6E-SP	6/11/2018 15:30	TQ0646	8.29	1290	11.7	770	13.3	320	326	218	<1.0	266	<1.0	<1.0	118	0.470	2.0	268
RSEM-R6E-SP	6/12/2018 14:00	TQ4135	8.31	1230	15.9	742	19.8	315	341	220	1.8	264	2.2	<1.0	103	0.440	1.9	243
RSEM-R6E-SP	6/12/2018 14:00	TQ4134	8.28	1240	13.6	758	20.0	326	319	218	<1.0	266	<1.0	<1.0	106	0.460	2.0	253
RSEM-R6E-SP	6/13/2018 15:55	TQ8812	8.20	1210	11.5	760	14.5	322	296	199	<1.0	242	<1.0	<1.0	106	0.480	1.7	244
RSEM-R6E-SP	6/14/2018 17:25	TQ8827	8.20	1200	6.01	738	7.5	339	306	199	<1.0	243	<1.0	<1.0	105	0.490	1.7	231
RSEM-R6E-SP	6/15/2018 17:55	TR1411	8.28	1200	11.5	712	13.0	349	313	200	<1.0	244	<1.0	<1.0	115	0.460	1.9	226
RSEM-R6E-SP	6/16/2018 15:00	TR1376	8.25	1160	17.6	704	19.3	298	307	192	<1.0	234	<1.0	<1.0	110	0.470	1.8	235
RSEM-R6E-SP	6/16/2018 15:00	TR1375	8.25	1160	19.1	716	18.3	300	297	193	<1.0	235	<1.0	<1.0	109	0.470	1.8	230
RSEM-R6E-SP	6/17/2018 15:40	TR2100	8.17	1180	18.5	722	15.0	281	291	188	<1.0	229	<1.0	<1.0	117	0.520	1.9	236
RSEM-R6E-SP	6/18/2018 9:05	TR2128	8.26	1180	13.5	726	11.8	274	277	186	<1.0	227	<1.0	<1.0	112	0.500	1.8	229
RSEM-R6E-SP	6/18/2018 9:05	TR2125	8.16	1170	12.8	718	11.5	266	269	183	<1.0	224	<1.0	<1.0	123	0.540	1.9	238
RSEM-R6E-SP	6/19/2018 12:10	TR6047	8.14	1130	12.9	668	13.0	273	265	182	<1.0	222	<1.0	<1.0	107	0.520	1.8	203
RSEM-R6E-SP	6/20/2018 12:30	TR8728	8.19	1120	15.7	654	12.5	238	252	182	<1.0	222	<1.0	<1.0	96.9	0.530	1.7	216
RSEM-R6E-SP	6/21/2018	TS1916	8.19	1110	16.0	670	13.8	252	251	181	<1.0	221	<1.0	<1.0	97.6	0.480	1.7	209
RSEM-R6E-SP	6/22/2018	TS2365	8.36	1120	15.7	658	12.5	236	249	184	1.6	220	1.9	<1.0	98.6	0.480	1.7	208
RSEM-R6E-SP	6/23/2018	TS5384	8.32	1070	13.2	688	13.3	239	244	187	<1.0	228	<1.0	<1.0	93.9	0.490	1.4	184
RSEM-R6E-SP	6/24/2018	TS5388	8.29	1080	10.9	662	12.8	235	242	190	<1.0	232	<1.0	<1.0	92.8	0.500	1.4	187
RSEM-R6E-SP	6/27/2018 11:10	TT1139	8.08	1260	25.8	822	17.8	303	281	120	<1.0	146	<1.0	<1.0	91.8	0.650	1.5	358
RSEM-R6E-SP	6/30/2018	TU0473	8.09	1540	10.5	968	10.0	283	283	172	<1.0	210	<1.0	<1.0	98.0	0.590	1.7	432
RSEM-R6E-SP	12/8/2018 14:15	UX7492	8.21	1420	1.50	920	<4.0	496	480	341	<1.0	417	<1.0	<1.0	59.1	0.360	1.0	300
RSEM-R6E-SP	12/9/2018 13:15	UX7484	8.19	1440	0.99	916	<4.0	502	484	359	<1.0	438	<1.0	<1.0	58.4	0.350	1.0	294
RSEM-R6E-SP	12/10/2018 13:15	UY5753	8.20	1420	1.00	910	<4.0	497	482	362	<1.0	442	<1.0	<1.0	59.7	0.390	1.0	315
RSEM-R6E-SP	12/11/2018 9:45	UY1782	8.15	1400	0.75	914	<4.0	492	504	358	<1.0	437	<1.0	<1.0	84.7	0.370	0.95	304
RSEM-R6E-SP	12/11/2018 9:45	UY1781	8.13	1410	0.83	896	<4.0	503	513	362	<1.0	442	<1.0	<1.0	64.1	0.380	0.95	299
RSEM-R6E-SP	12/12/2018 8:50	UY3858	8.23	1410	1.16	898	<4.0	484	475	352	<1.0	429	<1.0	<1.0	61.1	0.380	1.1	310
RSEM-R6E-SP	12/13/2018 15:35	UY7665	8.19	1400	0.67	938	<4.0	465	504	337	<1.0	411	<1.0	<1.0	59.7	0.350	0.98	297

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	4/23/2018 12:10	TH9252	0.40	0.124	1.87	2.00	0.0087	3.59	2.48	1.12	0.00124	0.00233	0.179	<0.0001	<0.001	0.139	0.000074	49.1	0.0043	0.00292	0.00373
RSEM-R6E-SP	5/8/2018 12:50	TK0806	0.051	0.121	1.27	1.39	<0.0050	<0.50	<0.50	0.224	0.00167	0.00208	0.111	<0.0001	<0.001	0.175	<0.00001	58.3	0.0034	0.00182	0.00129
RSEM-R6E-SP	5/9/2018 16:15	TK3816	0.10	0.113	1.29	1.40	<0.0050	2.91	<0.50	0.35	0.00171	0.00229	0.109	<0.0001	<0.001	0.202	0.000012	54.5	0.004	0.00179	0.00271
RSEM-R6E-SP	5/10/2018 13:50	TK5556	0.046	0.132	1.40	1.53	<0.0050	0.53	0.57	0.85	0.00236	0.00327	0.151	<0.0001	<0.001	0.265	0.000015	80.4	0.0047	0.00269	0.00275
RSEM-R6E-SP	5/11/2018 6:46	TK5490	0.042	0.117	1.34	1.46	<0.0050	<0.50	<0.50	0.257	0.00168	0.00207	0.102	<0.0001	<0.001	0.187	<0.00001	64.2	0.0031	0.00169	0.00184
RSEM-R6E-SP	5/12/2018 13:00	TK7564	0.085	0.128	1.39	1.51	<0.0050	1.98	2.07	0.761	0.00181	0.0024	0.118	<0.0001	<0.001	0.204	0.000025	60.3	0.0035	0.00161	0.00292
RSEM-R6E-SP	5/13/2018 7:20	TK7580	0.059	0.119	1.38	1.50	0.0156	1.88	2.14	0.343	0.00191	0.00233	0.111	<0.0001	<0.001	0.221	0.00001	59.8	0.0029	0.00127	0.00168
RSEM-R6E-SP	5/14/2018 10:40	TK8136	0.039	0.112	1.24	1.35	<0.0050	1.93	1.99	0.368	0.00198	0.00238	0.108	<0.0001	<0.001	0.267	0.000017	50.9	0.0028	0.00156	0.00219
RSEM-R6E-SP	5/15/2018 12:50	TL0258	0.032	0.109	1.32	1.43	<0.0050	2.56	1.12	0.26	0.00196	0.00223	0.1	<0.0001	<0.001	0.244	0.00001	51.3	0.0027	0.00143	0.00171
RSEM-R6E-SP	5/15/2018 12:50	TL0255	0.033	0.104	1.30	1.40	<0.0050	2.07	1.11	0.28	0.00205	0.00238	0.107	<0.0001	<0.001	0.25	0.000012	53.9	0.0026	0.00153	0.00184
RSEM-R6E-SP	5/16/2018 11:10	TL2459	0.020	0.0913	1.32	1.41	<0.0050	1.94	1.13	0.356	0.00199	0.0021	0.0996	<0.0001	<0.001	0.253	<0.00001	48.5	0.0025	0.00131	0.00464
RSEM-R6E-SP	5/17/2018 13:00	TL6384	<0.020	0.0776	1.27	1.34	<0.0050	2.36	2.44	0.23	0.00196	0.00209	0.101	<0.0001	<0.001	0.281	0.000011	49.2	0.0023	0.00136	0.00187
RSEM-R6E-SP	5/18/2018 5:20	TL6446	<0.020	0.0834	1.30	1.38	<0.0050	-	2.35	0.231	0.00194	0.00216	0.103	<0.0001	<0.001	0.271	0.000013	52.2	0.0021	0.00152	0.00227
RSEM-R6E-SP	5/18/2018 5:20	TL6445	0.038	0.0864	1.30	1.39	<0.0050	-	1.58	0.362	0.00186	0.0022	0.105	<0.0001	<0.001	0.269	0.000018	48.9	0.0024	0.0018	0.00317
RSEM-R6E-SP	5/19/2018 15:40	TM0519	0.11	0.0737	1.33	1.40	<0.0050	1.79	<0.50	0.512	0.00191	0.00211	0.108	<0.0001	<0.001	0.282	0.000012	49.5	0.0024	0.00153	0.00231
RSEM-R6E-SP	5/20/2018 11:00	TM2846	0.066	0.0806	1.26	1.34	<0.0050	2.36	0.82	0.901	0.00184	0.00223	0.118	<0.0001	<0.001	0.259	0.000028	53.6	0.0028	0.00179	0.00328
RSEM-R6E-SP	5/21/2018 15:30	TM2894	0.057	0.0955	1.21	1.30	<0.0050	2.01	1.91	1.16	0.00192	0.00258	0.119	<0.0001	<0.001	0.256	0.000036	48.0	0.003	0.00138	0.00278
RSEM-R6E-SP	5/22/2018 13:15	TM6369	0.060	0.0977	1.37	1.47	<0.0050	3.16	1.94	1.25	0.00172	0.00303	0.148	<0.0001	<0.001	0.282	0.000075	51.9	0.0032	0.00262	0.00497
RSEM-R6E-SP	5/23/2018 14:00	TM6372	0.078	0.0900	1.43	1.52	<0.0050	3.38	1.77	0.746	0.00145	0.00223	0.132	<0.0001	<0.001	0.247	0.000038	56.4	0.0019	0.00163	0.00422
RSEM-R6E-SP	5/24/2018 15:40	TM7240	0.055	0.0691	1.06	1.12	0.0834	2.00	2.30	0.422	0.00146	0.00197	0.121	<0.0001	<0.001	0.23	0.000017	51.0	0.0036	0.00111	0.00267
RSEM-R6E-SP	5/25/2018 7:00	TM7246	0.056	0.0591	0.976	1.04	<0.0050	4.09	2.08	0.215	0.00133	0.00165	0.116	<0.0001	<0.001	0.207	0.00001	53.6	0.0039	0.00093	0.00231
RSEM-R6E-SP	5/26/2018 8:45	TM9439	0.051	0.0628	0.811	0.874	<0.0050	3.18	2.48	0.39	0.0012	0.00158	0.12	<0.0001	<0.001	0.204	0.000015	56.1	0.0045	0.00097	0.00241
RSEM-R6E-SP	5/27/2018 16:45	TN1162	0.054	0.0608	0.806	0.867	<0.0050	3.41	1.96	0.458	0.00105	0.00153	0.112	<0.0001	<0.001	0.182	0.000045	53.4	0.0034	0.00101	0.00232
RSEM-R6E-SP	5/28/2018 9:40	TN1167	0.051	0.0593	0.742	0.802	<0.0050	3.29	2.39	0.683	0.00106	0.00161	0.12	<0.0001	<0.001	0.196	0.000038	55.8	0.0037	0.0011	0.00266
RSEM-R6E-SP	5/29/2018 14:00	TN5954	0.080	0.0837	0.848	0.931	<0.0050	2.93	2.60	0.614	0.00125	0.00193	0.141	<0.0001	<0.001	0.212	0.000033	62.7	0.005	0.00139	0.00357
RSEM-R6E-SP	5/30/2018 12:20	TN9743	0.13	0.0920	0.814	0.906	0.0151	4.19	3.19	0.385	0.0014	0.00205	0.141	<0.0001	<0.001	0.223	0.000027	54.2	0.0056	0.0012	0.00283
RSEM-R6E-SP	5/31/2018	TN9634	0.14	0.102	0.782	0.883	0.0182	3.38	1.40	0.297	0.00145	0.00192	0.136	<0.0001	<0.001	0.231	0.000022	55.0	0.0054	0.00103	0.0028
RSEM-R6E-SP	6/1/2018	TO0999	0.20	0.0982	0.847	0.946	0.0406	3.38	2.44	0.292	0.00135	0.00168	0.128	<0.0001	<0.001	0.247	0.000022	58.8	0.0048	0.0009	0.00269
RSEM-R6E-SP	6/2/2018 10:25	TO4778	0.17	0.0849	0.866	0.951	<0.0050	2.55	2.25	0.619	0.00138	0.00167	0.141	<0.0001	<0.001	0.248	0.00003	62.9	0.0045	0.00116	0.00236
RSEM-R6E-SP	6/3/2018 14:15	TO4796	0.31	0.0931	0.853	0.946	0.859	2.72	2.77	0.902	0.00133	0.00157	0.133	<0.0001	<0.001	0.256	0.000023	69.6	0.0042	0.00078	0.00222
RSEM-R6E-SP	6/4/2018 14:45	TO7164	0.26	0.0813	0.976	1.06	0.0072	3.37	2.41	0.454	0.00125	0.00167	0.142	<0.0001	<0.001	0.24	0.000046	92.2	0.0035	0.0015	0.00254
RSEM-R6E-SP	6/5/2018 17:50	TP0508	0.37	0.0727	1.15	1.23	<0.0050	2.68	1.22	0.212	0.00123	0.00124	0.154	<0.0001	<0.001	0.254	0.000051	110	0.0029	0.00166	0.00296
RSEM-R6E-SP	6/6/2018 10:20	TP0513	0.34	0.0933	1.43	1.53	0.0080	3.07	1.26	0.537	0.00124	0.00126	0.154	<0.0001	<0.001	0.23	0.00005	108	0.0045	0.00176	0.0025
RSEM-R6E-SP	6/6/2018 10:20	TP0512	0.34	0.0930	1.43	1.53	0.0073	3.08	1.82	0.558	0.00128	0.00122	0.147	<0.0001	<0.001	0.229	0.000049	112	0.0044	0.00169	0.00256
RSEM-R6E-SP	6/7/2018 13:30	TP6773	0.38	0.126	1.78	1.91	0.0031	2.95	2.19	0.491	0.00137	0.00163	0.161	<0.0001	<0.001	0.259	0.000052	92.7	0.0058	0.00161	0.00399
RSEM-R6E-SP	6/8/2018 17:25	TP8928	0.37	0.159	2.30	2.46	<0.0030	1.99	1.73	1.13	0.00147	0.00198	0.153	<0.0001	<0.001	0.257	0.000043	91.8	0.0073	0.00118	0.00293
RSEM-R6E-SP	6/9/2018 19:00	TP8994	0.34	0.184	2.24	2.42	0.0033	1.74	1.54	0.577	0.00158	0.00184	0.137	<0.0001	<0.001	0.257	0.000034	91.5	0.0068	0.00111	0.00256
RSEM-R6E-SP	6/10/2018 10:50	TP9975	0.35	0.192	2.27	2.46	0.0045	2.93	3.05	0.677	0.00173	0.00195	0.144	<0.0001	<0.001	0.28	0.000051	92.8	0.0061	0.00106	0.00293
RSEM-R6E-SP	6/11/2018 15:30	TQ0646	0.34	0.182	2.16	2.34	0.0030	2.21	<0.50	0.66	0.00162	0.0017	0.135	<0.0001	<0.001	0.261	0.000045	93.4	0.006	0.00116	0.00237
RSEM-R6E-SP	6/12/2018 14:00	TQ4135	0.28	0.165	2.24	2.40	<0.0050	3.16	2.48	0.301	0.00154	0.00164	0.142	<0.0001	<0.001	0.234	0.000043	88.8	0.0049	0.00125	0.00276
RSEM-R6E-SP	6/12/2018 14:00	TQ4134	0.37	0.164	2.23	2.39	<0.0050	3.35	3.42	0.274	0.00144	0.00162	0.132	<0.0001	<0.001	0.228	0.00004	93.8	0.0049	0.0012	0.00262
RSEM-R6E-SP	6/13/2018 15:55	TQ8812	0.26	0.153	2.27	2.42	0.0049	2.73	1.89	0.612	0.00149	0.00155	0.135	<0.0001	<0.001	0.238	0.000033	92.7	0.0041	0.00101	0.00249
RSEM-R6E-SP	6/14/2018 17:25	TQ8827	0.25	0.137	2.14	2.28	0.0041	2.98	1.02	0.19	0.00154	0.00148	0.125	<0.0001	<0.001	0.256	0.000029	97.9	0.0034	0.00073	0.00239
RSEM-R6E-SP	6/15/2018 17:55	TR1411	0.22	0.121	1.87	1.99	0.0048	1.61	0.54	0.524	0.00149	0.00192	0.119	<0.0001	<0.001	0.229	0.000021	91.9	0.0058	0.00123	0.00488
RSEM-R6E-SP	6/16/2018 15:00	TR1376	0.18	0.111	1.95	2.06	0.0048	3.00	1.05	0.514	0.00158	0.00174	0.12	<0.0001	<0.001	0.219	0.000022	85.5	0.0047	0.00094	0.00758
RSEM-R6E-SP	6/16/2018 15:00	TR1375	0.19	0.119	2.03	2.15	0.0068	2.08	1.56	0.517	0.00158	0.00174	0.12	<0.0001	<0.001	0.215	0.000019	86.1	0.0047	0.00093	0.00614
RSEM-R6E-SP	6/17/2018 15:40	TR2100	0.14	0.127	2.19	2.31	0.0090	2.88	1.57	0.784	0.00178	0.00208	0.118	<0.0001	<0.001	0.263	0.000018	77.9	0.0047	0.00074	0.00244
RSEM-R6E-SP	6/18/2018 9:05	TR2128	0.15	0.136	2.28	2.41	0.0079	2.20	2.79	0.361	0.00177	0.00203	0.109	<0.0001	<0.001	0.269	0.000011	75.6	0.004	0.00057	0.00209
RSEM-R6E-SP	6/18/2018 9:05	TR2125	0.16	0.126	2.13	2.26	0.0054	2.21	1.39	0.379	0.00172	0.00197	0.107	<0.0001	<0.001	0.264	0.000011	73.2	0.004	0.00056	0.00211
RSEM-R6E-SP	6/19/2018 12:10	TR6047	0.11	0.116	2.30	2.41	0.0062	2.30	1.74	0.261	0.0017	0.00196	0.112	<0.0001	<0.001	0.267	0.000013	74.9	0.0037	0.00061	0.00202
RSEM-R6E-SP	6/20/2018 12:30	TR8728	0.092	0.105	2.28	2.39	0.0081	2.21	0.54	0.538	0.00156	0.00183	0.112	<0.0001	<0.001	0.256	<0.00001	63.1	0.0035	0.00059	0.00218
RSEM-R6E-SP	6/21/2018	TS1916	0.088	0.0962	2.19	2.28	<0.0050	2.51	2.82	0.439	0.00167	0.00184	0.118	<0.0001	<0.001	0.307	<0.00001	67.0	0.0033	0.00055	0.00215
RSEM-R6E-SP	6/22/2018	TS2365	0.076	0.0885	2.10	2.19	0.0175	2.32	0.95	0.4	0.00149	0.0017	0.109	<0.0001	<0.001	0.283	<0.00001	62.0	0.0028	0.00054	0.00198
RSEM-R6E-SP	6/23/2018	TS5384	0.071	0.0832	2.12	2.20	<0.0050	2.57	2.49	0.763	0.00149	0.00185	0.111	<0.0001	<0.001	0.276	0.000016	61.2	0.0032	0.00055	0.00214
RSEM-R6E-SP	6/24/2018	TS5388	0.072	0.0767	1.92	1.99	<0.0050	2.45	2.10	0.638	0.00148	0.00184	0.112	<0.0001	<0.001	0.286	0.000011	59.4	0.0029	0.00053	0.00223
RSEM-R6E-SP	6/27/2018 11:10	TT1139	0.16	0.137	2.85	2.99	<0.0050	1.96	<0.50	1.11	0.00154	0.0019	0.157	<0.0001	<0.001	0.25	0.000089	83.1	0.0081	0.00551	0.00284
RSEM-R6E-SP	6/30/2018	TU0473	0.40	0.363	5.11	5.48	<0.0050	2.57	2.06	0.48	0.0019	0.00218	0.15	<0.0001	<0.001	0.29	0.000089	78.3	0.0079	0.0034	0.00219
RSEM-R6E-SP	12/8/2018 14:15	UX7492	0.23	0.0644	0.952	1.02	<0.0050	2.7	3.1	0.056	0.00077	0.00105	0.135	<0.0001	<0.001	0.171	0.000056	121	0.0013	0.00259	0.0019
RSEM-R6E-SP	12/9/2018 13:15	UX7484	0.23	0.0653	0.995	1.06	0.0109	3.4	3.3	0.0605	0.00074	0.00099	0.135	<0.0001	<0.001	0.16	0.000056	120	0.0012	0.00268	0.00186
RSEM-R6E-SP	12/10/2018 13:15	UY5753	0.23	0.0607	1.02	1.08	<0.0050	2.4	2.9	0.0582	0.00079	0.00103	0.146	<0.0001	<0.001	0.168	0.000067	123	0.0011	0.00243	0.00173
RSEM-R6E-SP	12/11/2018 9:45	UY1782	0.17	0.0610	1.02	1.08	<0.0050	2.2	2.4	0.055	0.00075	0.00096	0.14	<0.0001	<0.001	0.157	0.000057	120	0.0012	0.00251	0.00151
RSEM-R6E-SP	12/11/2018 9:45	UY1781	0.21	0.0604	0.990	1.05	<0.0050	2.1	2.5	0.0522	0.00074	0.00097	0.138	<0.0001	<0.001	0.156	0.000058	122	0.0012	0.00259	0.00159
RSEM-R6E-SP	12/12/2018 8:50	UY3858	0.17	0.0642	0.993	1.06	<0.0050	2.4	2.2	0.0649	0.00082	0.00107	0.138	<0.0001	<0.001	0.149	0.000062	116	0.0013	0.00256	0.00174
RSEM-R6E-SP	12/13/2018 15:35	UY7665	0.19	0.0648	1.01	1.08	<0.0050	2.0	2.3	0.0461	0.00074	0.00096	0.141	<0.0001	<0.001	0.149	0.000061	116	0.0012	0.00237	0.00164

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	4/23/2018 12:10	TH9252	1.54	0.00124	0.0517	10.9	0.0752	-	0.0111	0.0104	-	3.27	0.0142	4.49	0.000026	162	0.254	108	0.00004	<0.005	0.0174	0.0022
RSEM-R6E-SP	5/8/2018 12:50	TK0806	0.165	<0.0002	0.0454	17.8	0.0208	<0.000002	0.0141	0.0149	-	3.48	0.00717	3.76	<0.00002	139	0.287	86.4	0.000017	<0.005	<0.005	0.00245
RSEM-R6E-SP	5/9/2018 16:15	TK3816	0.374	0.00028	0.0517	19.2	0.0208	<0.000002	0.015	0.0162	-	3.53	0.00718	3.48	<0.00002	152	0.284	92.7	0.000018	<0.005	0.0063	0.00253
RSEM-R6E-SP	5/10/2018 13:50	TK5556	0.519	0.0004	0.0704	27.9	0.0434	0.0000026	0.0218	0.024	-	5.60	0.00929	5.63	<0.00002	226	0.402	138	0.000027	<0.005	0.0175	0.00334
RSEM-R6E-SP	5/11/2018 6:46	TK5490	0.195	<0.0002	0.0498	21.4	0.0198	<0.000002	0.0145	0.0164	-	4.00	0.00716	3.7	<0.00002	164	0.274	102	0.000015	<0.005	<0.005	0.00239
RSEM-R6E-SP	5/12/2018 13:00	TK7564	0.633	0.00045	0.0538	20.7	0.0515	<0.000002	0.0166	0.0136	-	4.33	0.00622	4.67	<0.00002	169	0.284	103	0.000025	<0.005	0.0208	0.00251
RSEM-R6E-SP	5/13/2018 7:20	TK7580	0.247	<0.0002	0.0562	20.5	0.0307	0.0000022	0.0175	0.0124	-	4.23	0.00624	3.64	<0.00002	174	0.295	108	0.000019	<0.005	0.0074	0.00247
RSEM-R6E-SP	5/14/2018 10:40	TK8136	0.294	0.00024	0.0585	19.8	0.031	<0.000002	0.0178	0.0144	-	3.69	0.00652	2.77	<0.00002	173	0.295	98.1	0.000017	<0.005	0.0079	0.00256
RSEM-R6E-SP	5/15/2018 12:50	TL0258	0.188	<0.0002	0.0585	21.3	0.0249	<0.000002	0.0187	0.0145	-	3.91	0.0058	2.71	<0.00002	176	0.33	99.6	0.000016	<0.005	<0.005	0.00247
RSEM-R6E-SP	5/15/2018 12:50	TL0255	0.238	<0.0002	0.0598	21.9	0.0272	<0.000002	0.0195	0.0149	-	3.99	0.006	2.84	<0.00002	180	0.351	103	0.000017	<0.005	<0.005	0.00253
RSEM-R6E-SP	5/16/2018 11:10	TL2459	0.165	<0.0002	0.0587	20.2	0.0212	<0.000002	0.0183	0.0134	-	4.03	0.00564	3.04	<0.00002	166	0.306	106	0.000017	<0.005	0.0088	0.00244
RSEM-R6E-SP	5/17/2018 13:00	TL6384	0.144	<0.0002	0.0585	20.3	0.0236	<0.000002	0.0184	0.0147	-	4.09	0.00538	2.78	<0.00002	171	0.292	107	0.000016	<0.005	0.0092	0.00231
RSEM-R6E-SP	5/18/2018 5:20	TL6446	0.185	<0.0002	0.0592	20.5	0.0266	<0.000002	0.0183	0.0156	-	4.11	0.00506	2.74	<0.00002	158	0.317	103	0.000019	<0.005	<0.005	0.00244
RSEM-R6E-SP	5/18/2018 5:20	TL6445	0.331	0.00025	0.062	21.2	0.0323	<0.000002	0.018	0.0161	-	4.19	0.00512	3.37	<0.00002	164	0.309	101	0.000022	<0.005	0.0089	0.00239
RSEM-R6E-SP	5/19/2018 15:40	TM0519	0.365	0.00029	0.061	21.9	0.0268	<0.000002	0.0181	0.0148	-	4.17	0.00486	3.17	<0.00002	161	0.313	98.4	0.000024	<0.005	0.0135	0.00248
RSEM-R6E-SP	5/20/2018 11:00	TM2846	0.54	0.00041	0.0558	18.9	0.0361	0.0000021	0.0176	0.0166	-	4.41	0.00453	4.95	<0.00002	146	0.325	91.0	0.000029	<0.005	0.0307	0.00227
RSEM-R6E-SP	5/21/2018 15:30	TM2894	0.695	0.00048	0.0604	19.2	0.0317	<0.000002	0.0181	0.0124	-	4.47	0.00425	5.96	0.000021	150	0.308	98.9	0.000032	<0.005	0.0349	0.00228
RSEM-R6E-SP	5/22/2018 13:15	TM6369	1.69	0.00115	0.0541	20.1	0.0867	0.0000053	0.0167	0.0147	-	4.34	0.004	4.19	0.000023	167	0.315	89.6	0.000042	<0.005	0.0257	0.00237
RSEM-R6E-SP	5/23/2018 14:00	TM6372	0.895	0.00071	0.0455	19.0	0.0978	0.0000032	0.0152	0.0098	-	4.33	0.0031	3.66	<0.00002	132	0.318	75.2	0.000034	<0.005	0.0166	0.00219
RSEM-R6E-SP	5/24/2018 15:40	TM7240	0.456	0.00035	0.0433	18.2	0.0381	0.0000035	0.016	0.0092	-	5.09	0.00298	4.05	<0.00002	113	0.338	64.3	0.000027	<0.005	0.0074	0.00193
RSEM-R6E-SP	5/25/2018 7:00	TM7246	0.208	<0.0002	0.0408	18.6	0.0303	0.0000022	0.0164	0.0088	-	5.36	0.00268	3.1	<0.00002	102	0.359	63.4	0.000023	<0.005	<0.005	0.00184
RSEM-R6E-SP	5/26/2018 8:45	TM9439	0.286	0.00023	0.0385	19.4	0.0242	0.0000026	0.016	0.0093	-	5.55	0.00252	3.19	<0.00002	99.5	0.366	62.2	0.000025	<0.005	0.0082	0.00179
RSEM-R6E-SP	5/27/2018 16:45	TN1162	0.306	0.00026	0.0363	18.1	0.0256	<0.000002	0.0139	0.0089	-	5.11	0.00248	2.92	<0.00002	86.6	0.341	58.2	0.000026	<0.005	0.011	0.0017
RSEM-R6E-SP	5/28/2018 9:40	TN1167	0.467	0.00034	0.039	19.4	0.0315	<0.000002	0.0142	0.0095	-	5.42	0.00251	3.46	<0.00002	91.0	0.357	61.4	0.000028	<0.005	0.0193	0.00178
RSEM-R6E-SP	5/29/2018 14:00	TN5954	0.716	0.00057	0.042	21.0	0.0359	0.0000029	0.0184	0.0107	-	5.75	0.00253	3.18	<0.00002	111	0.402	69.7	0.000028	<0.005	0.0129	0.002
RSEM-R6E-SP	5/30/2018 12:20	TN9743	0.595	0.00049	0.0402	19.1	0.0295	0.0000038	0.0204	0.0098	-	5.58	0.00275	2.84	<0.00002	121	0.388	67.2	0.000025	<0.005	0.006	0.00199
RSEM-R6E-SP	5/31/2018	TN9634	0.443	0.00039	0.0412	18.9	0.0247	0.0000033	0.0213	0.0095	-	5.55	0.00276	2.8	<0.00002	124	0.383	67.8	0.00002	<0.005	<0.005	0.00205
RSEM-R6E-SP	6/1/2018	TO0999	0.394	0.00033	0.0416	19.3	0.0223	<0.000002	0.0198	0.0088	-	5.45	0.00284	3.15	<0.00002	122	0.347	69.0	0.000024	<0.005	0.0053	0.00212
RSEM-R6E-SP	6/2/2018 10:25	TO4778	0.564	0.00047	0.0452	18.8	0.0326	0.0000046	0.0187	0.0097	-	5.57	0.00259	4.17	<0.00002	111	0.391	75.6	0.000032	<0.005	0.0152	0.00224
RSEM-R6E-SP	6/3/2018 14:15	TO4796	0.646	0.00046	0.0437	18.3	0.019	0.0000038	0.0195	0.0083	-	5.09	0.00316	5.34	<0.00002	118	0.353	59.9	0.00003	<0.005	0.0204	0.00221
RSEM-R6E-SP	6/4/2018 14:45	TO7164	0.725	0.00049	0.0468	22.8	0.0525	0.0000022	0.0177	0.011	-	6.18	0.0035	4.29	<0.00002	121	0.793	77.3	0.000033	<0.005	0.0114	0.00255
RSEM-R6E-SP	6/5/2018 17:50	TP0508	0.319	0.00022	0.0473	25.1	0.0523	<0.000002	0.0166	0.0125	-	6.72	0.00427	4.13	<0.00002	120	0.936	84.4	0.000031	<0.005	<0.005	0.00287
RSEM-R6E-SP	6/6/2018 10:20	TP0513	0.427	0.00034	0.047	23.3	0.0512	0.000003	0.0176	0.0116	-	6.11	0.00476	5.17	<0.00002	108	0.869	79.7	0.000033	<0.005	0.0125	0.00283
RSEM-R6E-SP	6/6/2018 10:20	TP0512	0.442	0.00032	0.0449	22.5	0.0509	<0.000002	0.0167	0.0123	-	6.12	0.00509	5.21	<0.00002	107	0.844	81.7	0.000033	<0.005	0.0185	0.00275
RSEM-R6E-SP	6/7/2018 13:30	TP6773	0.582	0.00047	0.0491	22.9	0.0396	<0.000002	0.0187	0.0115	-	6.99	0.00682	4.6	0.000113	125	0.756	91.2	0.000038	<0.005	0.01	0.00276
RSEM-R6E-SP	6/8/2018 17:25	TP8928	0.899	0.00053	0.0461	20.0	0.0281	0.0000033	0.0207	0.0091	-	5.88	0.00751	6.87	0.00007	125	0.59	76.1	0.000041	<0.005	0.0288	0.00265
RSEM-R6E-SP	6/9/2018 19:00	TP8994	0.359	0.00026	0.0456	20.2	0.0357	0.0000026	0.0204	0.0086	-	5.71	0.00786	5.35	0.00008	137	0.641	83.5	0.000025	<0.005	0.0226	0.00255
RSEM-R6E-SP	6/10/2018 10:50	TP9975	0.404	0.00032	0.0482	19.9	0.0401	0.0000031	0.0229	0.0082	-	6.21	0.00732	5.8	<0.00002	136	0.701	95.6	0.000041	<0.005	0.016	0.00275
RSEM-R6E-SP	6/11/2018 15:30	TQ0646	0.414	0.00028	0.0413	21.1	0.0359	0.0000025	0.021	0.0088	-	5.94	0.00731	5.67	0.000045	142	0.685	90.0	0.000033	<0.005	0.0179	0.00254
RSEM-R6E-SP	6/12/2018 14:00	TQ4135	0.467	0.00038	0.0451	22.6	0.0371	0.000002	0.0198	0.0094	-	5.95	0.00613	4.74	<0.00002	139	0.663	91.8	0.000038	<0.005	0.0053	0.00258
RSEM-R6E-SP	6/12/2018 14:00	TQ4134	0.461	0.00033	0.042	22.4	0.0368	0.0000021	0.0187	0.0092	-	6.03	0.00638	4.96	<0.00002	144	0.628	95.0	0.000034	<0.005	<0.005	0.00239
RSEM-R6E-SP	6/13/2018 15:55	TQ8812	0.414	0.00026	0.0457	22.0	0.0259	0.0000022	0.0194	0.0091	-	5.38	0.0059	4.74	<0.00002	136	0.658	77.6	0.000032	<0.005	0.0111	0.00219
RSEM-R6E-SP	6/14/2018 17:25	TQ8827	0.145	<0.0002	0.0483	23.0	0.0172	<0.000002	0.0194	0.0087	-	5.50	0.00611	4.37	<0.00002	140	0.699	80.1	0.000029	<0.005	<0.005	0.00227
RSEM-R6E-SP	6/15/2018 17:55	TR1411	0.316	0.00022	0.0422	29.1	0.0358	<0.000002	0.0174	0.0105	-	7.15	0.00511	4.75	<0.00002	168	0.948	103	0.000033	<0.005	0.0159	0.0024
RSEM-R6E-SP	6/16/2018 15:00	TR1376	0.433	0.00029	0.043	20.4	0.0221	<0.000002	0.0176	0.0081	-	5.45	0.00467	6.36	<0.00002	119	0.693	72.8	0.000032	<0.005	0.0097	0.00232
RSEM-R6E-SP	6/16/2018 15:00	TR1375	0.428	0.00028	0.0433	20.7	0.0212	<0.000002	0.0177	0.0081	-	5.24	0.00455	5.03	<0.00002	122	0.695	73.1	0.00003	<0.005	0.0119	0.00231
RSEM-R6E-SP	6/17/2018 15:40	TR2100	0.457	0.0003	0.0468	20.9	0.0148	<0.000002	0.0197	0.0069	-	5.38	0.00531	5.5	<0.00002	142	0.622	78.6	0.000037	<0.005	0.023	0.00249
RSEM-R6E-SP	6/18/2018 9:05	TR2128	0.246	<0.0002	0.0475	20.6	0.0105	<0.000002	0.0195	0.0062	-	5.16	0.00511	5.01	<0.00002	141	0.582	77.2	0.000031	<0.005	0.0088	0.00241
RSEM-R6E-SP	6/18/2018 9:05	TR2125	0.25	<0.0002	0.0468	20.2	0.0105	<0.000002	0.0193	0.0063	-	5.10	0.00509	4.8	<0.00002	139	0.58	75.3	0.00003	<0.005	0.0089	0.00238
RSEM-R6E-SP	6/19/2018 12:10	TR6047	0.319	0.00022	0.0459	21.0	0.013	<0.000002	0.0182	0.0067	-	5.57	0.00473	4.89	<0.00002	139	0.547	82.3	0.000034	<0.005	<0.005	0.00242
RSEM-R6E-SP	6/20/2018 12:30	TR8728	0.419	0.00028	0.045	19.5	0.0138	<0.000002	0.0169	0.0066	-	5.03	0.00422	4.94	<0.00002	126	0.494	69.0	0.00003	<0.005	0.0108	0.00226
RSEM-R6E-SP	6/21/2018	TS1916	0.403	0.00028	0.0493	20.7	0.0132	0.000003	0.0185	0.0064	-	5.34	0.00437	5.29	<0.00002	139	0.536	75.9	0.000038	<0.005	0.0076	0.00241
RSEM-R6E-SP	6/22/2018	TS2365	0.348	0.00024	0.0462	19.7	0.0121	0.0000022	0.0166	0.006	-	5.22	0.00397	4.94	<0.00002	128	0.496	74.1	0.000035	<0.005	0.0072	0.00224
RSEM-R6E-SP	6/23/2018	TS5384	0.472	0.00028	0.0492	21.0	0.0127	<0.000002	0.0163	0.0059	-	4.91	0.00392	6.22	<0.00002	133	0.547	71.4	0.000036	<0.005	0.0158	0.00224
RSEM-R6E-SP	6/24/2018	TS5388	0.386	0.00026	0.0493	21.0	0.0113	<0.000002	0.0164	0.0058	-	4.80	0.00372	5.72	<0.00002	135	0.534	70.4	0.000036	<0.005	0.0132	0.00222
RSEM-R6E-SP	6/27/2018 11:10	TT1139	0.751	0.0006	0.0692	23.1	0.172	0.0000033	0.0206	0.0246	-	6.04	0.0119	5.92	<0.00002	156	0.609	120	0.000037	<0.005	0.0328	0.00322
RSEM-R6E-SP	6/30/2018	TU0473	0.259	0.00022	0.0756	21.3	0.0972	0.0000027	0.0274	0.0193	-	6.54	0.0182	4.93	<0.00002	230	0.545	150	0.000029	<0.005	0.009	0.00322
RSEM-R6E-SP	12/8/2018 14:15	UX7492	0.049	<0.0002	0.0382	47.1	0.203	0.0000039	0.0123	0.0108	-	5.56	0.00286	5.17	<0.00002	148	0.596	129	0.000015	<0.005	<0.005	0.0036
RSEM-R6E-SP	12/9/2018 13:15	UX7484	0.053	<0.0002	0.0371	49.2	0.206	0.0000034	0.0115	0.011	-	5.78	0.00279	5.39	<0.00002	143	0.575	126	0.000015	<0.005	<0.005	0.00365
RSEM-R6E-SP	12/10/2018 13:15	UY5753	0.04	<0.0002	0.0398	45.9	0.198	<0.000002	0.0123	0.0103	-	5.55	0.0029	5.26	<0.00002	135	0.631	128	0.000015	<0.005	<0.005	0.00391
RSEM-R6E-SP	12/11/2018 9:45	UY1782	0.037	<0.0002	0.0386	46.8	0.194	<0.000002	0.012	0.0105	-	5.41	0.00274	5.16	<0.00002	137	0.612	120	0.000015	<0.005	<0.005	0.00388
RSEM-R6E-SP	12/11/2018 9:45	UY1781	0.034	<0.0002	0.0383	48.1	0.197	<0.000002	0.0118	0.0108	-	5.44	0.00285	5.29	<0.00002	142	0.607	123	0.000014	<0.005	<0.005	0.00368
RSEM-R6E-SP	12/12/2018 8:50	UY3858	0.042	<0.0002	0.0366	47.0	0.206	<0.000002	0.0127	0.0112	-	5.32	0.00279	4.93	<0.00002	138	0.684	124	0.000015	<0.005	<0.005	0.00362
RSEM-R6E-SP	12/13/2018 15:35	UY7665	0.061	<0.0002	0.0374	42.7	0.192	<0.000002	0.0118	0.0105	-	4.87	0.00268	4.87	<0.00002	127	0.635	111	0.000013	<0.005	<0.005	0.0036

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	4/23/2018 12:10	TH9252	<0.005	0.0131	0.00047	0.027	0.00129	0.00131	0.097	<0.0001	<0.001	0.132	0.000031	47.2	0.0026	0.00159	0.00112	<0.01	<0.0002	0.0485	11.5	0.0509
RSEM-R6E-SP	5/8/2018 12:50	TK0806	<0.005	<0.005	0.00018	0.0409	0.00172	0.00183	0.102	<0.0001	<0.001	0.169	<0.00001	58.7	0.0033	0.00086	0.00087	<0.01	<0.0002	0.0434	18.4	0.0022
RSEM-R6E-SP	5/9/2018 16:15	TK3816	<0.005	0.005	0.00031	0.0511	0.00185	0.00195	0.0997	<0.0001	<0.001	0.217	<0.00001	56.9	0.0033	0.00046	0.00112	<0.01	<0.0002	0.051	19.6	<0.001
RSEM-R6E-SP	5/10/2018 13:50	TK5556	0.0051	0.0062	0.00046	0.0478	0.00175	0.00215	0.0922	<0.0001	<0.001	0.204	<0.00001	60.6	0.0027	0.00092	0.00104	<0.01	<0.0002	0.0524	22.5	0.0058
RSEM-R6E-SP	5/11/2018 6:46	TK5490	<0.005	<0.005	0.00036	0.047	0.0017	0.00196	0.0912	<0.0001	<0.001	0.179	<0.00001	56.5	0.0029	0.00046	0.00101	<0.01	<0.0002	0.0495	20.8	<0.001
RSEM-R6E-SP	5/12/2018 13:00	TK7564	<0.005	0.0051	0.00063	0.0445	0.00195	0.00205	0.0958	<0.0001	<0.001	0.243	<0.00001	52.4	0.0024	0.00069	0.0011	<0.01	<0.0002	0.0582	18.8	0.0066
RSEM-R6E-SP	5/13/2018 7:20	TK7580	<0.005	<0.005	0.00028	0.0417	0.0019	0.00209	0.094	<0.0001	<0.001	0.248	<0.00001	54.5	0.0023	0.00021	0.00107	<0.01	<0.0002	0.0585	19.2	<0.001
RSEM-R6E-SP	5/14/2018 10:40	TK8136	<0.005	<0.005	0.00018	0.0458	0.00196	0.00207	0.0896	<0.0001	<0.001	0.265	<0.00001	48.4	0.0021	0.00042	0.00119	<0.01	<0.0002	0.0592	18.7	<0.001
RSEM-R6E-SP	5/15/2018 12:50	TL0258	<0.005	<0.005	0.00016	0.047	0.002	0.00217	0.0956	<0.0001	<0.001	0.258	<0.00001	50.8	0.0022	0.00054	0.00114	<0.01	<0.0002	0.0598	20.6	0.0014
RSEM-R6E-SP	5/15/2018 12:50	TL0255	<0.005	<0.005	0.00022	0.0479	0.00202	0.00209	0.0943	<0.0001	<0.001	0.246	<0.00001	44.7	0.0022	0.00053	0.00118	<0.01	<0.0002	0.0594	20.1	0.0013
RSEM-R6E-SP	5/16/2018 11:10	TL2459	<0.005	<0.005	0.00016	0.046	0.00201	0.00217	0.0929	<0.0001	<0.001	0.271	<0.00001	47.1	0.0021	0.00037	0.00328	<0.01	<0.0002	0.0604	20.5	0.0014
RSEM-R6E-SP	5/17/2018 13:00	TL6384	<0.005	<0.005	0.00025	0.0682	0.00198	0.00205	0.0891	<0.0001	<0.001	0.248	<0.00001	45.5	0.002	<0.0002	0.00143	<0.01	<0.0002	0.0556	20.4	<0.001
RSEM-R6E-SP	5/18/2018 5:20	TL6446	<0.005	<0.005	0.00015	0.0464	0.00197	0.00191	0.0955	<0.0001	<0.001	0.221	0.000012	53.6	0.0019	<0.0002	0.00155	<0.01	<0.0002	0.0558	20.4	<0.001
RSEM-R6E-SP	5/18/2018 5:20	TL6445	<0.005	0.0057	0.00078	0.0487	0.00201	0.0019	0.0968	<0.0001	<0.001	0.236	<0.00001	51.2	0.0019	<0.0002	0.00189	<0.01	<0.0002	0.0609	20.0	<0.001
RSEM-R6E-SP	5/19/2018 15:40	TM0519	<0.005	<0.005	0.00053	0.0454	0.00181	0.00189	0.089	<0.0001	<0.001	0.276	<0.00001	47.5	0.0016	<0.0002	0.00144	<0.01	<0.0002	0.0679	20.6	<0.001
RSEM-R6E-SP	5/20/2018 11:00	TM2846	<0.005	0.0069	0.00073	0.092	0.00172	0.00199	0.0889	<0.0001	<0.001	0.227	<0.00001	48.4	0.0015	0.00023	0.00187	<0.01	<0.0002	0.0501	19.3	<0.001
RSEM-R6E-SP	5/21/2018 15:30	TM2894	0.0051	0.0074	0.00074	0.0516	0.00181	0.00211	0.0818	<0.0001	<0.001	0.244	<0.00001	42.4	0.0014	<0.0002	0.00145	<0.01	<0.0002	0.0531	18.8	<0.001
RSEM-R6E-SP	5/22/2018 13:15	TM6369	0.0056	0.0157	0.00052	0.0441	0.00181	0.00193	0.087	<0.0001	<0.001	0.288	<0.00001	47.9	0.0011	<0.0002	0.00274	<0.01	<0.0002	0.055	18.9	<0.001
RSEM-R6E-SP	5/23/2018 14:00	TM6372	<0.005	0.0077	0.00084	0.0458	0.00168	0.00178	0.112	<0.0001	<0.001	0.301	<0.00001	56.8	<0.001	<0.0002	0.0021	<0.01	<0.0002	0.0551	18.9	<0.001
RSEM-R6E-SP	5/24/2018 15:40	TM7240	<0.005	<0.005	0.00024	0.0488	0.00139	0.00156	0.0969	<0.0001	<0.001	0.208	<0.00001	47.6	0.003	<0.0002	0.00201	<0.01	<0.0002	0.0441	16.7	<0.001
RSEM-R6E-SP	5/25/2018 7:00	TM7246	<0.005	<0.005	0.00013	0.0429	0.00124	0.00139	0.102	<0.0001	<0.001	0.202	<0.00001	52.1	0.0036	<0.0002	0.00191	<0.01	<0.0002	0.043	17.5	<0.001
RSEM-R6E-SP	5/26/2018 8:45	TM9439	<0.005	<0.005	0.00108	0.0345	0.00116	0.00143	0.105	<0.0001	<0.001	0.192	<0.00001	55.5	0.0037	0.00032	0.002	<0.01	<0.0002	0.0374	18.3	0.0017
RSEM-R6E-SP	5/27/2018 16:45	TN1162	<0.005	<0.005	0.0008	0.0316	0.00106	0.00124	0.0987	<0.0001	<0.001	0.192	<0.00001	53.1	0.0028	0.0006	0.00278	<0.01	<0.0002	0.0383	18.4	0.0081
RSEM-R6E-SP	5/28/2018 9:40	TN1167	<0.005	0.0063	0.00069	0.0283	0.00104	0.00124	0.0998	<0.0001	<0.001	0.201	<0.00001	55.3	0.0027	0.00056	0.00255	<0.01	<0.0002	0.0376	19.0	0.0087
RSEM-R6E-SP	5/29/2018 14:00	TN5954	<0.005	0.0074	0.00034	0.031	0.00114	0.00141	0.0987	<0.0001	<0.001	0.199	<0.00001	57.4	0.0036	0.0004	0.00257	<0.01	<0.0002	0.0379	18.9	0.0033
RSEM-R6E-SP	5/30/2018 12:20	TN9743	<0.005	0.0064	0.00019	0.0373	0.00132	0.00153	0.104	<0.0001	<0.001	0.265	<0.00001	54.5	0.0043	<0.0002	0.0021	<0.01	<0.0002	0.042	18.8	<0.001
RSEM-R6E-SP	5/31/2018	TN9634	<0.005	0.0056	0.00014	0.0322	0.00138	0.00155	0.101	<0.0001	<0.001	0.24	<0.00001	54.6	0.0045	<0.0002	0.00305	<0.01	<0.0002	0.0382	19.2	<0.001
RSEM-R6E-SP	6/1/2018	TO0999	<0.005	0.0054	0.00014	0.0263	0.00134	0.00147	0.104	<0.0001	<0.001	0.265	<0.00001	54.7	0.0042	<0.0002	0.00233	<0.01	<0.0002	0.0406	19.3	<0.001
RSEM-R6E-SP	6/2/2018 10:25	TO4778	<0.005	0.0082	0.00064	0.329	0.00138	0.00138	0.109	<0.0001	<0.001	0.242	<0.00001	59.9	0.004	<0.0002	0.00197	<0.01	<0.0002	0.0448	19.7	<0.001
RSEM-R6E-SP	6/3/2018 14:15	TO4796	<0.005	0.0053	0.00059	0.0295	0.00142	0.00137	0.11	<0.0001	<0.001	0.25	<0.00001	61.8	0.0031	<0.0002	0.00201	<0.01	<0.0002	0.0459	18.2	<0.001
RSEM-R6E-SP	6/4/2018 14:45	TO7164	<0.005	0.0076	0.00019	0.0214	0.00123	0.00115	0.116	<0.0001	<0.001	0.24	0.00002	84.7	0.0026	0.00067	0.00171	<0.01	<0.0002	0.0518	20.7	0.0156
RSEM-R6E-SP	6/5/2018 17:50	TP0508	<0.005	<0.005	0.00011	0.0247	0.0011	0.00095	0.128	<0.0001	<0.001	0.229	0.000031	106	0.0025	0.00071	0.00118	0.01	0.00023	0.0462	24.6	0.0054
RSEM-R6E-SP	6/6/2018 10:20	TP0513	<0.005	0.0058	0.00053	0.0218	0.00123	0.00103	0.129	<0.0001	<0.001	0.221	0.000029	105	0.0037	0.0009	0.00199	<0.01	<0.0002	0.0452	25.0	0.0139
RSEM-R6E-SP	6/6/2018 10:20	TP0512	<0.005	0.0052	0.00039	0.0228	0.0012	0.00103	0.132	<0.0001	<0.001	0.227	0.000032	102	0.0037	0.00077	0.00184	<0.01	<0.0002	0.0474	25.0	0.0083
RSEM-R6E-SP	6/7/2018 13:30	TP6773	<0.005	0.0093	0.00028	0.049	0.00132	0.00129	0.129	<0.0001	<0.001	0.282	0.000021	108	0.0053	0.00022	0.00255	<0.01	<0.0002	0.0532	23.6	0.0016
RSEM-R6E-SP	6/8/2018 17:25	TP8928	0.0052	0.0068	0.00107	0.0277	0.00155	0.00155	0.132	<0.0001	<0.001	0.212	0.000014	84.2	0.0057	<0.0002	0.0018	<0.01	<0.0002	0.044	21.4	<0.001
RSEM-R6E-SP	6/9/2018 19:00	TP8994	<0.005	<0.005	0.00033	0.0259	0.00158	0.00162	0.122	<0.0001	<0.001	0.217	0.000021	88.9	0.0056	<0.0002	0.0017	<0.01	<0.0002	0.0438	21.0	0.0011
RSEM-R6E-SP	6/10/2018 10:50	TP9975	<0.005	0.0062	0.00065	0.024	0.00161	0.00168	0.121	<0.0001	<0.001	0.219	0.000025	90.4	0.0052	0.00057	0.00255	<0.01	<0.0002	0.0429	20.8	0.013
RSEM-R6E-SP	6/11/2018 15:30	TQ0646	<0.005	0.0053	0.00066	0.0224	0.00173	0.00152	0.127	<0.0001	<0.001	0.279	0.00002	96.1	0.0049	0.00054	0.00167	<0.01	<0.0002	0.0445	20.9	0.009
RSEM-R6E-SP	6/12/2018 14:00	TQ4135	<0.005	0.0059	0.00019	0.0219	0.00153	0.00133	0.122	<0.0001	<0.001	0.242	0.000028	102	0.0042	0.00067	0.0018	<0.01	<0.0002	0.0462	21.1	0.0153
RSEM-R6E-SP	6/12/2018 14:00	TQ4134	<0.005	0.0056	0.00025	0.0198	0.00153	0.00129	0.118	<0.0001	<0.001	0.255	0.000028	94.6	0.0041	0.00066	0.00179	<0.01	<0.0002	0.0431	20.1	0.0145
RSEM-R6E-SP	6/13/2018 15:55	TQ8812	<0.005	<0.005	0.00036	0.0259	0.00147	0.00137	0.114	<0.0001	<0.001	0.285	<0.00001	83.9	0.0037	<0.0002	0.00192	<0.01	<0.0002	0.0429	20.9	<0.001
RSEM-R6E-SP	6/14/2018 17:25	TQ8827	<0.005	<0.005	0.00016	0.0237	0.00151	0.00134	0.117	<0.0001	<0.001	0.271	0.000014	88.3	0.0032	0.00047	0.00233	<0.01	<0.0002	0.0455	20.9	0.0059
RSEM-R6E-SP	6/15/2018 17:55	TR1411	<0.005	0.0055	0.00068	0.0261	0.00158	0.00142	0.114	<0.0001	<0.001	0.281	<0.00001	92.5	0.0035	0.00029	0.00273	<0.01	<0.0002	0.0502	19.9	0.003
RSEM-R6E-SP	6/16/2018 15:00	TR1376	<0.005	0.0054	0.0006	0.0278	0.0016	0.00151	0.106	<0.0001	<0.001	0.236	<0.00001	88.6	0.0039	<0.0002	0.00466	<0.01	<0.0002	0.0482	20.7	<0.001
RSEM-R6E-SP	6/16/2018 15:00	TR1375	<0.005	<0.005	0.00045	0.0271	0.00162	0.00151	0.106	<0.0001	<0.001	0.24	<0.00001	85.1	0.004	<0.0002	0.00382	0.023	<0.0002	0.048	20.7	<0.001
RSEM-R6E-SP	6/17/2018 15:40	TR2100	<0.005	<0.005	0.00086	0.0331	0.00186	0.00193	0.105	<0.0001	<0.001	0.256	<0.00001	80.6	0.004	0.00028	0.00179	<0.01	<0.0002	0.0475	21.9	0.0019
RSEM-R6E-SP	6/18/2018 9:05	TR2128	<0.005	<0.005	0.0003	0.0325	0.00179	0.0019	0.0997	<0.0001	<0.001	0.264	<0.00001	75.9	0.0036	0.00025	0.00157	<0.01	<0.0002	0.0482	21.3	0.0018
RSEM-R6E-SP	6/18/2018 9:05	TR2125	<0.005	<0.005	0.00034	0.0327	0.00179	0.00187	0.0993	<0.0001	<0.001	0.249	<0.00001	73.4	0.0036	0.00023	0.0017	<0.01	<0.0002	0.0452	20.9	0.0013
RSEM-R6E-SP	6/19/2018 12:10	TR6047	<0.005	<0.005	0.00013	0.0337	0.00178	0.00177	0.0968	<0.0001	<0.001	0.251	<0.00001	69.6	0.0033	0.0002	0.00149	<0.01	<0.0002	0.0482	22.2	0.0015
RSEM-R6E-SP	6/20/2018 12:30	TR8728	<0.005	0.0051	0.00094	0.0342	0.00163	0.00164	0.0972	<0.0001	<0.001	0.257	<0.00001	64.6	0.003	0.00022	0.00133	<0.01	<0.0002	0.0439	22.0	0.0021
RSEM-R6E-SP	6/21/2018	TS1916	<0.005	0.0061	0.00024	0.0346	0.00167	0.00167	0.0967	<0.0001	<0.001	0.281	<0.00001	65.3	0.0027	<0.0002	0.00126	<0.01	<0.0002	0.05	21.3	<0.001
RSEM-R6E-SP	6/22/2018	TS2365	<0.005	<0.005	0.00017	0.0344	0.00168	0.00166	0.0972	<0.0001	<0.001	0.287	<0.00001	64.8	0.0025	<0.0002	0.00114	<0.01	<0.0002	0.0484	21.3	<0.001
RSEM-R6E-SP	6/23/2018	TS5384	<0.005	<0.005	0.00234	0.0336	0.00162	0.00158	0.1	<0.0001	<0.001	0.283	<0.00001	62.9	0.0022	<0.0002	0.00141	<0.01	<0.0002	0.0485	21.1	<0.001
RSEM-R6E-SP	6/24/2018	TS5388	<0.005	<0.005	0.00054	0.0339	0.0016	0.00159	0.102	<0.0001	<0.001	0.284	<0.00001	62.8	0.0022	<0.0002	0.00129	<0.01	<0.0002	0.0488	20.7	<0.001
RSEM-R6E-SP	6/27/2018 11:10	TT1139	0.005	0.0083	0.00095	0.066	0.00142	0.00134	0.128	<0.0001	<0.001	0.245	0.000055	79.3	0.0061	0.00368	0.00141	<0.01	<0.0002	0.0646	20.2	0.125
RSEM-R6E-SP	6/30/2018	TU0473	<0.005	0.0064	0.00047	0.0486	0.00182	0.00194	0.137	<0.0001	<0.001	0.293	0.00007	80.6	0.0068	0.00213	0.00136	<0.01	<0.0002	0.0739	19.9	0.0598
RSEM-R6E-SP	12/8/2018 14:15	UX7492	<0.005	0.0093	<0.0001	0.033	0.00076	0.00104	0.129	<0.0001	<0.001	0.164	0.000052	121	0.0012	0.00254	0.00162	<0.01	<0.0002	0.0391	43.5	0.196
RSEM-R6E-SP	12/9/2018 13:15	UX7484	<0.005	0.0128	<0.0001	0.0341	0.0008	0.00103	0.136	<0.0001	<0.001	0.16	0.000054	122	0.0011	0.00256	0.00177	<0.01	<0.0002	0.0376	43.7	0.191
RSEM-R6E-SP	12/10/2018 13:15	UY5753	<0.005	0.0132	<0.0001	0.0307	0.00075	0.00102	0.14	<0.0001	<0.001	0.153	0.000059	117	0.0011	0.00259	0.00197	<0.01	<0.0002	0.0388	46.2	0.205
RSEM-R6E-SP	12/11/2018 9:45	UY1782	<0.005	0.0094	<0.0001	0.0305	0.00076	0.001	0.138	<0.0001	<0.001	0.158	0.000056	126	0.0011	0.00244	0.00179	<0.01	<0.0002	0.0373	46.2	0.192
RSEM-R6E-SP	12/11/2018 9:45	UY1781	<0.005	0.0098	0.00013	0.03	0.00074	0.00103	0.141	<0.0001	<0.001	0.166	0.000055	125	0.0015	0.0026	0.00163	<0.01	<0.0002	0.0383	49.0	0.202
RSEM-R6E-SP	12/12/2018 8:50	UY3858	<0.005	0.0141	<0.0001	0.032	0.00075	0.00115	0.136	<0.0001	<0.001	0.145	0.000053	115	0.0012	0.00247	0.00158	<0.01	<0.0002	0.0349	45.9	0.196
RSEM-R6E-SP	12/13/2018 15:35	UY7665	<0.005	0.0147	<0.0001	0.0288	0.00075	0.00096	0.139	<0.0001	<0.001	0.158	0.000053	124	0.0011	0.00249	0.00162	<0.01	<0.0002	0.0383	47.6	0.183

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	4/23/2018 12:10	TH9252	-	0.0105	0.0073	-	2.87	0.0142	2.59	<0.00002	174	0.238	108	0.000013	<0.005	<0.005	0.00211	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/8/2018 12:50	TK0806	<0.000002	0.0156	0.0139	-	3.69	0.0076	3.17	<0.00002	136	0.317	93.8	0.000013	<0.005	<0.005	0.00243	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/9/2018 16:15	TK3816	<0.000002	0.0161	0.0138	-	3.55	0.00803	3.1	<0.00002	153	0.295	92.1	0.000012	<0.005	<0.005	0.0026	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/10/2018 13:50	TK5556	<0.000002	0.0157	0.0152	-	4.16	0.00694	3.23	<0.00002	174	0.281	107	0.000012	<0.005	<0.005	0.00243	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/11/2018 6:46	TK5490	<0.000002	0.0149	0.014	-	3.96	0.00711	3.09	<0.00002	161	0.277	101	0.000012	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/12/2018 13:00	TK7564	<0.000002	0.0171	0.0106	-	3.58	0.00629	2.67	<0.00002	166	0.29	96.5	0.000014	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/13/2018 7:20	TK7580	<0.000002	0.017	0.0104	-	3.57	0.00654	2.81	<0.00002	163	0.295	96.2	0.000014	<0.005	<0.005	0.00254	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/14/2018 10:40	TK8136	<0.000002	0.0175	0.0109	-	3.57	0.00593	2.47	<0.00002	161	0.283	98.6	0.000014	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/15/2018 12:50	TL0258	<0.000002	0.0186	0.0122	-	4.01	0.00593	2.48	<0.00002	167	0.312	107	0.000016	<0.005	<0.005	0.0025	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/15/2018 12:50	TL0255	<0.000002	0.0183	0.0126	-	3.84	0.00536	2.12	<0.00002	166	0.31	98.5	0.000013	<0.005	<0.005	0.00237	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/16/2018 11:10	TL2459	<0.000002	0.0196	0.0119	-	3.95	0.00587	2.2	<0.00002	173	0.35	101	0.000012	<0.005	<0.005	0.00245	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/17/2018 13:00	TL6384	<0.000002	0.0186	0.0116	-	3.91	0.00547	1.98	<0.00002	171	0.337	98.0	0.000012	<0.005	<0.005	0.00253	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/18/2018 5:20	TL6446	<0.000002	0.0183	0.0115	-	4.21	0.00528	2.68	<0.00002	163	0.296	109	0.000015	<0.005	<0.005	0.00232	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/18/2018 5:20	TL6445	<0.000002	0.0182	0.0114	-	4.15	0.00498	2.29	<0.00002	166	0.311	109	0.000015	<0.005	<0.005	0.00237	<0.005	<0.005	0.00036
RSEM-R6E-SP	5/19/2018 15:40	TM0519	<0.000002	0.0177	0.011	-	4.04	0.00506	2.14	<0.00002	166	0.304	98.9	0.000012	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/20/2018 11:00	TM2846	<0.000002	0.0169	0.0126	-	3.95	0.00429	1.82	<0.00002	153	0.32	84.4	0.000015	<0.005	<0.005	0.00222	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/21/2018 15:30	TM2894	<0.000002	0.0176	0.0081	-	3.79	0.00442	1.7	<0.00002	160	0.31	84.5	0.000013	<0.005	<0.005	0.00228	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/22/2018 13:15	TM6369	<0.000002	0.0179	0.0059	-	4.00	0.00408	2.12	<0.00002	156	0.343	87.4	0.000016	<0.005	<0.005	0.00232	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/23/2018 14:00	TM6372	<0.000002	0.0182	0.0054	-	4.15	0.00326	2.57	<0.00002	127	0.37	71.6	0.000022	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/24/2018 15:40	TM7240	<0.000002	0.015	0.0065	-	4.62	0.00273	2.81	<0.00002	103	0.312	56.1	0.000019	<0.005	<0.005	0.00179	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/25/2018 7:00	TM7246	<0.000002	0.0153	0.0073	-	5.02	0.00251	2.48	<0.00002	97.6	0.326	56.1	0.00002	<0.005	<0.005	0.0017	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/26/2018 8:45	TM9439	<0.000002	0.0157	0.0077	-	5.35	0.00256	2.57	<0.00002	95.5	0.352	60.6	0.000019	<0.005	<0.005	0.00173	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/27/2018 16:45	TN1162	<0.000002	0.0144	0.0082	-	5.16	0.00226	2.1	<0.00002	89.4	0.349	59.6	0.000018	<0.005	<0.005	0.00175	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/28/2018 9:40	TN1167	<0.000002	0.014	0.008	-	5.14	0.00221	1.94	<0.00002	90.6	0.358	60.2	0.000017	<0.005	<0.005	0.00174	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/29/2018 14:00	TN5954	<0.000002	0.0164	0.0071	-	5.04	0.00249	1.94	<0.00002	103	0.378	61.3	0.000017	<0.005	<0.005	0.00191	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/30/2018 12:20	TN9743	<0.000002	0.02	0.0067	-	5.26	0.00273	2.45	<0.00002	119	0.35	64.0	0.00002	<0.005	<0.005	0.00208	<0.005	<0.005	<0.0001
RSEM-R6E-SP	5/31/2018	TN9634	<0.000002	0.0208	0.0067	-	5.47	0.0028	2.37	<0.00002	125	0.356	66.2	0.000019	<0.005	<0.005	0.00202	<0.005	<0.005	0.00016
RSEM-R6E-SP	6/1/2018	TO0999	<0.000002	0.0201	0.0069	-	5.32	0.00271	2.6	<0.00002	119	0.349	65.6	0.000021	<0.005	<0.005	0.0021	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/2/2018 10:25	TO4778	0.0000028	0.0191	0.0078	-	5.26	0.00266	2.87	<0.00002	117	0.386	66.3	0.000022	<0.005	<0.005	0.00208	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/3/2018 14:15	TO4796	0.0000024	0.0204	0.0069	-	5.46	0.00259	3.42	<0.00002	117	0.389	64.4	0.000021	<0.005	<0.005	0.00229	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/4/2018 14:45	TO7164	<0.000002	0.0184	0.0093	-	5.66	0.00331	3.09	<0.00002	119	0.746	75.0	0.00002	<0.005	<0.005	0.00242	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/5/2018 17:50	TP0508	<0.000002	0.0153	0.0101	-	6.29	0.00406	3.5	<0.00002	119	0.869	83.1	0.000026	<0.005	<0.005	0.00266	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/6/2018 10:20	TP0513	<0.000002	0.0164	0.0106	-	6.58	0.0054	3.8	<0.00002	122	0.825	88.1	0.000023	<0.005	<0.005	0.00257	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/6/2018 10:20	TP0512	<0.000002	0.0164	0.0103	-	6.59	0.00521	3.68	<0.00002	121	0.822	88.3	0.000025	<0.005	<0.005	0.00268	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/7/2018 13:30	TP6773	<0.000002	0.0189	0.0097	-	6.37	0.00748	4.37	0.000071	130	0.722	86.0	0.000028	<0.005	<0.005	0.00276	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/8/2018 17:25	TP8928	<0.000002	0.0208	0.0068	-	5.92	0.00752	4.04	<0.00002	142	0.665	84.0	0.000019	<0.005	<0.005	0.00243	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/9/2018 19:00	TP8994	<0.000002	0.0214	0.0068	-	5.90	0.00764	4.15	<0.00002	145	0.723	83.8	0.000024	<0.005	<0.005	0.00239	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/10/2018 10:50	TP9975	<0.000002	0.0215	0.0069	-	5.81	0.00755	4.26	<0.00002	148	0.729	85.3	0.000022	<0.005	<0.005	0.00242	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/11/2018 15:30	TQ0646	<0.000002	0.0225	0.0075	-	5.88	0.00751	4.66	<0.00002	135	0.739	90.3	0.000033	<0.005	<0.005	0.00271	<0.005	0.0051	<0.0001
RSEM-R6E-SP	6/12/2018 14:00	TQ4135	<0.000002	0.0207	0.0075	-	5.85	0.00657	5.19	<0.00002	126	0.713	90.6	0.000028	<0.005	<0.005	0.00262	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/12/2018 14:00	TQ4134	<0.000002	0.0201	0.0076	-	5.65	0.00623	4.6	<0.00002	125	0.695	86.8	0.000031	<0.005	<0.005	0.00257	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/13/2018 15:55	TQ8812	<0.000002	0.0192	0.0076	-	5.48	0.00599	4.48	<0.00002	136	0.607	81.8	0.000028	<0.005	<0.005	0.00237	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/14/2018 17:25	TQ8827	<0.000002	0.0187	0.0073	-	5.35	0.00577	4.35	<0.00002	125	0.623	79.5	0.00003	<0.005	<0.005	0.0024	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/15/2018 17:55	TR1411	<0.000002	0.0182	0.0069	-	5.16	0.00525	4.39	<0.00002	110	0.718	76.9	0.000028	<0.005	<0.005	0.00244	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/16/2018 15:00	TR1376	<0.000002	0.0178	0.0066	-	5.37	0.0049	4.62	<0.00002	115	0.658	76.0	0.00003	<0.005	<0.005	0.00238	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/16/2018 15:00	TR1375	<0.000002	0.0178	0.0064	-	5.32	0.00509	4.23	<0.00002	122	0.648	76.1	0.000028	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/17/2018 15:40	TR2100	<0.000002	0.0209	0.0062	-	5.53	0.0054	4.5	<0.00002	151	0.676	83.6	0.000025	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/18/2018 9:05	TR2128	<0.000002	0.0204	0.0058	-	5.33	0.0052	4.4	<0.00002	149	0.631	79.9	0.000021	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/18/2018 9:05	TR2125	<0.000002	0.0202	0.0057	-	5.33	0.0051	4.26	<0.00002	147	0.63	79.0	0.000022	<0.005	<0.005	0.0024	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/19/2018 12:10	TR6047	<0.000002	0.0195	0.0056	-	5.05	0.00458	4.16	<0.00002	149	0.57	75.0	0.000023	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/20/2018 12:30	TR8728	<0.000002	0.0173	0.0054	-	5.37	0.00421	4.25	<0.00002	158	0.499	75.4	0.000028	<0.005	<0.005	0.00224	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/21/2018	TS1916	<0.000002	0.0183	0.0047	-	5.25	0.00438	4.51	<0.00002	142	0.569	74.3	0.00003	<0.005	<0.005	0.00237	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/22/2018	TS2365	<0.000002	0.0183	0.0046	-	5.27	0.00417	4.64	<0.00002	142	0.567	74.5	0.00003	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/23/2018	TS5384	<0.000002	0.0173	0.0045	-	5.17	0.0039	4.5	<0.00002	137	0.54	70.8	0.000029	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/24/2018	TS5388	<0.000002	0.0176	0.0043	-	5.13	0.00379	4.55	<0.00002	137	0.536	70.7	0.000027	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/27/2018 11:10	TT1139	<0.000002	0.0188	0.0201	-	5.53	0.0112	3.72	<0.00002	144	0.551	117	0.000019	<0.005	<0.005	0.0029	<0.005	<0.005	<0.0001
RSEM-R6E-SP	6/30/2018	TU0473	<0.000002	0.0256	0.0162	-	6.49	0.0179	4.29	<0.00002	219	0.5	151	0.000026	<0.005	<0.005	0.00326	<0.005	<0.005	<0.0001
RSEM-R6E-SP	12/8/2018 14:15	UX7492	<0.000002	0.0121	0.0107	-	5.12	0.00285	5.23	<0.00002	128	0.566	111	0.000013	<0.005	<0.005	0.00367	<0.005	0.0085	<0.0001
RSEM-R6E-SP	12/9/2018 13:15	UX7484	<0.000002	0.012	0.011	-	4.99	0.00298	5.31	<0.00002	126	0.588	108	0.000012	<0.005	<0.005	0.00364	<0.005	0.0119	<0.0001
RSEM-R6E-SP	12/10/2018 13:15	UY5753	<0.000002	0.0121	0.0109	-	5.17	0.00278	5.07	<0.00002	130	0.646	112	0.000013	<0.005	<0.005	0.00378	<0.005	0.0124	<0.0001
RSEM-R6E-SP	12/11/2018 9:45	UY1782	<0.000002	0.0118	0.0103	-	5.56	0.00279	5.66	<0.00002	135	0.59	124	0.000013	<0.005	<0.005	0.00366	<0.005	0.0093	0.00012
RSEM-R6E-SP	12/11/2018 9:45	UY1781	<0.000002	0.0118	0.0108	-	5.77	0.00292	5.54	<0.00002	144	0.588	129	0.000014	<0.005	<0.005	0.00363	<0.005	0.0094	<0.0001
RSEM-R6E-SP	12/12/2018 8:50	UY3858	<0.000002	0.0128	0.0107	-	5.18	0.0027	4.8	<0.00002	134	0.672	117	0.000014	<0.005	<0.005	0.00362	<0.005	0.0117	<0.0001
RSEM-R6E-SP	12/13/2018 15:35	UY7665	<0.000002	0.012	0.011	-	5.40	0.00279	5.19	<0.00002	140	0.591	118	0.000015	<0.005	<0.005	0.00362	<0.005	0.0113	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	12/14/2018 9:50	UY7661	8.22	1430	0.78	938	<4.0	462	478	346	<1.0	422	<1.0	<1.0	60.2	0.370	0.98	308
RSEM-R6E-SP	12/14/2018 9:50	UY7658	8.18	1420	0.94	918	<4.0	470	474	343	<1.0	418	<1.0	<1.0	57.3	0.350	1.0	298
RSEM-R6E-SP	12/15/2018 15:15	UZ0619	8.22	1440	0.86	916	<4.0	495	463	352	<1.0	430	<1.0	<1.0	58.9	0.360	0.97	295
RSEM-R6E-SP	12/16/2018 8:50	UZ0623	8.23	1450	0.93	942	<4.0	497	475	354	<1.0	431	<1.0	<1.0	58.2	0.350	0.97	297
RSEM-R6E-SP	12/17/2018 14:10	UZ1470	8.10	1430	0.66	928	<4.0	512	477	359	<1.0	438	<1.0	<1.0	59.7	0.350	1.0	286
RSEM-R6E-SP	12/18/2018 11:50	UZ3637	8.24	1430	0.59	936	<4.0	513	473	347	<1.0	424	<1.0	<1.0	57.0	0.370	0.95	316
RSEM-R6E-SP	12/18/2018 11:50	UZ3634	8.30	1430	0.77	920	<4.0	517	473	350	<1.0	427	<1.0	<1.0	56.7	0.330	0.95	312
RSEM-R6E-SP	12/19/2018 6:50	UZ3480	8.27	1430	0.79	936	4.0	472	465	340	<1.0	414	<1.0	<1.0	56.3	0.350	0.94	338
RSEM-R6E-SP	12/20/2018 14:17	UZ8197	8.22	1410	0.99	942	<4.0	486	508	322	<1.0	393	<1.0	<1.0	58.1	0.370	0.87	305
RSEM-R6E-SP	12/21/2018 10:01	UZ8193	8.25	1400	0.75	916	<4.0	487	496	335	<1.0	408	<1.0	<1.0	56.4	0.340	0.89	317
RSEM-R6E-SP	12/22/2018 8:07	UZ8831	8.26	1400	0.94	868	<4.0	464	497	346	<1.0	422	<1.0	<1.0	58.4	0.360	1.1	301
RSEM-R6E-SP	12/23/2018 10:45	UZ8804	8.34	1390	1.12	864	<4.0	499	483	353	3.5	422	4.2	<1.0	58.2	0.370	0.91	233
RSEM-R6E-SP	12/24/2018 12:30	UZ9929	8.15	1350	1.49	822	5.5	497	524	403	<1.0	491	<1.0	<1.0	61.0	0.420	0.99	230
RSEM-R6E-SP	12/25/2018 11:05	UZ9975	8.18	1290	0.84	857	5.8	486	512	411	<1.0	502	<1.0	<1.0	59.0	0.440	0.90	200
RSEM-R6E-SP	12/26/2018 10:00	UZ9922	8.18	1190	0.97	704	<4.0	463	509	397	<1.0	485	<1.0	<1.0	54.4	0.410	0.86	180
RSEM-R6E-SP	12/27/2018 12:50	VA2808	8.15	1140	0.63	648	4.0	409	453	380	<1.0	464	<1.0	<1.0	48.4	0.360	0.80	169
RSEM-R6E-SP	12/28/2018 14:55	VA3066	8.09	1160	0.69	700	<4.0	399	410	387	<1.0	472	<1.0	<1.0	51.9	0.390	0.80	175
RSEM-R6E-SP	12/29/2018 11:30	VA3061	8.13	1140	0.64	716	<4.0	404	410	380	<1.0	463	<1.0	<1.0	48.7	0.380	0.77	176
RSEM-R6E-SP	12/30/2018 10:35	VA3020	8.13	1100	0.96	656	<4.0	395	400	381	<1.0	465	<1.0	<1.0	49.0	0.380	0.74	162
RSEM-R6E-SP	12/31/2018 12:20	VA5852	8.23	1070	0.71	656	<4.0	389	383	381	<1.0	465	<1.0	<1.0	46.7	0.400	0.72	147
RSEM-R6W-EOP	2/14/2018 13:25	SY9400	8.49	1390	2.18	810	<4.0	242	259	332	9.3	382	11.1	<1.0	105	0.360	1.81	247
RSEM-R6W-EOP	2/15/2018 12:55	SZ0953	8.40	1630	1.32	978	4.0	272	278	390	6.4	460	7.7	<1.0	133	0.400	2.31	275
RSEM-R6W-EOP	2/15/2018 12:55	SZ0954	8.41	1530	1.23	920	<4.0	268	281	370	6.8	435	8.2	<1.0	125	0.390	2.23	261
RSEM-R6W-EOP	2/16/2018 13:05	SZ0957	8.37	1880	1.43	1050	<4.0	311	291	445	6.0	529	7.2	<1.0	157	0.460	2.87	317
RSEM-R6W-EOP	2/17/2018 10:30	SZ2075	8.50	1340	1.99	812	<4.0	160	177	308	7.5	357	9.0	<1.0	115	0.400	1.8	214
RSEM-R6W-EOP	2/18/2018 11:00	SZ2074	8.48	1380	3.52	806	4.3	152	157	307	7.3	357	8.7	<1.0	123	0.440	2.0	217
RSEM-R6W-EOP	2/19/2018 13:45	SZ3785	8.51	1370	1.68	806	<4.0	166	172	306	9.2	351	11.1	<1.0	120	0.400	1.7	217
RSEM-R6W-EOP	2/20/2018 13:05	SZ5787	8.43	1380	1.39	790	<4.0	169	179	292	5.1	344	6.1	<1.0	117	0.390	1.7	222
RSEM-R6W-EOP	2/21/2018 11:35	SZ7678	8.51	1380	1.21	778	<4.0	171	173	312	8.8	359	10.6	<1.0	123	0.400	2.0	233
RSEM-R6W-EOP	2/21/2018 11:35	SZ7679	8.57	1380	1.23	796	<4.0	165	165	317	11.0	360	13.2	<1.0	122	0.390	2.0	233
RSEM-R6W-EOP	2/23/2018 11:36	SZ9585	8.53	1380	1.07	770	<4.0	166	160	300	8.2	345	9.9	<1.0	118	0.400	1.9	223
RSEM-R6W-EOP	2/25/2018 11:00	TA2076	8.47	1390	1.74	794	<4.0	175	170	318	6.2	373	7.5	<1.0	119	0.400	2.0	210
RSEM-R6W-EOP	2/26/2018 14:40	TA3632	8.43	1350	2.53	770	<4.0	179	182	314	6.9	367	8.2	<1.0	118	0.400	1.7	212
RSEM-R6W-EOP	2/27/2018 12:15	TA7101	8.45	1370	1.59	816	<4.0	158	165	319	5.5	376	6.6	<1.0	120	0.400	1.9	208
RSEM-R6W-EOP	2/27/2018 12:25	TA7102	8.45	1360	1.79	780	<4.0	163	162	322	6.6	377	7.9	<1.0	123	0.400	1.9	214
RSEM-R6W-EOP	2/28/2018 15:30	TA7105	8.55	1380	1.78	790	<4.0	162	165	323	11.0	367	13.2	<1.0	120	0.400	2.0	219
RSEM-R6W-EOP	3/7/2018 13:00	TB7064	8.51	1370	3.15	820	<4.0	179	182	334	8.6	386	10.3	<1.0	111	0.410	1.8	236
RSEM-R6W-EOP	3/7/2018 13:00	TB7065	8.50	1370	2.99	814	<4.0	177	183	335	9.7	385	11.7	<1.0	109	0.420	1.8	232
RSEM-R6W-EOP	3/8/2018 13:45	TB8242	8.58	1380	3.46	802	<11	180	173	337	12.2	381	14.7	<1.0	111	0.400	1.8	221
RSEM-R6W-EOP	3/9/2018 13:35	TB8238	8.61	1390	4.11	818	4.0	172	177	340	13.0	383	15.6	<1.0	119	0.460	1.8	223
RSEM-R6W-EOP	3/10/2018 13:05	TC1326	8.61	1380	4.30	810	5.0	169	174	342	13.2	385	15.9	<1.0	122	0.440	1.8	203
RSEM-R6W-EOP	3/11/2018 11:15	TC1322	8.61	1390	4.03	822	5.3	172	170	347	13.5	391	16.2	<1.0	117	0.440	1.8	199
RSEM-R6W-EOP	3/11/2018 11:15	TC1323	8.63	1390	3.96	809	5.0	167	175	345	13.8	388	16.5	<1.0	122	0.420	1.8	196
RSEM-R6W-EOP	3/12/2018 13:10	TC2474	8.59	1380	3.24	800	4.3	158	170	345	12.8	390	15.3	<1.0	112	0.450	1.9	198
RSEM-R6W-EOP	3/13/2018 12:06	TC2460	8.51	1120	0.94	630	<4.0	121	125	263	6.1	306	7.3	<1.0	92.6	0.360	1.6	162
RSEM-R6W-EOP	3/14/2018 9:55	TC7631	8.56	1410	13.4	812	8.8	203	206	339	12.1	384	14.5	<1.0	101	0.400	1.6	221
RSEM-R6W-EOP	3/15/2018 14:42	TC8868	8.01	320	116	154	48.3	60.4	58.9	79.5	<1.0	97.0	<1.0	<1.0	20.7	0.098	0.34	43.2
RSEM-R6W-EOP	3/16/2018 11:50	TD1264	8.44	1350	10.2	776	5.8	199	196	311	6.6	363	7.9	<1.0	97.5	0.400	1.4	228
RSEM-R6W-EOP	3/20/2018 9:42	TD4116	8.42	1150	30.5	674	19.5	181	188	238	4.4	280	5.3	<1.0	94.0	0.380	1.4	196
RSEM-R6W-EOP	3/21/2018 6:45	TD7838	8.52	1150	17.6	612	13.0	191	190	243	5.8	282	7.0	<1.0	81.7	0.380	1.3	187
RSEM-R6W-EOP	4/17/2018 0:05	TH3043	8.35	1020	20.9	582	7.3	138	139	218	2.6	260	3.1	<1.0	77.1	0.350	1.2	186
RSEM-R6W-EOP	4/18/2018 12:25	TH5883	8.37	988	10.7	554	9.0	137	140	198	1.9	237	2.3	<1.0	70.2	0.330	1.1	195
RSEM-R6W-EOP	4/18/2018 12:25	TH5885	8.43	994	9.33	574	10.0	137	142	202	4.0	236	4.8	<1.0	75.4	0.340	1.1	192
RSEM-R6W-EOP	4/19/2018 15:50	TH5945	8.32	986	8.99	524	9.8	147	148	165	1.8	197	2.1	<1.0	63.8	0.320	0.91	222
RSEM-R6W-EOP	4/20/2018 11:40	TH5943	8.34	1180	38.5	640	25.5	162	175	164	1.8	195	2.2	<1.0	69.4	0.350	0.98	307
RSEM-R6W-EOP	4/21/2018 16:20	TH8458	8.26	1130	36.9	630	29.0	155	154	141	<1.0	172	<1.0	<1.0	56.4	0.340	0.95	277
RSEM-R6W-EOP	4/22/2018 13:00	TH8482	8.29	1220	55.0	720	32.8	155	150	142	<1.0	173	<1.0	<1.0	57.7	0.350	0.97	328
RSEM-R6W-EOP	4/23/2018 11:50	TH9253	8.08	1030	24.0	612	11.5	133	128	117	<1.0	143	<1.0	<1.0	49.6	0.290	0.81	253
RSEM-R6W-EOP	6/7/2018 8:10	TP6774	8.33	1230	11.7	722	9.0	299	312	192	1.8	230	2.1	<1.0	106	0.460	1.8	223
RSEM-R6W-EOP	6/8/2018 19:40	TP8929	8.15	1200	6.23	720	<4.0	312	302	200	<1.0	244	<1.0	<1.0	105	0.490	1.9	243
RSEM-R6W-EOP	6/9/2018 18:40	TP8996	8.26	1210	7.95	714	7.5	298	309	203	<1.0	247	<1.0	<1.0	106	0.460	1.9	247
RSEM-R6W-EOP	6/9/2018 18:40	TP8995	8.24	1200	6.95	712	6.3	297	299	201	<1.0	245	<1.0	<1.0	105	0.470	1.9	252
RSEM-R6W-EOP	6/10/2018 10:10	TP9976	8.26	1110	6.74	706	9.0	285	286	195	<1.0	238	<1.0	<1.0	109	0.420	1.8	217
RSEM-R6W-EOP	6/11/2018 15:15	TQ0647	8.38	1090	10.2	636	9.3	278	284	193	2.3	230	2.8	<1.0	95.9	0.410	1.7	242

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	12/14/2018 9:50	UY7661	0.24	0.0619	1.01	1.07	<0.0050	3.5	3.2	0.0518	0.00075	0.00101	0.139	<0.0001	<0.001	0.153	0.000054	114	0.0012	0.00242	0.00211
RSEM-R6E-SP	12/14/2018 9:50	UY7658	0.18	0.0672	1.00	1.07	<0.0050	3.5	3.3	0.0481	0.00076	0.001	0.139	<0.0001	<0.001	0.153	0.000063	116	0.0012	0.00246	0.00165
RSEM-R6E-SP	12/15/2018 15:15	UZ0619	0.25	0.0669	0.969	1.04	<0.0050	2.5	3.5	0.0483	0.00077	0.00103	0.141	<0.0001	<0.001	0.159	0.000057	122	0.0012	0.00251	0.00143
RSEM-R6E-SP	12/16/2018 8:50	UZ0623	0.19	0.0659	1.00	1.07	<0.0050	2.6	2.7	0.0421	0.00078	0.00099	0.142	<0.0001	<0.001	0.161	0.00006	123	0.0012	0.00244	0.00147
RSEM-R6E-SP	12/17/2018 14:10	UZ1470	0.22	0.0622	1.02	1.08	<0.0050	2.7	2.5	0.0443	0.00079	0.00105	0.138	<0.0001	<0.001	0.164	0.00006	126	0.0012	0.00252	0.00251
RSEM-R6E-SP	12/18/2018 11:50	UZ3637	0.21	0.0565	0.974	1.03	<0.0050	1.9	2.8	0.042	0.00078	0.00096	0.136	<0.0001	<0.001	0.176	0.000136	129	0.0014	0.00249	0.00178
RSEM-R6E-SP	12/18/2018 11:50	UZ3634	0.19	0.0631	0.960	1.02	<0.0050	2.6	3.0	0.0417	0.00075	0.00095	0.135	<0.0001	<0.001	0.173	0.000052	128	0.0012	0.00256	0.00164
RSEM-R6E-SP	12/19/2018 6:50	UZ3480	0.22	0.0629	0.923	0.986	<0.0050	2.8	3.0	0.0424	0.00076	0.00099	0.13	<0.0001	<0.001	0.145	0.000053	115	0.0012	0.0025	0.00157
RSEM-R6E-SP	12/20/2018 14:17	UZ8197	0.23	0.0526	0.998	1.05	<0.0050	2.5	2.5	0.0366	0.00077	0.00101	0.128	<0.0001	<0.001	0.175	0.000052	119	0.0014	0.00255	0.00178
RSEM-R6E-SP	12/21/2018 10:01	UZ8193	0.17	0.0589	1.02	1.08	<0.0050	2.6	2.3	0.0369	0.00075	0.00097	0.125	<0.0001	<0.001	0.168	0.000054	120	0.0017	0.00246	0.0017
RSEM-R6E-SP	12/22/2018 8:07	UZ8831	0.22	0.0602	0.977	1.04	<0.0050	1.9	2.1	0.044	0.0008	0.00094	0.128	<0.0001	<0.001	0.163	0.000057	113	0.0014	0.00243	0.00197
RSEM-R6E-SP	12/23/2018 10:45	UZ8804	0.19	0.0575	1.02	1.08	<0.0050	2.4	2.0	0.0409	0.00073	0.00099	0.132	<0.0001	<0.001	0.17	0.000054	122	0.0016	0.00255	0.00326
RSEM-R6E-SP	12/24/2018 12:30	UZ9929	0.19	0.0358	1.40	1.43	<0.0050	2.4	2.9	0.0205	0.00063	0.00073	0.121	<0.0001	<0.001	0.175	0.000041	130	0.0045	0.00166	0.00139
RSEM-R6E-SP	12/25/2018 11:05	UZ9975	0.15	0.0297	1.46	1.49	<0.0050	2.5	2.6	0.0238	0.0006	0.00072	0.126	<0.0001	<0.001	0.159	0.000038	130	0.0043	0.00148	0.00163
RSEM-R6E-SP	12/26/2018 10:00	UZ9922	0.11	0.0264	1.47	1.50	<0.0050	1.8	1.9	0.0184	0.00053	0.00054	0.113	<0.0001	<0.001	0.163	0.000029	124	0.0036	0.00109	0.00125
RSEM-R6E-SP	12/27/2018 12:50	VA2808	0.13	0.0193	1.40	1.42	<0.0050	2.3	2.4	0.014	<0.0005	0.00049	0.112	<0.0001	<0.001	0.13	0.000033	110	0.002	0.00095	0.00092
RSEM-R6E-SP	12/28/2018 14:55	VA3066	0.11	0.0184	1.47	1.49	<0.0050	2.1	1.8	0.0142	<0.0005	0.00051	0.11	<0.0001	<0.001	0.132	0.000028	105	0.0014	0.001	0.00104
RSEM-R6E-SP	12/29/2018 11:30	VA3061	0.11	0.0259	1.43	1.46	<0.0050	-	1.9	0.0202	<0.0005	0.00052	0.11	<0.0001	<0.001	0.147	0.000032	108	0.0013	0.00097	0.00134
RSEM-R6E-SP	12/30/2018 10:35	VA3020	0.12	0.0184	1.47	1.49	<0.0050	2.0	2.2	0.0207	<0.0005	0.0005	0.107	<0.0001	<0.001	0.14	0.000027	107	0.0012	0.00078	0.00101
RSEM-R6E-SP	12/31/2018 12:20	VA5852	0.13	0.0213	1.43	1.45	0.0053	1.9	1.5	0.0141	<0.0005	0.00046	0.102	<0.0001	<0.001	0.13	0.000027	108	<0.001	0.00067	0.00079
RSEM-R6W-EOP	2/14/2018 13:25	SY9400	0.34	0.178	0.576	0.754	0.0071	4.21	4.20	0.167	0.00155	0.00336	0.0915	<0.0001	<0.001	0.218	<0.00001	60.5	0.0018	0.00043	0.0015
RSEM-R6W-EOP	2/15/2018 12:55	SZ0953	0.52	0.217	0.669	0.886	<0.0050	3.09	2.17	0.189	0.00185	0.00417	0.1	<0.0001	<0.001	0.259	<0.00001	66.9	0.002	0.00046	0.0015
RSEM-R6W-EOP	2/15/2018 12:55	SZ0954	0.51	0.204	0.640	0.843	<0.0050	3.22	2.42	0.194	0.00188	0.00412	0.103	<0.0001	<0.001	0.255	<0.00001	65.7	0.002	0.00048	0.00151
RSEM-R6W-EOP	2/16/2018 13:05	SZ0957	0.63	0.258	0.763	1.02	0.0054	3.94	2.54	0.264	0.00226	0.00495	0.118	<0.0001	<0.001	0.308	<0.00001	77.4	0.0024	0.00055	0.00174
RSEM-R6W-EOP	2/17/2018 10:30	SZ2075	0.48	0.146	0.421	0.568	0.0083	2.45	2.31	0.216	0.00176	0.00349	0.0714	<0.0001	<0.001	0.23	0.00001	39.5	0.0015	0.00029	0.00116
RSEM-R6W-EOP	2/18/2018 11:00	SZ2074	0.58	0.147	0.417	0.563	<0.0050	2.33	2.60	0.264	0.00194	0.00383	0.0714	<0.0001	<0.001	0.256	<0.00001	35.3	0.0016	0.0003	0.00077
RSEM-R6W-EOP	2/19/2018 13:45	SZ3785	0.51	0.147	0.406	0.553	<0.0050	2.02	2.19	0.227	0.00188	0.00354	0.0692	<0.0001	<0.001	0.288	<0.00001	40.3	0.0015	0.00031	0.00082
RSEM-R6W-EOP	2/20/2018 13:05	SZ5787	0.50	0.147	0.416	0.564	<0.0050	3.31	2.00	0.223	0.00192	0.00359	0.0756	<0.0001	<0.001	0.24	<0.00001	41.8	0.0014	0.00037	0.00108
RSEM-R6W-EOP	2/21/2018 11:35	SZ7678	0.50	0.146	0.413	0.560	<0.0050	2.48	1.84	0.214	0.00184	0.00366	0.0757	<0.0001	<0.001	0.251	<0.00001	43.0	0.0014	0.00042	0.00114
RSEM-R6W-EOP	2/21/2018 11:35	SZ7679	0.49	0.150	0.411	0.561	<0.0050	2.43	1.70	0.219	0.00184	0.00344	0.0747	<0.0001	<0.001	0.247	<0.00001	41.8	0.0013	0.00042	0.00116
RSEM-R6W-EOP	2/23/2018 11:36	SZ9585	0.49	0.144	0.400	0.545	<0.0050	1.80	1.39	0.224	0.0019	0.00366	0.0737	<0.0001	<0.001	0.253	<0.00001	40.5	0.0015	0.00045	0.00103
RSEM-R6W-EOP	2/25/2018 11:00	TA2076	0.48	0.132	0.437	0.569	<0.0050	3.42	2.74	0.231	0.00196	0.00369	0.0749	<0.0001	<0.001	0.279	<0.00001	43.3	0.0014	0.00048	0.00098
RSEM-R6W-EOP	2/26/2018 14:40	TA3632	1.3	0.120	0.357	0.476	<0.0050	2.16	2.12	0.274	0.00194	0.00378	0.0793	<0.0001	<0.001	0.262	<0.00001	44.6	0.0015	0.00058	0.00141
RSEM-R6W-EOP	2/27/2018 12:15	TA7101	0.44	0.130	0.386	0.516	<0.0050	2.70	2.39	0.224	0.00179	0.00343	0.067	<0.0001	<0.001	0.253	<0.00001	39.3	0.0015	0.00047	0.00108
RSEM-R6W-EOP	2/27/2018 12:25	TA7102	0.42	0.128	0.387	0.515	<0.0050	2.59	2.26	0.231	0.00196	0.00359	0.0746	<0.0001	<0.001	0.262	<0.00001	40.5	0.0014	0.00052	0.00257
RSEM-R6W-EOP	2/28/2018 15:30	TA7105	0.43	0.125	0.387	0.512	<0.0050	2.44	2.34	0.244	0.00185	0.00344	0.0702	<0.0001	<0.001	0.259	<0.00001	40.6	0.0018	0.00053	0.00191
RSEM-R6W-EOP	3/7/2018 13:00	TB7064	0.26	0.105	0.343	0.448	<0.0050	2.04	1.93	0.228	0.00176	0.00351	0.0768	<0.0001	<0.001	0.249	<0.00001	46.7	0.0012	0.00075	0.00137
RSEM-R6W-EOP	3/7/2018 13:00	TB7065	0.32	0.106	0.355	0.461	<0.0050	2.20	1.81	0.225	0.00176	0.00347	0.0763	<0.0001	<0.001	0.246	<0.00001	46.7	0.0011	0.00073	0.00133
RSEM-R6W-EOP	3/8/2018 13:45	TB8242	0.30	0.0954	0.318	0.414	<0.0050	2.84	2.05	0.246	0.00174	0.00342	0.0793	<0.0001	<0.001	0.249	0.000011	47.8	0.001	0.00081	0.0024
RSEM-R6W-EOP	3/9/2018 13:35	TB8238	0.43	0.0884	0.290	0.379	0.0053	2.95	1.86	0.264	0.00169	0.00343	0.0753	<0.0001	<0.001	0.252	0.000011	45.9	0.0011	0.00073	0.00149
RSEM-R6W-EOP	3/10/2018 13:05	TC1326	0.43	0.0825	0.293	0.376	<0.0050	2.43	1.95	0.304	0.00163	0.00329	0.0748	<0.0001	<0.001	0.259	<0.00001	44.6	<0.001	0.00079	0.00141
RSEM-R6W-EOP	3/11/2018 11:15	TC1322	0.43	0.0793	0.296	0.375	0.0093	2.69	2.68	0.303	0.00166	0.0033	0.0759	<0.0001	<0.001	0.256	0.000011	45.7	0.001	0.00084	0.00147
RSEM-R6W-EOP	3/11/2018 11:15	TC1323	0.42	0.0788	0.293	0.372	<0.0050	2.70	2.55	0.28	0.00164	0.00323	0.0744	<0.0001	<0.001	0.252	0.00001	43.8	<0.001	0.0008	0.00151
RSEM-R6W-EOP	3/12/2018 13:10	TC2474	0.42	0.0755	0.295	0.370	0.0063	2.26	2.21	0.244	0.00153	0.00326	0.0716	<0.0001	<0.001	0.246	0.000011	41.4	<0.001	0.00076	0.00141
RSEM-R6W-EOP	3/13/2018 12:06	TC2460	0.32	0.0755	0.294	0.369	<0.0050	1.78	1.19	0.14	0.00127	0.00245	0.0492	<0.0001	<0.001	0.19	0.000011	31.1	<0.001	0.00058	0.00099
RSEM-R6W-EOP	3/14/2018 9:55	TC7631	0.27	0.0775	0.384	0.461	0.0141	2.83	2.55	0.24	0.00157	0.00301	0.0932	<0.0001	<0.001	0.238	0.000029	56.6	0.0011	0.00115	0.00165
RSEM-R6W-EOP	3/15/2018 14:42	TC8868	0.14	0.0404	0.366	0.406	<0.0050	1.72	1.20	2.28	<0.0005	0.00216	0.0896	0.00011	<0.001	<0.05	0.000094	16.7	0.0036	0.00157	0.0054
RSEM-R6W-EOP	3/16/2018 11:50	TD1264	0.32	0.0792	0.429	0.509	0.0118	2.85	2.27	0.281	0.00157	0.00265	0.0882	<0.0001	<0.001	0.28	0.00002	52.5	0.0012	0.00097	0.00339
RSEM-R6W-EOP	3/20/2018 9:42	TD4116	0.39	0.0733	0.521	0.594	0.0066	3.30	2.47	1.15	0.00144	0.00265	0.115	<0.0001	<0.001	0.19	0.000041	49.5	0.0029	0.00223	0.00222
RSEM-R6W-EOP	3/21/2018 6:45	TD7838	0.35	0.0768	0.520	0.597	<0.0050	2.68	1.41	0.301	0.00145	0.00233	0.112	<0.0001	<0.001	0.234	0.000046	50.9	0.0021	0.00267	0.00327
RSEM-R6W-EOP	4/17/2018 0:05	TH3043	0.34	0.108	0.696	0.804	<0.0050	1.35	1.45	0.711	0.00185	0.00266	0.129	<0.0001	<0.001	0.203	0.000025	38.6	0.0035	0.00119	0.0049
RSEM-R6W-EOP	4/18/2018 12:25	TH5883	0.29	0.0958	0.974	1.07	<0.0050	1.32	1.39	0.225	0.00173	0.00232	0.118	<0.0001	<0.001	0.185	0.000018	39.4	0.0034	0.00132	0.00791
RSEM-R6W-EOP	4/18/2018 12:25	TH5885	0.28	0.0978	0.984	1.08	<0.0050	1.60	1.33	0.26	0.00173	0.00224	0.117	<0.0001	<0.001	0.184	0.000018	38.8	0.0034	0.0013	0.00773
RSEM-R6W-EOP	4/19/2018 15:50	TH5945	0.28	0.0872	1.18	1.27	0.0246	1.33	1.32	0.177	0.00141	0.00183	0.105	<0.0001	<0.001	0.156	0.000029	41.7	0.0033	0.00285	0.00627
RSEM-R6W-EOP	4/20/2018 11:40	TH5943	0.37	0.128	1.48	1.61	<0.0050	1.51	1.31	0.477	0.00163	0.00237	0.128	<0.0001	<0.001	0.154	0.000046	46.8	0.0048	0.00316	0.00295
RSEM-R6W-EOP	4/21/2018 16:20	TH8458	0.37	0.152	1.44	1.59	<0.0050	1.80	0.97	1.09	0.00161	0.00241	0.122	<0.0001	<0.001	0.157	0.000037	44.9	0.0055	0.00243	0.00229
RSEM-R6W-EOP	4/22/2018 13:00	TH8482	0.40	0.172	1.80	1.98	0.0059	1.85	1.32	1.79	0.00166	0.00256	0.156	<0.0001	<0.001	0.153	0.000045	45.2	0.0062	0.00229	0.00305
RSEM-R6W-EOP	4/23/2018 11:50	TH9253	0.34	0.125	1.61	1.73	<0.0050	1.74	1.37	0.551	0.00125	0.00173	0.106	<0.0001	<0.001	0.134	0.000029	38.5	0.0039	0.00168	0.00257
RSEM-R6W-EOP	6/7/2018 8:10	TP6774	0.26	0.0824	1.18	1.26	0.0033	2.01	1.54	0.339	0.00134	0.0013	0.14	<0.0001	<0.001	0.26	0.000042	87.6	0.0033	0.00077	0.0026
RSEM-R6W-EOP	6/8/2018 19:40	TP8929	0.24	0.0888	1.27	1.35	<0.0030	3.05	2.74	0.481	0.00134	0.00137	0.136	<0.0001	<0.001	0.268	0.000038	90.0	0.004	0.00058	0.00281
RSEM-R6W-EOP	6/9/2018 18:40	TP8996	0.24	0.106	1.45	1.55	0.0032	3.12	2.05	0.332	0.00132	0.00137	0.134	<0.0001	<0.001	0.262	0.00003	86.9	0.004	0.00047	0.00233
RSEM-R6W-EOP	6/9/2018 18:40	TP8995	0.24	0.105	1.44	1.55	0.0031	2.95	2.25	0.35	0.00134	0.00135	0.132	<0.0001	<0.001	0.253	0.000031	85.4	0.0042	0.00047	0.00256
RSEM-R6W-EOP	6/10/2018 10:10	TP9976	0.24	0.102	1.34	1.44	0.0034	2.78	2.16	0.387	0.00128	0.00135	0.137	<0.0001	<0.001	0.212	0.000038	81.5	0.0039	0.00048	0.00222
RSEM-R6W-EOP	6/11/2018 15:15	TQ0647	0.19	0.0999	1.31	1.41	<0.0030	2.04	2.07	0.474	0.00117	0.00131	0.13	<0.0001	<0.001	0.2	0.000031	79.8	0.0046	0.00053	0.00241

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	12/14/2018 9:50	UY7661	0.045	<0.0002	0.0368	43.0	0.196	<0.000002	0.0119	0.0104	-	4.90	0.00261	4.8	<0.00002	129	0.645	113	0.000012	<0.005	<0.005	0.00361
RSEM-R6E-SP	12/14/2018 9:50	UY7658	0.04	<0.0002	0.0385	43.7	0.199	<0.000002	0.012	0.0107	-	4.97	0.00265	4.88	<0.00002	132	0.641	114	0.000013	<0.005	<0.005	0.00366
RSEM-R6E-SP	12/15/2018 15:15	UZ0619	0.029	<0.0002	0.0393	46.2	0.205	<0.000002	0.0125	0.0108	-	5.10	0.00271	5	<0.00002	140	0.655	119	0.000014	<0.005	<0.005	0.00369
RSEM-R6E-SP	12/16/2018 8:50	UZ0623	0.019	<0.0002	0.0401	46.0	0.205	<0.000002	0.0124	0.0106	-	5.07	0.00267	5.08	<0.00002	139	0.661	117	0.000015	<0.005	<0.005	0.00369
RSEM-R6E-SP	12/17/2018 14:10	UZ1470	0.018	<0.0002	0.0406	47.7	0.204	<0.000002	0.0127	0.0109	-	5.28	0.00276	5.19	<0.00002	140	0.669	121	0.000014	<0.005	<0.005	0.00375
RSEM-R6E-SP	12/18/2018 11:50	UZ3637	0.018	<0.0002	0.0402	46.2	0.205	<0.000002	0.0122	0.0107	-	5.43	0.00283	5.33	<0.00002	138	0.627	117	0.000017	<0.005	<0.005	0.00361
RSEM-R6E-SP	12/18/2018 11:50	UZ3634	0.02	<0.0002	0.038	48.2	0.209	<0.000002	0.0119	0.0108	-	5.31	0.00285	5.06	<0.00002	143	0.611	123	0.000013	<0.005	<0.005	0.00352
RSEM-R6E-SP	12/19/2018 6:50	UZ3480	0.02	<0.0002	0.0361	44.7	0.209	<0.000002	0.0122	0.0105	-	4.99	0.00266	4.32	<0.00002	136	0.65	115	<0.00001	<0.005	<0.005	0.00366
RSEM-R6E-SP	12/20/2018 14:17	UZ8197	0.017	<0.0002	0.0398	45.9	0.21	<0.000002	0.0122	0.0107	-	5.15	0.00278	4.88	<0.00002	143	0.605	126	0.000015	<0.005	<0.005	0.00366
RSEM-R6E-SP	12/21/2018 10:01	UZ8193	0.024	<0.0002	0.0397	45.3	0.206	<0.000002	0.0119	0.0106	-	5.02	0.0028	4.96	<0.00002	135	0.588	119	0.000016	<0.005	<0.005	0.00351
RSEM-R6E-SP	12/22/2018 8:07	UZ8831	0.029	<0.0002	0.0388	44.1	0.213	<0.000002	0.0119	0.0103	-	4.90	0.00263	4.68	<0.00002	129	0.615	114	0.000012	<0.005	<0.005	0.00366
RSEM-R6E-SP	12/23/2018 10:45	UZ8804	0.032	<0.0002	0.0389	46.9	0.216	<0.000002	0.0114	0.0107	-	5.40	0.00254	5.09	<0.00002	140	0.602	122	0.000015	<0.005	<0.005	0.00358
RSEM-R6E-SP	12/24/2018 12:30	UZ9929	0.014	<0.0002	0.0418	42.1	0.164	<0.000002	0.012	0.0092	-	5.97	0.00225	5.6	<0.00002	119	0.69	89.9	0.000022	<0.005	<0.005	0.00285
RSEM-R6E-SP	12/25/2018 11:05	UZ9975	0.028	<0.0002	0.039	39.4	0.148	<0.000002	0.0108	0.0087	-	5.75	0.00216	5.6	<0.00002	110	0.708	76.2	0.000023	<0.005	<0.005	0.00262
RSEM-R6E-SP	12/26/2018 10:00	UZ9922	0.068	<0.0002	0.0375	37.5	0.121	<0.000002	0.0095	0.0076	-	5.87	0.00197	5.47	<0.00002	102	0.67	68.4	0.00002	<0.005	<0.005	0.00221
RSEM-R6E-SP	12/27/2018 12:50	VA2808	0.012	<0.0002	0.0351	32.7	0.102	<0.000002	0.0082	0.0066	-	5.02	0.00163	4.92	<0.00002	87.6	0.639	54.4	0.000017	<0.005	<0.005	0.00213
RSEM-R6E-SP	12/28/2018 14:55	VA3066	0.016	<0.0002	0.0339	33.4	0.101	<0.000002	0.0078	0.007	-	4.86	0.00185	4.94	<0.00002	90.8	0.623	56.6	0.000018	<0.005	<0.005	0.00233
RSEM-R6E-SP	12/29/2018 11:30	VA3061	0.021	<0.0002	0.0361	32.8	0.0966	<0.000002	0.0075	0.0067	-	4.85	0.00171	5.22	<0.00002	88.8	0.635	56.3	0.000017	<0.005	<0.005	0.00221
RSEM-R6E-SP	12/30/2018 10:35	VA3020	0.02	<0.0002	0.0344	31.1	0.0879	<0.000002	0.007	0.0062	-	4.83	0.0016	5.07	<0.00002	86.6	0.627	50.3	0.000017	<0.005	<0.005	0.00208
RSEM-R6E-SP	12/31/2018 12:20	VA5852	0.017	<0.0002	0.0341	29.3	0.0777	<0.000002	0.0065	0.0056	-	4.74	0.0015	4.92	<0.00002	80.0	0.58	46.7	0.000017	<0.005	<0.005	0.00187
RSEM-R6W-EOP	2/14/2018 13:25	SY9400	0.037	<0.0002	0.0427	22.1	0.0044	-	0.0216	0.0022	-	3.65	0.0044	4.95	<0.00002	216	0.28	83.4	<0.00001	<0.005	<0.005	0.0033
RSEM-R6W-EOP	2/15/2018 12:55	SZ0953	0.026	<0.0002	0.0503	25.6	0.0039	-	0.0262	0.0026	-	4.47	0.00519	5.58	<0.00002	265	0.324	101	<0.00001	<0.005	<0.005	0.00375
RSEM-R6W-EOP	2/15/2018 12:55	SZ0954	0.033	<0.0002	0.0509	25.3	0.0041	-	0.0263	0.0025	-	4.45	0.005	5.59	<0.00002	260	0.319	97.0	<0.00001	<0.005	<0.005	0.00377
RSEM-R6W-EOP	2/16/2018 13:05	SZ0957	0.052	<0.0002	0.0604	28.7	0.0048	-	0.0321	0.0031	-	5.41	0.00631	6.81	<0.00002	316	0.368	117	0.000012	<0.005	<0.005	0.0044
RSEM-R6W-EOP	2/17/2018 10:30	SZ2075	0.045	<0.0002	0.0451	15.0	0.0032	-	0.0206	0.0048	-	3.27	0.00377	3.89	<0.00002	211	0.215	68.0	<0.00001	<0.005	<0.005	0.00277
RSEM-R6W-EOP	2/18/2018 11:00	SZ2074	0.055	<0.0002	0.0509	15.5	0.0028	-	0.0233	0.0017	-	3.68	0.00393	3.79	<0.00002	237	0.21	73.9	<0.00001	<0.005	<0.005	0.00301
RSEM-R6W-EOP	2/19/2018 13:45	SZ3785	0.031	<0.0002	0.0469	15.8	0.0039	-	0.0224	0.0019	-	3.63	0.00394	4.31	<0.00002	229	0.207	73.9	<0.00001	<0.005	<0.005	0.00299
RSEM-R6W-EOP	2/20/2018 13:05	SZ5787	0.028	<0.0002	0.0483	15.6	0.0048	-	0.0221	0.0019	-	3.81	0.00369	4.47	<0.00002	228	0.221	75.5	<0.00001	<0.005	<0.005	0.00291
RSEM-R6W-EOP	2/21/2018 11:35	SZ7678	0.025	<0.0002	0.0525	15.4	0.0058	-	0.0217	0.0021	-	3.95	0.00356	4.59	<0.00002	222	0.228	79.0	<0.00001	<0.005	<0.005	0.00284
RSEM-R6W-EOP	2/21/2018 11:35	SZ7679	0.024	<0.0002	0.0509	14.7	0.0055	-	0.0211	0.0021	-	3.79	0.00342	4.47	<0.00002	212	0.224	72.9	<0.00001	<0.005	<0.005	0.00286
RSEM-R6W-EOP	2/23/2018 11:36	SZ9585	0.023	<0.0002	0.0483	15.9	0.0061	-	0.0229	0.0024	-	3.60	0.00382	4.39	<0.00002	237	0.238	74.2	<0.00001	<0.005	<0.005	0.00294
RSEM-R6W-EOP	2/25/2018 11:00	TA2076	0.029	<0.0002	0.0531	16.4	0.0073	-	0.0221	0.0025	-	3.89	0.00348	4.6	<0.00002	246	0.227	79.0	<0.00001	<0.005	<0.005	0.00301
RSEM-R6W-EOP	2/26/2018 14:40	TA3632	0.05	<0.0002	0.0534	16.3	0.0094	-	0.0216	0.0029	-	3.79	0.00355	4.56	<0.00002	229	0.231	80.5	0.00001	<0.005	<0.005	0.00287
RSEM-R6W-EOP	2/27/2018 12:15	TA7101	0.038	<0.0002	0.0501	14.6	0.0076	<0.000002	0.0196	0.0024	-	3.38	0.0035	3.89	<0.00002	220	0.21	68.6	<0.00001	<0.005	<0.005	0.00275
RSEM-R6W-EOP	2/27/2018 12:25	TA7102	0.053	<0.0002	0.0532	15.0	0.0082	<0.000002	0.0212	0.0027	-	3.56	0.0036	4.05	<0.00002	227	0.217	69.7	<0.00001	<0.005	<0.005	0.0029
RSEM-R6W-EOP	2/28/2018 15:30	TA7105	0.078	<0.0002	0.053	14.6	0.0082	<0.000002	0.0212	0.0025	-	3.39	0.00335	4.16	<0.00002	222	0.214	70.4	<0.00001	<0.005	<0.005	0.00288
RSEM-R6W-EOP	3/7/2018 13:00	TB7064	0.102	<0.0002	0.0567	15.2	0.0142	-	0.0202	0.0036	-	3.31	0.00328	4.22	<0.00002	218	0.24	68.0	<0.00001	<0.005	<0.005	0.00292
RSEM-R6W-EOP	3/7/2018 13:00	TB7065	0.068	<0.0002	0.0589	14.7	0.0138	-	0.0208	0.0034	-	3.24	0.00321	4.19	<0.00002	217	0.237	67.7	<0.00001	<0.005	<0.005	0.00287
RSEM-R6W-EOP	3/8/2018 13:45	TB8242	0.078	<0.0002	0.0577	14.6	0.0156	-	0.0197	0.0065	-	3.17	0.00314	4.29	<0.00002	206	0.24	70.3	0.00001	<0.005	<0.005	0.00274
RSEM-R6W-EOP	3/9/2018 13:35	TB8238	0.071	<0.0002	0.0581	14.0	0.0137	-	0.0202	0.004	-	3.13	0.00313	4.13	<0.00002	218	0.232	66.0	<0.00001	<0.005	<0.005	0.00275
RSEM-R6W-EOP	3/10/2018 13:05	TC1326	0.087	<0.0002	0.06	13.9	0.015	-	0.0188	0.0039	-	3.05	0.00289	3.97	<0.00002	217	0.228	65.8	<0.00001	<0.005	<0.005	0.00273
RSEM-R6W-EOP	3/11/2018 11:15	TC1322	0.077	<0.0002	0.0607	14.0	0.0155	-	0.019	0.004	-	3.17	0.0029	4.11	<0.00002	228	0.237	66.8	<0.00001	<0.005	<0.005	0.00276
RSEM-R6W-EOP	3/11/2018 11:15	TC1323	0.071	<0.0002	0.0633	13.9	0.0153	-	0.0188	0.0039	-	3.19	0.00288	3.96	<0.00002	221	0.233	66.5	0.00001	<0.005	<0.005	0.00268
RSEM-R6W-EOP	3/12/2018 13:10	TC2474	0.063	<0.0002	0.0576	13.3	0.0145	-	0.0184	0.0037	-	3.10	0.00266	3.92	<0.00002	215	0.212	65.8	0.00001	<0.005	<0.005	0.00247
RSEM-R6W-EOP	3/13/2018 12:06	TC2460	0.028	<0.0002	0.0454	10.6	0.0098	-	0.0149	0.0028	-	2.86	0.00253	2.86	<0.00002	185	0.164	54.2	<0.00001	<0.005	<0.005	0.0018
RSEM-R6W-EOP	3/14/2018 9:55	TC7631	0.222	0.00026	0.0677	15.0	0.0369	-	0.0185	0.0059	-	3.48	0.00299	4.33	<0.00002	214	0.288	81.4	0.000013	<0.005	<0.005	0.00289
RSEM-R6W-EOP	3/15/2018 14:42	TC8868	2.85	0.00188	0.0129	4.57	0.0656	-	0.0043	0.005	-	1.66	0.00086	5.36	0.00003	40.6	0.0782	15.7	0.000063	<0.005	0.0538	0.00085
RSEM-R6W-EOP	3/16/2018 11:50	TD1264	0.212	<0.0002	0.0656	16.5	0.0381	-	0.0188	0.0055	-	3.26	0.00333	4.14	<0.00002	217	0.26	76.4	0.000012	<0.005	0.0055	0.00292
RSEM-R6W-EOP	3/20/2018 9:42	TD4116	0.788	0.00052	0.0539	13.9	0.0683	-	0.0162	0.0095	-	3.79	0.00358	5.54	<0.00002	159	0.284	67.9	0.000026	<0.005	0.0351	0.00271
RSEM-R6W-EOP	3/21/2018 6:45	TD7838	0.359	0.00046	0.0707	15.5	0.0751	-	0.0171	0.0118	-	3.50	0.00395	3.93	<0.00002	171	0.285	70.6	0.000016	<0.005	0.0059	0.00288
RSEM-R6W-EOP	4/17/2018 0:05	TH3043	0.374	0.00032	0.0441	10.2	0.0337	-	0.0148	0.0052	-	3.10	0.0072	4.23	<0.00002	154	0.208	61.5	0.000017	<0.005	0.0166	0.00256
RSEM-R6W-EOP	4/18/2018 12:25	TH5883	0.182	<0.0002	0.0396	9.43	0.0361	-	0.0146	0.0056	-	2.79	0.0075	3.08	<0.00002	143	0.216	64.9	0.000011	<0.005	0.0051	0.00237
RSEM-R6W-EOP	4/18/2018 12:25	TH5885	0.191	<0.0002	0.0395	9.84	0.0365	-	0.0143	0.0056	-	2.89	0.00791	3.18	<0.00002	150	0.214	62.9	0.000013	<0.005	0.0079	0.00229
RSEM-R6W-EOP	4/19/2018 15:50	TH5945	0.192	0.00022	0.0424	10.4	0.0627	-	0.0119	0.0107	-	2.76	0.00747	2.86	<0.00002	139	0.239	76.3	0.000014	<0.005	<0.005	0.0021
RSEM-R6W-EOP	4/20/2018 11:40	TH5943	0.684	0.00061	0.0479	10.9	0.0736	-	0.0131	0.0124	-	3.21	0.00974	3.44	<0.00002	151	0.277	96.5	0.000025	<0.005	0.0088	0.00225
RSEM-R6W-EOP	4/21/2018 16:20	TH8458	0.635	0.00058	0.0523	10.5	0.0595	-	0.0135	0.0107	-	3.56	0.0115	4.69	<0.00002	160	0.275	110	0.000026	<0.005	0.027	0.00222
RSEM-R6W-EOP	4/22/2018 13:00	TH8482	1.12	0.00099	0.0558	10.1	0.0572	-	0.0131	0.0098	-	3.77	0.0138	6.83	<0.00002	175	0.267	118	0.000041	<0.005	0.0607	0.00234
RSEM-R6W-EOP	4/23/2018 11:50	TH9253	0.427	0.00042	0.0472	8.99	0.0391	-	0.0108	0.0074	-	2.92	0.012	3.22	<0.00002	159	0.221	99.8	0.000018	<0.005	0.0114	0.00194
RSEM-R6W-EOP	6/7/2018 8:10	TP6774	0.288	0.00022	0.0447	19.5	0.0188	<0.000002	0.0178	0.008	-	6.08	0.00507	3.73	0.000157	130	0.725	84.5	0.000031	<0.005	0.005	0.00264
RSEM-R6W-EOP	6/8/2018 19:40	TP8929	0.326	0.00022	0.0542	21.1	0.0135	0.000002	0.0182	0.0088	-	5.85	0.00535	4.21	0.000126	128	0.7	85.4	0.000026	<0.005	0.0116	0.00264
RSEM-R6W-EOP	6/9/2018 18:40	TP8996	0.228	<0.0002	0.0506	19.7	0.0124	0.0000021	0.0187	0.0078	-	5.49	0.00547	4.18	0.00014	127	0.683	81.7	0.000026	<0.005	0.0061	0.00268
RSEM-R6W-EOP	6/9/2018 18:40	TP8995	0.255	<0.0002	0.048	20.4	0.0127	<0.000002	0.0182	0.0077	-	5.43	0.00545	4.08	0.000128	125	0.681	81.2	0.000027	<0.005	0.0095	0.00266
RSEM-R6W-EOP	6/10/2018 10:10	TP9976	0.273	0.00024	0.0418	19.7	0.0171	<0.000002	0.0182	0.0067	-	5.71	0.00493	4.09	<0.00002	109	0.656	86.7	0.000026	<0.005	0.0104	0.00248
RSEM-R6W-EOP	6/11/2018 15:15	TQ0647	0.341	0.00023	0.0381	19.1	0.0169	0.0000021	0.0171	0.0066	-	5.20	0.00515	4.13	0.000064	116	0.595	75.4	0.000026	<0.005	0.011	0.00231

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	12/14/2018 9:50	UY7661	<0.005	0.017	0.00012	0.0302	0.00076	0.001	0.139	<0.0001	<0.001	0.162	0.000055	116	0.0012	0.00241	0.00172	<0.01	<0.0002	0.0402	45.6	0.195
RSEM-R6E-SP	12/14/2018 9:50	UY7658	<0.005	0.0131	<0.0001	0.0302	0.00076	0.001	0.136	<0.0001	<0.001	0.166	0.000044	114	0.0011	0.00231	0.00172	<0.01	<0.0002	0.0394	46.3	0.179
RSEM-R6E-SP	12/15/2018 15:15	UZ0619	<0.005	0.0109	<0.0001	0.0335	0.00078	0.00103	0.135	<0.0001	<0.001	0.149	0.000053	111	0.0011	0.00253	0.00152	<0.01	<0.0002	0.037	45.0	0.204
RSEM-R6E-SP	12/16/2018 8:50	UZ0623	<0.005	0.0099	<0.0001	0.0308	0.00076	0.00101	0.139	<0.0001	<0.001	0.152	0.000051	115	0.0011	0.00253	0.00139	<0.01	<0.0002	0.0382	45.6	0.202
RSEM-R6E-SP	12/17/2018 14:10	UZ1470	<0.005	0.0116	<0.0001	0.0293	0.00076	0.00102	0.137	<0.0001	<0.001	0.149	0.000053	115	0.0012	0.00256	0.00199	<0.01	<0.0002	0.0379	46.2	0.204
RSEM-R6E-SP	12/18/2018 11:50	UZ3637	<0.005	0.0082	<0.0001	0.0279	0.00075	0.001	0.133	<0.0001	<0.001	0.151	0.000073	117	0.0012	0.00239	0.00164	<0.01	<0.0002	0.0377	43.6	0.196
RSEM-R6E-SP	12/18/2018 11:50	UZ3634	<0.005	0.0087	<0.0001	0.0266	0.00076	0.001	0.132	<0.0001	<0.001	0.151	0.000056	117	0.0011	0.00241	0.00143	<0.01	<0.0002	0.0367	43.9	0.198
RSEM-R6E-SP	12/19/2018 6:50	UZ3480	<0.005	0.0089	0.0001	0.0261	0.00075	0.00099	0.128	<0.0001	<0.001	0.143	0.000052	114	0.0012	0.00242	0.00145	<0.01	<0.0002	0.035	43.8	0.199
RSEM-R6E-SP	12/20/2018 14:17	UZ8197	<0.005	0.0073	<0.0001	0.0259	0.00073	0.00097	0.127	<0.0001	<0.001	0.175	0.000049	122	0.0014	0.00251	0.00164	<0.01	<0.0002	0.0404	49.5	0.209
RSEM-R6E-SP	12/21/2018 10:01	UZ8193	<0.005	0.0082	<0.0001	0.0253	0.00073	0.0009	0.123	<0.0001	<0.001	0.168	0.000047	123	0.0014	0.0024	0.00156	<0.01	<0.0002	0.0383	46.0	0.201
RSEM-R6E-SP	12/22/2018 8:07	UZ8831	<0.005	0.0241	<0.0001	0.0236	0.00071	0.00097	0.124	<0.0001	<0.001	0.16	0.00005	122	0.0016	0.00245	0.00157	<0.01	<0.0002	0.0381	46.6	0.197
RSEM-R6E-SP	12/23/2018 10:45	UZ8804	<0.005	0.0636	<0.0001	0.0213	0.00074	0.00091	0.119	<0.0001	<0.001	0.162	0.000048	118	0.0014	0.00242	0.00176	<0.01	<0.0002	0.0394	45.7	0.2
RSEM-R6E-SP	12/24/2018 12:30	UZ9929	<0.005	0.0183	<0.0001	0.0106	0.00067	0.00071	0.126	<0.0001	<0.001	0.176	0.000032	137	0.0047	0.00178	0.00131	<0.01	<0.0002	0.0422	44.0	0.164
RSEM-R6E-SP	12/25/2018 11:05	UZ9975	<0.005	0.0555	0.00011	0.0087	0.00063	0.00073	0.13	<0.0001	<0.001	0.17	0.000035	134	0.0045	0.00144	0.00166	<0.01	<0.0002	0.042	42.9	0.146
RSEM-R6E-SP	12/26/2018 10:00	UZ9922	<0.005	0.0125	0.00011	0.0062	0.00056	0.00059	0.119	<0.0001	<0.001	0.168	0.000028	140	0.0035	0.00111	0.00124	<0.01	<0.0002	0.0395	38.9	0.118
RSEM-R6E-SP	12/27/2018 12:50	VA2808	<0.005	0.0072	<0.0001	0.0045	<0.0005	0.0005	0.11	<0.0001	<0.001	0.153	0.000024	121	0.0021	0.00097	0.001	<0.01	<0.0002	0.0367	36.7	0.106
RSEM-R6E-SP	12/28/2018 14:55	VA3066	<0.005	0.0086	<0.0001	0.0119	<0.0005	0.00052	0.107	<0.0001	<0.001	0.141	0.000026	108	0.0014	0.00094	0.00085	<0.01	<0.0002	0.0342	34.0	0.0991
RSEM-R6E-SP	12/29/2018 11:30	VA3061	<0.005	0.011	<0.0001	0.007	<0.0005	0.0005	0.107	<0.0001	<0.001	0.135	0.000029	108	0.0012	0.00093	0.00086	<0.01	<0.0002	0.0332	33.9	0.0978
RSEM-R6E-SP	12/30/2018 10:35	VA3020	<0.005	0.0517	<0.0001	0.0061	<0.0005	0.00047	0.103	<0.0001	<0.001	0.132	0.000025	107	0.0011	0.00076	0.00106	<0.01	<0.0002	0.0341	32.4	0.0854
RSEM-R6E-SP	12/31/2018 12:20	VA5852	<0.005	0.0092	<0.0001	0.0082	<0.0005	0.00041	0.0929	<0.0001	<0.001	0.13	0.000022	104	<0.001	0.00067	0.00084	<0.01	<0.0002	0.0302	29.9	0.0742
RSEM-R6W-EOP	2/14/2018 13:25	SY9400	<0.005	<0.005	<0.0001	0.132	0.00163	0.00365	0.0942	<0.0001	<0.001	0.217	<0.00001	64.0	0.0016	0.00042	0.0014	<0.01	<0.0002	0.0432	24.1	0.0037
RSEM-R6W-EOP	2/15/2018 12:55	SZ0953	0.0057	<0.005	<0.0001	0.163	0.00191	0.00426	0.0991	<0.0001	<0.001	0.257	<0.00001	66.8	0.0018	0.00039	0.0013	<0.01	<0.0002	0.0518	27.0	0.0018
RSEM-R6W-EOP	2/15/2018 12:55	SZ0954	0.0056	<0.005	<0.0001	0.165	0.00199	0.00434	0.101	<0.0001	<0.001	0.267	<0.00001	67.1	0.0019	0.0004	0.00133	<0.01	<0.0002	0.0524	27.7	0.002
RSEM-R6W-EOP	2/16/2018 13:05	SZ0957	0.007	<0.005	<0.0001	0.234	<0.0025	0.00483	0.109	<0.0005	<0.005	0.296	<0.00005	68.6	<0.005	<0.001	0.0047	<0.01	<0.001	0.06	29.0	<0.005
RSEM-R6W-EOP	2/17/2018 10:30	SZ2075	<0.005	<0.005	<0.0001	0.207	0.00184	0.00361	0.0727	<0.0001	<0.001	0.28	<0.00001	45.3	0.0011	0.00025	0.00063	<0.01	<0.0002	0.0496	15.6	0.0025
RSEM-R6W-EOP	2/18/2018 11:00	SZ2074	0.0055	<0.005	<0.0001	0.23	0.00194	0.00395	0.0645	<0.0001	<0.001	0.293	<0.00001	38.7	0.0013	0.00021	0.0007	<0.01	<0.0002	0.0519	14.7	0.0015
RSEM-R6W-EOP	2/19/2018 13:45	SZ3785	0.0053	<0.005	<0.0001	0.199	0.00196	0.00388	0.0742	<0.0001	<0.001	0.242	<0.00001	41.7	0.0013	0.0003	0.00061	<0.01	<0.0002	0.05	16.4	0.003
RSEM-R6W-EOP	2/20/2018 13:05	SZ5787	0.0051	<0.005	<0.0001	0.195	<0.0025	0.00378	0.0703	<0.0005	<0.005	<0.25	<0.00005	43.9	<0.005	<0.001	<0.0025	<0.05	<0.001	0.045	16.9	<0.005
RSEM-R6W-EOP	2/21/2018 11:35	SZ7678	0.0055	<0.005	<0.0001	0.184	0.0019	0.00357	0.0676	<0.0002	<0.002	0.267	<0.00002	41.7	<0.002	0.00041	0.0011	<0.02	<0.0004	0.0489	16.6	0.0053
RSEM-R6W-EOP	2/21/2018 11:35	SZ7679	<0.005	<0.005	<0.0001	0.181	0.0019	0.00357	0.068	<0.0002	<0.002	0.281	<0.00002	38.7	<0.002	<0.0004	0.0011	<0.02	<0.0004	0.0488	16.6	0.0051
RSEM-R6W-EOP	2/23/2018 11:36	SZ9585	0.0051	<0.005	0.00012	0.195	0.00186	0.00369	0.0703	<0.0001	<0.001	0.267	<0.00001	38.6	0.0012	0.00042	0.00078	<0.01	<0.0002	0.0481	15.5	0.0055
RSEM-R6W-EOP	2/25/2018 11:00	TA2076	0.0056	<0.005	<0.0001	0.19	0.00196	0.00365	0.0737	<0.0001	<0.001	0.274	<0.00001	42.1	0.0012	0.00046	0.00077	<0.01	<0.0002	0.0536	15.8	0.0068
RSEM-R6W-EOP	2/26/2018 14:40	TA3632	0.0055	<0.005	<0.0001	0.187	0.00189	0.00373	0.0739	<0.0001	<0.001	0.251	<0.00001	46.3	0.0016	0.00057	0.00103	0.013	<0.0002	0.0517	16.2	0.0081
RSEM-R6W-EOP	2/27/2018 12:15	TA7101	<0.005	<0.005	<0.0001	0.184	0.00191	0.00369	0.0688	<0.0001	<0.001	0.248	<0.00001	40.3	0.0012	0.00049	0.00131	<0.01	<0.0002	0.0521	15.5	0.0074
RSEM-R6W-EOP	2/27/2018 12:25	TA7102	<0.005	<0.005	0.00014	0.183	0.00189	0.00364	0.0701	<0.0001	<0.001	0.254	<0.00001	39.8	0.0012	0.0005	0.00101	<0.01	<0.0002	0.0526	15.2	0.0077
RSEM-R6W-EOP	2/28/2018 15:30	TA7105	<0.005	<0.005	0.0001	0.185	0.00194	0.00361	0.071	<0.0001	<0.001	0.251	<0.00001	41.6	0.0012	0.00047	0.00101	<0.01	<0.0002	0.0527	14.8	0.0074
RSEM-R6W-EOP	3/7/2018 13:00	TB7064	<0.005	<0.005	0.00016	0.171	0.00181	0.00347	0.0767	<0.0001	<0.001	0.239	<0.00001	49.2	<0.001	0.00065	0.00104	<0.01	<0.0002	0.0583	14.4	0.0131
RSEM-R6W-EOP	3/7/2018 13:00	TB7065	<0.005	<0.005	<0.0001	0.175	0.00185	0.00346	0.0764	<0.0001	<0.001	0.253	<0.00001	48.2	<0.001	0.00066	0.00105	<0.01	<0.0002	0.0591	15.3	0.0135
RSEM-R6W-EOP	3/8/2018 13:45	TB8242	<0.005	<0.005	<0.0001	0.181	0.00177	0.00324	0.0741	<0.0001	<0.001	0.252	<0.00001	43.0	<0.001	0.00074	0.0012	<0.01	<0.0002	0.0586	16.0	0.0142
RSEM-R6W-EOP	3/9/2018 13:35	TB8238	<0.005	<0.005	<0.0001	0.19	0.00175	0.00329	0.0715	<0.0001	<0.001	0.255	<0.00001	46.2	<0.001	0.0007	0.00113	<0.01	<0.0002	0.0572	15.1	0.0121
RSEM-R6W-EOP	3/10/2018 13:05	TC1326	<0.005	<0.005	<0.0001	0.189	0.00167	0.00334	0.0723	<0.0001	<0.001	0.249	<0.00001	46.1	<0.001	0.00068	0.00105	<0.01	<0.0002	0.0601	14.3	0.0132
RSEM-R6W-EOP	3/11/2018 11:15	TC1322	<0.005	<0.005	0.00023	0.195	0.00168	0.00327	0.0719	<0.0001	<0.001	0.26	<0.00001	44.5	<0.001	0.00071	0.00101	<0.01	<0.0002	0.0642	14.2	0.0128
RSEM-R6W-EOP	3/11/2018 11:15	TC1323	<0.005	<0.005	0.00014	0.185	0.00168	0.0033	0.0708	<0.0001	<0.001	0.247	<0.00001	46.7	<0.001	0.00071	0.00118	<0.01	<0.0002	0.0583	14.1	0.0135
RSEM-R6W-EOP	3/12/2018 13:10	TC2474	<0.005	<0.005	0.00024	0.18	0.00166	0.00337	0.0693	<0.0001	<0.001	0.249	<0.00001	43.6	<0.001	0.00076	0.00115	<0.01	<0.0002	0.0585	14.8	0.0139
RSEM-R6W-EOP	3/13/2018 12:06	TC2460	<0.005	0.032	<0.0001	0.124	0.00128	0.00246	0.0489	<0.0001	<0.001	0.2	0.00001	32.3	<0.001	0.00059	0.00086	<0.01	<0.0002	0.046	10.8	0.0093
RSEM-R6W-EOP	3/14/2018 9:55	TC7631	<0.005	<0.005	0.00016	0.0832	0.00155	0.00298	0.0835	<0.0001	<0.001	0.237	0.000014	56.4	<0.001	0.00091	0.00114	<0.01	<0.0002	0.0666	15.7	0.0312
RSEM-R6W-EOP	3/15/2018 14:42	TC8868	0.0076	0.0166	0.0008	0.0183	<0.0005	0.00044	0.0476	<0.0001	<0.001	<0.05	0.000011	17.4	<0.001	<0.0002	0.00083	0.013	<0.0002	0.0109	3.76	0.008
RSEM-R6W-EOP	3/16/2018 11:50	TD1264	<0.005	<0.005	0.00017	0.0574	0.00159	0.00273	0.081	<0.0001	<0.001	0.238	<0.00001	52.5	<0.001	0.00075	0.00181	<0.01	<0.0002	0.0619	15.9	0.0303
RSEM-R6W-EOP	3/20/2018 9:42	TD4116	0.0053	0.0051	0.00085	0.0341	0.00144	0.00221	0.0924	<0.0001	<0.001	0.198	0.000023	51.5	0.0013	0.00174	0.00121	<0.01	<0.0002	0.0527	14.3	0.0535
RSEM-R6W-EOP	3/21/2018 6:45	TD7838	<0.005	0.0061	0.00018	0.0377	0.00149	0.00209	0.0977	<0.0001	<0.001	0.247	0.000026	50.6	0.0016	0.00225	0.00199	<0.01	<0.0002	0.0656	15.5	0.0601
RSEM-R6W-EOP	4/17/2018 0:05	TH3043	<0.005	<0.005	0.00046	0.017	0.00183	0.00253	0.112	<0.0001	<0.001	0.213	0.000014	39.0	0.0026	0.00081	0.00306	<0.01	<0.0002	0.0449	10.0	0.0192
RSEM-R6W-EOP	4/18/2018 12:25	TH5883	<0.005	0.005	0.00014	0.0198	0.00175	0.00214	0.106	<0.0001	<0.001	0.189	<0.00001	39.1	0.0029	0.00077	0.00509	<0.01	<0.0002	0.0401	10.1	0.0195
RSEM-R6W-EOP	4/18/2018 12:25	TH5885	<0.005	0.0052	0.00023	0.0191	0.00177	0.0022	0.109	<0.0001	<0.001	0.179	0.000012	40.2	0.0029	0.00077	0.00475	<0.01	<0.0002	0.0405	10.1	0.0206
RSEM-R6W-EOP	4/19/2018 15:50	TH5945	<0.005	0.0067	0.00021	0.0191	0.00147	0.00175	0.0992	<0.0001	<0.001	0.162	0.00002	42.4	0.0028	0.00206	0.00338	<0.01	<0.0002	0.043	10.3	0.0456
RSEM-R6W-EOP	4/20/2018 11:40	TH5943	<0.005	0.0073	0.00036	0.0388	0.00171	0.00208	0.102	<0.0001	<0.001	0.18	0.000014	50.6	0.0044	0.00198	0.0111	<0.01	<0.0002	0.0525	11.8	0.0539
RSEM-R6W-EOP	4/21/2018 16:20	TH8458	<0.005	0.0058	0.00083	0.0329	0.00162	0.00198	0.0888	<0.0001	<0.001	0.156	0.000018	44.3	0.0043	0.00152	0.00105	<0.01	<0.0002	0.0507	10.6	0.036
RSEM-R6W-EOP	4/22/2018 13:00	TH8482	0.0067	0.0085	0.00174	0.0359	0.0016	0.00189	0.089	<0.0001	<0.001	0.153	0.000018	43.5	0.0039	0.00116	0.00104	<0.01	<0.0002	0.0543	10.1	0.0297
RSEM-R6W-EOP	4/23/2018 11:50	TH9253	<0.005	0.005	0.00225	0.0245	0.00126	0.00146	0.0763	<0.0001	<0.001	0.13	0.000017	36.6	0.0031	0.00105	0.00229	<0.01	<0.0002	0.0443	8.92	0.0257
RSEM-R6W-EOP	6/7/2018 8:10	TP6774	<0.005	<0.005	0.00021	0.0204	0.00135	0.00119	0.121	<0.0001	<0.001	0.251	0.000024	90.4	0.0029	<0.0002	0.00216	<0.01	<0.0002	0.0514	20.9	<0.001
RSEM-R6W-EOP	6/8/2018 19:40	TP8929	<0.005	<0.005	0.00032	0.0203	0.00127	0.00117	0.117	<0.0001	<0.001	0.209	0.000022	84.8	0.0031	<0.0002	0.00193	<0.01	<0.0002	0.0436	21.9	<0.001
RSEM-R6W-EOP	6/9/2018 18:40	TP8996	<0.005	<0.005	0.00052	0.0228	0.00133	0.00122	0.123	<0.0001	<0.001	0.217	0.000021	87.0	0.0036	<0.0002	0.00194	<0.01	<0.0002	0.0443	22.2	<0.001
RSEM-R6W-EOP	6/9/2018 18:40	TP8995	<0.005	<0.005	0.00019	0.0199	0.00132	0.0012	0.119	<0.0001	<0.001	0.208	0.000019	84.0	0.0036	<0.0002	0.00173	<0.01	<0.0002	0.0432	21.6	<0.001
RSEM-R6W-EOP	6/10/2018 10:10	TP9976	<0.005	<0.005	0.00035	0.0245	0.00121	0.00117	0.119	<0.0001	<0.001	0.194	0.000014	81.0	0.0035	0.00024	0.00166	<0.01	<0.0002	0.0397	20.3	0.0029
RSEM-R6W-EOP	6/11/2018 15:15	TQ0647	<0.005	<0.005	0.00044	0.0193	0.00121	0.0011	0.125	<0.0001	<0.001	0.205	0.000022	82.5	0.0033	0.00022	0.00173	<0.01	<0.0002	0.0402	18.9	0.0031

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6E-SP	12/14/2018 9:50	UY7661	<0.000002	0.0121	0.0105	-	5.09	0.0028	4.88	<0.00002	131	0.64	114	0.000013	<0.005	<0.005	0.00382	<0.005	0.0141	<0.0001
RSEM-R6E-SP	12/14/2018 9:50	UY7658	<0.000002	0.0122	0.0105	-	5.09	0.00279	4.9	<0.00002	131	0.643	115	0.000013	<0.005	<0.005	0.00384	<0.005	0.0124	<0.0001
RSEM-R6E-SP	12/15/2018 15:15	UZ0619	<0.000002	0.0122	0.0108	-	4.99	0.00272	4.52	<0.00002	132	0.649	115	0.00001	<0.005	<0.005	0.00369	<0.005	0.0097	<0.0001
RSEM-R6E-SP	12/16/2018 8:50	UZ0623	<0.000002	0.0122	0.0109	-	5.10	0.00287	4.79	<0.00002	133	0.659	116	0.00001	<0.005	<0.005	0.00373	<0.005	0.0087	<0.0001
RSEM-R6E-SP	12/17/2018 14:10	UZ1470	<0.000002	0.0122	0.011	-	5.09	0.00281	4.74	<0.00002	134	0.653	114	<0.00001	<0.005	<0.005	0.00374	<0.005	0.0097	<0.0001
RSEM-R6E-SP	12/18/2018 11:50	UZ3637	<0.000002	0.0122	0.0101	-	5.10	0.00275	4.7	<0.00002	133	0.662	114	<0.00001	<0.005	<0.005	0.00367	<0.005	0.008	<0.0001
RSEM-R6E-SP	12/18/2018 11:50	UZ3634	<0.000002	0.0121	0.0104	-	5.01	0.00269	4.63	<0.00002	133	0.658	113	<0.00001	<0.005	<0.005	0.00365	<0.005	0.0078	<0.0001
RSEM-R6E-SP	12/19/2018 6:50	UZ3480	<0.000002	0.0121	0.0102	-	4.95	0.00271	4.38	<0.00002	135	0.649	116	<0.00001	<0.005	<0.005	0.00371	<0.005	0.0075	<0.0001
RSEM-R6E-SP	12/20/2018 14:17	UZ8197	<0.000002	0.0117	0.0111	-	5.44	0.00268	4.94	<0.00002	150	0.604	125	0.000016	<0.005	<0.005	0.0037	<0.005	0.0073	<0.0001
RSEM-R6E-SP	12/21/2018 10:01	UZ8193	<0.000002	0.0113	0.0108	-	5.15	0.00278	5.05	<0.00002	146	0.578	119	0.000015	<0.005	<0.005	0.00363	<0.005	0.007	<0.0001
RSEM-R6E-SP	12/22/2018 8:07	UZ8831	<0.000002	0.0112	0.0105	-	5.04	0.00268	5.11	<0.00002	142	0.583	116	0.000013	<0.005	<0.005	0.00333	<0.005	0.0223	<0.0001
RSEM-R6E-SP	12/23/2018 10:45	UZ8804	<0.000002	0.0111	0.0107	-	5.30	0.00255	5.1	<0.00002	139	0.585	118	0.000014	<0.005	<0.005	0.00346	<0.005	0.06	<0.0001
RSEM-R6E-SP	12/24/2018 12:30	UZ9929	<0.000002	0.0127	0.01	-	6.47	0.00257	5.83	<0.00002	125	0.722	94.8	0.000024	<0.005	<0.005	0.00323	<0.005	0.0175	<0.0001
RSEM-R6E-SP	12/25/2018 11:05	UZ9975	<0.000002	0.0118	0.0091	-	6.34	0.00225	5.89	<0.00002	118	0.736	81.4	0.000025	<0.005	<0.005	0.00303	<0.005	0.0454	0.0001
RSEM-R6E-SP	12/26/2018 10:00	UZ9922	<0.000002	0.0103	0.008	-	5.97	0.00216	5.9	<0.00002	109	0.719	63.8	0.000023	<0.005	<0.005	0.00255	<0.005	0.011	0.00011
RSEM-R6E-SP	12/27/2018 12:50	VA2808	<0.000002	0.0087	0.0069	-	5.63	0.00189	5.35	<0.00002	100	0.632	62.3	0.00002	<0.005	<0.005	0.00228	<0.005	0.0062	<0.0001
RSEM-R6E-SP	12/28/2018 14:55	VA3066	<0.000002	0.0079	0.0069	-	5.02	0.00166	4.78	<0.00002	92.7	0.647	57.5	0.000017	<0.005	<0.005	0.00223	<0.005	0.006	<0.0001
RSEM-R6E-SP	12/29/2018 11:30	VA3061	<0.000002	0.0077	0.0066	-	4.90	0.00167	4.76	<0.00002	92.0	0.64	56.1	0.000015	<0.005	<0.005	0.00217	<0.005	0.0089	<0.0001
RSEM-R6E-SP	12/30/2018 10:35	VA3020	<0.000002	0.0072	0.0062	-	4.83	0.00156	4.76	<0.00002	87.0	0.631	50.3	0.000017	<0.005	<0.005	0.00196	<0.005	0.0499	<0.0001
RSEM-R6E-SP	12/31/2018 12:20	VA5852	<0.000002	0.0063	0.0055	-	4.65	0.00155	4.71	<0.00002	81.7	0.538	46.9	0.000016	<0.005	<0.005	0.00169	<0.005	0.0089	0.00016
RSEM-R6W-EOP	2/14/2018 13:25	SY9400	-	0.0222	0.0023	-	3.77	0.00451	4.85	<0.00002	236	0.298	84.2	<0.00001	<0.005	<0.005	0.00343	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	2/15/2018 12:55	SZ0953	-	0.0268	0.0024	-	4.52	0.00563	5.74	<0.00002	279	0.337	97.8	<0.00001	<0.005	<0.005	0.00381	0.0058	<0.005	<0.0001
RSEM-R6W-EOP	2/15/2018 12:55	SZ0954	-	0.0278	0.0026	-	4.70	0.00564	5.92	<0.00002	289	0.341	103	0.00001	<0.005	<0.005	0.00406	0.006	<0.005	<0.0001
RSEM-R6W-EOP	2/16/2018 13:05	SZ0957	-	0.0308	0.007	-	4.96	0.00674	6.25	<0.0001	314	0.368	111	<0.00005	<0.025	<0.025	0.00428	<0.025	<0.025	<0.0005
RSEM-R6W-EOP	2/17/2018 10:30	SZ2075	-	0.0217	0.0015	-	3.38	0.004	4.63	<0.00002	209	0.216	74.7	<0.00001	<0.005	<0.005	0.00292	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	2/18/2018 11:00	SZ2074	-	0.0226	0.0015	-	3.60	0.00422	4.66	<0.00002	219	0.2	76.1	<0.00001	<0.005	<0.005	0.00292	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	2/19/2018 13:45	SZ3785	-	0.0231	0.0016	-	3.70	0.00414	4.25	<0.00002	241	0.229	76.0	<0.00001	<0.005	<0.005	0.00302	0.0051	<0.005	<0.0001
RSEM-R6W-EOP	2/20/2018 13:05	SZ5787	-	0.0217	<0.005	-	3.79	0.00426	4.37	<0.0001	236	0.226	77	<0.00005	<0.025	<0.025	0.00291	<0.025	<0.025	<0.0005
RSEM-R6W-EOP	2/21/2018 11:35	SZ7678	-	0.0212	0.0024	-	3.54	0.00413	4.24	<0.00004	233	0.217	74.1	<0.00002	<0.01	<0.01	0.00298	<0.01	<0.01	<0.0002
RSEM-R6W-EOP	2/21/2018 11:35	SZ7679	-	0.0214	0.0023	-	3.45	0.00428	3.97	<0.00004	237	0.217	69.8	<0.00002	<0.01	<0.01	0.00295	<0.01	<0.01	<0.0002
RSEM-R6W-EOP	2/23/2018 11:36	SZ9585	-	0.0223	0.0023	-	3.41	0.00374	4.02	<0.00002	229	0.228	68.8	<0.00001	<0.005	<0.005	0.00286	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	2/25/2018 11:00	TA2076	-	0.0226	0.0023	-	3.90	0.00364	4.39	<0.00002	232	0.226	81.0	<0.00001	<0.005	<0.005	0.00298	0.0052	<0.005	<0.0001
RSEM-R6W-EOP	2/26/2018 14:40	TA3632	-	0.0215	0.0028	-	3.67	0.00354	4.39	<0.00002	223	0.227	73.7	<0.00001	<0.005	<0.005	0.00277	0.005	<0.005	<0.0001
RSEM-R6W-EOP	2/27/2018 12:15	TA7101	<0.000002	0.0207	0.0024	-	3.64	0.00356	3.96	<0.00002	235	0.214	72.9	<0.00001	<0.005	<0.005	0.00287	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	2/27/2018 12:25	TA7102	<0.000002	0.0208	0.0025	-	3.71	0.00335	3.97	<0.00002	230	0.214	71.4	<0.00001	<0.005	<0.005	0.00291	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	2/28/2018 15:30	TA7105	<0.000002	0.0207	0.0025	-	3.60	0.00382	4.17	<0.00002	225	0.218	72.8	<0.00001	<0.005	<0.005	0.00288	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	3/7/2018 13:00	TB7064	-	0.0209	0.0032	-	3.46	0.00325	4.35	<0.00002	212	0.242	70.9	<0.00001	<0.005	<0.005	0.00291	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	3/7/2018 13:00	TB7065	-	0.021	0.0033	-	3.58	0.00324	4.25	<0.00002	220	0.244	71.9	<0.00001	<0.005	<0.005	0.00281	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	3/8/2018 13:45	TB8242	-	0.0196	0.0036	-	3.40	0.00305	3.56	<0.00002	227	0.237	70.7	<0.00001	<0.005	<0.005	0.0028	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	3/9/2018 13:35	TB8238	-	0.0197	0.0035	-	3.30	0.00317	4.03	<0.00002	224	0.232	67.9	<0.00001	<0.005	<0.005	0.00278	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	3/10/2018 13:05	TC1326	-	0.0195	0.0036	-	3.28	0.00307	3.96	<0.00002	221	0.239	68.5	<0.00001	<0.005	<0.005	0.00282	<0.005	<0.005	0.00012
RSEM-R6W-EOP	3/11/2018 11:15	TC1322	-	0.0199	0.0032	-	3.17	0.00294	3.78	<0.00002	228	0.243	66.1	<0.00001	<0.005	<0.005	0.0028	<0.005	<0.005	0.0001
RSEM-R6W-EOP	3/11/2018 11:15	TC1323	-	0.019	0.0037	-	3.12	0.003	3.95	<0.00002	229	0.233	67.6	<0.00001	<0.005	<0.005	0.00275	<0.005	<0.005	0.00012
RSEM-R6W-EOP	3/12/2018 13:10	TC2474	-	0.0184	0.0037	-	3.19	0.00312	3.74	<0.00002	236	0.219	68.1	<0.00001	<0.005	<0.005	0.00257	<0.005	<0.005	0.00013
RSEM-R6W-EOP	3/13/2018 12:06	TC2460	-	0.0149	0.0029	-	2.78	0.00256	2.84	<0.00002	184	0.166	53.7	<0.00001	<0.005	<0.005	0.00187	<0.005	0.0104	<0.0001
RSEM-R6W-EOP	3/14/2018 9:55	TC7631	-	0.0188	0.0052	-	3.64	0.00311	4.11	<0.00002	216	0.285	87.9	0.000012	<0.005	<0.005	0.00286	<0.005	<0.005	0.0001
RSEM-R6W-EOP	3/15/2018 14:42	TC8868	-	0.0041	<0.001	-	1.01	0.00079	1.07	<0.00002	40.0	0.0668	16.5	<0.00001	<0.005	<0.005	0.00066	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	3/16/2018 11:50	TD1264	-	0.0188	0.0047	-	3.49	0.00351	3.51	<0.00002	213	0.264	79.6	0.00001	<0.005	<0.005	0.00293	<0.005	<0.005	0.00012
RSEM-R6W-EOP	3/20/2018 9:42	TD4116	-	0.0164	0.0081	-	3.53	0.00405	3.18	<0.00002	171	0.283	68.9	0.00001	<0.005	<0.005	0.00276	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	3/21/2018 6:45	TD7838	-	0.017	0.0105	-	3.58	0.00401	3.64	<0.00002	170	0.284	71.4	0.00001	<0.005	<0.005	0.0028	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	4/17/2018 0:05	TH3043	-	0.0153	0.0046	-	2.99	0.00714	2.92	<0.00002	156	0.209	65.3	<0.00001	<0.005	<0.005	0.00243	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	4/18/2018 12:25	TH5883	-	0.0147	0.005	-	2.96	0.00768	2.93	<0.00002	151	0.213	64.3	<0.00001	<0.005	<0.005	0.0023	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	4/18/2018 12:25	TH5885	-	0.0146	0.0049	-	2.82	0.00769	2.97	<0.00002	153	0.211	68.0	<0.00001	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	4/19/2018 15:50	TH5945	-	0.0119	0.0096	-	2.76	0.00738	2.69	<0.00002	135	0.239	75.2	<0.00001	<0.005	<0.005	0.0021	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	4/20/2018 11:40	TH5943	-	0.014	0.0101	-	3.43	0.0102	3.08	<0.00002	164	0.293	104	0.000013	<0.005	<0.005	0.00229	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	4/21/2018 16:20	TH8458	-	0.0132	0.0086	-	3.30	0.0113	2.65	<0.00002	169	0.266	111	0.000011	<0.005	<0.005	0.00224	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	4/22/2018 13:00	TH8482	-	0.0133	0.007	-	3.24	0.0139	2.63	<0.00002	178	0.261	120	0.000013	<0.005	<0.005	0.00217	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	4/23/2018 11:50	TH9253	-	0.0105	0.0062	-	2.71	0.0117	2.05	<0.00002	159	0.218	96.7	<0.00001	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/7/2018 8:10	TP6774	<0.000002	0.0176	0.0074	-	5.58	0.00522	3.23	0.0001	131	0.729	86.5	0.000024	<0.005	<0.005	0.00263	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/8/2018 19:40	TP8929	<0.000002	0.017	0.0069	-	5.68	0.00513	2.95	<0.00002	138	0.747	83.9	0.000019	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/9/2018 18:40	TP8996	<0.000002	0.0183	0.0068	-	5.85	0.00569	3.22	<0.00002	142	0.75	83.9	0.000019	<0.005	<0.005	0.00248	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/9/2018 18:40	TP8995	<0.000002	0.0181	0.0065	-	5.76	0.00566	3.11	<0.00002	139	0.729	83.3	0.000018	<0.005	<0.005	0.00238	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/10/2018 10:10	TP9976	<0.000002	0.017	0.0058	-	5.36	0.00524	3.19	<0.00002	126	0.656	77.1	0.000017	<0.005	<0.005	0.0022	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/11/2018 15:15	TQ0647	<0.000002	0.0176	0.0052	-	5.32	0.00515	3.55	<0.00002	109	0.615	81.8	0.00002	<0.005	<0.005	0.00236	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	6/12/2018 13:30	TQ4133	8.33	1110	8.06	616	6.0	296	290	196	2.1	234	2.6	<1.0	95.7	0.410	1.7	214
RSEM-R6W-EOP	6/13/2018 15:35	TQ8813	8.25	1100	5.76	644	5.5	294	277	183	<1.0	223	<1.0	<1.0	92.0	0.390	1.5	229
RSEM-R6W-EOP	6/14/2018 17:10	TQ8828	8.26	1080	5.21	584	5.0	300	274	182	<1.0	223	<1.0	<1.0	88.1	0.390	1.5	247
RSEM-R6W-EOP	6/15/2018 17:40	TR1410	8.34	1080	7.25	632	7.0	291	296	194	<1.0	237	<1.0	<1.0	96.5	0.390	1.6	224
RSEM-R6W-EOP	6/16/2018 14:50	TR1374	8.30	1100	7.23	678	7.0	306	301	191	<1.0	233	<1.0	<1.0	95.0	0.410	1.6	225
RSEM-R6W-EOP	6/17/2018 15:50	TR2101	8.31	1100	5.64	680	<4.0	299	302	193	<1.0	235	<1.0	<1.0	106	0.430	1.6	206
RSEM-R6W-EOP	6/18/2018 7:00	TR2126	8.30	1110	4.06	690	<4.0	298	304	188	<1.0	229	<1.0	<1.0	109	0.400	1.7	243
RSEM-R6W-EOP	6/26/2018	TT0848	8.08	1010	36.3	580	26.3	247	244	157	<1.0	191	<1.0	<1.0	92.1	0.400	1.3	191
RSEM-R6W-EOP	6/27/2018 10:55	TT1137	8.11	1110	19.7	702	14.8	295	263	139	<1.0	169	<1.0	<1.0	91.2	0.570	1.4	267
RSEM-R6W-EOP	6/27/2018 10:55	TT1136	8.15	1120	19.9	708	15.0	285	258	138	<1.0	169	<1.0	<1.0	92.4	0.540	1.4	265
RSEM-R6W-EOP	7/2/2018 14:40	TU1418	8.17	1120	16.3	700	17.8	291	291	142	<1.0	173	<1.0	<1.0	88.4	0.520	1.4	282
RSEM-R6W-EOP	7/3/2018 15:15	TU4427	8.18	1070	11.2	666	8.3	283	287	145	<1.0	177	<1.0	<1.0	74.4	0.470	1.3	263
RSEM-R6W-EOP	7/4/2018 15:45	TU6244	8.13	956	9.80	614	9.0	265	269	137	<1.0	167	<1.0	<1.0	64.4	0.410	0.89	210
RSEM-R6W-EOP	7/5/2018 11:55	TU8086	8.12	966	4.45	616	5.3	271	280	147	<1.0	179	<1.0	<1.0	66.9	0.410	1.0	237
RSEM-R6W-EOP	7/8/2018 9:45	TV1574	8.19	902	9.46	604	8.0	283	282	154	<1.0	188	<1.0	<1.0	54.1	0.370	0.95	198
RSEM-R6W-EOP	7/14/2018 12:15	TW3846	8.35	930	18.4	534	25.8	320	317	178	2.7	211	3.2	<1.0	51.9	0.330	0.86	206
RSEM-R6W-EOP	7/15/2018 13:00	TW3843	8.18	929	7.14	586	7.5	316	304	179	<1.0	218	<1.0	<1.0	51.7	0.330	0.84	213
RSEM-R6W-EOP	7/16/2018 14:30	TW5086	8.15	928	5.62	586	7.8	339	311	191	<1.0	233	<1.0	<1.0	48.5	0.320	0.85	221
RSEM-R6W-EOP	7/20/2018 11:30	TX2837	8.32	959	22.7	600	23.5	311	323	220	1.3	265	1.6	<1.0	53.4	0.280	0.75	246
RSEM-R6W-EOP	7/21/2018 9:05	TX5554	8.32	941	19.6	586	36.8	309	302	207	2.2	247	2.7	<1.0	49.3	0.290	0.78	214
RSEM-R6W-EOP	7/22/2018 7:10	TX5558	8.33	956	8.77	592	8.0	305	310	201	2.8	238	3.3	<1.0	48.2	0.300	0.78	243
RSEM-R6W-EOP	7/31/2018 17:50	TZ5901	8.14	1040	11.1	638	12.3	311	325	169	<1.0	206	<1.0	<1.0	103	0.350	1.4	210
RSEM-R6W-EOP	8/1/2018 15:24	TZ8459	8.12	1070	4.88	652	6.8	331	338	156	<1.0	191	<1.0	<1.0	117	0.360	1.5	195
RSEM-R6W-EOP	8/2/2018 15:50	UA0960	7.91	1020	3.32	630	5.0	316	304	141	<1.0	172	<1.0	<1.0	107	0.360	1.5	200
RSEM-R6W-EOP	8/3/2018 12:21	UA1046	8.09	1020	6.44	598	8.0	305	309	146	<1.0	178	<1.0	<1.0	114	0.360	1.5	182
RSEM-R6W-EOP	8/4/2018 16:31	UA3790	8.20	1010	3.24	578	<4.0	279	180	134	<1.0	163	<1.0	<1.0	108	0.370	1.4	189
RSEM-R6W-EOP	8/5/2018 15:35	UA3841	8.17	1010	2.08	618	<4.0	300	297	132	<1.0	161	<1.0	<1.0	108	0.350	1.5	198
RSEM-R6W-EOP	8/6/2018 16:03	UA3785	8.23	1030	3.15	624	5.5	289	299	140	<1.0	171	<1.0	<1.0	111	0.360	1.6	196
RSEM-R6W-EOP	8/7/2018 11:55	UA4368	8.24	1050	1.50	628	<4.0	308	307	138	<1.0	168	<1.0	<1.0	110	0.350	1.5	191
RSEM-R6W-EOP	8/8/2018 8:15	UA6826	8.03	1100	3.86	634	7.3	326	314	146	<1.0	178	<1.0	<1.0	125	0.350	1.6	182
RSEM-R6W-EOP	8/9/2018 12:50	UA9168	7.98	1090	2.18	640	<4.0	298	308	146	<1.0	178	<1.0	<1.0	118	0.340	1.6	199
RSEM-R6W-EOP	8/11/2018 16:00	UB4076	8.11	1060	2.46	614	9.3	289	294	149	<1.0	182	<1.0	<1.0	109	0.350	1.6	194
RSEM-R6W-EOP	8/12/2018 15:25	UB4558	8.17	1000	3.95	598	5.0	270	279	153	<1.0	187	<1.0	<1.0	103	0.340	1.4	182
RSEM-R6W-EOP	8/13/2018 11:25	UB4587	8.18	1000	2.82	570	<4.0	276	281	153	<1.0	187	<1.0	<1.0	98.4	0.350	1.4	185
RSEM-R6W-EOP	8/20/2018 10:36	UD1951	8.07	1040	3.72	636	<4.0	314	291	184	<1.0	225	<1.0	<1.0	89.0	0.310	1.2	192
RSEM-R6W-EOP	8/21/2018 8:35	UD2058	8.18	1010	2.63	602	<4.0	297	294	193	<1.0	235	<1.0	<1.0	84.3	0.320	1.2	195
RSEM-R6W-EOP	8/22/2018 10:32	UD5025	8.29	977	2.86	574	<4.0	288	300	192	<1.0	234	<1.0	<1.0	76.9	0.310	1.0	180
RSEM-R6W-EOP	8/23/2018 10:25	UD6751	8.32	888	4.17	540	<4.0	248	261	197	1.9	236	2.2	<1.0	68.8	0.320	0.92	159
RSEM-R6W-EOP	8/24/2018 9:40	UD8197	8.26	869	8.12	518	9.3	255	259	203	<1.0	248	<1.0	<1.0	64.9	0.300	0.84	149
RSEM-R6W-EOP	8/25/2018 9:35	UE1791	8.23	834	6.31	506	5.0	272	270	203	<1.0	248	<1.0	<1.0	55.7	0.290	0.73	147
RSEM-R6W-EOP	8/26/2018 10:55	UE1802	8.20	815	5.69	484	4.3	274	268	205	<1.0	251	<1.0	<1.0	53.0	0.290	0.70	142
RSEM-R6W-EOP	8/27/2018 10:35	UE2121	8.19	798	5.57	470	4.3	277	270	205	<1.0	250	<1.0	<1.0	48.7	0.270	0.68	123
RSEM-R6W-EOP	8/28/2018 10:45	UE5266	8.12	784	4.96	476	4.0	270	267	202	<1.0	247	<1.0	<1.0	44.6	0.250	0.68	130
RSEM-R6W-EOP	8/29/2018 12:15	UF1103	8.45	859	9.32	436	<4.0	271	263	250	6.0	291	7.2	<1.0	53.5	0.300	0.68	128
RSEM-R6W-EOP	8/30/2018 10:00	UF1077	8.39	836	6.41	482	<4.0	262	273	240	4.4	282	5.2	<1.0	51.6	0.290	0.69	127
RSEM-R6W-EOP	8/31/2018 8:15	UF3969	8.35	840	6.11	460	5.3	262	263	253	3.1	301	3.7	<1.0	46.1	0.300	0.66	125
RSEM-R6W-EOP	9/1/2018 3:25	UF6668	8.44	837	3.68	456	5.8	290	265	248	6.1	287	7.3	<1.0	51.4	0.300	0.63	120
RSEM-R6W-EOP	9/2/2018 9:20	UF7757	8.35	839	5.09	476	5.0	291	276	253	2.7	302	3.3	<1.0	49.8	0.290	0.61	116
RSEM-R6W-EOP	9/3/2018 9:40	UF9062	8.36	822	4.43	498	8.3	280	258	239	3.5	283	4.2	<1.0	46.3	0.280	0.59	118
RSEM-R6W-EOP	9/4/2018 15:10	UG0434	8.11	782	5.48	492	7.3	256	262	239	<1.0	292	<1.0	<1.0	47.0	0.270	0.60	114
RSEM-R6W-EOP	9/5/2018 12:08	UG2834	8.24	769	4.82	440	5.8	255	242	233	<1.0	285	<1.0	<1.0	46.7	0.270	0.61	107
RSEM-R6W-EOP	9/6/2018 11:15	UG2789	8.25	837	6.33	480	9.3	292	271	242	<1.0	295	<1.0	<1.0	43.7	0.280	0.55	138
RSEM-R6W-EOP	9/7/2018 8:40	UG5294	8.16	863	4.14	516	6.8	307	287	227	<1.0	278	<1.0	<1.0	42.9	0.230	0.55	161
RSEM-R6W-EOP	9/8/2018 17:10	UG8746	8.07	828	23.1	506	28.0	304	281	212	<1.0	258	<1.0	<1.0	45.7	0.220	0.57	165
RSEM-R6W-EOP	9/9/2018 18:00	UG8718	8.07	898	25.2	552	19.0	274	274	164	<1.0	200	<1.0	<1.0	69.8	0.380	1.0	194
RSEM-R6W-EOP	9/10/2018 11:40	UH0971	8.12	883	23.2	502	10.3	255	275	154	<1.0	188	<1.0	<1.0	59.8	<0.020	0.96	195
RSEM-R6W-EOP	9/12/2018 10:30	UH7644	8.12	921	8.57	552	5.3	252	279	150	<1.0	182	<1.0	<1.0	62.4	0.420	0.92	197
RSEM-R6W-EOP	9/13/2018 12:35	UH7733	8.11	936	6.00	552	4.0	255	268	151	<1.0	185	<1.0	<1.0	63.2	0.400	0.98	199
RSEM-R6W-EOP	9/14/2018 9:15	UI0649	8.16	919	5.74	572	5.5	240	248	158	<1.0	193	<1.0	<1.0	59.1	0.430	1.0	200
RSEM-R6W-EOP	9/15/2018 7:10	UI5252	8.23	927	33.4	558	<4.0	252	249	164	<1.0	200	<1.0	<1.0	57.7	0.410	0.92	197
RSEM-R6W-EOP	9/20/2018 10:40	UJ3868	8.29	1010	7.17	610	18.3	271	254	229	<1.0	279	<1.0	<1.0	53.7	0.370	0.90	189
RSEM-R6W-EOP	9/21/2018 10:40	UJ7162	8.21	850	6.26	512	12.3	246	245	164	<1.0	200	<1.0	<1.0	51.5	0.350	0.85	177
RSEM-R6W-EOP	9/22/2018 11:30	UK0063	8.11	798	6.02	470	6.3	272	241	150	<1.0	184	<1.0	<1.0	47.6	0.340	0.72	168
RSEM-R6W-EOP	9/23/2018 10:00	UK1526	7.98	730	2.20	430	4.5	220	227	149	<1.0	181	<1.0	<1.0	44.9	0.340	0.62	156

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	6/12/2018 13:30	TQ4133	0.20	0.0970	1.37	1.47	<0.0050	3.45	2.10	0.146	0.00118	0.0013	0.129	<0.0001	<0.001	0.193	0.000027	84.4	0.0039	0.00057	0.00223
RSEM-R6W-EOP	6/13/2018 15:35	TQ8813	0.18	0.103	1.41	1.52	<0.0040	3.49	2.75	0.267	0.00126	0.00124	0.129	<0.0001	<0.001	0.212	0.000031	84.2	0.0035	0.00049	0.00465
RSEM-R6W-EOP	6/14/2018 17:10	TQ8828	0.17	0.0939	1.40	1.49	<0.0040	4.07	1.49	0.176	0.00124	0.00121	0.128	<0.0001	<0.001	0.212	0.000023	85.3	0.0035	0.00045	0.00195
RSEM-R6W-EOP	6/15/2018 17:40	TR1410	0.16	0.0851	1.40	1.48	0.0057	3.44	1.69	0.41	0.00121	0.00121	0.126	<0.0001	<0.001	0.191	0.000025	83.5	0.0036	0.0005	0.00262
RSEM-R6W-EOP	6/16/2018 14:50	TR1374	0.16	0.0898	1.52	1.61	<0.0040	3.10	2.42	0.266	0.00126	0.00118	0.122	<0.0001	<0.001	0.183	0.000036	88.1	0.0032	0.00143	0.00216
RSEM-R6W-EOP	6/17/2018 15:50	TR2101	0.13	0.0841	1.51	1.59	0.0063	2.44	1.81	0.169	0.00127	0.00113	0.112	<0.0001	<0.001	0.202	0.000026	85.2	0.0029	0.00106	0.00172
RSEM-R6W-EOP	6/18/2018 7:00	TR2126	0.16	0.0838	1.56	1.65	<0.0040	3.38	1.26	0.129	0.00129	0.00111	0.11	<0.0001	<0.001	0.205	0.000022	84.3	0.0028	0.00096	0.00164
RSEM-R6W-EOP	6/26/2018	TT0848	0.063	0.0456	1.45	1.49	0.0161	2.81	2.49	1.82	0.00122	0.00155	0.125	<0.0001	<0.001	0.209	0.000058	67.4	0.0047	0.0013	0.00313
RSEM-R6W-EOP	6/27/2018 10:55	TT1137	0.14	0.0953	2.10	2.19	<0.0050	2.88	0.61	0.768	0.00141	0.00154	0.141	<0.0001	<0.001	0.226	0.000062	81.3	0.0056	0.00351	0.0022
RSEM-R6W-EOP	6/27/2018 10:55	TT1136	0.13	0.100	1.98	2.08	0.0055	2.84	2.46	0.686	0.00137	0.00146	0.135	<0.0001	<0.001	0.222	0.000057	78.1	0.0061	0.0034	0.00216
RSEM-R6W-EOP	7/2/2018 14:40	TU1418	0.15	0.0881	1.88	1.97	0.0071	2.19	2.22	0.619	0.0013	0.00136	0.137	<0.0001	<0.001	0.202	0.00005	79.7	0.0051	0.00171	0.00227
RSEM-R6W-EOP	7/3/2018 15:15	TU4427	0.081	0.0792	1.67	1.75	0.0201	2.24	2.38	0.32	0.00111	0.00109	0.124	<0.0001	<0.001	0.161	0.000037	77.7	0.0039	0.00131	0.00296
RSEM-R6W-EOP	7/4/2018 15:45	TU6244	0.16	0.0586	1.38	1.43	<0.0050	3.03	2.27	0.176	0.00094	0.00093	0.123	<0.0001	<0.001	0.157	0.000033	73.7	0.0032	0.00098	0.0018
RSEM-R6W-EOP	7/5/2018 11:55	TU8086	0.064	0.0412	1.43	1.47	<0.0050	3.36	1.82	0.144	0.00093	0.00089	0.133	<0.0001	<0.001	0.138	0.000029	75.7	0.003	0.00087	0.00155
RSEM-R6W-EOP	7/8/2018 9:45	TV1574	0.042	0.0395	1.12	1.16	<0.0050	-	-	0.284	0.00085	0.00082	0.137	<0.0001	<0.001	0.124	0.000028	78.8	0.003	0.00063	0.0025
RSEM-R6W-EOP	7/14/2018 12:15	TW3846	0.053	0.0289	0.981	1.01	0.0106	2.7	3.0	0.35	0.00081	0.00088	0.154	<0.0001	<0.001	0.115	0.000036	86.2	0.0031	0.00058	0.00347
RSEM-R6W-EOP	7/15/2018 13:00	TW3843	0.040	0.0096	0.975	0.984	0.0052	2.8	3.2	0.149	0.00078	0.00076	0.146	<0.0001	<0.001	0.115	0.000023	84.9	0.0027	0.00042	0.00234
RSEM-R6W-EOP	7/16/2018 14:30	TW5086	0.028	0.0222	0.901	0.923	<0.0050	3.2	3.2	0.189	0.0008	0.0008	0.149	<0.0001	<0.001	0.123	0.000024	91.9	0.0027	0.00044	0.00245
RSEM-R6W-EOP	7/20/2018 11:30	TX2837	0.074	0.0280	0.742	0.770	<0.0050	3.2	2.8	1.48	0.00085	0.00135	0.186	<0.0001	<0.001	0.111	0.000041	88.7	0.0035	0.00067	0.00349
RSEM-R6W-EOP	7/21/2018 9:05	TX5554	0.041	0.0271	0.748	0.775	<0.0050	2.6	3.0	0.948	0.00088	0.0016	0.189	<0.0001	<0.001	0.118	0.000055	85.9	0.0038	0.00083	0.00348
RSEM-R6W-EOP	7/22/2018 7:10	TX5558	0.030	0.0279	0.773	0.801	<0.0050	2.4	2.7	0.183	0.00081	0.00092	0.16	<0.0001	<0.001	0.119	0.00003	82.9	0.0028	0.00047	0.00194
RSEM-R6W-EOP	7/31/2018 17:50	TZ5901	0.020	0.124	1.33	1.45	<0.0050	1.9	3.0	0.316	0.00105	0.00122	0.157	<0.0001	<0.001	0.172	0.000044	89.9	0.0036	0.00073	0.002
RSEM-R6W-EOP	8/1/2018 15:24	TZ8459	0.037	0.156	1.42	1.57	<0.0050	2.5	3.5	0.201	0.00109	0.00114	0.159	<0.0001	<0.001	0.189	0.000038	99.6	0.0036	0.00079	0.00134
RSEM-R6W-EOP	8/2/2018 15:50	UA0960	0.070	0.138	1.36	1.50	<0.0050	3.48	3.10	0.223	0.00097	0.00099	0.166	<0.0001	<0.001	0.209	0.000028	92.5	0.0033	0.00061	0.00163
RSEM-R6W-EOP	8/3/2018 12:21	UA1046	0.047	0.139	1.41	1.55	0.0061	2.51	3.07	0.264	0.00095	0.00099	0.154	<0.0001	<0.001	0.202	0.000031	90.2	0.0034	0.00072	0.00851
RSEM-R6W-EOP	8/4/2018 16:31	UA3790	0.17	0.123	1.35	1.48	<0.0050	3.60	3.17	0.125	0.00088	0.0009	0.145	<0.0001	<0.001	0.184	0.000025	85.2	0.0028	0.00046	0.00193
RSEM-R6W-EOP	8/5/2018 15:35	UA3841	0.036	0.118	1.35	1.47	<0.0050	3.19	2.75	0.0986	0.00095	0.00097	0.158	<0.0001	<0.001	0.189	0.000022	87.7	0.0031	0.00047	0.00192
RSEM-R6W-EOP	8/6/2018 16:03	UA3785	0.039	0.126	1.35	1.48	<0.0050	3.17	2.72	0.133	0.00104	0.00104	0.189	<0.0001	<0.001	0.19	0.000019	86.4	0.0027	0.00044	0.00138
RSEM-R6W-EOP	8/7/2018 11:55	UA4368	0.029	0.123	1.37	1.49	<0.0050	3.17	2.84	0.0876	0.00106	0.00112	0.202	<0.0001	<0.001	0.201	0.000016	89.7	0.003	0.00038	0.00155
RSEM-R6W-EOP	8/8/2018 8:15	UA6826	0.036	0.117	1.42	1.53	<0.0050	3.37	3.23	0.156	0.00111	0.00115	0.206	<0.0001	<0.001	0.206	<0.00001	94.5	0.0031	0.00049	0.00187
RSEM-R6W-EOP	8/9/2018 12:50	UA9168	0.058	0.107	1.41	1.51	<0.0050	2.55	2.69	0.0905	0.00119	0.00109	0.217	<0.0001	<0.001	0.2	0.000011	86.5	0.0028	0.0003	0.00147
RSEM-R6W-EOP	8/11/2018 16:00	UB4076	0.034	0.0941	1.35	1.44	0.0052	3.21	2.41	0.216	0.0012	0.00112	0.225	<0.0001	<0.001	0.195	0.000017	83.8	0.0028	0.00041	0.00171
RSEM-R6W-EOP	8/12/2018 15:25	UB4558	0.039	0.0930	1.26	1.35	<0.0050	2.76	2.13	0.226	0.00116	0.0012	0.234	<0.0001	<0.001	0.194	0.000031	77.6	0.0026	0.00038	0.0017
RSEM-R6W-EOP	8/13/2018 11:25	UB4587	0.080	0.0893	1.24	1.33	<0.0050	2.82	3.29	0.123	0.00116	0.00115	0.237	<0.0001	<0.001	0.198	0.000013	78.8	0.0026	0.00033	0.00157
RSEM-R6W-EOP	8/20/2018 10:36	UD1951	0.041	0.0454	1.11	1.15	0.0073	3.30	2.53	0.112	0.00104	0.00116	0.227	<0.0001	<0.001	0.162	0.000011	84.7	0.0025	0.00039	0.0019
RSEM-R6W-EOP	8/21/2018 8:35	UD2058	0.050	0.0462	0.939	0.986	<0.0050	2.79	2.14	0.114	0.00105	0.00113	0.247	<0.0001	<0.001	0.169	0.000018	79.4	0.0022	0.00039	0.00241
RSEM-R6W-EOP	8/22/2018 10:32	UD5025	0.056	0.0446	0.949	0.993	<0.0050	3.96	3.67	0.108	0.00096	0.00106	0.247	<0.0001	<0.001	0.178	<0.00001	77.7	0.002	0.0003	0.00159
RSEM-R6W-EOP	8/23/2018 10:25	UD6751	0.13	0.0559	0.881	0.937	0.0050	4.52	3.03	0.166	0.00112	0.00134	0.332	<0.0001	<0.001	0.18	<0.00001	66.5	0.0016	0.00035	0.00247
RSEM-R6W-EOP	8/24/2018 9:40	UD8197	0.091	0.0481	1.91	1.95	0.0139	3.23	2.57	0.243	0.00106	0.00132	0.317	<0.0001	<0.001	0.188	0.000015	67.4	0.0015	0.00041	0.00259
RSEM-R6W-EOP	8/25/2018 9:35	UE1791	<0.020	0.0427	0.763	0.806	<0.0050	3.73	3.00	0.109	0.00098	0.00125	0.309	<0.0001	<0.001	0.138	0.000013	72.6	0.0013	0.00032	0.00226
RSEM-R6W-EOP	8/26/2018 10:55	UE1802	0.025	0.0400	0.752	0.792	<0.0050	3.77	2.33	0.133	0.00098	0.00119	0.32	<0.0001	<0.001	0.158	0.000013	73.7	0.0012	0.00032	0.0023
RSEM-R6W-EOP	8/27/2018 10:35	UE2121	0.021	0.0356	0.695	0.731	0.0068	3.13	1.61	0.173	0.0009	0.00113	0.309	<0.0001	<0.001	0.152	0.000013	74.6	0.0012	0.0003	0.00205
RSEM-R6W-EOP	8/28/2018 10:45	UE5266	<0.020	0.0291	0.663	0.692	<0.0050	2.68	1.58	0.102	0.00086	0.00104	0.309	<0.0001	<0.001	0.124	0.000011	72.4	0.0011	0.00028	0.00207
RSEM-R6W-EOP	8/29/2018 12:15	UF1103	0.23	0.0441	0.572	0.616	<0.0050	2.1	1.93	0.269	0.00099	0.0014	0.327	<0.0001	<0.001	0.134	0.000019	73.3	0.0014	0.00046	0.00209
RSEM-R6W-EOP	8/30/2018 10:00	UF1077	0.33	0.0463	0.575	0.621	0.0136	2.8	2.45	0.153	0.00095	0.00128	0.302	<0.0001	<0.001	0.132	0.000015	70.6	0.0013	0.00044	0.00193
RSEM-R6W-EOP	8/31/2018 8:15	UF3969	0.15	0.0476	0.656	0.703	0.0083	3.1	2.66	0.199	0.00102	0.00148	0.341	<0.0001	<0.001	0.131	0.000016	70.5	0.0013	0.00049	0.0019
RSEM-R6W-EOP	9/1/2018 3:25	UF6668	0.15	0.0439	0.648	0.692	<0.0050	3.22	2.01	0.153	0.00095	0.00145	0.309	<0.0001	<0.001	0.152	0.000013	79.2	0.0012	0.00048	0.00172
RSEM-R6W-EOP	9/2/2018 9:20	UF7757	0.037	0.0417	0.637	0.679	0.0056	3.9	3.0	0.114	0.00096	0.00146	0.311	<0.0001	<0.001	0.149	0.000014	79.4	0.0012	0.00049	0.00159
RSEM-R6W-EOP	9/3/2018 9:40	UF9062	0.034	0.0429	0.603	0.645	<0.0050	3.3	2.8	0.131	0.00094	0.00139	0.297	<0.0001	<0.001	0.148	0.000013	75.8	0.0012	0.00046	0.0018
RSEM-R6W-EOP	9/4/2018 15:10	UG0434	0.11	0.0406	0.532	0.572	<0.0050	2.9	2.1	0.193	0.00089	0.00142	0.29	<0.0001	<0.001	0.12	0.000014	69.2	0.0011	0.00044	0.00137
RSEM-R6W-EOP	9/5/2018 12:08	UG2834	0.091	0.0373	0.534	0.571	<0.0050	2.2	2.2	0.139	0.00089	0.0014	0.297	<0.0001	<0.001	0.131	0.000011	69.7	0.0011	0.00043	0.00154
RSEM-R6W-EOP	9/6/2018 11:15	UG2789	0.099	0.0350	0.480	0.515	<0.0050	2.2	2.3	0.188	0.00084	0.00137	0.285	<0.0001	<0.001	0.123	0.000019	79.6	0.0012	0.00049	0.00237
RSEM-R6W-EOP	9/7/2018 8:40	UG5294	0.11	0.0272	0.508	0.535	<0.0050	2.3	1.7	0.105	0.00078	0.0013	0.251	<0.0001	<0.001	0.109	0.000017	81.8	<0.001	0.00041	0.00141
RSEM-R6W-EOP	9/8/2018 17:10	UG8746	0.086	<0.0050	<0.020	<0.020	<0.0050	1.9	2.7	0.526	0.0007	0.00158	0.246	<0.0001	<0.001	0.106	0.000045	85.4	0.0016	0.00081	0.00251
RSEM-R6W-EOP	9/9/2018 18:00	UG8718	0.15	0.0637	0.883	0.947	<0.0050	1.9	2.2	0.498	0.00089	0.00144	0.243	<0.0001	<0.001	0.117	0.000087	78.0	0.0037	0.00352	0.00227
RSEM-R6W-EOP	9/10/2018 11:40	UH0971	0.23	0.0648	0.866	0.931	0.0148	2.4	2.5	0.483	0.001	0.00159	0.248	<0.0001	<0.001	0.123	0.000051	74.3	0.005	0.00236	0.00188
RSEM-R6W-EOP	9/12/2018 10:30	UH7644	0.21	0.0696	1.02	1.09	0.0120	1.9	2.9	0.277	0.00109	0.00153	0.224	<0.0001	<0.001	0.131	0.000035	73.0	0.005	0.00183	0.0013
RSEM-R6W-EOP	9/13/2018 12:35	UH7733	0.21	0.0756	1.08	1.15	0.0096	2.3	3.1	0.224	0.00118	0.00159	0.221	<0.0001	<0.001	0.139	0.00004	72.0	0.0059	0.00209	0.00137
RSEM-R6W-EOP	9/14/2018 9:15	UI0649	0.11	0.0764	1.11	1.18	<0.0050	2.1	1.6	0.122	0.00125	0.00161	0.23	<0.0001	<0.001	0.127	0.000039	69.7	0.0058	0.00195	0.0013
RSEM-R6W-EOP	9/15/2018 7:10	UI5252	0.13	0.0732	1.08	1.15	0.0086	2.1	1.7	0.129	0.00119	0.00162	0.224	<0.0001	<0.001	0.13	0.000034	70.9	0.0059	0.00185	0.0013
RSEM-R6W-EOP	9/20/2018 10:40	UJ3868	0.18	0.148	1.29	1.44	0.0191	3.29	3.85	0.29	0.00094	0.00136	0.16	<0.0001	<0.001	0.133	0.000048	75.1	0.0027	0.00243	0.00242
RSEM-R6W-EOP	9/21/2018 10:40	UJ7162	0.071	0.0589	0.945	1.00	<0.0050	2.46	2.74	0.157	0.00095	0.00125	0.184	<0.0001	<0.001	0.126	<0.00001	67.9	0.0046	0.00125	0.00134
RSEM-R6W-EOP	9/22/2018 11:30	UK0063	0.059	0.0454	0.805	0.850	<0.0050	2.20	2.40	0.113	0.00081	0.00106	0.163	<0.0001	<0.001	0.097	0.000034	81.2	0.0038	0.00093	0.0014
RSEM-R6W-EOP	9/23/2018 10:00	UK1526	0.074	0.0418	0.728	0.770	<0.0050	2.46	2.96	0.0731	0.00075	0.0009	0.152	<0.0001	<0.001	0.088	0.000021	61.4	0.0032	0.0008	0.00105

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	6/12/2018 13:30	TQ4133	0.23	<0.0002	0.0388	20.6	0.0169	0.000002	0.0162	0.0063	-	5.46	0.00541	3.87	<0.00002	125	0.58	80.8	0.000024	<0.005	<0.005	0.00219
RSEM-R6W-EOP	6/13/2018 15:35	TQ8813	0.185	<0.0002	0.042	20.3	0.0134	<0.000002	0.0176	0.0062	-	5.14	0.00533	3.66	<0.00002	118	0.62	71.4	0.000026	<0.005	<0.005	0.0022
RSEM-R6W-EOP	6/14/2018 17:10	TQ8828	0.148	<0.0002	0.0398	21.1	0.011	<0.000002	0.0173	0.006	-	5.24	0.00531	3.59	<0.00002	120	0.639	74.1	0.000024	<0.005	<0.005	0.00218
RSEM-R6W-EOP	6/15/2018 17:40	TR1410	0.242	<0.0002	0.0389	20.1	0.0146	<0.000002	0.0169	0.0056	-	5.09	0.00517	4.02	<0.00002	114	0.603	70.2	0.000025	<0.005	0.007	0.00231
RSEM-R6W-EOP	6/16/2018 14:50	TR1374	0.334	<0.0002	0.0385	20.8	0.0425	<0.000002	0.0167	0.0085	-	5.22	0.00461	4.14	<0.00002	114	0.674	73.3	0.000023	<0.005	<0.005	0.00232
RSEM-R6W-EOP	6/17/2018 15:50	TR2101	0.158	<0.0002	0.0379	20.9	0.031	<0.000002	0.0159	0.0071	-	4.90	0.00454	3.71	<0.00002	114	0.622	72.7	0.000024	<0.005	<0.005	0.00232
RSEM-R6W-EOP	6/18/2018 7:00	TR2126	0.105	<0.0002	0.0382	21.2	0.0264	<0.000002	0.0159	0.0069	-	4.97	0.00453	3.7	<0.00002	117	0.617	74.0	0.000023	<0.005	<0.005	0.00225
RSEM-R6W-EOP	6/26/2018	TT0848	1.28	0.00076	0.0383	19.1	0.0557	<0.000002	0.0146	0.0066	-	5.14	0.00371	6.86	0.000026	102	0.518	65.9	0.000043	<0.005	0.0724	0.00231
RSEM-R6W-EOP	6/27/2018 10:55	TT1137	0.621	0.00039	0.057	22.5	0.116	<0.000002	0.0178	0.0165	-	5.57	0.00763	5.38	<0.00002	127	0.6	94.3	0.000033	<0.005	0.0236	0.00289
RSEM-R6W-EOP	6/27/2018 10:55	TT1136	0.568	0.00037	0.0551	21.9	0.111	0.0000021	0.0172	0.016	-	5.37	0.00735	4.93	<0.00002	124	0.585	90.9	0.00003	<0.005	0.0245	0.0028
RSEM-R6W-EOP	7/2/2018 14:40	TU1418	0.592	0.00039	0.0512	22.5	0.0696	<0.000002	0.0166	0.0112	-	5.20	0.00736	4.73	<0.00002	122	0.596	96.6	0.000026	<0.005	0.0208	0.00273
RSEM-R6W-EOP	7/3/2018 15:15	TU4427	0.328	0.00022	0.041	21.6	0.0628	<0.000002	0.0141	0.0235	-	4.57	0.0061	3.33	<0.00002	110	0.526	88.8	0.000017	<0.005	0.0347	0.0024
RSEM-R6W-EOP	7/4/2018 15:45	TU6244	0.227	<0.0002	0.0354	19.8	0.0497	<0.000002	0.0115	0.0068	-	4.32	0.00513	3.1	<0.00002	90.2	0.444	77.7	0.000017	<0.005	<0.005	0.00222
RSEM-R6W-EOP	7/5/2018 11:55	TU8086	0.127	<0.0002	0.0352	20.0	0.04	<0.000002	0.0126	0.0068	-	4.43	0.00544	3.16	<0.00002	87.4	0.463	81.7	0.000016	<0.005	<0.005	0.00228
RSEM-R6W-EOP	7/8/2018 9:45	TV1574	0.226	<0.0002	0.0302	20.9	0.0227	<0.000002	0.0112	0.0051	-	4.21	0.00436	3.55	<0.00002	81.4	0.417	74.0	0.000015	<0.005	0.0073	0.00232
RSEM-R6W-EOP	7/14/2018 12:15	TW3846	0.367	0.00037	0.0286	25.3	0.0248	<0.000002	0.0105	0.0046	-	4.22	0.00386	3.36	<0.00002	86.9	0.472	69.8	0.00002	<0.005	0.0104	0.00259
RSEM-R6W-EOP	7/15/2018 13:00	TW3843	0.152	<0.0002	0.0283	25.2	0.0166	<0.000002	0.0103	0.0039	-	4.07	0.00383	3.18	<0.00002	85.6	0.468	68.7	0.000013	<0.005	<0.005	0.00257
RSEM-R6W-EOP	7/16/2018 14:30	TW5086	0.173	<0.0002	0.0297	26.5	0.0175	<0.000002	0.0107	0.0041	-	4.18	0.0039	3.59	<0.00002	87.6	0.488	77.9	0.000012	<0.005	<0.005	0.00284
RSEM-R6W-EOP	7/20/2018 11:30	TX2837	1.02	0.00059	0.0296	21.7	0.0325	<0.000002	0.0095	0.0037	-	3.98	0.00327	6.1	<0.00002	77.2	0.413	71.7	0.00003	<0.005	0.0419	0.00279
RSEM-R6W-EOP	7/21/2018 9:05	TX5554	1.55	0.00081	0.0267	22.9	0.0421	<0.000002	0.0099	0.0039	-	4.06	0.00315	5.43	<0.00002	80.3	0.447	69.8	0.00003	<0.005	0.0234	0.00265
RSEM-R6W-EOP	7/22/2018 7:10	TX5558	0.21	<0.0002	0.0265	23.9	0.0213	<0.000002	0.0097	0.0039	-	4.13	0.00302	3.77	<0.00002	79.2	0.447	73.8	0.000014	<0.005	<0.005	0.00256
RSEM-R6W-EOP	7/31/2018 17:50	TZ5901	0.421	0.00031	0.0337	20.9	0.0458	<0.000002	0.0126	0.0042	-	5.53	0.00473	3.99	<0.00002	82.2	0.838	70.1	0.000026	<0.005	0.0088	0.00253
RSEM-R6W-EOP	8/1/2018 15:24	TZ8459	0.18	<0.0002	0.0332	20.0	0.0477	<0.000002	0.0127	0.0044	-	6.02	0.00455	3.61	<0.00002	87.0	0.901	74.1	0.000026	<0.005	0.0052	0.00224
RSEM-R6W-EOP	8/2/2018 15:50	UA0960	0.164	<0.0002	0.0354	20.7	0.0353	<0.000002	0.0129	0.0044	-	5.59	0.00425	3.17	<0.00002	90.1	0.901	68.7	0.000024	<0.005	0.0051	0.00188
RSEM-R6W-EOP	8/3/2018 12:21	UA1046	0.228	<0.0002	0.0348	19.3	0.0395	<0.000002	0.0127	0.0044	-	5.42	0.00431	3.2	<0.00002	89.4	0.9	66.5	0.000023	<0.005	<0.005	0.00183
RSEM-R6W-EOP	8/4/2018 16:31	UA3790	0.112	<0.0002	0.0308	16.0	0.0256	<0.000002	0.0114	0.0035	-	4.92	0.00389	2.92	<0.00002	67.3	0.767	55.9	0.000022	<0.005	<0.005	0.00188
RSEM-R6W-EOP	8/5/2018 15:35	UA3841	0.077	<0.0002	0.0314	19.6	0.0221	<0.000002	0.0114	0.0036	-	5.35	0.0043	2.82	<0.00002	88.5	0.78	67.8	0.000021	<0.005	<0.005	0.00192
RSEM-R6W-EOP	8/6/2018 16:03	UA3785	0.109	<0.0002	0.0317	17.9	0.019	<0.000002	0.0124	0.0032	-	5.17	0.00417	2.9	<0.00002	79.3	0.823	58.6	0.000022	<0.005	<0.005	0.00198
RSEM-R6W-EOP	8/7/2018 11:55	UA4368	0.055	<0.0002	0.0326	20.3	0.0161	<0.000002	0.013	0.0034	-	5.21	0.00442	3.02	<0.00002	92.8	0.827	68.5	0.000021	<0.005	<0.005	0.00204
RSEM-R6W-EOP	8/8/2018 8:15	UA6826	0.202	<0.0002	0.0351	21.8	0.0217	<0.000002	0.0141	0.0042	-	5.57	0.00463	3.06	<0.00002	98.1	0.933	71.1	0.000024	<0.005	<0.005	0.00198
RSEM-R6W-EOP	8/9/2018 12:50	UA9168	0.076	<0.0002	0.0327	20.0	0.0116	<0.000002	0.0146	0.0034	-	5.79	0.00467	2.94	<0.00002	95.6	0.845	69.9	0.000021	<0.005	<0.005	0.0021
RSEM-R6W-EOP	8/11/2018 16:00	UB4076	0.229	<0.0002	0.0332	19.5	0.0143	<0.000002	0.0142	0.0042	-	5.30	0.00441	3.03	<0.00002	93.1	0.806	62.3	0.000022	<0.005	<0.005	0.00205
RSEM-R6W-EOP	8/12/2018 15:25	UB4558	0.15	<0.0002	0.0297	18.5	0.0129	<0.000002	0.0136	0.0031	-	4.86	0.00397	2.96	<0.00002	84.9	0.736	59.4	0.000019	<0.005	<0.005	0.00204
RSEM-R6W-EOP	8/13/2018 11:25	UB4587	0.095	<0.0002	0.0326	19.2	0.0103	<0.000002	0.0139	0.0031	-	5.20	0.004	3.02	<0.00002	91.7	0.744	63.0	0.000019	<0.005	<0.005	0.00206
RSEM-R6W-EOP	8/20/2018 10:36	UD1951	0.144	<0.0002	0.0252	24.8	0.0817	<0.000002	0.0124	0.0028	-	4.62	0.00355	2.7	<0.00002	90.7	0.688	67.4	0.000015	<0.005	<0.005	0.00239
RSEM-R6W-EOP	8/21/2018 8:35	UD2058	0.142	<0.0002	0.026	24.0	0.0713	<0.000002	0.0116	0.0029	-	4.92	0.00322	2.84	0.000122	88.5	0.635	63.1	0.000015	<0.005	<0.005	0.00223
RSEM-R6W-EOP	8/22/2018 10:32	UD5025	0.092	<0.0002	0.0267	22.7	0.0553	0.000003	0.0107	0.0024	-	3.99	0.00315	3.18	0.000027	81.8	0.545	58.9	0.000015	<0.005	<0.005	0.00214
RSEM-R6W-EOP	8/23/2018 10:25	UD6751	0.13	<0.0002	0.0249	19.9	0.0405	0.0000036	0.0115	0.0027	-	4.11	0.00288	3.22	0.000054	82.9	0.484	49.5	0.000016	<0.005	<0.005	0.00205
RSEM-R6W-EOP	8/24/2018 9:40	UD8197	0.255	<0.0002	0.0271	21.0	0.04	0.0000051	0.0108	0.0032	-	3.88	0.00258	3.7	<0.00002	79.9	0.478	47.6	0.000016	<0.005	0.0053	0.00206
RSEM-R6W-EOP	8/25/2018 9:35	UE1791	0.162	<0.0002	0.0235	22.1	0.032	0.0000021	0.0102	0.0023	-	3.65	0.00256	2.91	0.000069	74.2	0.479	44.9	0.000013	<0.005	<0.005	0.00201
RSEM-R6W-EOP	8/26/2018 10:55	UE1802	0.168	<0.0002	0.025	21.8	0.0298	<0.000002	0.0099	0.0022	-	3.60	0.00245	3.85	<0.00002	71.1	0.474	44.2	0.000016	<0.005	<0.005	0.00207
RSEM-R6W-EOP	8/27/2018 10:35	UE2121	0.17	<0.0002	0.0245	22.2	0.0271	<0.000002	0.0093	0.0022	-	3.41	0.00232	4.07	<0.00002	67.3	0.465	41.3	0.000015	<0.005	<0.005	0.00205
RSEM-R6W-EOP	8/28/2018 10:45	UE5266	0.143	<0.0002	0.0223	21.7	0.0236	0.000003	0.009	0.0021	-	3.24	0.0022	3.83	0.000029	63.2	0.425	39.3	0.000013	<0.005	<0.005	0.00186
RSEM-R6W-EOP	8/29/2018 12:15	UF1103	0.283	0.00021	0.0248	21.5	0.0215	0.000003	0.0101	0.0029	-	3.38	0.00244	4.31	<0.00002	72.1	0.41	41.1	0.000016	<0.005	0.0142	0.00199
RSEM-R6W-EOP	8/30/2018 10:00	UF1077	0.17	<0.0002	0.0243	20.8	0.0183	0.0000023	0.0097	0.0028	-	3.34	0.00237	3.9	<0.00002	70.8	0.418	38.7	0.000016	<0.005	<0.005	0.00199
RSEM-R6W-EOP	8/31/2018 8:15	UF3969	0.181	<0.0002	0.0242	20.8	0.0176	0.0000033	0.0101	0.003	-	3.33	0.00237	4.17	<0.00002	70.3	0.404	38.9	0.000014	<0.005	<0.005	0.00206
RSEM-R6W-EOP	9/1/2018 3:25	UF6668	0.173	<0.0002	0.0267	22.5	0.0158	0.0000024	0.0098	0.0032	-	3.43	0.00227	4.21	<0.00002	77.4	0.43	37.6	0.000016	<0.005	<0.005	0.00199
RSEM-R6W-EOP	9/2/2018 9:20	UF7757	0.137	<0.0002	0.0259	22.5	0.0152	0.0000025	0.0098	0.0032	-	3.36	0.00218	4.31	<0.00002	75.9	0.417	37.3	0.000014	<0.005	<0.005	0.00191
RSEM-R6W-EOP	9/3/2018 9:40	UF9062	0.17	<0.0002	0.0253	22.0	0.0141	0.0000023	0.0093	0.0031	-	3.23	0.00213	4.19	<0.00002	74.1	0.402	36.3	0.000015	<0.005	<0.005	0.00186
RSEM-R6W-EOP	9/4/2018 15:10	UG0434	0.141	<0.0002	0.0206	20.2	0.0122	<0.000002	0.0086	0.0029	-	2.99	0.00206	3.53	<0.00002	67.6	0.352	32.1	0.000011	<0.005	<0.005	0.00163
RSEM-R6W-EOP	9/5/2018 12:08	UG2834	0.117	<0.0002	0.023	19.6	0.0119	0.0000024	0.0092	0.0028	-	2.90	0.00193	4.21	<0.00002	64.5	0.333	35.1	0.000013	<0.005	<0.005	0.00172
RSEM-R6W-EOP	9/6/2018 11:15	UG2789	0.215	<0.0002	0.0224	22.6	0.0701	0.0000031	0.0087	0.0033	-	3.00	0.0017	4.47	<0.00002	68.8	0.35	47.2	0.000014	<0.005	0.0055	0.00195
RSEM-R6W-EOP	9/7/2018 8:40	UG5294	0.097	<0.0002	0.0219	25.0	0.086	<0.000002	0.0082	0.0025	-	2.88	0.0018	3.34	<0.00002	71.7	0.383	50.4	0.000011	<0.005	<0.005	0.002
RSEM-R6W-EOP	9/8/2018 17:10	UG8746	1.07	0.00055	0.0214	22.0	0.101	<0.000002	0.0075	0.0035	-	2.64	0.00166	4.3	<0.00002	60.9	0.372	48.2	0.000022	<0.005	0.0138	0.0021
RSEM-R6W-EOP	9/9/2018 18:00	UG8718	0.693	0.00044	0.0331	19.2	0.134	<0.000002	0.0102	0.0153	-	3.83	0.00415	3.58	<0.00002	70.0	0.567	62.1	0.000022	<0.005	0.0091	0.00227
RSEM-R6W-EOP	9/10/2018 11:40	UH0971	0.527	0.00033	0.0333	16.8	0.11	0.0000032	0.0125	0.012	-	3.89	0.0049	3.89	<0.00002	68.1	0.498	65.3	0.00002	<0.005	0.0135	0.00206
RSEM-R6W-EOP	9/12/2018 10:30	UH7644	0.166	<0.0002	0.0331	17.0	0.0861	<0.000002	0.014	0.0104	-	3.98	0.00542	3.57	<0.00002	79.7	0.524	62.9	0.000015	<0.005	<0.005	0.00222
RSEM-R6W-EOP	9/13/2018 12:35	UH7733	0.153	<0.0002	0.0359	18.3	0.092	0.0000029	0.0159	0.011	-	4.49	0.00566	3.52	<0.00002	87.7	0.524	68.4	0.000014	<0.005	<0.005	0.00227
RSEM-R6W-EOP	9/14/2018 9:15	UI0649	0.102	<0.0002	0.0338	16.1	0.0846	0.0000029	0.0171	0.0106	-	4.46	0.00546	3.53	<0.00002	77.4	0.465	70.8	0.000012	<0.005	<0.005	0.00204
RSEM-R6W-EOP	9/15/2018 7:10	UI5252	0.082	<0.0002	0.0337	18.3	0.0783	<0.000002	0.0176	0.0097	-	4.64	0.0058	3.4	<0.00002	87.8	0.52	68.6	0.00001	<0.005	<0.005	0.00234
RSEM-R6W-EOP	9/20/2018 10:40	UJ3868	0.486	0.00037	0.0311	20.3	0.0818	0.0000024	0.016	0.0106	-	3.98	0.00307	4.86	<0.00002	101	0.328	66.9	0.000016	<0.005	<0.005	0.0022
RSEM-R6W-EOP	9/21/2018 10:40	UJ7162	0.242	<0.0002	0.0307	18.5	0.0549	<0.000002	0.0145	0.0073	-	4.02	0.00445	3.45	<0.00002	79.7	0.425	60.7	0.000013	<0.005	<0.005	0.00225
RSEM-R6W-EOP	9/22/2018 11:30	UK0063	0.167	0.00023	0.0234	16.9	0.0454	<0.000002	0.0124	0.0059	-	3.71	0.00377	3.36	<0.00002	63.1	0.359	54.1	0.000014	<0.005	<0.005	0.00203
RSEM-R6W-EOP	9/23/2018 10:00	UK1526	0.092	<0.0002	0.021	16.2	0.0345	<0.000002	0.0116	0.0047	-	3.51	0.00343	3.48	<0.00002	57.5	0.322	50.4	0.000012	<0.005	<0.005	0.00194

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	6/12/2018 13:30	TQ4133	<0.005	<0.005	<0.0001	0.0224	0.00125	0.00114	0.122	<0.0001	<0.001	0.196	0.000021	82.9	0.0038	0.00033	0.00178	<0.01	<0.0002	0.0375	20.1	0.0068
RSEM-R6W-EOP	6/13/2018 15:35	TQ8813	<0.005	<0.005	0.00014	0.0215	0.00125	0.00115	0.125	<0.0001	<0.001	0.246	0.000017	79.5	0.0035	<0.0002	0.00195	<0.01	<0.0002	0.0372	19.1	<0.001
RSEM-R6W-EOP	6/14/2018 17:10	TQ8828	<0.005	<0.005	0.00018	0.0216	0.00124	0.00106	0.124	<0.0001	<0.001	0.229	0.000013	78.6	0.0034	0.00021	0.0019	<0.01	<0.0002	0.0373	19.0	0.0013
RSEM-R6W-EOP	6/15/2018 17:40	TR1410	<0.005	<0.005	0.00033	0.0174	0.00119	0.00113	0.121	<0.0001	<0.001	0.223	0.000014	87.1	0.0032	0.00025	0.00188	<0.01	<0.0002	0.0413	19.2	0.0024
RSEM-R6W-EOP	6/16/2018 14:50	TR1374	<0.005	<0.005	0.00046	0.0199	0.0013	0.00101	0.117	<0.0001	<0.001	0.228	0.000017	86.9	0.0025	0.00097	0.00168	<0.01	<0.0002	0.0417	20.4	0.0181
RSEM-R6W-EOP	6/17/2018 15:50	TR2101	<0.005	<0.005	0.00017	0.022	0.00128	0.00108	0.111	<0.0001	<0.001	0.194	0.000019	85.4	0.0027	0.00085	0.00163	<0.01	<0.0002	0.0387	21.4	0.0194
RSEM-R6W-EOP	6/18/2018 7:00	TR2126	<0.005	<0.005	0.00011	0.026	0.00133	0.00109	0.113	<0.0001	<0.001	0.195	0.000017	85.9	0.0028	0.00085	0.00191	<0.01	<0.0002	0.0386	21.8	0.0199
RSEM-R6W-EOP	6/26/2018	TT0848	0.0063	0.0074	0.00114	0.0224	0.00116	0.00094	0.0971	<0.0001	<0.001	0.206	0.000021	66.3	0.0023	0.00068	0.00154	<0.01	<0.0002	0.0389	19.1	0.0235
RSEM-R6W-EOP	6/27/2018 10:55	TT1137	<0.005	<0.005	0.00073	0.0502	0.00127	0.00115	0.115	<0.0001	<0.001	0.218	0.00003	73.4	0.0041	0.00224	0.00116	<0.01	<0.0002	0.0534	19.4	0.0721
RSEM-R6W-EOP	6/27/2018 10:55	TT1136	<0.005	<0.005	0.00066	0.0507	0.00127	0.00116	0.115	<0.0001	<0.001	0.212	0.000029	69.6	0.0044	0.00226	0.00122	<0.01	<0.0002	0.0485	20.6	0.073
RSEM-R6W-EOP	7/2/2018 14:40	TU1418	<0.005	<0.005	0.00058	0.0676	0.00126	0.00105	0.12	<0.0001	<0.001	0.19	0.000018	81.1	0.0043	0.00114	0.00141	<0.01	<0.0002	0.0484	21.5	0.0409
RSEM-R6W-EOP	7/3/2018 15:15	TU4427	<0.005	<0.005	0.00032	0.077	0.00114	0.00092	0.124	<0.0001	<0.001	0.176	0.000026	80.0	0.0038	0.00106	0.00136	<0.01	<0.0002	0.043	21.3	0.047
RSEM-R6W-EOP	7/4/2018 15:45	TU6244	<0.005	<0.005	<0.0001	0.0677	0.00098	0.00085	0.121	<0.0001	<0.001	0.161	0.000027	73.2	0.0031	0.00069	0.00132	<0.01	<0.0002	0.0364	20.8	0.0263
RSEM-R6W-EOP	7/5/2018 11:55	TU8086	<0.005	<0.005	<0.0001	0.0652	0.00095	0.00078	0.126	<0.0001	<0.001	0.145	0.000019	77.7	0.0031	<0.0002	0.0015	<0.01	<0.0002	0.0337	20.9	<0.001
RSEM-R6W-EOP	7/8/2018 9:45	TV1574	<0.005	<0.005	0.0007	0.0566	0.00085	0.0007	0.132	<0.0001	<0.001	0.127	0.000015	79.4	0.0025	0.0003	0.00171	<0.01	<0.0002	0.0306	20.4	0.0034
RSEM-R6W-EOP	7/14/2018 12:15	TW3846	<0.005	<0.005	0.00026	0.042	0.0008	0.00069	0.142	<0.0001	<0.001	0.128	0.000012	85.6	0.0025	0.00028	0.00191	<0.01	<0.0002	0.0297	24.9	0.0054
RSEM-R6W-EOP	7/15/2018 13:00	TW3843	<0.005	<0.005	0.0001	0.0398	0.00078	0.00067	0.135	<0.0001	<0.001	0.122	<0.00001	82.5	0.0025	0.00026	0.00215	<0.01	<0.0002	0.0292	23.8	0.0053
RSEM-R6W-EOP	7/16/2018 14:30	TW5086	<0.005	<0.005	0.00013	0.0414	0.00076	0.00067	0.136	<0.0001	<0.001	0.122	<0.00001	83.9	0.0024	0.00026	0.00189	<0.01	<0.0002	0.0294	24.6	0.0064
RSEM-R6W-EOP	7/20/2018 11:30	TX2837	<0.005	0.0062	0.00074	0.0295	0.00081	0.00081	0.16	<0.0001	<0.001	0.114	0.000012	88.2	0.0021	0.00026	0.00208	<0.01	<0.0002	0.0299	25.0	0.0123
RSEM-R6W-EOP	7/21/2018 9:05	TX5554	<0.005	0.0073	0.00081	0.0257	0.00086	0.00085	0.155	<0.0001	<0.001	0.114	0.00001	83.6	0.0025	0.00026	0.00162	<0.01	<0.0002	0.0264	22.7	0.015
RSEM-R6W-EOP	7/22/2018 7:10	TX5558	<0.005	<0.005	0.00026	0.028	0.00084	0.00083	0.151	<0.0001	<0.001	0.117	0.000012	83.5	0.003	0.00034	0.00176	<0.01	<0.0002	0.0284	24.6	0.0146
RSEM-R6W-EOP	7/31/2018 17:50	TZ5901	<0.005	<0.005	0.00018	0.028	0.00107	0.00105	0.154	<0.0001	<0.001	0.173	0.000029	96.1	0.0031	0.00048	0.00145	<0.01	<0.0002	0.0339	20.7	0.0313
RSEM-R6W-EOP	8/1/2018 15:24	TZ8459	<0.005	<0.005	<0.0001	0.0661	0.00105	0.00101	0.154	<0.0001	<0.001	0.193	0.000033	103	0.0034	0.00064	0.00118	<0.01	<0.0002	0.0337	19.7	0.0403
RSEM-R6W-EOP	8/2/2018 15:50	UA0960	<0.005	<0.005	0.00034	0.0525	0.00092	0.00092	0.156	<0.0001	<0.001	0.2	0.000013	92.7	0.0029	0.00037	0.0011	<0.01	<0.0002	0.0299	17.5	0.0177
RSEM-R6W-EOP	8/3/2018 12:21	UA1046	<0.005	<0.005	0.00014	0.0517	0.00095	0.00094	0.147	<0.0001	<0.001	0.19	0.000012	93.4	0.003	0.00043	0.00092	<0.01	<0.0002	0.0327	18.5	0.0174
RSEM-R6W-EOP	8/4/2018 16:31	UA3790	<0.005	<0.005	<0.0001	0.0219	0.00058	0.00052	0.0987	<0.0001	<0.001	0.119	<0.00001	54.6	0.0016	0.00023	0.00098	<0.01	<0.0002	0.0184	10.7	0.0085
RSEM-R6W-EOP	8/5/2018 15:35	UA3841	<0.005	<0.005	<0.0001	0.0474	0.00094	0.00083	0.15	<0.0001	<0.001	0.191	0.00002	89.5	0.0027	0.00036	0.00127	<0.01	<0.0002	0.0303	17.9	0.0098
RSEM-R6W-EOP	8/6/2018 16:03	UA3785	<0.005	<0.005	<0.0001	0.0441	0.00105	0.00101	0.192	<0.0001	<0.001	0.203	0.000017	90.4	0.0028	0.00036	0.00114	<0.01	<0.0002	0.0318	17.8	0.0123
RSEM-R6W-EOP	8/7/2018 11:55	UA4368	<0.005	<0.005	<0.0001	0.044	0.00109	0.00108	0.199	<0.0001	<0.001	0.222	0.000016	91.0	0.0028	0.00035	0.00136	<0.01	<0.0002	0.0333	19.3	0.0129
RSEM-R6W-EOP	8/8/2018 8:15	UA6826	<0.005	<0.005	<0.0001	0.0385	0.00103	0.00102	0.185	<0.0001	<0.001	0.208	0.000014	92.5	0.0026	0.0003	0.00135	<0.01	<0.0002	0.0318	20.2	0.0133
RSEM-R6W-EOP	8/9/2018 12:50	UA9168	<0.005	<0.005	0.00024	0.0372	0.00112	0.00108	0.216	<0.0001	<0.001	0.206	<0.00001	90.3	0.0027	0.0002	0.00121	<0.01	<0.0002	0.0333	20.1	0.0022
RSEM-R6W-EOP	8/11/2018 16:00	UB4076	<0.005	<0.005	<0.0001	0.0341	0.0011	0.00105	0.217	<0.0001	<0.001	0.197	0.000012	85.9	0.0025	0.00029	0.00153	<0.01	<0.0002	0.0313	19.3	0.0079
RSEM-R6W-EOP	8/12/2018 15:25	UB4558	<0.005	<0.005	<0.0001	0.0337	0.00113	0.00114	0.233	<0.0001	<0.001	0.201	0.00001	80.1	0.0022	0.00029	0.00122	<0.01	<0.0002	0.0324	19.1	0.0079
RSEM-R6W-EOP	8/13/2018 11:25	UB4587	<0.005	<0.005	0.0003	0.0324	0.00111	0.0011	0.231	<0.0001	<0.001	0.197	0.000012	80.4	0.0023	0.00026	0.00128	<0.01	<0.0002	0.0312	19.6	0.0069
RSEM-R6W-EOP	8/20/2018 10:36	UD1951	<0.005	<0.005	<0.0001	0.041	0.00104	0.00109	0.225	<0.0001	<0.001	0.183	0.000012	78.3	0.0023	0.00032	0.00184	<0.01	<0.0002	0.0302	23.2	0.0744
RSEM-R6W-EOP	8/21/2018 8:35	UD2058	<0.005	0.0065	<0.0001	0.0428	0.0011	0.00113	0.265	<0.0001	<0.001	0.194	<0.00001	78.5	0.0021	0.0003	0.0018	<0.01	<0.0002	0.0313	23.7	0.0663
RSEM-R6W-EOP	8/22/2018 10:32	UD5025	<0.005	<0.005	0.00022	0.0459	0.00102	0.00107	0.252	<0.0001	<0.001	0.165	<0.00001	80.6	0.0019	0.00026	0.00164	0.017	<0.0002	0.0274	24.0	0.0528
RSEM-R6W-EOP	8/23/2018 10:25	UD6751	<0.005	<0.005	<0.0001	0.0529	0.00134	0.00137	0.347	<0.0001	<0.001	0.19	<0.00001	71.0	0.0014	0.00025	0.00202	<0.01	<0.0002	0.0287	20.2	0.0224
RSEM-R6W-EOP	8/24/2018 9:40	UD8197	<0.005	0.0106	0.00041	0.0328	0.00111	0.00127	0.337	<0.0001	<0.001	0.169	<0.00001	70.3	0.0012	0.00025	0.00165	<0.01	<0.0002	0.0261	20.2	0.0233
RSEM-R6W-EOP	8/25/2018 9:35	UE1791	<0.005	<0.005	<0.0001	0.542	0.00452	0.00117	0.309	<0.0001	<0.001	0.256	<0.00001	73.5	0.0013	0.00026	0.00177	0.016	0.00021	0.0251	21.1	0.0276
RSEM-R6W-EOP	8/26/2018 10:55	UE1802	<0.005	<0.005	<0.0001	0.0502	0.00104	0.00106	0.314	<0.0001	<0.001	0.149	<0.00001	73.0	0.001	0.00023	0.00209	<0.01	<0.0002	0.0242	20.9	0.0245
RSEM-R6W-EOP	8/27/2018 10:35	UE2121	<0.005	<0.005	0.00011	0.0331	0.00089	0.00103	0.303	<0.0001	<0.001	0.134	<0.00001	73.1	0.001	<0.0002	0.0019	<0.01	<0.0002	0.0234	21.2	0.0211
RSEM-R6W-EOP	8/28/2018 10:45	UE5266	<0.005	<0.005	<0.0001	0.0416	0.00097	0.00097	0.302	<0.0001	<0.001	0.13	<0.00001	71.2	0.001	<0.0002	0.00162	<0.01	<0.0002	0.0216	21.8	0.0188
RSEM-R6W-EOP	8/29/2018 12:15	UF1103	<0.005	<0.005	0.00029	0.0315	0.00099	0.00128	0.326	<0.0001	<0.001	0.136	0.000056	70.1	0.0011	0.00022	0.00137	<0.01	<0.0002	0.0251	21.3	0.0024
RSEM-R6W-EOP	8/30/2018 10:00	UF1077	<0.005	<0.005	0.00013	0.0309	0.00101	0.00132	0.325	<0.0001	<0.001	0.138	<0.00001	75.0	0.001	0.00025	0.00149	<0.01	<0.0002	0.0252	20.8	0.0032
RSEM-R6W-EOP	8/31/2018 8:15	UF3969	<0.005	<0.005	0.00013	0.0303	0.00101	0.00137	0.332	<0.0001	<0.001	0.137	<0.00001	72.1	0.001	0.00029	0.00137	<0.01	<0.0002	0.0251	20.2	0.0053
RSEM-R6W-EOP	9/1/2018 3:25	UF6668	<0.005	<0.005	<0.0001	0.0283	0.001	0.00145	0.331	<0.0001	<0.001	0.139	<0.00001	72.2	0.0011	0.00038	0.00149	<0.01	<0.0002	0.0243	20.6	0.0093
RSEM-R6W-EOP	9/2/2018 9:20	UF7757	<0.005	<0.005	<0.0001	0.0558	0.00102	0.00149	0.343	<0.0001	<0.001	0.149	0.00001	75.7	<0.001	0.00037	0.00136	<0.01	<0.0002	0.0265	21.2	0.0094
RSEM-R6W-EOP	9/3/2018 9:40	UF9062	<0.005	<0.005	0.00012	0.0245	0.00096	0.00136	0.301	<0.0001	<0.001	0.149	<0.00001	69.7	<0.001	0.00031	0.00135	<0.01	<0.0002	0.0262	20.4	0.006
RSEM-R6W-EOP	9/4/2018 15:10	UG0434	<0.005	<0.005	0.00014	0.0268	0.00089	0.00133	0.284	<0.0001	<0.001	0.139	<0.00001	70.3	<0.001	0.00034	0.00118	<0.01	<0.0002	0.0233	21.1	0.0059
RSEM-R6W-EOP	9/5/2018 12:08	UG2834	<0.005	<0.005	<0.0001	0.0316	0.00092	0.00129	0.284	<0.0001	<0.001	0.141	<0.00001	63.4	<0.001	0.00021	0.00107	<0.01	<0.0002	0.0238	20.2	0.0014
RSEM-R6W-EOP	9/6/2018 11:15	UG2789	<0.005	<0.005	0.00015	0.0332	0.00085	0.0012	0.257	<0.0001	<0.001	0.13	<0.00001	70.1	<0.001	0.00023	0.00104	<0.01	<0.0002	0.0232	23.2	0.0161
RSEM-R6W-EOP	9/7/2018 8:40	UG5294	<0.005	<0.005	<0.0001	0.0297	0.00082	0.00118	0.251	<0.0001	<0.001	0.123	<0.00001	74.8	<0.001	0.00027	0.00112	<0.01	<0.0002	0.0224	24.3	0.0292
RSEM-R6W-EOP	9/8/2018 17:10	UG8746	<0.005	0.0053	0.00025	0.0217	0.00071	0.00103	0.225	<0.0001	<0.001	0.109	<0.00001	74.4	<0.001	0.00038	0.00123	<0.01	<0.0002	0.0204	23.0	0.0646
RSEM-R6W-EOP	9/9/2018 18:00	UG8718	<0.005	0.0073	0.00029	0.0563	0.00083	0.00103	0.22	<0.0001	<0.001	0.113	0.000049	78.6	0.0029	0.00291	0.0012	<0.01	<0.0002	0.0315	18.8	0.117
RSEM-R6W-EOP	9/10/2018 11:40	UH0971	<0.005	<0.005	0.00041	0.0524	0.00105	0.00147	0.238	<0.0001	<0.001	0.122	0.000031	78.9	0.0046	0.00203	0.00107	<0.01	<0.0002	0.0321	19.0	0.104
RSEM-R6W-EOP	9/12/2018 10:30	UH7644	<0.005	<0.005	0.00013	0.0608	0.00118	0.00148	0.235	<0.0001	<0.001	0.131	0.000027	81.3	0.005	0.0018	0.00111	<0.01	<0.0002	0.0348	18.5	0.0849
RSEM-R6W-EOP	9/13/2018 12:35	UH7733	<0.005	<0.005	<0.0001	0.0684	0.00121	0.00154	0.229	<0.0001	<0.001	0.138	0.000029	77.4	0.0057	0.0019	0.00117	<0.01	<0.0002	0.0344	18.2	0.0865
RSEM-R6W-EOP	9/14/2018 9:15	UI0649	<0.005	<0.005	0.00012	0.0668	0.00123	0.0016	0.233	<0.0001	<0.001	0.129	0.000031	70.3	0.0059	0.00176	0.00122	<0.01	<0.0002	0.0351	17.5	0.0737
RSEM-R6W-EOP	9/15/2018 7:10	UI5252	<0.005	<0.005	<0.0001	0.0653	0.00122	0.00152	0.232	<0.0001	<0.001	0.127	0.00003	71.2	0.006	0.00177	0.0011	<0.01	<0.0002	0.0334	17.3	0.0721
RSEM-R6W-EOP	9/20/2018 10:40	UJ3868	<0.005	0.0077	0.00011	0.0544	0.00093	0.00114	0.153	<0.0001	<0.001	0.148	0.000014	66.2	0.0024	0.00211	0.00179	0.013	<0.0002	0.0325	21.6	0.0723
RSEM-R6W-EOP	9/21/2018 10:40	UJ7162	<0.005	<0.005	<0.0001	0.0418	0.00102	0.00115	0.185	<0.0001	<0.001	0.123	0.000023	67.8	0.0047	0.00103	0.00106	<0.01	<0.0002	0.0315	18.5	0.0443
RSEM-R6W-EOP	9/22/2018 11:30	UK0063	<0.005	<0.005	0.00027	0.0256	0.00086	0.00099	0.168	<0.0001	<0.001	0.099	0.000023	67.5	0.0038	0.00092	0.00125	<0.01	<0.0002	0.0245	17.6	0.0389
RSEM-R6W-EOP	9/23/2018 10:00	UK1526	<0.005	<0.005	<0.0001	0.0285	0.00078	0.00092	0.158	<0.0001	<0.001	0.095	0.000017	63.1	0.0033	0.00074	0.00112	<0.01	<0.0002	0.0225	16.8	0.0304

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	6/12/2018 13:30	TQ4133	<0.000002	0.0179	0.0059	-	5.78	0.00538	3.65	<0.00002	121	0.616	85.8	0.000022	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/13/2018 15:35	TQ8813	<0.000002	0.0176	0.0056	-	5.03	0.0053	3.69	<0.00002	115	0.596	74.4	0.000022	<0.005	<0.005	0.00222	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/14/2018 17:10	TQ8828	<0.000002	0.0171	0.0052	-	5.01	0.00536	3.5	<0.00002	120	0.568	76.0	0.000023	<0.005	<0.005	0.00224	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/15/2018 17:40	TR1410	<0.000002	0.0171	0.0049	-	5.09	0.00526	3.83	<0.00002	105	0.591	72.1	0.000019	<0.005	<0.005	0.00223	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/16/2018 14:50	TR1374	<0.000002	0.0165	0.0073	-	5.07	0.00493	3.69	<0.00002	106	0.638	78.0	0.000023	<0.005	<0.005	0.00232	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/17/2018 15:50	TR2101	<0.000002	0.0166	0.0071	-	5.08	0.00456	3.57	<0.00002	118	0.683	75.7	0.000017	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/18/2018 7:00	TR2126	<0.000002	0.0171	0.007	-	5.30	0.00452	3.58	<0.00002	122	0.686	77.9	0.000018	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/26/2018	TT0848	<0.000002	0.014	0.0045	-	4.78	0.00367	3.1	<0.00002	103	0.503	65.6	0.000014	<0.005	<0.005	0.00216	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/27/2018 10:55	TT1137	<0.000002	0.017	0.0135	-	5.04	0.00691	3.39	<0.00002	116	0.558	89.7	0.000018	<0.005	<0.005	0.00246	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	6/27/2018 10:55	TT1136	<0.000002	0.0164	0.0137	-	5.11	0.00693	3.18	<0.00002	118	0.531	89.8	0.000019	<0.005	<0.005	0.00245	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/2/2018 14:40	TU1418	<0.000002	0.0163	0.0096	-	4.85	0.00808	2.96	<0.00002	120	0.544	90.1	0.000016	<0.005	<0.005	0.00282	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/3/2018 15:15	TU4427	<0.000002	0.0149	0.0085	-	4.92	0.00668	2.97	<0.00002	108	0.525	91.0	0.000015	<0.005	<0.005	0.00251	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/4/2018 15:45	TU6244	<0.000002	0.013	0.0064	-	4.42	0.00546	2.91	<0.00002	93.8	0.501	82.8	0.000012	<0.005	<0.005	0.00225	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/5/2018 11:55	TU8086	<0.000002	0.013	0.0059	-	4.20	0.00526	3.18	<0.00002	90.6	0.503	78.0	0.000013	<0.005	<0.005	0.00246	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/8/2018 9:45	TV1574	<0.000002	0.011	0.0041	-	4.08	0.00452	3.07	<0.00002	79.2	0.423	73.6	0.000013	<0.005	<0.005	0.00224	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/14/2018 12:15	TW3846	<0.000002	0.011	0.0034	-	4.06	0.00401	3.26	<0.00002	83.5	0.48	74.2	0.000013	<0.005	<0.005	0.0027	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/15/2018 13:00	TW3843	<0.000002	0.0102	0.0033	-	3.95	0.00386	3.07	<0.00002	79.5	0.455	72.7	<0.00001	<0.005	<0.005	0.00257	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/16/2018 14:30	TW5086	<0.000002	0.0098	0.0034	-	3.88	0.00371	3.22	<0.00002	81.0	0.454	72.3	0.000011	<0.005	<0.005	0.00261	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/20/2018 11:30	TX2837	<0.000002	0.0098	0.0024	-	3.82	0.00351	3.45	<0.00002	90.8	0.439	74.8	0.000013	<0.005	<0.005	0.00272	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/21/2018 9:05	TX5554	<0.000002	0.0097	0.0021	-	3.87	0.00346	3.75	<0.00002	80.2	0.402	71.6	0.00001	<0.005	<0.005	0.0026	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/22/2018 7:10	TX5558	<0.000002	0.0098	0.0037	-	4.19	0.00337	3.95	<0.00002	82.6	0.407	79.8	0.00001	<0.005	<0.005	0.00265	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	7/31/2018 17:50	TZ5901	<0.000002	0.013	0.0033	-	5.26	0.00496	3.1	<0.00002	84.1	0.865	68.3	0.000016	<0.005	<0.005	0.00268	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/1/2018 15:24	TZ8459	<0.000002	0.0128	0.0042	-	6.07	0.00464	3.46	<0.00002	86.1	0.938	77.0	0.000024	<0.005	<0.005	0.00225	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/2/2018 15:50	UA0960	<0.000002	0.0121	0.0034	-	5.47	0.00407	3.13	<0.00002	76.3	0.831	70.3	0.000022	<0.005	<0.005	0.00191	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/3/2018 12:21	UA1046	<0.000002	0.0122	0.0035	-	5.64	0.00451	3.17	<0.00002	83.3	0.843	68.9	0.000022	<0.005	<0.005	0.00189	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/4/2018 16:31	UA3790	<0.000002	0.007	0.002	-	2.99	0.00238	1.65	<0.00002	44.2	0.482	38.9	0.000013	<0.005	<0.005	0.00116	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/5/2018 15:35	UA3841	<0.000002	0.0118	0.0031	-	5.24	0.00397	2.77	<0.00002	74.8	0.798	68.6	0.000022	<0.005	<0.005	0.002	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/6/2018 16:03	UA3785	<0.000002	0.0128	0.0031	-	5.16	0.00426	2.79	<0.00002	81.9	0.83	67.5	0.000021	<0.005	<0.005	0.00199	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/7/2018 11:55	UA4368	<0.000002	0.0131	0.0034	-	5.26	0.00448	2.75	<0.00002	86.6	0.847	61.0	0.000021	<0.005	<0.005	0.00209	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/8/2018 8:15	UA6826	<0.000002	0.0123	0.0035	-	5.21	0.00445	2.92	<0.00002	84.4	0.793	63.2	0.000021	<0.005	<0.005	0.00202	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/9/2018 12:50	UA9168	<0.000002	0.0132	0.0032	-	5.47	0.00446	2.87	<0.00002	90.3	0.819	68.4	0.00002	<0.005	<0.005	0.00208	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/11/2018 16:00	UB4076	<0.000002	0.0133	0.0027	-	5.36	0.00461	2.74	<0.00002	90.8	0.813	64.9	0.00002	<0.005	<0.005	0.00203	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/12/2018 15:25	UB4558	<0.000002	0.0135	0.0028	-	5.07	0.0041	2.78	<0.00002	87.3	0.751	61.1	0.00002	<0.005	<0.005	0.00205	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/13/2018 11:25	UB4587	<0.000002	0.0128	0.0027	-	5.13	0.00403	2.84	<0.00002	87.0	0.712	62.2	0.00002	<0.005	<0.005	0.00205	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/20/2018 10:36	UD1951	<0.000002	0.0126	0.0026	-	4.73	0.00344	2.81	<0.00002	86.1	0.669	70.7	0.000013	<0.005	<0.005	0.00229	<0.005	0.0065	<0.0001
RSEM-R6W-EOP	8/21/2018 8:35	UD2058	<0.000002	0.0125	0.0025	-	4.96	0.00333	2.94	<0.00002	87.2	0.672	64.7	0.000014	<0.005	<0.005	0.0023	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/22/2018 10:32	UD5025	<0.000002	0.0118	0.0025	-	4.46	0.00345	3.15	<0.00002	84.9	0.584	65.2	0.000013	<0.005	<0.005	0.0023	<0.005	0.0201	<0.0001
RSEM-R6W-EOP	8/23/2018 10:25	UD6751	<0.000002	0.0124	0.0023	-	4.69	0.00303	3.37	0.000043	84.2	0.517	56.9	0.000015	<0.005	<0.005	0.00212	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/24/2018 9:40	UD8197	<0.000002	0.0111	0.0021	-	4.01	0.00277	3.51	<0.00002	76.5	0.473	49.7	0.000015	<0.005	<0.005	0.00204	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/25/2018 9:35	UE1791	<0.000002	0.0104	0.0021	-	3.54	0.00262	3.54	<0.00002	71.6	0.471	47.7	0.000011	<0.005	<0.005	0.00195	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/26/2018 10:55	UE1802	<0.000002	0.0101	0.002	-	3.39	0.00249	3.57	<0.00002	69.2	0.448	46.1	0.000012	<0.005	<0.005	0.00202	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/27/2018 10:35	UE2121	<0.000002	0.0094	0.0018	-	3.27	0.00234	3.65	<0.00002	65.4	0.435	43.2	0.000012	<0.005	<0.005	0.00199	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/28/2018 10:45	UE5266	<0.000002	0.0089	0.0017	-	3.13	0.00237	3.52	<0.00002	63.2	0.415	39.7	0.000011	<0.005	<0.005	0.00187	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/29/2018 12:15	UF1103	<0.000002	0.0102	0.0023	-	3.42	0.00243	4.14	<0.00002	71.9	0.409	42.3	0.000012	<0.005	<0.005	0.00193	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/30/2018 10:00	UF1077	<0.000002	0.0104	0.0024	-	3.33	0.00256	4.08	<0.00002	71.3	0.407	41.3	0.000012	<0.005	<0.005	0.00195	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	8/31/2018 8:15	UF3969	<0.000002	0.0104	0.0027	-	3.26	0.00243	4.05	<0.00002	71.3	0.402	37.8	0.000012	<0.005	<0.005	0.00194	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/1/2018 3:25	UF6668	<0.000002	0.01	0.0029	-	3.18	0.00228	4.07	<0.00002	70.0	0.398	37.0	0.000012	<0.005	<0.005	0.00194	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/2/2018 9:20	UF7757	<0.000002	0.0104	0.0028	-	3.36	0.00236	4.46	<0.00002	73.7	0.396	39.9	0.000011	<0.005	<0.005	0.00196	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/3/2018 9:40	UF9062	<0.000002	0.0094	0.0027	-	3.08	0.00215	3.65	<0.00002	69.7	0.371	33.5	0.000012	<0.005	<0.005	0.00181	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/4/2018 15:10	UG0434	<0.000002	0.009	0.0027	-	3.09	0.00205	3.95	<0.00002	69.4	0.373	33.4	0.000011	<0.005	<0.005	0.00176	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/5/2018 12:08	UG2834	<0.000002	0.0095	0.0026	-	2.96	0.00208	4.07	<0.00002	68.0	0.34	34.6	0.00001	<0.005	<0.005	0.00177	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/6/2018 11:15	UG2789	<0.000002	0.0088	0.0023	-	2.92	0.00192	4.12	<0.00002	70.4	0.347	47.6	0.000012	<0.005	<0.005	0.00193	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/7/2018 8:40	UG5294	<0.000002	0.0086	0.0024	-	2.91	0.00174	4.15	<0.00002	72.2	0.357	53.6	0.000011	<0.005	<0.005	0.00204	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/8/2018 17:10	UG8746	<0.000002	0.0076	0.0025	-	2.75	0.00159	3.52	<0.00002	64.6	0.39	51.4	0.000013	<0.005	<0.005	0.00201	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/9/2018 18:00	UG8718	<0.000002	0.01	0.0134	-	3.72	0.00392	3.1	<0.00002	68.0	0.562	62.6	0.000016	<0.005	<0.005	0.00207	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/10/2018 11:40	UH0971	<0.000002	0.0124	0.0112	-	4.10	0.00507	3.38	<0.00002	76.7	0.496	69.2	0.000013	<0.005	<0.005	0.00207	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/12/2018 10:30	UH7644	<0.000002	0.014	0.0101	-	4.40	0.00561	3.48	<0.00002	85.7	0.498	69.5	0.000013	<0.005	<0.005	0.00218	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/13/2018 12:35	UH7733	<0.000002	0.0158	0.0104	-	4.84	0.00573	3.65	<0.00002	88.7	0.484	76.1	0.000012	<0.005	<0.005	0.00223	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/14/2018 9:15	UI0649	<0.000002	0.0178	0.0095	-	4.73	0.00569	3.63	<0.00002	82.8	0.456	75.7	0.000013	<0.005	<0.005	0.00218	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/15/2018 7:10	UI5252	<0.000002	0.0167	0.0098	-	4.39	0.00555	3.47	<0.00002	83.0	0.466	69.4	0.000012	<0.005	<0.005	0.00217	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/20/2018 10:40	UJ3868	<0.000002	0.0174	0.0101	-	4.19	0.00309	3.88	<0.00002	108	0.374	70.0	0.000014	<0.005	<0.005	0.00227	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/21/2018 10:40	UJ7162	<0.000002	0.0148	0.0067	-	4.03	0.00482	3.71	<0.00002	77.2	0.449	61.0	<0.00001	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/22/2018 11:30	UK0063	<0.000002	0.0136	0.006	-	3.80	0.00389	3.27	<0.00002	69.9	0.407	66.9	0.000013	<0.005	<0.005	0.0021	<0.005	0.0057	<0.0001
RSEM-R6W-EOP	9/23/2018 10:00	UK1526	<0.000002	0.0122	0.0048	-	3.55	0.00361	3.47	<0.00002	61.7	0.334	50.0	0.000011	<0.005	<0.005	0.00204	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	9/24/2018 8:35	UK0551	8.19	733	2.91	424	5.5	229	226	152	<1.0	185	<1.0	<1.0	43.5	0.330	0.62	142
RSEM-R6W-EOP	9/25/2018 9:35	UK2337	8.19	751	5.54	454	5.8	228	235	163	<1.0	199	<1.0	<1.0	46.5	0.320	0.63	159
RSEM-R6W-EOP	9/26/2018 12:10	UK5504	8.03	747	2.83	462	4.5	231	247	160	<1.0	195	<1.0	<1.0	41.7	0.290	0.65	153
RSEM-R6W-EOP	9/27/2018 8:50	UK8654	8.17	765	2.44	482	<4.0	238	248	161	<1.0	197	<1.0	<1.0	42.2	0.320	0.65	169
RSEM-R6W-EOP	9/28/2018 10:10	UL0966	8.30	969	1.02	618	4.5	350	326	204	<1.0	249	<1.0	<1.0	40.7	0.280	0.60	245
RSEM-R6W-EOP	9/29/2018 11:10	UL4207	8.16	1030	1.59	664	<4.0	369	346	206	<1.0	252	<1.0	<1.0	39.9	0.350	0.60	263
RSEM-R6W-EOP	9/30/2018 12:55	UL4213	8.34	1120	4.99	724	7.5	414	398	251	2.9	299	3.4	<1.0	35.7	0.290	0.55	285
RSEM-R6W-EOP	10/1/2018 10:40	UL6711	8.22	1130	3.38	718	5.3	396	405	255	<1.0	311	<1.0	<1.0	35.3	0.310	0.59	277
RSEM-R6W-EOP	10/4/2018 11:40	UM6148	8.23	1120	5.53	702	6.0	348	393	256	<1.0	313	<1.0	<1.0	43.4	0.270	0.57	243
RSEM-R6W-EOP	10/5/2018 9:50	UM6133	8.18	1130	5.29	698	5.8	374	352	248	<1.0	302	<1.0	<1.0	39.1	0.270	0.67	269
RSEM-R6W-EOP	10/6/2018 16:05	UM9335	8.19	1130	3.58	706	9.3	337	343	255	<1.0	311	<1.0	<1.0	45.4	0.280	0.72	249
RSEM-R6W-EOP	10/7/2018 13:10	UM9327	8.18	1130	11.5	704	16.3	332	337	255	<1.0	311	<1.0	<1.0	51.2	0.290	0.75	268
RSEM-R6W-EOP	10/12/2018 9:45	UN7469	8.27	1200	9.47	734	9.8	316	322	254	<1.0	310	<1.0	<1.0	56.4	0.340	0.80	311
RSEM-R6W-EOP	10/13/2018 12:00	UN9932	8.28	1190	8.86	720	15.8	293	297	249	<1.0	304	<1.0	<1.0	51.9	0.330	0.97	263
RSEM-R6W-EOP	10/14/2018 12:00	UN9927	8.30	1170	14.2	740	14.3	278	286	252	<1.0	307	<1.0	<1.0	55.2	0.350	0.85	288
RSEM-R6W-EOP	10/15/2018 15:00	UO4611	8.31	1180	7.82	730	14.5	276	288	248	1.7	299	2.0	<1.0	54.5	0.360	1.0	297
RSEM-R6W-EOP	10/16/2018 11:55	UO9190	8.31	1180	8.04	742	9.8	288	291	247	1.8	296	2.2	<1.0	53.9	0.360	0.90	252
RSEM-R6W-EOP	10/17/2018 15:00	UO9200	8.30	1180	4.48	736	7.5	295	286	246	1.2	298	1.4	<1.0	54.6	0.360	0.97	250
RSEM-R6W-EOP	10/18/2018 17:40	UP3094	8.34	1180	3.93	719	5.5	272	283	252	2.7	300	3.3	<1.0	52.8	0.440	0.99	271
RSEM-R6W-EOP	10/19/2018 9:30	UP3098	8.32	1170	3.27	744	5.0	277	284	250	1.9	300	2.2	<1.0	59.2	0.450	1.0	268
RSEM-R6W-EOP	10/20/2018 8:25	UP6166	8.34	1280	1.99	786	8.8	326	318	264	2.0	317	2.4	<1.0	58.5	0.410	1.3	261
RSEM-R6W-EOP	10/21/2018 16:25	UP5459	8.30	1380	5.24	860	9.3	356	365	281	<1.0	342	<1.0	<1.0	57.2	0.390	1.1	316
RSEM-R6W-EOP	10/22/2018 9:10	UP6172	8.27	1390	1.75	892	5.5	392	396	272	<1.0	332	<1.0	<1.0	58.1	0.390	1.1	314
RSEM-R6W-EOP	10/26/2018 12:40	UQ5566	8.08	1540	1.13	1070	<4.0	457	441	264	<1.0	322	<1.0	<1.0	48.6	0.290	0.93	427
RSEM-R6W-EOP	10/27/2018 13:30	UQ8570	8.27	1580	1.20	1130	5.0	484	508	293	<1.0	358	<1.0	<1.0	52.0	0.290	0.84	476
RSEM-R6W-EOP	10/28/2018 15:10	UQ8587	8.19	1620	1.86	1140	4.0	521	528	289	<1.0	353	<1.0	<1.0	51.1	0.270	0.82	423
RSEM-R6W-EOP	10/29/2018 12:55	UR1747	8.21	1610	2.14	1120	<4.0	488	486	279	<1.0	340	<1.0	<1.0	52.5	0.260	0.88	493
RSEM-R6W-EOP	10/30/2018 11:20	UR2637	8.23	1610	2.48	1130	<4.0	493	517	271	<1.0	331	<1.0	<1.0	49.6	0.250	0.90	466
RSEM-R6W-EOP	10/31/2018 11:50	UR7288	8.21	1700	0.51	1220	<4.0	541	537	286	<1.0	349	<1.0	<1.0	47.0	0.270	0.90	531
RSEM-R6W-EOP	11/1/2018 8:55	UR8081	8.21	1690	1.47	1180	4.3	555	488	283	<1.0	345	<1.0	<1.0	45.4	0.250	1.0	543
RSEM-R6W-EOP	11/2/2018 8:30	US0225	8.21	1720	1.25	1210	4.5	572	564	288	<1.0	351	<1.0	<1.0	39.7	0.270	0.78	547
RSEM-R6W-EOP	11/3/2018 16:05	US3564	8.28	1750	1.85	1190	5.0	582	555	299	<1.0	365	<1.0	<1.0	44.9	0.280	0.83	597
RSEM-R6W-EOP	11/4/2018 13:00	US3567	8.28	1730	1.51	1210	<4.0	594	564	301	<1.0	368	<1.0	<1.0	45.8	0.290	0.83	557
RSEM-R6W-EOP	11/5/2018 16:20	US7026	8.25	1800	1.16	1230	4.8	576	566	305	<1.0	372	<1.0	<1.0	46.7	0.300	0.99	587
RSEM-R6W-EOP	11/6/2018 13:55	US9398	8.20	1800	2.05	1260	10.3	580	582	290	<1.0	354	<1.0	<1.0	46.2	0.300	1.0	608
RSEM-R6W-EOP	11/7/2018 14:35	UT1525	8.13	1800	1.13	1260	4.8	533	546	286	<1.0	350	<1.0	<1.0	46.4	0.290	1.0	540
RSEM-R6W-EOP	11/8/2018 6:30	UT3575	8.15	1800	1.02	-	<4.0	568	544	288	<1.0	351	<1.0	<1.0	47.5	0.280	1.0	585
RSEM-R6W-EOP	11/9/2018 5:50	UT3612	8.24	1680	2.39	1170	6.0	500	482	293	<1.0	358	<1.0	<1.0	49.8	0.280	1.1	497
RSEM-R6W-EOP	11/10/2018 9:50	UT4954	8.18	1540	2.60	1010	<4.0	449	446	294	<1.0	359	<1.0	<1.0	47.8	0.280	1.0	413
RSEM-R6W-EOP	11/11/2018 9:15	UT4846	8.19	1530	2.42	1020	4.5	450	445	307	<1.0	375	<1.0	<1.0	45.4	0.300	1.0	381
RSEM-R6W-EOP	11/12/2018 9:50	UT6582	8.28	1550	2.41	1010	5.0	433	447	329	<1.0	401	<1.0	<1.0	48.4	0.320	0.91	421
RSEM-R6W-EOP	11/13/2018 12:05	UT9226	8.19	1540	3.15	1030	5.3	463	452	310	<1.0	379	<1.0	<1.0	51.5	0.280	0.95	397
RSEM-R6W-EOP	11/13/2018 12:05	UT9228	8.24	1500	3.08	1000	5.8	458	447	305	<1.0	372	<1.0	<1.0	50.3	0.300	0.94	397
RSEM-R6W-EOP	11/14/2018 13:15	UU0940	8.24	1560	2.58	948	4.3	467	456	327	<1.0	398	<1.0	<1.0	51.4	0.310	1.0	388
RSEM-R6W-EOP	11/15/2018 11:05	UU0901	8.24	1560	1.99	1040	<4.0	483	478	330	<1.0	402	<1.0	<1.0	50.9	0.310	1.0	401
RSEM-R6W-EOP	11/16/2018 11:45	UU3467	8.24	1570	2.33	992	<4.0	497	461	311	<1.0	379	<1.0	<1.0	52.4	0.310	0.93	432
RSEM-R6W-EOP	11/17/2018 12:30	UU6433	8.08	1580	1.48	1020	<4.0	512	477	344	<1.0	420	<1.0	<1.0	52.1	0.290	0.86	416
RSEM-R6W-EOP	11/18/2018 12:20	UU6366	8.21	1630	0.78	1090	4.8	521	489	344	<1.0	419	<1.0	<1.0	52.5	0.310	0.90	436
RSEM-R6W-EOP	11/19/2018 11:50	UU8730	8.22	1530	2.36	854	6.8	461	447	328	<1.0	400	<1.0	<1.0	51.1	0.280	0.89	397
RSEM-R6W-EOP	11/20/2018 11:40	UU8805	8.26	1480	2.72	944	4.3	433	387	330	<1.0	403	<1.0	<1.0	50.5	0.300	0.84	362
RSEM-R6W-EOP	11/21/2018 12:15	UV2698	8.22	1490	4.42	956	7.5	383	384	330	<1.0	403	<1.0	<1.0	58.8	0.330	0.97	380
RSEM-R6W-EOP	11/22/2018 12:50	UV5073	8.31	1480	1.53	902	<4.0	331	336	328	1.8	396	2.1	<1.0	66.9	0.340	1.1	377
RSEM-R6W-EOP	11/23/2018 13:20	UV5086	8.25	1460	2.53	918	5.8	308	313	324	<1.0	395	<1.0	<1.0	68.6	0.340	1.2	367
RSEM-R6W-EOP	11/24/2018 11:00	UV7552	8.28	1460	4.81	882	4.5	298	292	322	<1.0	392	<1.0	<1.0	68.5	0.350	1.3	306
RSEM-R6W-EOP	11/25/2018 12:50	UV7535	8.29	1480	2.69	898	6.0	290	283	325	<1.0	397	<1.0	<1.0	70.3	0.370	1.4	311
RSEM-R6W-EOP	11/26/2018 14:10	UV9443	8.26	1470	2.45	918	6.3	266	271	322	<1.0	392	<1.0	<1.0	72.0	0.380	1.4	316
RSEM-R6W-EOP	11/27/2018 12:00	UW1674	8.33	1460	1.88	924	5.5	238	268	312	2.3	375	2.8	<1.0	78.9	0.380	1.5	317
RSEM-R6W-EOP	11/28/2018 14:00	UW6194	8.38	1450	2.14	882	8.8	233	222	305	3.1	364	3.7	<1.0	78.7	0.380	1.5	281
RSEM-R6W-EOP	11/29/2018 11:50	UW6191	8.41	1350	39.7	798	43.3	200	191	275	3.3	327	4.0	<1.0	76.8	0.380	1.5	256
RSEM-R6W-EOP	12/9/2018 13:35	UX7487	8.42	1410	16.3	862	21.0	174	159	244	3.8	289	4.5	<1.0	91.1	0.410	1.8	265
RCC-RSEM-R6-WP-IN	12/8/2018 14:30	UX7483	9.51	1970	166	1190	184	112	46.0	313	67.0	218	80.4	<1.0	175	0.540	3.3	334
RCC-RSEM-R6-WP-IN	12/27/2018 14:55	VA2811	9.17	1550	63.0	932	104	104	58.2	284	31.1	271	37.3	<1.0	124	0.510	2.2	254
RSEM-R6W-SP	1/1/2018 11:20	ST3044	8.32	1480	4.05	870	4.5	221	227	330	2.4	396	2.9	<1.0	116	0.420	2.06	253
RSEM-R6W-SP	1/2/2018 11:40	ST4211	8.28	1470	2.99	834	4.3	221	218	340	<1.0	415	<1.0	<1.0	116	0.380	2.13	257

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	9/24/2018 8:35	UK0551	<0.020	0.0429	0.721	0.764	0.0063	3.08	2.54	0.0785	0.00076	0.0009	0.155	<0.0001	<0.001	0.094	0.000021	63.0	0.0031	0.00083	0.00109
RSEM-R6W-EOP	9/25/2018 9:35	UK2337	0.14	0.0425	0.735	0.777	<0.0050	2.89	2.86	0.112	0.00075	0.00097	0.149	<0.0001	<0.001	0.092	<0.00001	60.8	0.0032	0.00083	0.00156
RSEM-R6W-EOP	9/26/2018 12:10	UK5504	0.092	0.0390	0.743	0.782	<0.0050	2.89	2.43	0.104	0.00072	0.00091	0.149	<0.0001	<0.001	0.096	0.000023	62.8	0.0028	0.0007	0.00121
RSEM-R6W-EOP	9/27/2018 8:50	UK8654	0.032	0.0402	0.721	0.761	<0.0050	3.27	1.97	0.0731	0.00073	0.00084	0.144	<0.0001	<0.001	0.091	0.000023	65.1	0.0028	0.00069	0.00117
RSEM-R6W-EOP	9/28/2018 10:10	UL0966	0.070	0.0526	1.73	1.79	<0.0050	2.9	2.15	0.0795	0.00069	0.00085	0.152	<0.0001	<0.001	0.084	0.000059	94.2	0.0024	0.00135	0.00112
RSEM-R6W-EOP	9/29/2018 11:10	UL4207	0.098	0.0356	0.604	0.639	<0.0050	1.8	2.8	0.0775	0.00066	0.0008	0.15	<0.0001	<0.001	0.094	0.000078	98.2	0.0022	0.00194	0.00116
RSEM-R6W-EOP	9/30/2018 12:55	UL4213	0.11	0.0304	0.512	0.542	<0.0050	2.1	2.6	0.213	0.00057	0.00077	0.174	<0.0001	<0.001	0.093	0.000101	112	0.0017	0.00266	0.00118
RSEM-R6W-EOP	10/1/2018 10:40	UL6711	0.093	0.0265	0.492	0.518	<0.0050	2.9	2.9	0.0832	0.00058	0.00069	0.177	<0.0001	<0.001	0.086	0.000079	103	0.0015	0.0024	0.00105
RSEM-R6W-EOP	10/4/2018 11:40	UM6148	0.11	0.0273	0.467	0.494	<0.0050	2.7	2.7	0.0858	0.00065	0.00081	0.188	<0.0001	<0.001	0.098	0.00007	91.1	0.0016	0.00199	0.0013
RSEM-R6W-EOP	10/5/2018 9:50	UM6133	0.096	0.0298	0.474	0.503	<0.0050	2.2	2.4	0.0838	0.00075	0.00095	0.193	<0.0001	<0.001	0.109	0.000059	98.7	0.0019	0.00195	0.00118
RSEM-R6W-EOP	10/6/2018 16:05	UM9335	0.11	0.0363	0.474	0.510	<0.0050	1.4	1.4	0.206	0.00084	0.00124	0.192	<0.0001	<0.001	0.122	0.000037	88.2	0.0022	0.00156	0.00128
RSEM-R6W-EOP	10/7/2018 13:10	UM9327	0.11	0.0389	0.471	0.510	<0.0050	1.5	1.3	0.372	0.00087	0.00146	0.194	<0.0001	<0.001	0.133	0.000034	87.9	0.0026	0.00148	0.00147
RSEM-R6W-EOP	10/12/2018 9:45	UN7469	0.18	0.0357	0.516	0.551	<0.0050	2.6	2.5	0.232	0.00115	0.00179	0.176	<0.0001	<0.001	0.157	0.000032	82.0	0.0036	0.00205	0.00169
RSEM-R6W-EOP	10/13/2018 12:00	UN9932	0.15	0.0430	0.631	0.674	<0.0050	2.2	2.3	0.277	0.0014	0.00229	0.182	<0.0001	<0.001	0.172	0.000025	75.8	0.0067	0.00159	0.00213
RSEM-R6W-EOP	10/14/2018 12:00	UN9927	0.21	0.0624	0.641	0.703	<0.0050	2.2	2.0	0.256	0.00148	0.0024	0.189	<0.0001	<0.001	0.17	0.00002	71.2	0.0074	0.0013	0.00197
RSEM-R6W-EOP	10/15/2018 15:00	UO4611	0.18	0.0694	0.701	0.770	<0.0050	2.6	2.8	0.311	0.0014	0.00175	0.164	<0.0001	<0.001	0.171	0.00006	72.1	0.0048	0.00195	0.00182
RSEM-R6W-EOP	10/16/2018 11:55	UO9190	0.17	0.0722	0.715	0.787	<0.0050	2.5	2.7	0.141	0.00146	0.00172	0.167	<0.0001	<0.001	0.178	0.00006	74.3	0.0042	0.00196	0.00164
RSEM-R6W-EOP	10/17/2018 15:00	UO9200	0.19	0.0730	0.714	0.787	0.0071	2.3	2.4	0.11	0.00148	0.00176	0.168	<0.0001	<0.001	0.188	0.000048	76.3	0.0053	0.00174	0.00178
RSEM-R6W-EOP	10/18/2018 17:40	UP3094	0.22	0.0755	0.739	0.815	0.0060	2.3	2.3	0.117	0.00156	0.00193	0.164	<0.0001	<0.001	0.181	0.000038	69.7	0.0065	0.00159	0.00153
RSEM-R6W-EOP	10/19/2018 9:30	UP3098	0.21	0.0769	0.723	0.800	<0.0050	2.2	2.5	0.102	0.00154	0.0019	0.161	<0.0001	<0.001	0.182	0.000035	72.0	0.0062	0.00146	0.00147
RSEM-R6W-EOP	10/20/2018 8:25	UP6166	0.22	0.0742	0.660	0.734	<0.0050	2.8	2.3	0.13	0.00152	0.00186	0.166	<0.0001	<0.001	0.187	0.000042	84.2	0.0057	0.00171	0.00167
RSEM-R6W-EOP	10/21/2018 16:25	UP5459	0.27	0.0629	0.602	0.664	<0.0050	2.5	2.0	0.114	0.00157	0.00156	0.16	<0.0001	<0.001	0.193	0.000035	95.7	0.0031	0.00137	0.00119
RSEM-R6W-EOP	10/22/2018 9:10	UP6172	0.31	0.0641	0.598	0.662	<0.0050	2.4	2.3	0.0524	0.00157	0.00149	0.139	<0.0001	<0.001	0.182	0.000032	101	0.0028	0.00134	0.00119
RSEM-R6W-EOP	10/26/2018 12:40	UQ5566	0.25	0.0204	0.488	0.509	<0.0050	2.1	2.4	0.0353	0.00129	0.00144	0.129	<0.0001	<0.001	0.161	0.000026	114	0.002	0.00111	0.00087
RSEM-R6W-EOP	10/27/2018 13:30	UQ8570	0.19	0.0504	0.418	0.468	<0.0050	1.27	1.36	0.0442	0.00125	0.00129	0.126	<0.0001	<0.001	0.15	0.000031	117	0.0018	0.00105	0.00081
RSEM-R6W-EOP	10/28/2018 15:10	UQ8587	0.21	0.0472	0.392	0.439	<0.0050	2.03	0.81	0.0517	0.00118	0.00136	0.132	<0.0001	<0.001	0.159	0.00003	127	0.0017	0.00107	0.0008
RSEM-R6W-EOP	10/29/2018 12:55	UR1747	0.13	0.0488	0.388	0.437	<0.0050	1.81	1.79	0.0713	0.00112	0.00127	0.123	<0.0001	<0.001	0.156	0.000046	121	0.0016	0.001	0.00087
RSEM-R6W-EOP	10/30/2018 11:20	UR2637	0.22	0.0477	0.391	0.438	<0.0050	2.29	1.40	0.0386	0.00109	0.00129	0.123	<0.0001	<0.001	0.137	0.000022	122	0.0016	0.00101	0.00078
RSEM-R6W-EOP	10/31/2018 11:50	UR7288	0.18	0.0460	0.349	0.395	<0.0050	1.45	1.38	0.0387	0.00115	0.00133	0.131	<0.0001	<0.001	0.178	0.000033	131	0.0018	0.00134	0.0009
RSEM-R6W-EOP	11/1/2018 8:55	UR8081	0.22	0.0404	0.333	0.374	<0.0050	1.45	1.71	0.04	0.001	0.00129	0.129	<0.0001	<0.001	0.163	0.000032	138	0.0015	0.00123	0.0008
RSEM-R6W-EOP	11/2/2018 8:30	US0225	0.21	0.0411	0.338	0.379	<0.0050	3.58	4.21	0.0716	0.00103	0.00122	0.133	<0.0001	<0.001	0.178	0.000032	136	0.0015	0.00153	0.001
RSEM-R6W-EOP	11/3/2018 16:05	US3564	0.22	0.0372	0.335	0.372	<0.0050	2.60	2.11	0.0557	0.001	0.00118	0.12	<0.0001	<0.001	0.169	0.000027	142	0.0015	0.0016	0.00091
RSEM-R6W-EOP	11/4/2018 13:00	US3567	0.20	0.0381	0.331	0.369	<0.0050	2.14	1.92	0.0452	0.001	0.00117	0.116	<0.0001	<0.001	0.171	0.000027	143	0.0015	0.00161	0.00086
RSEM-R6W-EOP	11/5/2018 16:20	US7026	0.23	0.0201	0.372	0.392	<0.0050	2.22	1.72	0.0377	0.00103	0.00131	0.12	<0.0001	<0.001	0.164	0.000023	138	0.0017	0.00154	0.00082
RSEM-R6W-EOP	11/6/2018 13:55	US9398	0.22	0.0292	0.363	0.392	<0.0050	3.73	1.56	0.0548	0.00107	0.00137	0.124	<0.0001	<0.001	0.185	0.000027	140	0.0018	0.00152	0.00087
RSEM-R6W-EOP	11/7/2018 14:35	UT1525	0.18	0.0416	0.341	0.383	<0.0050	1.97	1.15	0.033	0.001	0.0013	0.112	<0.0001	<0.001	0.163	0.000017	128	0.0016	0.00147	0.00081
RSEM-R6W-EOP	11/8/2018 6:30	UT3575	0.25	0.0334	0.355	0.388	0.0119	1.6	1.76	0.0367	0.00112	0.00138	0.123	<0.0001	<0.001	0.16	0.000022	135	0.002	0.00151	0.00083
RSEM-R6W-EOP	11/9/2018 5:50	UT3612	0.18	0.0437	0.422	0.466	<0.0050	2.1	2.10	0.0814	0.00112	0.00152	0.124	<0.0001	<0.001	0.167	0.000012	118	0.0025	0.00129	0.00101
RSEM-R6W-EOP	11/10/2018 9:50	UT4954	0.18	0.0496	0.446	0.495	<0.0050	2.0	2.20	0.0805	0.00107	0.00144	0.128	<0.0001	<0.001	0.178	0.00002	107	0.0023	0.0011	0.00097
RSEM-R6W-EOP	11/11/2018 9:15	UT4846	0.16	0.0489	0.440	0.489	<0.0050	2.6	1.55	0.0917	0.00105	0.00143	0.13	<0.0001	<0.001	0.171	0.000019	108	0.0021	0.00116	0.00104
RSEM-R6W-EOP	11/12/2018 9:50	UT6582	0.18	0.0571	0.459	0.516	<0.0050	2.3	1.84	0.142	0.00104	0.00148	0.126	<0.0001	<0.001	0.192	0.000019	103	0.002	0.00117	0.0011
RSEM-R6W-EOP	11/13/2018 12:05	UT9226	0.17	0.0653	0.474	0.540	<0.0050	2.5	1.73	0.119	0.00113	0.00153	0.139	<0.0001	<0.001	0.193	<0.00001	110	0.0018	0.00124	0.00104
RSEM-R6W-EOP	11/13/2018 12:05	UT9228	0.16	0.0666	0.476	0.543	<0.0050	2.4	1.39	0.113	0.0011	0.00156	0.134	<0.0001	<0.001	0.195	<0.00001	108	0.0018	0.00124	0.00109
RSEM-R6W-EOP	11/14/2018 13:15	UU0940	0.15	0.0674	0.460	0.528	<0.0050	2.5	3.4	0.0963	0.00112	0.00154	0.135	<0.0001	<0.001	0.198	0.000019	114	0.0017	0.0012	0.00092
RSEM-R6W-EOP	11/15/2018 11:05	UU0901	0.22	0.0642	0.460	0.524	<0.0050	2.3	2.9	0.0813	0.0011	0.00153	0.131	<0.0001	<0.001	0.185	0.000018	117	0.0019	0.00122	0.00095
RSEM-R6W-EOP	11/16/2018 11:45	UU3467	0.22	0.0610	0.478	0.539	<0.0050	2.7	3.1	0.118	0.00106	0.00147	0.131	<0.0001	<0.001	0.186	0.000019	121	0.0018	0.0012	0.00106
RSEM-R6W-EOP	11/17/2018 12:30	UU6433	0.25	0.0843	0.709	0.794	<0.0050	2.3	2.2	0.0813	0.00111	0.0016	0.142	<0.0001	<0.001	0.198	0.000015	121	0.0017	0.00126	0.00117
RSEM-R6W-EOP	11/18/2018 12:20	UU6366	0.19	0.0662	0.499	0.566	<0.0050	2.2	2.2	0.0964	0.00115	0.00161	0.139	<0.0001	<0.001	0.203	0.000014	124	0.0018	0.0014	0.00111
RSEM-R6W-EOP	11/19/2018 11:50	UU8730	0.21	0.0796	0.660	0.739	<0.0050	2.2	1.9	0.107	0.00112	0.00164	0.138	<0.0001	<0.001	0.174	0.000013	109	0.002	0.00124	0.00128
RSEM-R6W-EOP	11/20/2018 11:40	UU8805	0.25	0.0895	0.656	0.745	<0.0050	2.0	1.9	0.106	0.00113	0.00165	0.134	<0.0001	<0.001	0.179	<0.00001	103	0.0021	0.00133	0.00123
RSEM-R6W-EOP	11/21/2018 12:15	UV2698	0.43	0.115	0.690	0.805	<0.0050	2.2	1.9	0.116	0.00121	0.00184	0.13	<0.0001	<0.001	0.207	0.000017	91.2	0.0024	0.00123	0.00135
RSEM-R6W-EOP	11/22/2018 12:50	UV5073	0.67	0.150	0.731	0.881	<0.0050	2.7	2.7	0.112	0.00137	0.00209	0.122	<0.0001	<0.001	0.211	0.000016	78.7	0.0031	0.00112	0.00135
RSEM-R6W-EOP	11/23/2018 13:20	UV5086	0.66	0.171	0.742	0.912	<0.0050	2.9	2.9	0.107	0.00143	0.0023	0.121	<0.0001	<0.001	0.24	0.000019	73.5	0.0033	0.00096	0.00136
RSEM-R6W-EOP	11/24/2018 11:00	UV7552	0.59	0.202	0.738	0.940	<0.0050	1.2	1.3	0.199	0.00158	0.00262	0.125	<0.0001	<0.001	0.241	0.000012	71.5	0.0038	0.001	0.00174
RSEM-R6W-EOP	11/25/2018 12:50	UV7535	0.76	0.245	0.840	1.08	<0.0050	1.2	1.2	0.209	0.00165	0.00294	0.123	<0.0001	<0.001	0.251	<0.00001	69.0	0.0045	0.00096	0.00155
RSEM-R6W-EOP	11/26/2018 14:10	UV9443	0.62	0.259	0.841	1.10	<0.0050	1.8	2.0	0.154	0.00168	0.00305	0.117	<0.0001	<0.001	0.236	<0.00001	63.6	0.0047	0.0009	0.00173
RSEM-R6W-EOP	11/27/2018 12:00	UW1674	0.49	0.283	0.856	1.14	<0.0050	2.5	2.1	0.144	0.0017	0.00321	0.113	<0.0001	<0.001	0.221	<0.00001	57.4	0.0047	0.00084	0.00166
RSEM-R6W-EOP	11/28/2018 14:00	UW6194	0.45	0.301	0.879	1.18	<0.0050	1.5	1.4	0.352	0.0018	0.00331	0.111	<0.0001	<0.001	0.271	<0.00001	55.0	0.0051	0.00079	0.0018
RSEM-R6W-EOP	11/29/2018 11:50	UW6191	0.52	0.297	0.854	1.15	<0.0050	2.8	2.4	2.89	0.00191	0.00389	0.138	<0.0001	<0.001	0.261	0.000025	46.1	0.0094	0.00121	0.00478
RSEM-R6W-EOP	12/9/2018 13:35	UX7487	0.59	0.326	0.988	1.31	<0.0050	3.8	3.8	1.12	0.00229	0.00499	0.0799	<0.0001	<0.001	0.273	<0.00001	33.0	0.0086	0.0007	0.00292
RCC-RSEM-R6-WP-IN	12/8/2018 14:30	UX7483	1.5	0.338	0.543	0.881	0.0249	5.9	5.6	5.77	0.00307	0.00913	0.264	0.00019	<0.001	0.398	0.000097	28.9	0.0186	0.00302	0.0143
RCC-RSEM-R6-WP-IN	12/27/2018 14:55	VA2811	0.74	0.154	0.284	0.438	0.0476	3.1	2.1	5.23	0.0032	0.0103	0.185	0.00018	<0.001	0.373	0.000117	25.3	0.0092	0.0023	0.00755
RSEM-R6W-SP	1/1/2018 11:20	ST3044	0.55	0.364	0.954	1.32	0.0053	2.40	1.99	0.241	0.00225	0.00445	0.107	<0.0001	<0.001	0.244	<0.00001	56.7	0.0039	0.00047	0.00159
RSEM-R6W-SP	1/2/2018 11:40	ST4211	0.47	0.364	0.958	1.32	<0.0050	2.69	2.63	0.256	0.00233	0.00437	0.112	<0.0001	<0.001	0.247	<0.00001	58.4	0.003	0.00046	0.00134

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	9/24/2018 8:35	UK0551	0.08	<0.0002	0.0224	17.3	0.0346	0.0000033	0.0124	0.0049	-	3.65	0.0035	3.65	<0.00002	61.0	0.326	52.1	0.000012	<0.005	<0.005	0.00208
RSEM-R6W-EOP	9/25/2018 9:35	UK2337	0.126	<0.0002	0.0227	18.6	0.0336	0.0000022	0.0126	0.005	-	3.74	0.00318	3.33	<0.00002	65.9	0.354	50.1	0.000014	<0.005	<0.005	0.00209
RSEM-R6W-EOP	9/26/2018 12:10	UK5504	0.101	<0.0002	0.0228	18.0	0.0303	<0.000002	0.0117	0.0045	-	3.83	0.00308	3.49	<0.00002	64.2	0.326	53.8	0.000012	<0.005	<0.005	0.00208
RSEM-R6W-EOP	9/27/2018 8:50	UK8654	0.063	<0.0002	0.0211	18.2	0.0401	0.0000029	0.0123	0.0044	-	3.55	0.00297	3.45	<0.00002	61.5	0.342	52.5	0.000012	<0.005	<0.005	0.00215
RSEM-R6W-EOP	9/28/2018 10:10	UL0966	0.079	<0.0002	0.0249	27.8	0.134	<0.000002	0.0108	0.006	-	3.67	0.00285	3.85	<0.00002	83.4	0.387	81.4	0.000011	<0.005	<0.005	0.00271
RSEM-R6W-EOP	9/29/2018 11:10	UL4207	0.072	<0.0002	0.0267	30.0	0.165	<0.000002	0.0099	0.0076	-	3.51	0.00287	3.8	<0.00002	88.7	0.39	88.9	0.000014	<0.005	<0.005	0.00271
RSEM-R6W-EOP	9/30/2018 12:55	UL4213	0.184	<0.0002	0.0277	32.8	0.199	<0.000002	0.008	0.0096	-	3.25	0.00234	4.2	<0.00002	89.7	0.397	96.3	0.000013	<0.005	<0.005	0.00283
RSEM-R6W-EOP	10/1/2018 10:40	UL6711	0.067	<0.0002	0.026	33.7	0.192	<0.000002	0.0084	0.0095	-	3.26	0.00222	3.77	<0.00002	89.4	0.426	97.1	0.000012	<0.005	<0.005	0.00276
RSEM-R6W-EOP	10/4/2018 11:40	UM6148	0.094	<0.0002	0.0262	29.3	0.154	<0.000002	0.0086	0.0081	-	3.28	0.00222	3.56	<0.00002	85.7	0.391	90.9	0.00001	<0.005	<0.005	0.00255
RSEM-R6W-EOP	10/5/2018 9:50	UM6133	0.076	<0.0002	0.0286	31.1	0.145	<0.000002	0.01	0.008	-	3.58	0.00252	4.02	<0.00002	101	0.388	91.6	0.00001	<0.005	<0.005	0.00264
RSEM-R6W-EOP	10/6/2018 16:05	UM9335	0.123	<0.0002	0.0312	28.3	0.12	<0.000002	0.0117	0.0068	-	3.70	0.00253	4.6	<0.00002	106	0.353	91.3	0.000014	<0.005	<0.005	0.00268
RSEM-R6W-EOP	10/7/2018 13:10	UM9327	0.315	0.00021	0.0293	27.4	0.113	<0.000002	0.0124	0.0065	-	3.67	0.00257	4.81	<0.00002	106	0.35	86.3	0.000014	<0.005	0.0077	0.00264
RSEM-R6W-EOP	10/12/2018 9:45	UN7469	0.209	<0.0002	0.0364	27.1	0.0944	<0.000002	0.0148	0.0085	-	4.09	0.00306	5.57	<0.00002	131	0.381	97.9	0.000011	<0.005	0.0074	0.00278
RSEM-R6W-EOP	10/13/2018 12:00	UN9932	0.335	0.00025	0.0366	25.3	0.0721	<0.000002	0.0186	0.0073	-	4.87	0.00373	6.26	<0.00002	137	0.335	98.4	0.000015	<0.005	0.0082	0.00286
RSEM-R6W-EOP	10/14/2018 12:00	UN9927	0.246	0.00021	0.0355	24.3	0.0604	0.0000056	0.0194	0.0064	-	4.92	0.00415	5.97	<0.00002	144	0.328	96.2	0.000015	<0.005	0.0062	0.0027
RSEM-R6W-EOP	10/15/2018 15:00	UO4611	0.444	0.00025	0.0349	23.3	0.088	0.0000032	0.0192	0.0086	-	4.80	0.00422	6.12	<0.00002	135	0.344	89.8	0.000015	<0.005	0.008	0.00252
RSEM-R6W-EOP	10/16/2018 11:55	UO9190	0.235	<0.0002	0.0344	24.9	0.0879	<0.000002	0.0201	0.0089	-	4.92	0.00429	5.72	<0.00002	146	0.334	93.8	0.000012	<0.005	<0.005	0.00264
RSEM-R6W-EOP	10/17/2018 15:00	UO9200	0.119	<0.0002	0.035	25.4	0.0815	0.0000025	0.0218	0.0084	-	5.18	0.00457	5.83	<0.00002	151	0.345	95.2	0.000013	<0.005	<0.005	0.00267
RSEM-R6W-EOP	10/18/2018 17:40	UP3094	0.08	0.00026	0.0347	23.9	0.0731	0.0000033	0.0234	0.0075	-	5.33	0.00448	5.87	<0.00002	148	0.337	93.1	0.000011	<0.005	<0.005	0.00277
RSEM-R6W-EOP	10/19/2018 9:30	UP3098	0.069	<0.0002	0.0341	23.6	0.069	0.0000064	0.0229	0.0072	-	5.17	0.00452	5.88	<0.00002	145	0.337	90.2	0.000011	<0.005	<0.005	0.00271
RSEM-R6W-EOP	10/20/2018 8:25	UP6166	0.134	<0.0002	0.0361	28.1	0.131	0.0000021	0.0228	0.0078	-	5.30	0.00451	5.88	<0.00002	155	0.414	105	0.000012	<0.005	<0.005	0.00299
RSEM-R6W-EOP	10/21/2018 16:25	UP5459	0.096	<0.0002	0.0374	28.5	0.215	<0.000002	0.02	0.0067	-	5.17	0.0037	6.34	<0.00002	144	0.488	119	0.000012	<0.005	<0.005	0.00284
RSEM-R6W-EOP	10/22/2018 9:10	UP6172	0.04	<0.0002	0.0348	34.1	0.25	<0.000002	0.0199	0.0063	-	4.92	0.00384	5.63	<0.00002	156	0.512	124	0.00001	<0.005	<0.005	0.00312
RSEM-R6W-EOP	10/26/2018 12:40	UQ5566	0.06	<0.0002	0.0354	41.8	0.444	0.0000033	0.0158	0.0046	-	4.43	0.00287	5.41	<0.00002	163	0.516	155	0.000011	<0.005	<0.005	0.00318
RSEM-R6W-EOP	10/27/2018 13:30	UQ8570	0.099	<0.0002	0.0324	46.6	0.466	<0.000002	0.0141	0.004	-	4.33	0.00246	5.4	<0.00002	166	0.477	174	0.000012	<0.005	<0.005	0.00305
RSEM-R6W-EOP	10/28/2018 15:10	UQ8587	0.095	<0.0002	0.0361	49.5	0.502	0.0000024	0.0138	0.0039	-	4.20	0.00251	5.49	<0.00002	171	0.511	181	0.000014	<0.005	<0.005	0.00321
RSEM-R6W-EOP	10/29/2018 12:55	UR1747	0.096	<0.0002	0.0358	45.3	0.532	<0.000002	0.0138	0.0037	-	3.92	0.00237	5.83	<0.00002	158	0.56	172	0.000011	<0.005	<0.005	0.00321
RSEM-R6W-EOP	10/30/2018 11:20	UR2637	0.06	<0.0002	0.0277	45.6	0.535	0.0000021	0.0135	0.0036	-	4.11	0.00239	4.78	<0.00002	156	0.557	167	0.000011	<0.005	<0.005	0.00301
RSEM-R6W-EOP	10/31/2018 11:50	UR7288	0.065	<0.0002	0.0365	52.0	0.588	0.0000048	0.0139	0.0047	-	4.38	0.00247	5.58	<0.00002	181	0.528	209	0.000013	<0.005	<0.005	0.00341
RSEM-R6W-EOP	11/1/2018 8:55	UR8081	0.08	<0.0002	0.0363	51.1	0.567	0.000003	0.013	0.0045	-	4.10	0.00244	5.84	<0.00002	174	0.508	200	0.000011	<0.005	<0.005	0.00311
RSEM-R6W-EOP	11/2/2018 8:30	US0225	0.103	<0.0002	0.0429	56.2	0.638	0.0000025	0.0128	0.005	-	4.06	0.00224	5.61	<0.00002	181	0.551	205	0.000012	<0.005	<0.005	0.00347
RSEM-R6W-EOP	11/3/2018 16:05	US3564	0.057	<0.0002	0.0386	55.2	0.59	<0.000002	0.0117	0.0049	-	4.23	0.00224	5.31	<0.00002	191	0.514	211	0.000011	<0.005	<0.005	0.00334
RSEM-R6W-EOP	11/4/2018 13:00	US3567	0.041	<0.0002	0.0376	57.6	0.61	<0.000002	0.0119	0.0052	-	4.30	0.00212	5.37	<0.00002	201	0.516	220	0.000011	<0.005	<0.005	0.00332
RSEM-R6W-EOP	11/5/2018 16:20	US7026	0.05	<0.0002	0.0397	56.1	0.614	<0.000002	0.013	0.005	-	4.21	0.0022	5.14	<0.00002	194	0.591	206	0.000014	<0.005	<0.005	0.00332
RSEM-R6W-EOP	11/6/2018 13:55	US9398	0.092	<0.0002	0.0409	55.5	0.598	<0.000002	0.0129	0.0048	-	4.48	0.00221	5.72	<0.00002	198	0.549	217	0.000014	<0.005	<0.005	0.00354
RSEM-R6W-EOP	11/7/2018 14:35	UT1525	0.049	<0.0002	0.0378	52.0	0.605	<0.000002	0.0128	0.0047	-	3.85	0.00225	5.04	<0.00002	187	0.58	199	0.000012	<0.005	<0.005	0.00322
RSEM-R6W-EOP	11/8/2018 6:30	UT3575	0.06	<0.0002	0.0368	56.3	0.616	<0.000002	0.0138	0.005	-	4.55	0.0023	5.26	<0.00002	199	0.607	226	0.000011	<0.005	<0.005	0.00344
RSEM-R6W-EOP	11/9/2018 5:50	UT3612	0.088	<0.0002	0.0357	50.1	0.473	<0.000002	0.0164	0.0043	-	4.99	0.00248	5.25	<0.00002	194	0.544	192	0.000011	<0.005	0.0085	0.00337
RSEM-R6W-EOP	11/10/2018 9:50	UT4954	0.087	<0.0002	0.0338	44.2	0.358	<0.000002	0.0157	0.0038	-	4.63	0.00251	4.79	<0.00002	178	0.482	152	0.000011	<0.005	<0.005	0.0033
RSEM-R6W-EOP	11/11/2018 9:15	UT4846	0.088	<0.0002	0.0323	44.0	0.356	<0.000002	0.0151	0.0038	-	4.44	0.00248	5.01	<0.00002	174	0.476	146	0.000012	<0.005	<0.005	0.00342
RSEM-R6W-EOP	11/12/2018 9:50	UT6582	0.089	<0.0002	0.0363	43.1	0.34	<0.000002	0.0155	0.0039	-	4.50	0.00252	5.74	<0.00002	175	0.463	145	0.000012	<0.005	<0.005	0.00331
RSEM-R6W-EOP	11/13/2018 12:05	UT9226	0.07	<0.0002	0.0393	46.0	0.336	<0.000002	0.0177	0.004	-	5.14	0.00252	5.6	<0.00002	193	0.489	158	0.000012	<0.005	<0.005	0.00339
RSEM-R6W-EOP	11/13/2018 12:05	UT9228	0.067	<0.0002	0.0395	45.6	0.341	<0.000002	0.0175	0.0041	-	5.09	0.00255	5.41	<0.00002	192	0.487	158	0.000011	<0.005	<0.005	0.00337
RSEM-R6W-EOP	11/14/2018 13:15	UU0940	0.049	<0.0002	0.038	44.5	0.31	<0.000002	0.0162	0.0039	-	5.06	0.00272	5.47	<0.00002	192	0.468	150	0.000012	<0.005	<0.005	0.00338
RSEM-R6W-EOP	11/15/2018 11:05	UU0901	0.046	<0.0002	0.0371	46.3	0.325	<0.000002	0.0161	0.0038	-	5.15	0.0027	5.37	<0.00002	200	0.44	158	0.000012	<0.005	0.0056	0.00352
RSEM-R6W-EOP	11/16/2018 11:45	UU3467	0.074	<0.0002	0.0382	47.2	0.336	<0.000002	0.0157	0.0039	-	5.16	0.00271	5.55	<0.00002	194	0.459	166	0.000011	<0.005	<0.005	0.00327
RSEM-R6W-EOP	11/17/2018 12:30	UU6433	0.037	<0.0002	0.0425	50.8	0.346	<0.000002	0.0182	0.0041	-	5.19	0.00347	5.97	<0.00002	201	0.514	166	0.000013	<0.005	<0.005	0.00386
RSEM-R6W-EOP	11/18/2018 12:20	UU6366	0.059	<0.0002	0.0437	51.6	0.385	<0.000002	0.0177	0.0044	-	5.12	0.00272	5.89	<0.00002	208	0.531	177	0.000012	<0.005	<0.005	0.00369
RSEM-R6W-EOP	11/19/2018 11:50	UU8730	0.054	<0.0002	0.0374	45.5	0.32	<0.000002	0.0181	0.0041	-	5.19	0.00322	5.56	<0.00002	190	0.48	152	0.000013	<0.005	<0.005	0.00355
RSEM-R6W-EOP	11/20/2018 11:40	UU8805	0.111	<0.0002	0.0372	42.8	0.282	<0.000002	0.0191	0.0046	-	5.39	0.00322	5.71	<0.00002	189	0.44	143	0.000011	<0.005	<0.005	0.00347
RSEM-R6W-EOP	11/21/2018 12:15	UV2698	0.091	<0.0002	0.0381	37.7	0.237	<0.000002	0.0221	0.0046	-	5.95	0.00374	5.51	<0.00002	190	0.417	132	0.000011	<0.005	<0.005	0.00321
RSEM-R6W-EOP	11/22/2018 12:50	UV5073	0.055	<0.0002	0.0388	32.7	0.189	<0.000002	0.0256	0.0043	-	6.64	0.00406	5.32	<0.00002	197	0.367	120	0.000013	<0.005	<0.005	0.00307
RSEM-R6W-EOP	11/23/2018 13:20	UV5086	0.05	<0.0002	0.0458	30.2	0.165	<0.000002	0.0268	0.0037	-	6.79	0.00425	6.08	<0.00002	196	0.375	117	<0.00001	<0.005	<0.005	0.00295
RSEM-R6W-EOP	11/24/2018 11:00	UV7552	0.073	<0.0002	0.0427	29.0	0.158	<0.000002	0.0297	0.0039	-	7.35	0.00458	6.37	<0.00002	209	0.364	118	0.000011	<0.005	<0.005	0.00298
RSEM-R6W-EOP	11/25/2018 12:50	UV7535	0.074	<0.0002	0.0442	28.5	0.153	<0.000002	0.0329	0.0037	-	7.49	0.00539	6.44	<0.00002	217	0.366	119	0.000011	<0.005	0.0055	0.00303
RSEM-R6W-EOP	11/26/2018 14:10	UV9443	0.073	<0.0002	0.0408	26.1	0.146	<0.000002	0.0335	0.0036	-	7.44	0.00556	6.2	<0.00002	212	0.36	114	0.000011	<0.005	<0.005	0.00298
RSEM-R6W-EOP	11/27/2018 12:00	UW1674	0.057	<0.0002	0.0354	23.0	0.126	<0.000002	0.0344	0.0031	-	7.31	0.00579	5.52	<0.00002	203	0.333	108	0.000011	<0.005	<0.005	0.0026
RSEM-R6W-EOP	11/28/2018 14:00	UW6194	0.129	<0.0002	0.0459	23.2	0.11	<0.000002	0.0378	0.003	-	7.98	0.00603	6.51	<0.00002	230	0.303	114	0.000014	<0.005	<0.005	0.00276
RSEM-R6W-EOP	11/29/2018 11:50	UW6191	1.26	0.00078	0.0442	20.6	0.0947	<0.000002	0.0359	0.0044	-	8.99	0.00575	11.3	<0.00002	211	0.27	97.2	0.00004	<0.005	0.0739	0.00262
RSEM-R6W-EOP	12/9/2018 13:35	UX7487	0.521	0.00035	0.0394	22.2	0.0276	0.0000029	0.0446	0.0036	-	9.38	0.00756	8.13	<0.00002	258	0.224	116	0.000021	<0.005	0.0286	0.00268
RCC-RSEM-R6-WP-IN	12/8/2018 14:30	UX7483	5.2	0.00362	0.0725	9.72	0.0926	0.0000116	0.0721	0.0079	-	16.5	0.00613	20.6	0.000079	443	0.196	146	0.00008	<0.005	0.153	0.00245
RCC-RSEM-R6-WP-IN	12/27/2018 14:55	VA2811	4.2	0.00275	0.05	9.98	0.0708	<0.000002	0.0498	0.0075	-	8.10	0.00477	12.7	0.000051	293	0.208	95.3	0.00008	<0.005	0.0976	0.00346
RSEM-R6W-SP	1/1/2018 11:20	ST3044	0.069	<0.0002	0.0481	19.3	0.0111	<0.00001	0.0263	0.0024	-	4.14	0.00815	4.82	<0.00002	244	0.273	99.1	0.00001	<0.005	<0.005	0.00357
RSEM-R6W-SP	1/2/2018 11:40	ST4211	0.058	<0.0002	0.0481	18.3	0.0104	<0.00001	0.0265	0.0021	-	3.97	0.00863	4.95	<0.00002	230	0.277	91.7	0.00001	<0.005	<0.005	0.00361

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	9/24/2018 8:35	UK0551	<0.005	<0.005	<0.0001	0.0313	0.00074	0.00089	0.153	<0.0001	<0.001	0.089	0.000016	61.7	0.0031	0.00078	0.00092	<0.01	<0.0002	0.0212	17.5	0.0306
RSEM-R6W-EOP	9/25/2018 9:35	UK2337	<0.005	<0.005	<0.0001	0.0363	0.00077	0.00084	0.145	<0.0001	<0.001	0.096	0.000016	63.6	0.003	0.00073	0.00104	<0.01	<0.0002	0.0222	18.6	0.0281
RSEM-R6W-EOP	9/26/2018 12:10	UK5504	<0.005	<0.005	<0.0001	0.0408	0.00076	0.00097	0.148	<0.0001	<0.001	0.097	0.000016	67.2	0.003	0.00071	0.00117	<0.01	<0.0002	0.0235	19.3	0.0276
RSEM-R6W-EOP	9/27/2018 8:50	UK8654	<0.005	<0.005	<0.0001	0.0377	0.00073	0.00082	0.141	<0.0001	<0.001	0.09	0.000017	65.7	0.0028	0.00068	0.00105	<0.01	<0.0002	0.0227	20.4	0.0367
RSEM-R6W-EOP	9/28/2018 10:10	UL0966	<0.005	<0.005	<0.0001	0.0318	0.00071	0.00084	0.15	<0.0001	<0.001	0.088	0.000057	87.5	0.0023	0.0013	0.00101	<0.01	<0.0002	0.0238	26.2	0.134
RSEM-R6W-EOP	9/29/2018 11:10	UL4207	<0.005	<0.005	<0.0001	0.0313	0.00071	0.00076	0.155	<0.0001	<0.001	0.096	0.000074	90.3	0.0021	0.00182	0.00102	<0.01	<0.0002	0.0285	29.2	0.164
RSEM-R6W-EOP	9/30/2018 12:55	UL4213	<0.005	0.0059	0.00018	0.0281	0.00064	0.0007	0.193	<0.0001	<0.001	0.092	0.0001	105	0.0016	0.00255	0.00106	<0.01	<0.0002	0.0291	33.1	0.202
RSEM-R6W-EOP	10/1/2018 10:40	UL6711	<0.005	<0.005	0.00011	0.028	0.00064	0.00071	0.189	<0.0001	<0.001	0.092	0.000093	106	0.0015	0.00249	0.00102	<0.01	<0.0002	0.0303	34.2	0.196
RSEM-R6W-EOP	10/4/2018 11:40	UM6148	<0.005	<0.005	<0.0001	0.0303	0.00068	0.00086	0.184	<0.0001	<0.001	0.104	<0.00001	102	0.0016	0.00168	0.00103	<0.01	<0.0002	0.0292	33.5	0.102
RSEM-R6W-EOP	10/5/2018 9:50	UM6133	<0.005	<0.005	0.00012	0.0321	0.00074	0.00098	0.169	<0.0001	<0.001	0.113	<0.00001	88.3	0.0017	0.00127	0.0014	<0.01	<0.0002	0.0306	32.0	0.0558
RSEM-R6W-EOP	10/6/2018 16:05	UM9335	<0.005	<0.005	0.00027	0.036	0.0008	0.00121	0.183	<0.0001	<0.001	0.127	0.000019	89.9	0.0019	0.0014	0.00093	<0.01	<0.0002	0.0317	28.7	0.107
RSEM-R6W-EOP	10/7/2018 13:10	UM9327	<0.005	<0.005	0.00031	0.0358	0.00083	0.00128	0.178	<0.0001	<0.001	0.13	0.000014	88.9	0.002	0.00123	0.00089	<0.01	<0.0002	0.0314	28.0	0.0961
RSEM-R6W-EOP	10/12/2018 9:45	UN7469	<0.005	<0.005	0.00031	0.0326	0.00114	0.00173	0.169	<0.0001	<0.001	0.168	0.000018	83.0	0.0033	0.0017	0.00125	<0.01	<0.0002	0.0385	28.0	0.0791
RSEM-R6W-EOP	10/13/2018 12:00	UN9932	<0.005	<0.005	0.00023	0.0282	0.00132	0.00213	0.162	<0.0001	<0.001	0.18	0.000012	77.8	0.0058	0.00114	0.00123	<0.01	<0.0002	0.0376	24.9	0.0576
RSEM-R6W-EOP	10/14/2018 12:00	UN9927	<0.005	<0.005	0.00023	0.0222	0.00142	0.00225	0.168	<0.0001	<0.001	0.178	<0.00001	75.0	0.0067	0.00093	0.00121	<0.01	<0.0002	0.0366	23.9	0.0456
RSEM-R6W-EOP	10/15/2018 15:00	UO4611	<0.005	0.0057	0.00019	0.0418	0.00148	0.00162	0.157	<0.0001	<0.001	0.199	0.000046	75.5	0.0042	0.00178	0.00176	<0.01	<0.0002	0.0345	24.2	0.0792
RSEM-R6W-EOP	10/16/2018 11:55	UO9190	<0.005	<0.005	0.00013	0.0356	0.00146	0.00153	0.16	<0.0001	<0.001	0.174	0.000044	74.5	0.004	0.00173	0.00119	<0.01	<0.0002	0.0288	25.5	0.0761
RSEM-R6W-EOP	10/17/2018 15:00	UO9200	<0.005	<0.005	0.00011	0.0328	0.00146	0.00165	0.159	<0.0001	<0.001	0.178	0.000039	74.0	0.0052	0.00155	0.0013	<0.01	<0.0002	0.0293	24.6	0.0693
RSEM-R6W-EOP	10/18/2018 17:40	UP3094	<0.005	<0.005	0.00012	0.0324	0.00157	0.0019	0.159	<0.0001	<0.001	0.187	0.000032	73.7	0.006	0.00133	0.00116	<0.01	<0.0002	0.0352	24.1	0.0594
RSEM-R6W-EOP	10/19/2018 9:30	UP3098	<0.005	<0.005	0.00011	0.0341	0.00156	0.00185	0.16	<0.0001	<0.001	0.188	0.000027	73.4	0.0062	0.00131	0.00137	<0.01	<0.0002	0.0353	24.3	0.0587
RSEM-R6W-EOP	10/20/2018 8:25	UP6166	<0.005	<0.005	0.0001	0.0264	0.0015	0.00171	0.157	<0.0001	<0.001	0.187	0.000039	82.3	0.0052	0.00154	0.00155	<0.01	<0.0002	0.0356	27.4	0.121
RSEM-R6W-EOP	10/21/2018 16:25	UP5459	<0.005	<0.005	0.00015	0.0663	0.00162	0.00155	0.147	<0.0001	<0.001	0.199	0.000032	94.8	0.0029	0.00133	0.00102	<0.01	<0.0002	0.0378	31.1	0.213
RSEM-R6W-EOP	10/22/2018 9:10	UP6172	<0.005	<0.005	<0.0001	0.0081	0.00157	0.00147	0.133	<0.0001	<0.001	0.184	0.000032	101	0.0028	0.00133	0.00109	<0.01	<0.0002	0.036	35.1	0.252
RSEM-R6W-EOP	10/26/2018 12:40	UQ5566	<0.005	<0.005	<0.0001	0.0086	0.00137	0.00132	0.123	<0.0001	<0.001	0.159	<0.00001	111	0.0027	0.0009	0.00117	0.027	<0.0002	0.0357	39.8	0.293
RSEM-R6W-EOP	10/27/2018 13:30	UQ8570	<0.005	<0.005	<0.0001	0.0105	0.00122	0.00126	0.128	<0.0001	<0.001	0.162	0.000024	128	0.0017	0.00094	0.00071	<0.01	<0.0002	0.0343	45.6	0.466
RSEM-R6W-EOP	10/28/2018 15:10	UQ8587	<0.005	<0.005	0.00011	0.0126	0.00114	0.00124	0.127	<0.0001	<0.001	0.156	0.000017	130	0.0016	0.00096	0.00081	<0.01	<0.0002	0.0346	49.4	0.5
RSEM-R6W-EOP	10/29/2018 12:55	UR1747	<0.005	<0.005	0.00011	0.0168	0.00111	0.00128	0.12	<0.0001	<0.001	0.151	<0.00001	121	0.0015	0.00096	0.00081	<0.01	<0.0002	0.0337	44.5	0.45
RSEM-R6W-EOP	10/30/2018 11:20	UR2637	<0.005	<0.005	<0.0001	0.013	0.00111	0.00124	0.123	<0.0001	<0.001	0.161	<0.00001	123	0.0015	0.00097	0.0007	<0.01	<0.0002	0.0338	51.2	0.518
RSEM-R6W-EOP	10/31/2018 11:50	UR7288	<0.005	<0.005	<0.0001	0.015	0.0011	0.00122	0.122	<0.0001	<0.001	0.155	<0.00001	131	0.0015	0.00117	0.00122	<0.01	<0.0002	0.0374	50.8	0.535
RSEM-R6W-EOP	11/1/2018 8:55	UR8081	<0.005	<0.005	<0.0001	0.0286	0.00101	0.00121	0.124	<0.0001	<0.001	0.166	0.000025	113	0.0014	0.00121	0.00076	<0.01	<0.0002	0.0363	49.7	0.546
RSEM-R6W-EOP	11/2/2018 8:30	US0225	<0.005	<0.005	<0.0001	0.0182	0.00099	0.00115	0.117	<0.0001	<0.001	0.16	<0.00001	136	0.0015	0.00121	0.0006	<0.01	<0.0002	0.0368	54.4	0.365
RSEM-R6W-EOP	11/3/2018 16:05	US3564	<0.005	<0.005	0.00012	0.0126	0.00099	0.00121	0.118	<0.0001	<0.001	0.167	<0.00001	132	0.0014	0.00146	0.00068	<0.01	<0.0002	0.037	54.9	0.591
RSEM-R6W-EOP	11/4/2018 13:00	US3567	<0.005	<0.005	<0.0001	0.0131	0.00101	0.00122	0.12	<0.0001	<0.001	0.169	<0.00001	135	0.0014	0.00147	0.0007	<0.01	<0.0002	0.0378	55.3	0.596
RSEM-R6W-EOP	11/5/2018 16:20	US7026	<0.005	<0.005	<0.0001	0.0115	0.00105	0.00127	0.118	<0.0001	<0.001	0.165	<0.00001	135	0.0016	0.00148	0.00078	<0.01	<0.0002	0.0386	55.6	0.602
RSEM-R6W-EOP	11/6/2018 13:55	US9398	<0.005	<0.005	0.00011	0.0142	0.00107	0.00132	0.114	<0.0001	<0.001	0.169	0.000018	137	0.0016	0.00146	0.00114	<0.01	<0.0002	0.0368	58.1	0.584
RSEM-R6W-EOP	11/7/2018 14:35	UT1525	<0.005	<0.005	<0.0001	0.0096	0.00106	0.00128	0.112	<0.0001	<0.001	0.167	0.000013	130	0.0017	0.00148	0.00085	<0.01	<0.0002	0.0387	53.7	0.596
RSEM-R6W-EOP	11/8/2018 6:30	UT3575	<0.005	<0.005	<0.0001	0.0141	0.00108	0.00128	0.113	<0.0001	<0.001	0.178	<0.00001	131	0.0017	0.00113	0.00074	<0.01	<0.0002	0.0417	52.8	0.292
RSEM-R6W-EOP	11/9/2018 5:50	UT3612	<0.005	<0.005	0.0001	0.0273	0.0011	0.00141	0.114	<0.0001	<0.001	0.196	<0.00001	115	0.0024	0.00096	0.00075	<0.01	<0.0002	0.0412	47.4	0.224
RSEM-R6W-EOP	11/10/2018 9:50	UT4954	<0.005	<0.005	<0.0001	0.0355	0.00104	0.0014	0.133	<0.0001	<0.001	0.194	<0.00001	109	0.0023	0.00102	0.00077	<0.01	<0.0002	0.0397	42.4	0.314
RSEM-R6W-EOP	11/11/2018 9:15	UT4846	<0.005	<0.005	0.00013	0.0323	0.00102	0.00143	0.131	<0.0001	<0.001	0.193	0.000011	109	0.002	0.00111	0.0008	<0.01	<0.0002	0.0376	41.8	0.332
RSEM-R6W-EOP	11/12/2018 9:50	UT6582	<0.005	<0.005	0.00079	0.0433	0.00109	0.00146	0.13	<0.0001	<0.001	0.175	<0.00001	106	0.0018	0.00116	0.00091	<0.01	<0.0002	0.0353	44.1	0.35
RSEM-R6W-EOP	11/13/2018 12:05	UT9226	<0.005	<0.005	0.00014	0.0447	0.0011	0.0015	0.123	<0.0001	<0.001	0.193	0.000019	106	0.0017	0.0012	0.00091	<0.01	<0.0002	0.0374	45.2	0.34
RSEM-R6W-EOP	11/13/2018 12:05	UT9228	<0.005	<0.005	0.00011	0.044	0.0011	0.00152	0.121	<0.0001	<0.001	0.195	0.000017	106	0.0017	0.00117	0.00083	<0.01	<0.0002	0.0389	44.4	0.335
RSEM-R6W-EOP	11/14/2018 13:15	UU0940	<0.005	<0.005	<0.0001	0.0442	0.00111	0.00144	0.124	<0.0001	<0.001	0.187	0.000017	106	0.0017	0.00119	0.00076	<0.01	<0.0002	0.0385	46.2	0.316
RSEM-R6W-EOP	11/15/2018 11:05	UU0901	<0.005	<0.005	<0.0001	0.0441	0.00113	0.0015	0.128	<0.0001	<0.001	0.182	0.000014	112	0.0018	0.0012	0.00089	<0.01	<0.0002	0.0379	48.0	0.332
RSEM-R6W-EOP	11/16/2018 11:45	UU3467	<0.005	<0.005	0.00019	0.0427	0.00107	0.00157	0.129	<0.0001	<0.001	0.183	<0.00001	111	0.0017	0.00103	0.00081	<0.01	<0.0002	0.0395	44.5	0.248
RSEM-R6W-EOP	11/17/2018 12:30	UU6433	<0.005	<0.005	<0.0001	0.041	0.00103	0.0015	0.132	<0.0001	<0.001	0.209	0.000014	112	0.0016	0.00125	0.00109	<0.01	<0.0002	0.0439	47.5	0.339
RSEM-R6W-EOP	11/18/2018 12:20	UU6366	<0.005	<0.005	<0.0001	0.0426	0.00114	0.00155	0.133	<0.0001	<0.001	0.162	<0.00001	117	0.0018	0.00136	0.00093	<0.01	<0.0002	0.0363	47.9	0.369
RSEM-R6W-EOP	11/19/2018 11:50	UU8730	<0.005	<0.005	0.00014	0.0446	0.00108	0.00155	0.127	<0.0001	<0.001	0.21	0.000014	108	0.0018	0.00115	0.00119	<0.01	<0.0002	0.0409	43.1	0.312
RSEM-R6W-EOP	11/20/2018 11:40	UU8805	<0.005	<0.005	0.00013	0.0402	0.00104	0.00153	0.123	<0.0001	<0.001	0.175	<0.00001	96.9	0.0017	0.00115	0.00099	<0.01	<0.0002	0.0352	35.1	0.272
RSEM-R6W-EOP	11/21/2018 12:15	UV2698	<0.005	<0.005	0.00015	0.0478	0.00122	0.00174	0.118	<0.0001	<0.001	0.215	<0.00001	90.8	0.0022	0.00119	0.00109	<0.01	<0.0002	0.0436	38.2	0.232
RSEM-R6W-EOP	11/22/2018 12:50	UV5073	<0.005	<0.005	0.00012	0.0503	0.00138	0.00208	0.117	<0.0001	<0.001	0.225	0.000015	79.9	0.0028	0.00104	0.00109	<0.01	<0.0002	0.0395	33.0	0.182
RSEM-R6W-EOP	11/23/2018 13:20	UV5086	<0.005	<0.005	0.0001	0.0526	0.00148	0.00232	0.116	<0.0001	<0.001	0.232	0.000011	74.3	0.0034	0.00093	0.00112	<0.01	<0.0002	0.0409	31.1	0.163
RSEM-R6W-EOP	11/24/2018 11:00	UV7552	0.0054	<0.005	0.00024	0.0522	0.00153	0.00253	0.113	<0.0001	<0.001	0.234	<0.00001	70.3	0.0036	0.00089	0.00307	<0.01	<0.0002	0.0415	28.4	0.149
RSEM-R6W-EOP	11/25/2018 12:50	UV7535	0.0058	<0.005	0.00014	0.0507	0.00163	0.00286	0.114	<0.0001	<0.001	0.239	<0.00001	67.8	0.0042	0.00087	0.00122	<0.01	<0.0002	0.0416	27.6	0.144
RSEM-R6W-EOP	11/26/2018 14:10	UV9443	0.006	<0.005	0.00017	0.0543	0.00169	0.00304	0.111	<0.0001	<0.001	0.247	<0.00001	64.4	0.0046	0.00086	0.00135	<0.01	<0.0002	0.0431	26.9	0.139
RSEM-R6W-EOP	11/27/2018 12:00	UW1674	0.0061	<0.005	0.00013	0.0744	0.0017	0.00321	0.105	<0.0001	<0.001	0.257	0.000011	65.8	0.0049	0.00077	0.00131	<0.01	<0.0002	0.0421	25.1	0.119
RSEM-R6W-EOP	11/28/2018 14:00	UW6194	0.0068	<0.005	0.00016	0.123	0.00178	0.00329	0.094	<0.0001	<0.001	0.283	0.000013	51.1	0.0046	0.00064	0.00131	<0.01	<0.0002	0.0443	23.0	0.0971
RSEM-R6W-EOP	11/29/2018 11:50	UW6191	0.0138	0.0098	0.00168	0.177	0.00188	0.00341	0.078	<0.0001	<0.001	0.265	<0.00001	41.9	0.0058	0.00046	0.00161	<0.01	<0.0002	0.0409	21.0	0.0557
RSEM-R6W-EOP	12/9/2018 13:35	UX7487	0.0118	<0.005	0.00065	0.276	0.00243	0.00521	0.0558	<0.0001	<0.001	0.278	<0.00001	31.7	0.0072	0.00037	0.00203	<0.01	<0.0002	0.0406	19.5	0.0114
RCC-RSEM-R6-WP-IN	12/8/2018 14:30	UX7483	0.0297	0.0422	0.00515	0.309	0.00305	0.00785	0.0291	<0.0001	<0.001	0.405	<0.00001	7.08	0.0088	0.00026	0.0027	0.028	<0.0002	0.0698	6.89	<0.001
RCC-RSEM-R6-WP-IN	12/27/2018 14:55	VA2811	0.0245	0.0207	0.00419	0.493	0.00329	0.00785	0.0426	<0.0001	<0.001	0.399	<0.00001	7.98	0.0028	<0.0002	0.00154	0.016	<0.0002	0.0513	9.31	<0.001
RSEM-R6W-SP	1/1/2018 11:20	ST3044	0.0056	<0.005	<0.0001	0.192	0.00237	0.00486	0.106	<0.0001	<0.001	0.279	<0.00001	58.8	0.0029	0.00038	0.00139	0.015	<0.0002	0.0518	19.4	0.0088
RSEM-R6W-SP	1/2/2018 11:40	ST4211	0.0054	<0.005	<0.0001	0.175	0.00238	0.00464	0.105	<0.0001	<0.001	0.244	<0.00001	56.7	0.0029	0.00039	0.00101	0.013	<0.0002	0.0468	18.6	0.0095

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-EOP	9/24/2018 8:35	UK0551	<0.000002	0.0126	0.005	-	3.56	0.00324	3.25	<0.00002	63.4	0.361	47.9	0.000011	<0.005	<0.005	0.00203	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/25/2018 9:35	UK2337	<0.000002	0.0127	0.0046	-	3.74	0.00326	3.62	<0.00002	64.5	0.332	53.0	0.000011	<0.005	<0.005	0.00207	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/26/2018 12:10	UK5504	<0.000002	0.0131	0.0046	-	3.77	0.0035	3.48	<0.00002	64.2	0.354	52.1	0.000012	<0.005	<0.005	0.00231	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/27/2018 8:50	UK8654	<0.000002	0.012	0.0043	-	3.62	0.0031	2.83	<0.00002	67.0	0.343	52.6	<0.00001	<0.005	<0.005	0.00224	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/28/2018 10:10	UL0966	<0.000002	0.0109	0.0059	-	3.63	0.00288	3.72	<0.00002	75.1	0.382	83.0	0.000013	<0.005	<0.005	0.00269	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/29/2018 11:10	UL4207	<0.000002	0.0107	0.0079	-	3.80	0.00269	3.63	<0.00002	86.3	0.39	96.3	0.000013	<0.005	<0.005	0.00283	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	9/30/2018 12:55	UL4213	<0.000002	0.0087	0.0102	-	3.41	0.00244	4.18	<0.00002	90.3	0.394	106	0.000011	<0.005	<0.005	0.00291	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/1/2018 10:40	UL6711	<0.000002	0.0089	0.0098	-	3.55	0.00243	4	<0.00002	91.8	0.404	105	0.000011	<0.005	<0.005	0.00299	<0.005	0.0062	<0.0001
RSEM-R6W-EOP	10/4/2018 11:40	UM6148	<0.000002	0.0095	0.008	-	3.42	0.00246	4.03	<0.00002	94.5	0.43	95.8	0.000011	<0.005	<0.005	0.00292	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/5/2018 9:50	UM6133	<0.000002	0.0103	0.0072	-	3.50	0.00251	3.98	<0.00002	100	0.406	93.9	<0.00001	<0.005	<0.005	0.00278	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/6/2018 16:05	UM9335	<0.000002	0.0114	0.0062	-	3.53	0.00248	4.38	<0.00002	103	0.397	86.7	<0.00001	<0.005	<0.005	0.00258	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/7/2018 13:10	UM9327	<0.000002	0.0119	0.0057	-	3.56	0.00253	4.53	<0.00002	105	0.397	84.7	<0.00001	<0.005	<0.005	0.00263	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/12/2018 9:45	UN7469	<0.000002	0.0153	0.0079	-	4.11	0.0031	5	<0.00002	135	0.378	99.2	<0.00001	<0.005	<0.005	0.00284	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/13/2018 12:00	UN9932	<0.000002	0.0183	0.006	-	4.70	0.00364	5.83	<0.00002	133	0.367	93.8	<0.00001	<0.005	<0.005	0.00269	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/14/2018 12:00	UN9927	<0.000002	0.0196	0.0054	-	4.80	0.00417	5.89	<0.00002	138	0.357	92.2	<0.00001	<0.005	<0.005	0.00267	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/15/2018 15:00	UO4611	0.0000037	0.02	0.0086	-	5.09	0.00433	6.22	<0.00002	140	0.318	98.1	0.000012	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/16/2018 11:55	UO9190	<0.000002	0.0203	0.0083	-	4.95	0.00451	5.18	<0.00002	151	0.328	94.5	0.00001	<0.005	<0.005	0.00265	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/17/2018 15:00	UO9200	<0.000002	0.0215	0.0076	-	5.05	0.00444	5.19	<0.00002	149	0.334	92.2	0.000011	<0.005	<0.005	0.00267	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/18/2018 17:40	UP3094	<0.000002	0.0229	0.0069	-	5.24	0.00467	5.88	<0.00002	150	0.342	93.6	<0.00001	<0.005	<0.005	0.00271	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/19/2018 9:30	UP3098	0.0000039	0.0284	0.0069	-	5.25	0.00471	5.98	<0.00002	152	0.338	93.8	0.000011	<0.005	<0.005	0.00274	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/20/2018 8:25	UP6166	<0.000002	0.0223	0.0073	-	5.14	0.00438	5.77	<0.00002	152	0.405	102	0.00001	<0.005	<0.005	0.0029	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/21/2018 16:25	UP5459	<0.000002	0.02	0.0065	-	5.37	0.00368	6.24	<0.00002	148	0.489	126	0.00001	<0.005	<0.005	0.0029	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/22/2018 9:10	UP6172	0.0000036	0.0198	0.0063	-	4.81	0.00375	5.56	<0.00002	158	0.507	123	0.00001	<0.005	<0.005	0.00311	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/26/2018 12:40	UQ5566	<0.000002	0.0156	0.0041	-	4.41	0.00301	5.4	<0.00002	157	0.511	153	0.000011	<0.005	<0.005	0.00316	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/27/2018 13:30	UQ8570	<0.000002	0.0147	0.0035	-	4.33	0.00253	5.86	<0.00002	165	0.514	177	0.000013	<0.005	<0.005	0.00319	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/28/2018 15:10	UQ8587	<0.000002	0.021	0.0037	-	4.48	0.00246	5.89	<0.00002	175	0.514	189	0.000012	<0.005	<0.005	0.00312	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/29/2018 12:55	UR1747	<0.000002	0.0138	0.0036	-	4.10	0.00252	5.4	<0.00002	158	0.494	180	0.000011	<0.005	<0.005	0.00311	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/30/2018 11:20	UR2637	<0.000002	0.0143	0.0036	-	4.04	0.00234	5.07	<0.00002	174	0.549	175	0.00001	<0.005	<0.005	0.00314	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	10/31/2018 11:50	UR7288	<0.000002	0.0137	0.0042	-	4.15	0.00227	5.13	<0.00002	180	0.569	192	0.000013	<0.005	<0.005	0.00321	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/1/2018 8:55	UR8081	<0.000002	0.013	0.004	-	3.94	0.00211	4.63	<0.00002	170	0.52	191	0.00001	<0.005	<0.005	0.00319	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/2/2018 8:30	US0225	0.0000039	0.0184	0.0044	-	4.31	0.00207	5.35	<0.00002	187	0.515	210	0.00001	<0.005	<0.005	0.00327	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/3/2018 16:05	US3564	<0.000002	0.0128	0.0048	-	4.11	0.0021	4.92	<0.00002	189	0.583	211	0.000011	<0.005	<0.005	0.00326	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/4/2018 13:00	US3567	<0.000002	0.013	0.0049	-	4.12	0.0021	5.06	<0.00002	189	0.594	214	<0.00001	<0.005	<0.005	0.00328	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/5/2018 16:20	US7026	<0.000002	0.0132	0.0049	-	4.13	0.00221	4.97	<0.00002	194	0.59	210	<0.00001	<0.005	<0.005	0.00335	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/6/2018 13:55	US9398	<0.000002	0.0133	0.0048	-	4.25	0.00237	4.84	<0.00002	201	0.572	211	0.000011	<0.005	<0.005	0.00355	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/7/2018 14:35	UT1525	<0.000002	0.0131	0.0047	-	4.01	0.00231	5.07	<0.00002	190	0.59	206	0.000011	<0.005	<0.005	0.0033	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/8/2018 6:30	UT3575	<0.000002	0.013	0.0044	-	4.33	0.00236	5.58	<0.00002	188	0.538	205	0.000012	<0.005	<0.005	0.0035	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/9/2018 5:50	UT3612	<0.000002	0.016	0.0038	-	4.91	0.00253	5.52	<0.00002	186	0.512	191	0.000013	<0.005	<0.005	0.00361	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/10/2018 9:50	UT4954	<0.000002	0.0158	0.0036	-	4.88	0.00242	5.49	<0.00002	173	0.467	156	0.000011	<0.005	<0.005	0.00337	<0.005	<0.005	0.00011
RSEM-R6W-EOP	11/11/2018 9:15	UT4846	<0.000002	0.0149	0.0036	-	4.83	0.00237	5.44	<0.00002	168	0.452	146	0.000012	<0.005	<0.005	0.00347	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/12/2018 9:50	UT6582	<0.000002	0.0166	0.0038	-	5.03	0.00248	5.2	<0.00002	183	0.49	158	0.000012	<0.005	<0.005	0.00342	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/13/2018 12:05	UT9226	<0.000002	0.0169	0.0041	-	4.84	0.00269	5.39	<0.00002	186	0.478	152	0.000011	<0.005	<0.005	0.00351	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/13/2018 12:05	UT9228	<0.000002	0.0169	0.0039	-	4.81	0.00274	5.14	<0.00002	184	0.482	150	0.000012	<0.005	<0.005	0.0035	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/14/2018 13:15	UU0940	<0.000002	0.016	0.0038	-	5.23	0.00276	4.76	<0.00002	195	0.441	157	0.00001	<0.005	<0.005	0.0034	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/15/2018 11:05	UU0901	<0.000002	0.0173	0.004	-	5.23	0.00288	5.1	<0.00002	204	0.451	156	0.000011	<0.005	<0.005	0.00345	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/16/2018 11:45	UU3467	<0.000002	0.0164	0.0038	-	5.26	0.0025	5.63	<0.00002	187	0.45	167	<0.00001	<0.005	<0.005	0.00337	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/17/2018 12:30	UU6433	<0.000002	0.0171	0.0039	-	4.91	0.00329	5.98	<0.00002	178	0.484	152	<0.00001	<0.005	<0.005	0.00398	<0.005	<0.005	0.0001
RSEM-R6W-EOP	11/18/2018 12:20	UU6366	<0.000002	0.0173	0.0042	-	5.05	0.00267	5.34	<0.00002	189	0.509	167	0.000013	<0.005	<0.005	0.00356	<0.005	<0.005	<0.0001
RSEM-R6W-EOP	11/19/2018 11:50	UU8730	<0.000002	0.0176	0.0038	-	4.79	0.00334	5.48	<0.00002	174	0.476	144	0.000011	<0.005	<0.005	0.0035	<0.005	<0.005	0.00011
RSEM-R6W-EOP	11/20/2018 11:40	UU8805	<0.000002	0.0179	0.0042	-	5.00	0.00314	6.24	<0.00002	147	0.486	130	0.00001	<0.005	<0.005	0.00341	<0.005	<0.005	0.00012
RSEM-R6W-EOP	11/21/2018 12:15	UV2698	<0.000002	0.0224	0.0046	-	5.98	0.00327	5.62	<0.00002	196	0.418	132	0.000012	<0.005	<0.005	0.00325	<0.005	<0.005	0.0001
RSEM-R6W-EOP	11/22/2018 12:50	UV5073	<0.000002	0.0287	0.0042	-	6.65	0.00412	5.51	<0.00002	202	0.378	122	0.000012	<0.005	<0.005	0.00308	<0.005	<0.005	0.00013
RSEM-R6W-EOP	11/23/2018 13:20	UV5086	<0.000002	0.0282	0.0038	-	6.99	0.00426	5.66	<0.00002	201	0.373	119	0.000012	<0.005	<0.005	0.00305	<0.005	<0.005	0.00012
RSEM-R6W-EOP	11/24/2018 11:00	UV7552	<0.000002	0.0297	0.0035	-	7.42	0.0046	6	<0.00002	205	0.366	117	0.000011	<0.005	<0.005	0.00291	<0.005	<0.005	0.0001
RSEM-R6W-EOP	11/25/2018 12:50	UV7535	<0.000002	0.0323	0.0034	-	7.44	0.00532	5.95	<0.00002	212	0.361	117	0.000011	<0.005	<0.005	0.00294	0.0056	<0.005	0.0001
RSEM-R6W-EOP	11/26/2018 14:10	UV9443	<0.000002	0.034	0.0033	-	7.38	0.0052	5.74	<0.00002	226	0.349	116	0.000012	<0.005	<0.005	0.00282	0.0059	<0.005	<0.0001
RSEM-R6W-EOP	11/27/2018 12:00	UW1674	<0.000002	0.0345	0.0031	-	7.71	0.00583	6.3	<0.00002	232	0.312	121	0.000012	<0.005	<0.005	0.00276	0.006	<0.005	<0.0001
RSEM-R6W-EOP	11/28/2018 14:00	UW6194	<0.000002	0.0361	0.0027	-	7.16	0.00587	5.48	<0.00002	220	0.31	105	0.00001	<0.005	<0.005	0.00271	0.0062	<0.005	<0.0001
RSEM-R6W-EOP	11/29/2018 11:50	UW6191	<0.000002	0.0373	0.0023	-	7.32	0.00569	5.25	<0.00002	207	0.275	94.5	<0.00001	<0.005	<0.005	0.00254	0.0067	<0.005	<0.0001
RSEM-R6W-EOP	12/9/2018 13:35	UX7487	<0.000002	0.0463	0.0028	-	7.94	0.00813	6.04	<0.00002	225	0.219	103	0.000011	<0.005	<0.005	0.00268	0.0088	<0.005	<0.0001
RCC-RSEM-R6-WP-IN	12/8/2018 14:30	UX7483	0.0000026	0.0753	0.0015	-	13.0	0.00632	6.34	<0.00002	396	0.108	130	<0.00001	<0.005	<0.005	0.00179	0.0139	<0.005	0.00011
RCC-RSEM-R6-WP-IN	12/27/2018 14:55	VA2811	<0.000002	0.0491	<0.001	-	7.53	0.00469	4.8	<0.00002	331	0.116	99.5	0.00001	<0.005	<0.005	0.00315	0.0117	<0.005	<0.0001
RSEM-R6W-SP	1/1/2018 11:20	ST3044	<0.00001	0.0267	0.0021	-	4.05	0.00821	5.22	<0.00002	252	0.274	98.1	<0.00001	<0.005	<0.005	0.00372	0.0053	<0.005	<0.0001
RSEM-R6W-SP	1/2/2018 11:40	ST4211	<0.00001	0.0281	0.002	-	3.69	0.00922	4.09	<0.00002	238	0.302	89.4	<0.00001	<0.005	<0.005	0.00375	0.0057	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	1/3/2018 12:00	ST6561	8.28	1330	1.74	822	<4.0	279	270	312	<1.0	380	<1.0	<1.0	97.0	0.340	1.72	231
RSEM-R6W-SP	1/4/2018 13:10	ST7409	8.27	1210	1.21	768	<4.0	327	302	301	<1.0	367	<1.0	<1.0	85.2	0.290	1.47	219
RSEM-R6W-SP	1/5/2018 14:45	ST8669	8.32	1200	1.54	742	<4.0	310	309	308	<1.0	376	<1.0	<1.0	88.2	0.270	1.51	196
RSEM-R6W-SP	1/6/2018 12:00	ST9397	8.27	1120	1.18	554	<4.0	328	314	317	<1.0	386	<1.0	<1.0	79.1	0.230	1.27	193
RSEM-R6W-SP	1/7/2018 12:00	ST9340	8.22	1040	1.50	622	<4.0	332	339	309	<1.0	377	<1.0	<1.0	63.0	0.170	0.972	179
RSEM-R6W-SP	1/8/2018 11:05	SU1306	8.20	1060	1.51	636	<4.0	357	350	319	<1.0	389	<1.0	<1.0	63.4	0.180	0.969	180
RSEM-R6W-SP	1/9/2018 14:40	SU3309	8.13	1030	3.49	642	6.5	356	344	295	<1.0	360	<1.0	<1.0	59.8	0.180	0.283	178
RSEM-R6W-SP	1/10/2018 12:04	SU4768	8.39	1060	2.48	624	<4.0	320	366	327	6.0	384	7.2	<1.0	54.9	0.230	0.928	175
RSEM-R6W-SP	1/11/2018 0:10	SU5521	8.32	1050	1.13	640	<4.0	324	339	306	2.9	366	3.5	<1.0	58.7	0.200	0.947	179
RSEM-R6W-SP	1/12/2018 16:48	SU7327	8.41	1080	1.55	666	<4.0	339	337	329	6.3	386	7.6	<1.0	55.6	0.240	0.894	175
RSEM-R6W-SP	1/13/2018 12:08	SU7312	8.51	1100	1.16	664	<4.0	332	353	337	11.3	384	13.5	<1.0	56.4	0.240	0.920	184
RSEM-R6W-SP	1/14/2018 9:40	SU7323	8.25	1050	1.19	654	<4.0	368	335	299	<1.0	364	<1.0	<1.0	55.6	0.230	0.877	180
RSEM-R6W-SP	1/15/2018 15:42	SU9367	8.22	1050	1.12	608	<4.0	356	361	311	<1.0	380	<1.0	<1.0	58.1	0.210	0.934	176
RSEM-R6W-SP	1/16/2018 11:46	SV1339	8.28	1020	0.82	640	<4.0	352	351	292	<1.0	357	<1.0	<1.0	53.4	0.220	0.959	167
RSEM-R6W-SP	1/17/2018 8:55	SV3532	8.29	1010	0.53	626	<4.0	331	329	294	<1.0	359	<1.0	<1.0	52.5	0.200	0.884	178
RSEM-R6W-SP	1/18/2018 15:37	SV4471	8.25	970	0.69	612	<4.0	326	333	278	<1.0	339	<1.0	<1.0	51.7	0.190	0.823	174
RSEM-R6W-SP	1/19/2018 10:30	SV4478	8.26	970	0.37	624	<4.0	327	338	279	<1.0	341	<1.0	<1.0	52.5	0.200	0.835	174
RSEM-R6W-SP	1/20/2018 9:03	SV7272	8.30	1020	0.39	662	<4.0	385	387	309	1.9	372	2.3	<1.0	50.8	0.200	0.832	169
RSEM-R6W-SP	1/21/2018 11:38	SV8260	8.36	1030	0.30	622	<4.0	370	387	324	4.4	384	5.2	<1.0	52.0	0.200	0.856	163
RSEM-R6W-SP	1/22/2018 11:52	SV9404	8.33	1050	0.26	648	<4.0	377	375	324	2.2	390	2.6	<1.0	55.8	0.210	0.868	180
RSEM-R6W-SP	1/23/2018 12:00	SV9420	8.37	1070	0.24	630	<4.0	384	370	335	5.2	395	6.2	<1.0	55.3	0.210	0.900	181
RSEM-R6W-SP	1/24/2018 10:25	SW0797	8.30	1060	0.88	602	<4.0	327	332	302	<1.0	368	<1.0	<1.0	56.2	0.230	0.997	180
RSEM-R6W-SP	1/25/2018 12:45	SW2683	8.24	936	0.81	572	<4.0	284	336	275	<1.0	336	<1.0	<1.0	45.3	0.190	0.769	161
RSEM-R6W-SP	1/26/2018 10:55	SW3613	8.27	927	0.62	590	<4.0	331	340	254	<1.0	309	<1.0	<1.0	43.1	0.180	0.707	155
RSEM-R6W-SP	1/27/2018 17:15	SW6653	8.29	925	0.81	568	<4.0	333	336	265	<1.0	323	<1.0	<1.0	47.3	0.190	0.688	158
RSEM-R6W-SP	1/28/2018 11:00	SW6656	8.30	932	0.61	670	<4.0	329	341	266	<1.0	324	<1.0	<1.0	46.4	0.190	0.696	148
RSEM-R6W-SP	1/29/2018	SW8098	8.32	932	0.50	526	4.5	330	350	267	<1.0	326	<1.0	<1.0	41.2	0.190	0.702	152
RSEM-R6W-SP	1/30/2018 14:05	SX1384	8.47	986	0.89	602	<4.0	338	344	319	9.1	367	11.0	<1.0	42.9	0.200	0.733	153
RSEM-R6W-SP	1/31/2018 10:44	SX1386	8.46	977	0.60	582	<4.0	331	341	315	8.6	364	10.3	<1.0	42.6	0.200	0.712	150
RSEM-R6W-SP	1/31/2018 10:53	SX1387	8.46	985	1.97	602	<4.0	331	346	315	7.6	365	9.2	<1.0	42.6	0.200	0.727	166
RSEM-R6W-SP	2/1/2018 13:27	SX3551	8.53	991	0.56	618	<4.0	339	327	318	11.8	359	14.1	<1.0	48.0	0.200	0.778	160
RSEM-R6W-SP	2/2/2018 10:40	SX3507	8.27	909	0.82	574	<4.0	338	316	272	<1.0	332	<1.0	<1.0	45.1	0.180	0.711	151
RSEM-R6W-SP	2/3/2018 9:43	SX6299	8.45	981	0.40	536	<4.0	308	344	314	8.2	363	9.9	<1.0	43.5	0.190	0.745	151
RSEM-R6W-SP	2/3/2018 9:49	SX6300	8.46	985	0.44	532	<4.0	312	351	318	8.1	368	9.7	<1.0	41.5	0.200	0.751	155
RSEM-R6W-SP	2/4/2018 11:36	SX6310	8.44	993	0.48	590	<4.0	310	361	316	7.9	366	9.5	<1.0	44.0	0.200	0.759	161
RSEM-R6W-SP	2/5/2018 10:16	SX8061	8.46	985	0.80	584	17.8	282	276	324	7.1	378	8.5	<1.0	46.6	0.200	0.752	153
RSEM-R6W-SP	2/6/2018 9:29	SX8063	8.50	996	0.50	594	<4.0	358	397	328	9.9	376	11.8	<1.0	48.6	0.210	0.795	164
RSEM-R6W-SP	2/7/2018 14:15	SY0763	8.29	950	0.67	554	<4.0	346	302	289	<1.0	352	<1.0	<1.0	48.8	0.200	0.770	162
RSEM-R6W-SP	2/8/2018 14:05	SY2810	8.34	950	0.55	586	<4.0	327	314	298	3.7	355	4.5	<1.0	47.6	0.180	0.769	162
RSEM-R6W-SP	2/9/2018 12:55	SY2812	8.53	991	0.80	604	<4.0	348	327	319	11.1	362	13.4	<1.0	45.5	0.200	0.769	160
RSEM-R6W-SP	2/10/2018 17:10	SY5551	8.47	994	0.65	610	<4.0	312	329	319	8.0	370	9.6	<1.0	47.3	0.210	0.764	162
RSEM-R6W-SP	2/11/2018 14:17	SY5901	8.43	984	0.64	626	<4.0	345	324	313	5.6	368	6.7	<1.0	45.4	0.230	0.775	161
RSEM-R6W-SP	2/11/2018 14:26	SY5902	8.48	966	1.11	618	<4.0	368	328	311	10.1	355	12.1	<1.0	41.3	0.220	0.767	153
RSEM-R6W-SP	2/12/2018 13:10	SY5620	8.40	965	0.64	596	<4.0	343	317	311	6.2	364	7.4	<1.0	43.1	0.200	0.756	152
RSEM-R6W-SP	2/13/2018 12:35	SY7279	8.36	962	0.54	590	<4.0	333	329	319	4.2	378	5.0	<1.0	47.2	0.210	0.770	162
RSEM-R6W-SP	2/22/2018 10:04	SZ7675	8.51	1380	1.08	758	<4.0	185	177	318	8.5	367	10.2	<1.0	120	0.390	1.9	232
RSEM-R6W-SP	2/24/2018 14:29	TA2079	8.42	1240	1.49	712	<4.0	150	141	282	4.1	335	4.9	<1.0	112	0.360	1.9	188
RSEM-R6W-SP	3/1/2018 9:10	TA7698	8.50	1270	1.73	740	<4.0	138	137	284	6.1	331	7.3	<1.0	111	0.360	1.8	185
RSEM-R6W-SP	3/2/2018 17:35	TB0490	8.47	1320	0.97	758	<4.0	152	138	299	6.4	349	7.6	<1.0	116	0.370	1.9	194
RSEM-R6W-SP	3/3/2018 11:20	TB1438	8.49	1330	0.83	816	<4.0	146	146	304	7.2	353	8.7	<1.0	120	0.390	2.0	197
RSEM-R6W-SP	3/4/2018 16:55	TB1432	8.51	1360	0.95	816	<4.0	145	149	311	7.5	361	9.0	<1.0	124	0.400	1.9	190
RSEM-R6W-SP	3/5/2018 10:15	TB2018	8.54	1370	0.99	816	<4.0	159	159	319	9.3	366	11.1	<1.0	121	0.400	1.9	193
RSEM-R6W-SP	3/6/2018 10:45	TB2840	8.50	1360	1.24	786	<4.0	157	161	321	7.4	374	8.8	<1.0	117	0.400	1.9	213
RSEM-R6W-SP	3/17/2018 13:15	TD1674	8.44	906	11.6	510	8.0	114	117	196	2.2	234	2.7	<1.0	79.4	0.250	1.1	133
RSEM-R6W-SP	3/18/2018 10:10	TD1669	8.37	758	25.3	346	16.0	94.6	99.7	162	1.8	193	2.1	<1.0	69.1	0.210	0.93	111
RSEM-R6W-SP	3/19/2018 13:00	TD4113	8.13	514	25.8	290	9.8	77.4	74.3	111	<1.0	135	<1.0	<1.0	40.2	0.160	0.62	79.9
RSEM-R6W-SP	3/22/2018 12:15	TD7854	8.22	465	17.9	236	7.3	76.3	68.9	109	<1.0	133	<1.0	<1.0	34.6	0.150	0.51	60.9
RSEM-R6W-SP	3/23/2018 10:30	TD9508	8.19	475	19.7	302	9.0	68.7	72.8	110	<1.0	134	<1.0	<1.0	38.1	0.140	0.54	68.0
RSEM-R6W-SP	3/24/2018 7:10	TE2567	8.08	502	20.5	320	14.3	74.1	75.1	108	<1.0	132	<1.0	<1.0	39.8	0.160	0.65	73.8
RSEM-R6W-SP	3/25/2018 10:20	TE2564	8.07	515	21.1	312	8.5	75.7	75.9	112	<1.0	136	<1.0	<1.0	41.8	0.160	0.66	76.3
RSEM-R6W-SP	3/26/2018 9:45	TE2571	8.12	523	20.8	266	8.0	74.9	76.1	113	<1.0	138	<1.0	<1.0	42.5	0.160	0.69	79.2
RSEM-R6W-SP	3/27/2018 11:45	TE6112	8.17	528	18.8	256	8.5	78.9	79.5	114	<1.0	139	<1.0	<1.0	38.7	0.160	0.69	78.0
RSEM-R6W-SP	3/28/2018 9:30	TE7734	8.10	524	11.4	100	5.5	77.3	81.7	121	<1.0	148	<1.0	<1.0	41.0	0.160	0.64	73.9
RSEM-R6W-SP	3/29/2018 12:00	TE7725	8.04	540	11.1	246	11.3	78.5	81.7	123	<1.0	151	<1.0	<1.0	43.4	0.170	0.65	77.5

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	1/3/2018 12:00	ST6561	0.34	0.267	0.698	0.965	<0.0050	3.20	2.16	0.146	0.00172	0.00346	0.128	<0.0001	<0.001	0.181	<0.00001	75.4	0.0023	0.00044	0.00109
RSEM-R6W-SP	1/4/2018 13:10	ST7409	0.27	0.186	0.447	0.633	<0.0050	2.65	2.27	0.145	0.00126	0.00266	0.136	<0.0001	<0.001	0.157	<0.00001	88.4	0.0018	0.00043	0.00108
RSEM-R6W-SP	1/5/2018 14:45	ST8669	0.27	0.185	0.273	0.458	<0.0050	3.05	2.00	0.16	0.00122	0.00271	0.126	<0.0001	<0.001	0.151	<0.00001	84.3	0.0017	0.00043	0.00104
RSEM-R6W-SP	1/6/2018 12:00	ST9397	0.16	0.133	0.189	0.322	<0.0050	2.82	3.19	0.117	0.00087	0.00204	0.132	<0.0001	<0.001	0.127	<0.00001	88.6	0.0011	0.00051	0.00078
RSEM-R6W-SP	1/7/2018 12:00	ST9340	0.12	0.0690	0.121	0.190	<0.0050	2.93	1.61	0.0867	0.00056	0.00125	0.143	<0.0001	<0.001	0.102	<0.00001	93.3	<0.001	0.00066	0.00093
RSEM-R6W-SP	1/8/2018 11:05	SU1306	0.14	0.0681	0.135	0.203	<0.0050	1.96	2.19	0.0685	0.00053	0.00119	0.133	<0.0001	<0.001	0.097	<0.00001	99.4	<0.001	0.00071	0.00078
RSEM-R6W-SP	1/9/2018 14:40	SU3309	0.12	0.0742	0.124	0.198	<0.0050	2.29	2.10	0.0975	0.00056	0.00128	0.133	<0.0001	<0.001	0.102	<0.00001	99.2	<0.001	0.00081	0.00101
RSEM-R6W-SP	1/10/2018 12:04	SU4768	0.15	0.0657	0.129	0.195	0.0394	3.74	2.71	0.0765	<0.0005	0.00119	0.134	<0.0001	<0.001	0.126	<0.00001	88.3	<0.001	0.00076	0.00132
RSEM-R6W-SP	1/11/2018 0:10	SU5521	0.15	0.0609	0.129	0.190	0.0099	2.09	2.06	0.107	0.00052	0.00114	0.133	<0.0001	<0.001	0.119	<0.00001	88.5	<0.001	0.00081	0.00064
RSEM-R6W-SP	1/12/2018 16:48	SU7327	0.13	0.0400	0.106	0.146	0.0338	1.97	1.98	0.0797	<0.0005	0.00098	0.143	<0.0001	<0.001	0.122	<0.00001	94.1	<0.001	0.0008	0.00063
RSEM-R6W-SP	1/13/2018 12:08	SU7312	0.12	0.0407	0.112	0.152	0.0232	2.10	2.23	0.0664	<0.0005	0.00102	0.138	<0.0001	<0.001	0.116	<0.00001	91.6	<0.001	0.00081	0.00068
RSEM-R6W-SP	1/14/2018 9:40	SU7323	0.12	0.0420	0.084	0.126	<0.0050	1.87	1.46	0.0516	<0.0005	0.00095	0.147	<0.0001	<0.001	0.115	<0.00001	104	<0.001	0.00076	0.00057
RSEM-R6W-SP	1/15/2018 15:42	SU9367	0.11	0.0525	0.099	0.152	<0.0050	1.85	1.62	0.0589	0.00053	0.00113	0.133	<0.0001	<0.001	0.124	<0.00001	96.8	<0.001	0.00069	<0.0005
RSEM-R6W-SP	1/16/2018 11:46	SV1339	0.13	0.0546	0.100	0.155	<0.0050	2.40	2.00	0.0495	0.00052	0.00112	0.126	<0.0001	<0.001	0.115	<0.00001	98.4	<0.001	0.00065	0.00082
RSEM-R6W-SP	1/17/2018 8:55	SV3532	0.11	0.0392	0.085	0.124	0.0061	3.28	1.83	0.0343	<0.0005	0.00083	0.125	<0.0001	<0.001	0.119	<0.00001	89.8	<0.001	0.00065	<0.0005
RSEM-R6W-SP	1/18/2018 15:37	SV4471	0.16	0.0279	0.075	0.103	<0.0050	1.34	1.86	0.0301	<0.0005	0.00078	0.128	<0.0001	<0.001	0.116	<0.00001	88.8	<0.001	0.0007	<0.0005
RSEM-R6W-SP	1/19/2018 10:30	SV4478	0.13	0.0303	0.075	0.105	<0.0050	1.81	1.87	0.0287	<0.0005	0.00078	0.128	<0.0001	<0.001	0.128	<0.00001	89.0	<0.001	0.0007	0.00056
RSEM-R6W-SP	1/20/2018 9:03	SV7272	0.11	0.0323	0.081	0.113	0.0055	2.16	1.85	0.0252	<0.0005	0.0009	0.133	<0.0001	<0.001	0.106	<0.00001	110	<0.001	0.00069	0.00067
RSEM-R6W-SP	1/21/2018 11:38	SV8260	0.13	0.0342	0.088	0.122	<0.0050	1.90	1.99	0.0256	<0.0005	0.00084	0.133	<0.0001	<0.001	0.109	<0.00001	106	<0.001	0.00068	0.00058
RSEM-R6W-SP	1/22/2018 11:52	SV9404	0.12	0.0381	0.093	0.131	<0.0050	1.74	1.84	0.0265	<0.0005	0.00091	0.14	<0.0001	<0.001	0.11	<0.00001	108	<0.001	0.00072	0.00064
RSEM-R6W-SP	1/23/2018 12:00	SV9420	0.12	0.0394	0.095	0.134	<0.0050	-	1.70	0.0281	<0.0005	0.00099	0.141	<0.0001	<0.001	0.111	<0.00001	110	<0.001	0.00069	0.00068
RSEM-R6W-SP	1/24/2018 10:25	SW0797	0.19	0.0677	0.201	0.268	<0.0050	1.84	1.83	0.0642	0.00062	0.00132	0.136	<0.0001	<0.001	0.134	<0.00001	93.6	<0.001	0.00061	0.00062
RSEM-R6W-SP	1/25/2018 12:45	SW2683	0.084	0.0170	0.100	0.117	<0.0050	1.68	1.52	0.0332	<0.0005	0.00053	0.125	<0.0001	<0.001	0.12	<0.00001	72.4	<0.001	0.00062	<0.0005
RSEM-R6W-SP	1/26/2018 10:55	SW3613	0.065	0.0110	0.084	0.095	<0.0050	1.90	1.37	0.0396	<0.0005	0.00053	0.132	<0.0001	<0.001	0.113	<0.00001	91.6	<0.001	0.00065	<0.0005
RSEM-R6W-SP	1/27/2018 17:15	SW6653	0.062	0.0120	0.080	0.092	<0.0050	2.13	1.66	0.0448	<0.0005	0.00049	0.134	<0.0001	<0.001	0.089	<0.00001	95.2	<0.001	0.0006	<0.0005
RSEM-R6W-SP	1/28/2018 11:00	SW6656	0.060	0.0124	0.082	0.095	<0.0050	2.30	1.65	0.0263	<0.0005	0.00048	0.138	<0.0001	<0.001	0.087	<0.00001	92.3	<0.001	0.00059	<0.0005
RSEM-R6W-SP	1/29/2018	SW8098	0.077	0.0113	0.079	0.091	<0.0050	1.65	1.64	0.0204	<0.0005	0.00045	0.131	<0.0001	<0.001	0.083	<0.00001	93.7	<0.001	0.00054	<0.0005
RSEM-R6W-SP	1/30/2018 14:05	SX1384	0.070	0.0112	0.121	0.132	0.0231	2.01	1.91	0.041	<0.0005	0.0005	0.13	<0.0001	<0.001	0.092	0.000014	93.4	<0.001	0.00059	<0.0005
RSEM-R6W-SP	1/31/2018 10:44	SX1386	0.070	0.0110	0.100	0.111	0.0155	2.37	1.85	0.0212	<0.0005	0.00044	0.128	<0.0001	<0.001	0.09	<0.00001	91.0	<0.001	0.00057	<0.0005
RSEM-R6W-SP	1/31/2018 10:53	SX1387	0.083	0.0111	0.128	0.139	0.0405	1.99	2.09	0.025	<0.0005	0.0005	0.13	<0.0001	<0.001	0.093	<0.00001	92.4	<0.001	0.00056	0.00129
RSEM-R6W-SP	2/1/2018 13:27	SX3551	0.093	0.0208	0.136	0.157	0.0225	1.69	1.92	0.0371	<0.0005	0.00057	0.137	<0.0001	<0.001	0.1	<0.00001	96.1	<0.001	0.00055	0.00173
RSEM-R6W-SP	2/2/2018 10:40	SX3507	0.066	0.0108	0.081	0.091	<0.0050	1.24	1.32	0.0198	<0.0005	0.00046	0.141	<0.0001	<0.001	0.093	<0.00001	95.1	<0.001	0.00055	<0.0005
RSEM-R6W-SP	2/3/2018 9:43	SX6299	0.078	0.0112	0.109	0.121	0.0284	1.95	1.73	0.0212	<0.0005	0.00041	0.119	<0.0001	<0.001	0.085	<0.00001	86.9	<0.001	0.00048	<0.0005
RSEM-R6W-SP	2/3/2018 9:49	SX6300	0.085	0.0111	0.104	0.115	0.0213	1.82	1.79	0.0216	<0.0005	0.00051	0.121	<0.0001	<0.001	0.083	<0.00001	84.3	<0.001	0.00054	<0.0005
RSEM-R6W-SP	2/4/2018 11:36	SX6310	0.089	0.0145	0.105	0.119	0.0295	1.81	1.79	0.0259	<0.0005	0.00049	0.123	<0.0001	<0.001	0.088	<0.00001	85.2	<0.001	0.00055	<0.0005
RSEM-R6W-SP	2/5/2018 10:16	SX8061	0.076	0.0143	0.133	0.147	0.0199	1.80	1.35	0.0163	<0.0005	0.00039	0.104	<0.0001	<0.001	0.08	<0.00001	78.5	<0.001	0.00043	<0.0005
RSEM-R6W-SP	2/6/2018 9:29	SX8063	0.081	0.0152	0.113	0.128	0.0206	1.58	2.00	0.0322	<0.0005	0.00056	0.14	<0.0001	<0.001	0.109	<0.00001	99.6	<0.001	0.00052	0.00055
RSEM-R6W-SP	2/7/2018 14:15	SY0763	0.17	0.0162	0.090	0.106	<0.0050	2.02	1.49	0.0311	<0.0005	0.00057	0.13	<0.0001	<0.001	0.099	<0.00001	97.0	<0.001	0.00051	<0.0005
RSEM-R6W-SP	2/8/2018 14:05	SY2810	0.15	0.0161	0.093	0.109	0.0148	2.26	2.04	0.0304	<0.0005	0.0006	0.137	<0.0001	<0.001	0.098	<0.00001	90.1	<0.001	0.00053	<0.0005
RSEM-R6W-SP	2/9/2018 12:55	SY2812	0.12	0.0157	0.103	0.119	0.0222	4.30	1.85	0.0365	<0.0005	0.00055	0.141	<0.0001	<0.001	0.104	0.00001	97.4	<0.001	0.00056	0.00192
RSEM-R6W-SP	2/10/2018 17:10	SY5551	0.13	0.0143	0.148	0.162	0.0156	1.82	1.41	0.0345	<0.0005	0.00061	0.128	<0.0001	<0.001	0.096	<0.00001	85.5	<0.001	0.0005	<0.0005
RSEM-R6W-SP	2/11/2018 14:17	SY5901	0.095	0.0148	0.142	0.157	0.0161	2.14	1.06	0.0375	<0.0005	0.00062	0.134	<0.0001	<0.001	0.102	<0.00001	96.2	<0.001	0.00055	<0.0005
RSEM-R6W-SP	2/11/2018 14:26	SY5902	0.090	0.0162	0.127	0.143	0.0175	2.17	1.55	0.0514	<0.0005	0.00063	0.144	<0.0001	<0.001	0.107	<0.00001	103	<0.001	0.00065	0.00073
RSEM-R6W-SP	2/12/2018 13:10	SY5620	0.11	0.0161	0.117	0.133	0.0168	1.98	1.30	0.0475	<0.0005	0.00064	0.14	<0.0001	<0.001	0.105	<0.00001	95.8	<0.001	0.0005	<0.0005
RSEM-R6W-SP	2/13/2018 12:35	SY7279	0.11	0.0150	0.081	0.096	<0.0050	1.68	1.29	0.0321	<0.0005	0.00062	0.129	<0.0001	<0.001	0.106	<0.00001	90.7	<0.001	0.00051	0.00103
RSEM-R6W-SP	2/22/2018 10:04	SZ7675	0.49	0.146	0.404	0.549	<0.0050	3.13	1.84	0.214	0.0018	0.00361	0.0804	<0.0001	<0.001	0.249	<0.00001	47.9	0.0013	0.00046	0.00099
RSEM-R6W-SP	2/24/2018 14:29	TA2079	0.46	0.121	0.404	0.525	<0.0050	2.57	2.07	0.191	0.00176	0.00343	0.0662	<0.0001	<0.001	0.253	<0.00001	36.4	0.0014	0.00035	0.00109
RSEM-R6W-SP	3/1/2018 9:10	TA7698	0.30	0.117	0.374	0.492	<0.0050	2.40	1.74	0.182	0.00163	0.00309	0.0584	<0.0001	<0.001	0.236	<0.00001	34.2	0.0014	0.0004	0.00077
RSEM-R6W-SP	3/2/2018 17:35	TB0490	0.34	0.121	0.374	0.495	<0.0050	1.95	1.92	0.194	0.0018	0.00346	0.0639	<0.0001	<0.001	0.251	<0.00001	37.0	0.0014	0.00045	0.00089
RSEM-R6W-SP	3/3/2018 11:20	TB1438	0.47	0.127	0.382	0.509	<0.0050	2.23	1.91	0.185	0.00166	0.00324	0.0616	<0.0001	<0.001	0.238	<0.00001	36.3	0.0013	0.00041	0.00084
RSEM-R6W-SP	3/4/2018 16:55	TB1432	0.43	0.129	0.395	0.524	<0.0050	2.23	2.04	0.204	0.0017	0.00331	0.0626	<0.0001	<0.001	0.237	0.000011	35.3	0.0014	0.00045	0.00094
RSEM-R6W-SP	3/5/2018 10:15	TB2018	0.41	0.122	0.380	0.502	<0.0050	2.56	2.10	0.213	0.0018	0.00351	0.0721	<0.0001	<0.001	0.25	<0.00001	39.9	0.0013	0.00055	0.00103
RSEM-R6W-SP	3/6/2018 10:45	TB2840	0.42	0.119	0.362	0.481	<0.0050	2.42	2.22	0.203	0.00171	0.00328	0.0684	<0.0001	<0.001	0.24	<0.00001	39.6	0.0011	0.00054	0.00088
RSEM-R6W-SP	3/17/2018 13:15	TD1674	0.32	0.0703	0.441	0.511	0.0145	2.02	2.09	0.281	0.00098	0.00167	0.0555	<0.0001	<0.001	0.165	0.000012	30.2	0.001	0.00062	0.0138
RSEM-R6W-SP	3/18/2018 10:10	TD1669	0.26	0.0585	0.401	0.459	0.0301	2.25	1.72	1.31	0.00085	0.00167	0.0657	<0.0001	<0.001	0.13	0.000027	25.5	0.0024	0.00069	0.0103
RSEM-R6W-SP	3/19/2018 13:00	TD4113	0.22	0.0408	0.328	0.369	<0.0050	1.42	0.87	1.3	0.00057	0.00147	0.0616	<0.0001	<0.001	0.1	0.000031	21.9	0.0022	0.00062	0.0162
RSEM-R6W-SP	3/22/2018 12:15	TD7854	0.24	0.0380	0.309	0.347	0.0061	2.49	1.60	0.379	0.00053	0.00118	0.0591	<0.0001	<0.001	0.128	0.000037	21.3	0.0011	0.00061	0.0455
RSEM-R6W-SP	3/23/2018 10:30	TD9508	0.17	0.0514	0.277	0.328	<0.0050	2.39	2.26	0.947	0.00051	0.00115	0.0576	<0.0001	<0.001	0.099	0.000031	19.4	0.0019	0.00059	0.0408
RSEM-R6W-SP	3/24/2018 7:10	TE2567	0.20	0.0333	0.328	0.361	<0.0050	2.12	1.90	0.889	0.00054	0.00124	0.058	<0.0001	<0.001	0.105	0.000033	21.2	0.0019	0.00057	0.0369
RSEM-R6W-SP	3/25/2018 10:20	TE2564	0.21	0.0350	0.331	0.366	<0.0050	2.56	1.92	1.03	0.00056	0.00128	0.0606	<0.0001	<0.001	0.106	0.00003	21.7	0.002	0.00056	0.0333
RSEM-R6W-SP	3/26/2018 9:45	TE2571	0.22	0.0352	0.335	0.370	0.0214	1.87	1.71	0.896	0.00055	0.00124	0.0576	<0.0001	<0.001	0.112	0.000031	21.5	0.0017	0.00054	0.0322
RSEM-R6W-SP	3/27/2018 11:45	TE6112	0.19	0.0501	0.334	0.384	<0.0050	49.5	1.23	0.971	0.00061	0.00122	0.0626	<0.0001	<0.001	0.128	0.000032	22.4	0.0018	0.00058	0.0329
RSEM-R6W-SP	3/28/2018 9:30	TE7734	0.21	0.0511	0.340	0.391	0.0248	2.22	1.76	0.728	0.00058	0.00118	0.0607	<0.0001	<0.001	0.117	0.000029	22.1	0.0015	0.00053	0.0304
RSEM-R6W-SP	3/29/2018 12:00	TE7725	0.20	0.0523	0.348	0.400	0.0240	2.74	1.91	0.724	0.00061	0.00126	0.0608	<0.0001	<0.001	0.12	0.000031	22.3	0.0016	0.00055	0.0304

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	1/3/2018 12:00	ST6561	0.023	<0.0002	0.0397	22.0	0.0091	-	0.0189	0.0019	-	3.24	0.00583	4.44	<0.00002	198	0.315	78.3	<0.00001	<0.005	<0.005	0.00331
RSEM-R6W-SP	1/4/2018 13:10	ST7409	0.038	<0.0002	0.0341	25.7	0.008	-	0.0148	0.0017	-	2.97	0.00417	4.73	<0.00002	169	0.344	75.1	<0.00001	<0.005	<0.005	0.00316
RSEM-R6W-SP	1/5/2018 14:45	ST8669	0.026	<0.0002	0.0311	24.1	0.0064	-	0.015	0.0015	-	2.69	0.00352	4.56	<0.00002	161	0.324	72.8	<0.00001	<0.005	<0.005	0.00295
RSEM-R6W-SP	1/6/2018 12:00	ST9397	0.015	<0.0002	0.0279	25.8	0.007	-	0.0106	0.0016	-	2.58	0.00244	4.33	<0.00002	137	0.34	63.3	<0.00001	<0.005	<0.005	0.00275
RSEM-R6W-SP	1/7/2018 12:00	ST9340	0.023	<0.0002	0.0232	24.1	0.0086	-	0.0064	0.0019	-	2.21	0.00154	4.38	<0.00002	92.8	0.375	58.2	<0.00001	<0.005	<0.005	0.00263
RSEM-R6W-SP	1/8/2018 11:05	SU1306	0.023	<0.0002	0.0227	26.4	0.0087	<0.00001	0.0056	0.0021	-	2.16	0.00148	4.17	<0.00002	98.6	0.347	58.2	<0.00001	<0.005	<0.005	0.00242
RSEM-R6W-SP	1/9/2018 14:40	SU3309	0.073	<0.0002	0.024	26.3	0.0098	-	0.0055	0.004	-	2.24	0.0015	4.28	0.000028	104	0.35	61.0	<0.00001	<0.005	<0.005	0.00247
RSEM-R6W-SP	1/10/2018 12:04	SU4768	0.032	<0.0002	0.0256	24.2	0.0083	-	0.0055	0.0025	-	2.11	0.00137	4.34	0.000063	95.8	0.358	58.0	<0.00001	<0.005	<0.005	0.00253
RSEM-R6W-SP	1/11/2018 0:10	SU5521	0.028	<0.0002	0.0258	25.1	0.0088	-	0.0055	0.0025	-	2.12	0.0014	4.3	0.000029	99.7	0.351	59.3	<0.00001	<0.005	<0.005	0.00263
RSEM-R6W-SP	1/12/2018 16:48	SU7327	0.022	<0.0002	0.0264	25.2	0.0089	-	0.0043	0.0025	-	2.02	0.00116	4.38	<0.00002	92.5	0.409	54.9	<0.00001	<0.005	<0.005	0.00264
RSEM-R6W-SP	1/13/2018 12:08	SU7312	0.025	<0.0002	0.027	25.2	0.0092	-	0.0043	0.0025	-	2.02	0.0012	4.34	<0.00002	97.6	0.394	55.5	<0.00001	<0.005	<0.005	0.0026
RSEM-R6W-SP	1/14/2018 9:40	SU7323	0.019	<0.0002	0.0257	26.4	0.0089	-	0.0041	0.0024	-	2.01	0.00115	4.67	<0.00002	94.4	0.384	58.1	<0.00001	<0.005	<0.005	0.00259
RSEM-R6W-SP	1/15/2018 15:42	SU9367	0.012	<0.0002	0.0249	27.9	0.0078	-	0.0056	0.0023	-	2.12	0.00129	4.68	<0.00002	108	0.405	60.9	<0.00001	<0.005	<0.005	0.00244
RSEM-R6W-SP	1/16/2018 11:46	SV1339	0.01	<0.0002	0.0234	25.9	0.0073	-	0.0057	0.0021	-	1.99	0.00121	4.54	<0.00002	104	0.382	56.3	<0.00001	<0.005	<0.005	0.00239
RSEM-R6W-SP	1/17/2018 8:55	SV3532	<0.01	<0.0002	0.0207	25.9	0.0072	-	0.004	0.002	-	1.81	0.00099	4.34	<0.00002	93.1	0.331	52.4	<0.00001	<0.005	<0.005	0.00227
RSEM-R6W-SP	1/18/2018 15:37	SV4471	<0.01	<0.0002	0.0221	25.3	0.0077	<0.00001	0.0034	0.0022	-	1.81	0.00094	4.1	<0.00002	91.7	0.351	55.1	<0.00001	<0.005	<0.005	0.00226
RSEM-R6W-SP	1/19/2018 10:30	SV4478	<0.01	<0.0002	0.0231	25.4	0.0076	<0.00001	0.0036	0.0022	-	1.80	0.00092	4.14	<0.00002	93.9	0.352	54.8	<0.00001	<0.005	<0.005	0.00231
RSEM-R6W-SP	1/20/2018 9:03	SV7272	<0.01	<0.0002	0.0236	26.5	0.0077	-	0.0036	0.0021	-	2.16	0.00104	5.07	<0.00002	91.0	0.351	60.3	<0.00001	<0.005	<0.005	0.00238
RSEM-R6W-SP	1/21/2018 11:38	SV8260	<0.01	<0.0002	0.0238	25.7	0.0074	-	0.0038	0.0021	-	2.16	0.0011	4.99	<0.00002	91.2	0.353	61.6	<0.00001	<0.005	<0.005	0.00233
RSEM-R6W-SP	1/22/2018 11:52	SV9404	<0.01	<0.0002	0.0245	26.3	0.0074	-	0.0041	0.0023	-	2.24	0.00102	5.08	<0.00002	93.1	0.364	61.2	<0.00001	<0.005	<0.005	0.0024
RSEM-R6W-SP	1/23/2018 12:00	SV9420	<0.01	<0.0002	0.0257	26.6	0.0075	<0.00001	0.0044	0.0024	-	2.30	0.00108	5.11	<0.00002	95.8	0.364	64.0	<0.00001	<0.005	<0.005	0.00248
RSEM-R6W-SP	1/24/2018 10:25	SW0797	0.016	<0.0002	0.0264	22.6	0.007	<0.00001	0.0068	0.0023	-	2.16	0.00176	4.96	<0.00002	106	0.349	59.1	<0.00001	<0.005	<0.005	0.00259
RSEM-R6W-SP	1/25/2018 12:45	SW2683	0.01	<0.0002	0.0226	25.1	0.008	-	0.0024	0.0022	-	1.73	0.0007	4.02	0.000022	84.5	0.363	55.2	<0.00001	<0.005	<0.005	0.0023
RSEM-R6W-SP	1/26/2018 10:55	SW3613	0.014	<0.0002	0.0232	24.7	0.0086	-	0.0022	0.0023	-	1.75	0.00088	4.03	<0.00002	80.7	0.368	53.4	<0.00001	<0.005	<0.005	0.00228
RSEM-R6W-SP	1/27/2018 17:15	SW6653	0.026	<0.0002	0.0201	23.1	0.0084	<0.00001	0.0023	0.002	-	1.71	0.00069	3.73	<0.00002	78.8	0.37	46.4	<0.00001	<0.005	<0.005	0.00229
RSEM-R6W-SP	1/28/2018 11:00	SW6656	0.014	<0.0002	0.0194	23.9	0.0081	<0.00001	0.0023	0.002	-	1.77	0.00068	3.71	<0.00002	80.2	0.382	47.1	<0.00001	<0.005	<0.005	0.00232
RSEM-R6W-SP	1/29/2018	SW8098	0.013	<0.0002	0.0202	23.3	0.0069	-	0.0022	0.0018	-	1.70	0.00065	3.99	<0.00002	76.3	0.336	44.7	<0.00001	<0.005	<0.005	0.00227
RSEM-R6W-SP	1/30/2018 14:05	SX1384	0.025	<0.0002	0.0212	25.4	0.0076	-	0.0021	0.002	-	1.74	0.00066	3.85	<0.00002	82.4	0.364	48.3	<0.00001	<0.005	<0.005	0.00226
RSEM-R6W-SP	1/31/2018 10:44	SX1386	0.012	<0.0002	0.0209	25.1	0.007	-	0.002	0.0019	-	1.72	0.00061	3.92	<0.00002	82.2	0.353	47.7	<0.00001	<0.005	<0.005	0.00222
RSEM-R6W-SP	1/31/2018 10:53	SX1387	0.013	<0.0002	0.0213	24.4	0.0071	-	0.0022	0.002	-	1.67	0.00066	3.8	<0.00002	79.7	0.347	46.6	<0.00001	<0.005	<0.005	0.00228
RSEM-R6W-SP	2/1/2018 13:27	SX3551	0.02	<0.0002	0.0222	24.0	0.0073	-	0.0029	0.0021	-	1.88	0.00079	4.5	<0.00002	85.8	0.36	53.8	<0.00001	<0.005	<0.005	0.00219
RSEM-R6W-SP	2/2/2018 10:40	SX3507	0.013	<0.0002	0.0222	24.3	0.0072	-	0.0021	0.0019	-	1.79	0.00064	4.34	<0.00002	80.4	0.369	54.4	<0.00001	<0.005	<0.005	0.00225
RSEM-R6W-SP	2/3/2018 9:43	SX6299	0.014	<0.0002	0.0204	22.0	0.0066	-	0.002	0.0017	-	1.59	0.00061	3.84	<0.00002	71.3	0.336	43.8	<0.00001	<0.005	<0.005	0.00195
RSEM-R6W-SP	2/3/2018 9:49	SX6300	<0.01	<0.0002	0.0204	24.7	0.0074	-	0.0021	0.002	-	1.78	0.00061	3.95	<0.00002	79.5	0.369	48.0	<0.00001	<0.005	<0.005	0.00192
RSEM-R6W-SP	2/4/2018 11:36	SX6310	0.011	<0.0002	0.0227	23.5	0.0074	-	0.0024	0.002	-	1.76	0.0007	3.99	<0.00002	81.6	0.344	48.1	<0.00001	<0.005	<0.005	0.00201
RSEM-R6W-SP	2/5/2018 10:16	SX8061	<0.01	<0.0002	0.0173	20.9	0.0062	-	0.0018	0.0015	-	1.74	0.00052	3.36	<0.00002	69.8	0.284	45.6	<0.00001	<0.005	<0.005	0.00177
RSEM-R6W-SP	2/6/2018 9:29	SX8063	0.015	<0.0002	0.0226	26.4	0.0075	-	0.0026	0.002	-	2.20	0.00081	4.28	<0.00002	89.3	0.366	58.3	<0.00001	<0.005	<0.005	0.00229
RSEM-R6W-SP	2/7/2018 14:15	SY0763	0.011	<0.0002	0.0225	25.1	0.0072	-	0.0029	0.0018	-	1.95	0.00083	4.22	<0.00002	88.0	0.336	54.2	<0.00001	<0.005	<0.005	0.00218
RSEM-R6W-SP	2/8/2018 14:05	SY2810	0.01	<0.0002	0.0213	24.8	0.0074	-	0.0032	0.0018	-	1.96	0.00079	4.22	<0.00002	89.7	0.367	55.6	<0.00001	<0.005	<0.005	0.00231
RSEM-R6W-SP	2/9/2018 12:55	SY2812	0.016	<0.0002	0.0216	25.5	0.0078	-	0.0028	0.0019	-	2.20	0.00077	4.49	0.000023	88.5	0.366	55.9	<0.00001	<0.005	<0.005	0.00232
RSEM-R6W-SP	2/10/2018 17:10	SY5551	0.012	<0.0002	0.0208	24.0	0.0074	-	0.0028	0.0016	-	1.97	0.00072	3.83	<0.00002	85.7	0.323	53.8	<0.00001	<0.005	<0.005	0.00205
RSEM-R6W-SP	2/11/2018 14:17	SY5901	0.015	<0.0002	0.0224	25.5	0.0082	-	0.0031	0.0019	-	2.14	0.00082	4.27	<0.00002	93.9	0.357	61.5	<0.00001	<0.005	<0.005	0.00223
RSEM-R6W-SP	2/11/2018 14:26	SY5902	0.023	<0.0002	0.0253	27.0	0.0099	-	0.0035	0.0023	-	2.44	0.00098	4.63	0.00002	100	0.367	63.2	<0.00001	<0.005	<0.005	0.00237
RSEM-R6W-SP	2/12/2018 13:10	SY5620	0.013	<0.0002	0.0227	25.1	0.0074	-	0.0033	0.0017	-	2.07	0.00083	4.22	<0.00002	90.1	0.352	55.0	<0.00001	<0.005	<0.005	0.00225
RSEM-R6W-SP	2/13/2018 12:35	SY7279	0.021	<0.0002	0.0229	25.9	0.0069	-	0.0032	0.0017	-	1.97	0.00078	4.36	<0.00002	90.6	0.335	56.2	<0.00001	<0.005	<0.005	0.00221
RSEM-R6W-SP	2/22/2018 10:04	SZ7675	0.021	<0.0002	0.0523	15.9	0.0063	-	0.0206	0.0022	-	3.93	0.00346	4.83	<0.00002	228	0.239	80.1	<0.00001	<0.005	<0.005	0.00289
RSEM-R6W-SP	2/24/2018 14:29	TA2079	0.036	<0.0002	0.0464	14.5	0.0052	-	0.0202	0.0018	-	3.75	0.00327	4.01	<0.00002	221	0.197	74.1	<0.00001	<0.005	<0.005	0.00257
RSEM-R6W-SP	3/1/2018 9:10	TA7698	0.043	<0.0002	0.0469	12.8	0.0068	-	0.0183	0.0019	-	3.42	0.00314	3.61	<0.00002	214	0.185	65.2	<0.00001	<0.005	<0.005	0.0024
RSEM-R6W-SP	3/2/2018 17:35	TB0490	0.02	<0.0002	0.0501	14.6	0.0074	-	0.0209	0.0022	-	3.50	0.00355	3.9	<0.00002	236	0.205	73.2	<0.00001	<0.005	<0.005	0.00264
RSEM-R6W-SP	3/3/2018 11:20	TB1438	0.016	<0.0002	0.0505	13.4	0.0068	-	0.0198	0.0021	-	3.41	0.00341	3.85	<0.00002	215	0.196	66.5	<0.00001	<0.005	<0.005	0.00252
RSEM-R6W-SP	3/4/2018 16:55	TB1432	0.102	<0.0002	0.049	13.9	0.0083	-	0.0201	0.0023	-	3.42	0.00357	3.71	<0.00002	227	0.196	66.1	<0.00001	<0.005	<0.005	0.00252
RSEM-R6W-SP	3/5/2018 10:15	TB2018	0.032	<0.0002	0.0539	14.4	0.0089	<0.000002	0.0212	0.0026	-	3.46	0.00354	3.91	<0.00002	223	0.222	68.4	<0.00001	<0.005	<0.005	0.00272
RSEM-R6W-SP	3/6/2018 10:45	TB2840	0.032	<0.0002	0.0527	14.1	0.0094	<0.000002	0.02	0.0028	-	3.34	0.00335	3.82	<0.00002	210	0.218	64.4	<0.00001	<0.005	<0.005	0.00257
RSEM-R6W-SP	3/17/2018 13:15	TD1674	0.194	<0.0002	0.0349	9.39	0.0206	-	0.0113	0.003	-	2.70	0.00221	2.67	<0.00002	134	0.161	46.1	0.00001	<0.005	<0.005	0.00157
RSEM-R6W-SP	3/18/2018 10:10	TD1669	0.81	0.00046	0.0289	7.51	0.0279	-	0.0092	0.0033	-	2.63	0.0018	4.34	<0.00002	103	0.137	35.2	0.000024	<0.005	0.0326	0.00132
RSEM-R6W-SP	3/19/2018 13:00	TD4113	0.821	0.0005	0.0195	5.51	0.0299	-	0.0062	0.0026	-	2.05	0.00121	4.12	<0.00002	72.0	0.105	24.9	0.000024	<0.005	0.0379	0.00095
RSEM-R6W-SP	3/22/2018 12:15	TD7854	0.583	0.00041	0.0176	5.59	0.032	-	0.0056	0.0026	-	1.61	0.00114	1.98	<0.00002	68.3	0.104	23.0	0.000015	<0.005	0.0057	0.0009
RSEM-R6W-SP	3/23/2018 10:30	TD9508	0.7	0.00041	0.0154	4.91	0.0301	<0.000002	0.0054	0.0025	-	1.66	0.00098	3.27	<0.00002	61.0	0.0982	20.1	0.000021	<0.005	0.022	0.0008
RSEM-R6W-SP	3/24/2018 7:10	TE2567	0.669	0.00043	0.018	5.13	0.0308	-	0.0057	0.0025	-	1.95	0.00112	3.18	<0.00002	66.2	0.0992	23.1	0.00002	<0.005	0.028	0.0009
RSEM-R6W-SP	3/25/2018 10:20	TE2564	0.652	0.00041	0.0183	5.21	0.029	-	0.006	0.0025	-	1.96	0.00115	3.29	<0.00002	68.3	0.102	22.1	0.000019	<0.005	0.0277	0.00092
RSEM-R6W-SP	3/26/2018 9:45	TE2571	0.608	0.00039	0.0184	5.17	0.0282	0.0000024	0.006	0.0024	-	1.87	0.00117	2.98	<0.00002	65.1	0.102	22.1	0.000021	<0.005	0.023	0.00094
RSEM-R6W-SP	3/27/2018 11:45	TE6112	0.609	0.00038	0.0197	5.57	0.0291	-	0.0064	0.0026	-	1.96	0.00123	3.06	<0.00002	71.1	0.112	23.0	0.000021	<0.005	0.0254	0.00099
RSEM-R6W-SP	3/28/2018 9:30	TE7734	0.502	0.00033	0.0195	5.37	0.0283	-	0.0063	0.0024	-	1.97	0.00116	2.86	<0.00002	69.4	0.113	26.2	0.000017	<0.005	0.0205	0.00098
RSEM-R6W-SP	3/29/2018 12:00	TE7725	0.524	0.00034	0.0202	5.56	0.0281	-	0.0065	0.0025	-	1.95	0.0014	2.87	<0.00002	73.6	0.118	24.4	0.000018	<0.005	0.0188	0.00101

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	1/3/2018 12:00	ST6561	<0.005	<0.005	<0.0001	0.128	0.00175	0.00327	0.124	<0.0001	<0.001	0.226	<0.00001	72.5	0.0019	0.00039	0.00082	<0.01	<0.0002	0.0399	21.6	0.0088
RSEM-R6W-SP	1/4/2018 13:10	ST7409	<0.005	<0.005	<0.0001	0.106	0.00119	0.00263	0.137	<0.0001	<0.001	0.16	<0.00001	80.9	0.0015	0.00039	0.00088	<0.01	<0.0002	0.0358	24.3	0.0073
RSEM-R6W-SP	1/5/2018 14:45	ST8669	<0.005	<0.005	<0.0001	0.133	0.00125	0.00279	0.124	<0.0001	<0.001	0.148	<0.00001	83.1	0.0015	0.00037	0.001	0.011	0.00021	0.0324	24.6	0.0051
RSEM-R6W-SP	1/6/2018 12:00	ST9397	<0.005	<0.005	<0.0001	0.0921	0.00091	0.0021	0.134	<0.0001	<0.001	0.123	<0.00001	85.9	<0.001	0.00046	0.00058	<0.01	<0.0002	0.0275	24.3	0.0062
RSEM-R6W-SP	1/7/2018 12:00	ST9340	<0.005	<0.005	<0.0001	0.052	0.00058	0.00129	0.139	<0.0001	<0.001	0.103	<0.00001	94.5	<0.001	0.00057	0.00062	<0.01	<0.0002	0.0242	24.9	0.0076
RSEM-R6W-SP	1/8/2018 11:05	SU1306	<0.005	<0.005	<0.0001	0.0438	0.00058	0.00113	0.129	<0.0001	<0.001	0.102	<0.00001	97.7	<0.001	0.0006	0.00061	<0.01	<0.0002	0.0235	25.7	0.0051
RSEM-R6W-SP	1/9/2018 14:40	SU3309	<0.005	<0.005	<0.0001	0.039	0.00056	0.00117	0.133	<0.0001	<0.001	0.107	<0.00001	95.7	<0.001	0.00075	0.00069	<0.01	<0.0002	0.0245	25.6	0.0079
RSEM-R6W-SP	1/10/2018 12:04	SU4768	<0.005	<0.005	<0.0001	0.0393	0.00056	0.0013	0.135	<0.0001	<0.001	0.109	<0.00001	103	<0.001	0.00084	0.00083	<0.01	<0.0002	0.0248	26.2	0.0083
RSEM-R6W-SP	1/11/2018 0:10	SU5521	<0.005	<0.005	<0.0001	0.0372	0.00051	0.00114	0.135	<0.0001	<0.001	0.113	<0.00001	95.2	<0.001	0.00077	0.00058	<0.01	<0.0002	0.0269	24.7	0.0079
RSEM-R6W-SP	1/12/2018 16:48	SU7327	<0.005	<0.005	<0.0001	0.0261	<0.0005	0.00101	0.143	<0.0001	<0.001	0.12	<0.00001	91.9	<0.001	0.00082	0.00063	<0.01	<0.0002	0.0274	26.2	0.0084
RSEM-R6W-SP	1/13/2018 12:08	SU7312	<0.005	0.0066	<0.0001	0.0262	<0.0005	0.00101	0.144	<0.0001	<0.001	0.119	<0.00001	96.7	<0.001	0.00081	0.00058	<0.01	<0.0002	0.0274	27.1	0.0088
RSEM-R6W-SP	1/14/2018 9:40	SU7323	<0.005	<0.005	<0.0001	0.0225	<0.0005	0.00096	0.136	<0.0001	<0.001	0.12	<0.00001	90.7	<0.001	0.00064	<0.0005	<0.01	<0.0002	0.026	26.4	0.005
RSEM-R6W-SP	1/15/2018 15:42	SU9367	<0.005	<0.005	<0.0001	0.0322	<0.0005	0.00116	0.136	<0.0001	<0.001	0.119	<0.00001	101	<0.001	0.00071	0.00053	<0.01	<0.0002	0.0254	26.6	0.0074
RSEM-R6W-SP	1/16/2018 11:46	SV1339	<0.005	<0.005	<0.0001	0.0347	0.00052	0.00117	0.125	<0.0001	<0.001	0.12	<0.00001	97.6	<0.001	0.00064	0.00059	<0.01	<0.0002	0.0245	26.1	0.0069
RSEM-R6W-SP	1/17/2018 8:55	SV3532	<0.005	<0.005	<0.0001	0.0245	<0.0005	0.00088	0.128	<0.0001	<0.001	0.111	<0.00001	89.2	<0.001	0.00056	<0.0005	<0.01	<0.0002	0.0216	25.8	0.0047
RSEM-R6W-SP	1/18/2018 15:37	SV4471	<0.005	<0.005	<0.0001	0.0221	<0.0005	0.00081	0.13	<0.0001	<0.001	0.124	<0.00001	90.3	<0.001	0.0007	<0.0005	<0.01	<0.0002	0.0218	26.2	0.0069
RSEM-R6W-SP	1/19/2018 10:30	SV4478	<0.005	<0.005	<0.0001	0.0229	<0.0005	0.00081	0.131	<0.0001	<0.001	0.124	<0.00001	93.3	<0.001	0.00067	<0.0005	<0.01	<0.0002	0.0222	25.5	0.0075
RSEM-R6W-SP	1/20/2018 9:03	SV7272	<0.005	<0.005	<0.0001	0.0228	<0.0005	0.00084	0.137	<0.0001	<0.001	0.104	<0.00001	110	<0.001	0.0007	0.00054	<0.01	<0.0002	0.0243	27.4	0.0072
RSEM-R6W-SP	1/21/2018 11:38	SV8260	<0.005	<0.005	<0.0001	0.0232	<0.0005	0.00094	0.137	<0.0001	<0.001	0.111	<0.00001	109	<0.001	0.00063	0.00054	<0.01	<0.0002	0.0252	27.7	0.0067
RSEM-R6W-SP	1/22/2018 11:52	SV9404	<0.005	<0.005	<0.0001	0.025	<0.0005	0.00091	0.142	<0.0001	<0.001	0.118	<0.00001	105	<0.001	0.00075	0.00059	<0.01	<0.0002	0.0257	27.6	0.0079
RSEM-R6W-SP	1/23/2018 12:00	SV9420	<0.005	<0.005	<0.0001	0.0263	<0.0005	0.00098	0.138	<0.0001	<0.001	0.116	<0.00001	101	<0.001	0.00076	0.00066	<0.01	<0.0002	0.0248	28.5	0.0081
RSEM-R6W-SP	1/24/2018 10:25	SW0797	<0.005	<0.005	<0.0001	0.0446	0.00063	0.00135	0.127	<0.0001	<0.001	0.128	<0.00001	91.0	<0.001	0.00069	0.00057	<0.01	<0.0002	0.0275	25.4	0.0068
RSEM-R6W-SP	1/25/2018 12:45	SW2683	<0.005	<0.005	<0.0001	0.0124	<0.0005	0.00054	0.135	<0.0001	<0.001	0.112	<0.00001	93.0	<0.001	0.00059	<0.0005	<0.01	<0.0002	0.0216	25.1	0.0072
RSEM-R6W-SP	1/26/2018 10:55	SW3613	<0.005	<0.005	<0.0001	0.0098	<0.0005	0.00053	0.13	<0.0001	<0.001	0.095	<0.00001	95.2	<0.001	0.00058	<0.0005	<0.01	<0.0002	0.021	24.7	0.007
RSEM-R6W-SP	1/27/2018 17:15	SW6653	<0.005	<0.005	<0.0001	0.0089	<0.0005	0.00049	0.132	<0.0001	<0.001	0.098	<0.00001	94.2	<0.001	0.00058	<0.0005	<0.01	<0.0002	0.0195	24.5	0.0068
RSEM-R6W-SP	1/28/2018 11:00	SW6656	<0.005	<0.005	<0.0001	0.0088	<0.0005	0.00051	0.133	<0.0001	<0.001	0.1	<0.00001	96.2	<0.001	0.00058	<0.0005	<0.01	<0.0002	0.0214	24.5	0.0069
RSEM-R6W-SP	1/29/2018	SW8098	<0.005	<0.005	<0.0001	0.009	<0.0005	0.00046	0.132	<0.0001	<0.001	0.09	<0.00001	99.3	<0.001	0.00055	<0.0005	0.017	<0.0002	0.0201	24.7	0.007
RSEM-R6W-SP	1/30/2018 14:05	SX1384	<0.005	0.0054	<0.0001	0.0097	<0.0005	0.0005	0.132	<0.0001	<0.001	0.106	<0.00001	95.7	<0.001	0.00053	0.00054	<0.01	<0.0002	0.0231	25.4	0.0063
RSEM-R6W-SP	1/31/2018 10:44	SX1386	<0.005	<0.005	<0.0001	0.0089	<0.0005	0.00049	0.133	<0.0001	<0.001	0.093	<0.00001	95.2	<0.001	0.00055	<0.0005	<0.01	<0.0002	0.0204	25.0	0.007
RSEM-R6W-SP	1/31/2018 10:53	SX1387	<0.005	0.0062	<0.0001	0.0093	<0.0005	0.00045	0.127	<0.0001	<0.001	0.093	<0.00001	95.8	<0.001	0.00056	0.00077	<0.01	<0.0002	0.02	25.9	0.0075
RSEM-R6W-SP	2/1/2018 13:27	SX3551	<0.005	<0.005	<0.0001	0.0175	<0.0005	0.00062	0.138	<0.0001	<0.001	0.113	<0.00001	90.3	<0.001	0.00055	<0.0005	<0.01	<0.0002	0.0254	24.7	0.0071
RSEM-R6W-SP	2/2/2018 10:40	SX3507	<0.005	<0.005	<0.0001	0.0111	<0.0005	0.00044	0.138	<0.0001	<0.001	0.104	<0.00001	88.1	<0.001	0.00049	<0.0005	<0.01	<0.0002	0.0228	23.3	0.0053
RSEM-R6W-SP	2/3/2018 9:43	SX6299	<0.005	<0.005	<0.0001	0.012	<0.0005	0.00051	0.146	<0.0001	<0.001	0.089	<0.00001	96.6	<0.001	0.00056	<0.0005	<0.01	<0.0002	0.0218	24.9	0.0067
RSEM-R6W-SP	2/3/2018 9:49	SX6300	<0.005	<0.005	<0.0001	0.0116	<0.0005	0.00057	0.141	<0.0001	<0.001	0.099	<0.00001	98.8	<0.001	0.00057	<0.0005	<0.01	<0.0002	0.0237	25.2	0.007
RSEM-R6W-SP	2/4/2018 11:36	SX6310	<0.005	0.0146	<0.0001	0.0138	<0.0005	0.00053	0.144	<0.0001	<0.001	0.105	<0.00001	102	<0.001	0.00055	0.00051	<0.01	<0.0002	0.0248	25.6	0.0074
RSEM-R6W-SP	2/5/2018 10:16	SX8061	<0.005	<0.005	<0.0001	0.0079	<0.0005	0.00041	0.0682	<0.0001	<0.001	0.084	<0.00001	70.8	<0.001	0.00031	<0.0005	<0.01	<0.0002	0.0167	24.2	0.0026
RSEM-R6W-SP	2/6/2018 9:29	SX8063	<0.005	0.0189	<0.0001	0.0178	<0.0005	0.00057	0.141	<0.0001	<0.001	0.109	<0.00001	108	<0.001	0.00053	0.0009	<0.01	<0.0002	0.0222	30.9	0.0073
RSEM-R6W-SP	2/7/2018 14:15	SY0763	<0.005	<0.005	<0.0001	0.0173	<0.0005	0.00059	0.127	<0.0001	<0.001	0.104	<0.00001	80.7	<0.001	0.0005	<0.0005	<0.01	<0.0002	0.0223	24.3	0.0069
RSEM-R6W-SP	2/8/2018 14:05	SY2810	<0.005	<0.005	<0.0001	0.019	<0.0005	0.00059	0.132	<0.0001	<0.001	0.093	<0.00001	85.9	<0.001	0.0004	<0.0005	<0.01	<0.0002	0.0205	24.0	0.0044
RSEM-R6W-SP	2/9/2018 12:55	SY2812	<0.005	0.0164	<0.0001	0.0168	<0.0005	0.00057	0.137	<0.0001	<0.001	0.096	<0.00001	89.5	<0.001	0.00048	0.00066	<0.01	<0.0002	0.0218	25.2	0.0062
RSEM-R6W-SP	2/10/2018 17:10	SY5551	<0.005	0.0226	<0.0001	0.0179	<0.0005	0.00061	0.136	<0.0001	<0.001	0.104	<0.00001	92.4	<0.001	0.00052	0.00066	<0.01	<0.0002	0.0223	23.8	0.007
RSEM-R6W-SP	2/11/2018 14:17	SY5901	<0.005	0.0302	<0.0001	0.0179	<0.0005	0.00057	0.137	<0.0001	<0.001	0.107	<0.00001	88.8	<0.001	0.0005	<0.0005	<0.01	<0.0002	0.0225	24.9	0.0075
RSEM-R6W-SP	2/11/2018 14:26	SY5902	<0.005	0.0185	<0.0001	0.0187	<0.0005	0.00061	0.129	<0.0001	<0.001	0.106	<0.00001	90.1	<0.001	0.0006	0.00096	<0.01	<0.0002	0.0242	25.0	0.0084
RSEM-R6W-SP	2/12/2018 13:10	SY5620	<0.005	0.0248	<0.0001	0.022	<0.0005	0.00064	0.13	<0.0001	<0.001	0.104	<0.00001	87.2	<0.001	0.00045	0.00077	<0.01	<0.0002	0.0226	24.2	0.0068
RSEM-R6W-SP	2/13/2018 12:35	SY7279	<0.005	<0.005	<0.0001	0.0229	<0.0005	0.00067	0.132	<0.0001	<0.001	0.092	<0.00001	92.0	<0.001	0.00046	<0.0005	<0.01	<0.0002	0.0217	24.1	0.0068
RSEM-R6W-SP	2/22/2018 10:04	SZ7675	0.0051	<0.005	<0.0001	0.181	0.0018	0.00331	0.071	<0.0002	<0.002	0.259	<0.00002	42.7	<0.002	0.00049	0.0012	<0.02	<0.0004	0.0496	17.1	0.0056
RSEM-R6W-SP	2/24/2018 14:29	TA2079	<0.005	0.0053	<0.0001	0.167	0.00171	0.00304	0.063	<0.0001	<0.001	0.244	<0.00001	35.4	0.0011	0.00031	0.00076	<0.01	<0.0002	0.0467	12.8	0.0041
RSEM-R6W-SP	3/1/2018 9:10	TA7698	<0.005	0.0146	<0.0001	0.158	0.00165	0.00314	0.0587	<0.0001	<0.001	0.229	<0.00001	33.9	0.0011	0.0004	0.00083	<0.01	<0.0002	0.0466	12.8	0.0058
RSEM-R6W-SP	3/2/2018 17:35	TB0490	<0.005	0.0081	<0.0001	0.163	0.00166	0.00317	0.0588	<0.0001	<0.001	0.232	<0.00001	34.0	0.0011	0.00039	0.00069	<0.01	<0.0002	0.0482	13.0	0.0064
RSEM-R6W-SP	3/3/2018 11:20	TB1438	<0.005	<0.005	<0.0001	0.178	<0.0025	0.00337	0.061	<0.0005	<0.005	0.258	0.000084	34.3	<0.005	<0.001	<0.0025	<0.05	<0.001	0.051	14.6	0.0065
RSEM-R6W-SP	3/4/2018 16:55	TB1432	<0.005	<0.005	<0.0001	0.171	0.00178	0.00334	0.0632	<0.0001	<0.001	0.248	<0.00001	37.7	0.0011	0.00042	0.00072	<0.01	<0.0002	0.052	13.2	0.0069
RSEM-R6W-SP	3/5/2018 10:15	TB2018	<0.005	<0.005	0.00011	0.172	0.00176	0.00328	0.0676	<0.0001	<0.001	0.246	<0.00001	40.2	0.0011	0.00049	0.00084	<0.01	<0.0002	0.0522	14.3	0.009
RSEM-R6W-SP	3/6/2018 10:45	TB2840	<0.005	<0.005	<0.0001	0.17	0.00177	0.00329	0.0694	<0.0001	<0.001	0.248	0.000011	41.4	0.001	0.0005	0.00077	<0.01	<0.0002	0.0535	14.1	0.0098
RSEM-R6W-SP	3/17/2018 13:15	TD1674	<0.005	0.0102	0.00027	0.0422	0.00103	0.00167	0.0531	<0.0001	<0.001	0.169	<0.00001	30.7	<0.001	0.00053	0.01	<0.01	<0.0002	0.0362	9.73	0.0177
RSEM-R6W-SP	3/18/2018 10:10	TD1669	0.0052	0.0114	0.00111	0.027	0.00086	0.00142	0.0526	<0.0001	<0.001	0.128	0.000011	26.6	<0.001	0.0004	0.00541	<0.01	<0.0002	0.0297	8.06	0.0185
RSEM-R6W-SP	3/19/2018 13:00	TD4113	<0.005	0.0088	0.00428	0.019	0.00058	0.00096	0.046	<0.0001	<0.001	0.099	0.000016	20.9	<0.001	0.0003	0.00846	<0.01	<0.0002	0.0188	5.36	0.0172
RSEM-R6W-SP	3/22/2018 12:15	TD7854	<0.005	0.0248	0.00014	0.0177	<0.0005	0.00082	0.047	<0.0001	<0.001	0.103	0.000018	20.0	<0.001	0.00029	0.0257	0.01	<0.0002	0.0159	4.63	0.02
RSEM-R6W-SP	3/23/2018 10:30	TD9508	<0.005	0.0209	0.00077	0.0213	<0.0005	0.00085	0.047	<0.0001	<0.001	0.108	0.000018	20.5	<0.001	0.00032	0.0211	<0.01	<0.0002	0.0167	5.27	0.0217
RSEM-R6W-SP	3/24/2018 7:10	TE2567	<0.005	0.0288	0.00298	0.0176	0.00051	0.00092	0.046	<0.0001	<0.001	0.105	0.000018	21.8	<0.001	0.00031	0.02	<0.01	<0.0002	0.0172	5.05	0.0215
RSEM-R6W-SP	3/25/2018 10:20	TE2564	<0.005	0.0233	0.00105	0.0194	0.00055	0.00094	0.048	<0.0001	<0.001	0.103	0.000019	22.1	<0.001	0.0003	0.0182	<0.01	<0.0002	0.0184	5.01	0.0207
RSEM-R6W-SP	3/26/2018 9:45	TE2571	<0.005	0.0227	0.00081	0.0178	0.00053	0.00094	0.0468	<0.0001	<0.001	0.107	0.000017	22.1	<0.001	0.0003	0.0181	<0.01	<0.0002	0.0176	5.08	0.0208
RSEM-R6W-SP	3/27/2018 11:45	TE6112	<0.005	0.0262	0.00069	0.0244	0.00059	0.00092	0.0524	<0.0001	<0.001	0.12	0.000019	22.7	<0.001	0.00029	0.0165	0.013	<0.0002	0.0192	5.54	0.021
RSEM-R6W-SP	3/28/2018 9:30	TE7734	<0.005	0.0235	0.00063	0.0203	0.00059	0.00096	0.0516	<0.0001	<0.001	0.117	0.00002	23.2	<0.001	0.00033	0.0174	<0.01	<0.0002	0.0194	5.79	0.0219
RSEM-R6W-SP	3/29/2018 12:00	TE7725	<0.005	0.0296	0.00066	0.0187	0.00061	0.00101	0.0518	<0.0001	<0.001	0.115	0.000021	23.2	<0.001	0.00033	0.0177	<0.01	<0.0002	0.02	5.78	0.0224

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	1/3/2018 12:00	ST6561	-	0.0199	0.0018	-	3.05	0.00612	4.58	<0.00002	190	0.325	80.6	<0.00001	<0.005	<0.005	0.00341	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/4/2018 13:10	ST7409	-	0.015	0.0017	-	2.67	0.004	4.24	<0.00002	157	0.348	76.7	<0.00001	<0.005	<0.005	0.00324	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/5/2018 14:45	ST8669	-	0.0152	0.0014	-	2.76	0.0036	4.56	<0.00002	162	0.328	76.4	<0.00001	<0.005	<0.005	0.00311	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/6/2018 12:00	ST9397	-	0.0115	0.0015	-	2.38	0.00259	4.54	<0.00002	125	0.357	64.7	<0.00001	<0.005	<0.005	0.00291	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/7/2018 12:00	ST9340	-	0.0065	0.0017	-	2.16	0.00164	4.36	<0.00002	98.4	0.376	59.5	<0.00001	<0.005	<0.005	0.00269	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/8/2018 11:05	SU1306	<0.00001	0.006	0.002	-	2.30	0.00153	4.29	<0.00002	106	0.356	58.2	<0.00001	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/9/2018 14:40	SU3309	-	0.0059	0.0023	-	2.29	0.00151	4.18	<0.00002	106	0.35	57.1	<0.00001	<0.005	<0.005	0.00259	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/10/2018 12:04	SU4768	-	0.0055	0.0024	-	2.27	0.00145	4.58	<0.00002	107	0.358	63.0	<0.00001	<0.005	<0.005	0.00252	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/11/2018 0:10	SU5521	-	0.0055	0.0023	-	2.15	0.00145	4.54	<0.00002	99.1	0.377	59.6	<0.00001	<0.005	<0.005	0.00269	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/12/2018 16:48	SU7327	-	0.0044	0.0025	-	2.08	0.00121	4.31	<0.00002	96.7	0.399	59.9	<0.00001	<0.005	<0.005	0.00264	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/13/2018 12:08	SU7312	-	0.0044	0.0025	-	2.06	0.00124	4.48	<0.00002	100	0.395	59.0	<0.00001	<0.005	<0.005	0.00271	<0.005	0.0058	<0.0001
RSEM-R6W-SP	1/14/2018 9:40	SU7323	-	0.004	0.0023	-	2.03	0.00122	4.48	<0.00002	101	0.397	58.9	<0.00001	<0.005	<0.005	0.00267	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/15/2018 15:42	SU9367	-	0.0053	0.0022	-	2.38	0.00137	4.87	<0.00002	108	0.362	65.0	<0.00001	<0.005	<0.005	0.00251	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/16/2018 11:46	SV1339	-	0.0058	0.0021	-	2.04	0.00132	4.43	<0.00002	106	0.38	57.7	<0.00001	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/17/2018 8:55	SV3532	-	0.0039	0.002	-	1.95	0.00104	4.45	<0.00002	95.5	0.356	56.5	<0.00001	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/18/2018 15:37	SV4471	<0.00001	0.0033	0.0022	-	1.81	0.00093	4.27	<0.00002	91.6	0.349	51.8	<0.00001	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/19/2018 10:30	SV4478	<0.00001	0.0036	0.0021	-	1.87	0.00098	4.44	<0.00002	92.2	0.352	54.5	<0.00001	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/20/2018 9:03	SV7272	-	0.0038	0.0022	-	2.26	0.00098	5.02	<0.00002	93.7	0.361	60.3	<0.00001	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/21/2018 11:38	SV8260	-	0.0039	0.0021	-	2.28	0.00107	5.14	<0.00002	97.0	0.373	61.3	<0.00001	<0.005	<0.005	0.00246	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/22/2018 11:52	SV9404	-	0.0041	0.0024	-	2.09	0.00106	4.75	<0.00002	103	0.376	59.0	<0.00001	<0.005	<0.005	0.00249	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/23/2018 12:00	SV9420	<0.00001	0.0042	0.0024	-	2.18	0.00107	4.63	<0.00002	106	0.366	61.8	<0.00001	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/24/2018 10:25	SW0797	<0.00001	0.0068	0.0024	-	2.32	0.00187	4.36	<0.00002	117	0.34	57.0	<0.00001	<0.005	<0.005	0.00251	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/25/2018 12:45	SW2683	-	0.0024	0.002	-	1.80	0.00078	4.71	<0.00002	83.0	0.36	50.9	<0.00001	<0.005	<0.005	0.00226	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/26/2018 10:55	SW3613	-	0.0023	0.0021	-	1.83	0.00079	4.1	<0.00002	81.9	0.359	50.5	<0.00001	<0.005	<0.005	0.00221	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/27/2018 17:15	SW6653	<0.00001	0.0022	0.002	-	1.79	0.00068	4.1	<0.00002	82.4	0.359	50.5	<0.00001	<0.005	<0.005	0.00214	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/28/2018 11:00	SW6656	<0.00001	0.0022	0.0019	-	1.79	0.00076	4.23	<0.00002	82.1	0.36	51.1	<0.00001	<0.005	<0.005	0.00218	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/29/2018	SW8098	-	0.0021	0.0019	-	1.77	0.00075	4.45	<0.00002	79.6	0.367	50.2	<0.00001	<0.005	<0.005	0.00218	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/30/2018 14:05	SX1384	-	0.0022	0.002	-	1.86	0.00071	4.2	<0.00002	81.1	0.356	52.9	<0.00001	<0.005	<0.005	0.0022	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/31/2018 10:44	SX1386	-	0.0021	0.0019	-	1.72	0.00066	3.97	<0.00002	82.1	0.372	49.8	<0.00001	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6W-SP	1/31/2018 10:53	SX1387	-	0.0022	0.002	-	1.81	0.00075	4.01	<0.00002	84.8	0.371	51.1	<0.00001	<0.005	<0.005	0.00225	<0.005	0.0054	<0.0001
RSEM-R6W-SP	2/1/2018 13:27	SX3551	-	0.0032	0.0021	-	1.82	0.00087	3.9	<0.00002	85.2	0.368	51.2	<0.00001	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6W-SP	2/2/2018 10:40	SX3507	-	0.0022	0.0018	-	1.63	0.00065	3.8	<0.00002	73.7	0.35	46.8	<0.00001	<0.005	<0.005	0.00232	<0.005	<0.005	<0.0001
RSEM-R6W-SP	2/3/2018 9:43	SX6299	-	0.0024	0.0018	-	1.89	0.00071	4.36	<0.00002	84.6	0.387	53.1	<0.00001	<0.005	<0.005	0.00229	<0.005	<0.005	<0.0001
RSEM-R6W-SP	2/3/2018 9:49	SX6300	-	0.0024	0.0019	-	1.91	0.00072	4.49	<0.00002	84.4	0.382	54.3	<0.00001	<0.005	<0.005	0.00229	<0.005	<0.005	<0.0001
RSEM-R6W-SP	2/4/2018 11:36	SX6310	-	0.0026	0.002	-	1.94	0.00077	4.6	<0.00002	84.4	0.379	55.6	<0.00001	<0.005	<0.005	0.00233	<0.005	0.0165	<0.0001
RSEM-R6W-SP	2/5/2018 10:16	SX8061	-	0.0019	0.0015	-	1.67	0.00054	3.98	<0.00002	77.0	0.299	44.6	<0.00001	<0.005	<0.005	0.00155	<0.005	<0.005	<0.0001
RSEM-R6W-SP	2/6/2018 9:29	SX8063	-	0.0029	0.002	-	2.21	0.00074	5.09	<0.00002	99.7	0.421	57.4	<0.00001	<0.005	<0.005	0.00224	<0.005	0.0184	<0.0001
RSEM-R6W-SP	2/7/2018 14:15	SY0763	-	0.0027	0.0017	-	1.77	0.0007	3.99	<0.00002	84.2	0.364	50.8	<0.00001	<0.005	<0.005	0.00227	<0.005	<0.005	<0.0001
RSEM-R6W-SP	2/8/2018 14:05	SY2810	-	0.003	0.0017	-	1.91	0.00076	4.06	<0.00002	86.1	0.349	50.7	<0.00001	<0.005	<0.005	0.00211	<0.005	<0.005	<0.0001
RSEM-R6W-SP	2/9/2018 12:55	SY2812	-	0.0027	0.0018	-	2.03	0.00076	3.98	<0.00002	86.5	0.355	53.1	<0.00001	<0.005	<0.005	0.00213	<0.005	0.0125	<0.0001
RSEM-R6W-SP	2/10/2018 17:10	SY5551	-	0.0031	0.0016	-	2.02	0.00082	4.25	<0.00002	86.3	0.336	54.4	<0.00001	<0.005	<0.005	0.00218	<0.005	0.0204	<0.0001
RSEM-R6W-SP	2/11/2018 14:17	SY5901	-	0.0031	0.0019	-	2.10	0.00086	4.02	<0.00002	89.7	0.332	56.3	<0.00001	<0.005	<0.005	0.00214	<0.005	0.0276	<0.0001
RSEM-R6W-SP	2/11/2018 14:26	SY5902	-	0.0035	0.0024	-	2.28	0.00086	4.13	<0.00002	94.4	0.342	57.6	<0.00001	<0.005	<0.005	0.00217	<0.005	0.0168	<0.0001
RSEM-R6W-SP	2/12/2018 13:10	SY5620	-	0.0031	0.0018	-	2.09	0.00079	4.1	<0.00002	87.4	0.332	51.5	<0.00001	<0.005	<0.005	0.00222	<0.005	0.021	<0.0001
RSEM-R6W-SP	2/13/2018 12:35	SY7279	-	0.0031	0.0016	-	1.94	0.00084	4.26	<0.00002	85.7	0.357	52.2	<0.00001	<0.005	<0.005	0.00221	<0.005	<0.005	<0.0001
RSEM-R6W-SP	2/22/2018 10:04	SZ7675	-	0.0205	0.0024	-	3.40	0.0041	4.13	<0.00004	230	0.224	69.7	<0.00002	<0.01	<0.01	0.00291	<0.01	<0.01	<0.0002
RSEM-R6W-SP	2/24/2018 14:29	TA2079	-	0.0198	0.0016	-	3.50	0.00325	3.85	<0.00002	198	0.191	65.4	<0.00001	<0.005	<0.005	0.00249	<0.005	<0.005	<0.0001
RSEM-R6W-SP	3/1/2018 9:10	TA7698	-	0.0184	0.0019	-	3.35	0.00337	3.59	<0.00002	211	0.177	63.8	<0.00001	<0.005	<0.005	0.00231	<0.005	0.0059	<0.0001
RSEM-R6W-SP	3/2/2018 17:35	TB0490	-	0.0192	0.002	-	3.25	0.00331	3.61	<0.00002	210	0.195	64.0	<0.00001	<0.005	<0.005	0.00246	<0.005	0.0052	<0.0001
RSEM-R6W-SP	3/3/2018 11:20	TB1438	-	0.0189	<0.005	-	3.52	0.00386	3.58	<0.0001	227	0.196	69	<0.00005	<0.025	<0.025	0.00257	<0.025	<0.025	<0.0005
RSEM-R6W-SP	3/4/2018 16:55	TB1432	-	0.0207	0.0021	-	3.49	0.00341	3.99	<0.00002	207	0.205	67.9	<0.00001	<0.005	<0.005	0.00266	<0.005	<0.005	<0.0001
RSEM-R6W-SP	3/5/2018 10:15	TB2018	<0.000002	0.0203	0.0024	-	3.53	0.00336	4.01	<0.00002	222	0.216	70.4	<0.00001	<0.005	<0.005	0.00265	<0.005	<0.005	<0.0001
RSEM-R6W-SP	3/6/2018 10:45	TB2840	<0.000002	0.02	0.0025	-	3.41	0.00325	4.05	<0.00002	212	0.221	68.8	<0.00001	<0.005	<0.005	0.00268	<0.005	<0.005	<0.0001
RSEM-R6W-SP	3/17/2018 13:15	TD1674	-	0.0116	0.0027	-	2.75	0.00234	2.3	<0.00002	143	0.165	46.3	<0.00001	<0.005	<0.005	0.00157	<0.005	0.008	<0.0001
RSEM-R6W-SP	3/18/2018 10:10	TD1669	-	0.0095	0.0023	-	2.44	0.00216	1.89	<0.00002	112	0.141	37.7	<0.00001	<0.005	<0.005	0.00134	<0.005	<0.005	<0.0001
RSEM-R6W-SP	3/19/2018 13:00	TD4113	-	0.0059	0.0016	-	1.61	0.00125	1.29	<0.00002	72.6	0.103	24.9	<0.00001	<0.005	<0.005	0.00091	<0.005	0.0057	<0.0001
RSEM-R6W-SP	3/22/2018 12:15	TD7854	-	0.0051	0.0015	-	1.50	0.0011	1.3	<0.00002	60.0	0.0922	20.7	<0.00001	<0.005	<0.005	0.00078	<0.005	0.0158	<0.0001
RSEM-R6W-SP	3/23/2018 10:30	TD9508	<0.000002	0.0054	0.0016	-	1.55	0.00102	1.3	<0.00002	69.3	0.1	21.8	<0.00001	<0.005	<0.005	0.0008	<0.005	0.0103	<0.0001
RSEM-R6W-SP	3/24/2018 7:10	TE2567	-	0.0054	0.0016	-	1.68	0.00106	1.31	<0.00002	67.1	0.0988	22.4	<0.00001	<0.005	<0.005	0.00083	<0.005	0.0136	<0.0001
RSEM-R6W-SP	3/25/2018 10:20	TE2564	-	0.006	0.0016	-	1.68	0.00118	1.3	<0.00002	66.9	0.1	22.0	<0.00001	<0.005	<0.005	0.00091	<0.005	0.013	<0.0001
RSEM-R6W-SP	3/26/2018 9:45	TE2571	<0.000002	0.0058	0.0016	-	1.70	0.00114	1.34	<0.00002	67.4	0.102	23.0	<0.00001	<0.005	<0.005	0.00091	<0.005	0.0124	<0.0001
RSEM-R6W-SP	3/27/2018 11:45	TE6112	-	0.0062	0.002	-	1.78	0.00112	1.44	<0.00002	74.9	0.106	26.3	<0.00001	<0.005	<0.005	0.00094	<0.005	0.0111	<0.0001
RSEM-R6W-SP	3/28/2018 9:30	TE7734	-	0.0062	0.0018	-	1.81	0.0011	1.48	<0.00002	76.7	0.108	26.5	<0.00001	<0.005	<0.005	0.00092	<0.005	0.0143	0.00023
RSEM-R6W-SP	3/29/2018 12:00	TE7725	-	0.0063	0.0018	-	1.81	0.00119	1.45	<0.00002	78.1	0.109	25.8	<0.00001	<0.005	<0.005	0.00095	<0.005	0.0204	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	3/30/2018 14:00	TE9238	8.17	570	16.6	354	9.3	84.2	87.0	129	<1.0	157	<1.0	<1.0	84.5	0.180	0.70	87.4
RSEM-R6W-SP	3/31/2018 12:20	TF0120	8.27	731	11.3	336	9.3	109	112	159	<1.0	194	<1.0	<1.0	63.7	0.220	0.88	122
RSEM-R6W-SP	4/1/2018 14:20	TF0156	8.25	756	9.60	460	7.5	111	115	164	<1.0	200	<1.0	<1.0	61.0	0.230	0.91	125
RSEM-R6W-SP	4/2/2018 12:15	TF2033	8.27	807	8.62	502	6.5	119	122	178	<1.0	217	<1.0	<1.0	64.4	0.250	0.96	128
RSEM-R6W-SP	4/3/2018 12:10	TF4120	8.22	830	7.14	528	8.0	132	120	168	<1.0	206	<1.0	<1.0	65.3	0.260	0.97	132
RSEM-R6W-SP	4/4/2018 9:35	TF4123	8.33	886	7.40	494	7.3	141	129	182	1.6	218	2.0	<1.0	68.5	0.270	1.0	138
RSEM-R6W-SP	4/5/2018 12:00	TF7748	8.32	941	4.00	548	5.8	140	141	191	1.9	228	2.2	<1.0	76.3	0.310	1.1	163
RSEM-R6W-SP	4/6/2018 18:10	TF9866	8.29	1000	5.22	644	9.5	152	151	205	<1.0	250	<1.0	<1.0	79.3	0.320	1.3	167
RSEM-R6W-SP	4/7/2018 14:35	TG1020	8.25	1010	8.24	526	10.5	159	153	224	<1.0	273	<1.0	<1.0	86.8	0.330	1.3	175
RSEM-R6W-SP	4/8/2018 7:10	TG1023	8.29	1040	6.46	634	4.8	156	152	224	<1.0	273	<1.0	<1.0	89.3	0.330	1.3	180
RSEM-R6W-SP	4/9/2018 15:10	TG2638	8.32	1100	2.74	608	<4.0	165	154	234	<1.0	286	<1.0	<1.0	87.2	0.350	1.4	186
RSEM-R6W-SP	4/10/2018 18:00	TG4218	8.30	1070	1.85	626	<4.3	151	151	226	<1.0	275	<1.0	<1.0	86.1	0.330	1.3	181
RSEM-R6W-SP	4/11/2018 16:00	TG5968	8.27	1020	3.26	640	<4.0	145	145	216	<1.0	264	<1.0	<1.0	86.3	0.320	1.2	191
RSEM-R6W-SP	4/12/2018 16:40	TG7675	8.36	1030	1.46	584	<4.3	142	142	215	2.3	257	2.7	<1.0	83.6	0.290	1.2	186
RSEM-R6W-SP	4/13/2018 6:48	TG7679	8.39	1060	0.92	696	<4.0	143	140	210	3.5	248	4.1	<1.0	83.6	0.190	1.2	177
RSEM-R6W-SP	4/14/2018 19:00	TH0426	7.99	378	19.1	202	16	57.1	58.9	76.4	<1.0	93.2	<1.0	<1.0	25.7	0.14	0.38	65
RSEM-R6W-SP	4/15/2018 15:17	TH0430	7.98	396	14.9	282	7.8	55.1	59.3	79.5	<1.0	97	<1.0	<1.0	26.8	0.15	0.43	67.1
RSEM-R6W-SP	4/16/2018 12:35	TH3030	8.03	527	13.4	282	8.7	76.9	77.2	113	<1.0	138	<1.0	<1.0	40.1	0.200	0.55	92.4
RSEM-R6W-SP	4/24/2018 16:00	TI1789	8.28	1060	18.2	652	6.5	144	134	126	<1.0	154	<1.0	<1.0	47.8	0.310	0.80	284
RSEM-R6W-SP	4/25/2018 15:15	TI3534	8.18	1110	15.3	750	10.0	151	146	133	<1.0	163	<1.0	<1.0	51.5	0.310	0.87	306
RSEM-R6W-SP	4/26/2018 12:33	TI3465	8.27	1100	15.7	670	7.7	151	142	133	<1.0	162	<1.0	<1.0	54.1	0.310	0.87	310
RSEM-R6W-SP	4/27/2018 9:35	TI4639	8.18	1120	12.9	680	7.8	150	143	128	<1.0	156	<1.0	<1.0	51.8	0.310	0.87	311
RSEM-R6W-SP	4/28/2018 13:50	TI5379	8.24	1120	12.7	668	9.8	161	148	136	<1.0	166	<1.0	<1.0	53.5	0.310	0.86	316
RSEM-R6W-SP	4/29/2018 14:05	TI7031	8.26	1120	11.6	722	9.8	144	143	136	<1.0	166	<1.0	<1.0	52.7	0.330	0.89	324
RSEM-R6W-SP	4/30/2018 11:40	TI8578	8.28	1140	11.1	730	15.8	153	152	130	<1.0	159	<1.0	<1.0	54.0	0.320	0.89	329
RSEM-R6W-SP	5/1/2018 11:50	TJ1443	8.20	1150	16.1	726	19.5	155	146	134	<1.0	164	<1.0	<1.0	54.3	0.350	0.89	317
RSEM-R6W-SP	5/2/2018 9:30	TJ1502	8.20	1140	15.9	682	17.8	147	152	132	<1.0	161	<1.0	<1.0	53.0	0.340	0.90	321
RSEM-R6W-SP	5/3/2018 12:45	TJ4283	8.25	1180	20.4	742	13.8	149	148	150	<1.0	182	<1.0	<1.0	56.7	0.330	0.95	308
RSEM-R6W-SP	5/4/2018 17:00	TJ5497	8.32	1200	10.3	758	14.0	147	148	149	1.1	179	1.4	<1.0	59.7	0.320	1.0	283
RSEM-R6W-SP	5/5/2018 12:40	TJ6369	8.36	1150	8.73	510	13.5	146	148	154	1.2	185	1.5	<1.0	0.74	0.340	1.0	99.1
RSEM-R6W-SP	5/6/2018 14:50	TJ7042	8.47	1190	3.97	752	9.0	151	146	154	4.0	178	4.8	<1.0	59.1	0.330	1.0	316
RSEM-R6W-SP	5/7/2018 9:00	TJ8508	8.41	1180	5.58	744	8.8	142	142	148	2.8	174	3.3	<1.0	62.3	0.340	1.0	326
RSEM-R6W-SP	5/8/2018 13:05	TK0807	8.29	1210	10.2	740	19.0	149	143	147	<1.0	179	<1.0	<1.0	61.3	0.340	1.0	340
RSEM-R6W-SP	5/9/2018 16:30	TK3817	8.20	1190	5.16	810	6.0	137	140	140	<1.0	171	<1.0	<1.0	62.4	0.350	1.0	294
RSEM-R6W-SP	5/10/2018 13:40	TK5557	8.30	1180	4.97	716	7.3	157	145	140	<1.0	171	<1.0	<1.0	61.1	0.340	0.94	270
RSEM-R6W-SP	5/11/2018 6:55	TK5491	8.33	1180	8.14	782	15.0	144	147	143	1.0	172	1.2	<1.0	62.3	0.340	0.96	300
RSEM-R6W-SP	5/12/2018 13:15	TK7565	8.30	1170	14.8	658	28.0	142	128	135	<1.0	165	<1.0	<1.0	68.2	0.340	0.98	322
RSEM-R6W-SP	5/13/2018 7:35	TK7581	8.36	1180	12.3	672	17.8	138	133	136	<1.0	166	<1.0	<1.0	63.2	0.350	0.99	320
RSEM-R6W-SP	5/14/2018 10:55	TK8137	8.19	1170	4.49	682	4.0	128	125	130	<1.0	158	<1.0	<1.0	65.0	0.300	0.99	335
RSEM-R6W-SP	5/15/2018 13:10	TL0256	8.41	1190	7.71	712	16.0	129	125	131	2.6	153	3.1	<1.0	65.6	0.340	1.0	319
RSEM-R6W-SP	5/16/2018 11:20	TL2460	8.40	1180	4.23	696	5.8	123	118	128	2.1	151	2.5	<1.0	66.4	0.330	1.0	334
RSEM-R6W-SP	5/17/2018 13:15	TL6385	8.12	1200	6.08	726	4.3	121	114	118	<1.0	144	<1.0	<1.0	66.7	0.350	1.0	320
RSEM-R6W-SP	5/18/2018 5:40	TL6447	8.23	1210	6.18	726	4.0	124	121	118	<1.0	144	<1.0	<1.0	66.4	0.350	1.0	322
RSEM-R6W-SP	5/19/2018 15:20	TM0520	8.31	1190	8.11	704	4.3	115	113	116	<1.0	142	<1.0	<1.0	62.0	0.340	1.1	308
RSEM-R6W-SP	5/20/2018 11:25	TM2847	8.30	1190	39.7	718	49.5	119	108	115	<1.0	140	<1.0	<1.0	64.4	0.350	1.1	306
RSEM-R6W-SP	5/21/2018 16:00	TM2896	8.29	1210	21.2	714	15.3	123	110	111	<1.0	135	<1.0	<1.0	65.4	0.350	1.1	313
RSEM-R6W-SP	5/21/2018 16:00	TM2895	8.27	1210	21.0	708	11.5	111	108	112	<1.0	137	<1.0	<1.0	66.3	0.360	1.1	360
RSEM-R6W-SP	5/22/2018 13:35	TM6370	8.23	1210	27.3	748	12.3	116	114	123	<1.0	149	<1.0	<1.0	69.4	0.590	1.1	336
RSEM-R6W-SP	5/23/2018 14:10	TM6373	8.23	1220	23.7	766	8.0	120	113	121	<1.0	148	<1.0	<1.0	66.7	0.370	1.1	348
RSEM-R6W-SP	5/24/2018 15:40	TM7241	8.15	1230	29.2	646	12.3	123	116	119	<1.0	145	<1.0	<1.0	69.4	0.360	1.1	338
RSEM-R6W-SP	5/25/2018 7:10	TM7247	8.17	1240	19.6	776	16.5	120	117	121	<1.0	147	<1.0	<1.0	66.8	0.360	1.1	350
RSEM-R6W-SP	5/26/2018 8:55	TM9440	8.27	1250	44.3	786	21.3	129	123	130	<1.0	159	<1.0	<1.0	67	0.370	1.1	350
RSEM-R6W-SP	5/27/2018 17:00	TN1165	8.13	1280	43.5	770	34.3	135	126	126	<1.0	154	<1.0	<1.0	73.9	0.360	1.1	365
RSEM-R6W-SP	5/27/2018 17:00	TN1163	8.21	1280	54.6	788	36.8	134	127	127	<1.0	155	<1.0	<1.0	73.4	0.370	1.1	333
RSEM-R6W-SP	5/28/2018 10:00	TN1168	8.16	1290	55.1	772	55.0	143	133	128	<1.0	157	<1.0	<1.0	75.3	0.380	1.1	357
RSEM-R6W-SP	5/29/2018 14:15	TN5955	8.31	1310	66.6	808	31.8	142	135	143	1.0	172	1.2	<1.0	74.4	0.400	1.2	372
RSEM-R6W-SP	5/30/2018 12:45	TN9744	8.19	1320	87.3	814	44.5	137	140	144	<1.0	175	<1.0	<1.0	71.7	0.400	1.2	332
RSEM-R6W-SP	5/31/2018	TN9635	8.23	1310	70.5	848	14.3	139	151	142	<1.0	174	<1.0	<1.0	69.2	0.390	1.2	349
RSEM-R6W-SP	6/1/2018	TO1000	8.17	1300	49.8	824	8.8	158	147	140	<1.0	171	<1.0	<1.0	72.1	0.390	1.2	350
RSEM-R6W-SP	6/2/2018 10:35	TO4779	8.19	1320	80.1	838	19.3	156	147	149	<1.0	182	<1.0	<1.0	73.6	0.380	1.2	355
RSEM-R6W-SP	6/3/2018 14:30	TO4797	8.15	1330	45.2	812	14.0	171	162	153	<1.0	187	<1.0	<1.0	79.8	0.420	1.2	354
RSEM-R6W-SP	6/4/2018 15:00	TO7165	8.33	1170	41.9	682	32.5	221	208	180	1.7	216	2.0	<1.0	78.5	0.500	1.4	275
RSEM-R6W-SP	6/5/2018 18:10	TP0509	8.35	1200	13.2	730	7.3	278	268	188	2.2	224	2.7	<1.0	99.6	0.510	1.8	266
RSEM-R6W-SP	6/6/2018 10:40	TP0515	8.27	1200	12.8	722	10.5	277	287	189	<1.0	230	<1.0	<1.0	104	0.510	1.8	262

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	3/30/2018 14:00	TE9238	0.18	0.0326	0.376	0.409	0.0210	3.30	2.25	0.775	0.00062	0.00125	0.0611	<0.0001	<0.001	0.124	0.000031	23.5	0.0016	0.00054	0.0295
RSEM-R6W-SP	3/31/2018 12:20	TF0120	0.24	0.0565	0.406	0.462	0.0228	2.70	2.32	0.36	0.00081	0.00134	0.0652	<0.0001	<0.001	0.14	0.000029	30.3	0.0013	0.00087	0.0211
RSEM-R6W-SP	4/1/2018 14:20	TF0156	0.26	0.0599	0.420	0.480	0.0226	3.29	2.83	0.32	0.00083	0.00142	0.0671	<0.0001	<0.001	0.141	0.000028	31.1	0.0014	0.00087	0.0214
RSEM-R6W-SP	4/2/2018 12:15	TF2033	0.24	0.0628	0.421	0.483	0.0134	3.14	2.50	0.261	0.0009	0.00146	0.0675	<0.0001	<0.001	0.144	0.000032	33.1	0.0013	0.00098	0.0189
RSEM-R6W-SP	4/3/2018 12:10	TF4120	0.30	0.0646	0.424	0.489	<0.0050	3.41	2.19	0.222	0.00102	0.00166	0.0764	<0.0001	<0.001	0.162	0.00003	36.4	0.0014	0.00113	0.0202
RSEM-R6W-SP	4/4/2018 9:35	TF4123	0.31	0.0690	0.439	0.508	<0.0050	3.12	2.12	0.283	0.00109	0.00174	0.0806	<0.0001	<0.001	0.171	0.00003	38.6	0.0015	0.00118	0.0183
RSEM-R6W-SP	4/5/2018 12:00	TF7748	0.27	0.0735	0.422	0.495	0.0087	<0.50	<0.50	0.169	0.00116	0.00186	0.0785	<0.0001	<0.001	0.188	0.000032	38.3	0.0014	0.00112	0.0147
RSEM-R6W-SP	4/6/2018 18:10	TF9866	0.34	0.0754	0.474	0.549	<0.0050	<0.50	<0.50	0.179	0.00128	0.00204	0.0841	<0.0001	<0.001	0.187	0.000028	41.6	0.0018	0.00127	0.0146
RSEM-R6W-SP	4/7/2018 14:35	TG1020	0.35	0.0840	0.528	0.612	<0.0050	<0.50	<0.50	0.235	0.00133	0.0021	0.0896	<0.0001	<0.001	0.203	0.000032	43.2	0.0017	0.00133	0.0141
RSEM-R6W-SP	4/8/2018 7:10	TG1023	0.30	0.0833	0.530	0.613	<0.0050	<0.50	<0.50	0.164	0.00134	0.00216	0.0897	<0.0001	<0.001	0.203	0.000026	42.3	0.0017	0.00125	0.0131
RSEM-R6W-SP	4/9/2018 15:10	TG2638	0.36	0.0854	0.557	0.642	<0.0050	<0.50	<0.50	0.0893	0.00148	0.00225	0.0865	<0.0001	<0.001	0.201	0.000022	44.8	0.0019	0.00111	0.00916
RSEM-R6W-SP	4/10/2018 18:00	TG4218	0.29	0.0757	0.466	0.541	<0.0050	2.16	0.62	0.0617	0.00142	0.00208	0.0766	<0.0001	<0.001	0.19	0.00002	40.1	0.0017	0.00092	0.00918
RSEM-R6W-SP	4/11/2018 16:00	TG5968	0.25	0.0819	0.581	0.663	<0.0050	3.13	2.22	0.0948	0.00142	0.00199	0.0785	<0.0001	<0.001	0.183	0.000015	38.9	0.0017	0.00086	0.00838
RSEM-R6W-SP	4/12/2018 16:40	TG7675	0.31	0.0816	0.568	0.650	<0.0050	2.65	2.18	0.058	0.00137	0.00202	0.0752	<0.0001	<0.001	0.2	0.000011	37.8	0.0017	0.00084	0.00943
RSEM-R6W-SP	4/13/2018 6:48	TG7679	0.27	0.0777	0.553	0.631	<0.0050	1.34	1.30	0.0408	0.0014	0.00195	0.076	<0.0001	<0.001	0.201	<0.00001	38.2	0.0017	0.00082	0.00752
RSEM-R6W-SP	4/14/2018 19:00	TH0426	0.16	0.0372	0.288	0.325	<0.0050	<0.50	<0.50	0.864	0.00056	0.0011	0.063	<0.0001	<0.001	0.069	0.000029	16.4	0.002	0.00076	0.0106
RSEM-R6W-SP	4/15/2018 15:17	TH0430	0.19	0.0378	0.286	0.324	0.0194	<0.50	<0.50	0.49	0.00057	0.00094	0.0586	<0.0001	<0.001	0.067	0.000021	15.7	0.0017	0.00062	0.00896
RSEM-R6W-SP	4/16/2018 12:35	TH3030	0.24	0.0520	0.368	0.420	<0.0050	1.26	1.63	0.629	0.00084	0.00135	0.0763	<0.0001	<0.001	0.102	0.000019	22.1	0.0021	0.0007	0.0109
RSEM-R6W-SP	4/24/2018 16:00	TI1789	0.39	0.121	1.73	1.85	0.0074	2.11	2.08	0.244	0.00128	0.00176	0.102	<0.0001	<0.001	0.13	0.000031	42.4	0.0039	0.00161	0.00248
RSEM-R6W-SP	4/25/2018 15:15	TI3534	0.37	0.123	1.86	1.99	0.0145	2.10	2.11	0.264	0.00135	0.00189	0.105	<0.0001	<0.001	0.134	0.000028	44.1	0.0038	0.00164	0.00197
RSEM-R6W-SP	4/26/2018 12:33	TI3465	0.35	0.123	1.85	1.97	<0.0050	2.12	2.07	0.255	0.00138	0.00177	0.104	<0.0001	<0.001	0.136	0.000028	45.1	0.0037	0.00146	0.00413
RSEM-R6W-SP	4/27/2018 9:35	TI4639	0.41	0.114	1.87	1.99	0.0068	2.03	0.90	0.334	0.0014	0.00185	0.104	<0.0001	<0.001	0.144	0.000025	44.1	0.0038	0.0014	0.00206
RSEM-R6W-SP	4/28/2018 13:50	TI5379	0.31	0.115	1.85	1.96	<0.0050	1.53	1.53	0.219	0.00142	0.00187	0.11	<0.0001	<0.001	0.138	0.000022	47.2	0.0039	0.00132	0.00235
RSEM-R6W-SP	4/29/2018 14:05	TI7031	0.27	0.113	1.85	1.97	<0.0050	1.20	2.07	0.379	0.00146	0.00172	0.102	<0.0001	<0.001	0.148	0.000024	41.6	0.004	0.00116	0.00208
RSEM-R6W-SP	4/30/2018 11:40	TI8578	0.26	0.114	2.26	2.37	<0.0050	1.78	1.63	0.428	0.00149	0.00188	0.103	<0.0001	<0.001	0.157	0.000024	44.0	0.0039	0.00105	0.00313
RSEM-R6W-SP	5/1/2018 11:50	TJ1443	0.24	0.107	1.88	1.98	<0.0050	1.70	1.79	0.656	0.0015	0.00203	0.112	<0.0001	<0.001	0.142	0.000028	44.2	0.0043	0.0009	0.00343
RSEM-R6W-SP	5/2/2018 9:30	TJ1502	0.22	0.109	2.00	2.11	<0.0050	1.85	1.81	0.66	0.0015	0.00182	0.106	<0.0001	<0.001	0.154	0.000023	42.2	0.0044	0.00067	0.00311
RSEM-R6W-SP	5/3/2018 12:45	TJ4283	0.20	0.124	2.05	2.17	<0.0050	1.95	0.82	0.539	0.00158	0.00222	0.109	<0.0001	<0.001	0.144	0.000021	42.1	0.0043	0.0006	0.00245
RSEM-R6W-SP	5/4/2018 17:00	TJ5497	0.14	0.123	2.01	2.13	<0.0050	2.30	1.50	0.323	0.00164	0.0022	0.103	<0.0001	<0.001	0.151	0.000017	42.0	0.0039	0.00044	0.00197
RSEM-R6W-SP	5/5/2018 12:40	TJ6369	0.11	0.124	1.87	2.00	0.0070	1.91	1.51	0.26	0.00161	0.00213	0.0979	<0.0001	<0.001	0.148	0.000014	41.4	0.0038	0.00041	0.00167
RSEM-R6W-SP	5/6/2018 14:50	TJ7042	0.11	0.107	2.03	2.14	<0.0050	2.11	1.51	0.333	0.00172	0.00217	0.102	<0.0001	<0.001	0.168	0.000019	43.4	0.0042	0.00042	0.00275
RSEM-R6W-SP	5/7/2018 9:00	TJ8508	0.11	0.109	1.88	1.99	<0.0050	2.34	1.49	0.196	0.00167	0.00202	0.095	<0.0001	<0.001	0.153	0.000014	41.1	0.0039	0.00035	0.00212
RSEM-R6W-SP	5/8/2018 13:05	TK0807	0.077	0.106	1.85	1.95	<0.0050	<0.50	<0.50	0.591	0.00173	0.00237	0.108	<0.0001	<0.001	0.174	0.000027	42.6	0.0043	0.00073	0.00248
RSEM-R6W-SP	5/9/2018 16:30	TK3817	0.077	0.0899	1.83	1.92	<0.0050	2.74	2.47	0.175	0.00171	0.00202	0.09	<0.0001	<0.001	0.176	0.000011	38.1	0.0037	0.00035	0.00215
RSEM-R6W-SP	5/10/2018 13:40	TK5557	<0.020	0.0886	1.86	1.94	<0.0050	<0.50	<0.50	0.245	0.00171	0.00212	0.0939	<0.0001	<0.001	0.164	<0.00001	44.3	0.004	0.00033	0.00188
RSEM-R6W-SP	5/11/2018 6:55	TK5491	0.038	0.0904	1.86	1.95	<0.0050	0.71	1.32	0.27	0.00158	0.00198	0.0871	<0.0001	<0.001	0.158	<0.00001	39.2	0.0038	0.00037	0.00184
RSEM-R6W-SP	5/12/2018 13:15	TK7565	<0.020	0.0765	1.89	1.97	<0.0050	1.71	1.77	0.638	0.00172	0.0022	0.0992	<0.0001	<0.001	0.165	0.000017	39.7	0.0044	0.00062	0.00225
RSEM-R6W-SP	5/13/2018 7:35	TK7581	0.030	0.0766	1.76	1.84	<0.0050	1.98	1.66	0.753	0.00163	0.00224	0.0966	<0.0001	<0.001	0.156	0.000022	37.6	0.0043	0.00079	0.00244
RSEM-R6W-SP	5/14/2018 10:55	TK8137	0.038	0.0752	1.60	1.67	<0.0050	2.40	1.53	0.24	0.00181	0.00201	0.0846	<0.0001	<0.001	0.19	<0.00001	33.3	0.0042	0.00025	0.0019
RSEM-R6W-SP	5/15/2018 13:10	TL0256	0.032	0.0674	1.63	1.70	<0.0050	2.40	0.90	0.262	0.00183	0.00201	0.085	<0.0001	<0.001	0.175	<0.00001	33.7	0.0039	0.00029	0.00193
RSEM-R6W-SP	5/16/2018 11:20	TL2460	0.030	0.0736	1.66	1.74	<0.0050	2.35	0.92	0.231	0.00184	0.00194	0.0842	<0.0001	<0.001	0.172	<0.00001	31.8	0.0038	0.00021	0.00189
RSEM-R6W-SP	5/17/2018 13:15	TL6385	<0.020	0.0563	1.53	1.59	<0.0050	2.63	1.80	0.257	0.00193	0.00194	0.0865	<0.0001	<0.001	0.174	0.000015	31.1	0.0039	0.00024	0.002
RSEM-R6W-SP	5/18/2018 5:40	TL6447	0.039	0.0542	1.51	1.57	<0.0050	-	1.76	0.266	0.00192	0.00195	0.0868	<0.0001	<0.001	0.176	<0.00001	32.2	0.0038	0.00028	0.00214
RSEM-R6W-SP	5/19/2018 15:20	TM0520	0.097	0.0509	1.48	1.53	<0.0050	2.44	<0.50	0.566	0.00196	0.00197	0.0863	<0.0001	<0.001	0.179	0.000012	29.9	0.0039	0.00034	0.00314
RSEM-R6W-SP	5/20/2018 11:25	TM2847	0.061	0.0456	1.33	1.38	<0.0050	2.87	1.28	1.76	0.00192	0.00234	0.115	<0.0001	<0.001	0.167	0.000039	30.2	0.0063	0.00103	0.00372
RSEM-R6W-SP	5/21/2018 16:00	TM2896	0.050	0.0452	1.34	1.39	<0.0050	2.46	<0.50	2.01	0.00198	0.00231	0.116	<0.0001	<0.001	0.174	0.000038	30.8	0.0061	0.00082	0.0039
RSEM-R6W-SP	5/21/2018 16:00	TM2895	0.070	0.0455	1.42	1.47	<0.0050	3.68	1.47	1.6	0.00189	0.00206	0.105	<0.0001	<0.001	0.166	0.00003	28.0	0.0055	0.00071	0.00307
RSEM-R6W-SP	5/22/2018 13:35	TM6370	0.095	0.0395	1.39	1.43	0.0195	2.90	1.92	0.948	0.00181	0.00223	0.104	<0.0001	<0.001	0.186	0.000026	28.3	0.0049	0.00089	0.00394
RSEM-R6W-SP	5/23/2018 14:10	TM6373	0.065	0.0388	1.31	1.35	<0.0050	4.43	2.24	0.802	0.00185	0.00232	0.109	<0.0001	<0.001	0.193	0.000023	29.6	0.0045	0.00091	0.00425
RSEM-R6W-SP	5/24/2018 15:40	TM7241	0.13	0.0388	1.24	1.28	<0.0050	2.70	2.60	1.01	0.00186	0.00244	0.124	<0.0001	<0.001	0.187	0.000027	30.7	0.0045	0.00109	0.00462
RSEM-R6W-SP	5/25/2018 7:10	TM7247	0.15	0.0419	1.19	1.23	<0.0050	5.75	3.18	1.15	0.00189	0.0024	0.127	<0.0001	<0.001	0.191	0.000027	29.9	0.0043	0.00108	0.00451
RSEM-R6W-SP	5/26/2018 8:55	TM9440	0.19	0.0423	1.11	1.16	<0.0050	2.68	1.94	1.58	0.00185	0.00274	0.146	<0.0001	<0.001	0.19	0.000043	32.9	0.0051	0.0015	0.00565
RSEM-R6W-SP	5/27/2018 17:00	TN1165	0.17	0.0466	1.01	1.06	0.0098	4.43	2.98	6	0.002	0.0031	0.187	0.0002	<0.001	0.205	0.000069	34.4	0.0101	0.00184	0.00627
RSEM-R6W-SP	5/27/2018 17:00	TN1163	0.20	0.0577	1.01	1.07	<0.0050	5.09	2.69	6.13	0.00202	0.00303	0.187	0.00023	<0.001	0.214	0.000085	34.1	0.0101	0.00183	0.00695
RSEM-R6W-SP	5/28/2018 10:00	TN1168	0.22	0.0490	0.999	1.05	<0.0050	4.70	3.25	6.05	0.00199	0.00349	0.209	0.00022	<0.001	0.216	0.000099	36.6	0.0102	0.00231	0.00772
RSEM-R6W-SP	5/29/2018 14:15	TN5955	0.20	0.0332	1.02	1.06	<0.0050	3.57	2.37	1.62	0.00176	0.00288	0.174	<0.0001	<0.001	0.203	0.000058	36.3	0.0051	0.00196	0.00718
RSEM-R6W-SP	5/30/2018 12:45	TN9744	0.24	0.0424	0.955	0.997	0.0465	4.08	3.08	1.54	0.00165	0.0031	0.196	0.00011	<0.001	0.193	0.000069	35.1	0.005	0.00236	0.00866
RSEM-R6W-SP	5/31/2018	TN9635	0.24	0.0448	0.996	1.04	<0.0050	4.91	2.49	1.44	0.00164	0.00306	0.196	<0.0001	<0.001	0.192	0.000068	35.6	0.0047	0.0023	0.0086
RSEM-R6W-SP	6/1/2018	TO1000	0.25	0.0446	0.999	1.04	0.0470	4.44	2.59	2.5	0.00174	0.00253	0.167	<0.0001	<0.001	0.221	0.00005	41.4	0.0054	0.00163	0.00689
RSEM-R6W-SP	6/2/2018 10:35	TO4779	0.072	0.0572	0.964	1.02	0.0094	3.60	2.99	2.93	0.00172	0.00289	0.2	0.00015	<0.001	0.214	0.00008	40.9	0.0058	0.0022	0.00843
RSEM-R6W-SP	6/3/2018 14:30	TO4797	0.25	0.0560	0.961	1.02	0.0072	3.78	3.66	2.03	0.00171	0.00203	0.148	<0.0001	<0.001	0.219	0.000049	46.1	0.0046	0.00136	0.00606
RSEM-R6W-SP	6/4/2018 15:00	TO7165	0.24	0.0696	0.926	0.995	0.0055	3.47	2.18	0.828	0.00155	0.00201	0.146	<0.0001	<0.001	0.22	0.000046	60.0	0.0036	0.00122	0.00521
RSEM-R6W-SP	6/5/2018 18:10	TP0509	0.26	0.0714	0.981	1.05	0.0051	2.36	1.80	0.536	0.00133	0.00132	0.127	<0.0001	<0.001	0.24	0.000034	79.3	0.0033	0.00081	0.00333
RSEM-R6W-SP	6/6/2018 10:40	TP0515	0.24	0.0714	0.978	1.05	0.0063	3.03	3.10	0.554	0.00134	0.00139	0.132	<0.0001	<0.001	0.234	0.000032	79.7	0.003	0.00077	0.00351

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	3/30/2018 14:00	TE9238	0.473	0.0003	0.0206	6.19	0.0285	-	0.0067	0.0026	-	2.04	0.00135	2.84	<0.00002	80.1	0.115	26.1	0.000016	<0.005	0.0167	0.00098
RSEM-R6W-SP	3/31/2018 12:20	TF0120	0.271	<0.0002	0.0278	8.03	0.0336	-	0.0089	0.0039	-	2.43	0.0019	2.77	<0.00002	102	0.152	38.8	0.000013	<0.005	0.0075	0.00138
RSEM-R6W-SP	4/1/2018 14:20	TF0156	0.236	<0.0002	0.0295	8.12	0.0347	-	0.0092	0.0042	-	2.42	0.00193	2.55	<0.00002	104	0.156	38.4	0.000012	<0.005	0.0067	0.00149
RSEM-R6W-SP	4/2/2018 12:15	TF2033	0.211	<0.0002	0.033	8.97	0.0377	-	0.0103	0.0047	-	2.65	0.00228	2.48	<0.00002	117	0.177	44.2	<0.00001	<0.005	0.0081	0.00157
RSEM-R6W-SP	4/3/2018 12:10	TF4120	0.202	<0.0002	0.0342	10.1	0.0414	-	0.0112	0.0053	-	3.11	0.00235	2.67	<0.00002	129	0.198	49.8	<0.00001	<0.005	0.0062	0.0017
RSEM-R6W-SP	4/4/2018 9:35	TF4123	0.244	<0.0002	0.0363	10.9	0.0421	-	0.0121	0.0057	-	3.26	0.00265	2.92	<0.00002	140	0.211	52.8	0.000012	<0.005	<0.005	0.00184
RSEM-R6W-SP	4/5/2018 12:00	TF7748	0.14	<0.0002	0.042	10.8	0.0414	-	0.0124	0.0056	-	3.24	0.00305	2.92	<0.00002	139	0.209	60.5	0.00001	<0.005	<0.005	0.00199
RSEM-R6W-SP	4/6/2018 18:10	TF9866	0.164	<0.0002	0.0427	11.7	0.0438	-	0.0136	0.0065	-	3.21	0.00372	2.93	<0.00002	162	0.225	56.0	0.000011	<0.005	0.0052	0.00219
RSEM-R6W-SP	4/7/2018 14:35	TG1020	0.197	<0.0002	0.046	12.3	0.0447	-	0.0144	0.0063	-	3.35	0.00395	3.01	<0.00002	167	0.234	60.9	0.000013	<0.005	<0.005	0.00227
RSEM-R6W-SP	4/8/2018 7:10	TG1023	0.13	<0.0002	0.0476	12.3	0.0427	-	0.0142	0.0063	-	3.46	0.00384	3.03	<0.00002	170	0.236	61.4	0.000012	<0.005	<0.005	0.00235
RSEM-R6W-SP	4/9/2018 15:10	TG2638	0.086	<0.0002	0.0454	12.8	0.0368	-	0.0165	0.0061	-	3.61	0.00478	3.06	<0.00002	187	0.245	65.0	<0.00001	<0.005	<0.005	0.00242
RSEM-R6W-SP	4/10/2018 18:00	TG4218	0.054	<0.0002	0.044	12.4	0.0254	-	0.0158	0.0054	-	3.38	0.00464	2.8	<0.00002	175	0.225	63.0	<0.00001	<0.005	<0.005	0.00233
RSEM-R6W-SP	4/11/2018 16:00	TG5968	0.102	<0.0002	0.0451	11.7	0.0243	-	0.0148	0.0052	-	3.07	0.00448	2.8	<0.00002	159	0.208	58.9	<0.00001	<0.005	<0.005	0.00236
RSEM-R6W-SP	4/12/2018 16:40	TG7675	0.035	<0.0002	0.0456	11.4	0.0228	-	0.0145	0.0051	-	3.05	0.00477	2.69	<0.00002	157	0.21	60.1	<0.00001	<0.005	<0.005	0.00238
RSEM-R6W-SP	4/13/2018 6:48	TG7679	0.018	<0.0002	0.0472	11.5	0.022	-	0.0152	0.0055	-	3.07	0.00491	2.74	<0.00002	158	0.214	59.8	<0.00001	<0.005	<0.005	0.00241
RSEM-R6W-SP	4/14/2018 19:00	TH0426	0.677	0.00046	0.0141	3.89	0.0249	-	0.0051	0.0028	-	1.31	0.00195	2.64	<0.00002	49.6	0.0825	21.1	0.000018	<0.005	0.0462	0.00088
RSEM-R6W-SP	4/15/2018 15:17	TH0430	0.38	0.00031	0.0137	3.85	0.0202	-	0.0048	0.0029	-	1.25	0.00204	1.94	<0.00002	51	0.0783	19.9	0.000012	<0.005	0.0129	0.00086
RSEM-R6W-SP	4/16/2018 12:35	TH3030	0.368	0.00025	0.0221	5.27	0.0217	-	0.0073	0.0031	-	1.67	0.00293	2.96	<0.00002	73.9	0.114	29.8	0.000012	<0.005	0.0138	0.0012
RSEM-R6W-SP	4/24/2018 16:00	TI1789	0.333	0.0003	0.048	9.37	0.0375	<0.000002	0.0107	0.0079	-	2.89	0.012	2.77	<0.00002	163	0.227	101	0.000017	<0.005	<0.005	0.00188
RSEM-R6W-SP	4/25/2018 15:15	TI3534	0.33	0.0003	0.0514	9.86	0.0372	<0.000002	0.0111	0.0078	-	3.03	0.0123	3.01	<0.00002	167	0.233	105	0.000019	<0.005	<0.005	0.002
RSEM-R6W-SP	4/26/2018 12:33	TI3465	0.382	0.00028	0.0492	9.35	0.0305	0.000002	0.0112	0.0077	-	2.89	0.0129	2.91	<0.00002	162	0.235	103	0.000017	<0.005	<0.005	0.00193
RSEM-R6W-SP	4/27/2018 9:35	TI4639	0.3	0.00027	0.0505	9.58	0.0279	<0.000002	0.0113	0.0072	-	3.13	0.0133	3.22	<0.00002	170	0.237	108	0.000017	<0.005	0.0074	0.00205
RSEM-R6W-SP	4/28/2018 13:50	TI5379	0.229	0.00022	0.0526	10.6	0.0247	<0.000002	0.0114	0.0074	-	3.23	0.0135	3.1	<0.00002	175	0.242	115	0.000016	<0.005	<0.005	0.00208
RSEM-R6W-SP	4/29/2018 14:05	TI7031	0.264	0.00025	0.0513	9.83	0.0221	<0.000002	0.0117	0.0072	-	2.90	0.0135	2.96	<0.00002	170	0.242	109	0.000018	<0.005	0.0097	0.0021
RSEM-R6W-SP	4/30/2018 11:40	TI8578	0.384	0.00034	0.0505	10.5	0.0206	<0.000002	0.0119	0.0072	-	3.28	0.0135	3.17	<0.00002	186	0.248	107	0.000017	<0.005	0.0065	0.00219
RSEM-R6W-SP	5/1/2018 11:50	TJ1443	0.526	0.0004	0.0524	10.8	0.0176	<0.000002	0.0136	0.007	-	3.29	0.0137	3.75	<0.00002	189	0.282	111	0.000018	<0.005	0.0142	0.00219
RSEM-R6W-SP	5/2/2018 9:30	TJ1502	0.424	0.00034	0.0516	10.2	0.0126	<0.000002	0.0118	0.0061	-	3.27	0.013	3.42	<0.00002	174	0.24	103	0.00002	<0.005	0.0146	0.00211
RSEM-R6W-SP	5/3/2018 12:45	TJ4283	0.499	0.00039	0.0508	10.6	0.0105	<0.000002	0.0139	0.0056	-	3.04	0.0141	3.36	<0.00002	185	0.277	104	0.000019	<0.005	0.0141	0.00226
RSEM-R6W-SP	5/4/2018 17:00	TJ5497	0.279	0.00025	0.05	10.1	0.0074	<0.000002	0.0146	0.0047	-	2.99	0.0144	2.97	<0.00002	182	0.274	102	0.000014	<0.005	0.0083	0.00231
RSEM-R6W-SP	5/5/2018 12:40	TJ6369	0.214	<0.0002	0.0494	10.3	0.0066	<0.000002	0.0144	0.0044	-	2.99	0.0139	2.74	<0.00002	185	0.264	103	0.000014	<0.005	0.0068	0.00228
RSEM-R6W-SP	5/6/2018 14:50	TJ7042	0.282	0.0002	0.0524	10.4	0.0072	<0.000002	0.0141	0.0047	-	3.31	0.0134	3.08	<0.00002	185	0.244	113	0.000017	<0.005	0.0083	0.00223
RSEM-R6W-SP	5/7/2018 9:00	TJ8508	0.166	<0.0002	0.051	9.67	0.0056	<0.000002	0.0142	0.0044	-	3.25	0.0138	2.76	<0.00002	178	0.239	104	0.000013	<0.005	<0.005	0.00239
RSEM-R6W-SP	5/8/2018 13:05	TK0807	0.642	0.00045	0.0535	10.4	0.0162	<0.000002	0.0148	0.0051	-	3.47	0.0133	3.3	<0.00002	190	0.257	112	0.000021	<0.005	0.0117	0.00239
RSEM-R6W-SP	5/9/2018 16:30	TK3817	0.243	<0.0002	0.054	10.1	0.0063	<0.000002	0.0143	0.0038	-	2.95	0.0134	2.29	<0.00002	184	0.237	109	0.000011	<0.005	<0.005	0.00231
RSEM-R6W-SP	5/10/2018 13:40	TK5557	0.218	<0.0002	0.0527	11.2	0.0056	<0.000002	0.0147	0.0039	-	3.59	0.0133	3.17	<0.00002	205	0.238	122	0.000012	<0.005	0.0064	0.00227
RSEM-R6W-SP	5/11/2018 6:55	TK5491	0.241	<0.0002	0.0497	11.1	0.0064	<0.000002	0.0138	0.0037	-	3.42	0.0133	2.59	<0.00002	201	0.223	112	0.000012	<0.005	0.0064	0.00219
RSEM-R6W-SP	5/12/2018 13:15	TK7565	0.508	0.00033	0.0526	10.5	0.013	<0.000002	0.0145	0.0042	-	3.59	0.0141	3.28	<0.00002	197	0.233	117	0.000018	<0.005	0.0209	0.00231
RSEM-R6W-SP	5/13/2018 7:35	TK7581	0.611	0.00039	0.0502	10.6	0.0168	<0.000002	0.0137	0.0043	-	3.62	0.0128	3.28	<0.00002	189	0.224	116	0.00002	<0.005	0.0206	0.00222
RSEM-R6W-SP	5/14/2018 10:55	TK8137	0.113	<0.0002	0.0547	10.9	0.0032	<0.000002	0.0152	0.0034	-	3.42	0.0139	1.86	<0.00002	206	0.227	120	<0.00001	<0.005	0.0058	0.00238
RSEM-R6W-SP	5/15/2018 13:10	TL0256	0.171	<0.0002	0.0537	10.9	0.0048	0.0000021	0.0161	0.0031	-	3.37	0.014	1.76	<0.00002	205	0.266	115	0.00001	<0.005	<0.005	0.00235
RSEM-R6W-SP	5/16/2018 11:20	TL2460	0.12	<0.0002	0.0566	10.7	0.0028	0.0000022	0.0159	0.0027	-	3.48	0.0141	1.86	<0.00002	192	0.237	120	0.000013	<0.005	0.0081	0.0024
RSEM-R6W-SP	5/17/2018 13:15	TL6385	0.16	<0.0002	0.0538	10.6	0.0039	<0.000002	0.0156	0.0028	-	3.44	0.0143	1.8	<0.00002	203	0.221	123	0.000011	<0.005	0.0058	0.00233
RSEM-R6W-SP	5/18/2018 5:40	TL6447	0.169	<0.0002	0.056	10.5	0.0037	<0.000002	0.0163	0.0027	-	3.59	0.0144	1.83	<0.00002	201	0.239	134	0.000012	<0.005	0.0065	0.00236
RSEM-R6W-SP	5/19/2018 15:20	TM0520	0.297	0.00022	0.0525	9.80	0.0059	<0.000002	0.016	0.0027	-	3.71	0.0143	2.2	<0.00002	195	0.234	121	0.000018	<0.005	0.013	0.00239
RSEM-R6W-SP	5/20/2018 11:25	TM2847	1.04	0.00065	0.0537	10.7	0.0261	<0.000002	0.0158	0.0045	-	4.22	0.0127	5.78	0.00003	189	0.248	127	0.000033	<0.005	0.0609	0.00241
RSEM-R6W-SP	5/21/2018 16:00	TM2896	0.904	0.00065	0.0566	11.3	0.0208	<0.000002	0.0169	0.0041	-	4.52	0.0132	5.23	0.000024	197	0.25	139	0.000035	<0.005	0.0581	0.00248
RSEM-R6W-SP	5/21/2018 16:00	TM2895	0.746	0.0005	0.0541	9.91	0.0162	<0.000002	0.016	0.0036	-	4.04	0.0123	4.34	0.000021	181	0.237	123	0.000029	<0.005	0.0462	0.00236
RSEM-R6W-SP	5/22/2018 13:35	TM6370	0.834	0.0006	0.0518	11.0	0.0193	<0.000002	0.0155	0.0044	-	3.80	0.0139	2.36	<0.00002	213	0.234	123	0.000028	<0.005	0.02	0.00246
RSEM-R6W-SP	5/23/2018 14:10	TM6373	0.807	0.00058	0.0534	11.1	0.0192	0.0000022	0.0161	0.0044	-	3.88	0.0136	1.89	<0.00002	216	0.246	128	0.000027	<0.005	0.0142	0.00252
RSEM-R6W-SP	5/24/2018 15:40	TM7241	1.05	0.00076	0.0548	11.3	0.0264	<0.000002	0.0166	0.0049	-	3.98	0.0143	2.11	0.00002	215	0.282	125	0.00003	<0.005	0.0198	0.00267
RSEM-R6W-SP	5/25/2018 7:10	TM7247	1.05	0.0008	0.0549	10.9	0.0277	0.0000028	0.0164	0.0048	-	3.89	0.0137	2.13	<0.00002	203	0.274	121	0.000031	<0.005	0.0156	0.00267
RSEM-R6W-SP	5/26/2018 8:55	TM9440	1.51	0.00109	0.0524	11.5	0.0407	0.0000049	0.0168	0.0061	-	4.02	0.014	2.93	0.000025	214	0.289	125	0.000041	<0.005	0.029	0.00269
RSEM-R6W-SP	5/27/2018 17:00	TN1165	2.59	0.00161	0.0577	11.9	0.0522	0.0000026	0.0171	0.0074	-	5.12	0.0141	13.3	0.000047	214	0.301	126	0.000085	<0.005	0.142	0.00288
RSEM-R6W-SP	5/27/2018 17:00	TN1163	2.54	0.00161	0.0576	11.9	0.0524	0.0000022	0.0172	0.0075	-	5.37	0.014	13.2	0.000052	213	0.298	127	0.000087	<0.005	0.131	0.00289
RSEM-R6W-SP	5/28/2018 10:00	TN1168	3.01	0.0019	0.0586	12.6	0.0662	0.0000036	0.0175	0.0087	-	5.42	0.0143	13.6	0.00005	223	0.318	130	0.000093	<0.005	0.14	0.00295
RSEM-R6W-SP	5/29/2018 14:15	TN5955	2.11	0.00146	0.0558	12.4	0.0548	0.0000033	0.0175	0.0074	-	4.16	0.0132	2.71	<0.00002	221	0.298	132	0.000047	<0.005	0.0176	0.00272
RSEM-R6W-SP	5/30/2018 12:45	TN9744	2.46	0.00178	0.051	12.0	0.0667	0.0000045	0.0172	0.0083	-	4.08	0.0127	2.4	<0.00002	215	0.311	121	0.000051	<0.005	0.0129	0.00265
RSEM-R6W-SP	5/31/2018	TN9635	2.36	0.00174	0.0501	12.1	0.0668	0.0000033	0.0172	0.0085	-	4.11	0.0125	2.21	<0.00002	215	0.316	124	0.00005	<0.005	0.0138	0.00267
RSEM-R6W-SP	6/1/2018	TO1000	1.9	0.00134	0.057	13.2	0.0494	0.000002	0.0172	0.0066	-	4.59	0.0136	4.47	0.000033	224	0.29	134	0.000061	<0.005	0.044	0.00284
RSEM-R6W-SP	6/2/2018 10:35	TO4779	2.52	0.00195	0.0575	13.1	0.0707	0.0000033	0.0175	0.0084	-	4.66	0.0114	5.26	0.000045	206	0.317	144	0.000075	<0.005	0.0463	0.00306
RSEM-R6W-SP	6/3/2018 14:30	TO4797	1.62	0.00106	0.0514	13.6	0.0383	0.0000025	0.0175	0.0055	-	4.60	0.0126	4.03	0.00002	230	0.292	132	0.000051	<0.005	0.0352	0.00286
RSEM-R6W-SP	6/4/2018 15:00	TO7165	1.19	0.00084	0.0483	17.2	0.0414	<0.000002	0.0185	0.0074	-	5.08	0.00614	3.36	<0.00002	157	0.438	101	0.000042	<0.005	0.0147	0.0026
RSEM-R6W-SP	6/5/2018 18:10	TP0509	0.381	0.00025	0.0448	19.4	0.0271	<0.000002	0.0172	0.0073	-	5.42	0.00471	3.6	<0.00002	136	0.612	85.3	0.000031	<0.005	0.0148	0.00241
RSEM-R6W-SP	6/6/2018 10:40	TP0515	0.428	0.00029	0.0456	19.0	0.0223	<0.000002	0.0179	0.0075	-	5.54	0.00463	4.29	<0.00002	128	0.641	85.0	0.000028	<0.005	0.0114	0.00249

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	3/30/2018 14:00	TE9238	<0.005	0.0348	0.00052	0.0178	0.00063	0.00098	0.0543	<0.0001	<0.001	0.123	0.000021	24.6	<0.001	0.00039	0.0189	<0.01	<0.0002	0.0211	6.18	0.0239
RSEM-R6W-SP	3/31/2018 12:20	TF0120	<0.005	0.0289	0.0004	0.0192	0.00083	0.00127	0.0638	<0.0001	<0.001	0.134	0.000023	31.2	<0.001	0.00073	0.0149	<0.01	<0.0002	0.0281	8.18	0.0302
RSEM-R6W-SP	4/1/2018 14:20	TF0156	<0.005	0.0314	0.00038	0.0194	0.00087	0.00127	0.0649	<0.0001	<0.001	0.144	0.000021	32.6	<0.001	0.00077	0.0149	<0.01	<0.0002	0.0304	8.22	0.0309
RSEM-R6W-SP	4/2/2018 12:15	TF2033	<0.005	0.0369	0.0002	0.0199	0.00091	0.00144	0.0645	<0.0001	<0.001	0.164	0.000023	34.1	<0.001	0.00085	0.0132	<0.01	<0.0002	0.0339	9.01	0.0333
RSEM-R6W-SP	4/3/2018 12:10	TF4120	<0.005	0.0442	0.00021	0.0206	0.00094	0.00137	0.0671	<0.0001	<0.001	0.145	0.000022	32.9	<0.001	0.00083	0.0125	<0.01	<0.0002	0.0319	9.31	0.0318
RSEM-R6W-SP	4/4/2018 9:35	TF4123	<0.005	0.0439	0.00033	0.0223	0.00101	0.00145	0.0722	<0.0001	<0.001	0.154	0.000022	35.3	<0.001	0.00085	0.0114	<0.01	<0.0002	0.0344	9.87	0.0319
RSEM-R6W-SP	4/5/2018 12:00	TF7748	<0.005	0.0406	0.00018	0.027	0.00116	0.00175	0.076	<0.0001	<0.001	0.183	0.000027	38.5	0.0012	0.00105	0.0109	<0.01	<0.0002	0.0398	10.9	0.0304
RSEM-R6W-SP	4/6/2018 18:10	TF9866	<0.005	0.0383	0.0002	0.0263	0.00123	0.00194	0.0804	<0.0001	<0.001	0.202	0.000021	41.6	0.0012	0.00107	0.01	<0.01	<0.0002	0.0455	11.6	0.0307
RSEM-R6W-SP	4/7/2018 14:35	TG1020	<0.005	0.0359	0.00028	0.0277	0.00128	0.00194	0.0805	<0.0001	<0.001	0.205	0.00002	42.4	0.0013	0.00095	0.00883	<0.01	<0.0002	0.0443	11.4	0.0279
RSEM-R6W-SP	4/8/2018 7:10	TG1023	<0.005	0.0362	0.00012	0.0271	0.0013	0.00194	0.0826	<0.0001	<0.001	0.217	0.000022	42.0	0.0014	0.00097	0.00854	<0.01	<0.0002	0.0461	11.5	0.0286
RSEM-R6W-SP	4/9/2018 15:10	TG2638	<0.005	0.028	0.00011	0.0308	0.00143	0.00221	0.0838	<0.0001	<0.001	0.206	0.000015	43.0	0.0015	0.0008	0.00614	<0.01	<0.0002	0.0474	11.4	0.0196
RSEM-R6W-SP	4/10/2018 18:00	TG4218	<0.005	0.0097	<0.0001	0.0261	0.00144	0.0021	0.0777	<0.0001	<0.001	0.204	0.000012	41.2	0.0014	0.00077	0.00646	<0.01	<0.0002	0.0474	11.8	0.0166
RSEM-R6W-SP	4/11/2018 16:00	TG5968	<0.005	0.0279	<0.0001	0.0322	0.00141	0.00201	0.0749	<0.0001	<0.001	0.19	0.000015	38.8	0.0015	0.00084	0.00711	<0.01	<0.0002	0.0453	11.7	0.0213
RSEM-R6W-SP	4/12/2018 16:40	TG7675	<0.005	0.0149	<0.0001	0.0244	0.00139	0.00202	0.0764	<0.0001	<0.001	0.207	0.000011	38.0	0.0015	0.00069	0.00863	<0.01	<0.0002	0.0476	11.5	0.0164
RSEM-R6W-SP	4/13/2018 6:48	TG7679	<0.005	0.0072	<0.0001	0.0242	0.00138	0.00204	0.0753	<0.0001	<0.001	0.199	0.00001	37.6	0.0015	0.00066	0.00667	<0.01	<0.0002	0.0468	11.3	0.0153
RSEM-R6W-SP	4/14/2018 19:00	TH0426	<0.005	0.0095	0.00081	0.0125	0.00054	0.00073	0.0496	<0.0001	<0.001	0.068	0.000011	17	<0.001	0.00029	0.002	<0.01	<0.0002	0.0133	3.98	0.0106
RSEM-R6W-SP	4/15/2018 15:17	TH0430	<0.005	0.008	0.00034	0.0142	0.00059	0.00076	0.0504	<0.0001	<0.001	0.069	0.000014	17	<0.001	0.00033	0.00403	<0.01	<0.0002	0.0134	4.11	0.0119
RSEM-R6W-SP	4/16/2018 12:35	TH3030	<0.005	0.0086	0.00061	0.0118	0.00082	0.00105	0.064	<0.0001	<0.001	0.096	0.000013	22.3	0.001	0.0004	0.00469	<0.01	<0.0002	0.021	5.22	0.0115
RSEM-R6W-SP	4/24/2018 16:00	TI1789	<0.005	<0.005	0.00011	0.0249	0.00128	0.00149	0.0832	<0.0001	<0.001	0.119	0.000019	38.9	0.003	0.00106	0.00116	<0.01	<0.0002	0.0476	8.92	0.0218
RSEM-R6W-SP	4/25/2018 15:15	TI3534	<0.005	<0.005	0.00012	0.0273	0.00134	0.00165	0.0866	<0.0001	<0.001	0.135	0.000017	43.0	0.0031	0.00081	0.00153	<0.01	<0.0002	0.0503	9.47	0.0163
RSEM-R6W-SP	4/26/2018 12:33	TI3465	<0.005	<0.005	0.00021	0.0278	0.00135	0.00158	0.0809	<0.0001	<0.001	0.131	0.000017	40.5	0.0031	0.00056	0.002	<0.01	<0.0002	0.0481	9.90	0.0105
RSEM-R6W-SP	4/27/2018 9:35	TI4639	<0.005	<0.005	0.0002	0.0278	0.00147	0.00158	0.088	<0.0001	<0.001	0.146	0.000019	41.4	0.0032	0.00059	0.00116	<0.01	<0.0002	0.0499	9.68	0.0082
RSEM-R6W-SP	4/28/2018 13:50	TI5379	<0.005	<0.005	0.00012	0.0252	0.00136	0.00165	0.0869	<0.0001	<0.001	0.136	0.000013	43.3	0.0033	0.00046	0.00153	<0.01	<0.0002	0.0501	9.77	0.0042
RSEM-R6W-SP	4/29/2018 14:05	TI7031	<0.005	<0.005	0.0003	0.0243	0.00139	0.00153	0.0825	<0.0001	<0.001	0.152	0.00001	41.1	0.0034	0.00029	0.00139	<0.01	<0.0002	0.0518	9.86	0.0022
RSEM-R6W-SP	4/30/2018 11:40	TI8578	<0.005	0.0051	0.00028	0.0293	0.00148	0.0017	0.0858	<0.0001	<0.001	0.142	0.000011	43.4	0.0033	<0.0002	0.0011	<0.01	<0.0002	0.0513	10.6	<0.001
RSEM-R6W-SP	5/1/2018 11:50	TJ1443	<0.005	0.0051	0.00068	0.0315	0.00145	0.00162	0.0838	<0.0001	<0.001	0.128	0.00001	42.1	0.0033	<0.0002	0.00147	<0.01	<0.0002	0.0475	9.86	<0.001
RSEM-R6W-SP	5/2/2018 9:30	TJ1502	<0.005	<0.005	0.00049	0.0447	0.00157	0.00162	0.0849	<0.0001	<0.001	0.152	0.000012	43.3	0.0036	<0.0002	0.00188	<0.01	<0.0002	0.0507	10.6	<0.001
RSEM-R6W-SP	5/3/2018 12:45	TJ4283	<0.005	0.0064	0.00052	0.0395	0.00159	0.00185	0.0881	<0.0001	<0.001	0.143	<0.00001	42.3	0.0035	<0.0002	0.00123	<0.01	<0.0002	0.0493	10.2	<0.001
RSEM-R6W-SP	5/4/2018 17:00	TJ5497	<0.005	<0.005	0.00058	0.0402	0.00166	0.00203	0.0917	<0.0001	<0.001	0.157	<0.00001	42.7	0.0037	<0.0002	0.00125	<0.01	<0.0002	0.0513	10.1	<0.001
RSEM-R6W-SP	5/5/2018 12:40	TJ6369	<0.005	<0.005	0.00018	0.0389	0.00167	0.00198	0.091	<0.0001	<0.001	0.159	<0.00001	42.8	0.0037	<0.0002	0.00127	<0.01	<0.0002	0.0516	9.88	<0.001
RSEM-R6W-SP	5/6/2018 14:50	TJ7042	<0.005	<0.005	<0.0001	0.0414	0.00168	0.002	0.0885	<0.0001	<0.001	0.161	<0.00001	41.6	0.0037	<0.0002	0.00142	<0.01	<0.0002	0.0518	10.1	<0.001
RSEM-R6W-SP	5/7/2018 9:00	TJ8508	<0.005	<0.005	<0.0001	0.0393	0.00171	0.00206	0.089	<0.0001	<0.001	0.156	<0.00001	40.9	0.0037	<0.0002	0.0013	<0.01	<0.0002	0.0503	9.59	<0.001
RSEM-R6W-SP	5/8/2018 13:05	TK0807	<0.005	<0.005	0.00038	0.043	0.00181	0.002	0.0872	<0.0001	<0.001	0.157	<0.00001	40.4	0.0037	<0.0002	0.00105	<0.01	<0.0002	0.0491	10.2	<0.001
RSEM-R6W-SP	5/9/2018 16:30	TK3817	<0.005	0.0176	0.0001	0.0481	0.00176	0.00184	0.0862	<0.0001	<0.001	0.176	<0.00001	39.3	0.0037	<0.0002	0.00114	<0.01	<0.0002	0.0563	10.2	<0.001
RSEM-R6W-SP	5/10/2018 13:40	TK5557	<0.005	<0.005	0.00024	0.0487	0.00168	0.0019	0.0823	<0.0001	<0.001	0.155	<0.00001	40.6	0.0034	<0.0002	0.00108	<0.01	<0.0002	0.051	10.5	<0.001
RSEM-R6W-SP	5/11/2018 6:55	TK5491	<0.005	<0.005	0.0002	0.0465	0.00167	0.00191	0.081	<0.0001	<0.001	0.157	<0.00001	39.4	0.0037	<0.0002	0.00118	<0.01	<0.0002	0.0511	11.7	<0.001
RSEM-R6W-SP	5/12/2018 13:15	TK7565	<0.005	<0.005	0.00034	0.0519	0.00181	0.00186	0.082	<0.0001	<0.001	0.182	<0.00001	35.0	0.0034	<0.0002	0.0011	<0.01	<0.0002	0.0562	9.92	<0.001
RSEM-R6W-SP	5/13/2018 7:35	TK7581	<0.005	<0.005	0.0003	0.171	<0.005	0.002	0.067	<0.001	<0.01	<0.5	<0.0001	35.0	<0.01	<0.002	<0.005	0.253	<0.002	0.053	11.1	0.016
RSEM-R6W-SP	5/14/2018 10:55	TK8137	<0.005	<0.005	0.0002	0.0525	0.00176	0.00197	0.0763	<0.0001	<0.001	0.185	<0.00001	33.2	0.0034	<0.0002	0.00115	<0.01	<0.0002	0.053	10.2	<0.001
RSEM-R6W-SP	5/15/2018 13:10	TL0256	<0.005	<0.005	0.00012	0.0504	0.00184	0.00196	0.0794	<0.0001	<0.001	0.171	<0.00001	32.6	0.0036	<0.0002	0.00142	<0.01	<0.0002	0.0552	10.5	<0.001
RSEM-R6W-SP	5/16/2018 11:20	TL2460	<0.005	<0.005	0.00012	0.0504	0.00192	0.00196	0.0812	<0.0001	<0.001	0.189	<0.00001	30.5	0.0036	<0.0002	0.00145	<0.01	<0.0002	0.0553	10.3	<0.001
RSEM-R6W-SP	5/17/2018 13:15	TL6385	<0.005	<0.005	0.00019	0.0516	0.0019	0.00188	0.0758	<0.0001	<0.001	0.168	<0.00001	28.5	0.0036	<0.0002	0.00183	<0.01	<0.0002	0.0503	10.4	<0.001
RSEM-R6W-SP	5/18/2018 5:40	TL6447	<0.005	<0.005	0.00028	0.0549	0.00188	0.00191	0.079	<0.0001	<0.001	0.155	<0.00001	31.3	0.0036	<0.0002	0.00165	<0.01	<0.0002	0.0503	10.4	<0.001
RSEM-R6W-SP	5/19/2018 15:20	TM0520	<0.005	<0.005	0.00197	0.0513	0.00195	0.0018	0.0769	<0.0001	<0.001	0.181	<0.00001	28.3	0.0032	<0.0002	0.00217	<0.01	<0.0002	0.0561	10.3	<0.001
RSEM-R6W-SP	5/20/2018 11:25	TM2847	0.007	0.0082	0.00118	0.206	0.00183	0.00172	0.0729	<0.0001	<0.001	0.166	<0.00001	27.0	0.0034	<0.0002	0.0023	<0.01	<0.0002	0.0511	9.83	<0.001
RSEM-R6W-SP	5/21/2018 16:00	TM2896	0.0069	0.0074	0.00192	0.0479	0.00181	0.0017	0.0727	<0.0001	<0.001	0.173	<0.00001	27.2	0.0033	<0.0002	0.00193	<0.01	<0.0002	0.0503	10.1	<0.001
RSEM-R6W-SP	5/21/2018 16:00	TM2895	0.0065	0.006	0.0015	0.047	0.00185	0.00168	0.0722	<0.0001	<0.001	0.169	<0.00001	27.0	0.0033	<0.0002	0.00217	0.01	<0.0002	0.0504	9.96	<0.001
RSEM-R6W-SP	5/22/2018 13:35	TM6370	<0.005	0.0064	0.00089	0.0477	0.00189	0.00172	0.0732	<0.0001	<0.001	0.197	<0.00001	28.3	0.0032	<0.0002	0.00252	0.011	<0.0002	0.0545	10.5	<0.001
RSEM-R6W-SP	5/23/2018 14:10	TM6373	<0.005	0.0068	0.00026	0.0451	0.00193	0.0017	0.075	<0.0001	<0.001	0.195	<0.00001	28.0	0.0031	<0.0002	0.0023	0.01	<0.0002	0.0541	10.4	<0.001
RSEM-R6W-SP	5/24/2018 15:40	TM7241	<0.005	0.0088	0.00055	0.0536	0.00187	0.00153	0.0774	<0.0001	<0.001	0.177	<0.00001	29.6	0.0031	<0.0002	0.00251	0.013	<0.0002	0.0573	10.2	<0.001
RSEM-R6W-SP	5/25/2018 7:10	TM7247	<0.005	0.0089	0.00071	0.0762	0.00187	0.00149	0.0774	<0.0001	<0.001	0.18	<0.00001	29.7	0.003	<0.0002	0.00273	0.013	<0.0002	0.0559	10.3	<0.001
RSEM-R6W-SP	5/26/2018 8:55	TM9440	0.0054	0.0119	0.00112	0.0383	0.0019	0.00155	0.0771	<0.0001	<0.001	0.19	<0.00001	30.9	0.0028	<0.0002	0.00309	0.011	<0.0002	0.0526	11.1	0.0045
RSEM-R6W-SP	5/27/2018 17:00	TN1165	0.0172	0.0154	0.00625	0.0331	0.00188	0.0015	0.0797	<0.0001	<0.001	0.195	<0.00001	32.0	0.0026	0.00025	0.00324	0.02	<0.0002	0.0531	11.2	0.0069
RSEM-R6W-SP	5/27/2018 17:00	TN1163	0.0175	0.0171	0.00696	0.0342	0.00188	0.00145	0.0795	<0.0001	<0.001	0.194	<0.00001	32.4	0.0028	0.00025	0.00378	0.022	<0.0002	0.0535	11.3	0.0064
RSEM-R6W-SP	5/28/2018 10:00	TN1168	0.0179	0.0201	0.0069	0.052	0.00187	0.00146	0.0797	<0.0001	<0.001	0.198	<0.00001	34.5	0.0026	0.00029	0.00373	0.022	<0.0002	0.0528	11.4	0.0101
RSEM-R6W-SP	5/29/2018 14:15	TN5955	0.0059	0.0154	0.0006	0.0684	0.00184	0.00141	0.0778	<0.0001	<0.001	0.192	0.000011	35.1	0.0025	0.00025	0.00362	0.013	<0.0002	0.0503	11.6	0.0097
RSEM-R6W-SP	5/30/2018 12:45	TN9744	0.0061	0.0191	0.00039	0.0311	0.00177	0.00124	0.0793	<0.0001	<0.001	0.207	0.00001	36.3	0.0023	<0.0002	0.00355	<0.01	<0.0002	0.0486	12.0	<0.001
RSEM-R6W-SP	5/31/2018	TN9635	0.0056	0.0186	0.00046	0.0385	0.00181	0.00132	0.0799	<0.0001	<0.001	0.236	0.00001	40.9	0.0023	<0.0002	0.00392	<0.01	<0.0002	0.0554	12.0	<0.001
RSEM-R6W-SP	6/1/2018	TO1000	0.0072	0.0157	0.0021	0.0296	0.00174	0.00128	0.0808	<0.0001	<0.001	0.221	0.000013	38.7	0.002	0.00025	0.00359	<0.01	<0.0002	0.049	12.3	0.0088
RSEM-R6W-SP	6/2/2018 10:35	TO4779	0.009	0.023	0.00296	0.194	0.00181	0.00122	0.0811	<0.0001	<0.001	0.213	<0.00001	38.8	0.0019	0.00026	0.0035	0.014	<0.0002	0.0532	12.2	0.014
RSEM-R6W-SP	6/3/2018 14:30	TO4797	0.0066	0.01	0.00122	0.137	0.00186	0.00115	0.0818	<0.0001	<0.001	0.208	0.000011	43.8	0.0017	0.00027	0.00392	0.011	<0.0002	0.0552	12.7	0.0104
RSEM-R6W-SP	6/4/2018 15:00	TO7165	<0.005	0.0095	0.00034	0.0178	0.00145	0.00122	0.0952	<0.0001	<0.001	0.235	0.000013	55.2	0.0023	<0.0002	0.0032	<0.01	<0.0002	0.0455	17.0	0.0013
RSEM-R6W-SP	6/5/2018 18:10	TP0509	<0.005	<0.005	0.00039	0.0183	0.00136	0.00109	0.113	<0.0001	<0.001	0.224	0.000015	73.9	0.0023	<0.0002	0.00246	<0.01	<0.0002	0.045	20.3	<0.001
RSEM-R6W-SP	6/6/2018 10:40	TP0515	<0.005	<0.005	0.00144	0.0194	0.00133	0.00109	0.114	<0.0001	<0.001	0.235	0.000017	81.0	0.0023	<0.0002	0.00248	<0.01	<0.0002	0.0467	20.6	<0.001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	3/30/2018 14:00	TE9238	-	0.0067	0.0019	-	1.99	0.00131	1.57	<0.00002	80.9	0.115	26.5	<0.00001	<0.005	<0.005	0.00097	<0.005	0.0231	<0.0001
RSEM-R6W-SP	3/31/2018 12:20	TF0120	-	0.0091	0.0037	-	2.38	0.00181	2	<0.00002	103	0.154	37.7	<0.00001	<0.005	<0.005	0.00135	<0.005	0.0227	<0.0001
RSEM-R6W-SP	4/1/2018 14:20	TF0156	-	0.0093	0.0036	-	2.48	0.00195	2.11	<0.00002	104	0.158	40.4	<0.00001	<0.005	<0.005	0.00143	<0.005	0.0263	<0.0001
RSEM-R6W-SP	4/2/2018 12:15	TF2033	-	0.01	0.0044	-	2.68	0.00227	2.16	<0.00002	110	0.176	44.5	<0.00001	<0.005	<0.005	0.00169	<0.005	0.0293	<0.0001
RSEM-R6W-SP	4/3/2018 12:10	TF4120	-	0.01	0.0042	-	2.58	0.00223	2.11	<0.00002	118	0.18	46.5	<0.00001	<0.005	<0.005	0.00161	<0.005	0.0333	<0.0001
RSEM-R6W-SP	4/4/2018 9:35	TF4123	-	0.0106	0.0044	-	2.83	0.00237	2.23	<0.00002	125	0.184	47.8	<0.00001	<0.005	<0.005	0.00167	<0.005	0.0322	<0.0001
RSEM-R6W-SP	4/5/2018 12:00	TF7748	-	0.0124	0.0055	-	2.99	0.00305	2.36	<0.00002	148	0.205	54.6	<0.00001	<0.005	<0.005	0.002	<0.005	0.0324	<0.0001
RSEM-R6W-SP	4/6/2018 18:10	TF9866	-	0.0138	0.0058	-	3.12	0.0036	2.67	<0.00002	156	0.225	60.3	<0.00001	<0.005	<0.005	0.0022	<0.005	0.0297	<0.0001
RSEM-R6W-SP	4/7/2018 14:35	TG1020	-	0.0138	0.0054	-	3.30	0.00363	2.84	<0.00002	150	0.23	64.8	<0.00001	<0.005	<0.005	0.00224	<0.005	0.0265	<0.0001
RSEM-R6W-SP	4/8/2018 7:10	TG1023	-	0.0146	0.0053	-	3.41	0.00373	2.85	<0.00002	153	0.233	63.9	0.00001	<0.005	<0.005	0.00236	<0.005	0.0266	<0.0001
RSEM-R6W-SP	4/9/2018 15:10	TG2638	-	0.0155	0.0049	-	3.44	0.00513	3.14	<0.00002	160	0.235	66.6	<0.00001	<0.005	<0.005	0.00249	<0.005	0.0134	<0.0001
RSEM-R6W-SP	4/10/2018 18:00	TG4218	-	0.0153	0.005	-	3.31	0.00476	3.15	<0.00002	157	0.225	67.0	<0.00001	<0.005	<0.005	0.00242	<0.005	0.0066	<0.0001
RSEM-R6W-SP	4/11/2018 16:00	TG5968	-	0.0146	0.005	-	3.13	0.0047	2.74	<0.00002	159	0.207	59.7	<0.00001	<0.005	<0.005	0.00237	<0.005	0.0169	<0.0001
RSEM-R6W-SP	4/12/2018 16:40	TG7675	-	0.0152	0.0048	-	3.07	0.00511	2.68	<0.00002	159	0.215	58.6	<0.00001	<0.005	<0.005	0.00236	<0.005	0.0136	<0.0001
RSEM-R6W-SP	4/13/2018 6:48	TG7679	-	0.0149	0.0048	-	3.02	0.00487	2.66	<0.00002	158	0.21	57.8	<0.00001	<0.005	<0.005	0.0024	<0.005	0.0051	<0.0001
RSEM-R6W-SP	4/14/2018 19:00	TH0426	-	0.005	0.0016	-	1.03	0.00185	1.1	<0.00002	55.1	0.0796	20.4	<0.00001	<0.005	<0.005	0.00079	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/15/2018 15:17	TH0430	-	0.0052	0.0018	-	1.06	0.00191	1.1	<0.00002	56.8	0.0834	21.3	<0.00001	<0.005	<0.005	0.00082	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/16/2018 12:35	TH3030	-	0.0074	0.0023	-	1.47	0.00302	1.6	<0.00002	72.0	0.111	30.3	<0.00001	<0.005	<0.005	0.00121	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/24/2018 16:00	TI1789	<0.000002	0.011	0.0061	-	2.85	0.0119	2.29	<0.00002	156	0.227	102	0.000011	<0.005	<0.005	0.00197	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/25/2018 15:15	TI3534	<0.000002	0.0108	0.0064	-	2.90	0.013	2.43	<0.00002	170	0.233	101	0.000011	<0.005	<0.005	0.00194	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/26/2018 12:33	TI3465	<0.000002	0.0118	0.0058	-	2.83	0.0125	2.33	<0.00002	172	0.251	101	0.00001	<0.005	<0.005	0.00192	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/27/2018 9:35	TI4639	<0.000002	0.0125	0.006	-	3.02	0.0134	2.46	<0.00002	173	0.247	110	0.00001	<0.005	<0.005	0.00201	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/28/2018 13:50	TI5379	<0.000002	0.0112	0.0062	-	3.09	0.0131	2.54	<0.00002	169	0.24	110	0.000011	<0.005	<0.005	0.00202	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/29/2018 14:05	TI7031	<0.000002	0.0121	0.006	-	2.70	0.0131	2.22	<0.00002	164	0.238	105	0.00001	<0.005	<0.005	0.00206	<0.005	<0.005	<0.0001
RSEM-R6W-SP	4/30/2018 11:40	TI8578	<0.000002	0.0133	0.0055	-	3.07	0.0137	2.48	<0.00002	186	0.283	112	<0.00001	<0.005	<0.005	0.0021	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/1/2018 11:50	TJ1443	<0.000002	0.0131	0.0049	-	3.05	0.0131	2.3	<0.00002	176	0.266	107	0.00001	<0.005	<0.005	0.002	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/2/2018 9:30	TJ1502	<0.000002	0.0129	0.0056	-	3.19	0.0135	2.47	<0.00002	182	0.245	112	0.00001	<0.005	<0.005	0.00207	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/3/2018 12:45	TJ4283	<0.000002	0.0139	0.004	-	2.89	0.0143	2.34	<0.00002	179	0.27	102	<0.00001	<0.005	<0.005	0.00225	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/4/2018 17:00	TJ5497	<0.000002	0.0135	0.004	-	3.08	0.0139	2.47	<0.00002	185	0.243	111	0.00001	<0.005	<0.005	0.00238	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/5/2018 12:40	TJ6369	<0.000002	0.0138	0.0039	-	3.15	0.0136	2.49	<0.00002	184	0.244	108	0.00001	<0.005	<0.005	0.00237	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/6/2018 14:50	TJ7042	<0.000002	0.0138	0.0039	-	3.14	0.0138	2.38	<0.00002	186	0.242	107	<0.00001	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/7/2018 9:00	TJ8508	<0.000002	0.0141	0.0037	-	3.10	0.0134	2.33	<0.00002	176	0.241	105	<0.00001	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/8/2018 13:05	TK0807	<0.000002	0.0155	0.0033	-	3.35	0.0149	2.23	<0.00002	186	0.268	117	<0.00001	<0.005	<0.005	0.00239	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/9/2018 16:30	TK3817	<0.000002	0.0151	0.0033	-	3.08	0.0147	2.1	<0.00002	196	0.243	108	<0.00001	<0.005	<0.005	0.00238	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/10/2018 13:40	TK5557	<0.000002	0.0142	0.003	-	3.47	0.0139	2.19	<0.00002	198	0.233	120	<0.00001	<0.005	<0.005	0.00231	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/11/2018 6:55	TK5491	<0.000002	0.014	0.0031	-	3.67	0.0139	2.03	<0.00002	218	0.232	125	<0.00001	<0.005	<0.005	0.00227	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/12/2018 13:15	TK7565	<0.000002	0.0151	0.0026	-	3.02	0.014	1.83	<0.00002	181	0.237	107	<0.00001	<0.005	<0.005	0.0024	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/13/2018 7:35	TK7581	<0.000002	0.014	<0.01	-	3.37	0.0124	1.64	<0.0002	199	0.239	3910	<0.0001	<0.05	<0.05	0.0023	<0.05	<0.05	<0.001
RSEM-R6W-SP	5/14/2018 10:55	TK8137	<0.000002	0.0147	0.0026	-	3.16	0.0134	1.66	<0.00002	189	0.223	114	<0.00001	<0.005	<0.005	0.0023	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/15/2018 13:10	TL0256	0.0000026	0.0158	0.0024	-	3.42	0.014	1.51	<0.00002	194	0.238	121	<0.00001	<0.005	<0.005	0.00237	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/16/2018 11:20	TL2460	<0.000002	0.0166	0.0025	-	3.36	0.0142	1.32	<0.00002	203	0.273	117	<0.00001	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/17/2018 13:15	TL6385	<0.000002	0.0162	0.0022	-	3.29	0.014	1.12	<0.00002	209	0.259	115	<0.00001	<0.005	<0.005	0.0025	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/18/2018 5:40	TL6447	<0.000002	0.0161	0.0021	-	3.63	0.0135	1.33	<0.00002	197	0.23	136	<0.00001	<0.005	<0.005	0.00232	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/19/2018 15:20	TM0520	<0.000002	0.0165	0.0019	-	3.71	0.013	1.02	<0.00002	192	0.231	129	<0.00001	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/20/2018 11:25	TM2847	<0.000002	0.0155	0.0018	-	3.29	0.0137	0.704	<0.00002	193	0.246	107	<0.00001	<0.005	<0.005	0.00236	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/21/2018 16:00	TM2896	<0.000002	0.0154	0.0017	-	3.34	0.0136	0.62	<0.00002	195	0.249	109	<0.00001	<0.005	<0.005	0.00233	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/21/2018 16:00	TM2895	<0.000002	0.0154	0.0017	-	3.28	0.0137	0.616	<0.00002	198	0.244	110	<0.00001	<0.005	<0.005	0.00235	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/22/2018 13:35	TM6370	<0.000002	0.016	0.0017	-	3.55	0.0141	0.656	<0.00002	202	0.275	121	0.000011	<0.005	<0.005	0.00243	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/23/2018 14:10	TM6373	0.000002	0.0162	0.0017	-	3.60	0.0137	0.571	<0.00002	200	0.277	121	0.000011	<0.005	<0.005	0.0025	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/24/2018 15:40	TM7241	0.000002	0.0157	0.0017	-	3.46	0.0136	0.417	<0.00002	199	0.261	109	0.000013	<0.005	<0.005	0.00244	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/25/2018 7:10	TM7247	<0.000002	0.0159	0.0018	-	3.53	0.0131	0.384	<0.00002	196	0.268	111	0.000013	<0.005	<0.005	0.0024	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/26/2018 8:55	TM9440	<0.000002	0.0165	0.0018	-	3.66	0.014	0.354	<0.00002	211	0.278	124	0.000014	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/27/2018 17:00	TN1165	<0.000002	0.017	0.0018	-	3.60	0.0133	0.277	<0.00002	215	0.281	123	0.000016	<0.005	<0.005	0.00259	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/27/2018 17:00	TN1163	<0.000002	0.0167	0.0022	-	3.87	0.0135	0.285	<0.00002	217	0.281	125	0.000015	<0.005	<0.005	0.00257	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/28/2018 10:00	TN1168	<0.000002	0.0167	0.002	-	3.76	0.0137	0.252	<0.00002	220	0.281	126	0.000015	<0.005	<0.005	0.00255	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/29/2018 14:15	TN5955	<0.000002	0.0169	0.0018	-	3.71	0.0134	0.225	<0.00002	217	0.301	127	0.000016	<0.005	<0.005	0.0026	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/30/2018 12:45	TN9744	0.0000028	0.0171	0.0018	-	3.72	0.0129	0.229	<0.00002	214	0.281	126	0.000018	<0.005	<0.005	0.00269	<0.005	<0.005	<0.0001
RSEM-R6W-SP	5/31/2018	TN9635	0.0000026	0.0172	0.0019	-	3.84	0.0141	0.231	<0.00002	219	0.283	135	0.000018	<0.005	<0.005	0.0027	<0.005	<0.005	0.00016
RSEM-R6W-SP	6/1/2018	TO1000	0.0000024	0.0171	0.0019	-	3.81	0.0121	0.205	<0.00002	212	0.282	131	0.000018	<0.005	<0.005	0.00269	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/2/2018 10:35	TO4779	0.000005	0.0176	0.002	-	3.79	0.0118	0.191	<0.00002	209	0.312	140	0.000025	<0.005	<0.005	0.00274	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/3/2018 14:30	TO4797	0.0000044	0.0183	0.0019	-	4.03	0.0115	0.229	<0.00002	204	0.307	149	0.000022	<0.005	<0.005	0.00291	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/4/2018 15:00	TO7165	<0.000002	0.0182	0.0042	-	4.62	0.00639	1.83	<0.00002	156	0.399	94.6	0.000021	<0.005	<0.005	0.00248	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/5/2018 18:10	TP0509	<0.000002	0.0178	0.0062	-	5.67	0.00494	2.4	<0.00002	148	0.634	88.5	0.000021	<0.005	<0.005	0.00241	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/6/2018 10:40	TP0515	<0.000002	0.0173	0.0059	-	5.74	0.00506	2.6	<0.00002	149	0.653	89.5	0.000021	<0.005	<0.005	0.00252	<0.005	<0.005	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	D-SO_4
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	6/19/2018 12:15	TR6048	8.19	1100	2.92	672	4.5	317	304	185	<1.0	225	<1.0	<1.0	103	0.420	1.7	220
RSEM-R6W-SP	6/20/2018 12:40	TR8729	8.33	1110	2.53	658	<4.0	300	308	185	1.3	222	1.5	<1.0	96.3	0.430	1.7	284
RSEM-R6W-SP	6/21/2018	TS1917	8.30	1110	4.06	676	5.5	278	298	182	<1.0	223	<1.0	<1.0	95.4	0.390	1.7	216
RSEM-R6W-SP	6/22/2018	TS2366	8.32	1110	8.41	694	10.0	296	295	185	1.3	223	1.6	<1.0	97.4	0.390	1.7	213
RSEM-R6W-SP	6/23/2018	TS5385	8.30	1090	8.24	672	11.8	281	291	184	<1.0	224	<1.0	<1.0	97.8	0.390	1.6	197
RSEM-R6W-SP	6/24/2018	TS5389	8.31	1090	6.95	698	10.0	268	288	180	<1.0	220	<1.0	<1.0	99.6	0.400	1.6	200
RSEM-R6W-SP	6/25/2018	TS9109	8.29	1050	12.2	622	8.8	261	269	175	<1.0	214	<1.0	<1.0	99.2	0.400	1.4	208
RSEM-R6W-SP	6/28/2018 12:40	TT3457	8.10	1120	7.12	706	6.8	282	289	139	<1.0	169	<1.0	<1.0	90.5	0.560	1.6	282
RSEM-R6W-SP	6/29/2018 10:30	TT6315	8.19	1140	3.42	704	<4.0	284	282	136	<1.0	166	<1.0	<1.0	91.7	0.560	1.6	266
RSEM-R6W-SP	6/29/2018 10:30	TT6308	8.18	1140	3.42	718	<4.0	275	273	137	<1.0	167	<1.0	<1.0	91.5	0.560	1.6	274
RSEM-R6W-SP	6/30/2018	TU0474	8.16	1140	3.97	722	5.5	285	285	142	<1.0	173	<1.0	<1.0	89.6	0.540	1.5	284
RSEM-R6W-SP	7/1/2018 0:00	TU0434	8.28	1150	3.31	706	<4.0	287	279	135	<1.0	165	<1.0	<1.0	93.0	0.540	1.5	291
RSEM-R6W-SP	7/6/2018 10:20	TU8092	8.01	942	3.56	592	4.8	271	272	145	<1.0	177	<1.0	<1.0	66.2	0.430	1.0	206
RSEM-R6W-SP	7/7/2018 7:20	TV0771	8.23	932	5.21	586	5.0	273	278	145	<1.0	177	<1.0	<1.0	58.3	0.400	1.0	235
RSEM-R6W-SP	7/9/2018 13:20	TV3537	8.10	903	5.91	588	<4.0	276	284	161	<1.0	197	<1.0	<1.0	56.6	0.380	0.95	191
RSEM-R6W-SP	7/10/2018 13:40	TV5658	8.32	914	6.66	562	7.5	268	277	159	1.4	191	1.6	<1.0	57.9	0.360	0.91	222
RSEM-R6W-SP	7/11/2018 12:30	TV9385	8.25	914	6.03	570	5.3	284	290	166	<1.0	202	<1.0	<1.0	54.9	0.360	0.94	201
RSEM-R6W-SP	7/12/2018 0:00	TV9380	8.33	932	10.1	544	13.0	290	290	172	1.8	205	2.2	<1.0	55.8	0.360	0.93	240
RSEM-R6W-SP	7/13/2018 0:00	TV9674	8.32	927	5.80	650	5.8	298	299	182	<1.0	223	<1.0	<1.0	58.1	0.350	0.92	209
RSEM-R6W-SP	7/17/2018 8:55	TW5974	8.12	933	4.57	572	<4.0	302	326	202	<1.0	246	<1.0	<1.0	53.6	0.310	0.82	214
RSEM-R6W-SP	7/18/2018 8:45	TW8365	8.32	965	4.62	618	<4.0	320	313	197	2.2	236	2.6	<1.0	49.2	0.310	0.81	189
RSEM-R6W-SP	7/19/2018 10:35	TX0644	8.38	963	5.02	594	5.5	321	322	211	3.9	248	4.6	<1.0	51.7	0.310	0.81	246
RSEM-R6W-SP	7/23/2018 16:06	TY1079	8.27	908	13.6	558	9.8	292	285	199	<1.0	243	<1.0	<1.0	47.6	0.290	0.80	198
RSEM-R6W-SP	7/24/2018 17:18	TY1082	8.34	909	5.46	568	6.3	291	283	197	2.6	234	3.2	<1.0	48.4	0.290	0.80	237
RSEM-R6W-SP	7/25/2018 18:30	TY3338	8.31	893	4.25	542	6.0	282	287	181	2.0	216	2.4	<1.0	45.1	0.270	0.77	189
RSEM-R6W-SP	7/26/2018 16:30	TY5330	8.27	889	6.62	556	-	280	280	190	<1.0	231	<1.0	<1.0	43.3	0.280	0.78	166
RSEM-R6W-SP	7/27/2018 8:15	TY5339	8.18	886	3.00	568	4.3	284	284	188	<1.0	229	<1.0	<1.0	41.8	0.300	0.76	172
RSEM-R6W-SP	7/28/2018 15:00	TZ1780	8.32	878	2.83	542	4.8	274	278	175	2.4	208	2.9	<1.0	45.8	0.320	0.72	205
RSEM-R6W-SP	7/29/2018 12:20	TZ1784	8.34	871	1.96	532	<4.0	268	274	174	2.3	207	2.8	<1.0	46.1	0.330	0.72	208
RSEM-R6W-SP	7/30/2018 11:50	TZ3236	8.16	807	15.4	504	13.0	262	269	174	<1.0	212	<1.0	<1.0	47.5	0.280	0.67	192
RSEM-R6W-SP	8/10/2018 8:40	UB1624	8.21	1050	2.80	634	<4.0	294	302	145	<1.0	177	<1.0	<1.0	123	0.350	1.6	195
RSEM-R6W-SP	8/14/2018 14:30	UC1795	8.13	986	3.13	568	<4.0	277	262	158	<1.0	193	<1.0	<1.0	102	0.350	1.4	192
RSEM-R6W-SP	8/15/2018 23:36	UC1588	8.15	997	2.95	574	4.8	271	265	158	<1.0	193	<1.0	<1.0	98.1	0.360	1.4	181
RSEM-R6W-SP	8/16/2018 8:41	UC2155	8.14	993	2.64	584	<4.0	283	263	158	<1.0	193	<1.0	<1.0	99.2	0.340	0.083	191
RSEM-R6W-SP	8/17/2018 6:30	UC4874	8.14	990	2.87	585	4.0	285	293	157	<1.0	191	<1.0	<1.0	100	0.350	1.4	188
RSEM-R6W-SP	8/18/2018 9:10	UC8576	8.14	1030	5.20	624	4.5	291	293	167	<1.0	204	<1.0	<1.0	90.5	0.380	1.4	176
RSEM-R6W-SP	8/19/2018 12:26	UC8614	8.07	1030	3.14	638	<4.0	307	310	178	<1.0	217	<1.0	<1.0	86.7	0.320	1.3	185
RSEM-R6W-SP	9/11/2018 11:20	UH0967	8.02	888	8.19	516	4.5	257	285	152	<1.0	185	<1.0	<1.0	59.6	0.400	0.95	194
RSEM-R6W-SP	9/16/2018 11:00	UI5528	8.13	917	4.14	576	5.0	257	250	164	<1.0	200	<1.0	<1.0	64.2	0.400	0.93	220
RSEM-R6W-SP	9/17/2018 11:25	UI5111	8.22	925	5.40	590	4.8	259	534	169	<1.0	206	<1.0	<1.0	60.6	0.390	0.95	222
RSEM-R6W-SP	9/18/2018 9:40	UI9105	8.14	911	5.12	520	7.0	254	269	162	<1.0	198	<1.0	<1.0	58.7	0.380	0.93	199
RSEM-R6W-SP	9/19/2018 10:30	UJ0840	8.19	887	5.07	546	6.5	238	263	163	<1.0	199	<1.0	<1.0	59.7	0.380	0.89	200
RSEM-R6W-SP	10/2/2018 12:20	UL6717	8.23	1130	3.48	710	6.0	382	397	263	<1.0	320	<1.0	<1.0	35.0	0.300	0.58	272
RSEM-R6W-SP	10/3/2018 12:20	UM2670	8.11	1090	3.33	710	7.0	401	408	255	<1.0	311	<1.0	<1.0	36.0	0.270	0.54	261
RSEM-R6W-SP	10/8/2018 13:25	UM9331	8.17	1130	2.84	698	10.8	321	329	252	<1.0	308	<1.0	<1.0	49.3	0.280	0.78	258
RSEM-R6W-SP	10/9/2018 9:30	UM9808	8.22	1170	3.02	734	7.5	345	335	259	<1.0	316	<1.0	<1.0	53.7	0.300	0.79	260
RSEM-R6W-SP	10/10/2018 9:35	UN2722	8.11	1210	2.0	774	<4.0	336	358	258	<1.0	315	<1.0	<1.0	48.4	0.320	0.71	287
RSEM-R6W-SP	10/11/2018 9:50	UN4651	8.27	1230	3.1	772	7.0	327	346	258	<1.0	315	<1.0	<1.0	48.2	0.340	0.84	268
RSEM-R6W-SP	10/23/2018 11:40	UP9907	8.28	1370	1.13	854	<4.0	357	367	280	<1.0	341	<1.0	<1.0	55.1	0.410	1.2	319
RSEM-R6W-SP	10/24/2018 13:35	UQ3375	8.38	1370	0.96	878	<4.0	371	370	279	4.2	330	5.1	<1.0	55.8	0.320	1.1	368
RSEM-R6W-SP	10/25/2018 11:50	UQ3349	8.34	1400	0.93	932	<4.0	371	384	283	3.4	337	4.1	<1.0	57.5	0.310	1.1	372
RSEM-R6W-SP	11/30/2018 11:35	UW6184	7.85	498	3.78	306	4.8	110	108	62.1	<1.0	75.7	<1.0	<1.0	15.1	0.066	0.29	147
RSEM-R6W-SP	12/1/2018 16:50	UW8609	8.14	721	4.72	424	5.5	119	127	120	<1.0	147	<1.0	<1.0	33.5	0.170	0.55	174
RSEM-R6W-SP	12/2/2018 14:05	UW8613	8.21	813	3.94	486	4.8	136	133	140	<1.0	171	<1.0	<1.0	40.1	0.200	0.70	182
RSEM-R6W-SP	12/3/2018 11:00	UW8507	8.35	1090	4.61	678	10.0	168	172	205	2.0	246	2.4	<1.0	61.7	0.310	1.1	221
RSEM-R6W-SP	12/4/2018 12:45	UX4640	8.42	1350	12.7	830	14.5	194	188	247	3.5	293	4.2	<1.0	84.0	0.390	1.5	278
RSEM-R6W-SP	12/5/2018 14:10	UX4956	8.36	1360	11.1	846	13.0	187	185	247	2.1	296	2.5	<1.0	84.8	0.390	1.5	271
RSEM-R6W-SP	12/6/2018 16:45	UX6855	8.27	1400	8.72	834	14.3	184	179	254	<1.0	310	<1.0	<1.0	87.5	0.410	1.6	280
RSEM-R6W-SP	12/7/2018 13:00	UX6858	8.35	1420	10.3	848	14.5	186	177	252	1.8	303	2.1	<1.0	91.3	0.430	1.7	286
RSEM-R6W-SP	12/8/2018 13:55	UX7495	8.52	1430	16.0	866	16.5	181	169	252	6.9	291	8.3	<1.0	91.7	0.420	1.8	279
RSEM-R6W-SP	12/8/2018 13:55	UX7493	8.44	1430	14.7	868	16.5	186	167	252	4.5	296	5.4	<1.0	88.8	0.410	1.9	283
RSEM-R6W-SP	12/9/2018 13:30	UX7485	8.51	1420	15.8	854	16.5	176	171	251	6.6	291	7.9	<1.0	92.6	0.410	1.8	278
RSEM-R6W-SP	12/10/2018 13:00	UY5754	8.41	1420	15.7	856	18.3	177	165	254	2.9	303	3.5	<1.0	94.8	0.450	1.8	287
RSEM-R6W-SP	12/11/2018 10:15	UY1784	7.97	1100	2.77	654	5.3	144	143	193	<1.0	235	<1.0	<1.0	73.0	0.330	1.2	207

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	6/19/2018 12:15	TR6048	0.14	0.0728	1.56	1.63	<0.0040	2.05	2.02	0.114	0.00135	0.00109	0.118	<0.0001	<0.001	0.215	0.000019	90.3	0.0032	0.0009	0.00178
RSEM-R6W-SP	6/20/2018 12:40	TR8729	0.14	0.0725	1.46	1.53	<0.0040	2.52	1.57	0.0957	0.00131	0.00108	0.114	<0.0001	<0.001	0.22	<0.00001	87.3	0.0029	0.00073	0.00166
RSEM-R6W-SP	6/21/2018	TS1917	0.13	0.0713	1.57	1.64	<0.0050	2.48	1.73	0.0906	0.00128	0.00105	0.114	<0.0001	<0.001	0.212	<0.00001	78.4	0.0027	0.00062	0.00168
RSEM-R6W-SP	6/22/2018	TS2366	0.13	0.0689	1.55	1.62	0.0094	2.49	2.01	0.208	0.00126	0.00119	0.119	<0.0001	<0.001	0.211	0.00001	84.5	0.0031	0.00068	0.00215
RSEM-R6W-SP	6/23/2018	TS5385	0.12	0.0638	1.60	1.67	<0.0050	2.60	1.69	0.382	0.00127	0.00129	0.114	<0.0001	<0.001	0.21	0.000015	77.4	0.003	0.0006	0.00199
RSEM-R6W-SP	6/24/2018	TS5389	0.11	0.0628	1.62	1.68	<0.0050	2.84	2.23	0.328	0.00113	0.00123	0.101	<0.0001	<0.001	0.19	<0.00001	72.4	0.003	0.00049	0.00192
RSEM-R6W-SP	6/25/2018	TS9109	0.10	0.0555	1.45	1.50	0.0097	3.72	2.50	0.392	0.00125	0.00123	0.114	<0.0001	<0.001	0.18	0.000015	71.8	0.003	0.00046	0.00829
RSEM-R6W-SP	6/28/2018 12:40	TT3457	0.17	0.107	1.99	2.10	<0.0050	2.03	2.13	0.111	0.0013	0.00125	0.118	<0.0001	<0.001	0.216	0.00004	78.3	0.0046	0.00265	0.00146
RSEM-R6W-SP	6/29/2018 10:30	TT6315	0.15	0.113	2.13	2.24	0.0090	2.51	2.47	0.0993	0.00137	0.00118	0.129	<0.0001	<0.001	0.216	0.000039	79.3	0.0047	0.00249	0.00147
RSEM-R6W-SP	6/29/2018 10:30	TT6308	<0.020	0.108	2.17	2.28	0.0052	2.08	1.65	0.101	0.00136	0.00113	0.126	<0.0001	<0.001	0.22	0.000036	77.1	0.0046	0.00239	0.00174
RSEM-R6W-SP	6/30/2018	TU0474	0.11	0.104	2.20	2.31	<0.0050	3.09	1.87	0.287	0.0015	0.00126	0.136	<0.0001	<0.001	0.235	0.000043	78.2	0.005	0.00226	0.00195
RSEM-R6W-SP	7/1/2018 0:00	TU0434	0.098	0.109	2.26	2.37	<0.0050	2.58	1.37	0.162	0.00141	0.00128	0.127	<0.0001	<0.001	0.231	0.000032	79.6	0.0051	0.00213	0.00241
RSEM-R6W-SP	7/6/2018 10:20	TU8092	0.078	0.0439	1.39	1.43	0.0051	2.86	2.09	0.12	0.00092	0.00084	0.133	<0.0001	<0.001	0.138	0.000023	78.6	0.0028	0.00072	0.00175
RSEM-R6W-SP	7/7/2018 7:20	TV0771	<0.020	0.0501	1.29	1.34	<0.0050	2.1	-	0.165	0.0009	0.0008	0.129	<0.0001	<0.001	0.132	0.000029	75.5	0.0031	0.00072	0.00255
RSEM-R6W-SP	7/9/2018 13:20	TV3537	0.057	0.0366	1.15	1.18	<0.0050	2.9	2.8	0.134	0.00083	0.00082	0.137	<0.0001	<0.001	0.117	0.00002	77.8	0.0028	0.00051	0.00201
RSEM-R6W-SP	7/10/2018 13:40	TV5658	0.050	0.0369	1.18	1.22	<0.0050	2.8	3.6	0.219	0.00083	0.0008	0.131	<0.0001	<0.001	0.122	0.000026	73.9	0.0028	0.00057	0.00186
RSEM-R6W-SP	7/11/2018 12:30	TV9385	0.034	0.0294	1.04	1.07	<0.0050	2.2	3.8	0.154	0.00079	0.0008	0.132	<0.0001	<0.001	0.126	0.000025	77.9	0.0025	0.00057	0.00178
RSEM-R6W-SP	7/12/2018 0:00	TV9380	0.031	0.0320	1.02	1.05	0.0057	2.4	4.2	0.209	0.00076	0.00091	0.134	<0.0001	<0.001	0.119	0.000029	79.1	0.0026	0.00063	0.00206
RSEM-R6W-SP	7/13/2018 0:00	TV9674	0.035	0.0273	1.01	1.04	<0.0050	3.3	2.9	0.135	0.00079	0.00081	0.133	<0.0001	<0.001	0.126	0.000021	81.3	0.0026	0.00047	0.00182
RSEM-R6W-SP	7/17/2018 8:55	TW5974	0.050	0.0188	0.854	0.873	0.0059	5.0	3.1	0.139	0.00074	0.00074	0.146	<0.0001	<0.001	0.108	0.000023	81.6	0.0024	0.00042	0.00287
RSEM-R6W-SP	7/18/2018 8:45	TW8365	0.062	0.0225	0.807	0.830	<0.0050	2.8	2.7	0.169	0.00081	0.00082	0.152	<0.0001	<0.001	0.113	0.000016	88.5	0.0024	0.00038	0.00264
RSEM-R6W-SP	7/19/2018 10:35	TX0644	0.065	0.0263	0.828	0.854	0.0050	2.2	2.6	0.0968	0.00076	0.00077	0.155	<0.0001	<0.001	0.114	0.000015	88.1	0.0022	0.00038	0.00259
RSEM-R6W-SP	7/23/2018 16:06	TY1079	0.058	0.0220	0.719	0.741	<0.0050	3.0	2.4	0.257	0.00096	0.00098	0.161	<0.0001	<0.001	0.101	0.000019	81.4	0.0034	0.00049	0.00257
RSEM-R6W-SP	7/24/2018 17:18	TY1082	0.050	0.0258	0.756	0.782	0.0160	2.8	2.3	0.144	0.00088	0.00089	0.161	<0.0001	<0.001	0.104	0.000015	80.8	0.0032	0.00042	0.00235
RSEM-R6W-SP	7/25/2018 18:30	TY3338	<0.020	0.0290	0.757	0.786	<0.0050	2.4	2.5	0.162	0.00085	0.00087	0.154	<0.0001	<0.001	0.11	0.000013	76.4	0.0031	0.00034	0.00185
RSEM-R6W-SP	7/26/2018 16:30	TY5330	0.056	0.0262	0.756	0.782	<0.0050	2.9	2.6	0.18	0.00084	0.00091	0.147	<0.0001	<0.001	0.116	0.000012	75.4	0.0032	0.00033	0.00199
RSEM-R6W-SP	7/27/2018 8:15	TY5339	0.095	0.0242	0.756	0.780	<0.0050	3.1	2.2	0.1	0.00086	0.00087	0.146	<0.0001	<0.001	0.121	<0.00001	76.4	0.0031	0.00028	0.00174
RSEM-R6W-SP	7/28/2018 15:00	TZ1780	0.045	0.0243	0.758	0.782	0.0617	3.5	4.4	0.0825	0.00087	0.00085	0.142	<0.0001	<0.001	0.118	<0.00001	73.0	0.0029	0.00025	0.0016
RSEM-R6W-SP	7/29/2018 12:20	TZ1784	0.048	0.0265	0.761	0.788	<0.0050	3.9	3.8	0.0871	0.00086	0.00083	0.139	<0.0001	<0.001	0.121	<0.00001	71.0	0.0028	0.00024	0.002
RSEM-R6W-SP	7/30/2018 11:50	TZ3236	0.029	0.0218	0.659	0.681	<0.0050	2.7	4.0	0.532	0.00097	0.00097	0.148	<0.0001	<0.001	0.117	0.00002	70.4	0.003	0.00038	0.00226
RSEM-R6W-SP	8/10/2018 8:40	UB1624	0.049	0.109	1.37	1.48	<0.0050	3.39	3.42	0.0914	0.00123	0.00117	0.22	<0.0001	<0.001	0.191	0.000016	85.1	0.0028	0.00035	0.00195
RSEM-R6W-SP	8/14/2018 14:30	UC1795	0.031	0.0708	1.22	1.29	<0.0050	4.15	3.09	0.106	0.00115	0.00122	0.234	<0.0001	<0.001	0.212	0.000014	80.4	0.0025	0.00031	0.00187
RSEM-R6W-SP	8/15/2018 23:36	UC1588	<0.020	0.0675	1.25	1.31	<0.0050	3.44	3.09	0.145	0.00117	0.00117	0.233	<0.0001	<0.001	0.21	0.000012	76.8	0.0024	0.00034	0.00212
RSEM-R6W-SP	8/16/2018 8:41	UC2155	<0.020	0.0628	1.19	1.25	<0.0050	3.27	2.57	0.0916	0.00117	0.00117	0.235	<0.0001	<0.001	0.224	0.000011	81.2	0.0022	0.0003	0.00184
RSEM-R6W-SP	8/17/2018 6:30	UC4874	<0.020	0.0565	0.817	0.873	<0.0050	3.62	2.81	0.118	0.00116	0.00121	0.234	<0.0001	<0.001	0.221	0.000011	81.0	0.0023	0.00029	0.00176
RSEM-R6W-SP	8/18/2018 9:10	UC8576	<0.020	0.0498	1.11	1.16	<0.0050	3.40	2.98	0.148	0.0011	0.00121	0.207	<0.0001	<0.001	0.19	0.00001	80.8	0.0026	0.00039	0.0021
RSEM-R6W-SP	8/19/2018 12:26	UC8614	<0.020	0.0474	1.04	1.08	<0.0050	2.81	2.83	0.149	0.00105	0.00124	0.214	<0.0001	<0.001	0.186	<0.00001	84.4	0.0025	0.00035	0.00181
RSEM-R6W-SP	9/11/2018 11:20	UH0967	0.17	0.0552	0.904	0.959	<0.0050	1.9	2.1	0.133	0.00102	0.00137	0.236	<0.0001	<0.001	0.121	0.000035	73.6	0.0043	0.00213	0.00147
RSEM-R6W-SP	9/16/2018 11:00	UI5528	0.17	0.0680	1.09	1.16	0.0114	2.3	2.9	0.133	0.00115	0.00159	0.226	<0.0001	<0.001	0.127	0.000033	72.3	0.0058	0.00173	0.0013
RSEM-R6W-SP	9/17/2018 11:25	UI5111	0.19	0.0709	1.10	1.17	0.0190	2.2	1.8	0.127	0.00103	0.0013	0.205	<0.0001	<0.001	0.123	0.000036	73.1	0.0057	0.00171	0.0016
RSEM-R6W-SP	9/18/2018 9:40	UI9105	0.15	0.0620	1.06	1.12	<0.0050	2.8	1.7	0.184	0.00115	0.00144	0.231	<0.0001	<0.001	0.129	0.000036	72.1	0.0058	0.00174	0.00176
RSEM-R6W-SP	9/19/2018 10:30	UJ0840	0.16	0.0570	1.00	1.06	0.0055	1.4	1.8	0.132	0.00107	0.00131	0.214	<0.0001	<0.001	0.122	0.000029	67.0	0.0053	0.00153	0.0014
RSEM-R6W-SP	10/2/2018 12:20	UL6717	0.058	0.0274	0.475	0.503	<0.0050	14	3.1	0.14	0.00062	0.00077	0.203	<0.0001	<0.001	0.089	0.000093	101	0.0016	0.00251	0.0013
RSEM-R6W-SP	10/3/2018 12:20	UM2670	0.090	0.0240	0.499	0.523	<0.0050	2.4	2.0	0.0934	0.00059	0.00074	0.188	<0.0001	<0.001	0.098	0.000072	104	0.0016	0.00235	0.0013
RSEM-R6W-SP	10/8/2018 13:25	UM9331	0.13	0.0385	0.489	0.528	<0.0050	1.4	1.3	0.207	0.00091	0.00141	0.185	<0.0001	<0.001	0.128	0.000023	85.0	0.0023	0.00129	0.00129
RSEM-R6W-SP	10/9/2018 9:30	UM9808	0.14	0.0386	0.478	0.516	<0.0050	1.6	1.4	0.15	0.00088	0.00149	0.17	<0.0001	<0.001	0.135	0.000031	92.1	0.0021	0.00159	0.00116
RSEM-R6W-SP	10/10/2018 9:35	UN2722	0.18	0.0355	0.464	0.499	<0.0050	1.5	1.3	0.123	0.00097	0.00147	0.178	<0.0001	<0.001	0.154	0.000037	86.5	0.0023	0.00207	0.00127
RSEM-R6W-SP	10/11/2018 9:50	UN4651	0.15	0.0465	0.507	0.553	<0.0050	2.5	2.5	0.187	0.0011	0.00174	0.183	<0.0001	<0.001	0.185	0.000039	85.6	0.0028	0.00214	0.00149
RSEM-R6W-SP	10/23/2018 11:40	UP9907	0.30	0.0596	0.581	0.641	<0.0050	2.3	2.7	0.0273	0.00151	0.00143	0.138	<0.0001	<0.001	0.143	0.000029	94.1	0.0026	0.00124	0.00101
RSEM-R6W-SP	10/24/2018 13:35	UQ3375	0.31	0.0573	0.562	0.619	<0.0050	2.4	2.4	0.0881	0.00149	0.0014	0.139	<0.0001	<0.001	0.178	0.000028	97.9	0.0026	0.00131	0.00109
RSEM-R6W-SP	10/25/2018 11:50	UQ3349	0.28	0.0554	0.567	0.623	<0.0050	2.4	2.3	0.0193	0.00148	0.00134	0.13	<0.0001	<0.001	0.165	0.000026	97.2	0.0024	0.00119	0.00098
RSEM-R6W-SP	11/30/2018 11:35	UW6184	0.13	0.0594	0.428	0.488	0.0097	2.9	2.3	0.226	<0.0005	0.00054	0.0412	<0.0001	<0.001	0.057	0.000014	23.9	<0.001	0.00033	0.00236
RSEM-R6W-SP	12/1/2018 16:50	UW8609	0.32	0.124	0.512	0.636	<0.0050	2.9	2.9	0.185	0.00066	0.00113	0.0479	<0.0001	<0.001	0.089	0.000013	26.4	0.0021	0.00036	0.00298
RSEM-R6W-SP	12/2/2018 14:05	UW8613	0.38	0.153	0.555	0.707	0.0059	2.4	3.2	0.217	0.00095	0.00168	0.0537	<0.0001	<0.001	0.127	<0.00001	29.5	0.0031	0.00041	0.00318
RSEM-R6W-SP	12/3/2018 11:00	UW8507	0.53	0.221	0.748	0.969	<0.0050	2.2	2.4	0.357	0.00152	0.00279	0.0628	<0.0001	<0.001	0.191	<0.00001	34.8	0.0052	0.0005	0.003
RSEM-R6W-SP	12/4/2018 12:45	UX4640	0.60	0.281	0.985	1.27	<0.0050	2.5	3.7	0.472	0.00213	0.0042	0.0754	<0.0001	<0.001	0.262	<0.00001	40.1	0.008	0.0007	0.00286
RSEM-R6W-SP	12/5/2018 14:10	UX4956	0.56	0.292	0.967	1.26	<0.0050	4.0	3.7	0.575	0.00218	0.00427	0.0732	<0.0001	<0.001	0.275	<0.00001	38.1	0.0084	0.00066	0.00253
RSEM-R6W-SP	12/6/2018 16:45	UX6855	0.63	0.292	0.958	1.25	<0.0050	3.5	3.5	0.771	0.00229	0.00457	0.0736	<0.0001	<0.001	0.259	<0.00001	36.8	0.0083	0.00069	0.00255
RSEM-R6W-SP	12/7/2018 13:00	UX6858	1.7	0.307	0.955	1.26	<0.0050	3.3	3.4	0.943	0.00229	0.00478	0.078	<0.0001	<0.001	0.283	0.000011	37.1	0.0084	0.00065	0.0026
RSEM-R6W-SP	12/8/2018 13:55	UX7495	0.65	0.320	1.01	1.33	<0.0050	3.4	2.9	0.801	0.00246	0.00517	0.0766	<0.0001	<0.001	0.278	<0.00001	34.2	0.0083	0.00066	0.00264
RSEM-R6W-SP	12/8/2018 13:55	UX7493	0.68	0.319	1.03	1.35	<0.0050	2.2	4.0	0.936	0.00231	0.00494	0.0753	<0.0001	<0.001	0.283	<0.00001	35.1	0.0092	0.00068	0.003
RSEM-R6W-SP	12/9/2018 13:30	UX7485	0.72	0.329	1.00	1.33	0.0068	3.9	3.7	1.26	0.00238	0.00512	0.0785	<0.0001	<0.001	0.297	<0.00001	32.9	0.0092	0.00071	0.00291
RSEM-R6W-SP	12/10/2018 13:00	UY5754	0.67	0.321	1.04	1.36	0.0192	3.2	3.4	1.16	0.00243	0.00539	0.0811	<0.0001	<0.001	0.295	0.000053	34.5	0.0093	0.00083	0.00412
RSEM-R6W-SP	12/11/2018 10:15	UY1784	0.37	0.225	0.768	0.993	0.0067	1.4	1.6	0.36	0.00163	0.00327	0.0498	<0.0001	<0.001	0.209	<0.00001	28.9	0.0049	0.00043	0.00164

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	6/19/2018 12:15	TR6048	0.106	<0.0002	0.04	22.3	0.0231	<0.000002	0.0164	0.0072	-	5.56	0.00494	4.02	<0.00002	122	0.616	82.5	0.000026	<0.005	<0.005	0.00237
RSEM-R6W-SP	6/20/2018 12:40	TR8729	0.085	<0.0002	0.0399	19.9	0.0155	<0.000002	0.0163	0.0067	-	5.21	0.00466	3.92	<0.00002	112	0.609	75.8	0.000021	<0.005	<0.005	0.00239
RSEM-R6W-SP	6/21/2018	TS1917	0.093	<0.0002	0.039	19.9	0.0131	<0.000002	0.0155	0.0063	-	5.15	0.00424	3.56	<0.00002	111	0.596	79.2	0.000026	<0.005	<0.005	0.0023
RSEM-R6W-SP	6/22/2018	TS2366	0.291	0.0002	0.0408	20.7	0.017	<0.000002	0.0162	0.0066	-	5.31	0.00437	3.98	<0.00002	113	0.597	79.0	0.000027	<0.005	<0.005	0.00236
RSEM-R6W-SP	6/23/2018	TS5385	0.306	0.0002	0.0421	21.2	0.014	<0.000002	0.0156	0.0057	-	4.78	0.00437	4.31	<0.00002	115	0.653	73.4	0.000027	<0.005	0.0131	0.00228
RSEM-R6W-SP	6/24/2018	TS5389	0.198	<0.0002	0.0367	21.3	0.0094	<0.000002	0.014	0.0055	-	4.88	0.00418	3.57	<0.00002	117	0.659	74.8	0.000023	<0.005	0.0051	0.00209
RSEM-R6W-SP	6/25/2018	TS9109	0.366	0.00023	0.0342	19.8	0.0103	<0.000002	0.0153	0.0049	-	4.82	0.00418	4.09	<0.00002	106	0.593	67.9	0.000027	<0.005	0.0076	0.00223
RSEM-R6W-SP	6/28/2018 12:40	TT3457	0.107	<0.0002	0.0534	21.1	0.0834	<0.000002	0.0164	0.014	-	5.29	0.00757	3.92	<0.00002	123	0.622	97.6	0.000019	<0.005	<0.005	0.00256
RSEM-R6W-SP	6/29/2018 10:30	TT6315	0.083	<0.0002	0.0515	21.0	0.0709	<0.000002	0.0176	0.014	-	5.41	0.00795	3.56	<0.00002	130	0.585	96.1	0.000021	<0.005	<0.005	0.00274
RSEM-R6W-SP	6/29/2018 10:30	TT6308	0.082	<0.0002	0.0515	20.0	0.0684	0.0000021	0.0172	0.0139	-	5.46	0.00791	3.52	<0.00002	120	0.578	96.4	0.000022	<0.005	<0.005	0.00268
RSEM-R6W-SP	6/30/2018	TU0474	0.133	<0.0002	0.0579	21.9	0.0613	<0.000002	0.0195	0.0141	-	5.59	0.00832	3.61	<0.00002	132	0.622	98.9	0.000021	<0.005	<0.005	0.00293
RSEM-R6W-SP	7/1/2018 0:00	TU0434	0.124	<0.0002	0.0535	21.5	0.0516	<0.000002	0.0186	0.0138	-	5.64	0.00824	3.71	<0.00002	131	0.576	103	0.000023	<0.005	0.006	0.00274
RSEM-R6W-SP	7/6/2018 10:20	TU8092	0.094	<0.0002	0.0345	18.1	0.0302	<0.000002	0.0126	0.006	-	4.31	0.00498	3.18	<0.00002	81.8	0.452	76.8	0.000015	<0.005	<0.005	0.00225
RSEM-R6W-SP	7/7/2018 7:20	TV0771	0.126	<0.0002	0.0311	20.5	0.026	<0.000002	0.0124	0.0061	-	4.06	0.005	3.18	<0.00002	87.4	0.469	73.4	0.000014	<0.005	<0.005	0.00249
RSEM-R6W-SP	7/9/2018 13:20	TV3537	0.115	<0.0002	0.0291	19.7	0.0154	<0.000002	0.0107	0.005	-	4.14	0.00481	3.07	<0.00002	77.0	0.416	71.0	0.000014	<0.005	0.0055	0.00236
RSEM-R6W-SP	7/10/2018 13:40	TV5658	0.19	<0.0002	0.0283	20.3	0.016	<0.000002	0.0107	0.0048	-	3.86	0.00442	3.1	<0.00002	77.1	0.439	68.4	0.000013	<0.005	<0.005	0.00244
RSEM-R6W-SP	7/11/2018 12:30	TV9385	0.192	<0.0002	0.0296	21.8	0.0195	<0.000002	0.0106	0.0047	-	3.90	0.0042	2.86	<0.00002	80.0	0.438	66.8	0.000013	<0.005	<0.005	0.00246
RSEM-R6W-SP	7/12/2018 0:00	TV9380	0.323	0.00022	0.0291	22.5	0.0214	<0.000002	0.0102	0.0047	-	3.87	0.00423	2.89	<0.00002	80.4	0.444	68.0	0.000014	<0.005	<0.005	0.0025
RSEM-R6W-SP	7/13/2018 0:00	TV9674	0.174	<0.0002	0.0306	23.1	0.0151	<0.000002	0.0103	0.0042	-	3.98	0.0042	3.04	<0.00002	83.0	0.455	68.9	0.000013	<0.005	<0.005	0.00258
RSEM-R6W-SP	7/17/2018 8:55	TW5974	0.126	<0.0002	0.0271	23.9	0.0167	<0.000002	0.009	0.0035	-	3.96	0.00365	3.48	<0.00002	81.6	0.413	72.0	0.000014	<0.005	<0.005	0.00262
RSEM-R6W-SP	7/18/2018 8:45	TW8365	0.13	<0.0002	0.0292	24.0	0.0159	<0.000002	0.01	0.0034	-	3.98	0.00376	3.74	<0.00002	84.0	0.454	73.7	0.000013	<0.005	<0.005	0.00285
RSEM-R6W-SP	7/19/2018 10:35	TX0644	0.102	<0.0002	0.0284	24.5	0.0163	<0.000002	0.0095	0.0031	-	3.75	0.0034	3.54	<0.00002	86.6	0.44	73.0	0.000014	<0.005	<0.005	0.00265
RSEM-R6W-SP	7/23/2018 16:06	TY1079	0.33	0.00025	0.0239	21.4	0.0196	<0.000002	0.01	0.003	-	4.24	0.0033	3.92	<0.00002	76.7	0.419	65.8	0.000015	<0.005	<0.005	0.00248
RSEM-R6W-SP	7/24/2018 17:18	TY1082	0.164	<0.0002	0.0241	21.6	0.0147	<0.000002	0.0103	0.0027	-	4.35	0.0033	3.7	<0.00002	77.5	0.425	67.1	0.000012	<0.005	0.0085	0.00249
RSEM-R6W-SP	7/25/2018 18:30	TY3338	0.141	<0.0002	0.0251	22.0	0.0111	<0.000002	0.0104	0.0023	-	4.34	0.0033	3.7	<0.00002	77.0	0.456	66.5	0.000017	<0.005	<0.005	0.0027
RSEM-R6W-SP	7/26/2018 16:30	TY5330	0.175	<0.0002	0.0254	22.3	0.0102	<0.000002	0.0104	0.0023	-	4.18	0.00344	3.99	<0.00002	76.1	0.452	68.6	0.000011	<0.005	<0.005	0.0027
RSEM-R6W-SP	7/27/2018 8:15	TY5339	0.085	<0.0002	0.0251	22.6	0.0082	<0.000002	0.0103	0.0021	-	4.18	0.00338	3.8	<0.00002	76.8	0.459	68.9	0.000011	<0.005	<0.005	0.00271
RSEM-R6W-SP	7/28/2018 15:00	TZ1780	0.073	<0.0002	0.0261	22.3	0.0073	<0.000002	0.0103	0.002	-	4.41	0.00332	3.76	<0.00002	73.3	0.46	66.3	0.000011	<0.005	<0.005	0.00277
RSEM-R6W-SP	7/29/2018 12:20	TZ1784	0.068	<0.0002	0.0254	22.0	0.0064	<0.000002	0.0102	0.0021	-	4.45	0.00341	3.71	<0.00002	72.2	0.452	64.9	<0.00001	<0.005	<0.005	0.0027
RSEM-R6W-SP	7/30/2018 11:50	TZ3236	0.488	0.00029	0.0231	20.9	0.015	0.0000031	0.0093	0.0027	-	4.16	0.00293	4.24	<0.00002	62.4	0.389	59.4	0.000019	<0.005	0.0141	0.00269
RSEM-R6W-SP	8/10/2018 8:40	UB1624	0.082	<0.0002	0.0337	19.7	0.0128	<0.000002	0.0143	0.0032	-	5.61	0.00464	2.88	<0.00002	92.8	0.855	69.2	0.00002	<0.005	<0.005	0.0021
RSEM-R6W-SP	8/14/2018 14:30	UC1795	0.1	<0.0002	0.0322	18.5	0.0097	<0.000002	0.0143	0.003	-	5.14	0.00415	3.22	<0.00002	87.1	0.758	64.5	0.000018	<0.005	<0.005	0.00206
RSEM-R6W-SP	8/15/2018 23:36	UC1588	0.116	<0.0002	0.0306	19.4	0.0092	<0.000002	0.0138	0.003	-	5.01	0.00417	2.85	<0.00002	86.3	0.73	61.3	0.000019	<0.005	<0.005	0.00211
RSEM-R6W-SP	8/16/2018 8:41	UC2155	0.096	<0.0002	0.0331	19.5	0.008	<0.000002	0.0145	0.0029	-	5.34	0.00416	3.13	<0.00002	90.0	0.786	67.6	0.000018	<0.005	<0.005	0.00215
RSEM-R6W-SP	8/17/2018 6:30	UC4874	0.11	<0.0002	0.0325	20.1	0.0344	<0.000002	0.0144	0.0027	-	5.23	0.00405	3.11	<0.00002	89.7	0.771	71.1	0.000019	<0.005	<0.005	0.00225
RSEM-R6W-SP	8/18/2018 9:10	UC8576	0.14	<0.0002	0.0311	21.6	0.0704	<0.000002	0.0138	0.0028	-	5.02	0.00381	3	<0.00002	92.1	0.692	72.4	0.000017	<0.005	<0.005	0.00228
RSEM-R6W-SP	8/19/2018 12:26	UC8614	0.112	<0.0002	0.031	23.5	0.0796	<0.000002	0.0136	0.0025	-	4.88	0.00388	3.22	<0.00002	89.3	0.694	74.4	0.000017	<0.005	<0.005	0.0024
RSEM-R6W-SP	9/11/2018 11:20	UH0967	0.11	<0.0002	0.0339	17.9	0.0983	0.0000026	0.0127	0.0115	-	3.77	0.00477	3.43	<0.00002	73.6	0.495	64.6	0.000013	<0.005	<0.005	0.00208
RSEM-R6W-SP	9/16/2018 11:00	UI5528	0.115	<0.0002	0.0329	18.6	0.074	<0.000002	0.017	0.0094	-	4.62	0.00565	3.6	<0.00002	87.1	0.525	67.8	0.000013	<0.005	<0.005	0.00234
RSEM-R6W-SP	9/17/2018 11:25	UI5111	0.108	<0.0002	0.031	18.4	0.0714	<0.000002	0.0155	0.0092	-	4.24	0.0051	3.45	<0.00002	86.1	0.468	65.4	0.000014	<0.005	<0.005	0.0021
RSEM-R6W-SP	9/18/2018 9:40	UI9105	0.158	<0.0002	0.0314	18.0	0.0739	0.0000021	0.0166	0.0095	-	4.39	0.00549	3.57	<0.00002	86.3	0.453	71.0	0.000013	<0.005	0.0069	0.00224
RSEM-R6W-SP	9/19/2018 10:30	UJ0840	0.161	<0.0002	0.0302	17.2	0.0647	<0.000002	0.0155	0.0082	-	4.06	0.00495	3.37	<0.00002	78.0	0.423	63.4	0.000012	<0.005	<0.005	0.00217
RSEM-R6W-SP	10/2/2018 12:20	UL6717	0.169	<0.0002	0.0273	31.3	0.19	<0.000002	0.0082	0.0097	-	3.35	0.00213	4.21	<0.00002	83.9	0.385	98.2	0.000014	<0.005	<0.005	0.00288
RSEM-R6W-SP	10/3/2018 12:20	UM2670	0.139	<0.0002	0.0269	34.5	0.19	<0.000002	0.0082	0.0093	-	3.21	0.00217	3.89	<0.00002	90.3	0.437	97.0	0.000012	<0.005	<0.005	0.00281
RSEM-R6W-SP	10/8/2018 13:25	UM9331	0.161	<0.0002	0.0307	26.5	0.0992	<0.000002	0.0125	0.006	-	3.62	0.00257	4.71	<0.00002	106	0.344	84.5	0.000011	<0.005	0.0084	0.00261
RSEM-R6W-SP	10/9/2018 9:30	UM9808	0.122	<0.0002	0.0308	27.9	0.0981	<0.000002	0.0114	0.0067	-	4.07	0.00244	5.15	<0.00002	118	0.329	102	0.000011	<0.005	<0.005	0.0027
RSEM-R6W-SP	10/10/2018 9:35	UN2722	0.089	<0.0002	0.0365	29.2	0.107	<0.000002	0.013	0.009	-	4.05	0.00284	5.2	<0.00002	124	0.359	113	0.000012	<0.005	<0.005	0.00282
RSEM-R6W-SP	10/11/2018 9:50	UN4651	0.126	<0.0002	0.0356	27.6	0.103	0.0000023	0.014	0.0092	-	4.08	0.00312	5.15	<0.00002	132	0.354	112	0.000013	<0.005	<0.005	0.00307
RSEM-R6W-SP	10/23/2018 11:40	UP9907	0.018	<0.0002	0.0325	29.6	0.228	<0.000002	0.0196	0.0058	-	4.69	0.00336	6.23	<0.00002	136	0.54	117	<0.00001	<0.005	<0.005	0.00292
RSEM-R6W-SP	10/24/2018 13:35	UQ3375	0.128	<0.0002	0.0368	30.8	0.227	0.0000028	0.0183	0.0062	-	4.90	0.00372	5.83	<0.00002	146	0.475	112	0.000011	<0.005	<0.005	0.00298
RSEM-R6W-SP	10/25/2018 11:50	UQ3349	0.016	<0.0002	0.0348	31.1	0.255	0.0000034	0.0175	0.0057	-	4.69	0.00321	5.41	<0.00002	145	0.474	122	0.000011	<0.005	<0.005	0.00295
RSEM-R6W-SP	11/30/2018 11:35	UW6184	0.125	<0.0002	0.0104	12.3	0.0302	<0.000002	0.0048	0.0014	-	2.03	0.0008	2.04	<0.00002	53.2	0.115	46.9	<0.00001	<0.005	<0.005	0.00085
RSEM-R6W-SP	12/1/2018 16:50	UW8609	0.113	<0.0002	0.0148	13.0	0.0362	<0.000002	0.0113	0.0016	-	3.30	0.00174	2.52	<0.00002	83.8	0.14	53.7	<0.00001	<0.005	<0.005	0.00109
RSEM-R6W-SP	12/2/2018 14:05	UW8613	0.092	<0.0002	0.0204	15.1	0.0421	<0.000002	0.017	0.0018	-	4.37	0.00265	3.2	<0.00002	117	0.168	64.6	<0.00001	<0.005	0.0061	0.00139
RSEM-R6W-SP	12/3/2018 11:00	UW8507	0.133	<0.0002	0.0304	19.6	0.0505	<0.000002	0.029	0.0027	-	6.19	0.00454	4.51	<0.00002	169	0.219	83.7	0.000011	<0.005	<0.005	0.00198
RSEM-R6W-SP	12/4/2018 12:45	UX4640	0.222	<0.0002	0.0392	22.8	0.0528	<0.000002	0.0397	0.0038	-	8.28	0.00701	6.03	<0.00002	221	0.251	110	0.000016	<0.005	0.0086	0.00274
RSEM-R6W-SP	12/5/2018 14:10	UX4956	0.193	<0.0002	0.0403	22.4	0.0448	0.0000047	0.0418	0.0035	-	8.56	0.0075	6.34	<0.00002	226	0.248	109	0.000014	<0.005	0.0064	0.00269
RSEM-R6W-SP	12/6/2018 16:45	UX6855	0.292	<0.0002	0.0388	22.2	0.0394	0.0000024	0.0446	0.0037	-	8.25	0.00728	6.63	<0.00002	222	0.269	103	0.000016	<0.005	0.0131	0.00259
RSEM-R6W-SP	12/7/2018 13:00	UX6858	0.35	0.00026	0.0408	22.6	0.0319	0.0000065	0.043	0.0035	-	9.73	0.00782	7.71	<0.00002	241	0.242	119	0.000019	<0.005	0.0159	0.00285
RSEM-R6W-SP	12/8/2018 13:55	UX7495	0.286	0.00027	0.0421	23.2	0.0284	0.0000033	0.0477	0.0037	-	8.48	0.00773	6.78	<0.00002	246	0.259	110	0.000017	<0.005	0.0111	0.00277
RSEM-R6W-SP	12/8/2018 13:55	UX7493	0.413	0.00033	0.0398	23.8	0.0293	0.0000024	0.0438	0.0042	-	9.84	0.00783	8.1	<0.00002	269	0.228	125	0.000017	<0.005	0.0187	0.00263
RSEM-R6W-SP	12/9/2018 13:30	UX7485	0.491	0.00035	0.0413	22.9	0.0257	0.0000034	0.0464	0.0038	-	9.75	0.00752	8.27	<0.00002	268	0.229	122	0.00002	<0.005	0.0235	0.0027
RSEM-R6W-SP	12/10/2018 13:00	UY5754	0.691	0.00059	0.0432	22.0	0.031	<0.000002	0.0468	0.0043	-	8.49	0.00812	7.49	<0.00002	253	0.233	108	0.000023	<0.005	0.0241	0.00272
RSEM-R6W-SP	12/11/2018 10:15	UY1784	0.12	<0.0002	0.0301	17.4	0.0372	<0.000002	0.0311	0.0023	-	6.56	0.00482	4.56	<0.00002	185	0.179	84.8	0.00001	<0.005	<0.005	0.00193

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	6/19/2018 12:15	TR6048	<0.005	<0.005	<0.0001	0.0417	0.00134	0.00111	0.11	<0.0001	<0.001	0.194	0.000021	84.7	0.0029	0.00085	0.00188	0.047	<0.0002	0.0401	22.5	0.0218
RSEM-R6W-SP	6/20/2018 12:40	TR8729	<0.005	<0.005	<0.0001	0.0257	0.00127	0.00108	0.108	<0.0001	<0.001	0.205	<0.00001	86.2	0.003	0.00056	0.00146	<0.01	<0.0002	0.0357	22.4	0.0056
RSEM-R6W-SP	6/21/2018	TS1917	<0.005	<0.005	<0.0001	0.0257	0.00136	0.00113	0.111	<0.0001	<0.001	0.22	<0.00001	82.4	0.0037	<0.0002	0.00128	0.014	<0.0002	0.0422	22.3	<0.001
RSEM-R6W-SP	6/22/2018	TS2366	<0.005	0.0052	0.00011	0.0261	0.00135	0.00111	0.11	<0.0001	<0.001	0.215	<0.00001	81.9	0.0027	<0.0002	0.00131	<0.01	<0.0002	0.0406	21.9	<0.001
RSEM-R6W-SP	6/23/2018	TS5385	<0.005	<0.005	0.0003	0.0275	0.00135	0.00109	0.111	<0.0001	<0.001	0.214	<0.00001	81.6	0.0027	0.00025	0.00148	<0.01	<0.0002	0.0424	21.2	0.0039
RSEM-R6W-SP	6/24/2018	TS5389	<0.005	<0.005	0.00014	0.0287	0.0014	0.00106	0.114	<0.0001	<0.001	0.233	<0.00001	79.9	0.0026	<0.0002	0.00142	<0.01	<0.0002	0.0447	21.5	<0.001
RSEM-R6W-SP	6/25/2018	TS9109	<0.005	<0.005	0.00048	0.0244	0.00126	0.00097	0.104	<0.0001	<0.001	0.199	<0.00001	76.0	0.0024	<0.0002	0.00476	<0.01	<0.0002	0.0367	19.1	0.0011
RSEM-R6W-SP	6/28/2018 12:40	TT3457	<0.005	<0.005	<0.0001	0.0487	0.00133	0.00116	0.115	<0.0001	<0.001	0.205	0.000035	82.4	0.0048	0.00218	0.00124	<0.01	<0.0002	0.052	20.1	0.0529
RSEM-R6W-SP	6/29/2018 10:30	TT6315	<0.005	<0.005	<0.0001	0.0841	0.00145	0.00123	0.127	<0.0001	<0.001	0.231	0.000034	79.4	0.0046	0.00122	0.00118	<0.01	<0.0002	0.0542	20.4	0.0183
RSEM-R6W-SP	6/29/2018 10:30	TT6308	<0.005	<0.005	<0.0001	0.0478	0.00142	0.00116	0.126	<0.0001	<0.001	0.228	0.000031	74.5	0.0047	0.00088	0.00142	<0.01	<0.0002	0.054	21.1	0.0086
RSEM-R6W-SP	6/30/2018	TU0474	<0.005	<0.005	<0.0001	0.0467	0.00139	0.00117	0.125	<0.0001	<0.001	0.227	0.000033	79.8	0.0046	0.00145	0.00138	<0.01	<0.0002	0.0535	20.8	0.0234
RSEM-R6W-SP	7/1/2018 0:00	TU0434	<0.005	<0.005	<0.0001	0.0425	0.00139	0.00115	0.118	<0.0001	<0.001	0.227	0.000024	77.6	0.0046	0.00143	0.00171	<0.01	<0.0002	0.0538	20.6	0.0219
RSEM-R6W-SP	7/6/2018 10:20	TU8092	<0.005	<0.005	<0.0001	0.066	0.00092	0.00079	0.126	<0.0001	<0.001	0.138	0.000018	76.0	0.003	<0.0002	0.00146	<0.01	<0.0002	0.0333	19.9	<0.001
RSEM-R6W-SP	7/7/2018 7:20	TV0771	<0.005	<0.005	0.00012	0.0654	0.00093	0.00075	0.126	<0.0001	<0.001	0.136	0.000023	78.2	0.0028	0.00044	0.0015	<0.01	<0.0002	0.0326	20.1	0.0058
RSEM-R6W-SP	7/9/2018 13:20	TV3537	<0.005	<0.005	<0.0001	0.0563	0.00082	0.0007	0.128	<0.0001	<0.001	0.121	0.000016	79.1	0.0025	0.00034	0.0015	<0.01	<0.0002	0.0301	21.1	0.0033
RSEM-R6W-SP	7/10/2018 13:40	TV5658	<0.005	<0.005	0.00024	0.0525	0.00083	0.0008	0.131	<0.0001	<0.001	0.115	0.000014	77.2	0.0026	0.00031	0.00142	<0.01	<0.0002	0.0283	20.4	0.0032
RSEM-R6W-SP	7/11/2018 12:30	TV9385	<0.005	<0.005	0.0004	0.0561	0.00084	0.00074	0.136	<0.0001	<0.001	0.14	0.000015	81.5	0.0024	<0.0002	0.00156	<0.01	<0.0002	0.031	21.0	<0.001
RSEM-R6W-SP	7/12/2018 0:00	TV9380	<0.005	<0.005	0.00013	0.0507	0.00082	0.0007	0.134	<0.0001	<0.001	0.119	0.000012	81.1	0.0023	<0.0002	0.00129	<0.01	<0.0002	0.032	21.1	<0.001
RSEM-R6W-SP	7/13/2018 0:00	TV9674	<0.005	<0.005	<0.0001	0.0532	0.00082	0.00074	0.137	<0.0001	<0.001	0.139	0.000013	83.6	0.0023	0.00027	0.00141	<0.01	<0.0002	0.0333	21.9	0.0022
RSEM-R6W-SP	7/17/2018 8:55	TW5974	<0.005	<0.005	0.00013	0.0433	0.00075	0.00065	0.147	<0.0001	<0.001	0.121	0.000017	87.6	0.0024	0.00032	0.00321	<0.01	<0.0002	0.0297	25.9	0.0118
RSEM-R6W-SP	7/18/2018 8:45	TW8365	<0.005	<0.005	0.00019	0.0387	0.00077	0.0007	0.143	<0.0001	<0.001	0.111	<0.00001	87.0	0.0022	0.00029	0.00251	<0.01	<0.0002	0.0284	23.2	0.0114
RSEM-R6W-SP	7/19/2018 10:35	TX0644	<0.005	<0.005	<0.0001	0.0372	0.00074	0.00071	0.148	<0.0001	<0.001	0.108	0.000013	88.3	0.0021	0.00028	0.00219	<0.01	<0.0002	0.0268	24.6	0.0116
RSEM-R6W-SP	7/23/2018 16:06	TY1079	<0.005	<0.005	0.00026	0.0494	0.00087	0.0008	0.158	<0.0001	<0.001	0.113	<0.00001	78.7	0.003	0.0003	0.00196	<0.01	<0.0002	0.0271	21.5	0.0063
RSEM-R6W-SP	7/24/2018 17:18	TY1082	<0.005	<0.005	0.00013	0.0264	0.00084	0.00079	0.158	<0.0001	<0.001	0.111	<0.00001	78.3	0.003	0.0003	0.00179	<0.01	<0.0002	0.027	21.3	0.0067
RSEM-R6W-SP	7/25/2018 18:30	TY3338	<0.005	<0.005	0.0002	0.0223	0.00087	0.00082	0.147	<0.0001	<0.001	0.098	<0.00001	76.8	0.0032	0.00027	0.00162	<0.01	<0.0002	0.0239	23.1	0.0055
RSEM-R6W-SP	7/26/2018 16:30	TY5330	<0.005	<0.005	0.0002	0.0196	0.00084	0.00083	0.142	<0.0001	<0.001	0.113	<0.00001	74.4	0.003	<0.0002	0.00153	<0.01	<0.0002	0.0245	22.9	<0.001
RSEM-R6W-SP	7/27/2018 8:15	TY5339	<0.005	<0.005	<0.0001	0.0199	0.00086	0.00087	0.142	<0.0001	<0.001	0.117	<0.00001	75.4	0.0029	<0.0002	0.00142	<0.01	<0.0002	0.0245	23.2	0.0019
RSEM-R6W-SP	7/28/2018 15:00	TZ1780	<0.005	<0.005	<0.0001	0.02	0.00087	0.00081	0.136	<0.0001	<0.001	0.118	<0.00001	73.2	0.0028	<0.0002	0.00141	<0.01	<0.0002	0.0258	23.1	0.0032
RSEM-R6W-SP	7/29/2018 12:20	TZ1784	<0.005	<0.005	0.0001	0.0192	0.00089	0.00078	0.134	<0.0001	<0.001	0.119	<0.00001	72.0	0.0028	<0.0002	0.00194	<0.01	<0.0002	0.0255	22.9	0.0027
RSEM-R6W-SP	7/30/2018 11:50	TZ3236	<0.005	<0.005	0.00099	0.0266	0.00083	0.00074	0.137	<0.0001	<0.001	0.121	<0.00001	71.0	0.0024	<0.0002	0.00157	<0.01	<0.0002	0.0241	22.2	0.0058
RSEM-R6W-SP	8/10/2018 8:40	UB1624	<0.005	<0.005	<0.0001	0.037	0.0011	0.00109	0.215	<0.0001	<0.001	0.202	0.000012	87.8	0.0027	0.00029	0.00131	<0.01	<0.0002	0.0323	20.0	0.0069
RSEM-R6W-SP	8/14/2018 14:30	UC1795	<0.005	<0.005	<0.0001	0.0384	0.00117	0.0011	0.222	<0.0001	<0.001	0.198	0.000012	75.2	0.0022	0.00025	0.00146	<0.01	<0.0002	0.0306	18.0	0.0056
RSEM-R6W-SP	8/15/2018 23:36	UC1588	<0.005	<0.005	0.0002	0.0346	0.00116	0.00109	0.223	<0.0001	<0.001	0.221	0.000013	75.9	0.0021	0.00025	0.00176	<0.01	<0.0002	0.0302	18.4	0.0053
RSEM-R6W-SP	8/16/2018 8:41	UC2155	<0.005	<0.005	0.00016	0.0316	0.00119	0.00109	0.217	<0.0001	<0.001	0.207	0.000011	74.2	0.0022	0.00025	0.00135	<0.01	<0.0002	0.031	18.9	0.0052
RSEM-R6W-SP	8/17/2018 6:30	UC4874	<0.005	<0.005	<0.0001	0.0319	0.00111	0.00101	0.218	<0.0001	<0.001	0.201	0.000012	80.0	0.0022	0.00027	0.0015	<0.01	<0.0002	0.0313	22.6	0.0305
RSEM-R6W-SP	8/18/2018 9:10	UC8576	<0.005	<0.005	<0.0001	0.0511	0.00115	0.00118	0.219	<0.0001	<0.001	0.193	<0.00001	80.9	0.0024	0.00029	0.00199	<0.01	<0.0002	0.0316	22.2	0.0658
RSEM-R6W-SP	8/19/2018 12:26	UC8614	<0.005	<0.005	<0.0001	0.0529	0.00113	0.00123	0.217	<0.0001	<0.001	0.184	<0.00001	84.9	0.0024	0.00028	0.00162	<0.01	<0.0002	0.0305	23.7	0.073
RSEM-R6W-SP	9/11/2018 11:20	UH0967	<0.005	<0.005	<0.0001	0.0556	0.00108	0.00143	0.235	<0.0001	<0.001	0.127	0.000031	82.1	0.0045	0.00213	0.00111	<0.01	<0.0002	0.034	19.5	0.0998
RSEM-R6W-SP	9/16/2018 11:00	UI5528	<0.005	<0.005	<0.0001	0.0602	0.00116	0.00143	0.223	<0.0001	<0.001	0.124	0.000028	71.5	0.0055	0.00154	0.00105	<0.01	<0.0002	0.0339	17.4	0.0689
RSEM-R6W-SP	9/17/2018 11:25	UI5111	<0.005	<0.005	0.00013	0.0678	<0.0005	0.00024	0.077	<0.0001	<0.001	0.171	0.000679	129	<0.001	0.0248	0.00106	<0.01	<0.0002	0.155	51.8	0.401
RSEM-R6W-SP	9/18/2018 9:40	UI9105	<0.005	<0.005	0.00012	0.0561	0.00113	0.00133	0.195	<0.0001	<0.001	0.127	0.000019	76.3	0.0054	0.0014	0.00137	<0.01	<0.0002	0.0323	19.1	0.0555
RSEM-R6W-SP	9/19/2018 10:30	UJ0840	<0.005	<0.005	<0.0001	0.0524	0.00102	0.00124	0.207	<0.0001	<0.001	0.126	0.000026	73.5	0.0054	0.00138	0.00153	<0.01	<0.0002	0.0317	19.2	0.0582
RSEM-R6W-SP	10/2/2018 12:20	UL6717	<0.005	0.0057	0.00015	0.0262	0.00061	0.00065	0.184	<0.0001	<0.001	0.088	0.00006	105	0.0014	0.00219	0.00106	<0.01	<0.0002	0.0267	32.8	0.178
RSEM-R6W-SP	10/3/2018 12:20	UM2670	<0.005	<0.005	<0.0001	0.026	0.0006	0.00069	0.186	<0.0001	<0.001	0.093	0.000053	106	0.0014	0.00223	0.00101	<0.01	<0.0002	0.0274	34.8	0.179
RSEM-R6W-SP	10/8/2018 13:25	UM9331	<0.005	<0.005	0.00033	0.0382	0.00086	0.00132	0.173	<0.0001	<0.001	0.138	<0.00001	85.6	0.002	0.00107	0.00102	<0.01	<0.0002	0.0318	28.0	0.0742
RSEM-R6W-SP	10/9/2018 9:30	UM9808	<0.005	<0.005	0.00019	0.0372	0.00093	0.0014	0.173	<0.0001	<0.001	0.144	0.000021	87.9	0.002	0.00156	0.00129	<0.01	<0.0002	0.0339	27.9	0.0942
RSEM-R6W-SP	10/10/2018 9:35	UN2722	<0.005	<0.005	0.00013	0.039	0.00097	0.00143	0.169	<0.0001	<0.001	0.149	0.000034	92.6	0.002	0.00196	0.0009	<0.01	<0.0002	0.0337	30.7	0.104
RSEM-R6W-SP	10/11/2018 9:50	UN4651	<0.005	<0.005	0.00015	0.0371	0.00105	0.00156	0.166	<0.0001	<0.001	0.164	0.000018	89.2	0.0025	0.00211	0.00109	<0.01	<0.0002	0.038	29.8	0.0962
RSEM-R6W-SP	10/23/2018 11:40	UP9907	<0.005	<0.005	<0.0001	0.0078	0.00151	0.00149	0.133	<0.0001	<0.001	0.152	0.000024	95.8	0.0026	0.00125	0.00104	<0.01	<0.0002	0.0331	31.1	0.224
RSEM-R6W-SP	10/24/2018 13:35	UQ3375	<0.005	<0.005	0.00011	0.0072	0.00152	0.0015	0.135	<0.0001	<0.001	0.175	0.000024	97.5	0.0026	0.00127	0.00095	<0.01	<0.0002	0.0361	30.8	0.221
RSEM-R6W-SP	10/25/2018 11:50	UQ3349	<0.005	<0.005	<0.0001	0.0068	0.00149	0.00142	0.131	<0.0001	<0.001	0.169	0.000025	99.0	0.0025	0.00121	0.001	<0.01	<0.0002	0.0358	33.2	0.257
RSEM-R6W-SP	11/30/2018 11:35	UW6184	<0.005	0.126	0.00019	0.0126	<0.0005	0.00052	0.0389	<0.0001	<0.001	0.059	0.000016	23.7	<0.001	0.00026	0.00177	<0.01	<0.0002	0.0109	12.0	0.0268
RSEM-R6W-SP	12/1/2018 16:50	UW8609	<0.005	0.25	0.00014	0.0492	0.00079	0.0013	0.0474	<0.0001	<0.001	0.112	<0.00001	27.2	0.0021	0.00032	0.00229	<0.01	<0.0002	0.0186	14.3	0.0362
RSEM-R6W-SP	12/2/2018 14:05	UW8613	<0.005	0.229	0.00017	0.0678	0.00094	0.00159	0.0494	<0.0001	<0.001	0.136	<0.00001	28.4	0.0026	0.00033	0.00235	<0.01	<0.0002	0.0224	15.2	0.0388
RSEM-R6W-SP	12/3/2018 11:00	UW8507	0.006	0.107	0.00024	0.137	0.00155	0.00274	0.0586	<0.0001	<0.001	0.208	<0.00001	35.3	0.005	0.00043	0.00251	<0.01	<0.0002	0.0325	20.3	0.0475
RSEM-R6W-SP	12/4/2018 12:45	UX4640	0.0088	0.0373	0.00044	0.219	0.00216	0.004	0.061	<0.0001	<0.001	0.256	<0.00001	38.2	0.0075	0.0005	0.00173	<0.01	<0.0002	0.0383	22.4	0.0365
RSEM-R6W-SP	12/5/2018 14:10	UX4956	0.0095	<0.005	0.00025	0.238	0.0022	0.00433	0.0612	<0.0001	<0.001	0.278	<0.00001	37.8	0.0078	0.00047	0.00183	<0.01	<0.0002	0.0401	21.9	0.0321
RSEM-R6W-SP	12/6/2018 16:45	UX6855	0.0098	<0.005	0.0005	0.236	0.00206	0.00425	0.0551	<0.0001	<0.001	0.249	<0.00001	35.6	0.0074	0.00043	0.00172	<0.01	<0.0002	0.0379	22.0	0.0214
RSEM-R6W-SP	12/7/2018 13:00	UX6858	0.0104	0.0194	0.00106	0.279	0.00227	0.00469	0.0582	<0.0001	<0.001	0.286	<0.00001	35.3	0.0074	0.0004	0.0017	<0.01	<0.0002	0.0417	21.5	0.0136
RSEM-R6W-SP	12/8/2018 13:55	UX7495	0.0106	0.0063	0.00083	0.269	0.00237	0.00519	0.057	<0.0001	<0.001	0.285	<0.00001	33.7	0.0077	0.00041	0.00198	0.015	<0.0002	0.0416	20.5	0.0161
RSEM-R6W-SP	12/8/2018 13:55	UX7493	0.0112	0.0074	0.00056	0.269	0.00236	0.0052	0.0558	<0.0001	<0.001	0.287	<0.00001	33.0	0.0071	0.0004	0.00162	<0.01	<0.0002	0.0418	20.7	0.0156
RSEM-R6W-SP	12/9/2018 13:30	UX7485	0.0122	0.005	0.00087	0.28	0.00247	0.00521	0.0572	<0.0001	<0.001	0.29	<0.00001	33.3	0.0077	0.00039	0.00187	<0.01	<0.0002	0.0403	21.3	0.0136
RSEM-R6W-SP	12/10/2018 13:00	UY5754	0.0118	0.0201	0.00052	0.239	0.00239	0.00519	0.0569	<0.0001	<0.001	0.285	<0.00001	30.5	0.0072	0.00037	0.00187	<0.01	<0.0002	0.0432	21.6	0.0135
RSEM-R6W-SP	12/11/2018 10:15	UY1784	0.006	0.019	0.00016	0.153	0.00161	0.00331	0.0443	<0.0001	<0.001	0.212	<0.00001	29.2	0.0048	0.00034	0.00126	<0.01	<0.0002	0.0299	17.2	0.0369

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	6/19/2018 12:15	TR6048	<0.000002	0.0166	0.0069	-	4.94	0.00432	3.47	<0.00002	123	0.635	72.8	0.000021	<0.005	<0.005	0.00226	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/20/2018 12:40	TR8729	<0.000002	0.0161	0.0064	-	5.25	0.00449	3.74	<0.00002	134	0.601	82.2	0.00002	<0.005	<0.005	0.00223	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/21/2018	TS1917	<0.000002	0.0169	0.006	-	5.38	0.0045	3.76	<0.00002	122	0.682	76.7	0.000023	<0.005	<0.005	0.00244	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/22/2018	TS2366	<0.000002	0.0166	0.0055	-	5.32	0.00461	3.69	<0.00002	122	0.673	76.5	0.000022	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/23/2018	TS5385	<0.000002	0.0167	0.0051	-	5.23	0.00449	3.63	<0.00002	118	0.656	73.9	0.000021	<0.005	<0.005	0.00244	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/24/2018	TS5389	<0.000002	0.0164	0.0047	-	5.24	0.00453	3.74	<0.00002	120	0.669	75.1	0.000022	<0.005	<0.005	0.00252	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/25/2018	TS9109	<0.000002	0.0149	0.0043	-	4.88	0.00384	3.23	<0.00002	113	0.562	72.9	0.000019	<0.005	<0.005	0.0022	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/28/2018 12:40	TT3457	<0.000002	0.0176	0.0138	-	5.15	0.0075	3.57	<0.00002	126	0.598	95.8	0.000015	<0.005	<0.005	0.00254	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/29/2018 10:30	TT6315	<0.000002	0.018	0.0124	-	5.51	0.0083	3.54	<0.00002	124	0.587	99.4	0.000021	<0.005	<0.005	0.00278	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/29/2018 10:30	TT6308	<0.000002	0.0178	0.0124	-	5.63	0.00805	3.32	<0.00002	128	0.586	98.1	0.000021	<0.005	<0.005	0.00276	<0.005	<0.005	<0.0001
RSEM-R6W-SP	6/30/2018	TU0474	<0.000002	0.0185	0.0121	-	5.54	0.00839	3.52	<0.00002	127	0.593	102	0.000021	<0.005	<0.005	0.00279	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/1/2018 0:00	TU0434	<0.000002	0.0184	0.012	-	5.36	0.0084	3.42	<0.00002	125	0.578	98.6	0.00002	<0.005	<0.005	0.00277	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/6/2018 10:20	TU8092	<0.000002	0.0129	0.0057	-	4.11	0.00526	3.11	<0.00002	87.6	0.49	74.4	0.000012	<0.005	<0.005	0.00242	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/7/2018 7:20	TV0771	<0.000002	0.0119	0.005	-	4.39	0.00506	2.98	<0.00002	87.6	0.447	80.3	0.000013	<0.005	<0.005	0.00228	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/9/2018 13:20	TV3537	<0.000002	0.0108	0.0042	-	4.28	0.00434	3.03	<0.00002	81.5	0.416	74.5	0.000012	<0.005	<0.005	0.00228	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/10/2018 13:40	TV5658	<0.000002	0.0114	0.0042	-	4.01	0.00442	2.78	<0.00002	78.9	0.453	69.5	<0.00001	<0.005	<0.005	0.0023	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/11/2018 12:30	TV9385	<0.000002	0.011	0.0042	-	4.31	0.00437	3.22	<0.00002	79.9	0.423	75.2	0.000014	<0.005	<0.005	0.00242	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/12/2018 0:00	TV9380	<0.000002	0.0107	0.0037	-	4.09	0.00434	2.95	<0.00002	78.1	0.428	69.7	0.000012	<0.005	<0.005	0.00249	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/13/2018 0:00	TV9674	<0.000002	0.0106	0.0038	-	4.22	0.00417	3.32	<0.00002	80.2	0.423	77.0	0.000011	<0.005	<0.005	0.00249	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/17/2018 8:55	TW5974	<0.000002	0.0098	0.0034	-	4.05	0.00351	3.3	<0.00002	84.5	0.462	74.4	0.000012	<0.005	<0.005	0.00271	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/18/2018 8:45	TW8365	<0.000002	0.0097	0.003	-	3.85	0.00378	3.41	<0.00002	82.1	0.46	71.5	0.000014	<0.005	<0.005	0.00277	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/19/2018 10:35	TX0644	<0.000002	0.009	0.0026	-	3.79	0.0034	3.42	<0.00002	85.2	0.417	74.6	0.00001	<0.005	<0.005	0.00247	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/23/2018 16:06	TY1079	0.0000028	0.0098	0.0026	-	4.14	0.00325	3.51	<0.00002	78.3	0.42	68.8	0.00001	<0.005	<0.005	0.0026	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/24/2018 17:18	TY1082	<0.000002	0.0098	0.0024	-	4.19	0.00335	3.59	<0.00002	77.6	0.415	66.5	0.00001	<0.005	<0.005	0.00267	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/25/2018 18:30	TY3338	<0.000002	0.0104	0.0022	-	4.29	0.00343	2.97	<0.00002	80.2	0.422	65.5	<0.00001	<0.005	<0.005	0.00268	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/26/2018 16:30	TY5330	<0.000002	0.0104	0.0021	-	4.24	0.00341	3.52	<0.00002	78.6	0.455	69.9	<0.00001	<0.005	<0.005	0.00269	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/27/2018 8:15	TY5339	<0.000002	0.0105	0.0019	-	4.24	0.00356	3.56	<0.00002	79.4	0.46	70.6	<0.00001	<0.005	<0.005	0.00266	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/28/2018 15:00	TZ1780	<0.000002	0.0103	0.002	-	4.41	0.00326	3.39	<0.00002	75.8	0.442	68.8	0.000011	<0.005	<0.005	0.00268	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/29/2018 12:20	TZ1784	<0.000002	0.0099	0.0019	-	4.47	0.00319	3.35	<0.00002	74.6	0.435	68.1	0.000012	<0.005	<0.005	0.00264	<0.005	<0.005	<0.0001
RSEM-R6W-SP	7/30/2018 11:50	TZ3236	<0.000002	0.0093	0.0015	-	4.21	0.00289	3.19	<0.00002	68.7	0.428	61.8	0.000011	<0.005	<0.005	0.00256	<0.005	<0.005	<0.0001
RSEM-R6W-SP	8/10/2018 8:40	UB1624	<0.000002	0.0131	0.0029	-	5.48	0.00459	2.72	<0.00002	88.1	0.826	66.9	0.000022	<0.005	<0.005	0.00207	<0.005	<0.005	<0.0001
RSEM-R6W-SP	8/14/2018 14:30	UC1795	<0.000002	0.0138	0.0026	-	5.14	0.00389	2.65	<0.00002	87.7	0.756	64.2	0.000017	<0.005	<0.005	0.00197	<0.005	<0.005	<0.0001
RSEM-R6W-SP	8/15/2018 23:36	UC1588	<0.000002	0.0138	0.0026	-	5.27	0.00399	2.72	<0.00002	88.9	0.738	64.5	0.000019	<0.005	<0.005	0.00205	<0.005	<0.005	<0.0001
RSEM-R6W-SP	8/16/2018 8:41	UC2155	<0.000002	0.0137	0.0025	-	4.97	0.0041	2.51	<0.00002	92.1	0.731	62.0	0.000018	<0.005	<0.005	0.00209	<0.005	<0.005	<0.0001
RSEM-R6W-SP	8/17/2018 6:30	UC4874	<0.000002	0.0135	0.0026	-	5.07	0.00397	2.56	<0.00002	97.4	0.745	66.5	0.000016	<0.005	<0.005	0.00218	<0.005	<0.005	<0.0001
RSEM-R6W-SP	8/18/2018 9:10	UC8576	<0.000002	0.0144	0.0027	-	4.96	0.00407	2.83	<0.00002	91.7	0.711	73.8	0.000018	<0.005	<0.005	0.00234	<0.005	<0.005	<0.0001
RSEM-R6W-SP	8/19/2018 12:26	UC8614	<0.000002	0.0138	0.0024	-	4.89	0.00387	3.04	<0.00002	89.1	0.694	75.0	0.000015	<0.005	<0.005	0.0024	<0.005	<0.005	<0.0001
RSEM-R6W-SP	9/11/2018 11:20	UH0967	<0.000002	0.0125	0.0115	-	4.20	0.00498	3.41	<0.00002	81.5	0.508	67.9	0.000012	<0.005	<0.005	0.00207	<0.005	<0.005	<0.0001
RSEM-R6W-SP	9/16/2018 11:00	UI5528	<0.000002	0.0165	0.009	-	4.45	0.00564	3.49	<0.00002	79.8	0.458	67.7	0.000011	<0.005	<0.005	0.00215	<0.005	<0.005	<0.0001
RSEM-R6W-SP	9/17/2018 11:25	UI5111	<0.000002	0.0055	0.0869	-	4.41	0.00357	3.78	<0.00002	179	0.524	222	0.000016	<0.005	<0.005	0.00251	<0.005	0.102	<0.0001
RSEM-R6W-SP	9/18/2018 9:40	UI9105	<0.000002	0.0174	0.0085	-	4.44	0.00537	3.34	<0.00002	90.9	0.483	68.1	0.000011	<0.005	<0.005	0.00223	<0.005	<0.005	<0.0001
RSEM-R6W-SP	9/19/2018 10:30	UJ0840	<0.000002	0.0155	0.0085	-	4.45	0.0051	3.47	<0.00002	88.4	0.471	67.9	0.000011	<0.005	<0.005	0.00221	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/2/2018 12:20	UL6717	<0.000002	0.0081	0.0087	-	3.23	0.00225	3.76	<0.00002	87.1	0.419	95.4	<0.00001	<0.005	<0.005	0.00278	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/3/2018 12:20	UM2670	<0.000002	0.0083	0.009	-	3.29	0.00225	3.83	<0.00002	91.7	0.428	98.5	0.00001	<0.005	<0.005	0.00276	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/8/2018 13:25	UM9331	<0.000002	0.0123	0.0054	-	3.61	0.00253	4.54	<0.00002	109	0.391	84.9	<0.00001	<0.005	<0.005	0.00262	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/9/2018 9:30	UM9808	<0.000002	0.0127	0.0069	-	3.63	0.00271	4.65	<0.00002	114	0.4	89.7	<0.00001	<0.005	<0.005	0.00271	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/10/2018 9:35	UN2722	<0.000002	0.0118	0.0082	-	4.39	0.00292	4.81	<0.00002	135	0.352	116	0.000011	<0.005	<0.005	0.00286	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/11/2018 9:50	UN4651	<0.000002	0.0138	0.0088	-	4.09	0.00289	4.6	<0.00002	141	0.368	103	<0.00001	<0.005	<0.005	0.00286	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/23/2018 11:40	UP9907	<0.000002	0.0197	0.006	-	4.75	0.00342	6.04	<0.00002	146	0.556	119	<0.00001	<0.005	<0.005	0.00295	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/24/2018 13:35	UQ3375	0.0000061	0.0187	0.0059	-	4.92	0.00344	5.81	<0.00002	147	0.473	117	0.000011	<0.005	<0.005	0.00303	<0.005	<0.005	<0.0001
RSEM-R6W-SP	10/25/2018 11:50	UQ3349	0.0000025	0.0183	0.0056	-	4.85	0.00327	5.55	<0.00002	155	0.491	124	0.000011	<0.005	<0.005	0.00299	<0.005	<0.005	<0.0001
RSEM-R6W-SP	11/30/2018 11:35	UW6184	<0.000002	0.0047	0.0013	-	2.04	0.00076	1.64	<0.00002	51.7	0.115	46.8	<0.00001	<0.005	<0.005	0.00092	<0.005	0.111	<0.0001
RSEM-R6W-SP	12/1/2018 16:50	UW8609	<0.000002	0.0137	0.0014	-	3.62	0.00203	2.56	<0.00002	100	0.153	59.0	<0.00001	<0.005	<0.005	0.00121	<0.005	0.218	<0.0001
RSEM-R6W-SP	12/2/2018 14:05	UW8613	<0.000002	0.0167	0.0017	-	4.34	0.00248	2.84	<0.00002	118	0.165	65.0	<0.00001	<0.005	<0.005	0.00136	<0.005	0.185	<0.0001
RSEM-R6W-SP	12/3/2018 11:00	UW8507	<0.000002	0.0292	0.0024	-	6.29	0.00451	4.2	<0.00002	176	0.221	87.3	<0.00001	<0.005	<0.005	0.00203	0.0056	0.088	<0.0001
RSEM-R6W-SP	12/4/2018 12:45	UX4640	<0.000002	0.0393	0.0031	-	8.06	0.00719	5.46	<0.00002	220	0.245	104	0.000011	<0.005	<0.005	0.00268	0.0084	0.0065	<0.0001
RSEM-R6W-SP	12/5/2018 14:10	UX4956	0.0000034	0.0417	0.003	-	8.37	0.0074	5.67	<0.00002	223	0.247	109	0.000012	<0.005	<0.005	0.00265	0.0088	<0.005	<0.0001
RSEM-R6W-SP	12/6/2018 16:45	UX6855	0.000002	0.0399	0.0029	-	8.13	0.00708	5.56	<0.00002	219	0.224	106	0.000011	<0.005	<0.005	0.00256	0.0082	<0.005	<0.0001
RSEM-R6W-SP	12/7/2018 13:00	UX6858	0.0000037	0.0447	0.0029	-	8.57	0.00765	6.12	<0.00002	228	0.23	108	0.00001	<0.005	<0.005	0.00268	0.0091	<0.005	<0.0001
RSEM-R6W-SP	12/8/2018 13:55	UX7495	0.0000029	0.0456	0.0029	-	8.35	0.00794	6.19	<0.00002	226	0.225	108	0.000012	<0.005	<0.005	0.00268	0.0091	<0.005	<0.0001
RSEM-R6W-SP	12/8/2018 13:55	UX7493	<0.000002	0.0451	0.0028	-	8.06	0.00803	5.94	<0.00002	229	0.224	103	0.000011	<0.005	<0.005	0.00274	0.0089	<0.005	<0.0001
RSEM-R6W-SP	12/9/2018 13:30	UX7485	<0.000002	0.0466	0.0028	-	8.53	0.00803	6.17	<0.00002	246	0.221	112	0.000011	<0.005	<0.005	0.00271	0.0102	<0.005	<0.0001
RSEM-R6W-SP	12/10/2018 13:00	UY5754	<0.000002	0.0474	0.0028	-	8.28	0.00781	5.8	<0.00002	238	0.244	108	0.000011	<0.005	<0.005	0.00276	0.0089	<0.005	<0.0001
RSEM-R6W-SP	12/11/2018 10:15	UY1784	<0.000002	0.0299	0.002	-	6.74	0.00507	4.61	<0.00002	187	0.172	89.5	<0.00001	<0.005	<0.005	0.00181	0.006	0.0128	<0.0001

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$
			pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	12/12/2018 9:00	UY3859	8.46	974	1.40	566	<4.0	127	125	171	3.4	200	4.1	<1.0	63.6	0.300	1.2	211
RSEM-R6W-SP	12/13/2018 15:50	UY7666	8.33	1110	1.05	668	<4.0	147	148	191	1.4	230	1.7	<1.0	70.8	0.330	1.3	220
RSEM-R6W-SP	12/14/2018 10:05	UY7659	8.33	1190	2.38	708	<4.0	152	154	208	1.5	249	1.8	<1.0	76.0	0.350	1.4	237
RSEM-R6W-SP	12/15/2018 15:25	UZ0620	8.23	1180	0.87	626	<4.0	141	137	206	<1.0	252	<1.0	<1.0	78.5	0.330	1.5	232
RSEM-R6W-SP	12/16/2018 9:00	UZ0622	8.22	1240	0.98	728	<4.0	153	143	210	<1.0	257	<1.0	<1.0	83.7	0.350	1.5	208
RSEM-R6W-SP	12/17/2018 14:20	UZ1471	8.10	1330	0.70	776	<4.0	162	156	230	<1.0	281	<1.0	<1.0	94.8	0.360	1.8	250
RSEM-R6W-SP	12/18/2018 12:00	UZ3635	8.34	1390	0.85	836	<4.0	176	162	244	1.9	293	2.3	<1.0	96.3	0.420	1.8	270
RSEM-R6W-SP	12/19/2018 7:00	UZ3481	8.24	1470	1.25	866	<4.0	169	170	255	<1.0	312	<1.0	<1.0	99.3	0.440	1.9	292
RSEM-R6W-SP	12/20/2018 14:43	UZ8198	8.43	1520	7.55	940	6.8	175	175	277	4.6	326	5.5	<1.0	109	0.450	2.0	299
RSEM-R6W-SP	12/21/2018 10:15	UZ8194	8.44	1540	5.88	912	6.5	167	178	276	5.5	323	6.5	<1.0	112	0.460	2.0	309
RSEM-R6W-SP	12/22/2018 8:27	UZ8832	8.39	1530	6.69	898	7.0	162	172	278	3.8	329	4.6	<1.0	114	0.460	1.9	287
RSEM-R6W-SP	12/23/2018 10:30	UZ8805	8.34	1540	12.8	912	11.8	166	168	281	1.9	338	2.3	<1.0	113	0.470	2.0	287
RSEM-R6W-SP	12/24/2018 12:40	UZ9930	8.27	1530	13.3	902	10.5	167	172	286	<1.0	349	<1.0	<1.0	113	0.490	2.1	286
RSEM-R6W-SP	12/25/2018 11:15	UZ9976	8.39	1520	14.0	846	13.0	157	162	280	3.0	334	3.6	<1.0	113	0.500	1.9	293
RSEM-R6W-SP	12/26/2018 10:05	UZ9923	8.36	1530	16.6	880	13.5	161	168	282	2.5	337	3.0	<1.0	114	0.490	1.8	262
RSEM-R6W-SP	12/27/2018 12:55	VA2809	8.16	1570	14.7	970	14.5	148	155	280	<1.0	342	<1.0	<1.0	119	0.460	2.0	291
RSEM-R6W-SP	12/28/2018 14:50	VA3067	8.32	1570	19.7	932	13.8	148	147	288	3.2	344	3.8	<1.0	120	0.470	2.0	267
RSEM-R6W-SP	12/29/2018 11:15	VA3062	8.39	1580	20.9	944	13.3	149	146	289	3.1	345	3.7	<1.0	123	0.470	2.0	284
RSEM-R6W-SP	12/30/2018 10:45	VA3021	8.45	1540	21.7	950	6.8	138	141	288	4.0	341	4.8	<1.0	122	0.470	2.0	283
RSEM-R6W-SP	12/31/2018 12:00	VA5853	8.50	1510	16.5	932	13.3	133	135	289	6.3	337	7.5	<1.0	115	0.480	1.8	230
TRIAL DOME	7/1/2018 0:00	TU0441	7.78	1050	6.30	746	5.5	525	521	187	<1.0	228	<1.0	<1.0	29.5	0.630	0.48	312
TRIAL DOME	8/15/2018 18:15	UC2157	8.10	958	3.74	642	5.3	469	454	192	<1.0	234	<1.0	<1.0	38.0	0.520	0.50	235
TRIAL DOME	9/1/2018 3:00	UF6666	8.25	950	4.60	706	<4.0	495	444	206	<1.0	251	<1.0	<1.0	43.1	0.480	0.48	233
TRIAL DOME	9/13/2018 11:40	UH7731	8.11	882	8.92	622	4.8	424	444	199	<1.0	243	<1.0	<1.0	42.6	0.390	0.50	192
TRIAL DOME	9/19/2018 8:35	UJ0530	8.10	854	-	-	-	420	409	206	<1.0	251	<1.0	<1.0	39.9	0.370	0.48	189
TRIAL DOME	9/25/2018 10:10	UK2334	8.04	818	10.1	492	50.0	420	399	272	<1.0	332	<1.0	<1.0	44.4	0.200	0.57	94.0
TRIAL DOME	10/16/2018 14:50	UO9193	8.10	826	8.04	524	9.8	423	404	262	<1.0	320	<1.0	<1.0	50.0	0.160	0.51	108
WP-DS	3/16/2018 13:00	TD1266	8.28	330	0.27	164	<4.0	157	161	150	<1.0	184	<1.0	<1.0	4.61	0.087	0.034	16.7
WP-DS	4/15/2018 13:45	TH0432	8.22	336	0.35	154	<4.0	159	165	148	<1.0	180	<1.0	<1.0	5.2	0.09	0.04	18.7
WP-DS	5/18/2018 12:45	TL6812	8.02	172	22.7	92	89.8	100	86.8	76.0	<1.0	92.7	<1.0	<1.0	1.25	0.050	0.17	7.2
WP-DS	6/10/2018 11:30	TQ0005	8.05	167	2.98	108	13.3	88.3	88.7	82.2	<1.0	100	<1.0	<1.0	<1.0	0.056	<0.010	7.1
WP-DS	7/8/2018 17:20	TV1579	8.09	209	2.51	128	6.3	105	107	97.6	<1.0	119	<1.0	<1.0	1.58	0.058	0.013	8.4
WP-DS	8/11/2018 9:55	UB4073	7.97	293	0.34	138	4.5	146	145	138	<1.0	169	<1.0	<1.0	2.72	0.084	0.015	14.3
WP-DS	9/23/2018 10:05	UK0548	8.12	310	0.31	350	<4.0	159	159	145	<1.0	177	<1.0	<1.0	3.23	0.090	0.019	15.2
WP-DS	10/28/2018 10:25	UQ8566	8.16	296	0.15	204	<4.0	145	155	141	<1.0	172	<1.0	<1.0	3.33	0.089	0.019	15.2
WP-DS	11/13/2018 13:49	UT6555	8.19	309	0.34	166	<4.0	151	157	139	<1.0	170	<1.0	<1.0	4.36	0.084	0.031	15.3
WP-DS	12/19/2018 14:10	UZ8201	8.28	321	0.33	170	<4.0	165	159	145	<1.0	177	<1.0	<1.0	4.59	0.086	0.021	16.7
WP-SP	5/18/2018 11:30	TL6813	8.08	414	4.09	244	<4.0	244	263	206	<1.0	252	<1.0	<1.0	0.60	0.075	<0.010	9.2
WP-SP	6/10/2018 11:00	TQ0006	7.97	351	8.98	238	41.3	168	158	67.7	<1.0	82.6	<1.0	<1.0	6.2	0.450	0.043	108
WP-SP	7/8/2018 15:29	TV1577	7.92	288	75.2	208	35.0	145	145	63.5	<1.0	77.5	<1.0	<1.0	3.56	0.430	0.019	76.5
WP-US	4/15/2018 14:00	TH0431	8.11	336	0.25	156	<4.0	161	164	145	<1.0	177	<1.0	<1.0	5.67	0.087	0.044	18.5
WP-US	5/18/2018 12:15	TL6811	7.94	171	55.0	100	170	96.4	84.8	72.3	<1.0	88.2	<1.0	<1.0	1.07	0.053	<0.010	7.7
WP-US	6/10/2018 12:00	TQ0004	8.07	164	2.31	102	12.5	82.4	87.9	79.7	<1.0	97.2	<1.0	<1.0	<1.0	0.055	<0.010	7.1
WP-US	7/8/2018 16:44	TV1578	8.09	204	2.17	128	5.8	102	106	95.3	<1.0	116	<1.0	<1.0	2.20	0.056	<0.010	9.4
WP-US	8/11/2018 12:30	UB4074	8.05	290	0.31	144	<4.0	139	140	138	<1.0	168	<1.0	<1.0	2.89	0.077	0.017	14.1
WP-US	9/23/2018 10:15	UK0549	8.11	308	0.22	180	<4.0	147	154	142	<1.0	173	<1.0	<1.0	3.35	0.082	0.018	17.3
WP-US	10/28/2018 10:45	UQ8565	8.15	292	0.24	182	<4.0	143	153	138	<1.0	169	<1.0	<1.0	3.67	0.084	0.019	15.2
WP-US	11/12/2018 13:12	UT6554	8.21	314	0.24	158	<4.0	158	157	146	<1.0	178	<1.0	<1.0	4.03	0.092	0.025	16.2
WP-US	12/19/2018 13:50	UZ8200	8.23	318	0.34	172	<4.0	156	163	142	<1.0	174	<1.0	<1.0	4.51	0.084	0.015	16.3

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	12/12/2018 9:00	UY3859	0.45	0.188	0.584	0.771	0.0090	1.0	0.71	0.179	0.00139	0.00284	0.0409	<0.0001	<0.001	0.171	<0.00001	25.9	0.0039	0.00034	0.00108
RSEM-R6W-SP	12/13/2018 15:50	UY7666	0.40	0.216	0.651	0.867	<0.0050	0.90	1.1	0.171	0.00153	0.00346	0.0511	<0.0001	<0.001	0.184	<0.00001	31.1	0.0042	0.0004	0.00143
RSEM-R6W-SP	12/14/2018 10:05	UY7659	0.48	0.229	0.678	0.907	0.0050	2.5	2.3	0.184	0.00165	0.00357	0.0531	<0.0001	<0.001	0.205	<0.00001	31.6	0.0044	0.00044	0.00142
RSEM-R6W-SP	12/15/2018 15:25	UZ0620	0.45	0.246	0.619	0.865	<0.0050	2.2	1.9	0.13	0.00163	0.00352	0.0531	<0.0001	<0.001	0.207	<0.00001	29.6	0.004	0.00036	0.00125
RSEM-R6W-SP	12/16/2018 9:00	UZ0622	0.51	0.264	0.712	0.977	<0.0050	1.8	1.9	0.124	0.00176	0.00388	0.0564	<0.0001	<0.001	0.229	<0.00001	32.5	0.0043	0.00038	0.00138
RSEM-R6W-SP	12/17/2018 14:20	UZ1471	0.46	0.296	0.731	1.03	<0.0050	2.1	1.9	0.128	0.00196	0.00427	0.0603	<0.0001	<0.001	0.236	<0.00001	33.8	0.0049	0.00041	0.00151
RSEM-R6W-SP	12/18/2018 12:00	UZ3635	0.55	0.311	0.748	1.06	0.0056	1.7	2.5	0.116	0.00208	0.00453	0.066	<0.0001	<0.001	0.272	<0.00001	38.8	0.0057	0.00047	0.00181
RSEM-R6W-SP	12/19/2018 7:00	UZ3481	0.62	0.331	0.764	1.10	0.0054	2.8	3.0	0.168	0.00215	0.00498	0.0705	<0.0001	<0.001	0.253	0.000019	36.3	0.0055	0.00049	0.00178
RSEM-R6W-SP	12/20/2018 14:43	UZ8198	0.69	0.356	0.796	1.15	<0.0050	2.7	2.4	0.389	0.00247	0.00556	0.0825	<0.0001	<0.001	0.317	0.000017	38.7	0.0064	0.0006	0.00196
RSEM-R6W-SP	12/21/2018 10:15	UZ8194	0.75	0.357	0.801	1.16	0.0065	2.6	2.1	0.284	0.00249	0.00547	0.0797	<0.0001	<0.001	0.303	0.000013	35.0	0.0063	0.00058	0.0019
RSEM-R6W-SP	12/22/2018 8:27	UZ8832	0.76	0.359	0.762	1.12	0.0172	2.2	2.3	0.243	0.0026	0.00581	0.0818	<0.0001	<0.001	0.276	0.000034	35.7	0.0057	0.00055	0.00212
RSEM-R6W-SP	12/23/2018 10:30	UZ8805	0.48	0.351	0.754	1.11	0.0111	2.4	2.2	0.598	0.00255	0.00604	0.0858	<0.0001	<0.001	0.316	0.00002	36.8	0.0063	0.00069	0.00279
RSEM-R6W-SP	12/24/2018 12:40	UZ9930	0.63	0.356	0.734	1.09	0.0119	2.1	2.8	0.512	0.00268	0.00604	0.0889	<0.0001	<0.001	0.332	0.00002	36.6	0.0064	0.00069	0.00236
RSEM-R6W-SP	12/25/2018 11:15	UZ9976	0.66	0.351	0.701	1.05	0.0154	2.5	2.7	0.72	0.00264	0.00643	0.0876	<0.0001	<0.001	0.322	0.000023	34.4	0.0062	0.0007	0.00308
RSEM-R6W-SP	12/26/2018 10:05	UZ9923	0.57	0.343	0.704	1.05	0.0139	1.8	2.3	0.636	0.0027	0.0064	0.0906	<0.0001	<0.001	0.339	0.00002	35.6	0.0061	0.00071	0.00244
RSEM-R6W-SP	12/27/2018 12:55	VA2809	0.68	0.316	0.685	1.00	0.0177	2.7	2.9	0.781	0.00268	0.00643	0.0908	<0.0001	<0.001	0.306	0.000044	32.8	0.0058	0.00071	0.00265
RSEM-R6W-SP	12/28/2018 14:50	VA3067	0.63	0.316	0.704	1.02	0.0140	2.5	2.7	0.685	0.00285	0.00669	0.0943	<0.0001	<0.001	0.34	0.000022	31.6	0.0059	0.0008	0.00295
RSEM-R6W-SP	12/29/2018 11:15	VA3062	0.68	0.310	0.692	1.00	0.0199	-	2.5	0.501	0.0028	0.00672	0.092	<0.0001	<0.001	0.371	0.000026	32.2	0.0053	0.00073	0.00241
RSEM-R6W-SP	12/30/2018 10:45	VA3021	0.67	0.292	0.662	0.953	0.0202	2.0	2.2	0.896	0.00263	0.00653	0.0889	<0.0001	<0.001	0.339	0.000034	29.9	0.0053	0.00075	0.00256
RSEM-R6W-SP	12/31/2018 12:00	VA5853	0.69	0.284	0.636	0.920	0.0216	2.4	2.1	0.344	0.00256	0.00598	0.0777	<0.0001	<0.001	0.325	<0.00001	29.2	0.0046	0.00059	0.00287
TRIAL DOME	7/1/2018 0:00	TU0441	0.14	0.0146	0.765	0.780	<0.0050	1.28	0.92	0.451	<0.0005	0.00029	0.173	0.0003	<0.001	0.162	0.00374	139	<0.001	0.0505	0.0256
TRIAL DOME	8/15/2018 18:15	UC2157	<0.020	0.0051	0.126	0.132	<0.0050	2.41	1.34	0.202	0.0005	0.00029	0.142	<0.0001	<0.001	0.1	0.000857	130	<0.001	0.016	0.00634
TRIAL DOME	9/1/2018 3:00	UF6666	<0.020	<0.0050	0.248	0.248	<0.0050	2.66	1.58	0.129	<0.0005	0.00025	0.142	<0.0001	<0.001	0.095	0.000504	141	<0.001	0.00852	0.00486
TRIAL DOME	9/13/2018 11:40	UH7731	0.022	<0.0050	0.145	0.145	0.0063	1.7	1.4	0.106	<0.0005	0.00025	0.148	<0.0001	<0.001	0.08	0.000302	120	<0.001	0.00423	0.00251
TRIAL DOME	9/19/2018 8:35	UJ0530	<0.020	<0.0050	0.156	0.156	<0.0050	2.3	1.9	0.0779	<0.0005	0.00026	0.158	<0.0001	<0.001	0.072	0.000245	120	<0.001	0.00328	0.00216
TRIAL DOME	9/25/2018 10:10	UK2334	0.027	<0.0050	0.564	0.564	<0.0050	2.17	2.20	0.277	<0.0005	0.00041	0.174	<0.0001	<0.001	<0.05	0.000132	123	0.0014	0.00134	0.00197
TRIAL DOME	10/16/2018 14:50	UO9193	0.13	0.0069	0.613	0.620	<0.0050	0.94	0.99	0.0874	<0.0005	0.00038	0.172	<0.0001	<0.001	0.101	0.00007	120	<0.001	0.00139	0.00118
WP-DS	3/16/2018 13:00	TD1266	<0.020	<0.0050	0.113	0.113	<0.0050	<0.50	<0.50	0.006	<0.0005	<0.0001	0.0706	<0.0001	<0.001	0.051	0.000013	46.3	<0.001	<0.0002	<0.0005
WP-DS	4/15/2018 13:45	TH0432	<0.020	<0.0050	0.114	0.114	<0.0050	<0.50	<0.50	0.0043	<0.0005	<0.0001	0.0751	<0.0001	<0.001	<0.05	0.000013	48	<0.001	<0.0002	<0.0005
WP-DS	5/18/2018 12:45	TL6812	<0.020	<0.0050	0.093	0.093	0.0084	3.59	2.29	1.5	<0.0005	0.00128	0.0538	<0.0001	<0.001	<0.05	0.000151	30.9	0.0025	0.00135	0.00271
WP-DS	6/10/2018 11:30	TQ0005	<0.020	<0.0050	0.026	0.026	0.0034	4.04	2.00	0.195	<0.0005	0.00028	0.0316	<0.0001	<0.001	<0.05	0.00003	26.6	<0.001	<0.0002	0.00082
WP-DS	7/8/2018 17:20	TV1579	<0.020	<0.0050	0.028	0.028	<0.0050	-	-	0.1	<0.0005	0.00019	0.0394	<0.0001	<0.001	<0.05	0.000024	32.4	<0.001	<0.0002	<0.0005
WP-DS	8/11/2018 9:55	UB4073	<0.020	<0.0050	0.065	0.065	<0.0050	0.78	0.55	0.026	<0.0005	0.00016	0.0628	<0.0001	<0.001	<0.05	0.000023	44.1	<0.001	<0.0002	<0.0005
WP-DS	9/23/2018 10:05	UK0548	<0.020	<0.0050	0.051	0.051	0.0065	0.89	<0.50	0.0072	<0.0005	0.00013	0.0659	<0.0001	<0.001	<0.05	0.000014	48.2	<0.001	<0.0002	<0.0005
WP-DS	10/28/2018 10:25	UQ8566	<0.020	<0.0050	0.077	0.077	<0.0050	<0.50	<0.50	0.0069	<0.0005	0.00011	0.0602	<0.0001	<0.001	<0.05	0.00002	42.4	<0.001	<0.0002	<0.0005
WP-DS	11/13/2018 13:49	UT6555	<0.020	<0.0050	0.089	0.089	<0.0050	<0.50	0.78	0.005	<0.0005	<0.0001	0.0562	<0.0001	<0.001	<0.05	0.000011	44.8	<0.001	<0.0002	<0.0005
WP-DS	12/19/2018 14:10	UZ8201	0.070	<0.0050	0.124	0.124	<0.0050	6.0	<0.50	0.0054	<0.0005	<0.0001	0.0659	<0.0001	<0.001	<0.05	0.000011	49.7	<0.001	<0.0002	<0.0005
WP-SP	5/18/2018 11:30	TL6813	<0.020	<0.0050	0.384	0.384	<0.0050	2.18	<0.50	0.0941	<0.0005	0.00012	0.212	<0.0001	<0.001	<0.05	0.000024	77.3	<0.001	<0.0002	0.0007
WP-SP	6/10/2018 11:00	TQ0006	<0.020	0.0181	0.655	0.673	0.0049	2.84	2.05	0.966	0.0016	0.00102	0.134	<0.0001	<0.001	<0.05	0.000147	53.2	0.0027	0.00167	0.00437
WP-SP	7/8/2018 15:29	TV1577	<0.020	0.0386	0.393	0.431	<0.0050	-	-	3.08	<0.0005	0.00105	0.122	<0.0001	<0.001	<0.05	0.000077	47.0	0.0055	0.00094	0.00235
WP-US	4/15/2018 14:00	TH0431	<0.020	<0.0050	0.077	0.077	<0.0050	<0.50	<0.50	0.0047	<0.0005	<0.0001	0.0655	<0.0001	<0.001	0.051	0.000012	48.6	<0.001	<0.0002	<0.0005
WP-US	5/18/2018 12:15	TL6811	<0.020	0.0059	0.097	0.102	<0.0050	4.25	1.71	1.25	<0.0005	0.00107	0.0523	<0.0001	<0.001	<0.05	0.000119	29.4	0.0021	0.00125	0.00251
WP-US	6/10/2018 12:00	TQ0004	<0.020	<0.0050	0.104	0.104	0.0035	2.44	1.84	0.222	<0.0005	0.00031	0.029	<0.0001	<0.001	<0.05	0.000029	25.2	<0.001	<0.0002	0.00068
WP-US	7/8/2018 16:44	TV1578	<0.020	<0.0050	0.025	0.025	<0.0050	-	-	0.0864	<0.0005	0.0002	0.0368	<0.0001	<0.001	<0.05	0.000024	31.4	<0.001	<0.0002	0.00051
WP-US	8/11/2018 12:30	UB4074	<0.020	<0.0050	0.061	0.061	<0.0050	1.14	<0.50	0.013	<0.0005	0.00013	0.0546	<0.0001	<0.001	<0.05	0.00002	41.9	<0.001	<0.0002	<0.0005
WP-US	9/23/2018 10:15	UK0549	<0.020	<0.0050	0.051	0.051	0.0262	1.39	<0.50	<0.003	<0.0005	0.0001	0.0575	<0.0001	<0.001	<0.05	0.000014	44.0	<0.001	<0.0002	<0.0005
WP-US	10/28/2018 10:45	UQ8565	<0.020	<0.0050	0.072	0.072	<0.0050	0.65	<0.50	0.005	<0.0005	<0.0001	0.0572	<0.0001	<0.001	<0.05	0.00002	41.2	<0.001	<0.0002	<0.0005
WP-US	11/12/2018 13:12	UT6554	<0.020	<0.0050	0.088	0.088	<0.0050	<0.50	<0.50	0.0034	<0.0005	0.0001	0.0663	<0.0001	<0.001	<0.05	0.000012	47.1	<0.001	<0.0002	<0.0005
WP-US	12/19/2018 13:50	UZ8200	<0.020	<0.0050	0.120	0.120	<0.0050	<0.50	<0.50	0.0063	<0.0005	0.0001	0.0594	<0.0001	<0.001	<0.05	0.000013	46.0	<0.001	<0.0002	<0.0005

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni	T-P	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	12/12/2018 9:00	UY3859	0.035	<0.0002	0.0247	15.2	0.046	<0.000002	0.0261	0.0019	-	5.62	0.00383	3.54	<0.00002	163	0.168	77.1	<0.00001	<0.005	<0.005	0.00149
RSEM-R6W-SP	12/13/2018 15:50	UY7666	0.045	<0.0002	0.0265	16.9	0.0534	<0.000002	0.0295	0.0022	-	5.76	0.00462	3.88	<0.00002	180	0.194	85.3	<0.00001	<0.005	<0.005	0.00179
RSEM-R6W-SP	12/14/2018 10:05	UY7659	0.05	<0.0002	0.0313	17.6	0.0562	<0.000002	0.0314	0.0023	-	5.81	0.00475	4.19	<0.00002	189	0.205	87.9	<0.00001	<0.005	<0.005	0.00194
RSEM-R6W-SP	12/15/2018 15:25	UZ0620	0.022	<0.0002	0.0315	16.3	0.0477	<0.000002	0.0325	0.002	-	5.92	0.00466	3.99	<0.00002	198	0.183	83.7	0.00001	<0.005	<0.005	0.00182
RSEM-R6W-SP	12/16/2018 9:00	UZ0622	0.022	<0.0002	0.0342	17.4	0.0506	<0.000002	0.0356	0.0021	-	6.30	0.00516	4.38	<0.00002	215	0.205	90.9	0.000012	<0.005	<0.005	0.00197
RSEM-R6W-SP	12/17/2018 14:20	UZ1471	0.018	<0.0002	0.035	19.0	0.0542	<0.000002	0.0388	0.0022	-	6.83	0.00546	4.58	<0.00002	231	0.224	99.8	0.00001	<0.005	<0.005	0.00215
RSEM-R6W-SP	12/18/2018 12:00	UZ3635	0.027	<0.0002	0.0368	19.2	0.0575	<0.000002	0.0406	0.0027	-	7.70	0.00644	5.23	<0.00002	242	0.223	102	0.000012	<0.005	<0.005	0.0022
RSEM-R6W-SP	12/19/2018 7:00	UZ3481	0.053	<0.0002	0.0373	19.0	0.058	<0.000002	0.0448	0.0026	-	7.32	0.00628	5.08	<0.00002	244	0.255	104	<0.00001	<0.005	<0.005	0.00241
RSEM-R6W-SP	12/20/2018 14:43	UZ8198	0.209	<0.0002	0.045	19.1	0.0586	<0.000002	0.0484	0.003	-	7.56	0.00688	6.21	<0.00002	281	0.232	111	0.000016	<0.005	0.0059	0.00268
RSEM-R6W-SP	12/21/2018 10:15	UZ8194	0.165	<0.0002	0.0431	19.2	0.0565	<0.000002	0.0471	0.003	-	7.83	0.0064	5.46	<0.00002	283	0.224	112	0.000014	<0.005	<0.005	0.00259
RSEM-R6W-SP	12/22/2018 8:27	UZ8832	0.211	<0.0002	0.0386	17.8	0.0548	<0.000002	0.0501	0.0028	-	7.34	0.00699	5.56	<0.00002	261	0.243	111	0.000013	<0.005	<0.005	0.00277
RSEM-R6W-SP	12/23/2018 10:30	UZ8805	0.428	0.00029	0.0465	18.1	0.0554	<0.000002	0.0492	0.003	-	7.86	0.0069	6.7	<0.00002	280	0.226	114	0.000019	<0.005	0.0097	0.00272
RSEM-R6W-SP	12/24/2018 12:40	UZ9930	0.392	0.00028	0.0475	18.4	0.0552	<0.000002	0.0503	0.003	-	8.21	0.00696	6.73	<0.00002	289	0.227	118	0.000019	<0.005	0.0067	0.0027
RSEM-R6W-SP	12/25/2018 11:15	UZ9976	0.526	0.00037	0.0469	17.3	0.0528	<0.000002	0.0496	0.0032	-	7.97	0.00666	6.65	<0.00002	287	0.225	112	0.000022	<0.005	0.0152	0.00278
RSEM-R6W-SP	12/26/2018 10:05	UZ9923	0.345	0.00033	0.0479	17.4	0.0527	0.0000021	0.0517	0.0031	-	8.25	0.00684	6.51	<0.00002	298	0.227	119	0.000019	<0.005	0.0094	0.00284
RSEM-R6W-SP	12/27/2018 12:55	VA2809	0.598	0.00043	0.0431	16.0	0.0501	<0.000002	0.0499	0.0032	-	7.38	0.0066	6.35	<0.00002	265	0.236	108	0.00002	<0.005	0.0138	0.00284
RSEM-R6W-SP	12/28/2018 14:50	VA3067	0.677	0.00052	0.0475	16.8	0.0518	0.0000032	0.0517	0.0034	-	7.44	0.00688	6.47	<0.00002	289	0.246	112	0.000023	<0.005	0.0096	0.00311
RSEM-R6W-SP	12/29/2018 11:15	VA3062	0.399	0.00043	0.0507	16.5	0.0481	0.0000037	0.0499	0.0031	-	7.53	0.00631	6.3	<0.00002	283	0.244	113	0.000017	<0.005	0.0052	0.00297
RSEM-R6W-SP	12/30/2018 10:45	VA3021	0.667	0.00053	0.0476	15.4	0.0448	<0.000002	0.0481	0.0032	-	7.17	0.00603	6.47	<0.00002	271	0.229	105	0.000023	<0.005	0.013	0.00288
RSEM-R6W-SP	12/31/2018 12:00	VA5853	0.167	0.00031	0.0439	14.5	0.0389	0.000004	0.0436	0.0026	-	7.02	0.00578	5.21	<0.00002	274	0.19	106	0.000011	<0.005	<0.005	0.00263
TRIAL DOME	7/1/2018 0:00	TU0441	0.77	<0.0002	0.0588	43.4	0.546	<0.000002	0.0027	0.178	-	3.76	0.00249	5.81	<0.00002	25.7	0.469	115	0.000036	<0.005	<0.005	0.00362
TRIAL DOME	8/15/2018 18:15	UC2157	0.796	<0.0002	0.041	34.7	0.233	<0.000002	0.0026	0.0659	-	3.46	0.00157	5.24	<0.00002	19.9	0.361	92.9	0.000023	<0.005	<0.005	0.00234
TRIAL DOME	9/1/2018 3:00	UF6666	1	<0.0002	0.0383	34.9	0.132	<0.000002	0.0024	0.0476	-	3.39	0.00123	4.96	<0.00002	19.8	0.365	81.1	0.000022	<0.005	<0.005	0.00207
TRIAL DOME	9/13/2018 11:40	UH7731	0.722	<0.0002	0.0311	30.3	0.0701	0.0000025	0.0022	0.0341	-	3.07	0.00117	4.54	<0.00002	17.7	0.332	65.8	0.000015	<0.005	<0.005	0.0018
TRIAL DOME	9/19/2018 8:35	UJ0530	0.653	<0.0002	0.028	29.6	0.0551	0.0000022	0.0023	0.0311	-	3.12	0.00121	4.5	<0.00002	17.8	0.336	64.5	0.00001	<0.005	<0.005	0.00183
TRIAL DOME	9/25/2018 10:10	UK2334	0.791	0.00035	0.016	27.5	0.0524	<0.000002	0.0024	0.0122	-	3.19	0.00117	5.29	<0.00002	14.6	0.33	34.9	0.000016	<0.005	0.0085	0.00154
TRIAL DOME	10/16/2018 14:50	UO9193	0.45	<0.0002	0.0188	30.0	0.0612	<0.000002	0.0035	0.01	-	2.99	0.00121	4.98	<0.00002	27.7	0.398	35.6	0.000015	<0.005	<0.005	0.0017
WP-DS	3/16/2018 13:00	TD1266	0.027	<0.0002	0.0288	10.1	0.005	-	0.0013	<0.001	-	0.971	0.00055	1.81	<0.00002	4.87	0.266	5.8	<0.00001	<0.005	<0.005	0.00048
WP-DS	4/15/2018 13:45	TH0432	0.019	<0.0002	0.0248	9.61	0.0043	-	0.0013	<0.001	-	1.09	0.00054	1.71	<0.00002	4.88	0.278	5	<0.00001	<0.005	<0.005	0.00052
WP-DS	5/18/2018 12:45	TL6812	3.21	0.00223	0.0086	5.64	0.0916	<0.000002	<0.001	0.0036	-	0.761	0.00032	5.69	<0.00002	1.13	0.13	<3.0	0.000059	<0.005	0.0615	0.00036
WP-DS	6/10/2018 11:30	TQ0005	0.396	0.0003	0.0068	5.31	0.0127	<0.000002	<0.001	<0.001	-	0.455	0.00034	1.55	<0.00002	1.27	0.125	<3.0	0.00001	<0.005	<0.005	0.00025
WP-DS	7/8/2018 17:20	TV1579	0.181	<0.0002	0.0097	5.76	0.0079	<0.000002	0.0011	<0.001	-	0.506	0.00031	1.64	<0.00002	1.65	0.163	<3.0	<0.00001	<0.005	<0.005	0.00031
WP-DS	8/11/2018 9:55	UB4073	0.084	<0.0002	0.0179	8.67	0.0064	<0.000002	0.0017	<0.001	-	0.837	0.00046	1.85	<0.00002	3.00	0.253	4.5	<0.00001	<0.005	<0.005	0.00045
WP-DS	9/23/2018 10:05	UK0548	0.025	<0.0002	0.0211	9.30	0.0036	0.0000031	0.0015	<0.001	-	1.02	0.00053	1.8	<0.00002	3.79	0.258	5.5	<0.00001	<0.005	<0.005	0.00047
WP-DS	10/28/2018 10:25	UQ8566	0.018	<0.0002	0.0203	9.59	0.0025	0.0000043	0.0014	<0.001	-	0.990	0.00046	1.58	<0.00002	3.89	0.232	5.8	<0.00001	<0.005	<0.005	0.00043
WP-DS	11/13/2018 13:49	UT6555	0.011	<0.0002	0.0233	9.52	0.002	<0.000002	0.0011	<0.001	-	1.05	0.00044	1.55	<0.00002	4.46	0.273	5.5	<0.00001	<0.005	<0.005	0.00044
WP-DS	12/19/2018 14:10	UZ8201	0.013	<0.0002	0.0259	9.98	0.0026	<0.000002	0.0014	<0.001	-	1.14	0.00048	1.83	<0.00002	4.72	0.268	6.5	<0.00001	<0.005	<0.005	0.00047
WP-SP	5/18/2018 11:30	TL6813	0.11	<0.0002	0.0051	12.5	0.0064	<0.000002	0.0035	<0.001	-	0.547	0.00101	2.75	<0.00002	1.04	0.241	3.3	<0.00001	<0.005	<0.005	0.00055
WP-SP	6/10/2018 11:00	TQ0006	1.32	0.0108	0.006	8.51	0.0549	0.0000029	0.0091	0.0055	-	13.7	0.00439	2.41	0.00038	3.79	0.742	34.6	0.000047	<0.005	0.0269	0.00134
WP-SP	7/8/2018 15:29	TV1577	1.71	0.00113	0.0034	6.75	0.0381	<0.000002	0.0076	0.0046	-	2.33	0.00549	7.58	0.000027	1.59	0.79	22.9	0.000081	<0.005	0.0838	0.00121
WP-US	4/15/2018 14:00	TH0431	0.015	<0.0002	0.0263	9.63	0.0029	-	0.0011	<0.001	-	1.19	0.00045	1.79	<0.00002	4.98	0.28	5.4	<0.00001	<0.005	<0.005	0.00049
WP-US	5/18/2018 12:15	TL6811	2.54	0.00186	0.0075	5.56	0.0767	<0.000002	<0.001	0.0031	-	0.855	0.00031	3.17	<0.00002	1.16	0.123	3.0	0.000046	<0.005	0.0567	0.00031
WP-US	6/10/2018 12:00	TQ0004	0.448	0.00031	0.0066	4.73	0.0129	<0.000002	<0.001	<0.001	-	0.414	0.0003	1.51	<0.00002	1.16	0.121	<3.0	<0.00001	<0.005	<0.005	0.00025
WP-US	7/8/2018 16:44	TV1578	0.156	<0.0002	0.01	5.74	0.0073	<0.000002	0.001	<0.001	-	0.524	0.00029	1.62	<0.00002	1.61	0.159	<3.0	<0.00001	<0.005	<0.005	0.0003
WP-US	8/11/2018 12:30	UB4074	0.029	<0.0002	0.0186	8.46	0.0042	<0.000002	0.0014	<0.001	-	0.860	0.00038	1.76	<0.00002	3.07	0.236	4.6	<0.00001	<0.005	<0.005	0.00043
WP-US	9/23/2018 10:15	UK0549	0.01	<0.0002	0.0228	8.93	0.0022	0.0000036	0.0012	<0.001	-	1.04	0.00039	1.66	<0.00002	3.88	0.25	5.6	<0.00001	<0.005	<0.005	0.00044
WP-US	10/28/2018 10:45	UQ8565	0.016	<0.0002	0.0222	9.62	0.0019	0.0000035	0.0012	<0.001	-	1.03	0.0005	1.56	<0.00002	4.01	0.234	5.7	<0.00001	<0.005	<0.005	0.00041
WP-US	11/12/2018 13:12	UT6554	0.011	<0.0002	0.0218	9.86	0.0032	<0.000002	0.0014	<0.001	-	1.03	0.00048	1.57	<0.00002	4.38	0.287	5.8	<0.00001	<0.005	<0.005	0.00048
WP-US	12/19/2018 13:50	UZ8200	0.014	<0.0002	0.0268	10.0	0.0022	<0.000002	0.0012	<0.001	-	1.21	0.00046	1.69	<0.00002	4.91	0.267	6.5	<0.00001	<0.005	<0.005	0.00045

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	12/12/2018 9:00	UY3859	0.0051	0.0197	<0.0001	0.108	0.00133	0.00293	0.0385	<0.0001	<0.001	0.17	<0.00001	25.4	0.0038	0.0003	0.00126	<0.01	<0.0002	0.0242	14.9	0.0441
RSEM-R6W-SP	12/13/2018 15:50	UY7666	0.0058	0.046	<0.0001	0.113	0.00154	0.00319	0.0466	<0.0001	<0.001	0.208	<0.00001	30.9	0.0041	0.00037	0.00126	<0.01	<0.0002	0.0289	17.2	0.0477
RSEM-R6W-SP	12/14/2018 10:05	UY7659	0.0062	0.0583	0.0001	0.122	0.00167	0.00366	0.0513	<0.0001	<0.001	0.222	<0.00001	31.6	0.0041	0.00039	0.00174	<0.01	<0.0002	0.0324	18.2	0.053
RSEM-R6W-SP	12/15/2018 15:25	UZ0620	0.0063	0.0388	<0.0001	0.0909	0.00166	0.00376	0.0523	<0.0001	<0.001	0.205	<0.00001	28.9	0.0042	0.00036	0.00121	<0.01	<0.0002	0.0296	15.7	0.0479
RSEM-R6W-SP	12/16/2018 9:00	UZ0622	0.0069	0.0708	<0.0001	0.0876	0.00177	0.00395	0.0548	<0.0001	<0.001	0.22	<0.00001	30.3	0.0044	0.00038	0.00127	<0.01	<0.0002	0.0315	16.4	0.0496
RSEM-R6W-SP	12/17/2018 14:20	UZ1471	0.0075	0.077	<0.0001	0.0817	0.00193	0.00437	0.0599	<0.0001	<0.001	0.233	<0.00001	33.0	0.0049	0.00043	0.00169	<0.01	<0.0002	0.0337	17.9	0.0536
RSEM-R6W-SP	12/18/2018 12:00	UZ3635	0.0081	0.0736	<0.0001	0.0815	0.00203	0.00457	0.0631	<0.0001	<0.001	0.24	0.00002	34.7	0.005	0.00044	0.00206	<0.01	<0.0002	0.0355	18.4	0.0544
RSEM-R6W-SP	12/19/2018 7:00	UZ3481	0.0084	0.0486	0.00011	0.0751	0.0022	0.00507	0.069	<0.0001	<0.001	0.252	0.000025	36.4	0.0055	0.00046	0.0018	<0.01	<0.0002	0.037	19.1	0.0562
RSEM-R6W-SP	12/20/2018 14:43	UZ8198	0.0107	<0.005	0.00023	0.08	0.00242	0.00532	0.0748	<0.0001	<0.001	0.286	<0.00001	38.9	0.0059	0.00042	0.00159	<0.01	<0.0002	0.0421	18.9	0.0509
RSEM-R6W-SP	12/21/2018 10:15	UZ8194	0.0106	<0.005	0.00012	0.0905	0.00244	0.00547	0.0728	<0.0001	<0.001	0.305	<0.00001	39.0	0.0058	0.00047	0.00188	<0.01	<0.0002	0.0447	19.5	0.0512
RSEM-R6W-SP	12/22/2018 8:27	UZ8832	0.0099	0.0415	0.00017	0.0895	0.00246	0.00553	0.073	<0.0001	<0.001	0.33	<0.00001	38.7	0.0056	0.0004	0.00166	<0.01	<0.0002	0.0443	18.2	0.0485
RSEM-R6W-SP	12/23/2018 10:30	UZ8805	0.0109	0.0276	0.0003	0.109	0.00247	0.00565	0.0728	<0.0001	<0.001	0.317	<0.00001	37.6	0.0057	0.00044	0.00189	<0.01	<0.0002	0.0445	17.9	0.0458
RSEM-R6W-SP	12/24/2018 12:40	UZ9930	0.0109	0.013	0.0002	0.126	0.00277	0.00588	0.0781	<0.0001	<0.001	0.358	<0.00001	38.2	0.0058	0.00043	0.00175	<0.01	<0.0002	0.0481	18.7	0.0449
RSEM-R6W-SP	12/25/2018 11:15	UZ9976	0.0118	0.0231	0.00064	0.149	0.00273	0.0062	0.0759	<0.0001	<0.001	0.355	<0.00001	35.0	0.0055	0.00041	0.00181	<0.01	<0.0002	0.0496	18.1	0.0406
RSEM-R6W-SP	12/26/2018 10:05	UZ9923	0.0116	0.0074	0.0005	0.158	0.00279	0.00595	0.0775	<0.0001	<0.001	0.343	<0.00001	38.2	0.0056	0.00042	0.00165	<0.01	<0.0002	0.049	17.6	0.0395
RSEM-R6W-SP	12/27/2018 12:55	VA2809	0.0115	0.0094	0.00055	0.167	0.00268	0.00608	0.0732	<0.0001	<0.001	0.338	<0.00001	35.3	0.0051	0.00035	0.00165	<0.01	<0.0002	0.0473	16.4	0.0316
RSEM-R6W-SP	12/28/2018 14:50	VA3067	0.012	0.006	0.00036	0.171	0.00274	0.00597	0.0741	<0.0001	<0.001	0.328	<0.00001	31.3	0.0049	0.00034	0.00148	<0.01	<0.0002	0.0461	16.8	0.0319
RSEM-R6W-SP	12/29/2018 11:15	VA3062	0.0108	0.0149	0.00027	0.183	0.00283	0.00617	0.0746	<0.0001	<0.001	0.319	<0.00001	31.3	0.0048	0.00034	0.00171	<0.01	<0.0002	0.0465	16.4	0.031
RSEM-R6W-SP	12/30/2018 10:45	VA3021	0.0111	0.0163	0.00048	0.196	0.00276	0.00599	0.0731	<0.0001	<0.001	0.32	<0.00001	30.1	0.0046	0.00032	0.0015	<0.01	<0.0002	0.0447	15.9	0.0286
RSEM-R6W-SP	12/31/2018 12:00	VA5853	0.0097	0.0135	0.00017	0.183	0.00262	0.0059	0.0681	<0.0001	<0.001	0.326	<0.00001	29.7	0.0044	0.0003	0.00121	<0.01	<0.0002	0.0445	14.7	0.0238
TRIAL DOME	7/1/2018 0:00	TU0441	<0.005	0.615	<0.0001	0.0464	<0.0005	0.00015	0.174	<0.0001	<0.001	0.154	0.00353	138	<0.001	0.0499	0.0106	<0.01	<0.0002	0.0584	43.1	0.546
TRIAL DOME	8/15/2018 18:15	UC2157	<0.005	0.13	<0.0001	0.0606	<0.0005	0.00021	0.14	<0.0001	<0.001	0.094	0.000645	126	<0.001	0.0152	0.00294	0.012	<0.0002	0.0398	33.8	0.226
TRIAL DOME	9/1/2018 3:00	UF6666	<0.005	0.0808	<0.0001	0.0341	<0.0005	0.0002	0.148	<0.0001	<0.001	0.094	0.000329	127	<0.001	0.00674	0.00155	0.03	<0.0002	0.036	31.0	0.0891
TRIAL DOME	9/13/2018 11:40	UH7731	<0.005	0.0505	<0.0001	0.0166	<0.0005	0.0002	0.149	<0.0001	<0.001	0.077	0.000205	127	<0.001	0.00246	0.00117	0.02	<0.0002	0.0307	30.7	0.03
TRIAL DOME	9/19/2018 8:35	UJ0530	<0.005	0.0434	<0.0001	0.0113	<0.0005	0.00019	0.149	<0.0001	<0.001	0.075	0.000166	116	<0.001	0.00142	0.00116	0.017	<0.0002	0.0301	29.0	0.0148
TRIAL DOME	9/25/2018 10:10	UK2334	<0.005	0.0233	0.00029	0.0103	<0.0005	0.00019	0.153	<0.0001	<0.001	<0.05	0.000068	115	<0.001	0.00074	0.001	<0.01	<0.0002	0.0162	27.4	0.0283
TRIAL DOME	10/16/2018 14:50	UO9193	<0.005	0.0102	<0.0001	0.0063	<0.0005	0.00019	0.16	<0.0001	<0.001	0.093	0.000013	113	<0.001	0.00117	0.00061	<0.01	<0.0002	0.0149	29.6	0.0446
WP-DS	3/16/2018 13:00	TD1266	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	0.0701	<0.0001	<0.001	<0.05	<0.00001	48.4	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0245	9.79	0.0044
WP-DS	4/15/2018 13:45	TH0432	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	0.0726	<0.0001	<0.001	<0.05	0.000013	49.6	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0234	10.1	0.0034
WP-DS	5/18/2018 12:45	TL6812	0.006	0.0132	0.00053	0.0195	<0.0005	0.00015	0.0306	<0.0001	<0.001	<0.05	0.000019	27.3	<0.001	<0.0002	0.00062	0.026	<0.0002	0.0045	4.54	<0.001
WP-DS	6/10/2018 11:30	TQ0005	<0.005	<0.005	<0.0001	0.0115	<0.0005	<0.0001	0.0283	<0.0001	<0.001	<0.05	0.000014	27.2	<0.001	<0.0002	0.00051	0.012	<0.0002	0.0058	5.03	0.0026
WP-DS	7/8/2018 17:20	TV1579	<0.005	<0.005	<0.0001	0.0084	<0.0005	0.00011	0.04	<0.0001	<0.001	<0.05	0.000015	33.0	<0.001	<0.0002	<0.0005	0.014	<0.0002	0.0099	5.97	0.0031
WP-DS	8/11/2018 9:55	UB4073	<0.005	<0.005	<0.0001	0.0033	<0.0005	0.00014	0.0611	<0.0001	<0.001	<0.05	0.000013	44.3	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0179	8.31	0.0039
WP-DS	9/23/2018 10:05	UK0548	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00014	0.0686	<0.0001	<0.001	<0.05	0.000011	48.2	<0.001	<0.0002	0.0007	<0.01	<0.0002	0.021	9.24	0.0032
WP-DS	10/28/2018 10:25	UQ8566	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00011	0.0643	<0.0001	<0.001	<0.05	0.000013	47.0	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.022	9.23	0.0019
WP-DS	11/13/2018 13:49	UT6555	<0.005	<0.005	<0.0001	0.0045	<0.0005	<0.0001	0.0597	<0.0001	<0.001	<0.05	0.000011	46.6	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0241	9.84	0.0017
WP-DS	12/19/2018 14:10	UZ8201	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	0.0645	<0.0001	<0.001	<0.05	0.00001	47.9	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0247	9.61	0.0021
WP-SP	5/18/2018 11:30	TL6813	<0.005	<0.005	<0.0001	0.004	<0.0005	<0.0001	0.22	<0.0001	<0.001	<0.05	0.000011	84.3	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0052	12.8	0.0021
WP-SP	6/10/2018 11:00	TQ0006	0.0054	0.073	0.00099	0.033	<0.0005	0.00017	0.0969	<0.0001	<0.001	<0.05	0.000014	49.6	<0.001	0.00044	0.00072	<0.01	<0.0002	<0.002	8.24	0.0027
WP-SP	7/8/2018 15:29	TV1577	0.0136	0.0176	0.00211	0.0208	<0.0005	0.00016	0.0853	<0.0001	<0.001	<0.05	<0.00001	47.6	<0.001	0.00025	<0.0005	<0.01	<0.0002	<0.002	6.29	0.0092
WP-US	4/15/2018 14:00	TH0431	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	0.0647	<0.0001	<0.001	0.051	0.000011	48.4	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0259	10.4	0.0025
WP-US	5/18/2018 12:15	TL6811	<0.005	0.0117	0.0004	0.0193	<0.0005	0.00014	0.0304	<0.0001	<0.001	<0.05	0.000018	26.7	<0.001	<0.0002	0.00062	0.024	<0.0002	0.0044	4.41	0.0012
WP-US	6/10/2018 12:00	TQ0004	<0.005	<0.005	<0.0001	0.0114	<0.0005	0.00011	0.0259	<0.0001	<0.001	<0.05	0.000013	26.8	<0.001	<0.0002	0.00064	0.012	<0.0002	0.006	5.07	0.0026
WP-US	7/8/2018 16:44	TV1578	<0.005	<0.005	<0.0001	0.0094	<0.0005	0.00014	0.0356	<0.0001	<0.001	<0.05	0.000017	32.4	<0.001	<0.0002	0.00053	0.015	<0.0002	0.0096	6.04	0.0029
WP-US	8/11/2018 12:30	UB4074	<0.005	<0.005	<0.0001	0.0033	<0.0005	0.00012	0.0551	<0.0001	<0.001	<0.05	0.000013	42.5	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0184	8.32	0.003
WP-US	9/23/2018 10:15	UK0549	<0.005	<0.005	<0.0001	<0.003	<0.0005	0.00012	0.0604	<0.0001	<0.001	<0.05	0.000013	46.5	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0225	9.24	0.0025
WP-US	10/28/2018 10:45	UQ8565	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	0.0585	<0.0001	<0.001	<0.05	0.000013	45.9	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0233	9.44	0.0015
WP-US	11/12/2018 13:12	UT6554	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	0.0671	<0.0001	<0.001	<0.05	0.000012	46.7	<0.001	<0.0002	<0.0005	<0.01	<0.0002	0.0223	9.74	0.0031
WP-US	12/19/2018 13:50	UZ8200	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	0.0603	<0.0001	<0.001	<0.05	0.00001	48.4	<0.001	<0.0002	<0.0005	0.012	<0.0002	0.0264	10.3	0.0017

Appendix 3-A: 2018 Analytical Water Quality Results

Station-Code	Collect-Date/Time	Sample-No.	D-Hg	D-Mo	D-Ni	D-P	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
RSEM-R6W-SP	12/12/2018 9:00	UY3859	<0.000002	0.0252	0.0017	-	5.31	0.00389	3.36	<0.00002	159	0.162	74.2	<0.00001	<0.005	<0.005	0.00146	<0.005	0.015	<0.0001
RSEM-R6W-SP	12/13/2018 15:50	UY7666	<0.000002	0.0283	0.002	-	5.86	0.00451	4.03	<0.00002	188	0.171	87.5	<0.00001	<0.005	<0.005	0.00178	0.0056	0.0432	<0.0001
RSEM-R6W-SP	12/14/2018 10:05	UY7659	<0.000002	0.0317	0.0021	-	6.00	0.00504	4.23	<0.00002	185	0.209	89.2	<0.00001	<0.005	<0.005	0.00203	0.0058	0.0454	<0.0001
RSEM-R6W-SP	12/15/2018 15:25	UZ0620	<0.000002	0.0332	0.0019	-	5.94	0.00513	3.94	<0.00002	187	0.197	85.3	<0.00001	<0.005	<0.005	0.00187	0.0061	0.0466	<0.0001
RSEM-R6W-SP	12/16/2018 9:00	UZ0622	<0.000002	0.035	0.002	-	6.28	0.00545	4.16	<0.00002	199	0.206	89.6	<0.00001	<0.005	<0.005	0.00193	0.0065	0.0696	<0.0001
RSEM-R6W-SP	12/17/2018 14:20	UZ1471	<0.000002	0.0385	0.0022	-	6.70	0.00596	4.5	<0.00002	220	0.228	95.9	<0.00001	<0.005	<0.005	0.00216	0.0071	0.0825	<0.0001
RSEM-R6W-SP	12/18/2018 12:00	UZ3635	<0.000002	0.0414	0.0023	-	6.87	0.00612	4.65	<0.00002	229	0.241	100	<0.00001	<0.005	<0.005	0.00227	0.0075	0.0734	0.0001
RSEM-R6W-SP	12/19/2018 7:00	UZ3481	<0.000002	0.0487	0.0024	-	7.27	0.00663	5.02	<0.00002	246	0.253	107	<0.00001	<0.005	<0.005	0.00248	0.0084	0.0466	<0.0001
RSEM-R6W-SP	12/20/2018 14:43	UZ8198	<0.000002	0.0456	0.0024	-	7.84	0.00699	5.72	<0.00002	275	0.227	114	0.000011	<0.005	<0.005	0.00269	0.0096	<0.005	<0.0001
RSEM-R6W-SP	12/21/2018 10:15	UZ8194	<0.000002	0.0469	0.0025	-	7.99	0.00724	5.91	<0.00002	293	0.231	115	0.000012	<0.005	<0.005	0.0027	0.0102	<0.005	<0.0001
RSEM-R6W-SP	12/22/2018 8:27	UZ8832	<0.000002	0.0458	0.0025	-	7.84	0.00694	6.07	<0.00002	284	0.224	112	0.000011	<0.005	<0.005	0.00264	0.0097	0.0276	<0.0001
RSEM-R6W-SP	12/23/2018 10:30	UZ8805	<0.000002	0.0469	0.0024	-	7.84	0.00694	5.99	<0.00002	289	0.219	119	0.000012	<0.005	<0.005	0.00269	0.0097	0.0195	<0.0001
RSEM-R6W-SP	12/24/2018 12:40	UZ9930	<0.000002	0.0524	0.0026	-	8.34	0.00727	5.96	<0.00002	304	0.237	116	0.000014	<0.005	<0.005	0.00301	0.0103	0.008	0.0001
RSEM-R6W-SP	12/25/2018 11:15	UZ9976	<0.000002	0.0527	0.0024	-	8.13	0.0072	5.61	<0.00002	303	0.223	117	0.000013	<0.005	<0.005	0.00306	0.0102	0.0139	<0.0001
RSEM-R6W-SP	12/26/2018 10:05	UZ9923	<0.000002	0.0524	0.0024	-	8.24	0.00715	6.06	<0.00002	308	0.228	116	0.000012	<0.005	<0.005	0.0031	0.0108	<0.005	<0.0001
RSEM-R6W-SP	12/27/2018 12:55	VA2809	<0.000002	0.0506	0.0022	-	7.85	0.00681	5.83	<0.00002	286	0.214	110	0.000013	<0.005	<0.005	0.00289	0.0103	<0.005	<0.0001
RSEM-R6W-SP	12/28/2018 14:50	VA3067	<0.000002	0.0512	0.0021	-	7.41	0.00611	5.23	<0.00002	292	0.226	108	0.000011	<0.005	<0.005	0.00284	0.0102	<0.005	0.0001
RSEM-R6W-SP	12/29/2018 11:15	VA3062	<0.000002	0.0516	0.0021	-	7.46	0.00605	5.24	<0.00002	292	0.229	108	0.000012	<0.005	<0.005	0.00288	0.0102	<0.005	<0.0001
RSEM-R6W-SP	12/30/2018 10:45	VA3021	<0.000002	0.0502	0.002	-	7.24	0.00574	5.05	<0.00002	289	0.221	105	<0.00001	<0.005	<0.005	0.00288	0.0103	<0.005	0.0001
RSEM-R6W-SP	12/31/2018 12:00	VA5853	<0.000002	0.0452	0.0018	-	7.21	0.00601	5.1	<0.00002	282	0.189	108	0.00001	<0.005	<0.005	0.00267	0.0098	<0.005	<0.0001
TRIAL DOME	7/1/2018 0:00	TU0441	<0.000002	0.0027	0.176	-	3.84	0.00235	5.68	<0.00002	26.3	0.452	115	0.000034	<0.005	<0.005	0.00315	<0.005	0.558	<0.0001
TRIAL DOME	8/15/2018 18:15	UC2157	<0.000002	0.0026	0.0613	-	3.44	0.00147	4.64	<0.00002	19.6	0.36	90.1	0.000021	<0.005	<0.005	0.00216	<0.005	0.0791	<0.0001
TRIAL DOME	9/1/2018 3:00	UF6666	<0.000002	0.0025	0.045	-	3.23	0.00133	4.56	<0.00002	18.0	0.35	78.2	0.000019	<0.005	<0.005	0.00203	<0.005	0.0451	<0.0001
TRIAL DOME	9/13/2018 11:40	UH7731	0.0000027	0.0024	0.0327	-	3.33	0.00113	4.84	<0.00002	17.9	0.314	74.1	0.000016	<0.005	<0.005	0.00174	<0.005	0.0321	<0.0001
TRIAL DOME	9/19/2018 8:35	UJ0530	<0.000002	0.0022	0.0296	-	2.96	0.00115	4.33	<0.00002	17.3	0.301	62.0	0.000013	<0.005	<0.005	0.00168	<0.005	0.0316	<0.0001
TRIAL DOME	9/25/2018 10:10	UK2334	<0.000002	0.0023	0.0109	-	3.21	0.00121	5.13	<0.00002	15.2	0.3	36.2	0.00001	<0.005	<0.005	0.00152	<0.005	0.0132	<0.0001
TRIAL DOME	10/16/2018 14:50	UO9193	<0.000002	0.0033	0.0092	-	2.94	0.00118	4.28	<0.00002	27.5	0.373	33.9	0.000013	<0.005	<0.005	0.00159	<0.005	<0.005	<0.0001
WP-DS	3/16/2018 13:00	TD1266	-	0.0014	<0.001	-	1.12	0.00056	1.82	<0.00002	4.63	0.269	5.4	<0.00001	<0.005	<0.005	0.00049	<0.005	<0.005	<0.0001
WP-DS	4/15/2018 13:45	TH0432	-	0.0013	<0.001	-	1.06	0.00054	1.75	<0.00002	5.04	0.279	6.1	<0.00001	<0.005	<0.005	0.00048	<0.005	<0.005	<0.0001
WP-DS	5/18/2018 12:45	TL6812	<0.000002	<0.001	<0.001	-	0.357	0.00032	1.45	<0.00002	1.04	0.112	<3.0	<0.00001	<0.005	<0.005	0.00022	<0.005	<0.005	<0.0001
WP-DS	6/10/2018 11:30	TQ0005	<0.000002	0.001	<0.001	-	0.382	0.00029	1.33	<0.00002	1.18	0.129	<3.0	<0.00001	<0.005	<0.005	0.00024	<0.005	<0.005	<0.0001
WP-DS	7/8/2018 17:20	TV1579	<0.000002	0.0011	<0.001	-	0.532	0.00031	1.59	<0.00002	1.71	0.166	<3.0	<0.00001	<0.005	<0.005	0.00031	<0.005	<0.005	<0.0001
WP-DS	8/11/2018 9:55	UB4073	<0.000002	0.0015	<0.001	-	0.791	0.00041	1.74	<0.00002	2.77	0.247	4.0	<0.00001	<0.005	<0.005	0.00045	<0.005	<0.005	<0.0001
WP-DS	9/23/2018 10:05	UK0548	<0.000002	0.0016	<0.001	-	0.964	0.0005	1.61	<0.00002	3.84	0.287	4.5	<0.00001	<0.005	<0.005	0.00047	<0.005	<0.005	<0.0001
WP-DS	10/28/2018 10:25	UQ8566	<0.000002	0.0015	<0.001	-	0.980	0.00049	1.72	<0.00002	3.76	0.25	5.5	<0.00001	<0.005	<0.005	0.00044	<0.005	<0.005	<0.0001
WP-DS	11/13/2018 13:49	UT6555	0.0000027	0.0012	<0.001	-	1.11	0.00044	1.64	<0.00002	4.41	0.282	5.7	<0.00001	<0.005	<0.005	0.00045	<0.005	<0.005	<0.0001
WP-DS	12/19/2018 14:10	UZ8201	<0.000002	0.0013	<0.001	-	1.11	0.00053	1.79	<0.00002	4.71	0.266	5.1	<0.00001	<0.005	<0.005	0.00046	<0.005	<0.005	<0.0001
WP-SP	5/18/2018 11:30	TL6813	<0.000002	0.0034	<0.001	-	0.554	0.00109	3.17	<0.00002	1.05	0.24	<3.0	<0.00001	<0.005	<0.005	0.00055	<0.005	<0.005	<0.0001
WP-SP	6/10/2018 11:00	TQ0006	0.0000025	0.0093	<0.001	-	1.54	0.0041	0.747	<0.00002	2.73	0.723	34.6	<0.00001	<0.005	<0.005	0.00124	<0.005	<0.005	<0.0001
WP-SP	7/8/2018 15:29	TV1577	<0.000002	0.0075	0.001	-	1.04	0.00559	0.859	<0.00002	1.51	0.779	24.4	<0.00001	<0.005	<0.005	0.00107	<0.005	<0.005	<0.0001
WP-US	4/15/2018 14:00	TH0431	-	0.0011	<0.001	-	1.15	0.00048	1.73	<0.00002	5.26	0.279	6.6	<0.00001	<0.005	<0.005	0.00047	<0.005	<0.005	<0.0001
WP-US	5/18/2018 12:15	TL6811	<0.000002	<0.001	<0.001	-	0.352	0.00027	1.41	<0.00002	1.01	0.112	<3.0	<0.00001	<0.005	<0.005	0.00022	<0.005	<0.005	<0.0001
WP-US	6/10/2018 12:00	TQ0004	<0.000002	<0.001	<0.001	-	0.415	0.00029	1.4	<0.00002	1.23	0.117	<3.0	<0.00001	<0.005	<0.005	0.00023	<0.005	<0.005	<0.0001
WP-US	7/8/2018 16:44	TV1578	<0.000002	0.001	<0.001	-	0.531	0.00028	1.58	<0.00002	1.74	0.157	3.1	<0.00001	<0.005	<0.005	0.00029	<0.005	<0.005	<0.0001
WP-US	8/11/2018 12:30	UB4074	<0.000002	0.0013	<0.001	-	0.847	0.0004	1.75	<0.00002	2.94	0.24	4.7	<0.00001	<0.005	<0.005	0.00044	<0.005	<0.005	<0.0001
WP-US	9/23/2018 10:15	UK0549	<0.000002	0.0013	<0.001	-	1.00	0.00042	1.58	<0.00002	4.09	0.282	4.7	<0.00001	<0.005	<0.005	0.00044	<0.005	<0.005	<0.0001
WP-US	10/28/2018 10:45	UQ8565	0.0000033	0.0013	<0.001	-	1.05	0.00043	1.69	<0.00002	4.09	0.247	6.3	<0.00001	<0.005	<0.005	0.00043	<0.005	<0.005	<0.0001
WP-US	11/12/2018 13:12	UT6554	<0.000002	0.0015	<0.001	-	1.03	0.00048	1.62	<0.00002	4.14	0.289	5.5	<0.00001	<0.005	<0.005	0.00047	<0.005	<0.005	<0.0001
WP-US	12/19/2018 13:50	UZ8200	<0.000002	0.0037	<0.001	-	1.23	0.00048	1.8	<0.00002	5.12	0.271	6.2	<0.00001	<0.005	<0.005	0.00045	<0.005	<0.005	<0.0001

Appendix 3-B: 2018 Water Quality Field Data

PEACE RIVER HYDRO PARTNERS

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
ADIT-4	25-Oct-18	2910	7.9	8.7	-	-	-
ADIT-4	25-Oct-18	2910	7.3	8.5	OR	-	-
ADIT-4	26-Oct-18	2900	7.8	7.9	8.7	9.2	8.7
ADIT-4	29-Oct-18	2870	7.4	9.4	855	756	855
ADIT-4	30-Oct-18	3200	7.3	7.2	13.7	13.8	13.7
ADIT-4	31-Oct-18	3280	7.5	8.3	-	-	-
ADIT-4	1-Nov-18	3280	7.6	7.6	3.5	3.3	3.5
ADIT-4	2-Nov-18	3200	7.6	8.4	3.9	4.2	3.9
ADIT-4	3-Nov-18	3230	7.8	8.2	1.6	1.6	1.6
ADIT-4	5-Nov-18	3180	7.8	8.5	5.8	5.9	5.8
ADIT-4	6-Nov-18	3720	7.6	6.9	59.5	61.4	59.5
ADIT-4	9-Nov-18	3740	8.0	8.1	19.0	18.2	19.0
ADIT-4	10-Nov-18	3740	8.0	8.1	19.0	18.2	19.0
ADIT-4	11-Nov-18	3720	8.0	7.3	14.8	14.9	14.8
ADIT-4	12-Nov-18	3820	8.1	6.6	63.1	59.3	63.1
ADIT-4	13-Nov-18	4470	8.0	-	11.2	11.2	11.2
ADIT-4	14-Nov-18	4300	7.9	8.5	1.9	2.0	1.9
ADIT-4	15-Nov-18	4180	7.7	8.6	2.3	2.1	2.3
ADIT-4	16-Nov-18	4330	7.8	5.8	4.8	4.8	4.8
ADIT-4	17-Nov-18	4800	7.9	8.6	3.3	3.2	3.3
ADIT-4	18-Nov-18	4930	7.6	8.8	5.0	5.0	5.0
ADIT-4	19-Nov-18	5050	8.1	8.2	1317	1304	1317
ADIT-4	20-Nov-18	5330	7.8	8.8	8.6	8.3	8.6
ADIT-4	21-Nov-18	14300	8.5	7.9	3.0	2.0	3.0
ADIT-4	22-Nov-18	5910	9.7	8.0	5.4	5.3	5.4
ADIT-4	23-Nov-18	6270	9.7	9.0	10.3	10.2	10.3
ADIT-4	24-Nov-18	6260	9.9	7.2	2.8	2.8	2.8
ADIT-4	25-Nov-18	5970	9.5	6.8	3.8	3.8	3.8
ADIT-4	26-Nov-18	6920	12.0	8.5	5.2	5.2	5.2
ADIT-4	27-Nov-18	6720	12.3	8.8	20.0	20.5	20.0
ADIT-4	28-Nov-18	7120	12.7	10.0	19.6	19.0	19.6
ADIT-4	29-Nov-18	7560	11.2	10.2	16.4	16.4	16.4
ADIT-4	1-Dec-18	7960	12.9	9.0	-	-	-
ADIT-4	3-Dec-18	-	13.0	-	-	-	-
ADIT-4	4-Dec-18	5790	12.1	8.5	47.8	48.4	47.8
ADIT-4	6-Dec-18	5110	6.3	7.7	-	-	-
ADIT-4	7-Dec-18	-	10.0	-	1.0	1.1	1.0
ADIT-4	8-Dec-18	-	11.5	-	2.7	2.6	2.7
ADIT-4	9-Dec-18	4400	10.5	8.8	-	-	-
ADIT-4	10-Dec-18	-	11.0	-	1.8	1.8	1.8
ADIT-4	11-Dec-18	-	12.0	-	-	-	-
ADIT-4	14-Dec-18	-	11.0	-	-	-	-
ADIT-4	17-Dec-18	-	10.0	-	-	-	-
ADIT-4	23-Dec-18	-	10.0	-	-	-	-
ADIT-4	24-Dec-18	-	10.0	-	-	-	-
ADIT-4	25-Dec-18	-	10.0	-	3.2	3.2	3.2
ADIT-4	26-Dec-18	-	10.0	-	-	-	-
ADIT-4	27-Dec-18	4360	9.3	5.7	2.4	2.4	2.4
ADIT-4	28-Dec-18	3680	9.5	7.0	1.4	1.1	1.4
ADIT-4	29-Dec-18	3070	9.0	6.3	1.2	1.1	1.2
ADIT-4	30-Dec-18	3700	9.0	1.0	1.2	1.2	1.2
ADIT-4	31-Dec-18	3690	8.5	2.7	1.2	1.2	1.2
DIC-Out	28-May-18	490	7.6	12.4	13.5	13.5	13.5
DIC-Out	29-May-18	832	6.7	18.2	26.4	27.3	26.4
DIC-Out	29-May-18	590	8.0	17.7	23.5	23.5	23.5
DIC-Out	1-Jun-18	500	7.9	15.0	17.0	17.7	17.0
DIC-Out	2-Jun-18	480	7.7	12.5	77.4	77.1	77.4
DIC-Out	14-Jun-18	814	7.8	19.5	42.1	42.3	42.1
DIC-Out	17-Jun-18	1490	7.6	21.2	6.2	6.2	6.2
DIC-Out	10-Sep-18	969	8.7	12.7	28.5	32.4	28.5
DIC-Out	12-Sep-18	1017	8.2	11.3	35.0	30.2	35.0
DIC-Out	14-Sep-18	1077	8.2	7.5	31.1	31.4	31.1
DIC-Out	15-Sep-18	1043	8.0	11.2	15.3	15.3	15.3
DIC-Out	16-Sep-18	1035	8.3	11.2	6.8	6.5	6.8

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
DIC-Out	17-Sep-18	1049	8.3	12.0	7.0	7.1	7.0
DIC-Out	18-Sep-18	1084	8.2	8.2	8.9	-	8.9
DIC-Out	22-Sep-18	1085	8.3	8.8	6.0	-	6.0
DIC-Out	26-Sep-18	1046	7.9	13.4	3.2	3.2	3.2
DIC-Out	26-Sep-18	1036	8.2	11.6	21.9	23.8	21.9
DIC-Out	6-Nov-18	4970	4.7	3.8	30.0	30.8	30.0
DOC_N_Sump	13-Nov-18	7760	6.8	-0.4	28.9	28.9	28.9
DOC_N_Sump	21-Nov-18	1179	7.4	10.8	13.2	13.4	13.2
DOC_N_Sump	24-Dec-18	5800	9.3	-0.4	2130	2133	2130
DOC_S_Sump	20-Oct-18	966	7.9	13.8	1.1	1.3	1.1
DOC_S_Sump	21-Oct-18	1116	8.0	13.0	0.7	0.7	0.7
DOC_S_Sump	30-Oct-18	936	7.8	12.3	1.6	1.5	1.6
DOC_S_Sump	31-Oct-18	945	7.9	12.2	3.8	3.1	3.8
DOC_S_Sump	1-Nov-18	1079	8.0	11.1	0.6	0.7	0.6
DOC_S_Sump	2-Nov-18	885	7.8	13.7	1.1	1.4	1.1
DOC_S_Sump	4-Nov-18	966	8.0	11.8	1.2	1.2	1.2
DOC_S_Sump	6-Nov-18	1600	6.3	5.3	-	-	-
DOC_S_Sump	20-Nov-18	1004	8.1	12.5	2.3	2.6	2.3
DOC_S_Sump	22-Nov-18	1017	7.9	13.3	1.3	1.6	1.3
DOC_S_Sump	23-Nov-18	1002	8.4	13.1	1.2	1.4	1.2
DOC_S_Sump	24-Nov-18	996	7.8	13.8	1.7	1.7	1.7
DOC_S_Sump	26-Nov-18	998	7.9	13.3	1.4	1.5	1.4
DOC_S_Sump	27-Nov-18	1006	8.0	13.9	1.6	1.7	1.6
DOC_S_Sump	28-Nov-18	996	8.0	13.5	2.0	2.1	2.0
DOC_S_Sump	29-Nov-18	992	8.0	13.6	1.3	1.3	1.3
DOC_S_Sump	30-Nov-18	973	7.9	14.0	1.3	1.5	1.3
DOC_S_Sump	3-Dec-18	847	8.1	7.2	12.6	11.7	12.6
DOC_S_Sump	8-Dec-18	900	8.2	3.2	2.7	2.4	2.7
DOC_S_Sump	12-Dec-18	680	8.2	8.3	4.2	3.4	4.2
DOC_S_Sump	17-Dec-18	2160	8.2	0.0	10.0	10.1	10.0
DOC_S_Sump	28-Dec-18	1480	8.4	6.1	4.8	4.8	4.8
DOC_Sump	25-Oct-18	2920	7.8	10.0	62.5	61.2	62.5
DOC_Sump	30-Oct-18	2720	7.9	9.3	64.8	65.1	64.8
DOC_Upper_N_Sump	28-Dec-18	4070	7.8	0.3	4.8	4.9	4.8
DOC-Out	24-May-18	840	7.8	16.9	22.2	21.5	22.2
DOC-Out	25-May-18	1258	7.9	15.8	24.4	22.3	24.4
DOC-Out	25-May-18	1331	7.9	19.6	10.9	11.1	10.9
DOC-Out	26-May-18	1350	7.9	13.7	11.4	12.1	11.4
DOC-Out	26-May-18	1507	7.9	14.4	53.8	54.4	53.8
DOC-Out	27-May-18	1623	7.8	13.0	18.5	20.2	18.5
DOC-Out	28-May-18	1735	7.8	10.4	21.6	19.7	21.6
DOC-Out	28-May-18	1656	8.0	14.4	77.9	79.5	77.9
DOC-Out	1-Jun-18	1838	7.8	17.2	12.2	12.5	12.2
DOC-Out	17-Jun-18	1620	8.3	21.5	2.1	2.1	2.1
DOC-Out	17-Jun-18	1520	7.6	23.8	2.7	2.7	2.7
DOC-Out	18-Jun-18	1482	7.5	17.0	15.0	14.5	15.0
DOC-Out	18-Jun-18	1616	7.5	23.8	12.4	12.9	12.4
DOC-Out	22-Jun-18	1468	7.9	24.6	7.8	8.1	7.8
DOC-Out	22-Jun-18	1580	7.9	24.2	4.8	4.9	4.8
DOC-Out	22-Jun-18	1550	7.6	20.9	7.4	7.4	7.4
DOC-Out	23-Jun-18	1580	7.9	21.2	26.9	26.7	26.9
DOC-Out	24-Jun-18	1589	7.7	19.6	12.2	11.5	12.2
DOC-Out	3-Jul-18	1562	8.2	16.2	11.2	10.8	11.2
DOC-Out	3-Jul-18	159.5	7.8	17.4	28.9	28.1	28.9
DOC-Out	6-Jul-18	155.8	8.1	20.5	13.2	13.0	13.2
DOC-Out	7-Jul-18	1948	8.7	13.7	16.9	17.4	16.9
DOC-Out	7-Jul-18	161.6	7.9	16.2	14.9	16.7	14.9
DOC-Out	8-Jul-18	1599	7.9	11.7	16.2	15.3	16.2
DOC-Out	8-Jul-18	163.6	7.9	22.7	16.3	16.0	16.3
DOC-Out	9-Jul-18	1759	7.9	15.6	12.1	12.2	12.1
DOC-Out	9-Jul-18	1860	8.0	25.8	18.0	17.2	18.0
DOC-Out	4-Aug-18	1182	8.3	24.4	6.7	6.9	6.7
DOC-Out	10-Aug-18	1406	8.1	21.7	10.5	11.3	10.5
DOC-Out	11-Aug-18	1450	7.9	14.0	14.9	14.0	14.9

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
DOC-Out	6-Sep-18	1404	7.6	14.1	4.6	4.3	4.6
DOC-Out	7-Sep-18	1496	7.8	12.0	3.1	3.4	3.1
DOC-Out	10-Sep-18	1963	7.6	12.5	7.9	6.3	7.9
DOC-Out	12-Sep-18	1833	7.8	9.3	11.4	10.3	11.4
DOC-Out	14-Sep-18	1653	7.9	12.1	5.0	4.5	5.0
DOC-Out	16-Sep-18	1657	7.9	11.0	3.8	3.7	3.8
DOC-Out	17-Sep-18	1664	8.1	10.6	2.8	2.3	2.8
DOC-Out	18-Sep-18	1740	7.7	10.9	0.1	-	0.1
DOC-Out	19-Sep-18	1798	7.8	11.4	0.8	-	0.8
DOC-Out	21-Sep-18	1856	8.0	9.3	1.9	-	1.9
DOC-Out	22-Sep-18	1882	8.2	10.8	2.1	-	2.1
DOC-Out	23-Sep-18	1910	8.0	11.0	1.7	-	1.7
DOC-Out	27-Sep-18	1576	8.1	7.8	5.4	5.6	5.4
DOC-Out	28-Sep-18	2180	7.9	8.5	4.8	5.0	4.8
DOC-Out	2-Oct-18	2380	7.2	9.6	9.3	-	9.3
DTIP_BT_1	28-Dec-18	334	8.7	4.7	59.0	60.0	59.0
DTIP-DW	26-Oct-18	4600	4.4	4.9	40.8	39.4	40.8
DTIP-DW	30-Oct-18	4800	4.5	7.2	36.0	36.0	36.0
DTIP-DW	21-Nov-18	3980	4.7	9.0	47.8	49.3	47.8
DTIP-DW	2-Dec-18	3110	5.2	30.0	21.1	21.3	21.1
DTIP-DW	4-Dec-18	3770	4.6	6.9	42.0	42.6	42.0
DTIP-DW	12-Dec-18	4070	4.9	35.2	10.2	10.6	10.2
DTIP-DW	18-Dec-18	4210	4.7	33.0	10.0	9.9	10.0
DTIP-DW	28-Dec-18	1660	7.5	22.3	15.0	16.0	15.0
DTIP-S1	13-Nov-18	1027	7.4	8.5	85.7	85.6	85.7
L5-TNCP	25-Apr-18	440	8.1	7.3	1113	1113	1113
L5-TNCP	26-Apr-18	442	8.1	11.2	159.0	162.0	159.0
L5-TNCP	27-Apr-18	432	8.3	9.4	149.0	150.0	149.0
L5-TNCP	28-Apr-18	422	8.0	9.8	133.0	-	133.0
L5-TNCP	28-Apr-18	422	8.0	9.8	133.0	-	133.0
L5-TNCP	28-Apr-18	420	8.2	9.5	133.0	-	133.0
L5-TNCP	28-Apr-18	424	8.1	8.1	142.0	-	142.0
L5-TNCP	28-Apr-18	451	8.2	9.5	OR	-	-
L5-TNCP	28-Apr-18	416	8.0	14.6	137.0	-	137.0
L5-TNCP	29-Apr-18	409	8.5	6.3	260.0	-	260.0
L5-TNCP	29-Apr-18	421	8.3	4.9	183.0	-	183.0
L5-TNCP	29-Apr-18	422	8.3	4.7	165.0	-	165.0
L5-TNCP	30-Apr-18	419	8.3	6.5	159.0	-	159.0
L5-TNCP	30-Apr-18	418	8.2	5.5	183.0	-	183.0
L5-TNCP	30-Apr-18	418	8.5	5.8	162.0	-	162.0
L5-TNCP	30-Apr-18	414	8.2	8.6	123.0	-	123.0
L5-TNCP	30-Apr-18	416	8.3	6.9	134.0	-	134.0
L5-TNCP	1-May-18	382	8.6	6.8	663.0	-	663.0
L5-TNCP	1-May-18	351	8.6	10.4	1060	-	1060
L5-TNCP	1-May-18	384	8.3	9.3	0.7	-	0.7
L5-TNCP	1-May-18	405	8.2	6.9	970.0	-	970.0
L5-TNCP	2-May-18	382	8.6	6.8	663.0	-	663.0
L5-TNCP	2-May-18	390	8.2	6.7	706.0	-	706.0
L5-TNCP	2-May-18	383	8.2	8.4	795.0	-	795.0
L5-TNCP	2-May-18	387	8.2	7.9	1191	-	1191
L5-TNCP	2-May-18	391	8.3	9.0	1038	-	1038
L5-TNCP	2-May-18	386	8.2	9.9	1807	-	1807
L5-TNCP	2-May-18	398	8.6	8.2	1255	-	1255
L5-TNCP	2-May-18	402	8.7	7.9	1107	-	1107
L5-TNCP	3-May-18	401	8.5	7.2	1036	-	1036
L5-TNCP	3-May-18	404	8.4	6.9	1025	-	1025
L5-TNCP	3-May-18	408	8.1	7.4	1471	-	1471
L5-TNCP	3-May-18	413	8.2	10.8	1595	-	1595
L5-TNCP	3-May-18	405	8.3	9.4	1527	-	1527
L5-TNCP	4-May-18	446	8.4	7.4	OR	-	-
L5-TNCP	4-May-18	410	8.4	16.3	975.0	-	975.0
L5-TNCP	4-May-18	614	8.4	14.7	663.0	-	663.0
L5-TNCP	5-May-18	663	8.4	11.7	111.0	-	111.0
L5-TNCP	5-May-18	642	8.5	10.2	103.0	-	103.0

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
L5-TNCP	5-May-18	658	8.2	11.1	92.7	-	92.7
L5-TNCP	5-May-18	633	8.2	12.8	82.5	-	82.5
L5-TNCP	5-May-18	650	8.1	16.0	675.0	-	675.0
L5-TNCP	6-May-18	720	8.4	12.8	2169.0	-	2169.0
L5-TNCP	6-May-18	501	8.4	15.8	1919.0	-	1919.0
L5-TNCP	6-May-18	502	8.3	16.5	757.0	-	757.0
L5-TNCP	6-May-18	728	8.5	18.6	68.0	-	68.0
L5-TNCP	6-May-18	516	8.4	13.8	1055	-	1055
L5-TNCP	6-May-18	744	8.3	15.9	OR	-	-
L5-TNCP	7-May-18	515	8.5	14.3	770.0	-	770.0
L5-TNCP	7-May-18	793	8.3	13.2	OR	-	-
L5-TNCP	7-May-18	636	8.4	12.0	OR	-	-
L5-TNCP	7-May-18	508	8.3	13.2	2141	-	2141
L5-TNCP	7-May-18	496	8.5	13.3	1585	-	1585
L5-TNCP	7-May-18	528	8.5	15.8	1349	-	1349
L5-TNCP	8-May-18	521	8.3	11.3	611	-	611
L5-TNCP	8-May-18	515	8.5	17.1	1314	-	1314
L5-TNCP	8-May-18	524	8.3	15.3	94.0	-	94.0
L5-TNCP	8-May-18	528	8.6	16.3	662.0	-	662.0
L5-TNCP	8-May-18	532	8.5	18.6	649.0	-	649.0
L5-TNCP	8-May-18	535	7.3	15.9	33.0	-	33.0
L5-TNCP	9-May-18	546	7.6	13.9	14.0	-	14.0
L5-TNCP	9-May-18	549	6.8	12.3	16.0	-	16.0
L5-TNCP	9-May-18	552	7.8	12.3	17.0	-	17.0
L5-TNCP	9-May-18	560	7.6	14.2	4051	-	4051
L5-TNCP	9-May-18	581	7.5	16.1	3193	-	3193
L5-TNCP	9-May-18	526	7.6	15.1	1717	-	1717
L5-TNCP	9-May-18	595	6.7	14.1	857.0	-	857.0
L5-TNCP	9-May-18	594	7.3	12.2	90.0	-	90.0
L5-TNCP	10-May-18	594	7.6	11.7	102.0	-	102.0
L5-TNCP	10-May-18	606	7.5	10.5	84.0	-	84.0
L5-TNCP	10-May-18	598	7.8	11.3	103.0	-	103.0
L5-TNCP	10-May-18	610	7.8	13.5	81.0	-	81.0
L5-TNCP	10-May-18	590	7.5	18.4	69.1	-	69.1
L5-TNCP	15-May-18	850	8.0	18.9	83.3	82.1	83.3
L5-TNCP	26-May-18	1088	8.5	19.1	1601	1597	1601
L5-TNCP	8-Jun-18	1086	8.2	18.9	22.0	17.1	22.0
L5-TNCP	12-Jun-18	1190	8.6	18.2	-	-	-
L5-TNCP	25-Jun-18	1670	8.3	15.5	63.7	62.4	63.7
L5-TNCP	26-Jun-18	4550	3.0	14.7	623.0	619.0	623.0
L5-TNCP	27-Jun-18	5000	2.8	23.8	-	-	-
L5-TNCP	5-Jul-18	1780	8.2	22.4	-	-	-
L5-TNCP	19-Jul-18	1815	8.0	23.0	33.7	33.3	33.7
L5-TNCP	20-Jul-18	1320	8.4	15.6	-	-	-
L5-TNCP	21-Jul-18	2000	7.8	18.9	43.1	43.1	43.1
L5-TNCP	22-Jul-18	1880	7.8	13.6	39.2	39.7	39.2
L5-TNCP	26-Jul-18	1810	8.2	27.6	13.3	12.3	13.3
L5-TPSP	5-Apr-18	544	8.6	0.4	1032	1027	1032
L5-TPSP	10-Apr-18	978	8.5	0.8	41.1	40.6	41.1
L5-TPSP	11-Apr-18	803	8.4	1.9	79.9	81.3	79.9
L5-TPSP	12-Apr-18	700	8.7	3.3	33.6	32.9	33.6
L5-TPSP	14-Apr-18	770	8.3	15.0	31.5	30.6	31.5
L5-TPSP	18-Apr-18	889	8.2	10.0	86.9	84.7	86.9
L5-TPSP	19-Apr-18	908	8.3	8.8	17.9	17.4	17.9
L5-TPSP	20-Apr-18	954	7.9	14.9	52.7	52.7	52.7
L5-TPSP	21-Apr-18	1018	8.0	13.7	171.0	176.0	171.0
L5-TPSP	23-Apr-18	1590	9.5	13.5	40.5	39.1	40.5
L5-TPSP	24-Apr-18	1695	9.1	11.5	77.8	76.1	77.8
L5-TPSP	25-Apr-18	1725	9.7	12.8	17.3	17.1	17.3
L5-TPSP	26-Apr-18	1830	9.0	17.2	23.0	22.1	23.0
L5-TPSP	27-Apr-18	1880	8.6	12.6	9.8	7.6	9.8
L5-TPSP	28-Apr-18	1980	8.3	11.8	15.1	15.2	15.1
L5-TPSP	29-Apr-18	1800	8.6	13.2	8.9	8.8	8.9
L5-TPSP	30-Apr-18	2300	8.6	10.6	6.8	6.2	6.8

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
L5-TPSP	1-May-18	2050	8.5	12.0	12.9	12.2	12.9
L5-TPSP	2-May-18	2380	7.7	10.8	38.7	38.1	38.7
L5-TPSP	3-May-18	2840	7.9	14.2	14.1	14.1	14.1
L5-TPSP	4-May-18	2860	8.5	18.8	8.1	8.2	8.1
L5-TPSP	5-May-18	3000	8.2	18.2	6.8	7.2	6.8
L5-TPSP	6-May-18	3020	8.7	22.1	6.3	5.9	6.3
L5-TPSP	7-May-18	3100	9.1	14.7	4.0	3.9	4.0
L5-TPSP	8-May-18	3630	9.3	10.7	8.7	8.8	8.7
L5-TPSP	8-May-18	3340	9.1	19.0	2.9	2.8	2.9
L5-TPSP	11-May-18	3630	9.3	10.7	8.7	8.8	8.7
L5-TPSP	13-May-18	4000	8.4	9.7	20.6	21.5	20.6
L5-TPSP	14-May-18	4260	8.2	11.6	12.9	11.7	12.9
L5-TPSP	15-May-18	4460	8.2	25.0	4.5	4.4	4.5
L5-TPSP	31-May-18	1060	8.6	13.5	4.4	4.4	4.4
L5-TPSP	1-Jun-18	1000	8.8	10.9	2.2	2.0	2.2
L5-TPSP	2-Jun-18	1053	8.7	18.6	6.9	6.9	6.9
L5-TPSP	3-Jun-18	1051	13.3	8.5	5.7	5.7	5.7
L5-TPSP	5-Jun-18	979	8.6	18.9	12.5	12.5	12.5
L5-TPSP	6-Jun-18	1008	8.4	14.6	11.7	11.6	11.7
L5-TPSP	7-Jun-18	1050	8.3	16.1	14.2	14.2	14.2
L5-TPSP	8-Jun-18	1095	8.2	20.1	16.6	16.2	16.6
L5-TPSP	9-Jun-18	1143	8.3	20.4	13.7	12.5	13.7
L5-TPSP	10-Jun-18	1253	8.3	9.5	12.0	11.6	12.0
L5-TPSP	12-Jun-18	1230	8.6	15.3	8.9	8.7	8.9
L5-TPSP	13-Jun-18	1230	8.4	20.6	10.2	9.1	10.2
L5-TPSP	14-Jun-18	1210	8.4	21.1	10.1	9.0	10.1
L5-TPSP	15-Jun-18	1215	8.4	21.1	10.0	10.0	10.0
L5-TPSP	16-Jun-18	1223	8.4	25.0	7.6	8.1	7.6
L5-TPSP	17-Jun-18	1230	8.4	26.8	10.8	11.3	10.8
L5-TPSP	18-Jun-18	1227	8.4	24.2	7.2	7.2	7.2
L5-TPSP	19-Jun-18	1230	8.0	28.2	9.4	9.1	9.4
L5-TPSP	20-Jun-18	1200	8.7	22.3	5.2	5.2	5.2
L5-TPSP	21-Jun-18	1260	8.3	20.7	6.0	5.7	6.0
L5-TPSP	22-Jun-18	1290	8.3	21.3	7.4	7.2	7.4
L5-TPSP	23-Jun-18	1270	8.6	18.5	6.9	7.0	6.9
L5-TPSP	24-Jun-18	1330	8.3	22.5	7.8	8.1	7.8
L5-TPSP	25-Jun-18	1320	8.3	18.0	8.1	8.0	8.1
L5-TPSP	27-Jun-18	1400	6.5	21.2	68.2	70.2	68.2
L5-TPSP	28-Jun-18	1576	7.7	22.3	51.3	50.8	51.3
L5-TPSP	30-Jun-18	1230	8.0	22.0	21.3	19.9	21.3
L5-TPSP	1-Jul-18	1520	7.9	17.8	58.6	58.0	58.6
L5-TPSP	2-Jul-18	1786	8.0	18.5	33.3	31.1	33.3
L5-TPSP	3-Jul-18	1778	8.2	18.7	15.3	15.2	15.3
L5-TPSP	4-Jul-18	1752	8.0	22.5	16.0	16.5	16.0
L5-TPSP	5-Jul-18	1740	8.2	22.4	13.0	13.6	13.0
L5-TPSP	6-Jul-18	1790	8.3	19.5	4.1	3.9	4.1
L5-TPSP	7-Jul-18	1773	8.3	19.2	9.9	10.2	9.9
L5-TPSP	8-Jul-18	1760	8.2	22.0	11.9	11.9	11.9
L5-TPSP	9-Jul-18	1734	8.2	24.8	8.9	8.4	8.9
L5-TPSP	11-Jul-18	1874	8.1	21.1	3.8	3.8	3.8
L5-TPSP	12-Jul-18	1911	8.1	21.2	3.7	3.6	3.7
L5-TPSP	13-Jul-18	1700	8.2	19.6	11.7	11.7	11.7
L5-TPSP	14-Jul-18	1942	8.2	19.2	6.6	6.7	6.6
L5-TPSP	15-Jul-18	1950	8.1	23.6	4.8	5.1	4.8
L5-TPSP	16-Jul-18	1958	8.1	21.0	4.0	4.1	4.0
L5-TPSP	17-Jul-18	1860	8.3	24.2	7.2	7.2	7.2
L5-TPSP	18-Jul-18	1872	8.4	25.1	8.8	8.5	8.8
L5-TPSP	19-Jul-18	1840	8.3	22.7	6.1	6.2	6.1
L5-TPSP	20-Jul-18	1800	8.4	15.5	29.2	28.8	29.2
L5-TPSP	21-Jul-18	1930	7.9	19.1	27.8	28.0	27.8
L5-TPSP	22-Jul-18	1930	7.8	18.7	31.2	32.3	31.2
L5-TPSP	23-Jul-18	2050	7.6	21.1	21.6	20.9	21.6
L5-TPSP	24-Jul-18	2090	7.8	22.9	30.0	29.8	30.0
L5-TPSP	25-Jul-18	2150	8.0	24.2	4.8	4.8	4.8

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
L5-TPSP	26-Jul-18	2150	8.0	26.1	8.7	9.2	8.7
L5-TPSP	27-Jul-18	2150	7.9	25.1	39.5	38.5	39.5
L5-TPSP	28-Jul-18	2150	7.8	28.0	6.6	6.4	6.6
L5-TPSP	29-Jul-18	2190	8.0	26.0	9.4	9.7	9.4
L5-TPSP	30-Jul-18	2260	7.8	22.9	19.4	19.1	19.4
L5-TPSP	7-Aug-18	2600	8.0	22.2	24.1	23.0	24.1
L5-TPSP	8-Aug-18	2550	8.1	22.7	27.8	25.8	27.8
L5-TPSP	10-Aug-18	2590	8.0	21.4	27.2	26.5	27.2
L5-TPSP	11-Aug-18	2560	8.1	22.8	41.1	40.8	41.1
L5-TPSP	12-Aug-18	2580	8.2	23.1	7.8	7.2	7.8
L5-TPSP	13-Aug-18	2560	8.1	20.1	34.5	34.2	34.5
L5-TPSP	14-Aug-18	2730	9.1	22.5	31.0	-	31.0
L5-TPSP	15-Aug-18	2500	8.8	21.1	7.3	7.4	7.3
L5-TPSP	16-Aug-18	2500	8.1	22.0	7.9	8.0	7.9
L5-TPSP	17-Aug-18	2500	7.2	18.0	4.7	5.0	4.7
L5-TPSP	18-Aug-18	2500	8.3	19.1	6.4	6.5	6.4
L5-TPSP	19-Aug-18	2500	8.2	18.2	6.1	6.1	6.1
L5-TPSP	20-Aug-18	2520	8.5	17.9	12.4	11.7	12.4
L5-TPSP	21-Aug-18	1720	8.1	17.0	23.0	19.8	23.0
L5-TPSP	22-Aug-18	1700	8.5	20.0	6.4	6.4	6.4
L5-TPSP	23-Aug-18	1640	8.6	17.0	11.5	11.6	11.5
L5-TPSP	24-Aug-18	1550	8.5	16.5	9.0	9.0	9.0
L5-TPSP	25-Aug-18	1620	8.4	16.2	82.0	83.0	82.0
L5-TPSP	26-Aug-18	1000	8.1	15.1	11.8	11.7	11.8
L5-TPSP	27-Aug-18	1730	8.4	16.1	5.7	5.8	5.7
L5-TPSP	28-Aug-18	1620	8.9	15.7	6.2	6.5	6.2
L5-TPSP	29-Aug-18	1620	8.3	16.2	10.1	9.4	10.1
L5-TPSP	30-Aug-18	1530	8.3	13.1	1760	1668	1760
L5-TPSP	31-Aug-18	1560	8.4	14.3	6.9	6.8	6.9
L5-TPSP	31-Aug-18	870	8.5	12.5	6.2	6.4	6.2
L5-TPSP	1-Sep-18	1630	8.5	14.4	7.0	7.0	7.0
L5-TPSP	2-Sep-18	1610	8.6	14.5	45.1	42.0	45.1
L5-TPSP	3-Sep-18	1170	8.5	13.5	9.7	9.7	9.7
L5-TPSP	4-Sep-18	2540	8.4	15.4	8.2	8.0	8.2
L5-TPSP	5-Sep-18	2560	8.1	15.6	10.6	10.5	10.6
L5-TPSP	7-Sep-18	2560	8.2	14.1	8.9	9.0	8.9
L5-TPSP	8-Sep-18	1810	7.5	11.5	24.0	26.1	24.0
L5-TPSP	9-Sep-18	1795	7.8	11.1	14.0	13.8	14.0
L5-TPSP	10-Sep-18	1784	7.8	11.0	19.5	19.8	19.5
L5-TPSP	13-Sep-18	1734	8.2	7.9	5.4	5.3	5.4
L5-TPSP	14-Sep-18	1735	8.6	9.1	4.6	4.3	4.6
L5-TPSP	15-Sep-18	1730	8.0	8.6	14.7	14.5	14.7
L5-TPSP	16-Sep-18	1943	8.6	10.7	9.5	9.2	9.5
L5-TPSP	17-Sep-18	1751	8.1	9.1	3.5	3.6	3.5
L5-TPSP	27-Sep-18	1810	8.3	8.0	17.7	17.4	17.7
L5-TPSP	28-Sep-18	1820	8.1	7.8	14.7	14.4	14.7
L5-TPSP	29-Sep-18	1860	8.3	7.1	14.2	14.5	14.2
L5-TPSP	16-Oct-18	1960	7.8	5.9	-	-	-
L5-TPSP	23-Oct-18	1749	8.2	10.1	4.7	4.6	4.7
L5-TPSP	30-Oct-18	1880	8.3	8.8	5.8	5.8	5.8
L5-TPSP	5-Nov-18	2580	8.0	-	7.2	7.5	7.2
LBCD-Out	16-Jun-18	341	8.3	20.7	2.9	2.6	2.9
LBCD-Out	17-Jun-18	334	8.2	18.0	3.5	3.2	3.5
LBCD-Out	17-Jun-18	344	8.2	21.2	2.3	2.3	2.3
LBCD-Out	17-Jun-18	350	8.3	20.1	1.6	1.6	1.6
LBCD-Out	17-Jun-18	350	8.3	20.7	2.5	2.4	2.5
LBCD-Out	18-Jun-18	339	8.2	20.8	1.9	1.9	1.9
LBCD-Out	18-Jun-18	341	8.4	22.1	2.1	1.9	2.1
LBCD-Out	18-Jun-18	330	8.4	21.6	1.8	1.8	1.8
LBCD-Out	18-Jun-18	340	8.3	21.6	2.2	2.2	2.2
LBCD-Out	19-Jun-18	328	8.4	22.7	2.1	1.9	2.1
LBCD-Out	19-Jun-18	350	8.4	23.5	1.5	1.5	1.5
LBCD-Out	19-Jun-18	332	8.4	26.0	2.6	2.7	2.6
LBCD-Out	19-Jun-18	340	8.3	24.4	1.3	1.3	1.3

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBCD-Out	20-Jun-18	339	8.4	23.6	2.4	2.3	2.4
LBCD-Out	20-Jun-18	346	8.2	23.7	1.6	1.6	1.6
LBCD-Out	20-Jun-18	341	8.2	22.9	1.1	1.2	1.1
LBCD-Out	21-Jun-18	340	8.5	23.3	4.2	4.4	4.2
LBCD-Out	21-Jun-18	321	8.3	25.4	3.2	2.8	3.2
LBCD-Out	21-Jun-18	341	8.2	23.2	1.8	1.8	1.8
LBCD-Out	21-Jun-18	340	8.2	22.5	2.1	2.1	2.1
LBCD-Out	22-Jun-18	338	8.2	24.6	3.1	3.3	3.1
LBCD-Out	22-Jun-18	340	8.5	22.7	2.8	2.8	2.8
LBCD-Out	22-Jun-18	340	8.1	22.8	3.1	3.2	3.1
LBCD-Out	23-Jun-18	340	8.4	22.0	4.3	4.3	4.3
LBCD-Out	23-Jun-18	358	8.4	24.8	4.6	4.4	4.6
LBCD-Out	23-Jun-18	340	8.3	24.1	3.0	3.0	3.0
LBCD-Out	23-Jun-18	340	8.5	22.5	2.7	2.7	2.7
LBCD-Out	24-Jun-18	344	8.2	21.6	5.4	5.0	5.4
LBCD-Out	24-Jun-18	344	8.3	23.2	6.0	5.8	6.0
LBCD-Out	25-Jun-18	345	8.3	18.7	4.7	4.8	4.7
LBCD-Out	26-Jun-18	370	8.4	16.8	7.7	7.6	7.7
LBCD-Out	26-Jun-18	370	8.6	17.6	4.6	4.8	4.6
LBCD-Out	27-Jun-18	371	8.4	17.2	5.8	5.8	5.8
LBCD-Out	27-Jun-18	372	8.4	18.6	5.7	5.7	5.7
LBCD-Out	28-Jun-18	377	8.4	19.1	3.7	3.8	3.7
LBCD-Out	28-Jun-18	372	8.5	20.1	4.2	4.1	4.2
LBCD-Out	28-Jun-18	373	8.5	19.7	3.4	3.5	3.4
LBCD-Out	29-Jun-18	340	8.3	17.1	3.9	4.1	3.9
LBCD-Out	29-Jun-18	376	8.4	18.1	2.8	2.8	2.8
LBCD-Out	29-Jun-18	376	8.5	19.8	4.1	4.4	4.1
LBCD-Out	29-Jun-18	375	8.4	19.6	4.7	4.7	4.7
LBCD-Out	30-Jun-18	345	8.5	17.0	4.8	4.9	4.8
LBCD-Out	30-Jun-18	375	8.3	18.2	4.2	4.2	4.2
LBCD-Out	30-Jun-18	388	8.6	18.4	3.4	3.4	3.4
LBCD-Out	30-Jun-18	375	7.3	20.0	3.3	3.3	3.3
LBCD-Out	1-Jul-18	345	8.3	17.0	19.7	21.2	19.7
LBCD-Out	1-Jul-18	385	8.5	16.2	4.9	4.8	4.9
LBCD-Out	1-Jul-18	338	8.4	18.2	6.2	6.6	6.2
LBCD-Out	2-Jul-18	360	8.4	15.4	7.0	7.2	7.0
LBCD-Out	2-Jul-18	400	8.3	14.9	11.3	11.0	11.3
LBCD-Out	3-Jul-18	371	8.4	16.2	7.2	7.1	7.2
LBCD-Out	3-Jul-18	440	8.6	16.0	7.8	7.7	7.8
LBCD-Out	3-Jul-18	412	8.7	18.6	7.0	7.6	7.0
LBCD-Out	3-Jul-18	380	8.4	18.2	7.7	7.4	7.7
LBCD-Out	4-Jul-18	389	8.4	15.8	5.9	6.4	5.9
LBCD-Out	4-Jul-18	416	8.7	16.4	6.6	6.7	6.6
LBCD-Out	4-Jul-18	411	8.6	21.7	5.4	5.1	5.4
LBCD-Out	5-Jul-18	382	8.3	18.0	5.7	6.2	5.7
LBCD-Out	5-Jul-18	419	8.6	19.4	5.6	5.6	5.6
LBCD-Out	9-Jul-18	462	8.7	17.8	8.0	7.9	8.0
LBCD-Out	9-Jul-18	466	8.5	24.4	9.2	9.4	9.2
LBCD-Out	11-Jul-18	447	8.2	20.8	8.9	9.6	8.9
LBCD-Out	11-Jul-18	438	8.0	22.6	17.1	16.8	17.1
LBCD-Out	12-Jul-18	477	8.2	23.1	24.1	24.9	24.1
LBCD-Out	12-Jul-18	475	8.3	21.7	15.3	15.5	15.3
LBCD-Out	25-Jul-18	523	8.7	24.8	11.3	11.4	11.3
LBCD-Out	25-Jul-18	520	8.5	22.8	6.7	6.8	6.7
LBCD-Out	26-Jul-18	516	-	21.8	8.4	8.5	8.4
LBCD-Out	26-Jul-18	512	-	25.2	10.3	10.5	10.3
LBCD-Out	26-Jul-18	499	-	23.8	7.2	7.6	7.2
LBCD-Out	27-Jul-18	520	8.7	20.7	5.7	5.9	5.7
LBCD-Out	27-Jul-18	526	-	22.5	6.3	6.5	6.3
LBCD-Out	27-Jul-18	534	-	25.8	12.8	12.8	12.8
LBCD-Out	27-Jul-18	564	-	26.0	7.6	7.7	7.6
LBCD-Out	4-Aug-18	509	8.3	16.5	6.2	6.1	6.2
LBCD-Out	4-Aug-18	511	8.3	23.6	8.1	8.3	8.1
LBCD-Out	4-Aug-18	1184	8.3	23.5	9.7	9.3	9.7

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBCD-Out	17-Aug-18	565	8.2	19.8	3.9	3.9	3.9
LBCD-Out	18-Aug-18	583	8.2	20.3	5.8	5.8	5.8
LBCD-Out	19-Aug-18	745	7.6	19.9	6.2	6.2	6.2
LBCD-Out	26-Aug-18	654	8.0	12.8	50.7	-	50.7
LBCD-Out	10-Sep-18	530	8.5	11.7	10.1	8.9	10.1
LBCD-Out	12-Sep-18	516	8.6	10.2	29.9	22.9	29.9
LBCD-Out	14-Sep-18	563	8.6	7.6	1.7	1.5	1.7
LBCD-Out	15-Sep-18	526	8.4	13.9	71.0	91.0	71.0
LBCD-Out	16-Sep-18	542	8.6	11.6	2.2	2.2	2.2
LBCD-Out	17-Sep-18	531	8.4	12.0	5.3	4.5	5.3
LBCD-Out	18-Sep-18	541	8.2	8.3	9.3	-	9.3
LBCD-Out	19-Sep-18	481	8.4	10.6	28.5	-	28.5
LBCD-Out	22-Sep-18	633	8.5	9.5	8.3	-	8.3
LBCD-Out	25-Sep-18	819	7.6	13.5	2.9	2.9	2.9
LBCD-Out	27-Sep-18	802	8.4	12.1	3.9	4.1	3.9
LBCD-Out	28-Sep-18	836	8.2	9.8	2.4	2.4	2.4
LBCD-Out	30-Sep-18	886	8.4	11.6	1.3	1.4	1.3
LBCD-Out	1-Oct-18	876	8.6	6.6	26.7	27.0	26.7
LBCD-Out	2-Oct-18	921	7.9	4.6	11.5	-	11.5
LBCD-Out	3-Oct-18	928	8.3	5.6	9.7	-	9.7
LBCD-Out	4-Oct-18	893	8.1	6.2	7.3	-	7.3
LBCD-Out	18-Oct-18	936	7.9	14.2	1.6	1.6	1.6
LBCD-Out	22-Oct-18	955	8.0	12.8	3.1	3.0	3.1
LBCD-Out	23-Oct-18	1058	8.3	9.1	3.9	-	3.9
LBCD-Out	25-Oct-18	928	7.7	12.0	2.1	1.9	2.1
LBCD-Out	26-Oct-18	998	8.1	7.3	3.0	-	3.0
LBCD-Out	27-Oct-18	984	8.0	8.3	3.6	-	3.6
LBCD-Out	28-Oct-18	984	8.0	8.1	3.6	-	3.6
LBCD-Out	29-Oct-18	998	7.9	8.0	3.9	-	3.9
LBCD-Out	30-Oct-18	1340	8.1	7.9	0.9	0.9	0.9
LBCD-Out	6-Nov-18	1070	8.5	6.4	2.0	-	2.0
LBCD-Out	6-Nov-18	420	7.1	5.7	2.4	2.5	2.4
LBCD-Out	8-Nov-18	998	8.5	7.3	2.0	-	2.0
LBCD-Out	9-Nov-18	1015	8.3	8.4	1.4	-	1.4
LBCD-Out	10-Nov-18	1068	8.4	8.1	1.5	-	1.5
LBCD-Out	11-Nov-18	1055	8.3	8.4	1.3	-	1.3
LBCD-Out	12-Nov-18	1056	8.3	8.4	1.3	-	1.3
LBCD-Out	13-Nov-18	1026	8.3	8.0	1.3	-	1.3
LBCD-Out	13-Nov-18	1007	7.8	7.2	2.7	2.7	2.7
LBCD-Out	14-Nov-18	1024	8.0	8.4	1.4	-	1.4
LBCD-Out	15-Nov-18	1033	7.9	8.6	0.9	-	0.9
LBCD-Out	16-Nov-18	1058	7.9	8.0	1.1	-	1.1
LBCD-Out	17-Nov-18	1063	7.9	8.3	1.0	-	1.0
LBCD-Out	18-Nov-18	1021	8.0	9.1	2.1	-	2.1
LBCD-Out	19-Nov-18	1018	7.9	9.0	1.8	-	1.8
LBCD-Out	22-Nov-18	580	8.0	9.0	4.4	4.4	4.4
LBCD-Out	1-Dec-18	986	7.9	15.8	2.0	1.8	2.0
LBCD-Out	1-Dec-18	1020	7.9	0.0	2.1	2.0	2.1
LBCD-Out	2-Dec-18	1522	8.0	13.6	1.3	1.3	1.3
LBCD-Out	4-Dec-18	998	8.6	10.7	1.8	-	1.8
LBCD-Out	4-Dec-18	1084	8.5	7.0	6.0	6.0	6.0
LBCD-Out	5-Dec-18	1010	8.5	10.0	1.7	-	1.7
LBCD-Out	6-Dec-18	994	8.7	10.8	2.0	-	2.0
LBCD-Out	7-Dec-18	998	8.6	10.7	1.7	-	1.7
LBCD-Out	8-Dec-18	1018	8.6	10.7	2.0	-	2.0
LBCD-Out	9-Dec-18	998	8.7	10.7	2.0	-	2.0
LBCD-Out	10-Dec-18	1005	8.5	10.1	2.7	-	2.7
LBCD-Out	12-Dec-18	1020	7.9	0.5	1.7	1.8	1.7
LBCD-Out	13-Dec-18	1034	8.0	12.1	2.7	2.3	2.7
LBCD-Out	14-Dec-18	1188	8.1	12.3	1.9	1.8	1.9
LBCD-Out	15-Dec-18	1058	8.0	13.6	1.9	2.3	1.9
LBCD-Out	20-Dec-18	1054	8.3	10.3	2.7	-	2.7
LBCD-Out	21-Dec-18	1068	8.6	10.6	2.1	-	2.1
LBCD-Out	23-Dec-18	1074	8.1	3.0	4.9	4.8	4.9

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBCD-Out	24-Dec-18	1108	7.9	3.8	8.4	9.0	8.4
LBCD-Out	25-Dec-18	1067	7.9	6.3	4.2	4.6	4.2
LBCD-Out	26-Dec-18	1084	7.9	4.3	3.4	3.3	3.4
LBCD-Out	28-Dec-18	1042	8.0	8.0	3.4	3.5	3.4
LBCD-Out	29-Dec-18	1084	8.0	7.0	3.6	3.0	3.6
LBCD-Out	30-Dec-18	1060	7.9	7.4	3.6	3.4	3.6
LBCD-Out	31-Dec-18	1046	7.9	7.4	2.6	2.3	2.6
LBEX-CC	6-Jan-18	502	7.8	0.2	2.4	2.5	2.4
LBEX-CC	23-Feb-18	523	8.8	0.1	1.4	1.3	1.4
LBEX-CC	17-Mar-18	580	8.6	0.5	2.2	2.4	2.2
LBEX-CC	2-Apr-18	274	8.7	0.8	10.6	10.6	10.6
LBEX-CC	16-May-18	400	8.4	15.7	13.3	13.7	13.3
LBEX-CC	12-Jun-18	373	8.8	18.3	3.5	3.3	3.5
LBEX-CC	18-Jul-18	614	8.4	23.2	24.5	27.5	24.5
LBEX-CC	18-Aug-18	567	8.4	16.0	6.9	7.1	6.9
LBEX-DICC	6-Jan-18	1120	8.0	0.1	23.0	23.1	23.0
LBEX-DICC	23-Feb-18	1120	8.4	-	1.7	1.6	1.7
LBEX-DICC	17-May-18	868	8.4	14.3	17.3	17.1	17.3
LBEX-DICC	12-Jun-18	874	8.6	14.9	30.7	30.8	30.7
LBEX-DOCC	6-Jan-18	1320	7.8	-	2.4	2.3	2.4
LBEX-DOCC	17-Mar-18	1260	8.2	-	1.2	1.0	1.2
LBEX-DOCC	1-Apr-18	782	8.2	-	2.5	2.5	2.5
LBEX-DOCC	12-Jun-18	1746	8.5	15.9	3.7	3.5	3.7
LBEX-DOCC	31-Aug-18	1250	8.2	10.4	16.5	16.7	16.5
LBEX-GW	1-Jan-18	2120	1.0	2.4	1.4	1.6	1.4
LBEX-GW-SUMP	5-Jan-18	2120	7.7	2.4	1.4	1.6	1.4
LBEX-GW-SUMP	25-Feb-18	2080	7.9	3.0	15.5	7.6	15.5
LBEX-GW-SUMP	14-Mar-18	1270	7.0	7.7	81.0	80.8	81.0
LBEX-GW-SUMP	16-May-18	2010	8.2	18.2	6.8	6.4	6.8
LBEX-SP	6-Jan-18	3100	5.1	-	2.9	2.6	2.9
LBEX-SP	24-Feb-18	3280	5.0	0.0	1.2	1.2	1.2
LBEX-SP	18-Mar-18	730	6.6	-	15.3	16.3	15.3
LBEX-SP	2-Apr-18	2230	4.7	-	1.7	1.6	1.7
LBEX-SP	17-May-18	2030	4.8	19.0	4.0	3.9	4.0
LBEX-SP	19-Jun-18	2400	3.9	27.8	3.2	3.0	3.2
LBEX-SP	18-Jul-18	2540	5.6	23.0	13.8	13.8	13.8
LBEX-SP	8-Aug-18	2900	7.2	19.4	12.2	12.3	12.2
LBEX-SP	27-Sep-18	3400	8.8	8.2	6.8	7.0	6.8
LBEX-SP	27-Oct-18	3500	8.4	5.6	11.3	11.7	11.3
LBEX-SP	1-Nov-18	3200	8.4	1.2	8.7	8.7	8.7
LBEX-SP	14-Nov-18	3080	8.2	1.8	6.7	6.6	6.7
LBEX-SP	24-Nov-18	4820	8.4	1.2	34.4	34.2	34.4
LBEX-SP	2-Dec-18	518	10.3	2.0	22.1	22.2	22.1
LBEX-SP	4-Dec-18	4490	9.8	2.3	27.3	27.5	27.3
LBEX-SP	24-Dec-18	4990	6.0	0.5	7.2	7.0	7.2
LBEX-SP	31-Dec-18	5020	6.7	2.8	3.5	3.4	3.5
LBEX-SP-Out	19-Mar-18	1230	8.0	0.9	89.7	92.4	89.7
LBGC-0.60	14-Mar-18	140	8.6	3.9	818.0	811.0	818.0
LBGC-0.60	15-Mar-18	1380	8.6	2.6	34.9	34.3	34.9
LBGC-0.60	17-Mar-18	800	8.5	1.6	1024	1026	1024
LBGC-0.60	19-Mar-18	1400	8.1	0.0	11.0	10.5	11.0
LBGC-0.60	8-Apr-18	3960	8.5	1.1	8.5	7.9	8.5
LBGC-0.60	10-Apr-18	2590	7.6	0.4	17.3	17.3	17.3
LBGC-0.60	11-Apr-18	3890	7.6	0.6	6.0	6.0	6.0
LBGC-0.60	12-Apr-18	3260	6.9	-	9.6	9.8	9.6
LBGC-0.60	14-Apr-18	1020	8.2	0.6	2983	2979	2983
LBGC-0.60	15-Apr-18	1059	7.7	-	3799	3813	3799
LBGC-0.60	17-Apr-18	-	7.7	0.7	OR	-	-
LBGC-0.60	18-Apr-18	890	8.1	1.5	OR	-	-
LBGC-0.60	19-Apr-18	830	8.1	1.6	2646	2630	2646
LBGC-0.60	20-Apr-18	440	8.2	1.8	OR	-	-
LBGC-0.60	21-Apr-18	326	8.3	2.0	OR	-	-
LBGC-0.60	22-Apr-18	262	8.5	1.8	OR	-	-
LBGC-0.60	23-Apr-18	249	8.3	2.3	OR	-	-

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBGC-0.60	24-Apr-18	268	8.4	1.7	OR	-	-
LBGC-0.60	25-Apr-18	333	8.3	2.5	OR	-	-
LBGC-0.60	26-Apr-18	333	8.1	7.8	OR	-	-
LBGC-0.60	27-Apr-18	468	8.1	7.3	OR	-	-
LBGC-0.60	29-Apr-18	471	8.2	7.4	OR	-	-
LBGC-0.60	29-Apr-18	488	8.2	6.6	OR	-	-
LBGC-0.60	30-Apr-18	469	8.3	5.5	OR	-	-
LBGC-0.60	30-Apr-18	471	8.3	4.2	-	-	-
LBGC-0.60	30-Apr-18	485	8.3	3.3	-	-	-
LBGC-0.60	30-Apr-18	490	8.4	4.4	OR	-	-
LBGC-0.60	30-Apr-18	504	8.5	6.4	OR	-	-
LBGC-0.60	30-Apr-18	598	8.2	6.6	OR	-	-
LBGC-0.60	1-May-18	538	8.0	9.5	OR	-	-
LBGC-0.60	1-May-18	541	8.5	7.0	OR	-	-
LBGC-0.60	1-May-18	577	8.4	6.2	OR	-	-
LBGC-0.60	2-May-18	632	8.6	6.3	OR	-	-
LBGC-0.60	2-May-18	568	8.2	6.1	OR	-	-
LBGC-0.60	2-May-18	662	8.3	6.2	OR	-	-
LBGC-0.60	2-May-18	668	8.3	9.0	OR	-	-
LBGC-0.60	2-May-18	644	8.1	10.4	OR	-	-
LBGC-0.60	2-May-18	665	8.1	9.5	OR	-	-
LBGC-0.60	2-May-18	606	8.3	7.8	OR	-	-
LBGC-0.60	2-May-18	608	8.5	7.0	OR	-	-
LBGC-0.60	3-May-18	618	8.4	5.7	OR	-	-
LBGC-0.60	3-May-18	622	8.4	5.1	OR	-	-
LBGC-0.60	3-May-18	630	8.0	5.8	OR	-	-
LBGC-0.60	3-May-18	658	8.2	9.7	OR	-	-
LBGC-0.60	3-May-18	644	8.1	8.3	OR	-	-
LBGC-0.60	4-May-18	721	8.4	14.1	OR	-	-
LBGC-0.60	4-May-18	762	8.6	9.6	OR	-	-
LBGC-0.60	4-May-18	763	8.6	8.0	OR	-	-
LBGC-0.60	5-May-18	812	8.5	6.5	OR	-	-
LBGC-0.60	5-May-18	845	8.6	5.7	OR	-	-
LBGC-0.60	5-May-18	658	8.6	7.0	OR	-	-
LBGC-0.60	5-May-18	866	8.3	13.3	OR	-	-
LBGC-0.60	5-May-18	860	8.5	14.1	OR	-	-
LBGC-0.60	6-May-18	931	8.3	17.8	OR	-	-
LBGC-0.60	6-May-18	943	8.3	10.6	OR	-	-
LBGC-0.60	6-May-18	951	8.3	9.3	OR	-	-
LBGC-0.60	7-May-18	1008	8.2	7.5	OR	-	-
LBGC-0.60	7-May-18	1042	8.5	6.9	OR	-	-
LBGC-0.60	7-May-18	968	8.3	8.0	OR	-	-
LBGC-0.60	7-May-18	922	8.4	11.7	OR	-	-
LBGC-0.60	7-May-18	1040	8.1	16.7	OR	-	-
LBGC-0.60	7-May-18	1014	8.4	15.2	OR	-	-
LBGC-0.60	7-May-18	1015	8.4	11.3	OR	-	-
LBGC-0.60	7-May-18	1071	8.3	10.0	OR	-	-
LBGC-0.60	8-May-18	1081	8.4	8.9	OR	-	-
LBGC-0.60	8-May-18	1067	8.2	6.1	OR	-	-
LBGC-0.60	8-May-18	1074	8.3	7.4	OR	-	-
LBGC-0.60	8-May-18	1087	8.1	11.5	OR	-	-
LBGC-0.60	8-May-18	1094	8.3	15.9	OR	-	-
LBGC-0.60	8-May-18	1129	7.4	9.8	OR	-	-
LBGC-0.60	9-May-18	1227	7.8	7.7	OR	-	-
LBGC-0.60	9-May-18	1223	7.2	7.0	OR	-	-
LBGC-0.60	9-May-18	1260	7.4	7.2	OR	-	-
LBGC-0.60	9-May-18	1274	7.2	9.4	OR	-	-
LBGC-0.60	9-May-18	1352	7.5	13.3	OR	-	-
LBGC-0.60	9-May-18	1327	7.4	12.5	OR	-	-
LBGC-0.60	9-May-18	1380	7.1	9.7	OR	-	-
LBGC-0.60	9-May-18	1348	7.3	8.4	OR	-	-
LBGC-0.60	10-May-18	1480	7.6	7.0	OR	-	-
LBGC-0.60	10-May-18	1461	7.4	5.9	OR	-	-
LBGC-0.60	10-May-18	1428	7.4	7.1	OR	-	-

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBGC-0.60	10-May-18	1446	7.5	10.2	OR	-	-
LBGC-0.60	10-May-18	1420	7.3	17.1	OR	-	-
LBGC-0.60	13-May-18	2360	7.8	2.3	OR	-	-
LBGC-0.60	14-May-18	2660	7.8	8.4	1825	1818	1825
LBGC-0.60	15-May-18	2600	7.3	15.5	106.0	109.0	106.0
LBGC-0.60	16-May-18	2960	8.0	8.9	116.0	118.0	116.0
LBGC-0.60	17-May-18	3080	7.8	7.6	96.0	97.0	96.0
LBGC-0.60	18-May-18	3160	7.8	7.7	102.0	103.0	102.0
LBGC-0.60	22-May-18	3200	6.9	18.3	728.0	726.0	728.0
LBGC-0.60	23-May-18	3100	7.8	13.4	116.0	115.0	116.0
LBGC-0.60	24-May-18	2800	8.2	21.1	130.0	129.0	130.0
LBGC-0.60	25-May-18	3030	8.2	18.2	128.0	122.0	128.0
LBGC-0.60	26-May-18	3130	8.0	8.6	125.0	137.0	125.0
LBGC-0.60	27-May-18	3100	8.2	13.5	123.0	125.0	123.0
LBGC-0.60	28-May-18	3020	8.1	17.3	99.0	102.0	99.0
LBGC-0.60	29-May-18	3080	7.3	20.1	87.8	88.1	87.8
LBGC-0.60	31-May-18	3310	7.4	7.8	98.0	99.0	98.0
LBGC-0.60	1-Jun-18	3120	7.5	5.6	105.0	105.0	105.0
LBGC-0.60	2-Jun-18	3120	7.6	7.2	63.4	63.4	63.4
LBGC-0.60	3-Jun-18	2860	7.8	4.8	102.9	102.3	102.9
LBGC-0.60	4-Jun-18	2350	7.8	10.5	2862.0	2857.0	2862.0
LBGC-0.60	5-Jun-18	2270	8.4	20.7	106.0	104.5	106.0
LBGC-0.60	6-Jun-18	2370	8.2	8.3	100.7	100.8	100.7
LBGC-0.60	7-Jun-18	2470	8.1	9.1	108.8	109.0	108.8
LBGC-0.60	8-Jun-18	2230	8.2	18.1	90.0	90.0	90.0
LBGC-0.60	9-Jun-18	2260	8.2	17.2	92.0	93.0	92.0
LBGC-0.60	10-Jun-18	2400	8.3	18.8	90.0	90.0	90.0
LBGC-0.60	12-Jun-18	2540	8.5	17.2	98.0	94.0	98.0
LBGC-0.60	13-Jun-18	2420	8.3	21.2	87.0	87.0	87.0
LBGC-0.60	14-Jun-18	2350	8.3	17.9	737.0	734.0	737.0
LBGC-0.60	15-Jun-18	2270	8.4	21.9	82.0	81.0	82.0
LBGC-0.60	16-Jun-18	2400	8.4	18.2	98.0	97.0	98.0
LBGC-0.60	17-Jun-18	2330	8.3	20.5	99.0	97.0	99.0
LBGC-0.60	18-Jun-18	2320	8.3	23.2	93.0	93.0	93.0
LBGC-0.60	19-Jun-18	2280	8.1	29.4	127.0	129.0	127.0
LBGC-0.60	20-Jun-18	2330	8.0	15.7	106.9	107.9	106.9
LBGC-0.60	21-Jun-18	2230	8.1	14.9	104.8	106.1	104.8
LBGC-0.60	22-Jun-18	2320	8.2	16.2	103.8	100.0	103.8
LBGC-0.60	23-Jun-18	2230	8.4	16.0	125.0	124.0	125.0
LBGC-0.60	24-Jun-18	2330	8.2	19.3	109.0	101.0	109.0
LBGC-0.60	25-Jun-18	2080	8.4	13.5	1122	1119	1122
LBGC-0.60	26-Jun-18	2280	7.6	12.4	OR	-	-
LBGC-0.60	27-Jun-18	2230	7.8	19.7	OR	-	-
LBGC-0.60	28-Jun-18	2180	8.1	20.0	2168	2122	2168
LBGC-0.60	29-Jun-18	1981	8.2	23.0	1833	1837	1833
LBGC-0.60	30-Jun-18	1700	8.2	22.3	1007	1008	1007
LBGC-0.60	1-Jul-18	1547	8.4	14.2	OR	-	-
LBGC-0.60	2-Jul-18	2220	8.2	19.3	OR	-	-
LBGC-0.60	3-Jul-18	2040	8.4	15.1	1297	1295	1297
LBGC-0.60	4-Jul-18	2070	8.3	18.3	1009	1011	1009
LBGC-0.60	5-Jul-18	2060	8.2	18.5	107.0	107.0	107.0
LBGC-0.60	6-Jul-18	2200	8.3	17.4	103.0	101.0	103.0
LBGC-0.60	7-Jul-18	2080	8.3	13.1	884.0	882.0	884.0
LBGC-0.60	8-Jul-18	2020	8.1	23.0	808.0	805.0	808.0
LBGC-0.60	9-Jul-18	2120	8.1	24.1	95.0	95.0	95.0
LBGC-0.60	10-Jul-18	1977	8.1	21.3	146.0	146.0	146.0
LBGC-0.60	11-Jul-18	2220	8.0	13.9	113.0	115.0	113.0
LBGC-0.60	12-Jul-18	2180	8.0	21.9	108.0	106.0	108.0
LBGC-0.60	13-Jul-18	1846	8.1	20.1	96.3	96.2	96.3
LBGC-0.60	14-Jul-18	2170	8.0	19.1	98.0	100.0	98.0
LBGC-0.60	15-Jul-18	2200	8.1	23.3	91.7	87.3	91.7
LBGC-0.60	16-Jul-18	2200	8.1	14.4	99.6	99.8	99.6
LBGC-0.60	17-Jul-18	2000	8.1	18.5	83.8	84.6	83.8
LBGC-0.60	18-Jul-18	1962	8.3	21.9	69.8	71.0	69.8

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBGC-0.60	19-Jul-18	1940	7.8	15.3	57.1	57.7	57.1
LBGC-0.60	20-Jul-18	1455	8.1	14.2	OR	-	-
LBGC-0.60	21-Jul-18	2150	8.1	19.0	OR	-	-
LBGC-0.60	22-Jul-18	1616	8.0	14.2	OR	-	-
LBGC-0.60	23-Jul-18	2160	7.8	16.6	OR	-	-
LBGC-0.60	24-Jul-18	2150	8.0	21.0	OR	-	-
LBGC-0.60	25-Jul-18	1630	8.3	19.4	OR	-	-
LBGC-0.60	26-Jul-18	1578	8.2	25.1	OR	-	-
LBGC-0.60	27-Jul-18	1963	8.3	20.7	OR	-	-
LBGC-0.60	28-Jul-18	2200	8.0	28.4	OR	-	-
LBGC-0.60	29-Jul-18	2280	7.9	24.4	OR	-	-
LBGC-0.60	30-Jul-18	2180	8.1	23.0	OR	-	-
LBGC-0.60	7-Aug-18	2330	8.1	22.4	OR	-	-
LBGC-0.60	8-Aug-18	2310	7.8	17.6	OR	-	-
LBGC-0.60	9-Aug-18	2300	8.4	22.4	1593	1592	1593
LBGC-0.60	10-Aug-18	2250	8.0	18.2	3515	3516	3515
LBGC-0.60	11-Aug-18	2200	8.1	20.1	3129	3124	3129
LBGC-0.60	12-Aug-18	2130	8.1	22.3	1723	1719	1723
LBGC-0.60	13-Aug-18	2100	8.2	13.2	3541	3537	3541
LBGC-0.60	14-Aug-18	1963	9.3	20.5	2003	-	2003
LBGC-0.60	15-Aug-18	1936	8.7	22.4	622.0	623.0	622.0
LBGC-0.60	16-Aug-18	1900	8.2	18.4	812.0	809.0	812.0
LBGC-0.60	17-Aug-18	1813	8.3	18.3	751.0	751.0	751.0
LBGC-0.60	18-Aug-18	1792	8.4	16.2	74.2	74.9	74.2
LBGC-0.60	21-Aug-18	1070	8.3	16.1	91.0	90.0	91.0
LBGC-0.60	22-Aug-18	1170	8.8	13.4	59.0	59.1	59.0
LBGC-0.60	23-Aug-18	940	8.9	16.0	51.2	51.8	51.2
LBGC-0.60	24-Aug-18	950	8.7	13.4	25.6	25.5	25.6
LBGC-0.60	25-Aug-18	940	8.8	14.8	30.7	30.8	30.7
LBGC-0.60	26-Aug-18	950	8.8	11.4	29.5	31.2	29.5
LBGC-0.60	27-Aug-18	1000	8.6	16.0	12.3	11.5	12.3
LBGC-0.60	28-Aug-18	920	8.9	0.9	8.9	9.2	8.9
LBGC-0.60	29-Aug-18	930	8.5	14.2	8.0	8.2	8.0
LBGC-0.60	30-Aug-18	920	8.6	13.5	7.7	7.5	7.7
LBGC-0.60	31-Aug-18	870	8.5	12.4	6.2	6.4	6.2
LBGC-0.60	2-Sep-18	740	8.5	13.6	7.8	7.9	7.8
LBGC-0.60	3-Sep-18	720	8.8	10.6	768.0	760.0	768.0
LBGC-0.60	4-Sep-18	1206	8.6	15.9	43.0	45.0	43.0
LBGC-0.60	6-Sep-18	1112	8.5	17.8	29.9	30.0	29.9
LBGC-0.60	7-Sep-18	1179	8.6	11.8	77.1	78.4	77.1
LBGC-0.60	9-Sep-18	2020	8.1	8.8	OR	-	-
LBGC-0.60	10-Sep-18	2210	8.1	8.7	OR	-	-
LBGC-0.60	11-Sep-18	1400	8.3	11.5	OR	-	-
LBGC-0.60	13-Sep-18	1680	8.4	5.0	4059.0	4032.0	4059.0
LBGC-0.60	14-Sep-18	1559	8.5	6.4	OR	-	-
LBGC-0.60	15-Sep-18	1554	8.3	4.3	OR	-	-
LBGC-0.60	16-Sep-18	1478	8.6	7.7	OR	-	-
LBGC-0.60	17-Sep-18	1442	8.1	9.7	OR	-	-
LBGC-0.60	18-Sep-18	1400	8.4	11.1	OR	-	-
LBGC-0.60	19-Sep-18	1511	8.5	8.9	OR	-	-
LBGC-0.60	20-Sep-18	1436	8.3	7.2	812.0	813.0	812.0
LBGC-0.60	21-Sep-18	1470	8.5	11.2	OR	-	-
LBGC-0.60	22-Sep-18	1572	8.5	7.3	OR	-	-
LBGC-0.60	23-Sep-18	1530	8.3	10.9	OR	-	-
LBGC-0.60	24-Sep-18	1476	8.6	11.6	OR	-	-
LBGC-0.60	25-Sep-18	1573	8.2	9.1	1138	1130	1138
LBGC-0.60	26-Sep-18	1428	8.6	11.3	OR	-	-
LBGC-0.60	1-Oct-18	1934	8.8	6.3	12.0	11.8	12.0
LBGC-0.60	16-Oct-18	1420	8.0	8.6	1881	1880	1881
LBGC-0.60	28-Oct-18	1478	8.1	2.0	44.0	44.0	44.0
LBGC-0.60	30-Oct-18	1630	8.1	-	74.5	72.0	74.5
LBGC-OUT	14-Mar-18	640	8.6	0.1	197.0	198.0	197.0
LBGC-OUT	17-Mar-18	1240	8.5	-	30.4	30.3	30.4
LBGC-OUT	18-Mar-18	914	8.5	0.1	27.0	27.6	27.0

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBGC-OUT	20-Mar-18	1250	8.3	0.4	71.0	69.7	71.0
LBGC-OUT	21-Mar-18	1570	8.3	0.3	18.0	18.2	18.0
LBGC-OUT	23-Mar-18	1850	8.3	-	9.0	8.7	9.0
LBGC-OUT	8-Apr-18	570	9.3	0.7	1532	1530	1532
LBGC-OUT	10-Apr-18	2170	8.4	0.2	29.4	29.1	29.4
LBGC-OUT	11-Apr-18	2520	8.2	0.0	13.1	13.1	13.1
LBGC-OUT	12-Apr-18	2840	8.2	0.3	9.5	9.4	9.5
LBGC-OUT	14-Apr-18	1010	8.0	0.6	OR	-	-
LBGC-OUT	15-Apr-18	960	8.1	-	OR	-	-
LBGC-OUT	17-Apr-18	1390	8.2	0.8	OR	-	-
LBGC-OUT	18-Apr-18	1200	8.1	1.6	OR	-	-
LBGC-OUT	19-Apr-18	1186	8.2	3.5	OR	-	-
LBGC-OUT	20-Apr-18	612	8.4	4.1	OR	-	-
LBGC-OUT	21-Apr-18	354	8.3	1.7	OR	-	-
LBGC-OUT	22-Apr-18	271	8.5	2.0	OR	-	-
LBGC-OUT	23-Apr-18	272	8.3	18.1	OR	-	-
LBGC-OUT	24-Apr-18	269	8.3	1.5	OR	-	-
LBGC-OUT	25-Apr-18	346	8.3	3.9	OR	-	-
LBGC-OUT	26-Apr-18	326	8.3	6.5	OR	-	-
LBGC-OUT	27-Apr-18	438	8.2	7.2	OR	-	-
LBGC-OUT	29-Apr-18	255	8.5	6.4	OR	-	-
LBGC-OUT	29-Apr-18	282	8.3	3.7	OR	-	-
LBGC-OUT	30-Apr-18	432	8.3	4.9	OR	-	-
LBGC-OUT	30-Apr-18	436	8.2	4.0	OR	-	-
LBGC-OUT	30-Apr-18	430	8.5	4.8	OR	-	-
LBGC-OUT	30-Apr-18	431	8.2	7.7	4069	-	4069
LBGC-OUT	30-Apr-18	433	8.2	7.0	OR	-	-
LBGC-OUT	30-Apr-18	442	8.3	6.6	OR	-	-
LBGC-OUT	1-May-18	426	8.5	9.2	OR	-	-
LBGC-OUT	1-May-18	419	8.2	7.6	OR	-	-
LBGC-OUT	1-May-18	420	8.7	6.8	OR	-	-
LBGC-OUT	2-May-18	415	8.2	6.7	OR	-	-
LBGC-OUT	2-May-18	420	8.6	6.6	OR	-	-
LBGC-OUT	2-May-18	427	8.5	7.0	OR	-	-
LBGC-OUT	2-May-18	437	8.3	7.9	OR	-	-
LBGC-OUT	2-May-18	433	8.3	9.5	OR	-	-
LBGC-OUT	2-May-18	444	8.4	9.3	OR	-	-
LBGC-OUT	2-May-18	425	8.4	8.2	OR	-	-
LBGC-OUT	2-May-18	423	8.4	7.8	OR	-	-
LBGC-OUT	3-May-18	424	8.2	7.0	3990	-	3990
LBGC-OUT	3-May-18	428	8.3	6.8	3637	-	3637
LBGC-OUT	3-May-18	414	8.2	7.2	3388	-	3388
LBGC-OUT	3-May-18	442	8.4	8.6	3699	-	3699
LBGC-OUT	3-May-18	446	8.5	10.2	3945	-	3945
LBGC-OUT	4-May-18	685	8.4	12.8	OR	-	-
LBGC-OUT	4-May-18	661	8.5	9.3	OR	-	-
LBGC-OUT	4-May-18	747	8.6	7.4	OR	-	-
LBGC-OUT	5-May-18	821	8.4	5.8	OR	-	-
LBGC-OUT	5-May-18	862	8.5	5.1	OR	-	-
LBGC-OUT	5-May-18	985	8.3	6.1	OR	-	-
LBGC-OUT	5-May-18	881	8.3	6.8	OR	-	-
LBGC-OUT	5-May-18	886	8.6	17.1	OR	-	-
LBGC-OUT	6-May-18	945	8.5	18.0	OR	-	-
LBGC-OUT	6-May-18	944	8.5	11.2	OR	-	-
LBGC-OUT	6-May-18	1011	8.5	8.5	OR	-	-
LBGC-OUT	7-May-18	1009	8.4	6.9	OR	-	-
LBGC-OUT	7-May-18	1022	8.6	6.3	OR	-	-
LBGC-OUT	7-May-18	967	8.5	10.3	OR	-	-
LBGC-OUT	7-May-18	1023	8.3	13.1	OR	-	-
LBGC-OUT	7-May-18	525	8.5	15.9	2488	-	2488
LBGC-OUT	7-May-18	1001	8.4	16.2	OR	-	-
LBGC-OUT	7-May-18	534	8.5	14.0	3142	-	3142
LBGC-OUT	7-May-18	1062	8.4	10.4	OR	-	-
LBGC-OUT	8-May-18	553	8.5	11.7	OR	-	-

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBGC-OUT	8-May-18	1074	8.5	7.0	OR	-	-
LBGC-OUT	8-May-18	1064	8.3	15.1	OR	-	-
LBGC-OUT	8-May-18	1140	8.5	17.2	OR	-	-
LBGC-OUT	8-May-18	1173	7.6	9.1	OR	-	-
LBGC-OUT	9-May-18	1298	7.7	7.5	OR	-	-
LBGC-OUT	9-May-18	1296	7.4	6.6	OR	-	-
LBGC-OUT	9-May-18	575	7.6	12.0	OR	-	-
LBGC-OUT	9-May-18	1257	7.4	13.2	OR	-	-
LBGC-OUT	9-May-18	1402	7.6	13.4	OR	-	-
LBGC-OUT	9-May-18	1338	7.6	13.4	OR	-	-
LBGC-OUT	9-May-18	1360	7.3	10.2	OR	-	-
LBGC-OUT	9-May-18	1402	7.5	7.6	OR	-	-
LBGC-OUT	10-May-18	1514	7.7	6.7	OR	-	-
LBGC-OUT	10-May-18	1500	7.6	5.9	OR	-	-
LBGC-OUT	10-May-18	1463	7.5	7.3	OR	-	-
LBGC-OUT	10-May-18	1412	7.5	11.7	OR	-	-
LBGC-OUT	10-May-18	1443	7.5	18.4	OR	-	-
LBGC-OUT	13-May-18	2260	8.1	7.3	OR	-	-
LBGC-OUT	14-May-18	2680	8.0	8.0	991.0	982.0	991.0
LBGC-OUT	15-May-18	2650	8.2	16.8	80.0	82.0	80.0
LBGC-OUT	16-May-18	2800	8.0	7.9	98.0	103.0	98.0
LBGC-OUT	17-May-18	3120	7.8	7.7	88.6	89.3	88.6
LBGC-OUT	18-May-18	3080	8.0	7.6	83.1	82.8	83.1
LBGC-OUT	22-May-18	3170	8.3	16.0	33.4	33.3	33.4
LBGC-OUT	24-May-18	3020	8.5	14.9	113.0	112.0	113.0
LBGC-OUT	25-May-18	3170	8.5	14.2	63.6	63.8	63.6
LBGC-OUT	26-May-18	3350	8.5	12.8	94.0	92.0	94.0
LBGC-OUT	27-May-18	3250	8.5	13.9	97.0	98.3	97.0
LBGC-OUT	28-May-18	3400	8.5	13.0	58.0	59.0	58.0
LBGC-OUT	29-May-18	3130	8.4	13.8	75.2	76.9	75.2
LBGC-OUT	31-May-18	3090	8.2	8.9	83.4	83.5	83.4
LBGC-OUT	1-Jun-18	3080	8.2	7.0	81.2	81.3	81.2
LBGC-OUT	2-Jun-18	3080	8.3	8.1	48.9	48.9	48.9
LBGC-OUT	3-Jun-18	3310	8.2	5.6	924.0	930.0	924.0
LBGC-OUT	4-Jun-18	1164	8.3	11.0	676.0	674.0	676.0
LBGC-OUT	5-Jun-18	2360	8.5	12.4	88.6	89.4	88.6
LBGC-OUT	6-Jun-18	2730	8.3	9.1	38.9	37.9	38.9
LBGC-OUT	7-Jun-18	3060	8.2	10.4	7.7	7.8	7.7
LBGC-OUT	8-Jun-18	2600	8.2	12.1	8.9	9.2	8.9
LBGC-OUT	9-Jun-18	2780	8.2	12.0	5.9	5.8	5.9
LBGC-OUT	10-Jun-18	2790	8.2	17.4	42.6	39.3	42.6
LBGC-OUT	12-Jun-18	2530	8.9	18.0	110.0	115.0	110.0
LBGC-OUT	13-Jun-18	3000	8.3	13.0	50.1	49.1	50.1
LBGC-OUT	14-Jun-18	2800	8.4	15.2	9.2	9.2	9.2
LBGC-OUT	15-Jun-18	2720	8.4	14.5	12.8	12.5	12.8
LBGC-OUT	16-Jun-18	2800	8.4	13.0	3.2	3.2	3.2
LBGC-OUT	17-Jun-18	2900	8.1	21.5	87.0	84.0	87.0
LBGC-OUT	18-Jun-18	2550	8.3	24.9	3.2	3.2	3.2
LBGC-OUT	20-Jun-18	2270	8.0	15.2	2.8	2.8	2.8
LBGC-OUT	24-Jun-18	3000	8.2	14.9	2.8	2.7	2.8
LBGC-OUT	25-Jun-18	2200	8.3	13.2	765.0	769.0	765.0
LBGC-OUT	26-Jun-18	2260	7.1	14.4	OR	-	-
LBGC-OUT	28-Jun-18	2620	8.2	18.4	19.3	19.5	19.3
LBGC-OUT	29-Jun-18	2450	8.1	18.4	11.8	11.2	11.8
LBGC-OUT	30-Jun-18	2080	8.2	15.3	55.7	55.2	55.7
LBGC-OUT	1-Jul-18	1975	8.5	14.8	38.0	33.6	38.0
LBGC-OUT	2-Jul-18	2420	8.2	16.2	9.6	10.1	9.6
LBGC-OUT	3-Jul-18	240	8.4	15.7	2072	2073	2072
LBGC-OUT	13-Jul-18	1270	8.0	15.0	51.3	52.4	51.3
LBGC-OUT	20-Jul-18	1665	8.1	15.2	1120	1121	1120
LBGC-OUT	22-Jul-18	800	8.4	14.6	1814	1804	1814
LBGC-OUT	28-Jul-18	2320	8.4	20.0	31.8	31.8	31.8
LBGC-OUT	7-Aug-18	3230	8.0	13.7	5.8	5.8	5.8
LBGC-OUT	8-Aug-18	2600	8.2	13.2	4.5	4.4	4.5

Table 1: 2018 Water Quality Field Data - Left Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
LBGC-OUT	9-Aug-18	2820	8.2	15.9	5.0	5.1	5.0
LBGC-OUT	10-Aug-18	2680	8.1	14.9	5.1	5.5	5.1
LBGC-OUT	11-Aug-18	2750	8.2	16.3	5.8	5.8	5.8
LBGC-OUT	12-Aug-18	2400	8.3	16.1	3.0	3.0	3.0
LBGC-OUT	13-Aug-18	2500	8.0	16.4	2.1	2.2	2.1
LBGC-OUT	26-Aug-18	1000	8.5	13.5	38.7	39.0	38.7
LBGC-OUT	8-Sep-18	1200	7.8	10.5	OR	-	-
LBGC-OUT	9-Sep-18	1960	8.2	9.9	OR	-	-
LBGC-OUT	10-Sep-18	1700	8.1	8.8	OR	-	-
LBGC-OUT	1-Oct-18	2020	8.6	-	4.6	4.7	4.6
LBGC-OUT	12-Oct-18	2060	7.5	4.5	OR	-	-
LBL3C-3.32	21-Apr-18	200	8.3	2.5	26.9	26.4	26.9
LBL3C-3.32	23-Apr-18	152	8.3	2.5	946.0	942.0	946.0
LBL3C-3.32	24-Apr-18	132	8.5	1.2	883.0	912.0	883.0
LBL3C-3.32	25-Apr-18	166	8.5	2.3	2279	2268	2279
LBL3C-3.32	26-Apr-18	189	8.2	4.8	1669	1675	1669
LBL3C-3.32	27-Apr-18	217	8.4	5.2	610.0	612.0	610.0
LBL3C-3.32	28-Apr-18	240	8.4	18.5	160.0	159.0	160.0
LBL3C-3.32	1-May-18	300	8.3	4.6	84.0	84.8	84.0
LBL3C-3.32	2-May-18	340	8.4	6.6	85.2	85.0	85.2
LBL3C-3.32	3-May-18	370	8.3	7.4	58.0	58.0	58.0
LBL3C-3.32	5-May-18	467	8.7	6.4	81.6	81.0	81.6
LBL3C-3.32	6-May-18	499	8.4	11.0	89.7	88.4	89.7
LBL3C-3.32	8-May-18	620	8.0	11.1	22.9	23.2	22.9
LBL3C-3.32	27-May-18	1480	8.4	12.9	7.3	7.2	7.3
LBL3C-3.32	9-Jun-18	1300	8.1	11.0	8.8	8.1	8.8
LBL3C-3.32	12-Jun-18	1440	8.2	11.2	6.9	6.8	6.9
LBL3C-3.32	25-Jun-18	1276	8.2	12.4	65.8	66.3	65.8
LBL3C-3.32	26-Jun-18	1181	7.9	12.8	35.6	35.8	35.6
LBL3C-3.32	27-Jun-18	919	8.1	11.0	13.5	13.3	13.5
LBL3C-3.32	1-Jul-18	1072	8.2	12.6	8.2	8.0	8.2
LBL3C-3.32	9-Jul-18	1240	8.0	13.5	22.9	23.1	22.9
LBL3C-3.32	21-Jul-18	1000	8.4	12.8	21.3	19.2	21.3
LBL3C-3.32	29-Jul-18	1290	8.3	14.3	13.7	13.5	13.7
LBL3C-3.32	26-Aug-18	930	8.4	10.4	16.4	16.3	16.4
LBL3C-3.37	4-Jun-18	830	8.0	8.2	38.4	38.4	38.4
LBL5-C1	6-Jan-18	1120	7.8	0.2	18.6	18.2	18.6
LBL5-C1	23-Feb-18	1050	7.7	0.4	4.0	4.0	4.0
LBL5-C1	5-Apr-18	1230	8.6	-	53.8	50.9	53.8
RSEM-L5-EP	3-Nov-18	2020	7.9	1.8	12.2	11.7	12.2
RSEM-L5-EP	19-Nov-18	1744	7.8	5.8	1.8	1.9	1.8
RSEM-L5-EP	25-Nov-18	1776	7.7	0.7	2.2	2.3	2.2
RSEM-L5-EP	1-Dec-18	1330	8.3	1.5	6.3	6.2	6.3
RSEM-L5-EP	11-Dec-18	901	8.0	0.6	3.0	3.0	3.0
RSEM-L5-EP	17-Dec-18	940	7.7	0.0	832.0	840.0	832.0
RSEM-L5-WP	13-Oct-18	641	8.1	7.5	30.5	31.5	30.5
RSEM-L5-WP	30-Oct-18	667	8.5	5.6	6.3	6.4	6.3
RSEM-L5-WP	31-Oct-18	690	8.0	1.3	8.8	8.8	8.8
RSEM-L5-WP	16-Nov-18	758	8.4	0.1	2.8	3.0	2.8
RSEM-L5-WP	25-Nov-18	879	8.4	0.8	2.1	2.2	2.1
RSEM-L5-WP	1-Dec-18	4200	8.4	-0.1	10.9	10.5	10.9
RSEM-L5-WP	7-Dec-18	800	8.1	0.5	2.0	2.0	2.0
RSEM-L5-WP	11-Dec-18	880	7.9	-0.1	3.1	2.9	3.1
RSEM-L5-WP	17-Dec-18	896	8.0	0.0	1.7	1.8	1.7
RSEM-L5-WP	28-Dec-18	936	7.7	0.0	1.9	1.9	1.9

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
MWTF_SLP	23-Oct-18	920	9.1	-	-	-	-
MWTF_SLP	24-Oct-18	917	8.4	-	-	-	-
MWTF_SLP	25-Oct-18	862	8.0	4.6	2.8	2.4	2.8
MWTF_SLP	26-Oct-18	831	7.3	3.7	2	1.8	2
MWTF_SLP	27-Oct-18	671	8.0	6.8	2.5	2.7	2.5
MWTF_SLP	28-Oct-18	740	8.0	2.7	6.6	6.2	6.6
MWTF_SLP	29-Oct-18	707	7.8	3.5	3.1	3	3.1
MWTF_SLP	30-Oct-18	730	7.8	3.2	4.6	4.6	4.6
MWTF_SLP	31-Oct-18	693	7.7	2.9	7.5	7.2	7.5
MWTF_SLP	1-Nov-18	750	7.7	2.4	2.7	2.7	2.7
MWTF_SLP	2-Nov-18	875	7.9	1.7	2.4	2.4	2.4
MWTF_SLP	3-Nov-18	983	8.1	1.2	2.9	3.2	2.9
MWTF_SLP	4-Nov-18	1060	8.4	0.8	2.1	2.2	2.1
MWTF_SLP	5-Nov-18	300	7.7	0.9	1.8	1.7	1.8
MWTF_SLP	6-Nov-18	1380	8.0	1.1	2.1	2	2.1
MWTF_SLP	7-Nov-18	1456	7.4	0.5	3.1	2.5	3.1
MWTF_SLP	8-Nov-18	1500	7.2	0.6	2.2	2.1	2.2
MWTF_SLP	9-Nov-18	1333	7.8	4.5	2.4	1.9	2.4
MWTF_SLP	13-Nov-18	1850	7.9	1.7	1.5	1.5	1.5
MWTF_SLP	14-Nov-18	1996	7.3	1.3	1.2	1.1	1.2
MWTF_SLP	15-Nov-18	1942	7.2	0.7	2	2	2
MWTF_SLP	16-Nov-18	2240	7.2	0.4	0.7	0.7	0.7
MWTF_SLP	17-Nov-18	2250	7.4	0.1	1.1	1.1	1.1
MWTF_SLP	18-Nov-18	2730	7.0	0.8	2.4	2.3	2.4
MWTF_SLP	19-Nov-18	2910	6.9	1.0	2.1	2.2	2.1
MWTF_SLP	20-Nov-18	2680	6.8	1.5	1.8	1.9	1.8
MWTF_SLP	21-Nov-18	2530	7.1	0.8	0.9	0.9	0.9
MWTF_SLP	22-Nov-18	1880	8.0	2.4	1.3	1.3	1.3
MWTF_SLP	23-Nov-18	1806	7.7	0.7	0.9	0.9	0.9
MWTF_SLP	24-Nov-18	1754	8.0	0.9	1.4	1.4	1.4
MWTF_SLP	25-Nov-18	1974	7.8	0.8	1.5	1.5	1.5
MWTF_SLP	26-Nov-18	2030	8.1	0.7	8.4	8.3	8.4
MWTF_SLP	27-Nov-18	2530	7.9	0.9	5.7	5.7	5.7
MWTF_SLP	28-Nov-18	2400	7.8	0.8	3.8	3.5	3.8
MWTF_SLP	29-Nov-18	2580	7.4	1.4	2.4	2.3	2.4
MWTF_SLP	30-Nov-18	2590	7.4	1.3	5.1	5.2	5.1
MWTF_SLP	1-Dec-18	7600	7.6	1.1	1.1	1.1	1.1
MWTF_SLP	2-Dec-18	2780	7.4	0.8	-	-	-
MWTF_SLP	3-Dec-18	2900	7.8	0.5	1.5	1.4	1.5
MWTF_SLP	4-Dec-18	2860	7.1	0.7	1.1	1.2	1.1
MWTF_SLP	5-Dec-18	2800	7.8	-0.3	2.2	2.2	2.2
MWTF_SLP	6-Dec-18	3020	7.4	-0.2	1.8	1.8	1.8
MWTF_SLP	7-Dec-18	3210	7.2	-0.2	1.9	1.8	1.9
MWTF_SLP	8-Dec-18	3430	8.0	5.1	1.9	1.8	1.9
MWTF_SLP	9-Dec-18	3300	8.3	0.1	3.5	3.5	3.5
MWTF_SLP	10-Dec-18	3000	8.6	2.3	4.1	4.1	4.1
MWTF_SLP	11-Dec-18	2440	9.3	0.4	11	10.1	11
MWTF_SLP	12-Dec-18	2170	8.3	0.5	3.6	3.7	3.6
MWTF_SLP	13-Dec-18	1977	8.8	0.6	3.3	3.5	3.3
MWTF_SLP	14-Dec-18	1880	8.2	0.6	3.1	3.1	3.1
MWTF_SLP	15-Dec-18	1880	8.3	0.5	4.7	4.1	4.7
MWTF_SLP	16-Dec-18	1780	8.6	0.5	2.4	2.4	2.4
MWTF_SLP	17-Dec-18	1600	9.0	0.4	4	3.9	4
MWTF_SLP	18-Dec-18	1555	7.9	0.4	3.7	3.6	3.7
MWTF_SLP	19-Dec-18	1340	8.2	0.0	2.5	2.6	2.5
MWTF_SLP	20-Dec-18	1331	8.1	1.7	2.3	2.4	2.3
MWTF_SLP	21-Dec-18	1359	8.0	0.9	2.8	2.8	2.8
MWTF_SLP	23-Dec-18	1402	8.0	-0.4	2.5	2.5	2.5
MWTF_SLP	24-Dec-18	1523	7.6	-0.1	3.5	3.2	3.5
MWTF_SLP	25-Dec-18	1463	7.9	-0.1	2.8	2.8	2.8
MWTF_SLP	26-Dec-18	1347	8.7	-0.2	3.3	3.2	3.3
MWTF_SLP	27-Dec-18	1480	7.8	0.0	2.6	2.6	2.6
MWTF_SLP	28-Dec-18	1549	8.3	0.4	3.3	3.3	3.3

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
MWTF_SLP	29-Dec-18	1424	8.0	0.3	3.2	3.2	3.2
MWTF_SLP	30-Dec-18	1458	7.6	-0.3	3.6	3.6	3.6
MWTF_SLP	31-Dec-18	1241	7.7	6.5	3.1	3.2	3.1
R5B-EAST-SEEP	21-Jun-18	1190	7.3	27.5	1.8	1.9	1.8
R5B-EAST-SEEP	26-Jul-18	2240	7.2	25.3	22.3	22.2	22.3
R5B-EAST-SEEP	10-Aug-18	2740	7.0	14.7	11.3	12.4	11.3
RBAC-SEEP	6-Jan-18	3800	7.5	2.2	1.4	1.4	1.4
RBAC-SEEP	27-Apr-18	2280	7.6	8.4	2.3	2.3	2.3
RBAC-SEEP	17-May-18	1918	8.2	22.0	3.6	3.6	3.6
RBAC-SEEP	30-Jun-18	1485	8.0	22.7	1.8	1.6	1.8
RBAC-SEEP	8-Aug-18	1909	8.2	18.2	6	5.9	6
RBAC-SEEP	8-Sep-18	510	8.3	10.1	34.5	34.4	34.5
RBAC-SEEP	24-Nov-18	1450	7.6	2.5	4.6	4.6	4.6
RBAC-SUMP	6-Jan-18	2100	8.4	-	3.8	3.8	3.8
RBAC-SUMP	27-Apr-18	1892	7.7	6.6	16.9	16.3	16.9
RBAC-SUMP	17-May-18	1024	7.9	11.5	3.8	3.6	3.8
RBAC-SUMP	30-Jun-18	1642	8.0	18.7	11.7	11.4	11.7
RBAC-SUMP	8-Aug-18	1465	7.9	21.8	12	11.3	12
RBAC-SUMP	8-Sep-18	1166	6.9	10.3	36.1	36.9	36.1
RBAC-SUMP	31-Dec-18	1651	7.7	2.4	3	3	3
RBDT-BT	7-Feb-18	10	9.0	19.9	0.7	0.7	0.7
RBDT-BT	10-Dec-18	2860	9.0	14.8	OR	-	-
RBDT-NSP	22-Feb-18	705	7.6	0.3	87.9	88.3	87.9
RBDT-NSP	23-Feb-18	714	7.5	1.0	80.4	82.5	80.4
RBDT-NSP	26-Feb-18	626	7.8	3.9	66.3	66.5	66.3
RBDT-NSP	18-Mar-18	333	8.5	8.8	90	90	90
RBDT-NSP	8-Apr-18	515	11.1	0.8	99	98	99
RBDT-NSP	15-Apr-18	417	6.6	7.5	91.5	95.9	91.5
RBDT-NSP	14-May-18	1070	7.2	17.2	656	657	656
RBDT-NSP	15-May-18	1070	8.1	25.0	-	-	-
RBDT-NSP	16-Jun-18	1183	8.9	29.9	45.7	44.4	45.7
RBDT-NSP	9-Jul-18	1506	8.2	27.7	-	-	-
RBDT-NSP	29-Jul-18	1064	9.0	28.7	26.1	25.4	26.1
RBDT-NSP	18-Aug-18	1062	8.8	16.8	38.8	38.8	38.8
RBDT-NSP	31-Aug-18	1080	8.8	10.5	-	-	-
RBDT-NSP	20-Sep-18	1150	7.8	22.7	58.5	58.5	58.5
RBDT-NSP	21-Oct-18	1400	9.2	7.1	OR	-	-
RBDT-NSP	24-Dec-18	1838	9.3	1.2	OR	-	-
RBDT-TC	4-Jan-18	1500	10.7	27.8	11	10.3	11
RBDT-TC	6-Jan-18	1470	10.7	21.8	11	11.1	11
RBDT-TC	13-Jan-18	1290	10.9	15.1	112	113	112
RBDT-TC	18-Jan-18	1280	8.5	0.1	4.7	4.6	4.7
RBDT-TC	26-Jan-18	1110	9.5	19.5	9.2	11.3	9.2
RBDT-TC	7-Feb-18	1320	8.9	22.4	863	862	863
RBDT-TC	26-Feb-18	569	7.0	16.8	40.1	40	40.1
RBDT-TC	1-Mar-18	440	7.8	22.5	36.3	36.1	36.3
RBDT-TC	3-Mar-18	320	8.9	23.7	52.3	51.8	52.3
RBDT-TC	7-Mar-18	346	7.3	15.4	39.6	39.7	39.6
RBDT-TC	18-Mar-18	238	9.2	22.0	27.3	27.6	27.3
RBDT-TC	31-Mar-18	382	8.9	19.5	49.7	49.9	49.7
RBDT-TC	8-Apr-18	382	9.4	22.4	101.4	100.6	101.4
RBDT-TC	23-Apr-18	814	7.3	18.3	58.5	57.9	58.5
RBDT-TC	12-May-18	740	7.1	16.6	115	119	115
RBDT-TC	15-May-18	700	7.5	17.6	27.3	27.3	27.3
RBDT-TC	26-May-18	950	8.4	17.9	23	23.1	23
RBDT-TC	2-Jun-18	1165	8.7	18.4	27.1	27.6	27.1
RBDT-TC	16-Jun-18	1280	8.5	17.8	154	147	154
RBDT-TC	30-Jun-18	1520	7.9	18.6	-	-	-
RBDT-TC	15-Jul-18	1261	7.5	19.7	105.6	106.8	105.6
RBDT-TC	31-Aug-18	1250	8.5	16.1	37.7	37.6	37.7
RBDT-TC	21-Oct-18	900	9.4	22.4	1628	1627	1628
RBDT-TC	27-Nov-18	1842	8.9	22.1	38	37	38
RBDT-TC	15-Dec-18	2150	9.2	22.0	-	-	-

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RBDT-TPSA-CP	2-Jun-18	310	8.5	18.1	136	136	136
RB-R5B-ACDC	1-Jan-18	1345	8.0	-	10.2	9.2	10.2
RB-R5B-ACDC	3-Jan-18	1250	8.0	-	3.7	3.6	3.7
RB-R5B-ACDC	4-Jan-18	1270	8.3	-	15.1	14.6	15.1
RB-R5B-ACDC	5-Jan-18	1320	8.2	-	8.8	8.3	8.8
RB-R5B-ACDC	6-Jan-18	1270	8.0	0.7	2.5	2.4	2.5
RB-R5B-ACDC	7-Jan-18	1260	8.2	-	2.7	2.6	2.7
RB-R5B-ACDC	8-Jan-18	2030	8.4	0.2	21.1	21.5	21.1
RB-R5B-ACDC	9-Jan-18	1760	8.5	-	2.2	2.2	2.2
RB-R5B-ACDC	10-Jan-18	1610	8.4	0.5	1.3	1.4	1.3
RB-R5B-ACDC	11-Jan-18	1530	7.7	-	1.9	1.7	1.9
RB-R5B-ACDC	12-Jan-18	1500	8.4	0.2	2.2	2.2	2.2
RB-R5B-ACDC	13-Jan-18	1380	8.3	-	3.6	3.7	3.6
RB-R5B-ACDC	14-Jan-18	1290	8.5	-	8.3	7.9	8.3
RB-R5B-ACDC	15-Jan-18	1260	8.5	-	31.9	28.8	31.9
RB-R5B-ACDC	16-Jan-18	1470	8.7	0.0	53.6	54.6	53.6
RB-R5B-ACDC	17-Jan-18	1710	8.1	0.7	5.8	5.7	5.8
RB-R5B-ACDC	18-Jan-18	1280	8.5	0.1	4.7	4.6	4.7
RB-R5B-ACDC	19-Jan-18	1430	8.8	0.0	2.6	2.5	2.6
RB-R5B-ACDC	20-Jan-18	1270	8.8	-	2.4	2.5	2.4
RB-R5B-ACDC	21-Jan-18	1280	8.5	-	5.2	5.3	5.2
RB-R5B-ACDC	22-Jan-18	2420	8.3	1.2	2.4	2.3	2.4
RB-R5B-ACDC	23-Jan-18	1239	8.3	0.6	2.8	2.7	2.8
RB-R5B-ACDC	24-Jan-18	1198	8.3	1.5	1.5	1.5	1.5
RB-R5B-ACDC	25-Jan-18	1230	8.5	1.2	1.5	1.7	1.5
RB-R5B-ACDC	26-Jan-18	1210	8.6	1.2	1.2	1.3	1.2
RB-R5B-ACDC	27-Jan-18	1220	8.5	0.6	4.8	5.1	4.8
RB-R5B-ACDC	28-Jan-18	1208	8.5	-	1.3	1.6	1.3
RB-R5B-ACDC	29-Jan-18	1200	8.7	0.9	3.1	2.6	3.1
RB-R5B-ACDC	30-Jan-18	1300	8.2	0.1	2.9	3	2.9
RB-R5B-ACDC	31-Jan-18	1310	8.4	0.0	4	3.8	4
RB-R5B-ACDC	1-Feb-18	1310	8.2	0.0	3.6	3.7	3.6
RB-R5B-ACDC	3-Feb-18	1320	8.2	0.3	4.2	3.4	4.2
RB-R5B-ACDC	4-Feb-18	1310	8.7	-	7.9	7	7.9
RB-R5B-ACDC	5-Feb-18	1320	8.4	-	2.4	3.1	2.4
RB-R5B-ACDC	17-Feb-18	1300	8.3	1.0	1.4	1.4	1.4
RB-R5B-ACDC	18-Feb-18	1260	8.3	0.7	0.7	0.7	0.7
RB-R5B-ACDC	21-Feb-18	1260	8.4	0.2	2.3	2.2	2.3
RB-R5B-ACDC	22-Feb-18	1310	8.5	0.3	9	8.9	9
RB-R5B-ACDC	23-Feb-18	1230	8.6	0.6	5	4.7	5
RB-R5B-ACDC	23-Feb-18	1220	8.5	0.3	2.9	2.7	2.9
RB-R5B-ACDC	25-Feb-18	1220	8.2	0.7	2.1	2	2.1
RB-R5B-ACDC	26-Feb-18	1200	8.7	0.9	1.3	1.3	1.3
RB-R5B-ACDC	27-Feb-18	1210	8.5	0.6	3	3	3
RB-R5B-ACDC	28-Feb-18	1210	8.5	0.3	1.3	1.5	1.3
RB-R5B-ACDC	1-Mar-18	1310	7.9	-	37.5	39.4	37.5
RB-R5B-ACDC	2-Mar-18	1250	8.2	-	22	23.1	22
RB-R5B-ACDC	3-Mar-18	1200	8.7	0.1	8.7	8.3	8.7
RB-R5B-ACDC	4-Mar-18	1200	8.6	-	5.4	5.5	5.4
RB-R5B-ACDC	5-Mar-18	1190	8.5	1.0	8.5	8.2	8.5
RB-R5B-ACDC	6-Mar-18	1220	8.5	-	10.7	11.1	10.7
RB-R5B-ACDC	7-Mar-18	1200	8.4	-	3.9	3.9	3.9
RB-R5B-ACDC	8-Mar-18	1180	8.4	-	2.6	2.6	2.6
RB-R5B-ACDC	9-Mar-18	1264	8.3	0.3	1.6	1.7	1.6
RB-R5B-ACDC	10-Mar-18	1020	8.2	9.0	3.5	3.8	3.5
RB-R5B-ACDC	11-Mar-18	1240	8.3	1.9	6	6.6	6
RB-R5B-ACDC	13-Mar-18	1150	8.3	1.1	39.7	40.6	39.7
RB-R5B-ACDC	14-Mar-18	1140	9.9	1.0	24.9	24.4	24.9
RB-R5B-ACDC	15-Mar-18	1230	8.1	1.1	24.6	25	24.6
RB-R5B-ACDC	16-Mar-18	1230	8.3	1.6	22.6	23.2	22.6
RB-R5B-ACDC	17-Mar-18	1309	8.1	1.1	11.6	11.6	11.6
RB-R5B-ACDC	18-Mar-18	1228	8.5	0.6	5.6	6.9	5.6
RB-R5B-ACDC	20-Mar-18	2240	8.7	0.1	74	72.1	74

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RB-R5B-ACDC	21-Mar-18	2740	7.9	0.5	65.7	66.8	65.7
RB-R5B-ACDC	22-Mar-18	2340	8.4	-	24.1	24.1	24.1
RB-R5B-ACDC	23-Mar-18	1550	8.4	-	25.9	26	25.9
RB-R5B-ACDC	24-Mar-18	1430	8.4	-	118	116	118
RB-R5B-ACDC	26-Mar-18	1440	8.3	0.0	48.1	48	48.1
RB-R5B-ACDC	27-Mar-18	1530	8.5	0.0	1	1	1
RB-R5B-ACDC	28-Mar-18	1570	8.4	0.7	3.5	3.2	3.5
RB-R5B-ACDC	29-Mar-18	1550	8.5	-	18.2	16.7	18.2
RB-R5B-ACDC	30-Mar-18	1590	1.6	-	0.9	0.9	0.9
RB-R5B-ACDC	31-Mar-18	1580	8.5	-	1	1	1
RB-R5B-ACDC	1-Apr-18	1560	8.3	0.6	2.3	2.3	2.3
RB-R5B-ACDC	2-Apr-18	1616	8.3	0.8	2.1	2	2.1
RB-R5B-ACDC	3-Apr-18	1712	8.4	0.1	2.8	2.5	2.8
RB-R5B-ACDC	4-Apr-18	1750	8.7	-	1.3	1.3	1.3
RB-R5B-ACDC	5-Apr-18	1790	8.8	0.9	23.1	21.1	23.1
RB-R5B-ACDC	6-Apr-18	1815	8.9	-	24.7	24.2	24.7
RB-R5B-ACDC	7-Apr-18	1628	8.6	0.9	6.1	6.9	6.1
RB-R5B-ACDC	8-Apr-18	1680	8.9	0.3	4.2	4.1	4.2
RB-R5B-ACDC	9-Apr-18	1481	8.7	0.1	130	120	130
RB-R5B-ACDC	10-Apr-18	3440	8.5	0.8	21.4	26.2	21.4
RB-R5B-ACDC	11-Apr-18	2830	8.4	0.8	OR	-	-
RB-R5B-ACDC	12-Apr-18	1808	8.7	0.6	74.2	70.8	74.2
RB-R5B-ACDC	13-Apr-18	3930	7.7	0.7	23.7	22.7	23.7
RB-R5B-ACDC	14-Apr-18	1560	6.5	1.9	3636	3412	3636
RB-R5B-ACDC	15-Apr-18	2980	8.0	2.8	956	923	956
RB-R5B-ACDC	16-Apr-18	1680	8.3	1.2	62.1	61.8	62.1
RB-R5B-ACDC	17-Apr-18	3780	8.0	4.7	OR	-	-
RB-R5B-ACDC	18-Apr-18	2870	8.6	6.5	OR	-	-
RB-R5B-ACDC	19-Apr-18	1520	7.8	3.0	787	779	787
RB-R5B-ACDC	20-Apr-18	1670	7.6	5.1	2444	2424	2444
RB-R5B-ACDC	21-Apr-18	2600	7.7	7.3	2540	2527	2540
RB-R5B-ACDC	22-Apr-18	1872	8.0	7.2	1323	1316	1323
RB-R5B-ACDC	23-Apr-18	2580	8.1	10.1	617	617	617
RB-R5B-ACDC	24-Apr-18	1892	8.2	9.6	55.8	54.8	55.8
RB-R5B-ACDC	25-Apr-18	2250	8.3	10.3	88.3	88.9	88.3
RB-R5B-ACDC	26-Apr-18	5540	7.5	9.3	92	93	92
RB-R5B-ACDC	27-Apr-18	4450	7.9	7.4	72.9	73.5	72.9
RB-R5B-ACDC	28-Apr-18	3310	7.9	14.9	55.3	55.7	55.3
RB-R5B-ACDC	29-Apr-18	2020	8.4	12.9	31.1	30.6	31.1
RB-R5B-ACDC	30-Apr-18	1730	8.6	9.4	18.5	15.3	18.5
RB-R5B-ACDC	1-May-18	1340	8.5	12.9	15.5	15.7	15.5
RB-R5B-ACDC	2-May-18	5860	7.9	8.4	25.3	25.6	25.3
RB-R5B-ACDC	3-May-18	1212	8.5	9.9	81.6	78.2	81.6
RB-R5B-ACDC	4-May-18	1300	8.5	13.5	4.6	4.6	4.6
RB-R5B-ACDC	5-May-18	1260	8.5	15.4	6.7	6.4	6.7
RB-R5B-ACDC	6-May-18	1150	8.6	11.0	3.2	3.2	3.2
RB-R5B-ACDC	7-May-18	1123	8.6	6.9	1.6	1.6	1.6
RB-R5B-ACDC	8-May-18	1382	8.5	16.7	2.2	2	2.2
RB-R5B-ACDC	9-May-18	1302	8.5	13.2	4.5	5.7	4.5
RB-R5B-ACDC	10-May-18	1142	8.5	15.2	2.7	2.4	2.7
RB-R5B-ACDC	11-May-18	1282	8.5	18.7	14.6	14.4	14.6
RB-R5B-ACDC	12-May-18	3670	8.2	19.2	17.6	17.2	17.6
RB-R5B-ACDC	13-May-18	1485	8.5	8.8	11.8	11.5	11.8
RB-R5B-ACDC	14-May-18	1230	8.5	16.6	6.3	5.4	6.3
RB-R5B-ACDC	15-May-18	1220	8.2	18.7	2.1	2.1	2.1
RB-R5B-ACDC	16-May-18	1390	8.5	14.0	3.5	3.2	3.5
RB-R5B-ACDC	17-May-18	1373	8.5	18.0	2.9	3.1	2.9
RB-R5B-ACDC	18-May-18	1220	8.5	18.3	2.7	2.4	2.7
RB-R5B-ACDC	19-May-18	1150	8.6	15.2	1.4	1.4	1.4
RB-R5B-ACDC	20-May-18	1250	8.6	9.2	2.1	2.1	2.1
RB-R5B-ACDC	21-May-18	1201	8.6	18.7	3.7	3.3	3.7
RB-R5B-ACDC	22-May-18	1211	8.2	18.0	1.8	1.3	1.8
RB-R5B-ACDC	23-May-18	1300	8.4	22.2	2.2	2.2	2.2

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RB-R5B-ACDC	24-May-18	1300	8.6	18.1	1.4	1.5	1.4
RB-R5B-ACDC	25-May-18	1290	8.6	19.2	2	1.9	2
RB-R5B-ACDC	26-May-18	1300	8.7	11.6	1.2	1.2	1.2
RB-R5B-ACDC	27-May-18	1260	8.6	15.9	1.9	1.7	1.9
RB-R5B-ACDC	28-May-18	1290	8.6	18.6	3.6	3.6	3.6
RB-R5B-ACDC	29-May-18	1203	8.5	15.9	4.2	4	4.2
RB-R5B-ACDC	31-May-18	1231	8.5	11.9	4.9	4.9	4.9
RB-R5B-ACDC	1-Jun-18	1240	8.6	16.8	3.4	3.4	3.4
RB-R5B-ACDC	2-Jun-18	1203	8.6	17.0	4.7	4.7	4.7
RB-R5B-ACDC	3-Jun-18	1216	8.7	7.1	4.2	4.2	4.2
RB-R5B-ACDC	4-Jun-18	1510	8.5	13.9	36.6	36.8	36.6
RB-R5B-ACDC	5-Jun-18	1300	8.1	14.4	2.3	2.3	2.3
RB-R5B-ACDC	6-Jun-18	1280	8.5	17.1	5.7	5.8	5.7
RB-R5B-ACDC	7-Jun-18	1235	8.4	20.0	2.5	2.1	2.5
RB-R5B-ACDC	8-Jun-18	1230	8.4	14.3	5.9	5.1	5.9
RB-R5B-ACDC	9-Jun-18	1044	8.4	14.7	3.9	3.2	3.9
RB-R5B-ACDC	10-Jun-18	1075	8.5	14.5	2.6	2.3	2.6
RB-R5B-ACDC	12-Jun-18	1150	8.8	16.5	2.2	2.2	2.2
RB-R5B-ACDC	13-Jun-18	1150	8.5	15.9	2.2	2.2	2.2
RB-R5B-ACDC	14-Jun-18	1387	8.4	15.0	OR	-	-
RB-R5B-ACDC	15-Jun-18	1255	8.5	16.1	3.4	3.3	3.4
RB-R5B-ACDC	16-Jun-18	1190	8.4	22.8	5	4	5
RB-R5B-ACDC	17-Jun-18	1222	8.5	24.5	3.6	3.3	3.6
RB-R5B-ACDC	18-Jun-18	1230	8.4	17.9	3.1	2.8	3.1
RB-R5B-ACDC	19-Jun-18	1160	8.3	27.1	2.9	2.6	2.9
RB-R5B-ACDC	21-Jun-18	1108	8.3	24.1	2.3	2.2	2.3
RB-R5B-ACDC	22-Jun-18	807	8.4	22.9	3.7	3.8	3.7
RB-R5B-ACDC	23-Jun-18	608	8.5	24.0	38	33.2	38
RB-R5B-ACDC	24-Jun-18	963	7.9	21.2	4.9	4.2	4.9
RB-R5B-ACDC	25-Jun-18	1122	8.4	13.7	OR	-	-
RB-R5B-ACDC	26-Jun-18	2320	3.7	15.7	623	623	623
RB-R5B-ACDC	27-Jun-18	1524	7.4	18.2	68.6	67.3	68.6
RB-R5B-ACDC	28-Jun-18	1734	7.7	22.8	34.8	34.4	34.8
RB-R5B-ACDC	29-Jun-18	1511	8.2	22.6	21.6	21	21.6
RB-R5B-ACDC	30-Jun-18	1254	7.6	28.0	18.5	18.2	18.5
RB-R5B-ACDC	1-Jul-18	1201	8.6	12.0	34.6	35.7	34.6
RB-R5B-ACDC	2-Jul-18	1451	8.5	15.1	36.4	37.6	36.4
RB-R5B-ACDC	3-Jul-18	1328	8.5	16.3	13.1	12	13.1
RB-R5B-ACDC	4-Jul-18	1187	8.4	21.8	8.2	7.3	8.2
RB-R5B-ACDC	5-Jul-18	1200	8.5	21.9	7.1	7.7	7.1
RB-R5B-ACDC	6-Jul-18	1170	8.4	21.8	3.4	2.7	3.4
RB-R5B-ACDC	7-Jul-18	1215	8.6	11.6	37	36.8	37
RB-R5B-ACDC	8-Jul-18	1176	8.0	16.0	12.7	11.7	12.7
RB-R5B-ACDC	9-Jul-18	1067	8.3	21.3	5.6	5.8	5.6
RB-R5B-ACDC	10-Jul-18	1027	8.4	21.5	4.9	4.9	4.9
RB-R5B-ACDC	11-Jul-18	967	8.4	22.6	2.6	2.6	2.6
RB-R5B-ACDC	12-Jul-18	965	8.4	22.0	3.4	3.7	3.4
RB-R5B-ACDC	13-Jul-18	1149	8.4	16.9	31.3	32.5	31.3
RB-R5B-ACDC	14-Jul-18	1018	8.4	22.1	4.5	4	4.5
RB-R5B-ACDC	15-Jul-18	1990	8.3	24.3	3.7	3.2	3.7
RB-R5B-ACDC	16-Jul-18	998	8.4	21.8	2.9	2.7	2.9
RB-R5B-ACDC	17-Jul-18	1183	8.4	16.1	5.2	4.8	5.2
RB-R5B-ACDC	18-Jul-18	1060	8.5	16.4	2.8	3.3	2.8
RB-R5B-ACDC	19-Jul-18	2680	8.4	20.5	5.3	5.5	5.3
RB-R5B-ACDC	20-Jul-18	2020	8.3	15.8	OR	-	-
RB-R5B-ACDC	22-Jul-18	1960	7.8	13.3	OR	-	-
RB-R5B-ACDC	23-Jul-18	2300	8.2	18.8	87.7	87.9	87.7
RB-R5B-ACDC	24-Jul-18	1240	8.5	19.1	24.5	24.3	24.5
RB-R5B-ACDC	25-Jul-18	1150	8.5	19.0	11.8	12.6	11.8
RB-R5B-ACDC	26-Jul-18	1150	8.4	23.1	8.8	8.5	8.8
RB-R5B-ACDC	27-Jul-18	1080	8.5	20.9	5	6	5
RB-R5B-ACDC	28-Jul-18	1046	8.5	25.5	3.8	3.6	3.8
RB-R5B-ACDC	29-Jul-18	1057	8.5	20.9	3.3	4	3.3

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RB-R5B-ACDC	30-Jul-18	2300	8.3	21.1	43.2	41.9	43.2
RB-R5B-ACDC	7-Aug-18	1100	8.4	19.0	5.2	4.8	5.2
RB-R5B-ACDC	8-Aug-18	1890	8.4	26.0	3.4	3.2	3.4
RB-R5B-ACDC	9-Aug-18	2660	8.5	26.0	5.7	5.4	5.7
RB-R5B-ACDC	10-Aug-18	3320	8.5	16.4	3.8	3.8	3.8
RB-R5B-ACDC	11-Aug-18	1030	8.5	18.3	4.5	4.6	4.5
RB-R5B-ACDC	12-Aug-18	1008	8.5	19.5	4	4	4
RB-R5B-ACDC	13-Aug-18	2870	8.4	19.6	5.4	4.6	5.4
RB-R5B-ACDC	15-Aug-18	992	8.7	19.0	4.1	4.1	4.1
RB-R5B-ACDC	16-Aug-18	1000	8.4	17.8	2.9	2.9	2.9
RB-R5B-ACDC	17-Aug-18	972	8.4	17.3	2.3	2.3	2.3
RB-R5B-ACDC	18-Aug-18	1032	8.5	12.3	8.2	8.9	8.2
RB-R5B-ACDC	19-Aug-18	994	8.5	17.0	4	3.4	4
RB-R5B-ACDC	20-Aug-18	1101	8.6	14.7	3.1	3.2	3.1
RB-R5B-ACDC	20-Aug-18	1540	8.5	15.6	3.6	2.3	3.6
RB-R5B-ACDC	21-Aug-18	1650	8.7	15.4	3.2	3.6	3.2
RB-R5B-ACDC	22-Aug-18	620	8.6	16.0	3.1	3.2	3.1
RB-R5B-ACDC	23-Aug-18	580	8.8	11.5	4.1	3.8	4.1
RB-R5B-ACDC	24-Aug-18	560	8.9	10.6	3.2	3.7	3.2
RB-R5B-ACDC	25-Aug-18	600	8.8	11.0	4.4	4.2	4.4
RB-R5B-ACDC	26-Aug-18	590	8.5	10.3	54	53.3	54
RB-R5B-ACDC	27-Aug-18	510	8.5	16.5	3	2.8	3
RB-R5B-ACDC	28-Aug-18	530	8.6	13.5	5.4	5.1	5.4
RB-R5B-ACDC	29-Aug-18	540	8.4	15.9	4.9	4.6	4.9
RB-R5B-ACDC	30-Aug-18	590	8.4	13.5	4.6	4.6	4.6
RB-R5B-ACDC	31-Aug-18	560	8.3	13.4	4.3	4.3	4.3
RB-R5B-ACDC	1-Sep-18	590	8.8	11.0	4.7	4.6	4.7
RB-R5B-ACDC	2-Sep-18	720	8.3	13.4	2.6	3	2.6
RB-R5B-ACDC	3-Sep-18	570	8.4	9.0	8.4	8.4	8.4
RB-R5B-ACDC	4-Sep-18	980	8.5	15.0	3.1	3	3.1
RB-R5B-ACDC	5-Sep-18	1000	8.5	15.4	3.1	3.4	3.1
RB-R5B-ACDC	6-Sep-18	1030	8.5	11.7	3	2.9	3
RB-R5B-ACDC	7-Sep-18	1067	8.5	10.6	2.4	2.4	2.4
RB-R5B-ACDC	8-Sep-18	1750	4.5	10.0	OR	-	-
RB-R5B-ACDC	9-Sep-18	1960	7.4	9.5	52.3	58	52.3
RB-R5B-ACDC	10-Sep-18	1320	7.9	7.6	104.1	103.2	104.1
RB-R5B-ACDC	11-Sep-18	1392	8.6	10.3	42	43	42
RB-R5B-ACDC	12-Sep-18	3420	8.2	7.1	70	71	70
RB-R5B-ACDC	13-Sep-18	1198	8.5	7.9	30.1	31.9	30.1
RB-R5B-ACDC	15-Sep-18	1521	8.1	7.2	35.1	35.4	35.1
RB-R5B-ACDC	16-Sep-18	4390	8.7	7.1	97	95	97
RB-R5B-ACDC	17-Sep-18	1374	8.2	6.6	45	46.1	45
RB-R5B-ACDC	18-Sep-18	1131	8.3	7.9	24	21.1	24
RB-R5B-ACDC	19-Sep-18	3840	7.9	7.9	714	715	714
RB-R5B-ACDC	20-Sep-18	1128	8.4	4.2	23.2	23.1	23.2
RB-R5B-ACDC	20-Sep-18	994	8.6	8.0	22.6	23.1	22.6
RB-R5B-ACDC	22-Sep-18	8800	8.3	1.0	812	815	812
RB-R5B-ACDC	23-Sep-18	984	8.3	7.3	912	914	912
RB-R5B-ACDC	24-Sep-18	1062	8.3	11.4	38	39	38
RB-R5B-ACDC	25-Sep-18	888	8.3	8.2	23.1	23	23.1
RB-R5B-ACDC	26-Sep-18	924	8.3	10.2	27.4	27	27.4
RB-R5B-ACDC	27-Sep-18	1060	8.7	6.4	13.6	13.4	13.6
RB-R5B-ACDC	28-Sep-18	1068	8.7	5.0	5.4	5.4	5.4
RB-R5B-ACDC	29-Sep-18	1044	8.7	4.9	7	6.6	7
RB-R5B-ACDC	30-Sep-18	1017	8.6	5.7	6.3	6	6.3
RB-R5B-ACDC	1-Oct-18	1100	8.5	2.3	35.8	36	35.8
RB-R5B-ACDC	2-Oct-18	1200	8.5	8.3	12.1	12	12.1
RB-R5B-ACDC	3-Oct-18	1002	8.3	5.3	13.1	13	13.1
RB-R5B-ACDC	4-Oct-18	1029	8.4	6.3	10.5	10.4	10.5
RB-R5B-ACDC	5-Oct-18	1011	8.6	5.3	8.4	8	8.4
RB-R5B-ACDC	6-Oct-18	989	8.6	6.2	4.4	4.4	4.4
RB-R5B-ACDC	7-Oct-18	1018	8.4	5.9	3.4	3.3	3.4
RB-R5B-ACDC	8-Oct-18	1084	8.1	5.3	4.8	4.8	4.8

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RB-R5B-ACDC	9-Oct-18	1032	8.5	5.7	8.8	8.9	8.8
RB-R5B-ACDC	10-Oct-18	952	8.5	4.9	10.7	10.5	10.7
RB-R5B-ACDC	11-Oct-18	1195	8.4	3.0	10.1	9.8	10.1
RB-R5B-ACDC	12-Oct-18	1401	7.5	3.2	22	22	22
RB-R5B-ACDC	13-Oct-18	1255	7.9	8.5	118	119	118
RB-R5B-ACDC	14-Oct-18	1271	8.4	2.9	35.5	34.7	35.5
RB-R5B-ACDC	15-Oct-18	1460	8.2	7.7	2.2	2	2.2
RB-R5B-ACDC	25-Oct-18	1206	8.3	4.7	94.5	93.2	94.5
RB-R5B-ACDC	26-Oct-18	1148	8.3	3.8	15	14.5	15
RB-R5B-ACDC	27-Oct-18	1044	8.3	6.3	10.4	10.4	10.4
RB-R5B-ACDC	28-Oct-18	1402	8.2	3.3	968	961	968
RB-R5B-ACDC	29-Oct-18	1076	8.4	4.4	13.6	13.7	13.6
RB-R5B-ACDC	30-Oct-18	1190	8.3	3.1	38.5	37.9	38.5
RB-R5B-ACDC	31-Oct-18	1080	7.8	2.4	28.2	25.3	28.2
RB-R5B-ACDC	1-Nov-18	1294	7.8	0.5	1.5	1.5	1.5
RB-R5B-ACDC	6-Nov-18	1230	8.0	-	5.7	4.4	5.7
RB-R5B-ACDC	13-Nov-18	1089	8.3	1.5	5.7	5	5.7
RB-R5B-ACDC	14-Nov-18	1181	8.3	1.5	10.2	10.2	10.2
RB-R5B-ACDC	15-Nov-18	1116	8.2	0.0	3.6	3.5	3.6
RB-R5B-ACDC	16-Nov-18	1001	8.2	2.0	9.9	10.3	9.9
RB-R5B-ACDC	17-Nov-18	1127	8.3	-0.1	15.1	15.1	15.1
RB-R5B-ACDC	18-Nov-18	1183	8.3	1.3	9	8.9	9
RB-R5B-ACDC	19-Nov-18	1171	8.3	1.3	5	5	5
RB-R5B-ACDC	25-Nov-18	1120	8.3	0.2	10	9.6	10
RB-R5B-ACDC	26-Nov-18	1176	8.8	0.7	5.9	6	5.9
RB-R5B-ACDC	27-Nov-18	1150	8.7	0.9	16.1	15.9	16.1
RB-R5B-ACDC	28-Nov-18	1180	8.7	1.0	7.8	7.9	7.8
RB-R5B-ACDC	29-Nov-18	1180	8.0	1.4	36.6	36.5	36.6
RB-R5B-ACDC	30-Nov-18	1210	8.2	1.3	17.5	17.5	17.5
RB-R5B-ACDC	1-Dec-18	1200	8.3	0.9	16.7	16.5	16.7
RB-R5B-ACDC	2-Dec-18	1200	8.4	0.8	12.1	11.7	12.1
RB-R5B-ACDC	3-Dec-18	1300	8.4	-0.4	23.4	23.9	23.4
RB-R5B-ACDC	4-Dec-18	1155	8.2	0.2	8	7.9	8
RB-R5B-ACDC	5-Dec-18	1170	8.3	-0.3	5.9	5.8	5.9
RB-R5B-ACDC	9-Dec-18	1114	8.2	0.5	15.7	15.8	15.7
RB-R5B-ACDC	10-Dec-18	1007	8.3	5.4	19.7	19.3	19.7
RB-R5B-ACDC	11-Dec-18	1125	8.2	0.5	16.3	15.9	16.3
RB-R5B-ACDC	12-Dec-18	1140	8.2	1.0	17.6	18.1	17.6
RB-R5B-ACDC	13-Dec-18	1224	8.2	0.7	8.1	7.5	8.1
RB-R5B-ACDC	14-Dec-18	1152	8.2	0.4	5.5	5.5	5.5
RB-R5B-ACDC	15-Dec-18	648	8.5	-0.4	8.5	8.5	8.5
RB-R5B-ACDC	16-Dec-18	1100	8.4	0.7	7.4	7.8	7.4
RB-R5B-ACDC	17-Dec-18	1080	8.7	0.3	10.5	10.9	10.5
RB-R5B-ACDC	18-Dec-18	1090	8.2	0.6	12.1	12.4	12.1
RB-R5B-ACDC	19-Dec-18	1077	8.4	0.0	9	9.1	9
RB-R5B-ACDC	20-Dec-18	1044	8.2	1.5	8.7	8.6	8.7
RB-R5B-ACDC	21-Dec-18	1114	8.2	0.2	5.5	5.6	5.5
RB-R5B-ACDC	23-Dec-18	1085	8.0	0.0	3.1	3.8	3.1
RB-R5B-ACDC	24-Dec-18	1159	8.1	0.5	5.4	5.4	5.4
RB-R5B-ACDC	25-Dec-18	1160	8.1	0.5	5.6	5.7	5.6
RB-R5B-ACDC	26-Dec-18	1160	8.2	-0.2	11.6	11.8	11.6
RB-R5B-ACDC	27-Dec-18	1060	8.0	0.0	4.8	4.5	4.8
RB-R5B-ACDC	28-Dec-18	1030	8.2	4.4	5.3	5.2	5.3
RB-R5B-ACDC	29-Dec-18	1056	8.3	0.3	4.9	5.1	4.9
RB-R5B-ACDC	30-Dec-18	1052	8.1	-0.4	3.3	3.1	3.3
RB-R5B-ACDC	31-Dec-18	1068	8.1	6.5	3	3.2	3
RB-R5B-ACDC	31-Dec-18	1651	7.7	2.4	3	3	3
RB-R5b-ACDC-LP	9-Nov-18	1333	7.8	4.5	2.4	1.9	2.4
RB-R5b-ACDC-LP	10-Nov-18	1367	8.1	4.9	1.5	1.6	1.5
RB-R5b-ACDC-LP	11-Nov-18	1357	8.0	3.3	32	29.9	32
RB-R5b-ACDC-LP	12-Nov-18	1652	8.4	1.2	2.4	2.3	2.4
RSEM-R5A-A	1-May-18	1112	8.7	15.4	67	67.5	67
RSEM-R5A-A	7-May-18	1086	9.4	15.6	15.5	15.3	15.5

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R5A-A	12-May-18	1220	8.5	20.9	13.5	13.5	13.5
RSEM-R5A-A	16-May-18	6400	7.8	8.4	5.1	4.8	5.1
RSEM-R5A-A	24-May-18	1670	8.9	25.3	32.8	32	32.8
RSEM-R5A-A	29-May-18	1816	8.6	18.5	24.4	24.5	24.4
RSEM-R5A-A	17-Jun-18	1760	8.6	30.8	86.4	87	86.4
RSEM-R5A-A	26-Jun-18	850	7.3	14.5	101	100	101
RSEM-R5A-A	3-Jul-18	1847	8.2	18.2	45.5	45.3	45.5
RSEM-R5A-A	20-Sep-18	1383	8.1	6.6	27.3	27.2	27.3
RSEM-R5A-A	20-Oct-18	1340	8.3	4.8	19	19	19
RSEM-R5A-B	1-May-18	1176	8.6	17.0	17.6	17.5	17.6
RSEM-R5A-B	26-Jun-18	1090	7.4	17.0	59.3	58.4	59.3
RSEM-R5A-B	3-Jul-18	2180	8.1	19.7	5	4.7	5
RSEM-R5A-B	27-Jul-18	1326	8.6	21.6	12.9	13	12.9
RSEM-R5A-B	20-Sep-18	937	8.0	5.5	93.3	93.9	93.3
RSEM-R5A-B	20-Oct-18	1482	8.0	3.8	19	19	19
RSEM-R5A-C	1-May-18	1162	8.6	10.8	2.1	2	2.1
RSEM-R5A-C	26-Jun-18	1158	7.7	15.3	30.1	29.7	30.1
RSEM-R5A-C	3-Jul-18	2100	8.6	19.4	42.8	42.4	42.8
RSEM-R5A-C	27-Jul-18	3100	8.5	21.4	7.2	7.4	7.2
RSEM-R5A-C	20-Sep-18	2130	8.5	5.7	41.7	41.6	41.7
RSEM-R5A-C	20-Oct-18	1750	8.1	4.6	11.8	11.3	11.8
RSEM-R5A-D	1-May-18	860	8.6	11.0	15.4	15.2	15.4
RSEM-R5A-D	26-Jun-18	1550	7.8	16.0	63.9	60.2	63.9
RSEM-R5A-D	3-Jul-18	1640	9.0	19.4	8.8	8.4	8.8
RSEM-R5A-D	27-Jul-18	3400	8.6	21.3	5.1	4.9	5.1
RSEM-R5A-D	20-Sep-18	1468	8.6	5.8	5.1	5.6	5.1
RSEM-R5B-EOP	13-Mar-18	1350	8.8	0.1	8.1	7.9	8.1
RSEM-R5B-EOP	19-Mar-18	3070	8.0	2.2	11.6	11.2	11.6
RSEM-R5B-EOP	20-Mar-18	2270	8.3	0.2	23.3	23.1	23.3
RSEM-R5B-EOP	21-Mar-18	2670	8.2	0.2	31.4	31.3	31.4
RSEM-R5B-EOP	22-Mar-18	2050	8.7	-	23.5	21.9	23.5
RSEM-R5B-EOP	30-Mar-18	1550	8.4	0.3	0.6	0.7	0.6
RSEM-R5B-EOP	31-Mar-18	1540	8.4	0.8	1	1	1
RSEM-R5B-EOP	1-Apr-18	1567	8.5	0.3	3.7	3.6	3.7
RSEM-R5B-EOP	2-Apr-18	1535	8.4	0.5	6.2	6.2	6.2
RSEM-R5B-EOP	3-Apr-18	1612	8.6	-	1.6	1.7	1.6
RSEM-R5B-EOP	4-Apr-18	1650	8.9	-	1.7	1.8	1.7
RSEM-R5B-EOP	5-Apr-18	1643	8.7	-	2.5	2	2.5
RSEM-R5B-EOP	6-Apr-18	1712	8.9	-	6.7	6.6	6.7
RSEM-R5B-EOP	7-Apr-18	1750	8.6	-	1.5	1.5	1.5
RSEM-R5B-EOP	8-Apr-18	1654	8.9	0.4	1.5	1.5	1.5
RSEM-R5B-EOP	9-Apr-18	1008	8.6	0.9	122	117	122
RSEM-R5B-EOP	10-Apr-18	1580	8.7	0.3	16.3	16.7	16.3
RSEM-R5B-EOP	11-Apr-18	2230	8.1	0.8	37.4	37.4	37.4
RSEM-R5B-EOP	12-Apr-18	2000	8.6	0.1	15.8	15.3	15.8
RSEM-R5B-EOP	13-Apr-18	2140	8.7	-	6	6	6
RSEM-R5B-EOP	14-Apr-18	1195	7.8	3.0	73.5	74	73.5
RSEM-R5B-EOP	15-Apr-18	2130	7.6	0.9	17.3	17.4	17.3
RSEM-R5B-EOP	15-Apr-18	2520	7.7	-	12.9	12.9	12.9
RSEM-R5B-EOP	16-Apr-18	1685	7.4	0.5	18.1	18.1	18.1
RSEM-R5B-EOP	17-Apr-18	2580	8.3	1.3	9.7	9.6	9.7
RSEM-R5B-EOP	18-Apr-18	2960	8.0	2.3	37.2	38.5	37.2
RSEM-R5B-EOP	19-Apr-18	1753	8.1	2.4	29.2	29.2	29.2
RSEM-R5B-EOP	20-Apr-18	1788	8.6	4.3	29.2	29.5	29.2
RSEM-R5B-EOP	21-Apr-18	2370	7.8	2.5	25.4	24.4	25.4
RSEM-R5B-EOP	22-Apr-18	1817	8.1	2.9	47.4	47.4	47.4
RSEM-R5B-EOP	23-Apr-18	2190	8.0	3.7	21.3	21.2	21.3
RSEM-R5B-EOP	24-Apr-18	1850	8.1	3.8	27.8	27.8	27.8
RSEM-R5B-EOP	25-Apr-18	2040	8.4	5.2	15.4	15.6	15.4
RSEM-R5B-EOP	26-Apr-18	2060	8.6	5.4	10	9	10
RSEM-R5B-EOP	27-Apr-18	2020	8.5	6.7	12	11.3	12
RSEM-R5B-EOP	28-Apr-18	2240	8.4	13.4	8.2	8.2	8.2
RSEM-R5B-EOP	29-Apr-18	2600	8.4	11.3	7.4	7.4	7.4

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R5B-EOP	30-Apr-18	2460	8.6	10.8	12.3	12.3	12.3
RSEM-R5B-EOP	1-May-18	2020	8.6	11.1	7.3	7.4	7.3
RSEM-R5B-EOP	2-May-18	2200	8.6	10.6	6.8	6.4	6.8
RSEM-R5B-EOP	3-May-18	1960	8.6	12.4	9.5	9.5	9.5
RSEM-R5B-EOP	4-May-18	1720	8.7	14.2	6.9	7.4	6.9
RSEM-R5B-EOP	5-May-18	1530	8.5	15.1	5.5	5.7	5.5
RSEM-R5B-EOP	6-May-18	1570	8.5	15.9	2.6	2.8	2.6
RSEM-R5B-EOP	7-May-18	1530	8.5	13.8	2	2	2
RSEM-R5B-EOP	8-May-18	1403	8.4	16.8	4.1	4.4	4.1
RSEM-R5B-EOP	9-May-18	1369	8.5	13.9	4.9	4.8	4.9
RSEM-R5B-EOP	10-May-18	1342	8.5	14.2	4.5	4.6	4.5
RSEM-R5B-EOP	11-May-18	1358	8.5	12.5	2.9	2.7	2.9
RSEM-R5B-EOP	12-May-18	1616	8.4	11.3	3.9	3.9	3.9
RSEM-R5B-EOP	13-May-18	1819	8.5	14.2	4.2	6	4.2
RSEM-R5B-EOP	14-May-18	1974	8.5	17.3	8.5	8.6	8.5
RSEM-R5B-EOP	15-May-18	1930	8.4	19.6	4	3.9	4
RSEM-R5B-EOP	16-May-18	1833	8.5	15.8	3.9	3.4	3.9
RSEM-R5B-EOP	17-May-18	1746	8.4	16.3	3.9	3.8	3.9
RSEM-R5B-EOP	18-May-18	1607	8.4	17.7	4	3.9	4
RSEM-R5B-EOP	19-May-18	1530	8.6	20.0	4.5	4.5	4.5
RSEM-R5B-EOP	20-May-18	1310	8.6	-	5.4	4.3	5.4
RSEM-R5B-EOP	21-May-18	1396	8.5	20.4	3.2	2.8	3.2
RSEM-R5B-EOP	22-May-18	1350	8.2	19.0	2.9	3	2.9
RSEM-R5B-EOP	23-May-18	1417	8.2	20.0	3.9	3.8	3.9
RSEM-R5B-EOP	24-May-18	1330	8.6	18.6	2.3	2.3	2.3
RSEM-R5B-EOP	25-May-18	1330	8.6	17.3	3.4	3.2	3.4
RSEM-R5B-EOP	26-May-18	1293	8.7	6.9	2.8	2.6	2.8
RSEM-R5B-EOP	27-May-18	1265	8.7	17.6	3.1	3.2	3.1
RSEM-R5B-EOP	28-May-18	1250	8.8	17.0	5.1	5.3	5.1
RSEM-R5B-EOP	29-May-18	1170	8.5	15.9	3.4	3.5	3.4
RSEM-R5B-EOP	31-May-18	1180	8.6	14.4	3.5	3.4	3.5
RSEM-R5B-EOP	1-Jun-18	1142	8.5	15.5	4.8	4.9	4.8
RSEM-R5B-EOP	2-Jun-18	1163	8.6	15.6	3	3	3
RSEM-R5B-EOP	3-Jun-18	1160	8.5	15.6	3.5	3.5	3.5
RSEM-R5B-EOP	4-Jun-18	1110	8.6	14.7	6.8	7	6.8
RSEM-R5B-EOP	5-Jun-18	1229	8.3	14.6	8.1	6.9	8.1
RSEM-R5B-EOP	6-Jun-18	1995	8.4	16.6	4.3	4.4	4.3
RSEM-R5B-EOP	7-Jun-18	1218	8.4	19.4	1.9	2	1.9
RSEM-R5B-EOP	8-Jun-18	1195	8.3	17.5	3.3	3.2	3.3
RSEM-R5B-EOP	9-Jun-18	1206	8.3	18.2	2.7	2.8	2.7
RSEM-R5B-EOP	10-Jun-18	1217	8.4	17.0	5.4	5.5	5.4
RSEM-R5B-EOP	12-Jun-18	1156	8.7	16.7	5.6	5.1	5.6
RSEM-R5B-EOP	13-Jun-18	1123	8.4	17.6	2.9	2.9	2.9
RSEM-R5B-EOP	14-Jun-18	1094	8.5	17.6	46	46.3	46
RSEM-R5B-EOP	15-Jun-18	1110	8.4	17.0	6.6	6.2	6.6
RSEM-R5B-EOP	16-Jun-18	1130	8.3	20.6	3.4	3.4	3.4
RSEM-R5B-EOP	17-Jun-18	1126	8.4	23.2	2.5	2.5	2.5
RSEM-R5B-EOP	18-Jun-18	1130	8.3	21.3	4	3.3	4
RSEM-R5B-EOP	19-Jun-18	1112	8.3	24.8	3.3	3.1	3.3
RSEM-R5B-EOP	20-Jun-18	1103	8.3	27.1	3.7	3.7	3.7
RSEM-R5B-EOP	21-Jun-18	1094	8.3	25.8	2.6	2.8	2.6
RSEM-R5B-EOP	22-Jun-18	1070	8.4	24.1	3.3	3.4	3.3
RSEM-R5B-EOP	23-Jun-18	953	8.5	23.2	3.3	3.2	3.3
RSEM-R5B-EOP	24-Jun-18	830	8.3	22.3	2.7	2.6	2.7
RSEM-R5B-EOP	25-Jun-18	806	8.4	18.3	5.9	5.8	5.9
RSEM-R5B-EOP	26-Jun-18	1220	6.3	14.8	14.8	14.3	14.8
RSEM-R5B-EOP	27-Jun-18	1880	4.5	16.3	22	21.9	22
RSEM-R5B-EOP	28-Jun-18	1900	6.2	19.9	8.7	8.7	8.7
RSEM-R5B-EOP	29-Jun-18	1883	7.4	18.4	5.3	4.8	5.3
RSEM-R5B-EOP	30-Jun-18	1500	7.8	20.5	3.4	3.1	3.4
RSEM-R5B-EOP	1-Jul-18	1424	8.3	23.0	3.9	4	3.9
RSEM-R5B-EOP	2-Jul-18	1367	8.5	17.1	11	11.1	11
RSEM-R5B-EOP	3-Jul-18	1340	8.5	17.0	6.4	6	6.4

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R5B-EOP	4-Jul-18	1300	8.4	19.9	5.2	4.9	5.2
RSEM-R5B-EOP	5-Jul-18	1251	8.3	20.5	3.6	3.7	3.6
RSEM-R5B-EOP	6-Jul-18	1315	8.3	20.3	2.5	2.4	2.5
RSEM-R5B-EOP	7-Jul-18	1680	8.4	18.4	6.8	6.6	6.8
RSEM-R5B-EOP	8-Jul-18	1488	8.2	16.5	6.4	6.2	6.4
RSEM-R5B-EOP	9-Jul-18	1340	8.3	21.9	3.4	3.4	3.4
RSEM-R5B-EOP	10-Jul-18	1217	8.6	22.4	3.7	3.5	3.7
RSEM-R5B-EOP	11-Jul-18	1147	8.3	22.2	4.1	3.9	4.1
RSEM-R5B-EOP	12-Jul-18	1050	8.4	21.7	3.4	3.4	3.4
RSEM-R5B-EOP	13-Jul-18	1204	8.4	19.5	3.9	3.8	3.9
RSEM-R5B-EOP	14-Jul-18	1140	8.4	20.3	4.3	4.1	4.3
RSEM-R5B-EOP	15-Jul-18	1630	8.3	22.8	3.7	3.2	3.7
RSEM-R5B-EOP	16-Jul-18	2030	8.2	20.2	3.6	3.5	3.6
RSEM-R5B-EOP	17-Jul-18	2250	8.3	20.9	5.6	5.5	5.6
RSEM-R5B-EOP	18-Jul-18	1950	8.4	21.5	2.8	2.7	2.8
RSEM-R5B-EOP	19-Jul-18	1687	8.6	21.5	2.7	2.5	2.7
RSEM-R5B-EOP	20-Jul-18	1140	8.5	18.0	16.1	15.8	16.1
RSEM-R5B-EOP	22-Jul-18	1580	8.1	16.8	9.9	9.6	9.9
RSEM-R5B-EOP	23-Jul-18	1145	8.2	18.1	6.9	6.7	6.9
RSEM-R5B-EOP	24-Jul-18	2100	8.4	20.2	4.7	3.9	4.7
RSEM-R5B-EOP	25-Jul-18	1765	8.5	21.4	3.5	3.4	3.5
RSEM-R5B-EOP	26-Jul-18	1600	8.4	23.3	3.1	3.6	3.1
RSEM-R5B-EOP	27-Jul-18	1705	8.3	23.0	2.3	3.8	2.3
RSEM-R5B-EOP	28-Jul-18	1450	8.4	23.8	2.6	2.5	2.6
RSEM-R5B-EOP	29-Jul-18	1408	8.4	24.0	2	1.9	2
RSEM-R5B-EOP	30-Jul-18	1247	8.3	22.7	15.2	14.8	15.2
RSEM-R5B-EOP	7-Aug-18	1172	8.4	19.7	3.1	3	3.1
RSEM-R5B-EOP	8-Aug-18	1126	8.5	17.8	3.6	3.5	3.6
RSEM-R5B-EOP	9-Aug-18	1525	8.5	21.8	4	4.2	4
RSEM-R5B-EOP	10-Aug-18	2130	8.1	19.8	3.7	3.8	3.7
RSEM-R5B-EOP	11-Aug-18	2360	8.5	9.4	3.2	3.2	3.2
RSEM-R5B-EOP	12-Aug-18	2060	8.4	19.4	3.3	3.3	3.3
RSEM-R5B-EOP	13-Aug-18	1800	8.4	19.4	3.3	2.8	3.3
RSEM-R5B-EOP	14-Aug-18	1563	8.5	22.7	3.2	-	3.2
RSEM-R5B-EOP	15-Aug-18	1620	8.6	19.1	7.9	7.5	7.9
RSEM-R5B-EOP	16-Aug-18	1484	8.2	19.1	3.3	3.3	3.3
RSEM-R5B-EOP	17-Aug-18	1372	8.2	16.9	2	2	2
RSEM-R5B-EOP	18-Aug-18	1382	8.4	16.4	6.4	6.5	6.4
RSEM-R5B-EOP	19-Aug-18	1500	8.4	17.2	6.1	6.3	6.1
RSEM-R5B-EOP	20-Aug-18	1540	8.5	15.6	3.6	2.3	3.6
RSEM-R5B-EOP	21-Aug-18	950	8.8	16.4	1.4	1.7	1.4
RSEM-R5B-EOP	22-Aug-18	1200	8.7	16.4	3.4	3.2	3.4
RSEM-R5B-EOP	23-Aug-18	980	8.8	15.9	3.5	3.3	3.5
RSEM-R5B-EOP	24-Aug-18	1060	8.8	13.4	3.6	4	3.6
RSEM-R5B-EOP	25-Aug-18	940	8.8	14.0	4.9	4.7	4.9
RSEM-R5B-EOP	26-Aug-18	810	8.5	14.4	6.4	6.4	6.4
RSEM-R5B-EOP	27-Aug-18	540	8.6	15.6	2.7	2.6	2.7
RSEM-R5B-EOP	28-Aug-18	870	8.6	15.2	3.4	3.7	3.4
RSEM-R5B-EOP	29-Aug-18	1000	8.4	17.0	4.4	4.4	4.4
RSEM-R5B-EOP	30-Aug-18	930	8.4	14.5	3.8	3.8	3.8
RSEM-R5B-EOP	31-Aug-18	880	8.3	13.6	5	4.8	5
RSEM-R5B-EOP	1-Sep-18	830	8.2	14.4	4.9	5	4.9
RSEM-R5B-EOP	2-Sep-18	930	8.5	12.5	6.9	7	6.9
RSEM-R5B-EOP	3-Sep-18	990	8.5	11.3	8.4	8.4	8.4
RSEM-R5B-EOP	4-Sep-18	1853	8.5	12.9	1.7	1.8	1.7
RSEM-R5B-EOP	5-Sep-18	1808	8.5	12.5	2.4	2.7	2.4
RSEM-R5B-EOP	6-Sep-18	1780	8.5	12.5	2.7	2.7	2.7
RSEM-R5B-EOP	7-Sep-18	1760	8.5	13.2	1.7	1.7	1.7
RSEM-R5B-EOP	8-Sep-18	1580	8.0	12.2	39.6	45.4	39.6
RSEM-R5B-EOP	9-Sep-18	1630	5.7	9.6	14.1	14.6	14.1
RSEM-R5B-EOP	10-Sep-18	2210	6.4	9.1	8.2	7.9	8.2
RSEM-R5B-EOP	11-Sep-18	2230	7.7	13.0	8	7.4	8
RSEM-R5B-EOP	12-Sep-18	2940	8.2	7.8	8.1	8.2	8.1

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R5B-EOP	13-Sep-18	2020	8.6	6.5	4.3	4.2	4.3
RSEM-R5B-EOP	14-Sep-18	1872	8.5	5.3	4.6	4.3	4.6
RSEM-R5B-EOP	15-Sep-18	1847	8.1	5.5	2.8	2.7	2.8
RSEM-R5B-EOP	16-Sep-18	1839	8.0	5.1	2.9	2.8	2.9
RSEM-R5B-EOP	17-Sep-18	1674	8.0	7.0	3.9	3.9	3.9
RSEM-R5B-EOP	18-Sep-18	1532	8.2	8.3	2.9	2.5	2.9
RSEM-R5B-EOP	19-Sep-18	894	8.3	7.8	3.8	3.9	3.8
RSEM-R5B-EOP	20-Sep-18	1347	8.3	7.8	3.8	3.8	3.8
RSEM-R5B-EOP	21-Sep-18	1224	8.3	7.9	4.4	4.3	4.4
RSEM-R5B-EOP	22-Sep-18	1496	8.3	10.5	14.1	14.2	14.1
RSEM-R5B-EOP	23-Sep-18	1119	8.2	9.4	6.2	6.2	6.2
RSEM-R5B-EOP	24-Sep-18	1165	8.5	8.9	7.8	7.4	7.8
RSEM-R5B-EOP	25-Sep-18	1254	8.5	7.5	9.2	9.2	9.2
RSEM-R5B-EOP	26-Sep-18	1346	8.4	11.1	9.2	9.3	9.2
RSEM-R5B-EOP	27-Sep-18	1475	8.7	7.8	-	-	-
RSEM-R5B-EOP	28-Sep-18	1460	8.7	7.7	2.9	2.8	2.9
RSEM-R5B-EOP	29-Sep-18	1312	8.8	5.8	3.1	3.1	3.1
RSEM-R5B-EOP	30-Sep-18	1289	8.7	4.8	3.1	3.1	3.1
RSEM-R5B-EOP	1-Oct-18	1260	8.7	2.3	3.4	3.5	3.4
RSEM-R5B-EOP	2-Oct-18	1143	8.6	8.1	9.4	9.4	9.4
RSEM-R5B-EOP	3-Oct-18	1245	8.5	4.1	8.1	8	8.1
RSEM-R5B-EOP	4-Oct-18	6200	8.4	1.3	8.6	8.6	8.6
RSEM-R5B-EOP	5-Oct-18	1239	8.4	5.1	9.4	9.3	9.4
RSEM-R5B-EOP	6-Oct-18	1189	8.5	5.3	4.7	4.5	4.7
RSEM-R5B-EOP	7-Oct-18	1120	8.4	5.4	2.1	2	2.1
RSEM-R5B-EOP	8-Oct-18	1238	8.5	5.6	2.5	2.5	2.5
RSEM-R5B-EOP	9-Oct-18	1168	8.5	3.0	8.7	8.9	8.7
RSEM-R5B-EOP	10-Oct-18	901	8.4	6.1	5.6	5.4	5.6
RSEM-R5B-EOP	11-Oct-18	1201	7.9	3.0	6.3	6.3	6.3
RSEM-R5B-EOP	12-Oct-18	1081	7.8	4.6	11.9	11.8	11.9
RSEM-R5B-EOP	13-Oct-18	1067	8.4	5.7	5.6	5.6	5.6
RSEM-R5B-EOP	14-Oct-18	1190	8.6	4.7	1.6	1.3	1.6
RSEM-R5B-EOP	15-Oct-18	1234	8.2	6.6	2	2	2
RSEM-R5B-EOP	16-Oct-18	1260	8.1	7.5	2.6	2.8	2.6
RSEM-R5B-EOP	17-Oct-18	1283	8.3	7.6	8.4	8.4	8.4
RSEM-R5B-EOP	18-Oct-18	1260	8.6	7.3	3.4	3.1	3.4
RSEM-R5B-EOP	19-Oct-18	1270	8.6	5.1	6	6.1	6
RSEM-R5B-EOP	20-Oct-18	1244	8.5	6.0	2.7	2.6	2.7
RSEM-R5B-EOP	21-Oct-18	1215	8.7	5.3	2.7	2.7	2.7
RSEM-R5B-EOP	22-Oct-18	1170	8.8	3.5	2.5	2.4	2.5
RSEM-R5B-EOP	23-Oct-18	997	8.9	6.7	1.9	1.9	1.9
RSEM-R5B-EOP	24-Oct-18	920	8.9	5.6	2.1	2	2.1
RSEM-R5B-EOP	25-Oct-18	957	8.6	6.4	2.3	2.2	2.3
RSEM-R5B-EOP	26-Oct-18	974	8.8	3.7	1.8	1.7	1.8
RSEM-R5B-EOP	27-Oct-18	886	8.7	5.5	1.6	1.6	1.6
RSEM-R5B-EOP	28-Oct-18	867	8.7	3.8	1.5	1.4	1.5
RSEM-R5B-EOP	29-Oct-18	875	8.8	3.1	2.1	2.1	2.1
RSEM-R5B-EOP	30-Oct-18	991	8.2	2.3	3.7	3.8	3.7
RSEM-R5B-EOP	31-Oct-18	945	8.5	2.0	2.4	2.6	2.4
RSEM-R5B-EOP	1-Nov-18	895	8.3	1.2	2.6	2.7	2.6
RSEM-R5B-EOP	2-Nov-18	850	8.1	1.0	2.3	2.3	2.3
RSEM-R5B-EOP	3-Nov-18	880	8.3	0.9	2.7	2.7	2.7
RSEM-R5B-EOP	4-Nov-18	910	8.5	0.8	2.7	2.6	2.7
RSEM-R5B-EOP	5-Nov-18	950	8.4	0.7	2.6	2.5	2.6
RSEM-R5B-EOP	6-Nov-18	1040	8.5	0.0	2.2	2.2	2.2
RSEM-R5B-EOP	7-Nov-18	1194	8.6	2.3	2.9	3.3	2.9
RSEM-R5B-EOP	8-Nov-18	1300	8.1	-0.1	2.9	2.9	2.9
RSEM-R5B-EOP	9-Nov-18	1236	8.2	1.2	2.6	2.5	2.6
RSEM-R5B-EOP	10-Nov-18	1265	8.5	1.8	2.1	2.1	2.1
RSEM-R5B-EOP	11-Nov-18	1245	8.4	4.1	6	5.7	6
RSEM-R5B-EOP	12-Nov-18	1305	8.5	2.5	0.7	0.6	0.7
RSEM-R5B-EOP	13-Nov-18	1429	8.4	1.3	1.3	1.2	1.3
RSEM-R5B-EOP	14-Nov-18	1642	8.3	1.0	1.9	1.9	1.9

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R5B-EOP	15-Nov-18	1620	8.4	0.4	1	1	1
RSEM-R5B-EOP	16-Nov-18	1575	8.3	1.0	1.1	1.1	1.1
RSEM-R5B-EOP	17-Nov-18	1807	8.4	-0.2	1.4	1.3	1.4
RSEM-R5B-EOP	18-Nov-18	1707	8.3	1.8	2.4	2.2	2.4
RSEM-R5B-EOP	19-Nov-18	1710	8.2	1.6	1.5	1.4	1.5
RSEM-R5B-EOP	20-Nov-18	1755	8.1	2.0	1.3	1.3	1.3
RSEM-R5B-EOP	21-Nov-18	1961	8.1	0.3	1.4	1.3	1.4
RSEM-R5B-EOP	22-Nov-18	1849	8.1	2.4	1.7	1.4	1.7
RSEM-R5B-EOP	23-Nov-18	1900	8.2	1.5	1.8	1.6	1.8
RSEM-R5B-EOP	24-Nov-18	2120	8.1	0.1	2.2	2.2	2.2
RSEM-R5B-EOP	25-Nov-18	1733	8.2	1.7	2.4	2.6	2.4
RSEM-R5B-EOP	26-Nov-18	1949	8.9	0.0	5.6	5.6	5.6
RSEM-R5B-EOP	27-Nov-18	1960	8.7	0.4	6	6	6
RSEM-R5B-EOP	28-Nov-18	1915	8.2	0.8	6.4	6.3	6.4
RSEM-R5B-EOP	29-Nov-18	1920	8.2	0.7	6.4	6.3	6.4
RSEM-R5B-EOP	30-Nov-18	1906	8.3	0.7	7.2	7.4	7.2
RSEM-R5B-EOP	1-Dec-18	1950	8.4	0.6	7.2	7.2	7.2
RSEM-R5B-EOP	2-Dec-18	1975	8.8	0.7	6.6	6.5	6.6
RSEM-R5B-EOP	3-Dec-18	2020	8.6	0.5	6.4	6.4	6.4
RSEM-R5B-EOP	4-Dec-18	1955	8.2	2.2	0.8	0.9	0.8
RSEM-R5B-EOP	5-Dec-18	1944	8.3	-0.3	1.7	1.9	1.7
RSEM-R5B-EOP	6-Dec-18	2110	8.3	2.6	0.9	1	0.9
RSEM-R5B-EOP	7-Dec-18	2430	8.0	-0.1	1	1.2	1
RSEM-R5B-EOP	8-Dec-18	2530	8.2	-0.1	2.2	2	2.2
RSEM-R5B-EOP	9-Dec-18	2620	8.2	-0.1	1.1	1	1.1
RSEM-R5B-EOP	10-Dec-18	2470	8.3	2.1	1.4	1.2	1.4
RSEM-R5B-EOP	11-Dec-18	2760	8.9	0.0	2.8	2.8	2.8
RSEM-R5B-EOP	12-Dec-18	2420	8.8	0.0	4.2	4.2	4.2
RSEM-R5B-EOP	13-Dec-18	2070	8.7	0.1	3.3	3.2	3.3
RSEM-R5B-EOP	14-Dec-18	1925	8.5	0.2	2.9	3	2.9
RSEM-R5B-EOP	15-Dec-18	1718	8.5	0.0	3.3	3.3	3.3
RSEM-R5B-EOP	16-Dec-18	1720	8.4	-0.4	2.4	2.3	2.4
RSEM-R5B-EOP	18-Dec-18	1550	8.6	-0.1	2.7	2.7	2.7
RSEM-R5B-EOP	19-Dec-18	1495	8.5	0.0	2.2	1.9	2.2
RSEM-R5B-EOP	20-Dec-18	1353	8.3	3.5	1.7	1.7	1.7
RSEM-R5B-EOP	21-Dec-18	1390	8.2	0.0	6.2	6.2	6.2
RSEM-R5B-EOP	23-Dec-18	1387	8.3	-0.3	1.8	1.8	1.8
RSEM-R5B-EOP	24-Dec-18	1398	8.4	-0.3	1.5	1.4	1.5
RSEM-R5B-EOP	25-Dec-18	1380	8.3	-0.2	1.7	1.7	1.7
RSEM-R5B-EOP	26-Dec-18	1382	8.3	0.6	2	2	2
RSEM-R5B-EOP	27-Dec-18	1370	8.5	0.1	2.1	2.1	2.1
RSEM-R5B-EOP	28-Dec-18	1350	8.2	0.0	2	2	2
RSEM-R5B-EOP	29-Dec-18	1375	8.2	0.0	1.6	1.6	1.6
RSEM-R5B-EOP	30-Dec-18	1393	8.2	-0.1	1.7	1.7	1.7
RSEM-R5B-EOP	31-Dec-18	1391	8.2	0.4	1.9	1.9	1.9
RSEM-R5B-GW-SEEP	12-May-18	2230	7.1	17.0	6.4	6.4	6.4
RSEM-R5B-SP	1-Jan-18	1347	8.8	-	2.1	2.4	2.1
RSEM-R5B-SP	2-Jan-18	1377	8.5	-	1.7	1.7	1.7
RSEM-R5B-SP	3-Jan-18	1830	8.2	-	1.5	1.6	1.5
RSEM-R5B-SP	4-Jan-18	1540	8.2	-	2.7	2.7	2.7
RSEM-R5B-SP	5-Jan-18	1480	8.2	-	2.1	1.8	2.1
RSEM-R5B-SP	6-Jan-18	1480	8.3	0.1	2.3	2.4	2.3
RSEM-R5B-SP	7-Jan-18	1350	8.4	-	2	1.9	2
RSEM-R5B-SP	8-Jan-18	1580	8.1	-	2	2.1	2
RSEM-R5B-SP	9-Jan-18	1620	8.5	-	1.9	2	1.9
RSEM-R5B-SP	10-Jan-18	1650	8.2	-	2	1.9	2
RSEM-R5B-SP	11-Jan-18	1670	8.1	-	2.6	3.1	2.6
RSEM-R5B-SP	12-Jan-18	1780	8.2	-	1.7	1.6	1.7
RSEM-R5B-SP	13-Jan-18	1900	8.7	-	2.3	2.5	2.3
RSEM-R5B-SP	14-Jan-18	1870	8.8	-	2.8	3.3	2.8
RSEM-R5B-SP	15-Jan-18	1810	7.9	-	2	2.1	2
RSEM-R5B-SP	16-Jan-18	1780	7.9	-	1.6	1.7	1.6
RSEM-R5B-SP	17-Jan-18	1380	8.8	-	6.2	5.9	6.2

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R5B-SP	18-Jan-18	1360	8.4	-	3.1	3.1	3.1
RSEM-R5B-SP	19-Jan-18	1380	8.4	-	1.8	1.8	1.8
RSEM-R5B-SP	20-Jan-18	1390	8.9	-	1.8	1.7	1.8
RSEM-R5B-SP	21-Jan-18	1400	8.8	-	3	2.7	3
RSEM-R5B-SP	22-Jan-18	1450	8.8	-	1.6	1.6	1.6
RSEM-R5B-SP	23-Jan-18	1479	8.3	-	0.9	0.9	0.9
RSEM-R5B-SP	24-Jan-18	1498	8.2	-	1.4	1.3	1.4
RSEM-R5B-SP	25-Jan-18	1580	8.7	-	1.2	1.2	1.2
RSEM-R5B-SP	26-Jan-18	1560	8.6	-	1.9	1.7	1.9
RSEM-R5B-SP	27-Jan-18	1560	8.5	-	2.2	2.4	2.2
RSEM-R5B-SP	28-Jan-18	1595	8.1	-	3.2	3.1	3.2
RSEM-R5B-SP	29-Jan-18	1680	8.1	-	8.5	8.6	8.5
RSEM-R5B-SP	13-Mar-18	1240	8.8	0.1	8.1	7.9	8.1
RSEM-R5B-SP	14-Mar-18	1380	9.5	0.6	6.7	6	6.7
RSEM-R5B-SP	15-Mar-18	934	8.1	1.8	30.7	30.5	30.7
RSEM-R5B-SP	16-Mar-18	827	8.3	0.5	32.2	32.4	32.2
RSEM-R5B-SP	17-Mar-18	748	8.0	0.9	17.6	17.8	17.6
RSEM-R5B-SP	18-Mar-18	1700	8.5	0.6	6.4	6.5	6.4
RSEM-R5B-SP	23-Mar-18	1740	8.7	0.1	11.9	11.8	11.9
RSEM-R5B-SP	24-Mar-18	1417	8.1	0.0	5.1	5.1	5.1
RSEM-R5B-SP	26-Mar-18	1390	8.2	0.0	4.1	4.2	4.1
RSEM-R5B-SP	27-Mar-18	1590	8.5	-	3.4	3.4	3.4
RSEM-R5B-SP	28-Mar-18	1567	8.6	0.1	1.6	1.3	1.6
RSEM-R5B-SP	29-Mar-18	1540	8.5	-	1.1	1.2	1.1
RSEM-R5B-SP	23-Apr-18	2190	8.0	3.7	21.3	21.2	21.3
RSEM-R5B-SP	31-Oct-18	693	7.7	2.9	7.5	7.2	7.5
RSEM-R5B-SP	18-Nov-18	1707	8.3	1.8	2.4	2.2	2.4
RSEM-R5B-SP	20-Dec-18	1353	8.3	3.5	1.7	1.7	1.7
RSEM-R5B-W	12-Apr-18	630	8.4	-	850	856	850
RSEM-R5B-W	13-Apr-18	398	9.0	0.1	2767	2763	2767
RSEM-R5B-W	14-Apr-18	440	8.7	2.7	2141	1893	2141
RSEM-R5B-W	15-Apr-18	1060	9.1	1.1	855	853	855
RSEM-R5B-W	16-Apr-18	732	5.5	0.2	117	119	117
RSEM-R5B-W	17-Apr-18	1250	8.1	2.8	OR	-	-
RSEM-R5B-W	18-Apr-18	577	8.0	2.7	752	745	752
RSEM-R5B-W	19-Apr-18	490	8.2	2.2	692	679	692
RSEM-R5B-W	20-Apr-18	358	8.3	4.6	160	162	160
RSEM-R5B-W	21-Apr-18	412	7.7	3.9	191	191	191
RSEM-R5B-W	22-Apr-18	528	7.8	7.0	1506	1504	1506
RSEM-R5B-W	23-Apr-18	615	7.9	8.2	252	225	252
RSEM-R5B-W	24-Apr-18	625	7.8	9.2	3283	3255	3283
RSEM-R5B-W	26-Apr-18	790	8.3	9.7	OR	-	-
RSEM-R5B-W	27-Apr-18	897	8.2	8.4	101	86	101
RSEM-R5B-W	30-Apr-18	990	8.7	12.7	95	93	95
RSEM-R5B-W	1-May-18	820	8.6	13.9	14.6	12.3	14.6
RSEM-R5B-W	2-May-18	890	8.6	10.5	43.3	37.3	43.3
RSEM-R5B-W	3-May-18	920	8.6	13.5	23.3	24.1	23.3
RSEM-R5B-W	4-May-18	926	8.8	14.8	8.6	8.4	8.6
RSEM-R5B-W	5-May-18	870	8.5	6.6	10.7	12.3	10.7
RSEM-R5B-W	6-May-18	920	8.6	12.2	13.3	13.1	13.3
RSEM-R5B-W	7-May-18	914	8.6	8.8	5.6	5.5	5.6
RSEM-R5B-W	13-May-18	1022	8.6	11.6	5.2	5.2	5.2
RSEM-R5B-W	15-May-18	1530	8.5	17.1	2.6	2.6	2.6
RSEM-R5B-W	16-May-18	1023	8.7	13.9	3.3	3	3.3
RSEM-R5B-W	17-May-18	1040	8.6	16.9	2.5	2.5	2.5
RSEM-R5B-W	4-Jun-18	1506	8.4	15.1	88.8	88	88.8
RSEM-R5B-W	14-Jun-18	1326	8.6	15.9	OR	-	-
RSEM-R5B-W	15-Jun-18	1420	8.5	17.9	5.4	5.3	5.4
RSEM-R5B-W	25-Jun-18	740	8.3	15.8	OR	-	-
RSEM-R5B-W	26-Jun-18	1113	6.8	18.6	1495	1490	1495
RSEM-R5B-W	27-Jun-18	1266	8.4	19.3	25	25.5	25
RSEM-R5B-W	1-Jul-18	1057	8.6	15.7	66.7	65.7	66.7
RSEM-R5B-W	2-Jul-18	1186	8.6	17.6	56.1	54.6	56.1

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R5B-W	8-Jul-18	1896	8.5	19.3	52	52	52
RSEM-R5B-W	13-Jul-18	940	8.4	18.4	2471	2485	2471
RSEM-R5B-W	20-Jul-18	640	8.5	15.6	OR	-	-
RSEM-R5B-W	22-Jul-18	600	8.4	15.4	OR	-	-
RSEM-R5B-W	8-Sep-18	645	7.9	11.1	3898	3904	3898
RSEM-R5B-W	10-Sep-18	1126	8.1	7.7	104	102	104
RSEM-R5B-W	12-Oct-18	957	7.5	4.6	2210	2211	2210
RSEM-R6E-EOP	18-Mar-18	733	7.8	1.1	22.3	22.2	22.3
RSEM-R6E-EOP	19-Mar-18	831	8.9	3.0	22.5	22.5	22.5
RSEM-R6E-EOP	21-Mar-18	875	8.9	1.0	21.9	22	21.9
RSEM-R6E-EOP	22-Mar-18	836	8.5	0.3	11.9	11.8	11.9
RSEM-R6E-EOP	23-Mar-18	996	8.8	0.0	10.1	10.8	10.1
RSEM-R6E-EOP	24-Mar-18	1000	8.7	0.1	5	5	5
RSEM-R6E-EOP	26-Mar-18	1100	8.7	1.0	4.1	4.1	4.1
RSEM-R6E-EOP	27-Mar-18	1270	7.9	0.9	2.2	2.2	2.2
RSEM-R6E-EOP	28-Mar-18	1290	8.2	0.4	2.3	2.3	2.3
RSEM-R6E-EOP	29-Mar-18	380	8.3	0.3	2.3	2.3	2.3
RSEM-R6E-EOP	30-Mar-18	1400	8.1	0.4	6.1	6.1	6.1
RSEM-R6E-EOP	31-Mar-18	1340	8.1	-	9	8.9	9
RSEM-R6E-EOP	1-Apr-18	1410	8.0	-	11.4	10.8	11.4
RSEM-R6E-EOP	2-Apr-18	1471	8.1	0.2	5.1	5	5.1
RSEM-R6E-EOP	3-Apr-18	1495	7.3	-	15.1	15.2	15.1
RSEM-R6E-EOP	4-Apr-18	1517	8.8	-	7.1	7.2	7.1
RSEM-R6E-EOP	5-Apr-18	1580	8.3	-	7.8	7.9	7.8
RSEM-R6E-EOP	6-Apr-18	1580	9.0	0.2	9	9	9
RSEM-R6E-EOP	7-Apr-18	1640	9.0	-	9.2	9.2	9.2
RSEM-R6E-EOP	9-Apr-18	1465	8.7	1.1	10.3	10	10.3
RSEM-R6E-EOP	10-Apr-18	1004	8.5	0.5	17.3	17.4	17.3
RSEM-R6E-EOP	11-Apr-18	1340	8.3	0.5	13	13.3	13
RSEM-R6E-EOP	12-Apr-18	1120	8.7	0.9	18.4	18.2	18.4
RSEM-R6E-EOP	13-Apr-18	1160	8.9	1.4	14.9	14.9	14.9
RSEM-R6E-EOP	14-Apr-18	1041	8.9	2.2	39.2	39.6	39.2
RSEM-R6E-EOP	15-Apr-18	920	8.3	1.8	39.6	40.2	39.6
RSEM-R6E-EOP	16-Apr-18	1100	8.2	0.9	75.9	76.7	75.9
RSEM-R6E-EOP	17-Apr-18	1360	8.1	1.2	26.7	26.7	26.7
RSEM-R6E-EOP	18-Apr-18	1315	8.6	1.6	23.8	23.7	23.8
RSEM-R6E-EOP	19-Apr-18	1240	8.6	1.8	20.6	20.6	20.6
RSEM-R6E-EOP	21-Apr-18	1570	9.0	4.3	38.4	41.4	38.4
RSEM-R6E-EOP	24-Apr-18	1335	8.5	6.2	27.9	27.6	27.9
RSEM-R6E-EOP	25-Apr-18	1300	8.6	6.7	25.3	25.4	25.3
RSEM-R6E-EOP	26-Apr-18	1203	8.5	10.6	26.4	25.6	26.4
RSEM-R6E-EOP	27-Apr-18	1750	8.4	8.6	22.7	22.3	22.7
RSEM-R6E-EOP	28-Apr-18	1218	8.4	12.1	16.4	16.6	16.4
RSEM-R6E-EOP	29-Apr-18	1300	8.5	11.1	16.5	16.7	16.5
RSEM-R6E-EOP	30-Apr-18	1468	8.6	11.0	16	15.5	16
RSEM-R6E-EOP	1-May-18	1263	8.6	10.5	25.1	25.3	25.1
RSEM-R6E-EOP	2-May-18	1246	8.7	10.8	16.6	16.3	16.6
RSEM-R6E-EOP	3-May-18	1248	8.7	11.9	10.3	10.5	10.3
RSEM-R6E-EOP	4-May-18	1137	8.3	15.0	7.1	7.4	7.1
RSEM-R6E-EOP	5-May-18	1086	8.3	12.8	9.3	3	9.3
RSEM-R6E-EOP	6-May-18	1100	8.5	16.5	8.9	8.4	8.9
RSEM-R6E-EOP	7-May-18	1100	8.7	12.8	6.2	5.9	6.2
RSEM-R6E-EOP	25-Jun-18	1126	8.1	18.4	32.4	32.8	32.4
RSEM-R6E-EOP	26-Jun-18	1158	8.3	14.7	40.8	41.6	40.8
RSEM-R6E-EOP	28-Jun-18	1430	8.0	17.9	11.5	11.3	11.5
RSEM-R6E-EOP	29-Jun-18	1640	8.0	17.3	15.5	15.7	15.5
RSEM-R6E-EOP	30-Jun-18	1363	8.1	19.4	11.6	11.5	11.6
RSEM-R6E-EOP	1-Jul-18	1380	8.1	17.7	6.7	6.7	6.7
RSEM-R6E-EOP	2-Jul-18	1506	8.4	16.9	17.9	17.9	17.9
RSEM-R6E-EOP	3-Jul-18	1480	8.3	16.9	12.1	12	12.1
RSEM-R6E-EOP	4-Jul-18	1470	8.5	22.4	7.7	7.6	7.7
RSEM-R6E-EOP	5-Jul-18	1438	8.3	19.9	7.3	6.9	7.3
RSEM-R6E-EOP	6-Jul-18	1440	8.3	20.0	7.4	7.2	7.4

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6E-EOP	7-Jul-18	1460	8.5	19.2	11.6	11.4	11.6
RSEM-R6E-EOP	8-Jul-18	1435	8.5	17.3	12.8	12.9	12.8
RSEM-R6E-EOP	9-Jul-18	1347	8.3	19.9	13.5	14	13.5
RSEM-R6E-EOP	10-Jul-18	1291	8.5	20.7	15.7	15.4	15.7
RSEM-R6E-EOP	11-Jul-18	1272	8.4	20.6	13.2	12.9	13.2
RSEM-R6E-EOP	12-Jul-18	1250	8.4	20.7	11.6	11.5	11.6
RSEM-R6E-EOP	13-Jul-18	1208	8.4	19.4	9.7	9.7	9.7
RSEM-R6E-EOP	14-Jul-18	883	8.3	18.0	13.8	13.5	13.8
RSEM-R6E-EOP	15-Jul-18	1195	8.3	20.6	10.2	9.9	10.2
RSEM-R6E-EOP	16-Jul-18	1196	8.3	21.2	10.6	9.9	10.6
RSEM-R6E-EOP	17-Jul-18	1274	8.4	21.4	10.2	10.2	10.2
RSEM-R6E-EOP	18-Jul-18	1236	8.5	21.5	18.7	18.6	18.7
RSEM-R6E-EOP	19-Jul-18	1207	8.4	21.4	17.1	17.1	17.1
RSEM-R6E-EOP	20-Jul-18	1100	8.4	19.3	26.4	26.1	26.4
RSEM-R6E-EOP	21-Jul-18	1082	8.5	16.5	28.8	28.5	28.8
RSEM-R6E-EOP	22-Jul-18	1165	8.6	17.9	9.1	9.1	9.1
RSEM-R6E-EOP	23-Jul-18	1120	7.4	18.7	17.5	17	17.5
RSEM-R6E-EOP	24-Jul-18	1145	8.4	21.8	18.8	18.7	18.8
RSEM-R6E-EOP	25-Jul-18	1204	8.4	24.2	9.9	10.4	9.9
RSEM-R6E-EOP	26-Jul-18	1265	8.4	22.2	12.2	12.1	12.2
RSEM-R6E-EOP	27-Jul-18	1222	8.4	20.4	10.9	10.9	10.9
RSEM-R6E-EOP	28-Jul-18	1127	8.4	26.2	8.1	8.4	8.1
RSEM-R6E-EOP	29-Jul-18	1034	8.4	23.4	16.2	15.7	16.2
RSEM-R6E-EOP	30-Jul-18	1610	8.1	21.9	23	23.1	23
RSEM-R6E-EOP	7-Aug-18	1168	8.2	19.2	11.1	11.2	11.1
RSEM-R6E-EOP	8-Aug-18	1158	8.3	18.9	9.3	8.5	9.3
RSEM-R6E-EOP	9-Aug-18	1127	8.3	20.1	11.6	11.6	11.6
RSEM-R6E-EOP	10-Aug-18	1130	8.2	19.5	10.5	11.5	10.5
RSEM-R6E-EOP	11-Aug-18	936	8.4	28.0	17.2	17	17.2
RSEM-R6E-EOP	12-Aug-18	874	8.3	21.6	15.2	15.3	15.2
RSEM-R6E-EOP	13-Aug-18	880	8.3	19.1	4.6	4.5	4.6
RSEM-R6E-EOP	14-Aug-18	802	8.3	20.3	11.2	-	11.2
RSEM-R6E-EOP	15-Aug-18	780	8.2	18.6	21	19.8	21
RSEM-R6E-EOP	16-Aug-18	782	8.8	18.3	9.1	11	9.1
RSEM-R6E-EOP	17-Aug-18	770	7.9	17.4	3.9	3.9	3.9
RSEM-R6E-EOP	18-Aug-18	815	8.5	17.4	18	16.2	18
RSEM-R6E-EOP	19-Aug-18	841	8.4	17.0	11.5	11.3	11.5
RSEM-R6E-EOP	20-Aug-18	850	8.5	16.6	7.5	6.8	7.5
RSEM-R6E-EOP	21-Aug-18	540	8.3	17.7	5.4	5.6	5.4
RSEM-R6E-EOP	22-Aug-18	540	8.5	17.3	9.9	10	9.9
RSEM-R6E-EOP	23-Aug-18	500	8.8	13.5	6.4	6.2	6.4
RSEM-R6E-EOP	24-Aug-18	500	8.8	15.3	8.1	8.1	8.1
RSEM-R6E-EOP	25-Aug-18	350	8.6	15.7	7.5	7.2	7.5
RSEM-R6E-EOP	26-Aug-18	550	8.4	16.2	6.3	6.1	6.3
RSEM-R6E-EOP	27-Aug-18	570	8.8	16.0	8.8	8.9	8.8
RSEM-R6E-EOP	28-Aug-18	530	8.5	15.1	12.1	12	12.1
RSEM-R6E-EOP	29-Aug-18	580	8.4	19.5	9.2	9.5	9.2
RSEM-R6E-EOP	30-Aug-18	540	8.4	15.1	8.5	8.6	8.5
RSEM-R6E-EOP	31-Aug-18	490	8.5	13.0	11.3	12.8	11.3
RSEM-R6E-EOP	1-Sep-18	470	8.2	15.6	6.2	6.2	6.2
RSEM-R6E-EOP	2-Sep-18	490	8.5	12.9	8.2	8.3	8.2
RSEM-R6E-EOP	3-Sep-18	380	8.4	12.3	10.2	10.2	10.2
RSEM-R6E-EOP	5-Sep-18	766	8.5	12.1	9.6	9.9	9.6
RSEM-R6E-EOP	6-Sep-18	726	8.6	12.9	8.5	8.8	8.5
RSEM-R6E-EOP	7-Sep-18	663	8.3	13.2	11.1	11.3	11.1
RSEM-R6E-EOP	8-Sep-18	836	8.1	11.8	32.3	32	32.3
RSEM-R6E-EOP	9-Sep-18	1090	8.8	10.4	42.7	43.1	42.7
RSEM-R6E-EOP	10-Sep-18	1075	8.7	9.5	8	8.1	8
RSEM-R6E-EOP	11-Sep-18	1000	8.8	12.8	74.4	74.1	74.4
RSEM-R6E-EOP	12-Sep-18	857	8.6	8.7	12.3	13.1	12.3
RSEM-R6E-EOP	13-Sep-18	805	8.4	9.0	10.4	10.5	10.4
RSEM-R6E-EOP	14-Sep-18	880	8.6	9.3	5.1	5.2	5.1
RSEM-R6E-EOP	15-Sep-18	894	8.1	7.9	7.3	7.3	7.3

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6E-EOP	16-Sep-18	889	8.4	7.1	6.4	6.2	6.4
RSEM-R6E-EOP	17-Sep-18	1021	8.6	9.1	2.6	2.6	2.6
RSEM-R6E-EOP	18-Sep-18	843	8.4	7.9	4.7	4.8	4.7
RSEM-R6E-EOP	19-Sep-18	1139	8.6	8.8	5.4	5.6	5.4
RSEM-R6E-EOP	20-Sep-18	1001	8.2	7.2	5.3	5.3	5.3
RSEM-R6E-EOP	21-Sep-18	970	8.7	7.2	14.8	14.9	14.8
RSEM-R6E-EOP	22-Sep-18	841	8.5	9.2	10.1	10.3	10.1
RSEM-R6E-EOP	23-Sep-18	791	8.0	7.1	16.2	16.4	16.2
RSEM-R6E-EOP	24-Sep-18	545	8.4	9.3	18.1	18.2	18.1
RSEM-R6E-EOP	25-Sep-18	675	8.5	7.8	17.1	17.3	17.1
RSEM-R6E-EOP	26-Sep-18	741	8.2	10.4	13	13.1	13
RSEM-R6E-EOP	27-Sep-18	707	8.7	8.1	8.1	8.1	8.1
RSEM-R6E-EOP	28-Sep-18	770	8.6	7.8	7.2	7.4	7.2
RSEM-R6E-EOP	29-Sep-18	835	8.5	7.1	6.6	7	6.6
RSEM-R6E-EOP	30-Sep-18	880	8.5	6.9	5.8	6	5.8
RSEM-R6E-EOP	1-Oct-18	930	8.3	4.4	6.4	7.6	6.4
RSEM-R6E-EOP	2-Oct-18	901	8.4	7.9	15.1	15.2	15.1
RSEM-R6E-EOP	3-Oct-18	648	8.4	6.1	7.3	7.1	7.3
RSEM-R6E-EOP	4-Oct-18	903	8.4	7.7	10.5	10.5	10.5
RSEM-R6E-EOP	5-Oct-18	968	8.3	7.1	10.5	10.4	10.5
RSEM-R6E-EOP	6-Oct-18	914	8.2	4.7	5.3	5.2	5.3
RSEM-R6E-EOP	7-Oct-18	854	8.3	5.9	4.1	4	4.1
RSEM-R6E-EOP	8-Oct-18	910	8.2	3.2	7.4	7.3	7.4
RSEM-R6E-EOP	9-Oct-18	950	8.7	5.1	13	12.9	13
RSEM-R6E-EOP	10-Oct-18	864	8.2	6.0	10.4	10.3	10.4
RSEM-R6E-EOP	11-Oct-18	1001	8.0	2.8	12.1	12	12.1
RSEM-R6E-EOP	12-Oct-18	856	7.7	6.3	17.9	17.8	17.9
RSEM-R6E-EOP	13-Oct-18	940	8.3	4.4	9	9.2	9
RSEM-R6E-EOP	14-Oct-18	956	8.7	4.4	5.6	5.4	5.6
RSEM-R6E-EOP	15-Oct-18	960	8.1	6.0	3.4	3.9	3.4
RSEM-R6E-EOP	16-Oct-18	940	8.2	6.1	3.4	3.4	3.4
RSEM-R6E-EOP	17-Oct-18	920	8.3	7.8	4.4	4.6	4.4
RSEM-R6E-EOP	18-Oct-18	890	8.2	7.3	3	2.8	3
RSEM-R6E-EOP	19-Oct-18	910	8.3	5.6	4.9	5.1	4.9
RSEM-R6E-EOP	20-Oct-18	890	8.3	6.1	3.7	3.6	3.7
RSEM-R6E-EOP	21-Oct-18	883	8.3	6.4	4.6	4.7	4.6
RSEM-R6E-EOP	22-Oct-18	890	8.1	3.8	4.9	4.6	4.9
RSEM-R6E-EOP	23-Oct-18	805	8.3	5.6	3.5	3.4	3.5
RSEM-R6E-EOP	24-Oct-18	983	8.3	3.9	5.1	5.1	5.1
RSEM-R6E-EOP	25-Oct-18	1000	8.4	7.0	4.3	4.3	4.3
RSEM-R6E-EOP	26-Oct-18	1154	8.2	4.1	5	5	5
RSEM-R6E-EOP	27-Oct-18	1112	8.2	6.0	8.5	8.5	8.5
RSEM-R6E-EOP	28-Oct-18	1190	8.3	3.5	7.3	7.3	7.3
RSEM-R6E-EOP	29-Oct-18	1589	8.4	2.8	3.9	3.3	3.9
RSEM-R6E-EOP	30-Oct-18	1308	8.2	2.2	7.5	7.6	7.5
RSEM-R6E-EOP	31-Oct-18	1395	8.0	2.2	6.1	6	6.1
RSEM-R6E-EOP	1-Nov-18	1460	8.3	1.3	6.4	6.5	6.4
RSEM-R6E-EOP	2-Nov-18	1400	8.2	0.8	6.3	5.8	6.3
RSEM-R6E-EOP	3-Nov-18	1467	8.2	0.9	8.2	7.9	8.2
RSEM-R6E-EOP	4-Nov-18	1450	8.2	1.0	5.4	5.7	5.4
RSEM-R6E-EOP	5-Nov-18	1470	8.2	1.0	5.2	5.2	5.2
RSEM-R6E-EOP	6-Nov-18	1420	8.1	0.8	4.6	4.6	4.6
RSEM-R6E-EOP	7-Nov-18	1507	8.1	3.1	3.9	3.9	3.9
RSEM-R6E-EOP	8-Nov-18	1270	8.6	0.0	4.2	4.3	4.2
RSEM-R6E-EOP	9-Nov-18	1278	8.5	4.7	2.6	2.7	2.6
RSEM-R6E-EOP	10-Nov-18	1332	8.4	5.4	2	2.2	2
RSEM-R6E-EOP	11-Nov-18	1245	8.4	4.1	6	5.7	6
RSEM-R6E-EOP	12-Nov-18	1252	8.3	5.2	2.4	2.1	2.4
RSEM-R6E-EOP	13-Nov-18	1281	8.1	0.5	2.2	2	2.2
RSEM-R6E-EOP	14-Nov-18	1292	8.1	0.8	2.4	2.3	2.4
RSEM-R6E-EOP	15-Nov-18	1287	8.1	0.6	2.9	2.8	2.9
RSEM-R6E-EOP	16-Nov-18	1314	7.9	0.0	2.8	2.8	2.8
RSEM-R6E-EOP	17-Nov-18	1430	8.2	-0.1	3.9	3.9	3.9

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6E-EOP	18-Nov-18	1400	7.9	0.4	2.2	2.3	2.2
RSEM-R6E-EOP	19-Nov-18	1385	8.1	0.8	2.7	2.4	2.7
RSEM-R6E-EOP	20-Nov-18	1369	7.9	0.8	2.6	2.5	2.6
RSEM-R6E-EOP	21-Nov-18	1311	7.9	0.3	3.2	3.2	3.2
RSEM-R6E-EOP	22-Nov-18	1281	7.9	0.7	2.4	2.3	2.4
RSEM-R6E-EOP	23-Nov-18	1297	7.9	0.8	2.3	2.2	2.3
RSEM-R6E-EOP	24-Nov-18	1297	7.9	0.8	2.3	2.2	2.3
RSEM-R6E-EOP	25-Nov-18	1259	7.9	1.4	3.9	3.9	3.9
RSEM-R6E-EOP	26-Nov-18	1234	8.3	0.3	8	8	8
RSEM-R6E-EOP	27-Nov-18	1220	8.3	0.3	5.7	5.8	5.7
RSEM-R6E-EOP	28-Nov-18	1108	8.1	0.5	3.7	3.7	3.7
RSEM-R6E-EOP	29-Nov-18	1133	7.6	1.0	6.8	6.7	6.8
RSEM-R6E-EOP	30-Nov-18	1450	7.7	1.8	12.1	12	12.1
RSEM-R6E-EOP	1-Dec-18	1585	8.1	1.0	11.5	11.4	11.5
RSEM-R6E-EOP	2-Dec-18	1300	8.1	0.4	3.9	4	3.9
RSEM-R6E-EOP	3-Dec-18	1393	8.7	-0.4	4.7	4.3	4.7
RSEM-R6E-EOP	4-Dec-18	1390	7.9	0.4	3	3	3
RSEM-R6E-EOP	5-Dec-18	1140	8.0	-0.1	2.5	2.5	2.5
RSEM-R6E-EOP	6-Dec-18	1295	7.9	0.1	2.1	2.1	2.1
RSEM-R6E-EOP	7-Dec-18	1529	7.9	-0.2	2.1	2	2.1
RSEM-R6-EOP	17-Mar-18	1004	8.0	1.0	14.4	14.4	14.4
RSEM-R6-EP-US(SBIA	28-Aug-18	670	8.3	14.3	60	62	60
RSEM-R6-EP-US-SD	3-Jan-18	1410	8.2	-	0.9	1	0.9
RSEM-R6-EP-US-SD	4-Jan-18	1310	8.4	-	0.8	0.8	0.8
RSEM-R6-EP-US-SD	8-Jan-18	1120	8.6	0.1	32.5	31.7	32.5
RSEM-R6-EP-US-SD	9-Jan-18	1070	8.6	0.0	23.3	19.3	23.3
RSEM-R6-EP-US-SD	10-Jan-18	1160	8.8	-	1.7	1.8	1.7
RSEM-R6-EP-US-SD	15-Jan-18	1040	8.4	-	6.2	6.9	6.2
RSEM-R6-EP-US-SD	18-Jan-18	1000	9.0	-	1.7	1.6	1.7
RSEM-R6-EP-US-SD	10-Mar-18	569	8.5	2.0	OR	-	-
RSEM-R6-EP-US-SD	11-Mar-18	490	8.5	1.8	OR	-	-
RSEM-R6-EP-US-SD	12-Mar-18	736	8.1	0.3	OR	-	-
RSEM-R6-EP-US-SD	14-Mar-18	540	8.7	0.4	1011	1006	1011
RSEM-R6-EP-US-SD	15-Mar-18	1600	8.3	7.5	2110	2106	2110
RSEM-R6-EP-US-SD	16-Mar-18	840	8.5	0.3	603	603	603
RSEM-R6-EP-US-SD	17-Mar-18	830	7.1	2.2	619	619	619
RSEM-R6-EP-US-SD	18-Mar-18	598	8.6	0.3	1896	1892	1896
RSEM-R6-EP-US-SD	19-Mar-18	650	8.5	2.3	1284	1286	1284
RSEM-R6-EP-US-SD	20-Mar-18	585	8.2	1.3	1012	998	1012
RSEM-R6-EP-US-SD	21-Mar-18	588	9.0	0.7	95	94	95
RSEM-R6-EP-US-SD	23-Mar-18	1070	8.7	-	71.5	65.1	71.5
RSEM-R6-EP-US-SD	24-Mar-18	1100	8.8	0.0	93.1	89.9	93.1
RSEM-R6-EP-US-SD	26-Mar-18	890	8.6	1.1	84.1	83.9	84.1
RSEM-R6-EP-US-SD	30-Mar-18	1580	8.4	0.3	4.7	5	4.7
RSEM-R6-EP-US-SD	9-Apr-18	394	8.9	0.8	2134	2149	2134
RSEM-R6-EP-US-SD	10-Apr-18	895	8.6	0.2	59	58.6	59
RSEM-R6-EP-US-SD	11-Apr-18	800	8.7	1.0	OR	-	-
RSEM-R6-EP-US-SD	12-Apr-18	712	8.8	0.6	1101	1107	1101
RSEM-R6-EP-US-SD	13-Apr-18	485	8.8	-	3920	3933	3920
RSEM-R6-EP-US-SD	14-Apr-18	419	8.7	0.0	OR	-	-
RSEM-R6-EP-US-SD	15-Apr-18	810	8.3	0.5	3691	3697	3691
RSEM-R6-EP-US-SD	16-Apr-18	908	8.6	-	48.7	49.4	48.7
RSEM-R6-EP-US-SD	18-Apr-18	860	8.4	3.0	681	675	681
RSEM-R6-EP-US-SD	19-Apr-18	723	8.4	2.3	94	94	94
RSEM-R6-EP-US-SD	20-Apr-18	682	7.8	4.4	791	786	791
RSEM-R6-EP-US-SD	21-Apr-18	729	8.2	5.8	104	104	104
RSEM-R6-EP-US-SD	22-Apr-18	800	8.5	7.2	51.1	51.1	51.1
RSEM-R6-EP-US-SD	23-Apr-18	794	8.5	6.3	41.4	41.4	41.4
RSEM-R6-EP-US-SD	24-Apr-18	760	8.5	8.9	1366	1371	1366
RSEM-R6-EP-US-SD	25-Apr-18	772	8.4	2.3	91.9	91.3	91.9
RSEM-R6-EP-US-SD	26-Apr-18	740	8.3	15.1	37.3	37.2	37.3
RSEM-R6-EP-US-SD	27-Apr-18	733	8.6	7.3	9	8.7	9
RSEM-R6-EP-US-SD	28-Apr-18	764	8.5	14.9	8.7	8.1	8.7

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6-EP-US-SD	29-Apr-18	788	8.6	13.0	5	4.6	5
RSEM-R6-EP-US-SD	30-Apr-18	876	8.7	11.1	16	16.4	16
RSEM-R6-EP-US-SD	1-May-18	769	8.6	12.9	3.5	3.4	3.5
RSEM-R6-EP-US-SD	2-May-18	1123	8.6	17.2	13.2	12.3	13.2
RSEM-R6-EP-US-SD	3-May-18	928	8.5	10.7	18.2	17.6	18.2
RSEM-R6-EP-US-SD	4-May-18	833	8.4	13.0	5	4.9	5
RSEM-R6-EP-US-SD	5-May-18	900	8.4	15.1	9.6	9.7	9.6
RSEM-R6-EP-US-SD	6-May-18	1050	8.6	19.0	5.3	4.7	5.3
RSEM-R6-EP-US-SD	7-May-18	1250	8.5	12.8	3.9	5.9	3.9
RSEM-R6-EP-US-SD	8-May-18	1282	8.5	19.8	3.2	3.2	3.2
RSEM-R6-EP-US-SD	9-May-18	1253	8.6	14.6	3.1	3	3.1
RSEM-R6-EP-US-SD	10-May-18	1110	8.6	18.3	2.8	2.7	2.8
RSEM-R6-EP-US-SD	11-May-18	1156	8.5	22.3	3.9	3.6	3.9
RSEM-R6-EP-US-SD	12-May-18	1080	8.5	19.8	3.6	3.2	3.6
RSEM-R6-EP-US-SD	13-May-18	1210	8.6	17.9	2.8	2.7	2.8
RSEM-R6-EP-US-SD	14-May-18	1016	8.5	14.9	5.5	4.9	5.5
RSEM-R6-EP-US-SD	15-May-18	974	8.3	22.8	3.5	2.7	3.5
RSEM-R6-EP-US-SD	16-May-18	962	8.2	17.0	4.8	4.8	4.8
RSEM-R6-EP-US-SD	17-May-18	1000	8.3	18.5	2	1.7	2
RSEM-R6-EP-US-SD	18-May-18	919	8.5	21.9	2.3	2	2.3
RSEM-R6-EP-US-SD	19-May-18	900	8.5	23.4	1.9	1.8	1.9
RSEM-R6-EP-US-SD	20-May-18	894	8.5	19.0	2.2	2.2	2.2
RSEM-R6-EP-US-SD	21-May-18	900	8.4	20.1	2.8	2.4	2.8
RSEM-R6-EP-US-SD	22-May-18	900	8.3	22.6	3.5	3.6	3.5
RSEM-R6-EP-US-SD	23-May-18	830	8.6	17.5	13.5	13.4	13.5
RSEM-R6-EP-US-SD	24-May-18	800	8.6	20.0	13.7	13.2	13.7
RSEM-R6-EP-US-SD	25-May-18	750	8.7	20.1	13.2	12.8	13.2
RSEM-R6-EP-US-SD	26-May-18	945	8.7	13.2	4.8	4.9	4.8
RSEM-R6-EP-US-SD	27-May-18	915	8.6	7.5	3.8	4.6	3.8
RSEM-R6-EP-US-SD	28-May-18	1037	8.7	17.7	3.4	3.3	3.4
RSEM-R6-EP-US-SD	29-May-18	860	8.3	14.6	4.5	4.2	4.5
RSEM-R6-EP-US-SD	31-May-18	933	8.6	13.9	7.9	7.5	7.9
RSEM-R6-EP-US-SD	1-Jun-18	870	8.7	17.7	4.2	4.1	4.2
RSEM-R6-EP-US-SD	2-Jun-18	930	8.6	15.3	2.1	2.2	2.1
RSEM-R6-EP-US-SD	3-Jun-18	862	8.6	18.8	2.6	2.6	2.6
RSEM-R6-EP-US-SD	5-Jun-18	1070	7.6	15.3	8.9	9.1	8.9
RSEM-R6-EP-US-SD	6-Jun-18	986	8.5	15.8	3.8	4.1	3.8
RSEM-R6-EP-US-SD	7-Jun-18	1060	8.4	22.7	1049	1050	1049
RSEM-R6-EP-US-SD	8-Jun-18	1370	8.3	15.8	966	965	966
RSEM-R6-EP-US-SD	9-Jun-18	1070	8.2	16.2	21.5	22.3	21.5
RSEM-R6-EP-US-SD	10-Jun-18	1055	8.4	16.1	12.8	11.7	12.8
RSEM-R6-EP-US-SD	12-Jun-18	918	8.7	18.3	16.3	17.2	16.3
RSEM-R6-EP-US-SD	13-Jun-18	908	8.5	17.0	4.2	4.4	4.2
RSEM-R6-EP-US-SD	14-Jun-18	1008	8.4	17.0	80.3	78.9	80.3
RSEM-R6-EP-US-SD	15-Jun-18	966	8.4	18.7	5.7	5.8	5.7
RSEM-R6-EP-US-SD	16-Jun-18	896	8.4	25.3	9.1	8.8	9.1
RSEM-R6-EP-US-SD	17-Jun-18	883	8.4	27.1	2.6	2.4	2.6
RSEM-R6-EP-US-SD	18-Jun-18	860	8.4	20.2	4.5	4.8	4.5
RSEM-R6-EP-US-SD	19-Jun-18	820	8.2	26.4	2.7	2.7	2.7
RSEM-R6-EP-US-SD	20-Jun-18	794	8.3	27.3	2.6	2.3	2.6
RSEM-R6-EP-US-SD	21-Jun-18	785	8.4	25.3	3.3	3.5	3.3
RSEM-R6-EP-US-SD	22-Jun-18	810	8.0	24.9	2.4	2.3	2.4
RSEM-R6-EP-US-SD	23-Jun-18	787	8.5	25.7	2.5	2.4	2.5
RSEM-R6-EP-US-SD	24-Jun-18	783	8.1	24.3	2.1	2.1	2.1
RSEM-R6-EP-US-SD	25-Jun-18	1362	8.4	14.1	OR	-	-
RSEM-R6-EP-US-SD	26-Jun-18	1395	8.3	16.3	OR	-	-
RSEM-R6-EP-US-SD	27-Jun-18	1984	8.3	19.0	101.2	101.4	101.2
RSEM-R6-EP-US-SD	28-Jun-18	937	8.5	21.3	24.4	23.6	24.4
RSEM-R6-EP-US-SD	29-Jun-18	884	8.4	24.1	35.9	34	35.9
RSEM-R6-EP-US-SD	30-Jun-18	890	8.4	22.8	19.5	17.5	19.5
RSEM-R6-EP-US-SD	1-Jul-18	1030	8.5	18.3	3.9	4	3.9
RSEM-R6-EP-US-SD	2-Jul-18	1020	8.5	18.1	47.8	46.2	47.8
RSEM-R6-EP-US-SD	3-Jul-18	990	8.3	18.5	30.3	30.8	30.3

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6-EP-US-SD	4-Jul-18	890	8.4	26.4	12.9	12.6	12.9
RSEM-R6-EP-US-SD	5-Jul-18	894	8.4	24.7	42.9	43.7	42.9
RSEM-R6-EP-US-SD	6-Jul-18	843	8.3	21.0	26.4	26.1	26.4
RSEM-R6-EP-US-SD	7-Jul-18	892	8.6	13.2	50	50.1	50
RSEM-R6-EP-US-SD	8-Jul-18	892	8.5	17.2	778	776	778
RSEM-R6-EP-US-SD	9-Jul-18	788	8.3	25.7	18.1	17.8	18.1
RSEM-R6-EP-US-SD	10-Jul-18	723	8.7	25.1	23.8	24	23.8
RSEM-R6-EP-US-SD	11-Jul-18	707	8.1	24.0	7.7	7.6	7.7
RSEM-R6-EP-US-SD	12-Jul-18	690	8.4	24.7	6.2	6.1	6.2
RSEM-R6-EP-US-SD	13-Jul-18	723	8.4	16.3	5.7	5.5	5.7
RSEM-R6-EP-US-SD	14-Jul-18	750	8.4	24.4	12.7	12.6	12.7
RSEM-R6-EP-US-SD	15-Jul-18	704	8.4	26.0	9.3	10	9.3
RSEM-R6-EP-US-SD	16-Jul-18	6780	8.4	25.8	7.6	7.1	7.6
RSEM-R6-EP-US-SD	17-Jul-18	743	8.4	21.0	6.8	6.8	6.8
RSEM-R6-EP-US-SD	18-Jul-18	817	8.5	21.0	22.1	22.7	22.1
RSEM-R6-EP-US-SD	19-Jul-18	742	8.4	21.8	8.6	8.5	8.6
RSEM-R6-EP-US-SD	20-Jul-18	680	8.6	16.1	OR	-	-
RSEM-R6-EP-US-SD	21-Jul-18	929	8.6	15.1	59.7	59.5	59.7
RSEM-R6-EP-US-SD	22-Jul-18	855	8.2	14.3	82	83	82
RSEM-R6-EP-US-SD	23-Jul-18	837	8.3	20.5	34.2	34.6	34.2
RSEM-R6-EP-US-SD	24-Jul-18	760	8.5	22.1	25.2	24.8	25.2
RSEM-R6-EP-US-SD	25-Jul-18	767	8.5	20.7	15.5	15.3	15.5
RSEM-R6-EP-US-SD	26-Jul-18	730	8.4	25.7	13.1	12.6	13.1
RSEM-R6-EP-US-SD	27-Jul-18	740	8.4	23.8	10.8	11.2	10.8
RSEM-R6-EP-US-SD	28-Jul-18	735	8.4	23.5	10.4	9.4	10.4
RSEM-R6-EP-US-SD	29-Jul-18	733	8.5	24.2	8.2	7.4	8.2
RSEM-R6-EP-US-SD	30-Jul-18	1225	8.4	23.1	38.3	38.8	38.3
RSEM-R6-EP-US-SD	7-Aug-18	704	8.5	21.9	8.9	8.7	8.9
RSEM-R6-EP-US-SD	8-Aug-18	686	8.6	22.6	1.8	1.8	1.8
RSEM-R6-EP-US-SD	9-Aug-18	700	8.5	23.0	16.9	16.7	16.9
RSEM-R6-EP-US-SD	10-Aug-18	727	8.5	16.4	1.4	1.4	1.4
RSEM-R6-EP-US-SD	11-Aug-18	675	8.5	20.1	2.8	2.8	2.8
RSEM-R6-EP-US-SD	12-Aug-18	784	8.4	20.6	7.6	7.3	7.6
RSEM-R6-EP-US-SD	13-Aug-18	464	8.5	21.5	21.2	21.3	21.2
RSEM-R6-EP-US-SD	14-Aug-18	629	8.4	25.0	4.7	-	4.7
RSEM-R6-EP-US-SD	15-Aug-18	670	8.6	20.0	3.6	3.6	3.6
RSEM-R6-EP-US-SD	16-Aug-18	663	8.8	14.6	1.7	1.6	1.7
RSEM-R6-EP-US-SD	17-Aug-18	643	8.3	14.3	4	3.8	4
RSEM-R6-EP-US-SD	18-Aug-18	912	8.4	14.4	4.6	4.6	4.6
RSEM-R6-EP-US-SD	19-Aug-18	593	8.4	19.6	2.7	2.8	2.7
RSEM-R6-EP-US-SD	20-Aug-18	640	8.4	17.6	12.4	12.4	12.4
RSEM-R6-EP-US-SD	21-Aug-18	370	8.6	14.7	11.2	11.9	11.2
RSEM-R6-EP-US-SD	22-Aug-18	450	8.7	17.0	6.7	6.3	6.7
RSEM-R6-EP-US-SD	23-Aug-18	420	8.5	13.5	2.2	2.2	2.2
RSEM-R6-EP-US-SD	24-Aug-18	430	8.8	14.8	1.7	1.7	1.7
RSEM-R6-EP-US-SD	25-Aug-18	440	8.7	14.3	1.9	1.9	1.9
RSEM-R6-EP-US-SD	26-Aug-18	900	8.5	14.1	1859	1850	1859
RSEM-R6-EP-US-SD	28-Aug-18	450	8.5	14.5	4.9	4.8	4.9
RSEM-R6-EP-US-SD	29-Aug-18	350	8.4	16.1	24.5	24.4	24.5
RSEM-R6-EP-US-SD	30-Aug-18	490	8.5	14.0	8.5	8.6	8.5
RSEM-R6-EP-US-SD	31-Aug-18	490	8.6	14.6	2.8	2.8	2.8
RSEM-R6-EP-US-SD	1-Sep-18	370	8.7	15.4	31.7	31.4	31.7
RSEM-R6-EP-US-SD	2-Sep-18	490	8.5	13.5	4.7	4.7	4.7
RSEM-R6-EP-US-SD	3-Sep-18	470	8.8	10.5	13.5	13.6	13.5
RSEM-R6-EP-US-SD	4-Sep-18	670	8.6	18.4	2.5	2.3	2.5
RSEM-R6-EP-US-SD	5-Sep-18	665	8.5	17.7	6.3	6.2	6.3
RSEM-R6-EP-US-SD	6-Sep-18	677	8.5	17.7	2.9	2.8	2.9
RSEM-R6-EP-US-SD	7-Sep-18	698	8.6	12.7	1.6	1.6	1.6
RSEM-R6-EP-US-SD	8-Sep-18	1015	8.0	11.6	1851	1839	1851
RSEM-R6-EP-US-SD	9-Sep-18	445	8.5	11.3	62.2	63	62.2
RSEM-R6-EP-US-SD	10-Sep-18	1000	8.6	13.7	31.9	32.3	31.9
RSEM-R6-EP-US-SD	11-Sep-18	430	8.6	10.3	42.4	42.4	42.4
RSEM-R6-EP-US-SD	13-Sep-18	405	8.7	8.9	62	61	62

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6-EP-US-SD	14-Sep-18	809	8.6	10.1	32.1	34.7	32.1
RSEM-R6-EP-US-SD	15-Sep-18	836	8.6	5.1	4.2	4.1	4.2
RSEM-R6-EP-US-SD	16-Sep-18	943	8.1	7.1	10.1	11.5	10.1
RSEM-R6-EP-US-SD	17-Sep-18	941	8.6	9.4	9.9	10.1	9.9
RSEM-R6-EP-US-SD	19-Sep-18	794	8.7	8.0	13.7	12.4	13.7
RSEM-R6-EP-US-SD	20-Sep-18	784	8.6	7.2	4.1	4	4.1
RSEM-R6-EP-US-SD	21-Sep-18	994	8.5	8.0	5.4	5.3	5.4
RSEM-R6-EP-US-SD	22-Sep-18	747	8.3	8.1	2.4	2.5	2.4
RSEM-R6-EP-US-SD	23-Sep-18	387	8.4	8.2	27	28	27
RSEM-R6-EP-US-SD	24-Sep-18	465	8.5	8.7	41.2	42	41.2
RSEM-R6-EP-US-SD	25-Sep-18	725	8.4	7.9	8.1	8.4	8.1
RSEM-R6-EP-US-SD	26-Sep-18	632	8.4	10.9	8.3	8.1	8.3
RSEM-R6-EP-US-SD	27-Sep-18	750	8.6	6.7	3.1	3.1	3.1
RSEM-R6-EP-US-SD	28-Sep-18	765	8.7	4.6	3	3.1	3
RSEM-R6-EP-US-SD	29-Sep-18	757	8.7	4.2	5.1	5	5.1
RSEM-R6-EP-US-SD	30-Sep-18	760	8.6	5.5	3.3	3.2	3.3
RSEM-R6-EP-US-SD	1-Oct-18	765	8.6	2.1	2.7	3.4	2.7
RSEM-R6-EP-US-SD	2-Oct-18	1001	8.3	8.0	15.1	15.4	15.1
RSEM-R6-EP-US-SD	3-Oct-18	697	8.4	7.1	9.2	9.3	9.2
RSEM-R6-EP-US-SD	4-Oct-18	672	8.4	6.0	8.9	8.9	8.9
RSEM-R6-EP-US-SD	5-Oct-18	699	8.2	7.0	7.9	7.9	7.9
RSEM-R6-EP-US-SD	6-Oct-18	726	8.1	8.9	5.1	5.2	5.1
RSEM-R6-EP-US-SD	7-Oct-18	380	8.5	6.7	1.9	1.8	1.9
RSEM-R6-EP-US-SD	9-Oct-18	951	8.5	5.2	8	8.2	8
RSEM-R6-EP-US-SD	10-Oct-18	798	8.3	6.0	5.6	5.7	5.6
RSEM-R6-EP-US-SD	12-Oct-18	1026	7.5	5.4	36	35	36
RSEM-R6-EP-US-SD	13-Oct-18	894	8.5	6.7	4	4	4
RSEM-R6-EP-US-SD	14-Oct-18	842	8.6	6.8	3	3.2	3
RSEM-R6-EP-US-SD	16-Oct-18	795	8.2	10.6	10.4	10.4	10.4
RSEM-R6-EP-US-SD	18-Oct-18	804	8.2	6.3	6.2	5.2	6.2
RSEM-R6-EP-US-SD	20-Oct-18	810	8.2	4.4	3	3.1	3
RSEM-R6-EP-US-SD	21-Oct-18	784	8.2	5.7	4.8	4.8	4.8
RSEM-R6-EP-US-SD	22-Oct-18	818	8.3	10.0	3	3	3
RSEM-R6-EP-US-SD	23-Oct-18	807	7.8	6.4	2	1.9	2
RSEM-R6-EP-US-SD	24-Oct-18	706	8.3	6.0	2	1.9	2
RSEM-R6-EP-US-SD	25-Oct-18	720	8.4	7.9	2	2	2
RSEM-R6-EP-US-SD	27-Oct-18	776	8.4	9.7	4.2	3.9	4.2
RSEM-R6-EP-US-SD	28-Oct-18	800	8.4	3.9	3.1	3.2	3.1
RSEM-R6-EP-US-SD	29-Oct-18	798	8.4	4.2	2.9	2.8	2.9
RSEM-R6-EP-US-SD	30-Oct-18	780	8.0	7.8	3.4	2.8	3.4
RSEM-R6-EP-US-SD	31-Oct-18	1820	8.3	2.7	2.2	2.1	2.2
RSEM-R6-EP-US-SD	1-Nov-18	850	8.2	6.9	6	5.8	6
RSEM-R6-EP-US-SD	2-Nov-18	995	8.2	2.6	3.7	3	3.7
RSEM-R6-EP-US-SD	3-Nov-18	848	8.2	0.1	5.8	5.8	5.8
RSEM-R6-EP-US-SD	4-Nov-18	889	8.5	-	5.5	5	5.5
RSEM-R6-EP-US-SD	5-Nov-18	850	8.4	-	8.6	8.5	8.6
RSEM-R6-EP-US-SD	6-Nov-18	890	8.2	-	5.1	5.2	5.1
RSEM-R6-EP-US-SD	7-Nov-18	886	8.8	-0.2	3.9	4.1	3.9
RSEM-R6-EP-US-SD	8-Nov-18	905	8.1	-0.2	7.6	6.7	7.6
RSEM-R6-EP-US-SD	27-Dec-18	941	8.3	0.0	25.4	26.4	25.4
RSEM-R6E-SP	1-Jan-18	1609	8.7	-	3.1	2.3	3.1
RSEM-R6E-SP	2-Jan-18	1614	8.5	-	2	2	2
RSEM-R6E-SP	3-Jan-18	2140	8.0	-	1.4	1.3	1.4
RSEM-R6E-SP	4-Jan-18	2170	7.9	-	2.2	2.2	2.2
RSEM-R6E-SP	5-Jan-18	2140	7.9	-	1.5	1.6	1.5
RSEM-R6E-SP	6-Jan-18	2170	7.7	-	1.4	1.3	1.4
RSEM-R6E-SP	8-Jan-18	2350	7.9	-	1	0.9	1
RSEM-R6E-SP	9-Jan-18	2390	8.5	-	2.4	2.1	2.4
RSEM-R6E-SP	10-Jan-18	2400	8.6	-	1.1	1	1.1
RSEM-R6E-SP	11-Jan-18	2450	7.9	-	2.4	2.8	2.4
RSEM-R6E-SP	12-Jan-18	2400	8.3	0.1	1.3	1	1.3
RSEM-R6E-SP	13-Jan-18	2420	8.5	-	1.9	1.9	1.9
RSEM-R6E-SP	14-Jan-18	241	8.2	-	11.8	11.2	11.8

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6E-SP	15-Jan-18	2270	8.3	-	1.2	1.9	1.2
RSEM-R6E-SP	16-Jan-18	2280	8.7	-	1	1	1
RSEM-R6E-SP	17-Jan-18	2220	8.2	-	1.4	1.4	1.4
RSEM-R6E-SP	18-Jan-18	2180	8.6	-	1.1	1	1.1
RSEM-R6E-SP	19-Jan-18	2180	8.4	-	1	1	1
RSEM-R6E-SP	20-Jan-18	2160	8.7	-	1.2	1.2	1.2
RSEM-R6E-SP	21-Jan-18	2200	8.0	-	1.4	1.4	1.4
RSEM-R6E-SP	22-Jan-18	2240	8.4	-	1.5	1.5	1.5
RSEM-R6E-SP	23-Jan-18	2240	8.3	-	1.1	1.1	1.1
RSEM-R6E-SP	24-Jan-18	2270	8.3	-	1.1	1.2	1.1
RSEM-R6E-SP	25-Jan-18	2290	8.2	-	2.2	2.2	2.2
RSEM-R6E-SP	26-Jan-18	2280	8.5	-	2	1.9	2
RSEM-R6E-SP	27-Jan-18	2300	8.0	-	1.9	1.7	1.9
RSEM-R6E-SP	28-Jan-18	2280	8.2	-	1.9	1.9	1.9
RSEM-R6E-SP	29-Jan-18	2300	7.9	-	2	1.9	2
RSEM-R6E-SP	30-Jan-18	2480	8.2	-	4.5	4.5	4.5
RSEM-R6E-SP	31-Jan-18	2630	8.5	-	5	5	5
RSEM-R6E-SP	1-Feb-18	2720	9.2	-	6.3	6.4	6.3
RSEM-R6E-SP	3-Feb-18	2680	8.7	-	7.9	7.9	7.9
RSEM-R6E-SP	4-Feb-18	2660	8.6	-	8	7.9	8
RSEM-R6E-SP	5-Feb-18	2420	8.7	-	3.9	3.8	3.9
RSEM-R6E-SP	6-Feb-18	2610	3.2	-	6.6	6.9	6.6
RSEM-R6E-SP	7-Feb-18	2440	8.4	-	8.4	8.4	8.4
RSEM-R6E-SP	8-Feb-18	2460	8.7	-	4	3.9	4
RSEM-R6E-SP	9-Feb-18	2540	8.6	-	3.9	3.8	3.9
RSEM-R6E-SP	10-Feb-18	2490	8.2	-	3	3.1	3
RSEM-R6E-SP	11-Feb-18	2500	8.2	-	3.4	3.3	3.4
RSEM-R6E-SP	12-Feb-18	2510	8.6	-	2.3	2.4	2.3
RSEM-R6E-SP	13-Feb-18	2490	8.0	-	3	2.7	3
RSEM-R6E-SP	14-Feb-18	2470	8.1	-	3.3	3.1	3.3
RSEM-R6E-SP	15-Feb-18	2500	8.4	-	3.6	3.5	3.6
RSEM-R6E-SP	16-Feb-18	2520	8.2	-	3.6	3.6	3.6
RSEM-R6E-SP	17-Feb-18	2510	8.4	-	2	2	2
RSEM-R6E-SP	18-Feb-18	2530	8.2	-	2.1	2.5	2.1
RSEM-R6E-SP	20-Feb-18	1870	8.4	-	2.4	2.3	2.4
RSEM-R6E-SP	21-Feb-18	2460	7.7	-	2.4	2.6	2.4
RSEM-R6E-SP	22-Feb-18	2450	8.3	-	2.2	2.1	2.2
RSEM-R6E-SP	23-Feb-18	2420	7.6	-	5.8	5.9	5.8
RSEM-R6E-SP	24-Feb-18	2460	8.7	-	2.6	2.7	2.6
RSEM-R6E-SP	25-Feb-18	2410	8.3	-	2.1	2	2.1
RSEM-R6E-SP	26-Feb-18	2400	8.4	0.0	4.6	4.5	4.6
RSEM-R6E-SP	27-Feb-18	2500	8.5	-	2.1	2	2.1
RSEM-R6E-SP	28-Feb-18	2500	8.0	-	1.2	1.1	1.2
RSEM-R6E-SP	1-Mar-18	2480	8.1	-	1.2	1.2	1.2
RSEM-R6E-SP	2-Mar-18	2490	8.6	-	4.6	4.6	4.6
RSEM-R6E-SP	3-Mar-18	2470	8.4	0.4	0.8	0.8	0.8
RSEM-R6E-SP	4-Mar-18	2470	8.2	0.2	1	1	1
RSEM-R6E-SP	5-Mar-18	2500	7.8	0.3	1.7	1.4	1.7
RSEM-R6E-SP	6-Mar-18	2520	7.9	-	0.8	0.7	0.8
RSEM-R6E-SP	7-Mar-18	2500	7.9	-	0.7	0.7	0.7
RSEM-R6E-SP	8-Mar-18	2530	8.0	-	0.9	0.8	0.9
RSEM-R6E-SP	9-Mar-18	2540	8.1	-	0.9	0.8	0.9
RSEM-R6E-SP	10-Mar-18	2420	7.9	0.3	1.5	1.4	1.5
RSEM-R6E-SP	11-Mar-18	2840	7.9	0.1	17.2	17.4	17.2
RSEM-R6E-SP	12-Mar-18	2870	8.0	0.6	13.1	13.3	13.1
RSEM-R6E-SP	13-Mar-18	890	8.7	1.1	13.3	12.5	13.3
RSEM-R6E-SP	14-Mar-18	820	8.9	1.0	11.6	11.6	11.6
RSEM-R6E-SP	15-Mar-18	830	8.3	1.8	6.7	6.7	6.7
RSEM-R6E-SP	16-Mar-18	820	8.6	0.1	39.5	39	39.5
RSEM-R6E-SP	16-Mar-18	863	8.4	1.0	7.8	7.5	7.8
RSEM-R6E-SP	20-Mar-18	830	8.9	0.4	32.1	32.1	32.1
RSEM-R6E-SP	8-Apr-18	1446	9.0	-	7	6.9	7
RSEM-R6E-SP	20-Apr-18	1175	8.8	4.9	25.7	26.4	25.7

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6E-SP	22-Apr-18	820	8.3	5.3	79	80	79
RSEM-R6E-SP	23-Apr-18	994	8.2	5.3	20.3	19.9	20.3
RSEM-R6E-SP	8-May-18	1150	8.6	16.5	10.3	10.3	10.3
RSEM-R6E-SP	9-May-18	1168	8.7	15.4	20	19.9	20
RSEM-R6E-SP	10-May-18	1167	8.7	15.9	11.7	11.5	11.7
RSEM-R6E-SP	11-May-18	1230	8.7	13.4	16	15.6	16
RSEM-R6E-SP	12-May-18	1238	8.7	16.5	24.6	24.7	24.6
RSEM-R6E-SP	13-May-18	1242	8.7	14.8	19.7	19.1	19.7
RSEM-R6E-SP	14-May-18	1246	8.6	17.1	17.2	16.8	17.2
RSEM-R6E-SP	15-May-18	1216	8.7	19.0	12.4	12.9	12.4
RSEM-R6E-SP	16-May-18	1206	8.8	17.6	10.6	10.1	10.6
RSEM-R6E-SP	17-May-18	1190	8.7	18.8	11.5	10.9	11.5
RSEM-R6E-SP	18-May-18	1190	8.7	20.3	18.1	16.2	18.1
RSEM-R6E-SP	19-May-18	1175	8.7	23.2	14.3	13.8	14.3
RSEM-R6E-SP	20-May-18	1140	8.7	19.3	23.5	23.3	23.5
RSEM-R6E-SP	21-May-18	1170	8.8	21.4	38	37.4	38
RSEM-R6E-SP	22-May-18	1200	8.5	20.8	65.1	63.8	65.1
RSEM-R6E-SP	23-May-18	1190	8.6	17.5	41.1	41.6	41.1
RSEM-R6E-SP	24-May-18	1029	8.7	20.0	21.3	20.5	21.3
RSEM-R6E-SP	25-May-18	1022	8.7	17.5	11	10.4	11
RSEM-R6E-SP	26-May-18	980	8.8	16.0	12.3	12	12.3
RSEM-R6E-SP	27-May-18	980	8.7	17.2	15.3	15.6	15.3
RSEM-R6E-SP	28-May-18	978	8.7	16.0	18.9	18.9	18.9
RSEM-R6E-SP	29-May-18	960	8.4	16.0	32	32.2	32
RSEM-R6E-SP	31-May-18	1020	8.3	14.8	22.2	21.8	22.2
RSEM-R6E-SP	1-Jun-18	1030	8.3	16.5	22.6	22.3	22.6
RSEM-R6E-SP	2-Jun-18	1030	8.2	15.0	32.6	32.7	32.6
RSEM-R6E-SP	3-Jun-18	1076	8.5	18.4	22.6	22.9	22.6
RSEM-R6E-SP	4-Jun-18	1237	8.3	14.9	34.5	34.5	34.5
RSEM-R6E-SP	5-Jun-18	1258	8.4	18.4	12.9	13.7	12.9
RSEM-R6E-SP	6-Jun-18	1286	8.2	15.2	17.3	16.9	17.3
RSEM-R6E-SP	7-Jun-18	1320	8.1	17.2	25.9	26.5	25.9
RSEM-R6E-SP	8-Jun-18	1258	8.3	18.9	24.7	23.9	24.7
RSEM-R6E-SP	9-Jun-18	1319	8.2	18.5	13.6	13.6	13.6
RSEM-R6E-SP	10-Jun-18	1372	8.2	15.2	16.2	16.3	16.2
RSEM-R6E-SP	12-Jun-18	1350	8.4	15.5	20.4	19.3	20.4
RSEM-R6E-SP	13-Jun-18	1318	8.2	18.4	16.4	16.4	16.4
RSEM-R6E-SP	14-Jun-18	1314	8.3	19.2	9.3	8.5	9.3
RSEM-R6E-SP	15-Jun-18	1293	8.3	17.9	12.5	12.4	12.5
RSEM-R6E-SP	16-Jun-18	1250	8.4	22.2	23.1	22.8	23.1
RSEM-R6E-SP	17-Jun-18	1254	8.3	24.3	18.3	18.3	18.3
RSEM-R6E-SP	18-Jun-18	1260	8.2	21.2	14.6	14.6	14.6
RSEM-R6E-SP	19-Jun-18	1190	8.3	24.6	14.7	14.7	14.7
RSEM-R6E-SP	20-Jun-18	1146	8.3	25.9	16.8	17.1	16.8
RSEM-R6E-SP	21-Jun-18	1159	8.3	25.3	16.9	17	16.9
RSEM-R6E-SP	22-Jun-18	1134	8.2	24.4	17.6	17.4	17.6
RSEM-R6E-SP	23-Jun-18	1122	8.4	24.1	19	18.8	19
RSEM-R6E-SP	24-Jun-18	1103	8.4	23.4	16.1	16	16.1
RSEM-R6E-SP	27-Jun-18	1300	8.4	14.7	24.5	24.7	24.5
RSEM-R6E-SP	8-Dec-18	1552	8.2	3.0	1.8	1.8	1.8
RSEM-R6E-SP	9-Dec-18	1563	7.9	0.1	2.1	2	2.1
RSEM-R6E-SP	10-Dec-18	1498	7.9	8.3	1.7	1.8	1.7
RSEM-R6E-SP	11-Dec-18	1564	7.7	0.0	2.2	2	2.2
RSEM-R6E-SP	12-Dec-18	1530	8.1	0.0	1.5	1.3	1.5
RSEM-R6E-SP	13-Dec-18	1550	8.0	-0.1	2.5	1.9	2.5
RSEM-R6E-SP	14-Dec-18	1548	7.8	-0.1	1.7	1.7	1.7
RSEM-R6E-SP	15-Dec-18	1523	8.6	0.0	1.2	1	1.2
RSEM-R6E-SP	16-Dec-18	1450	7.8	0.0	1.7	2	1.7
RSEM-R6E-SP	17-Dec-18	1530	7.7	-0.2	3.5	2.8	3.5
RSEM-R6E-SP	18-Dec-18	1560	8.0	-0.1	2.2	2.1	2.2
RSEM-R6E-SP	19-Dec-18	1540	8.0	0.7	7	6.8	7
RSEM-R6E-SP	20-Dec-18	1435	7.5	1.9	0.9	0.9	0.9
RSEM-R6E-SP	21-Dec-18	1440	7.7	0.6	0.9	0.9	0.9

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6E-SP	23-Dec-18	1434	7.7	1.5	1.9	1.8	1.9
RSEM-R6E-SP	24-Dec-18	1356	7.7	4.0	2.6	2.2	2.6
RSEM-R6E-SP	25-Dec-18	1433	7.8	-0.2	1.6	1.6	1.6
RSEM-R6E-SP	26-Dec-18	1350	7.8	-0.3	1	1	1
RSEM-R6E-SP	27-Dec-18	1450	8.0	0.0	2.9	2	2.9
RSEM-R6E-SP	28-Dec-18	1253	8.0	0.0	1.6	1.8	1.6
RSEM-R6E-SP	29-Dec-18	1254	8.0	-0.3	1.7	1.5	1.7
RSEM-R6E-SP	30-Dec-18	1252	7.8	-0.3	1.4	1.2	1.4
RSEM-R6E-SP	31-Dec-18	1086	7.8	2.2	0.9	0.9	0.9
RSEM-R6E-SP-US	13-Mar-18	750	8.5	2.1	-	-	-
RSEM-R6E-SP-US	15-Mar-18	1180	8.5	4.7	OR	-	-
RSEM-R6E-SP-US	16-Mar-18	967	8.3	7.7	18.8	18.7	18.8
RSEM-R6E-SP-US	18-Mar-18	1104	8.6	5.1	OR	-	-
RSEM-R6E-SP-US	26-Mar-18	1120	8.8	2.1	14.1	14.2	14.1
RSEM-R6E-SP-US	27-Mar-18	1490	8.8	6.4	91.8	91.8	91.8
RSEM-R6E-SP-US	28-Mar-18	1570	8.9	4.0	108	109	108
RSEM-R6E-SP-US	29-Mar-18	1150	8.7	2.8	OR	-	-
RSEM-R6E-SP-US	31-Mar-18	1180	8.7	3.2	32.5	32.6	32.5
RSEM-R6E-SP-US	1-Apr-18	1050	8.6	7.4	8.9	9	8.9
RSEM-R6E-SP-US	3-Apr-18	1480	8.5	6.0	798	799	798
RSEM-R6E-SP-US	3-Apr-18	1480	8.5	6.0	791	798	791
RSEM-R6E-SP-US	5-Apr-18	1210	8.6	6.9	1183	1184	1183
RSEM-R6E-SP-US	7-Apr-18	1420	9.0	7.0	106.9	108.9	106.9
RSEM-R6E-SP-US	7-Apr-18	1420	9.0	7.0	106.9	108.6	106.9
RSEM-R6E-SP-US	8-Apr-18	1420	9.1	5.5	107	108	107
RSEM-R6E-SP-US	8-Apr-18	1420	9.1	5.5	107	108	107
RSEM-R6E-SP-US	9-Apr-18	950	9.1	8.7	1644	1658	1644
RSEM-R6E-SP-US	9-Apr-18	950	9.1	8.7	1644	1658	1644
RSEM-R6E-SP-US	10-Apr-18	1500	9.4	4.5	777	777	777
RSEM-R6E-SP-US	10-Apr-18	1500	9.4	4.5	777	777	777
RSEM-R6E-SP-US	11-Apr-18	1514	9.0	8.1	3448	3541	3448
RSEM-R6E-SP-US	12-Apr-18	1280	8.7	8.6	1900	1910	1900
RSEM-R6E-SP-US	13-Apr-18	1334	8.5	5.6	150	150	150
RSEM-R6E-SP-US	14-Apr-18	586	9.3	4.0	OR	-	-
RSEM-R6E-SP-US	15-Apr-18	880	8.2	5.0	128	127	128
RSEM-R6E-SP-US	16-Apr-18	1449	9.4	3.6	3345	3348	3345
RSEM-R6E-SP-US	17-Apr-18	1620	8.5	6.3	169	169	169
RSEM-R6E-SP-US	18-Apr-18	1530	8.1	7.8	OR	-	-
RSEM-R6E-SP-US	19-Apr-18	1540	9.5	7.8	OR	-	-
RSEM-R6E-SP-US	20-Apr-18	1823	9.6	11.7	OR	-	-
RSEM-R6E-SP-US	21-Apr-18	2270	8.6	9.8	OR	-	-
RSEM-R6E-SP-US	22-Apr-18	2100	8.2	11.6	OR	-	-
RSEM-R6E-SP-US	23-Apr-18	2270	8.8	10.3	OR	-	-
RSEM-R6E-SP-US	24-Apr-18	1998	8.2	12.4	1772	1775	1772
RSEM-R6E-SP-US	25-Apr-18	1443	8.2	15.4	3933	3954	3933
RSEM-R6E-SP-US	26-Apr-18	1640	8.7	6.5	2871	2876	2871
RSEM-R6E-SP-US	28-Apr-18	1570	9.0	15.0	OR	-	-
RSEM-R6E-SP-US	29-Apr-18	1586	7.8	14.6	151	151	151
RSEM-R6E-SP-US	1-May-18	1417	8.0	15.0	1052	1061	1052
RSEM-R6E-SP-US	2-May-18	1640	7.8	11.5	85.3	85	85.3
RSEM-R6E-SP-US	5-May-18	1570	8.9	17.4	216	218	216
RSEM-R6E-SP-US	6-May-18	1250	9.0	18.3	203	208	203
RSEM-R6E-SP-US	7-May-18	1565	9.3	11.4	157	156	157
RSEM-R6E-SP-US	8-May-18	1479	9.3	21.6	158	160	158
RSEM-R6E-SP-US	9-May-18	1320	9.0	16.4	132	132	132
RSEM-R6E-SP-US	10-May-18	1420	8.9	16.2	145	146	145
RSEM-R6E-SP-US	11-May-18	1334	9.2	21.6	102	102	102
RSEM-R6E-SP-US	12-May-18	1250	8.3	20.3	107	108	107
RSEM-R6E-SP-US	13-May-18	1836	8.8	10.5	146	146	146
RSEM-R6E-SP-US	14-May-18	1780	8.2	15.1	108	108	108
RSEM-R6E-SP-US	15-May-18	1560	8.1	22.5	105.4	105.1	105.4
RSEM-R6E-SP-US	16-May-18	1550	8.2	16.2	137	141	137
RSEM-R6E-SP-US	17-May-18	1600	8.9	21.0	174	171	174

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6E-SP-US	20-May-18	1430	9.1	19.4	106.3	104	106.3
RSEM-R6E-SP-US	22-May-18	1407	8.6	21.0	93.4	93.7	93.4
RSEM-R6E-SP-US	23-May-18	1095	10.3	28.5	-	-	-
RSEM-R6E-SP-US	25-May-18	1270	9.4	21.0	120	123	120
RSEM-R6E-SP-US	26-May-18	3090	7.8	9.4	130	129	130
RSEM-R6E-SP-US	29-May-18	2310	9.2	19.4	147	147	147
RSEM-R6E-SP-US	31-May-18	768	7.6	14.3	89	89	89
RSEM-R6E-SP-US	1-Jun-18	730	7.6	16.2	23.5	23.1	23.5
RSEM-R6E-SP-US	2-Jun-18	2200	7.8	15.3	147	148	147
RSEM-R6E-SP-US	3-Jun-18	2120	8.3	21.5	148	148	148
RSEM-R6E-SP-US	4-Jun-18	1398	8.0	14.4	1685	1687	1685
RSEM-R6E-SP-US	5-Jun-18	1950	7.6	21.3	941	942	941
RSEM-R6E-SP-US	8-Jun-18	2710	9.3	14.2	-	-	-
RSEM-R6E-SP-US	9-Jun-18	2060	7.4	19.9	1814	1819	1814
RSEM-R6E-SP-US	10-Jun-18	1430	7.7	13.5	714	716	714
RSEM-R6E-SP-US	13-Jun-18	1740	9.3	18.9	112	113	112
RSEM-R6E-SP-US	14-Jun-18	1468	9.9	22.2	1273	1272	1273
RSEM-R6E-SP-US	16-Jun-18	2120	9.8	25.4	1410	1412	1410
RSEM-R6E-SP-US	18-Jun-18	790	8.6	20.6	71.1	78.3	71.1
RSEM-R6E-SP-US	19-Jun-18	2450	9.4	26.5	134	134	134
RSEM-R6E-SP-US	20-Jun-18	2100	9.2	27.0	108	107	108
RSEM-R6E-SP-US	21-Jun-18	1192	8.5	26.3	78.5	78.2	78.5
RSEM-R6E-SP-US	22-Jun-18	1032	8.5	24.1	53.3	53.3	53.3
RSEM-R6E-SP-US	24-Jun-18	1820	7.8	21.0	99	99	99
RSEM-R6E-SP-US	25-Jun-18	1430	8.3	15.4	OR	-	-
RSEM-R6E-SP-US	26-Jun-18	2650	9.5	15.0	1518	1516	1518
RSEM-R6E-SP-US	27-Jun-18	2850	7.8	18.0	99	99	99
RSEM-R6E-SP-US	28-Jun-18	2860	7.5	19.5	112	110	112
RSEM-R6E-SP-US	29-Jun-18	2560	6.8	25.6	76.6	76	76.6
RSEM-R6E-SP-US	3-Jul-18	2110	7.7	17.6	105	104	105
RSEM-R6E-SP-US	5-Jul-18	1950	8.0	24.1	620	620	620
RSEM-R6E-SP-US	6-Jul-18	1710	7.2	30.4	167	167	167
RSEM-R6E-SP-US	9-Jul-18	2130	8.9	24.3	128	125	128
RSEM-R6E-SP-US	10-Jul-18	1796	6.9	25.8	93	93	93
RSEM-R6E-SP-US	11-Jul-18	2210	7.7	22.2	122	123	122
RSEM-R6E-SP-US	12-Jul-18	1225	9.0	22.8	OR	-	-
RSEM-R6E-SP-US	14-Jul-18	3140	7.9	20.7	158	160	158
RSEM-R6E-SP-US	15-Jul-18	663	6.9	3.8	36.6	36.6	36.6
RSEM-R6E-SP-US	16-Jul-18	660	7.9	25.4	26.9	27.2	26.9
RSEM-R6E-SP-US	19-Jul-18	1147	8.2	18.2	654	659	654
RSEM-R6E-SP-US	20-Jul-18	1560	9.3	15.3	OR	-	-
RSEM-R6E-SP-US	23-Jul-18	2600	8.6	21.9	OR	-	-
RSEM-R6E-SP-US	25-Jul-18	2720	9.3	23.8	662	662	662
RSEM-R6E-SP-US	26-Jul-18	2300	7.9	24.9	670	665	670
RSEM-R6E-SP-US	28-Jul-18	2550	7.1	26.0	2301	2314	2301
RSEM-R6E-SP-US	7-Aug-18	1012	7.3	19.4	1397	1398	1397
RSEM-R6E-SP-US	9-Aug-18	1776	7.6	19.2	2001	2003	2001
RSEM-R6E-SP-US	16-Aug-18	807	10.1	18.7	OR	-	-
RSEM-R6E-SP-US	18-Aug-18	2200	8.4	15.0	OR	-	-
RSEM-R6E-SP-US	20-Aug-18	1840	8.4	18.5	OR	-	-
RSEM-R6E-SP-US	21-Aug-18	1001	8.7	14.4	OR	-	-
RSEM-R6E-SP-US	24-Aug-18	1000	8.9	14.0	OR	-	-
RSEM-R6E-SP-US	25-Aug-18	950	8.7	13.0	OR	-	-
RSEM-R6E-SP-US	26-Aug-18	920	8.4	13.4	OR	-	-
RSEM-R6E-SP-US	27-Aug-18	920	8.3	13.1	OR	-	-
RSEM-R6E-SP-US	5-Sep-18	1206	8.8	15.2	100	102.1	100
RSEM-R6E-SP-US	6-Sep-18	1373	7.8	13.8	36.4	35.9	36.4
RSEM-R6E-SP-US	8-Sep-18	1214	9.4	12.3	OR	-	-
RSEM-R6E-SP-US	9-Sep-18	2010	10.0	11.5	OR	-	-
RSEM-R6E-SP-US	11-Sep-18	1823	9.3	12.8	OR	-	-
RSEM-R6E-SP-US	18-Sep-18	814	8.5	7.2	3	2.8	3
RSEM-R6E-SP-US	21-Sep-18	-	8.4	7.9	-	-	-
RSEM-R6E-SP-US	27-Sep-18	1655	9.2	9.3	609	612	609

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6E-SP-US	29-Sep-18	1425	8.2	6.9	87.2	88.2	87.2
RSEM-R6E-SP-US	8-Oct-18	719	8.3	4.4	4.1	4	4.1
RSEM-R6E-SP-US	11-Oct-18	696	7.9	5.2	7.4	7.4	7.4
RSEM-R6E-SP-US	25-Oct-18	787	8.3	4.0	2.1	2.1	2.1
RSEM-R6-SP	14-Jan-18	241	8.2	-	11.8	11.2	11.8
RSEM-R6-SP	27-Aug-18	490	8.8	16.5	5.3	5.3	5.3
RSEM-R6-SP	9-Dec-18	1563	7.9	0.1	2.1	2	2.1
RSEM-R6W-EOP	14-Feb-18	1700	8.8	-	3.5	3.8	3.5
RSEM-R6W-EOP	15-Feb-18	1900	8.5	-	2.1	2.2	2.1
RSEM-R6W-EOP	16-Feb-18	2190	8.7	-	2.6	2.7	2.6
RSEM-R6W-EOP	17-Feb-18	1600	8.7	1.0	3.8	3.8	3.8
RSEM-R6W-EOP	18-Feb-18	1510	8.8	0.8	2.5	2.5	2.5
RSEM-R6W-EOP	20-Feb-18	1590	8.7	-	2.3	2.3	2.3
RSEM-R6W-EOP	21-Feb-18	1600	8.5	-	2.2	2.2	2.2
RSEM-R6W-EOP	22-Feb-18	1600	8.6	-	1.9	1.7	1.9
RSEM-R6W-EOP	23-Feb-18	1600	8.7	0.0	1.8	1.9	1.8
RSEM-R6W-EOP	25-Feb-18	1620	8.8	0.0	7	7.2	7
RSEM-R6W-EOP	26-Feb-18	1570	8.7	-	3.6	3.6	3.6
RSEM-R6W-EOP	27-Feb-18	1600	8.8	-	3.3	2.6	3.3
RSEM-R6W-EOP	28-Feb-18	1500	9.0	-	1.8	1.8	1.8
RSEM-R6W-EOP	7-Mar-18	1620	8.5	0.3	3.1	3	3.1
RSEM-R6W-EOP	8-Mar-18	1600	8.6	0.4	3.7	3.6	3.7
RSEM-R6W-EOP	9-Mar-18	1600	8.7	0.0	3.8	3.8	3.8
RSEM-R6W-EOP	10-Mar-18	1620	8.5	0.4	4.8	4.5	4.8
RSEM-R6W-EOP	11-Mar-18	1640	8.7	0.3	4.4	4.4	4.4
RSEM-R6W-EOP	12-Mar-18	1645	8.6	0.5	3.9	4.1	3.9
RSEM-R6W-EOP	13-Mar-18	1240	8.4	1.1	1.4	1.9	1.4
RSEM-R6W-EOP	14-Mar-18	1520	8.9	1.3	16.6	15.4	16.6
RSEM-R6W-EOP	15-Mar-18	421	8.4	-	77.5	77.2	77.5
RSEM-R6W-EOP	16-Mar-18	1560	8.5	0.4	9.7	9.6	9.7
RSEM-R6W-EOP	20-Mar-18	1261	8.9	0.8	28.4	28.9	28.4
RSEM-R6W-EOP	21-Mar-18	1243	8.5	0.2	18.9	18.9	18.9
RSEM-R6W-EOP	17-Apr-18	1250	8.4	1.2	19.2	19.2	19.2
RSEM-R6W-EOP	18-Apr-18	1187	8.5	0.9	13.5	13.5	13.5
RSEM-R6W-EOP	19-Apr-18	1176	8.6	0.9	16.9	15.7	16.9
RSEM-R6W-EOP	20-Apr-18	1360	8.6	2.2	37.4	37.5	37.4
RSEM-R6W-EOP	21-Apr-18	1343	8.5	4.0	31.4	31.4	31.4
RSEM-R6W-EOP	22-Apr-18	1410	8.7	4.2	48.3	48.7	48.3
RSEM-R6W-EOP	23-Apr-18	1227	8.7	2.4	22.1	22	22.1
RSEM-R6W-EOP	7-Jun-18	1240	8.5	16.0	12.9	12.7	12.9
RSEM-R6W-EOP	8-Jun-18	1274	8.4	16.6	14.8	14.4	14.8
RSEM-R6W-EOP	9-Jun-18	1278	8.3	18.3	9.4	9.5	9.4
RSEM-R6W-EOP	10-Jun-18	1210	8.4	16.0	11.3	11.5	11.3
RSEM-R6W-EOP	12-Jun-18	1198	8.7	16.2	18.5	18.7	18.5
RSEM-R6W-EOP	13-Jun-18	1186	8.5	17.4	9.3	9.2	9.3
RSEM-R6W-EOP	14-Jun-18	1173	8.5	18.0	6.7	6.7	6.7
RSEM-R6W-EOP	15-Jun-18	1167	8.4	19.0	9.8	9.9	9.8
RSEM-R6W-EOP	16-Jun-18	1196	8.4	21.1	9.1	8.8	9.1
RSEM-R6W-EOP	17-Jun-18	1188	8.3	22.5	6.4	6.3	6.4
RSEM-R6W-EOP	18-Jun-18	1188	8.4	19.4	4.4	4.4	4.4
RSEM-R6W-EOP	26-Jun-18	1036	8.3	17.2	40.7	40.3	40.7
RSEM-R6W-EOP	27-Jun-18	1145	8.3	16.5	18.7	19.1	18.7
RSEM-R6W-EOP	2-Jul-18	1156	8.5	17.7	20.1	20.2	20.1
RSEM-R6W-EOP	3-Jul-18	1090	8.4	17.6	13.7	12.6	13.7
RSEM-R6W-EOP	4-Jul-18	975	8.4	21.2	15.2	15.8	15.2
RSEM-R6W-EOP	5-Jul-18	968	8.5	19.6	5.6	5.6	5.6
RSEM-R6W-EOP	8-Jul-18	925	8.5	17.2	11.6	11.8	11.6
RSEM-R6W-EOP	14-Jul-18	883	8.4	19.3	18.5	17.9	18.5
RSEM-R6W-EOP	15-Jul-18	889	8.4	20.9	7.4	7.7	7.4
RSEM-R6W-EOP	16-Jul-18	899	8.5	18.6	7.4	7.5	7.4
RSEM-R6W-EOP	20-Jul-18	995	8.4	20.0	31.3	30.6	31.3
RSEM-R6W-EOP	21-Jul-18	975	8.5	17.8	47.1	46	47.1
RSEM-R6W-EOP	22-Jul-18	1000	8.6	17.3	10.7	10.2	10.7

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6W-EOP	7-Aug-18	1097	8.4	19.1	2.4	2.4	2.4
RSEM-R6W-EOP	8-Aug-18	1106	8.5	18.8	5.4	5	5.4
RSEM-R6W-EOP	9-Aug-18	1095	8.5	18.3	3.5	3.7	3.5
RSEM-R6W-EOP	11-Aug-18	1080	8.5	25.0	7	7	7
RSEM-R6W-EOP	12-Aug-18	1036	8.5	20.7	7.7	7.4	7.7
RSEM-R6W-EOP	13-Aug-18	1030	8.1	19.1	12.4	12.4	12.4
RSEM-R6W-EOP	20-Aug-18	1004	8.5	16.8	11.4	11.6	11.4
RSEM-R6W-EOP	21-Aug-18	660	8.5	17.7	3.5	3.5	3.5
RSEM-R6W-EOP	22-Aug-18	620	8.8	16.5	3.5	3.6	3.5
RSEM-R6W-EOP	23-Aug-18	640	8.8	16.4	6.1	5.9	6.1
RSEM-R6W-EOP	24-Aug-18	550	8.6	15.4	8.2	8.2	8.2
RSEM-R6W-EOP	25-Aug-18	550	8.8	14.4	6.7	6.6	6.7
RSEM-R6W-EOP	26-Aug-18	560	8.4	16.6	9.9	9.4	9.9
RSEM-R6W-EOP	27-Aug-18	550	8.7	15.8	5.5	5.3	5.5
RSEM-R6W-EOP	28-Aug-18	550	8.5	16.1	6.3	6	6.3
RSEM-R6W-EOP	29-Aug-18	570	8.5	17.7	10.6	10.7	10.6
RSEM-R6W-EOP	30-Aug-18	530	8.5	14.0	6.4	6.2	6.4
RSEM-R6W-EOP	31-Aug-18	500	8.5	13.1	8.6	8.7	8.6
RSEM-R6W-EOP	31-Aug-18	800	8.1	12.3	OR	-	-
RSEM-R6W-EOP	1-Sep-18	510	8.5	14.5	8.1	8.1	8.1
RSEM-R6W-EOP	2-Sep-18	530	8.5	14.9	8.4	8.5	8.4
RSEM-R6W-EOP	3-Sep-18	480	8.6	12.0	6.7	6	6.7
RSEM-R6W-EOP	4-Sep-18	830	8.6	14.0	6	6	6
RSEM-R6W-EOP	5-Sep-18	832	8.6	12.7	5.5	5.5	5.5
RSEM-R6W-EOP	6-Sep-18	890	8.5	12.8	8	8	8
RSEM-R6W-EOP	7-Sep-18	924	8.5	13.1	4.9	5	4.9
RSEM-R6W-EOP	8-Sep-18	908	8.3	12.8	33.1	31.7	33.1
RSEM-R6W-EOP	9-Sep-18	925	8.5	11.2	27.7	26.8	27.7
RSEM-R6W-EOP	10-Sep-18	918	8.6	11.2	22.9	22.9	22.9
RSEM-R6W-EOP	12-Sep-18	922	8.6	8.7	10	10	10
RSEM-R6W-EOP	13-Sep-18	905	8.9	8.8	8.4	8.3	8.4
RSEM-R6W-EOP	14-Sep-18	998	8.8	9.4	4.9	5.1	4.9
RSEM-R6W-EOP	15-Sep-18	921	8.6	6.8	4.4	4.4	4.4
RSEM-R6W-EOP	16-Sep-18	796	8.5	6.5	4.2	4.5	4.2
RSEM-R6W-EOP	20-Sep-18	972	8.4	7.4	5.8	5.7	5.8
RSEM-R6W-EOP	21-Sep-18	870	8.3	7.8	5.4	5.3	5.4
RSEM-R6W-EOP	22-Sep-18	786	8.2	9.0	14.1	14.3	14.1
RSEM-R6W-EOP	23-Sep-18	782	8.0	7.1	8.1	8.2	8.1
RSEM-R6W-EOP	24-Sep-18	724	8.4	10.2	10.5	10	10.5
RSEM-R6W-EOP	25-Sep-18	764	8.2	8.3	15.3	15.3	15.3
RSEM-R6W-EOP	26-Sep-18	765	8.3	10.4	13.8	13.7	13.8
RSEM-R6W-EOP	27-Sep-18	806	8.7	7.4	4.4	4.2	4.4
RSEM-R6W-EOP	28-Sep-18	1008	8.4	7.7	4.6	4.9	4.6
RSEM-R6W-EOP	29-Sep-18	1095	8.5	6.5	4.7	5	4.7
RSEM-R6W-EOP	30-Sep-18	1100	8.5	6.4	9.3	9.4	9.3
RSEM-R6W-EOP	1-Oct-18	1210	8.4	4.7	6.7	6.7	6.7
RSEM-R6W-EOP	4-Oct-18	902	8.1	5.9	7.9	7.4	7.9
RSEM-R6W-EOP	5-Oct-18	1113	8.5	5.1	12.3	12.3	12.3
RSEM-R6W-EOP	6-Oct-18	1156	8.3	4.7	7.9	7.4	7.9
RSEM-R6W-EOP	7-Oct-18	1120	8.3	4.9	14	13.9	14
RSEM-R6W-EOP	12-Oct-18	1207	7.5	6.1	18.9	18.9	18.9
RSEM-R6W-EOP	13-Oct-18	-	8.4	4.5	16.1	16.6	16.1
RSEM-R6W-EOP	14-Oct-18	1257	8.6	4.6	13.9	13.9	13.9
RSEM-R6W-EOP	15-Oct-18	1290	8.1	6.2	12.6	12.4	12.6
RSEM-R6W-EOP	16-Oct-18	1280	8.0	6.1	9.1	9.6	9.1
RSEM-R6W-EOP	17-Oct-18	1268	8.0	7.3	8.9	8.7	8.9
RSEM-R6W-EOP	18-Oct-18	1266	8.2	7.1	5.7	5.7	5.7
RSEM-R6W-EOP	19-Oct-18	1265	8.1	5.5	6.2	6.6	6.2
RSEM-R6W-EOP	20-Oct-18	1360	8.1	5.9	7	7.3	7
RSEM-R6W-EOP	21-Oct-18	1465	8.1	6.5	9.3	9.4	9.3
RSEM-R6W-EOP	22-Oct-18	1525	8.1	4.0	5.8	6.1	5.8
RSEM-R6W-EOP	26-Oct-18	1650	8.2	4.3	3.1	3.1	3.1
RSEM-R6W-EOP	27-Oct-18	1565	8.2	5.4	5	4.8	5

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6W-EOP	28-Oct-18	1720	8.3	4.4	4.5	4.4	4.5
RSEM-R6W-EOP	29-Oct-18	1209	8.4	2.9	5.6	5.6	5.6
RSEM-R6W-EOP	30-Oct-18	1840	8.4	1.9	4	4.5	4
RSEM-R6W-EOP	31-Oct-18	1865	8.3	2.9	2.9	3	2.9
RSEM-R6W-EOP	1-Nov-18	1860	8.3	2.9	3.8	3.6	3.8
RSEM-R6W-EOP	2-Nov-18	1880	8.0	2.3	4.1	4.2	4.1
RSEM-R6W-EOP	3-Nov-18	1962	8.2	1.2	4.5	4.2	4.5
RSEM-R6W-EOP	4-Nov-18	1960	8.3	1.0	3.6	3.5	3.6
RSEM-R6W-EOP	5-Nov-18	1874	8.2	0.9	3.8	3.6	3.8
RSEM-R6W-EOP	6-Nov-18	1980	8.1	0.9	6.5	5.7	6.5
RSEM-R6W-EOP	7-Nov-18	1950	8.5	2.6	2.6	2.6	2.6
RSEM-R6W-EOP	8-Nov-18	1739	8.4	0.0	4.3	4.2	4.3
RSEM-R6W-EOP	9-Nov-18	1781	8.2	2.6	4.2	4.1	4.2
RSEM-R6W-EOP	10-Nov-18	1589	8.4	2.3	4.2	4.2	4.2
RSEM-R6W-EOP	11-Nov-18	1554	8.2	2.1	4.8	4.6	4.8
RSEM-R6W-EOP	12-Nov-18	1597	8.4	2.5	3.9	3.8	3.9
RSEM-R6W-EOP	13-Nov-18	1692	8.2	0.9	4.5	4.6	4.5
RSEM-R6W-EOP	14-Nov-18	1663	8.2	1.0	3.7	3.8	3.7
RSEM-R6W-EOP	15-Nov-18	1710	8.1	1.0	3.7	3.8	3.7
RSEM-R6W-EOP	16-Nov-18	1730	8.1	0.8	3.4	3.4	3.4
RSEM-R6W-EOP	17-Nov-18	1761	8.3	0.3	3.2	3.2	3.2
RSEM-R6W-EOP	18-Nov-18	1746	8.3	0.8	2.5	2.6	2.5
RSEM-R6W-EOP	19-Nov-18	1693	8.0	0.7	6.4	6.4	6.4
RSEM-R6W-EOP	20-Nov-18	1640	8.0	0.8	5.5	5.5	5.5
RSEM-R6W-EOP	21-Nov-18	1602	7.7	1.0	5.9	5.7	5.9
RSEM-R6W-EOP	22-Nov-18	1274	7.9	0.4	2.1	2	2.1
RSEM-R6W-EOP	23-Nov-18	1590	7.7	0.7	6.5	6.5	6.5
RSEM-R6W-EOP	24-Nov-18	1590	7.7	0.7	6.5	6.5	6.5
RSEM-R6W-EOP	25-Nov-18	1591	7.6	0.8	4.7	4.6	4.7
RSEM-R6W-EOP	26-Nov-18	1596	8.2	0.7	13	12.2	13
RSEM-R6W-EOP	27-Nov-18	1585	8.1	0.8	9.2	9.1	9.2
RSEM-R6W-EOP	28-Nov-18	1530	8.3	1.6	8.5	8.6	8.5
RSEM-R6W-EOP	29-Nov-18	1180	7.8	1.0	35.9	35.8	35.9
RSEM-R6W-EOP	9-Dec-18	1516	8.9	-0.4	17.3	17.1	17.3
RSEM-R6-WP-IN	1-Jan-18	1896	8.5	2.3	7.1	7.5	7.1
RSEM-R6-WP-IN	2-Jan-18	1853	8.7	6.8	3	3.2	3
RSEM-R6-WP-IN	3-Jan-18	1140	8.1	7.5	4.2	3.6	4.2
RSEM-R6-WP-IN	4-Jan-18	1090	8.0	7.8	4.1	4	4.1
RSEM-R6-WP-IN	5-Jan-18	1050	8.0	6.9	3.9	3.7	3.9
RSEM-R6-WP-IN	6-Jan-18	1120	8.0	7.8	2.3	2.4	2.3
RSEM-R6-WP-IN	7-Jan-18	1120	7.9	-	2.9	2.8	2.9
RSEM-R6-WP-IN	8-Jan-18	1170	8.4	3.9	3.2	3.2	3.2
RSEM-R6-WP-IN	9-Jan-18	1210	8.4	3.6	2.8	2.8	2.8
RSEM-R6-WP-IN	10-Jan-18	1200	8.7	4.8	3	2.9	3
RSEM-R6-WP-IN	11-Jan-18	1200	8.6	4.2	2.9	3	2.9
RSEM-R6-WP-IN	12-Jan-18	1200	8.7	4.2	5.2	5.1	5.2
RSEM-R6-WP-IN	13-Jan-18	1020	8.5	8.4	3.7	3.7	3.7
RSEM-R6-WP-IN	14-Jan-18	1190	8.2	5.0	5.6	5.8	5.6
RSEM-R6-WP-IN	15-Jan-18	1100	8.3	5.8	2.8	2.8	2.8
RSEM-R6-WP-IN	16-Jan-18	1040	8.3	5.4	3.8	4.4	3.8
RSEM-R6-WP-IN	17-Jan-18	1060	8.3	5.5	3.4	3.2	3.4
RSEM-R6-WP-IN	18-Jan-18	1040	8.2	6.8	2.2	2.4	2.2
RSEM-R6-WP-IN	19-Jan-18	1050	8.4	5.8	1.6	1.6	1.6
RSEM-R6-WP-IN	20-Jan-18	1020	8.2	5.7	2.5	1.8	2.5
RSEM-R6-WP-IN	21-Jan-18	1020	8.6	5.0	2.2	2.5	2.2
RSEM-R6-WP-IN	22-Jan-18	1040	8.3	4.9	2.9	2.9	2.9
RSEM-R6-WP-IN	23-Jan-18	1080	8.5	4.1	1.5	1.5	1.5
RSEM-R6-WP-IN	24-Jan-18	1065	8.5	5.1	1.6	1.5	1.6
RSEM-R6-WP-IN	25-Jan-18	1042	8.8	4.2	1.4	1.9	1.4
RSEM-R6-WP-IN	26-Jan-18	1030	8.1	4.2	3	3.2	3
RSEM-R6-WP-IN	27-Jan-18	1060	8.3	5.5	2.1	1.7	2.1
RSEM-R6-WP-IN	28-Jan-18	1061	8.3	0.6	5.5	5.1	5.5
RSEM-R6-WP-IN	29-Jan-18	1040	8.2	4.2	5.2	4.8	5.2

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6-WP-IN	30-Jan-18	1130	8.6	1.7	5.4	5.3	5.4
RSEM-R6-WP-IN	31-Jan-18	1140	8.2	3.7	2.2	2.2	2.2
RSEM-R6-WP-IN	1-Feb-18	1310	8.2	0.0	2.6	2.6	2.6
RSEM-R6-WP-IN	3-Feb-18	1150	8.4	3.8	17.5	15.6	17.5
RSEM-R6-WP-IN	4-Feb-18	1150	8.0	3.3	11.2	11.5	11.2
RSEM-R6-WP-IN	5-Feb-18	1130	8.7	2.9	3.8	3.6	3.8
RSEM-R6-WP-IN	6-Feb-18	1140	8.5	3.7	3.1	3.1	3.1
RSEM-R6-WP-IN	7-Feb-18	1140	8.6	3.0	2.9	3.1	2.9
RSEM-R6-WP-IN	8-Feb-18	1000	8.4	13.5	3.1	4.1	3.1
RSEM-R6-WP-IN	9-Feb-18	1190	8.8	2.8	6.9	7.2	6.9
RSEM-R6-WP-IN	10-Feb-18	1380	8.4	0.2	12.2	12.3	12.2
RSEM-R6-WP-IN	11-Feb-18	1230	8.4	2.6	12.9	12.2	12.9
RSEM-R6-WP-IN	12-Feb-18	1110	8.6	4.2	3	2.8	3
RSEM-R6-WP-IN	13-Feb-18	1450	9.0	0.6	17.9	17.8	17.9
RSEM-R6-WP-IN	14-Feb-18	1130	8.4	2.8	7.1	6	7.1
RSEM-R6-WP-IN	15-Feb-18	1100	8.2	2.4	6	5.7	6
RSEM-R6-WP-IN	16-Feb-18	1040	8.2	4.7	4.1	4.4	4.1
RSEM-R6-WP-IN	17-Feb-18	1080	8.2	5.0	4.2	4.6	4.2
RSEM-R6-WP-IN	20-Feb-18	1030	6.6	7.6	5.6	6.1	5.6
RSEM-R6-WP-IN	21-Feb-18	995	8.5	7.5	3.7	3.8	3.7
RSEM-R6-WP-IN	22-Feb-18	1160	8.7	1.5	9	8.9	9
RSEM-R6-WP-IN	24-Feb-18	1020	8.3	6.5	3.7	4.1	3.7
RSEM-R6-WP-IN	25-Feb-18	1850	9.4	5.1	43.7	38.1	43.7
RSEM-R6-WP-IN	26-Feb-18	990	8.3	8.9	4.3	4.2	4.3
RSEM-R6-WP-IN	27-Feb-18	981	8.2	8.5	9.9	8.9	9.9
RSEM-R6-WP-IN	28-Feb-18	980	8.7	8.8	13.1	13.2	13.1
RSEM-R6-WP-IN	1-Mar-18	1040	8.4	4.1	1.8	1.5	1.8
RSEM-R6-WP-IN	2-Mar-18	1020	8.4	4.9	2.3	1.9	2.3
RSEM-R6-WP-IN	3-Mar-18	981	8.4	5.0	2.3	1.5	2.3
RSEM-R6-WP-IN	5-Mar-18	980	8.8	7.2	1.1	1	1.1
RSEM-R6-WP-IN	6-Mar-18	2090	9.8	3.4	90	90	90
RSEM-R6-WP-IN	7-Mar-18	1420	9.0	6.2	29.4	28.4	29.4
RSEM-R6-WP-IN	8-Mar-18	1020	8.3	3.9	2.7	2.5	2.7
RSEM-R6-WP-IN	9-Mar-18	1000	8.4	5.3	3	2.4	3
RSEM-R6-WP-IN	10-Mar-18	1020	8.2	9.0	10	9.7	10
RSEM-R6-WP-IN	11-Mar-18	1000	8.1	8.4	6.1	5.9	6.1
RSEM-R6-WP-IN	13-Mar-18	1520	8.3	6.9	2271	2272	2271
RSEM-R6-WP-IN	14-Mar-18	1400	9.2	7.3	83.1	83.6	83.1
RSEM-R6-WP-IN	17-Mar-18	993	7.8	8.6	26.6	26.1	26.6
RSEM-R6-WP-IN	18-Mar-18	388	8.5	3.0	63.4	63.8	63.4
RSEM-R6-WP-IN	6-Oct-18	1291	9.1	8.8	619	620	619
RSEM-R6-WP-IN	15-Oct-18	1330	7.9	13.3	56.1	57	56.1
RSEM-R6-WP-IN	16-Oct-18	1160	9.2	10.4	798	801	798
RSEM-R6-WP-IN	17-Oct-18	1260	9.0	14.0	985	991	985
RSEM-R6-WP-IN	19-Oct-18	1900	7.4	5.2	44	44	44
RSEM-R6-WP-IN	20-Oct-18	1350	7.6	7.2	23	22.7	23
RSEM-R6-WP-IN	23-Oct-18	1087	8.7	8.6	69.4	69.8	69.4
RSEM-R6-WP-IN	24-Oct-18	1137	9.1	8.1	93	94	93
RSEM-R6-WP-IN	25-Oct-18	1220	8.5	9.5	133	133	133
RSEM-R6-WP-IN	26-Oct-18	1249	8.5	5.4	17.1	17.1	17.1
RSEM-R6-WP-IN	27-Oct-18	1113	8.6	11.2	56.7	56.6	56.7
RSEM-R6-WP-IN	28-Oct-18	1009	8.7	6.4	45.1	45	45.1
RSEM-R6-WP-IN	29-Oct-18	1065	8.8	2.9	22.4	22.6	22.4
RSEM-R6-WP-IN	30-Oct-18	1473	8.6	6.6	58.2	58.1	58.2
RSEM-R6-WP-IN	6-Nov-18	1300	8.6	2.6	64.6	65	64.6
RSEM-R6-WP-IN	18-Nov-18	1433	9.4	4.1	101	101	101
RSEM-R6-WP-IN	19-Nov-18	1710	8.2	1.6	1.5	1.4	1.5
RSEM-R6-WP-IN	20-Nov-18	1500	7.5	4.0	630	630	630
RSEM-R6-WP-IN	21-Nov-18	1308	8.8	5.0	48.9	44.8	48.9
RSEM-R6-WP-IN	24-Nov-18	1395	8.1	8.5	49.9	49.9	49.9
RSEM-R6-WP-IN	25-Nov-18	1432	9.5	5.1	62.7	63.4	62.7
RSEM-R6-WP-IN	1-Dec-18	1330	9.9	5.8	28	28	28
RSEM-R6-WP-IN	2-Dec-18	1460	9.9	4.0	66.8	66	66.8

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6-WP-IN	8-Dec-18	2080	10.4	2.5	79	80	79
RSEM-R6-WP-IN	11-Dec-18	1527	9.8	6.9	1169	1176	1169
RSEM-R6-WP-IN	12-Dec-18	1350	7.5	7.8	87.4	87.8	87.4
RSEM-R6-WP-IN	13-Dec-18	1916	7.3	8.3	606	57.5	606
RSEM-R6-WP-IN	14-Dec-18	2010	7.4	8.7	86.2	67.9	86.2
RSEM-R6-WP-IN	15-Dec-18	1656	7.5	7.7	46.3	45.9	46.3
RSEM-R6-WP-IN	21-Dec-18	1509	9.8	3.6	99.7	99.6	99.7
RSEM-R6-WP-IN	24-Dec-18	1535	9.7	4.3	90.1	86.1	90.1
RSEM-R6-WP-IN	27-Dec-18	1590	9.8	6.7	70.3	69.9	70.3
RSEM-R6W-SP	1-Jan-18	1339	8.9	-	5.6	5.7	5.6
RSEM-R6W-SP	2-Jan-18	1337	8.9	-	4.4	4.5	4.4
RSEM-R6W-SP	3-Jan-18	1630	8.4	-	2.4	2.1	2.4
RSEM-R6W-SP	4-Jan-18	1540	8.6	-	2.5	2.1	2.5
RSEM-R6W-SP	5-Jan-18	1430	8.4	-	2.2	2.2	2.2
RSEM-R6W-SP	6-Jan-18	1370	8.4	0.2	2	2	2
RSEM-R6W-SP	8-Jan-18	1350	8.5	-	1.8	1.8	1.8
RSEM-R6W-SP	9-Jan-18	1400	8.6	-	3.7	3.6	3.7
RSEM-R6W-SP	10-Jan-18	1400	8.4	0.4	2.8	2.8	2.8
RSEM-R6W-SP	11-Jan-18	1400	8.9	-	3	3	3
RSEM-R6W-SP	12-Jan-18	1440	8.3	-	2.1	2.2	2.1
RSEM-R6W-SP	13-Jan-18	1450	8.2	-	2.9	3	2.9
RSEM-R6W-SP	14-Jan-18	1380	8.7	-	2.3	2.4	2.3
RSEM-R6W-SP	15-Jan-18	1300	8.1	-	1.4	1.5	1.4
RSEM-R6W-SP	16-Jan-18	1250	8.6	-	1.1	1.1	1.1
RSEM-R6W-SP	17-Jan-18	1250	8.8	-	1.4	1.3	1.4
RSEM-R6W-SP	18-Jan-18	1180	8.8	-	1	1	1
RSEM-R6W-SP	19-Jan-18	2212	8.6	-	0.9	0.8	0.9
RSEM-R6W-SP	20-Jan-18	1230	7.7	-	1.1	1.1	1.1
RSEM-R6W-SP	21-Jan-18	1230	9.1	-	1.2	1.1	1.2
RSEM-R6W-SP	22-Jan-18	1260	8.8	-	1	1	1
RSEM-R6W-SP	23-Jan-18	1258	8.3	-	0.5	0.5	0.5
RSEM-R6W-SP	24-Jan-18	1250	8.5	-	1.2	1.3	1.2
RSEM-R6W-SP	25-Jan-18	1135	8.8	-	0.9	1	0.9
RSEM-R6W-SP	26-Jan-18	1130	8.7	-	2.7	2.7	2.7
RSEM-R6W-SP	27-Jan-18	1130	8.6	-	1.4	1.4	1.4
RSEM-R6W-SP	28-Jan-18	1119	8.3	-	1.1	1.1	1.1
RSEM-R6W-SP	29-Jan-18	1120	8.6	-	1.2	1.2	1.2
RSEM-R6W-SP	30-Jan-18	1230	7.8	-	4.3	4.3	4.3
RSEM-R6W-SP	31-Jan-18	1220	8.3	-	2.6	2.4	2.6
RSEM-R6W-SP	1-Feb-18	1210	8.1	-	1.4	1.4	1.4
RSEM-R6W-SP	3-Feb-18	1240	8.4	-	4.7	4.5	4.7
RSEM-R6W-SP	4-Feb-18	1210	8.6	-	3.7	3.7	3.7
RSEM-R6W-SP	5-Feb-18	1190	8.4	-	1.5	1.4	1.5
RSEM-R6W-SP	6-Feb-18	1220	8.9	-	1.5	1.3	1.5
RSEM-R6W-SP	7-Feb-18	1260	8.6	-	1.6	1.5	1.6
RSEM-R6W-SP	8-Feb-18	1200	8.3	-	1.1	1.2	1.1
RSEM-R6W-SP	9-Feb-18	1200	8.3	-	4.1	4.1	4.1
RSEM-R6W-SP	10-Feb-18	1200	8.7	-	3.4	3.5	3.4
RSEM-R6W-SP	11-Feb-18	1160	8.2	-	1.6	1.5	1.6
RSEM-R6W-SP	12-Feb-18	1180	8.2	-	1.2	1.2	1.2
RSEM-R6W-SP	13-Feb-18	1180	8.3	-	1.6	1.6	1.6
RSEM-R6W-SP	24-Feb-18	1560	8.6	0.3	1.8	1.7	1.8
RSEM-R6W-SP	1-Mar-18	1460	9.2	-	1.5	1.4	1.5
RSEM-R6W-SP	2-Mar-18	1540	8.6	-	1.9	1.9	1.9
RSEM-R6W-SP	3-Mar-18	1540	8.5	-	0.6	0.6	0.6
RSEM-R6W-SP	4-Mar-18	1540	8.4	0.6	0.9	1	0.9
RSEM-R6W-SP	5-Mar-18	1530	8.5	0.3	2.4	2.2	2.4
RSEM-R6W-SP	6-Mar-18	1585	8.5	-	0.9	1	0.9
RSEM-R6W-SP	14-Mar-18	820	8.9	1.0	11.6	11.6	11.6
RSEM-R6W-SP	16-Mar-18	990	8.9	-	16.4	16.6	16.4
RSEM-R6W-SP	17-Mar-18	1069	8.4	0.6	10.5	10.6	10.5
RSEM-R6W-SP	18-Mar-18	887	9.0	-	18.2	18.2	18.2
RSEM-R6W-SP	19-Mar-18	609	8.5	-	26.2	26	26.2

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6W-SP	22-Mar-18	499	8.9	-	22	21.8	22
RSEM-R6W-SP	23-Mar-18	556	8.8	-	20.6	20.7	20.6
RSEM-R6W-SP	24-Mar-18	551	8.8	-	20.2	20.5	20.2
RSEM-R6W-SP	26-Mar-18	580	8.8	0.0	23.1	22.6	23.1
RSEM-R6W-SP	27-Mar-18	600	8.0	0.4	17.5	17.3	17.5
RSEM-R6W-SP	28-Mar-18	620	8.4	-	17.2	17.1	17.2
RSEM-R6W-SP	29-Mar-18	620	8.4	-	16.2	16.1	16.2
RSEM-R6W-SP	30-Mar-18	660	8.4	-	15.2	15.2	15.2
RSEM-R6W-SP	31-Mar-18	828	8.3	-	12	12	12
RSEM-R6W-SP	1-Apr-18	883	8.3	-	13.8	13.9	13.8
RSEM-R6W-SP	3-Apr-18	1006	8.4	-	8.6	8.4	8.6
RSEM-R6W-SP	4-Apr-18	1051	8.8	-	9	8.9	9
RSEM-R6W-SP	5-Apr-18	1130	7.9	-	7.1	6.9	7.1
RSEM-R6W-SP	6-Apr-18	1207	8.9	0.1	9.5	9	9.5
RSEM-R6W-SP	7-Apr-18	1250	7.7	0.8	8.5	8.8	8.5
RSEM-R6W-SP	8-Apr-18	1257	8.9	-	7.2	7.2	7.2
RSEM-R6W-SP	9-Apr-18	1260	8.4	0.8	4.1	4.2	4.1
RSEM-R6W-SP	10-Apr-18	1542	8.7	0.1	3	2.7	3
RSEM-R6W-SP	11-Apr-18	1470	8.8	0.7	4.4	4.3	4.4
RSEM-R6W-SP	12-Apr-18	1198	8.8	1.0	4.8	4.8	4.8
RSEM-R6W-SP	13-Apr-18	1187	8.8	0.7	1.6	1.4	1.6
RSEM-R6W-SP	14-Apr-18	440	8.9	0.6	25.7	26	25.7
RSEM-R6W-SP	15-Apr-18	448	8.4	0.8	15.9	15.9	15.9
RSEM-R6W-SP	16-Apr-18	625	8.6	0.5	18.1	18.2	18.1
RSEM-R6W-SP	24-Apr-18	1170	8.7	3.9	15.8	16.1	15.8
RSEM-R6W-SP	26-Apr-18	1185	8.6	11.8	15.3	15.1	15.3
RSEM-R6W-SP	27-Apr-18	1212	8.6	8.1	16.4	16.4	16.4
RSEM-R6W-SP	28-Apr-18	1230	8.6	14.7	16.8	16.7	16.8
RSEM-R6W-SP	29-Apr-18	1250	8.7	12.5	14.4	14.4	14.4
RSEM-R6W-SP	30-Apr-18	1220	8.7	11.0	21.5	21.9	21.5
RSEM-R6W-SP	1-May-18	1125	8.9	11.3	20	20.1	20
RSEM-R6W-SP	2-May-18	1281	8.8	11.1	17.8	18.1	17.8
RSEM-R6W-SP	3-May-18	1240	8.8	13.2	20.8	21.1	20.8
RSEM-R6W-SP	4-May-18	1180	8.2	13.7	16.4	16.1	16.4
RSEM-R6W-SP	5-May-18	1180	8.7	14.6	13.3	11.8	13.3
RSEM-R6W-SP	6-May-18	1172	8.8	18.0	5.6	5	5.6
RSEM-R6W-SP	7-May-18	1185	8.8	15.1	6.9	6.5	6.9
RSEM-R6W-SP	8-May-18	1220	8.8	17.4	6.2	6	6.2
RSEM-R6W-SP	9-May-18	1236	9.0	15.2	6.7	6.6	6.7
RSEM-R6W-SP	10-May-18	1235	9.0	16.7	6.1	6.1	6.1
RSEM-R6W-SP	11-May-18	1246	8.9	13.4	6.9	6.8	6.9
RSEM-R6W-SP	12-May-18	1234	8.9	17.6	9.7	9.5	9.7
RSEM-R6W-SP	13-May-18	1234	9.0	15.3	10.3	10.3	10.3
RSEM-R6W-SP	14-May-18	1223	9.0	16.9	7.6	7.2	7.6
RSEM-R6W-SP	15-May-18	1218	8.9	20.4	9.9	8.4	9.9
RSEM-R6W-SP	16-May-18	1217	9.0	17.8	7.4	7.3	7.4
RSEM-R6W-SP	17-May-18	1220	9.0	18.9	6.9	6.7	6.9
RSEM-R6W-SP	18-May-18	1202	9.1	20.0	10.7	10.3	10.7
RSEM-R6W-SP	19-May-18	1202	9.0	22.2	10.7	9.7	10.7
RSEM-R6W-SP	20-May-18	1217	9.0	20.7	41.5	39.2	41.5
RSEM-R6W-SP	21-May-18	1225	8.9	21.5	24.1	24.2	24.1
RSEM-R6W-SP	22-May-18	1260	8.6	21.5	27.4	27.5	27.4
RSEM-R6W-SP	23-May-18	1390	8.7	26.0	25	26.4	25
RSEM-R6W-SP	24-May-18	1800	8.7	22.1	32.8	32.7	32.8
RSEM-R6W-SP	25-May-18	1430	8.7	17.5	34.1	34.1	34.1
RSEM-R6W-SP	26-May-18	1442	8.7	16.3	44.3	43.7	44.3
RSEM-R6W-SP	27-May-18	1460	8.7	8.6	63.9	63.7	63.9
RSEM-R6W-SP	28-May-18	1490	8.6	16.2	70.4	70.2	70.4
RSEM-R6W-SP	29-May-18	1360	8.4	17.9	63.1	63.2	63.1
RSEM-R6W-SP	31-May-18	1360	8.3	15.1	71.4	71.3	71.4
RSEM-R6W-SP	1-Jun-18	1345	8.3	18.7	67.1	67	67.1
RSEM-R6W-SP	2-Jun-18	1369	8.3	15.9	77.1	77.7	77.1
RSEM-R6W-SP	3-Jun-18	1404	8.3	18.3	44.1	44.5	44.1

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6W-SP	4-Jun-18	1236	8.4	14.7	39.2	39	39.2
RSEM-R6W-SP	5-Jun-18	1246	8.5	17.6	14.2	14.3	14.2
RSEM-R6W-SP	6-Jun-18	1250	8.4	15.9	12.7	12.9	12.7
RSEM-R6W-SP	19-Jun-18	1165	8.3	24.0	4.8	4.7	4.8
RSEM-R6W-SP	20-Jun-18	1133	8.3	25.7	5.6	5.5	5.6
RSEM-R6W-SP	21-Jun-18	1120	8.4	25.2	4.8	4.7	4.8
RSEM-R6W-SP	22-Jun-18	1117	8.3	24.2	9.8	9.7	9.8
RSEM-R6W-SP	23-Jun-18	1120	8.4	24.6	10.3	10.5	10.3
RSEM-R6W-SP	24-Jun-18	1148	8.4	23.4	9.5	9.6	9.5
RSEM-R6W-SP	25-Jun-18	1102	8.3	18.1	12.3	12.6	12.3
RSEM-R6W-SP	28-Jun-18	1201	8.4	20.6	13.5	12.4	13.5
RSEM-R6W-SP	29-Jun-18	1220	8.4	18.0	4.6	4.6	4.6
RSEM-R6W-SP	30-Jun-18	1030	8.4	20.0	6.2	6.5	6.2
RSEM-R6W-SP	1-Jul-18	1030	8.5	18.3	3.9	4	3.9
RSEM-R6W-SP	6-Jul-18	960	8.4	20.3	4.9	4.9	4.9
RSEM-R6W-SP	7-Jul-18	960	8.5	19.0	7.4	7.4	7.4
RSEM-R6W-SP	9-Jul-18	904	8.4	21.2	8.6	8.4	8.6
RSEM-R6W-SP	10-Jul-18	865	8.7	21.5	7.6	7.4	7.6
RSEM-R6W-SP	11-Jul-18	850	8.3	21.1	9.1	8.7	9.1
RSEM-R6W-SP	12-Jul-18	883	8.4	21.5	11.4	10.6	11.4
RSEM-R6W-SP	13-Jul-18	887	8.4	19.0	7.9	8	7.9
RSEM-R6W-SP	17-Jul-18	975	8.4	20.0	7.3	7.2	7.3
RSEM-R6W-SP	18-Jul-18	993	8.4	21.3	5.4	5.5	5.4
RSEM-R6W-SP	19-Jul-18	982	8.3	21.4	5.7	5.7	5.7
RSEM-R6W-SP	23-Jul-18	944	7.8	20.4	15	15	15
RSEM-R6W-SP	24-Jul-18	938	8.5	21.3	10.8	10.3	10.8
RSEM-R6W-SP	25-Jul-18	932	8.5	23.4	9.2	9.4	9.2
RSEM-R6W-SP	26-Jul-18	942	8.5	24.1	8.3	7.9	8.3
RSEM-R6W-SP	27-Jul-18	930	8.5	21.0	5.2	5.4	5.2
RSEM-R6W-SP	28-Jul-18	904	8.4	20.4	5.3	5.2	5.3
RSEM-R6W-SP	29-Jul-18	884	8.4	25.0	5.1	5	5.1
RSEM-R6W-SP	30-Jul-18	850	8.5	23.6	15.2	15	15.2
RSEM-R6W-SP	10-Aug-18	1095	8.5	20.1	4.5	4.4	4.5
RSEM-R6W-SP	14-Aug-18	960	8.6	21.9	4	-	4
RSEM-R6W-SP	15-Aug-18	1003	8.5	20.0	7.4	7.4	7.4
RSEM-R6W-SP	16-Aug-18	1010	8.8	18.9	3	3.1	3
RSEM-R6W-SP	17-Aug-18	1010	8.1	18.4	3.6	3.3	3.6
RSEM-R6W-SP	18-Aug-18	1040	8.4	17.6	7.7	7.6	7.7
RSEM-R6W-SP	19-Aug-18	1052	8.3	17.9	5.2	5.6	5.2
RSEM-R6W-SP	11-Sep-18	889	8.2	12.0	14.8	15.1	14.8
RSEM-R6W-SP	17-Sep-18	987	8.1	7.4	5	4.9	5
RSEM-R6W-SP	18-Sep-18	943	8.5	8.3	4	3.4	4
RSEM-R6W-SP	19-Sep-18	1079	8.6	8.9	4.6	4.6	4.6
RSEM-R6W-SP	2-Oct-18	1145	8.5	8.9	11.9	11.8	11.9
RSEM-R6W-SP	3-Oct-18	1098	8.1	7.2	12.5	12.6	12.5
RSEM-R6W-SP	8-Oct-18	1088	8.4	6.5	8.4	8.4	8.4
RSEM-R6W-SP	9-Oct-18	1271	8.6	3.1	12.7	12.6	12.7
RSEM-R6W-SP	10-Oct-18	1213	8.2	3.1	7.9	7.8	7.9
RSEM-R6W-SP	11-Oct-18	1214	7.8	3.1	14	14.3	14
RSEM-R6W-SP	23-Oct-18	1348	8.4	5.4	2.6	2.8	2.6
RSEM-R6W-SP	24-Oct-18	1314	8.3	5.9	2	2	2
RSEM-R6W-SP	25-Oct-18	1420	8.3	5.2	1.6	1.6	1.6
RSEM-R6W-SP	30-Nov-18	586	8.7	0.2	9.2	9.4	9.2
RSEM-R6W-SP	1-Dec-18	7280	8.7	-0.2	11.1	11.1	11.1
RSEM-R6W-SP	2-Dec-18	823	8.8	0.2	5.9	5.9	5.9
RSEM-R6W-SP	3-Dec-18	1210	8.7	0.6	10.1	10.2	10.1
RSEM-R6W-SP	4-Dec-18	1395	8.6	1.8	11.3	11	11.3
RSEM-R6W-SP	5-Dec-18	1340	8.8	-0.3	9.4	9.3	9.4
RSEM-R6W-SP	6-Dec-18	1405	8.7	0.3	10.4	11	10.4
RSEM-R6W-SP	7-Dec-18	1450	8.7	0.3	13.1	12.6	13.1
RSEM-R6W-SP	8-Dec-18	1400	8.8	3.8	14.5	14.9	14.5
RSEM-R6W-SP	9-Dec-18	1546	8.9	-0.3	14.8	14.8	14.8
RSEM-R6W-SP	10-Dec-18	1437	8.8	5.4	12.8	12.8	12.8

Table 2: 2018 Water Quality Field Data - Right Bank Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
RSEM-R6W-SP	11-Dec-18	1204	8.8	0.0	4.8	4.9	4.8
RSEM-R6W-SP	12-Dec-18	1000	9.0	0.0	1.2	1.2	1.2
RSEM-R6W-SP	13-Dec-18	1222	8.8	0.1	2.4	2.3	2.4
RSEM-R6W-SP	14-Dec-18	1240	8.7	-0.2	2.9	2.9	2.9
RSEM-R6W-SP	15-Dec-18	1127	8.0	0.0	1	1	1
RSEM-R6W-SP	16-Dec-18	1313	8.3	0.1	1	1	1
RSEM-R6W-SP	17-Dec-18	1440	8.0	-0.2	1.1	1.2	1.1
RSEM-R6W-SP	18-Dec-18	1440	8.2	0.1	1.4	1.4	1.4
RSEM-R6W-SP	19-Dec-18	1540	8.0	0.5	5	4.4	5
RSEM-R6W-SP	20-Dec-18	1551	7.8	0.3	7.2	7.1	7.2
RSEM-R6W-SP	21-Dec-18	1502	8.0	-0.3	5.8	5.8	5.8
RSEM-R6W-SP	23-Dec-18	1746	7.8	3.9	11.8	11.7	11.8
RSEM-R6W-SP	24-Dec-18	1562	8.3	7.0	11.9	12	11.9
RSEM-R6W-SP	25-Dec-18	1585	8.4	4.0	15.5	14.8	15.5
RSEM-R6W-SP	26-Dec-18	1707	8.4	-0.3	14.4	14.7	14.4
RSEM-R6W-SP	27-Dec-18	1650	8.4	0.2	15.1	15.1	15.1
RSEM-R6W-SP	28-Dec-18	1583	8.8	0.0	17	17	17
RSEM-R6W-SP	29-Dec-18	1650	8.7	-0.1	19.4	19.3	19.4
RSEM-R6W-SP	30-Dec-18	1643	8.8	-0.4	19.6	19.5	19.6
RSEM-R6W-SP	31-Dec-18	1536	8.8	3.0	15.8	15.8	15.8

Table 3: 2018 Water Quality Field Data - West Pine Quarry Stations

Station ID	Date	Conductivity-field	pH-field	Temp-field	Turbidity1-field	Turbidity2-field	Turbidity3-field
		µS/cm	pH	°C	NTU	NTU	NTU
WP-DS	17-May-18	177	7.5	-	-	-	-
WP-DS	10-Jun-18	190	7.5	4.0	27	27.3	27
WP-DS	8-Jul-18	220	7.8	12	2.5	2.5	2.5
WP-DS	19-Dec-18	371	8.6	2.4	0.60	-	0.60
WP-SP	17-May-18	490	7.7	-	-	-	-
WP-SP	3-Jun-18	500	7.6	-	32	-	32
WP-SP	10-Jun-18	490	7.6	9.0	48	48.1	48
WP-SP	8-Jul-18	320	7.8	21	51	50.8	51
WP-SP	13-Jul-18	380	8.3	23	17	16.4	17
WP-US	17-May-18	177	7.5	-	-	-	-
WP-US	10-Jun-18	188	7.6	4.0	30	31	30
WP-US	8-Jul-18	210	7.7	12	2.7	2.7	2.7
WP-US	19-Dec-18	486	8.5	4.0	1.4	1.1	1.4

Appendix 3-C: 2018 Water Quality Field Blank Data

PEACE RIVER HYDRO PARTNERS

Appendix 3-D: Q3Wter Quality Field Blank Data

Station Code	Collect Date/Time	Sample No.	Lab Report ID	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$
				pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIELDBLANK	1/3/2018 14:40	ST6564	B801126	5.03	<2.0	<0.10	16	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/6/2018 12:00	ST9408	B801778	5.16	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/7/2018 12:00	ST9344	B801762	5.12	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/12/2018 16:54	SU7329	B803302	5.18	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/16/2018 12:09	SV1341	B804137	5.47	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/21/2018	SV8266	B805382	6.90	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.54	<0.020	<0.010	3.5	<0.020	<0.0050	<0.020
FIELDBLANK	1/24/2018 12:20	SW0800	B806006	5.78	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/28/2018 12:15	SW6659	B807098	5.41	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	2/3/2018 10:05	SX6301	B809062	7.40	49.4	0.71	28	<4.0	13.7	14.5	14.0	<1.0	17.1	<1.0	<1.0	1.90	<0.020	0.027	5.5	<0.020	<0.0050	0.073
FIELDBLANK	2/7/2018 14:46	SY0768	B809941	6.32	5.1	<0.10	<10	<4.0	1.02	<0.50	1.8	<1.0	2.1	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	2/12/2018 12:49	SY5621	B811008	6.06	3.9	0.13	<10	<4.0	<0.50	<0.50	1.3	<1.0	1.6	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	0.021	<0.0050	<0.020
FIELDBLANK	2/15/2018	SZ0955	B812105	5.40	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	2/21/2018 11:51	SZ7680	B813456	5.39	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	2/27/2018 12:30	TA7103	B815415	5.24	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	3/2/2018 17:45	TB0492	B816194	6.05	<2.0	<0.10	10	<4.0	<0.50	<0.50	1.2	<1.0	1.5	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	3/7/2018 13:15	TB7066	B817682	4.58	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.56	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	3/11/2018 11:30	TC1324	B818513	5.52	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	3/16/2018 13:15	TD1267	B820342	5.62	<2.0	<0.10	<10	<4.0	<0.50	<0.50	1.1	<1.0	1.3	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	3/22/2018 11:45	TD7857	B821557	5.68	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	0.021	<0.0050	<0.020
FIELDBLANK	3/28/2018 9:15	TE7733	B823648	5.55	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.57	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	3/31/2018 13:30	TF0117	B824132	5.39	<2.0	<0.10	10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.51	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	4/2/2018 12:00	TF2032	B824572	5.38	<2.0	<0.10	20	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.67	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	4/6/2018 18:00	TF9868	B826101	5.65	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	4/10/2018 19:30	TG4221	B827090	5.30	<2.0	<0.10	<10	<4.6	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.64	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	4/14/2018 14:25	TH0461	B828390	4.53	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.51	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	4/18/2018 12:25	TH5888	B829697	5.78	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.96	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	4/20/2018 14:57	TH5950	B829701	5.70	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.51	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	4/24/2018 12:40	TI1790	B831105	5.58	<2.0	<0.10	64	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	0.0059	<0.020
FIELDBLANK	4/26/2018 12:05	TI3469	B831550	4.57	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	4/29/2018 13:45	TI7036	B832289	5.40	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/4/2018 16:30	TJ5496	B834125	5.41	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/9/2018 14:45	TK3820	B835944	4.43	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/11/2018 7:05	TK5494	B836231	5.44	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/13/2018 8:10	TK7584	B836688	5.50	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/15/2018 12:50	TL0259	B837268	5.10	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/18/2018 5:20	TL6450	B838461	4.71	<2.0	<0.10	10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/21/2018 15:30	TM2898	B839392	4.54	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/24/2018 16:30	TM7244	B840266	4.68	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/27/2018 17:00	TN1166	B840951	4.68	<2.0	0.23	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	5/30/2018 13:15	TN9750	B842612	5.17	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/2/2018 11:00	TO4782	B843587	5.48	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/3/2018 12:30	TO4800	B843595	5.48	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/6/2018 10:20	TP0514	B844810	4.67	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	0.020	<0.0050	<0.020
FIELDBLANK	6/9/2018 18:40	TP8997	B846206	5.54	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/12/2018 14:00	TQ4136	B847189	5.42	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	0.031	<0.0050	<0.020
FIELDBLANK	6/16/2018 16:25	TR1380	B848404	5.53	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/18/2018 9:05	TR2129	B848571	5.40	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/20/2018 13:05	TR8732	B849907	5.37	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/22/2018	TS2369	B850519	5.42	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/25/2018	TS9111	B851869	5.26	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	6/27/2018 10:55	TT1138	B852292	5.12	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	7/1/2018	TU0437	B853879	5.48	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.005	<0.02
FIELDBLANK	7/4/2018 15:45	TU6245	B855056	4.95	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	3.4	0.035	0.0065	<0.020
FIELDBLANK	7/6/2018 10:00	TU8091	B855461	5.32	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	7/9/2018 13:00	TV1648	B856155	5.12	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	7/12/2018	TV9379	B857875	4.99	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020

Appendix 3-D: Q3Wter Quality Field Blank Data

Station Code	Collect Date/Time	Sample No.	Lab Report ID	pH-lab	Conductivity-lab	Turbidity-lab	TDS	TSS	T-Hardness	D-Hardness	Total Alkalinity	Alk-PP	HCO_3	CO_3	OH	Cl	F	Br	$D\text{-}SO_4$	$N\text{-}NH_3$	$N\text{-}NO_2$	$N\text{-}NO_3$
				pH	µS/cm	NTU	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIELDBLANK	1/3/2018 14:40	ST6564	B801126	5.03	<2.0	<0.10	16	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/6/2018 12:00	ST9408	B801778	5.16	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/7/2018 12:00	ST9344	B801762	5.12	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	1/12/2018 16:54	SU7329	B803302	5.18	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	7/13/2018	TV9678	B857928	5.37	<2.0	<0.10	18	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	7/16/2018 14:35	TW5084	B858802	5.30	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.66	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	7/18/2018 8:00	TW8364	B859413	5.08	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.59	<0.020	<0.010	1.3	<0.020	<0.0050	<0.020
FIELDBLANK	7/20/2018 12:15	TX2838	B860299	5.38	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	7/24/2018 17:00	TY1085	B861870	5.00	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	1.5	<0.020	<0.0050	<0.020
FIELDBLANK	7/26/2018 16:00	TY5337	B862763	5.18	<2.0	<0.10	10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	8/9/2018 12:30	UA9167	B866870	5.32	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	1.9	<0.020	<0.0050	<0.020
FIELDBLANK	8/11/2018 15:35	UB4071	B867694	5.72	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	8/13/2018 11:20	UB4584	B867793	4.98	3.1	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	8/15/2018 11:36	UC1590	B869232	5.78	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	0.0058	<0.020
FIELDBLANK	8/17/2018 6:00	UC4873	B869790	4.75	<2.0	<0.10	<11	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	8/20/2018 10:35	UD1948	B870961	5.15	19.6	0.17	10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	3.3	0.027	<0.0050	0.036
FIELDBLANK	8/22/2018 11:34	UD5023	B871558	5.77	2.6	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	0.020	<0.0050	<0.020
FIELDBLANK	8/24/2018 8:49	UD8195	B872157	5.31	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.52	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	8/27/2018 12:10	UE2118	B872821	5.35	<2.0	0.13	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	0.11	<0.0050	<0.020
FIELDBLANK	8/31/2018 8:15	UF3972	B874769	5.23	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	9/2/2018 10:30	UF7759	B875517	5.14	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	9/6/2018 11:00	UG2792	B876362	5.37	<2.0	<0.10	20	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	1.2	<0.020	<0.0050	<0.020
FIELDBLANK	9/10/2018 11:40	UH0973	B877940	5.79	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	9/12/2018 10:30	UH7642	B878969	5.90	<2.0	<0.10	<10	<4.0	<0.50	<0.50	1.8	<1.0	2.2	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	9/14/2018 9:15	UI0647	B879460	5.42	<2.0	0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	9/17/2018 11:15	UI5118	B880163	5.71	12.9	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	1.6	<0.020	<0.0050	<0.020
FIELDBLANK	9/19/2018 9:10	UJ0842	B881253	4.91	<2.0	0.12	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	9/25/2018 9:35	UK2335	B883227	5.43	<2.0	0.14	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	9/28/2018 10:10	UL0967	B884808	5.20	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	10/3/2018 12:00	UM2667	B886949	5.45	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	10/5/2018 9:45	UM6130	B887510	4.91	<2.0	0.23	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	10/10/2018 12:30	UN2724	B888685	5.32	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	10/15/2018 15:00	UO4612	B890616	5.40	<2.0	0.12	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	10/24/2018 13:05	UQ3374	B893988	5.55	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	10/26/2018 12:00	UQ5563	B894373	5.65	<2.0	0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	10/28/2018 16:00	UQ8601	B894841	5.26	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	10/31/2018 15:45	UR7291	B896322	5.06	<2.0	0.11	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	11/2/2018 8:40	US0226	B896865	4.96	<2.0	0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	11/8/2018 6:20	UT3574	B899222	5.00	<2.0				<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	11/11/2018 11:15	UT4849	B899445	5.47	<2.0	0.15	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	11/13/2018 12:05	UT9225	B8A0341	5.58	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.54	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	11/14/2018 13:00	UU0942	B8A0736	5.52	<2.0	0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	0.071
FIELDBLANK	11/18/2018 14:15	UU6368	B8A1620	5.55	<2.0	0.13	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	11/21/2018 16:00	UV2696	B8A2888	5.93	<2.0	0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	11/24/2018 18:00	UV7554	B8A3714	5.35	<2.0	0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	12/5/2018 16:00	UX4958	B8A7074	5.44	<2.0	0.18	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	12/8/2018	UX7496	B8A7582	4.88	<2.0	0.13	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	12/11/2018 9:45	UY1783	B8A8249	5.55	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	12/19/2018 6:50	UZ3483	B8B0699	4.80	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	12/23/2018 13:00	UZ8807	B8B1558	5.43	<2.0	0.22	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	12/25/2018 15:00	UZ9981	B8B1803	5.91	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	0.52	<0.020	<0.010	<1.0	<0.020	<0.0050	<0.020
FIELDBLANK	12/28/2018 15:20	VA3077	B8B2375	5.21	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.015	<0.0050	<0.020
FIELDBLANK	12/30/2018 13:00	VA3024	B8B2362	5.11	<2.0	<0.10	<10	<4.0	<0.50	<0.50	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.020	<0.010	<1.0	<0.015	<0.0050	<0.020

Note:
Grey shading indicates values above the detection limit

Appendix 3-D: Q3Wter Quality Field Blank Data

Station Code	Collect Date/Time	Sample No.	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIELDBLANK	1/3/2018 14:40	ST6564	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/6/2018 12:00	ST9408	<0.020	<0.0050	0.74	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/7/2018 12:00	ST9344	<0.020	<0.0050	0.52	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/12/2018 16:54	SU7329	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/16/2018 12:09	SV1341	<0.020	<0.0050	0.79	<0.50	0.0047	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.093	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/21/2018	SV8266	<0.020	<0.0050	<0.50	0.67	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/24/2018 12:20	SW0800	<0.020	<0.0050	<0.50	<0.50	0.0055	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.00001	<0.001	<0.001
FIELDBLANK	1/28/2018 12:15	SW6659	<0.020	0.0054	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	0.00096	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.00001	<0.001	<0.001
FIELDBLANK	2/3/2018 10:05	SX6301	0.073	0.0142	<0.50	<0.50	0.0371	<0.0005	<0.0001	0.0074	<0.0001	<0.001	<0.05	<0.00001	3.96	<0.001	<0.0002	0.00132	0.068	<0.0002	<0.002	0.928	0.0029	-	<0.001	<0.001
FIELDBLANK	2/7/2018 14:46	SY0768	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.302	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	0.077	<0.001	-	<0.001	<0.001
FIELDBLANK	2/12/2018 12:49	SY5621	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.133	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	2/15/2018	SZ0955	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	2/21/2018 11:51	SZ7680	<0.020	<0.0050	0.71	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	2/27/2018 12:30	TA7103	<0.020	<0.0050	<0.50	<0.50	0.009	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	0.00072	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	3/2/2018 17:45	TB0492	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	3/7/2018 13:15	TB7066	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	3/11/2018 11:30	TC1324	<0.020	<0.0050	<0.50	<0.50	0.0055	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	3/16/2018 13:15	TD1267	<0.020	<0.0050	<0.50	<0.50	0.0035	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	3/22/2018 11:45	TD7857	<0.020	0.0140	<0.50	<0.50	0.0031	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.089	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	3/28/2018 9:15	TE7733	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	3/31/2018 13:30	TF0117	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	4/2/2018 12:00	TF2032	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	4/6/2018 18:00	TF9868	<0.020	<0.0050	<0.50	<5.0	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	4/10/2018 19:30	TG4221	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	4/14/2018 14:25	TH0461	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	4/18/2018 12:25	TH5888	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	4/20/2018 14:57	TH5950	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	4/24/2018 12:40	TI1790	<0.020	<0.0050	<0.50	<0.50	0.0196	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	4/26/2018 12:05	TI3469	<0.020	<0.0050	0.54	0.56	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	4/29/2018 13:45	TI7036	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/4/2018 16:30	TJ5496	<0.020	0.0078	<0.50	<0.50	0.0097	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/9/2018 14:45	TK3820	<0.020	<0.0050	<0.50	<0.50	<0.005	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/11/2018 7:05	TK5494	<0.020	<0.0050	<0.50	0.52	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/13/2018 8:10	TK7584	<0.020	0.0063	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/15/2018 12:50	TL0259	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/18/2018 5:20	TL6450	<0.020	<0.0050	-	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/21/2018 15:30	TM2898	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/24/2018 16:30	TM7244	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/27/2018 17:00	TN1166	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	5/30/2018 13:15	TN9750	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/2/2018 11:00	TO4782	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000026	<0.001	<0.001
FIELDBLANK	6/3/2018 12:30	TO4800	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/6/2018 10:20	TP0514	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/9/2018 18:40	TP8997	<0.020	<0.0030	0.57	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/12/2018 14:00	TQ4136	<0.020	<0.0050	0.72	0.70	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/16/2018 16:25	TR1380	<0.020	<0.0040	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/18/2018 9:05	TR2129	<0.020	<0.0040	0.51	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/20/2018 13:05	TR8732	<0.020	<0.0040	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/22/2018	TS2369	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/25/2018	TS9111	<0.020	<0.0050	<0.50	0.52	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	6/27/2018 10:55	TT1138	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/1/2018	TU0437	0.03	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/4/2018 15:45	TU6245	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/6/2018 10:00	TU8091	<0.020	<0.0050	<0.50	<0.50	0.0038	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/9/2018 13:00	TV1648	<0.020	<0.0050	0.53	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/12/2018	TV9379	<0.020	<0.0050	<0.50	0.99	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001

Appendix 3-D: Q3Wter Quality Field Blank Data

Station Code	Collect Date/Time	Sample No.	$N\text{-}NO_2_NO_3$	PO_4	TOC	DOC	T-Al	T-Sb	T-As	T-Ba	T-Be	T-Bi	T-B	T-Cd	T-Ca	T-Cr	T-Co	T-Cu	T-Fe	T-Pb	T-Li	T-Mg	T-Mn	T-Hg	T-Mo	T-Ni
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIELDBLANK	1/3/2018 14:40	ST6564	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/6/2018 12:00	ST9408	<0.020	<0.0050	0.74	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/7/2018 12:00	ST9344	<0.020	<0.0050	0.52	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	1/12/2018 16:54	SU7329	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001
FIELDBLANK	7/13/2018	TV9678	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/16/2018 14:35	TW5084	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000026	<0.001	<0.001
FIELDBLANK	7/18/2018 8:00	TW8364	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/20/2018 12:15	TX2838	<0.020	0.0151	<1.0	<1.0	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/24/2018 17:00	TY1085	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	7/26/2018 16:00	TY5337	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	8/9/2018 12:30	UA9167	<0.020	<0.0050	<0.50	<0.50	0.0039	<0.0005	<0.0001	0.0071	<0.0001	<0.001	<0.05	<0.00001	0.198	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	8/11/2018 15:35	UB4071	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	8/13/2018 11:20	UB4584	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	8/15/2018 11:36	UC1590	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	8/17/2018 6:00	UC4873	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	8/20/2018 10:35	UD1948	0.036	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	8/22/2018 11:34	UD5023	<0.020	<0.0050	0.60	0.83	0.0052	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.088	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.000005	<0.001	<0.001
FIELDBLANK	8/24/2018 8:49	UD8195	<0.020	<0.0050	<0.50	<0.50	0.0326	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.070	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000045	<0.001	<0.001
FIELDBLANK	8/27/2018 12:10	UE2118	<0.020	<0.0050	<0.50	0.64	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	8/31/2018 8:15	UF3972	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	9/2/2018 10:30	UF7759	<0.020	<0.0050	0.88	0.79	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	9/6/2018 11:00	UG2792	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.000002	<0.001	<0.001
FIELDBLANK	9/10/2018 11:40	UH0973	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.000002	<0.001	<0.001
FIELDBLANK	9/12/2018 10:30	UH7642	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	9/14/2018 9:15	UI0647	<0.020	<0.0050	<0.50	<0.50	0.0034	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	0.015	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	9/17/2018 11:15	UI5118	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	9/19/2018 9:10	UJ0842	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000022	<0.001	<0.001
FIELDBLANK	9/25/2018 9:35	UK2335	<0.020	<0.0050	0.57	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	9/28/2018 10:10	UL0967	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000023	<0.001	<0.001
FIELDBLANK	10/3/2018 12:00	UM2667	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	10/5/2018 9:45	UM6130	<0.020	<0.0050	<0.50	0.56	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	10/10/2018 12:30	UN2724	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000024	<0.001	<0.001
FIELDBLANK	10/15/2018 15:00	UO4612	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.000002	<0.001	<0.001
FIELDBLANK	10/24/2018 13:05	UQ3374	<0.020	0.0060	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	10/26/2018 12:00	UQ5563	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	10/28/2018 16:00	UQ8601	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000079	<0.001	<0.001
FIELDBLANK	10/31/2018 15:45	UR7291	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.000003	<0.001	<0.001
FIELDBLANK	11/2/2018 8:40	US0226	<0.020	<0.0050	0.93	0.53	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000025	<0.001	<0.001
FIELDBLANK	11/8/2018 6:20	UT3574	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	11/11/2018 11:15	UT4849	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	11/13/2018 12:05	UT9225	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	11/14/2018 13:00	UU0942	0.071	<0.0050	<0.50	0.81	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	11/18/2018 14:15	UU6368	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	11/21/2018 16:00	UV2696	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	11/24/2018 18:00	UV7554	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	12/5/2018 16:00	UX4958	<0.020	<0.0050	0.69	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	12/8/2018	UX7496	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	12/11/2018 9:45	UY1783	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	12/19/2018 6:50	UZ3483	<0.020	<0.0050	<0.50	<0.50	0.0094	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	12/23/2018 13:00	UZ8807	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	12/25/2018 15:00	UZ9981	<0.020	<0.0050	<0.50	<0.50	0.0032	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	12/28/2018 15:20	VA3077	<0.020	<0.0050	<0.50	<0.50	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001
FIELDBLANK	12/30/2018 13:00	VA3024	<0.020	<0.0050	<0.50	<0.50	0.0052	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001

Note:
Grey shading indicates values above the detection limit

Appendix 3-D: Q3Wter Quality Field Blank Data

Station Code	Collect Date/Time	Sample No.	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIELDBLANK	1/3/2018 14:40	ST6564	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/6/2018 12:00	ST9408	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/7/2018 12:00	ST9344	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/12/2018 16:54	SU7329	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/16/2018 12:09	SV1341	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	0.0038	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.154	<0.001
FIELDBLANK	1/21/2018	SV8266	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/24/2018 12:20	SW0800	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/28/2018 12:15	SW6659	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	2/3/2018 10:05	SX6301	0.156	<0.0001	0.191	0.000032	3.01	0.014	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	0.0562	<0.0001	0.0039	<0.0005	<0.0001	0.0069	<0.0001	<0.001	<0.05	<0.00001	4.20	<0.001
FIELDBLANK	2/7/2018 14:46	SY0768	<0.050	<0.0001	<0.1	<0.00002	0.369	0.0011	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.191	<0.001
FIELDBLANK	2/12/2018 12:49	SY5621	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.111	<0.001
FIELDBLANK	2/15/2018	SZ0955	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	2/21/2018 11:51	SZ7680	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	2/27/2018 12:30	TA7103	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	0.0108	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.082	<0.001
FIELDBLANK	3/2/2018 17:45	TB0492	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	3/7/2018 13:15	TB7066	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	3/11/2018 11:30	TC1324	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	3/16/2018 13:15	TD1267	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	3/22/2018 11:45	TD7857	<0.050	<0.0001	<0.1	<0.00002	0.060	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	3/28/2018 9:15	TE7733	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	3/31/2018 13:30	TF0117	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/2/2018 12:00	TF2032	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/6/2018 18:00	TF9868	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/10/2018 19:30	TG4221	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/14/2018 14:25	TH0461	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/18/2018 12:25	TH5888	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/20/2018 14:57	TH5950	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/24/2018 12:40	TI1790	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/26/2018 12:05	TI3469	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	4/29/2018 13:45	TI7036	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/4/2018 16:30	TJ5496	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	0.0097	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/9/2018 14:45	TK3820	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/11/2018 7:05	TK5494	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/13/2018 8:10	TK7584	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/15/2018 12:50	TL0259	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/18/2018 5:20	TL6450	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/21/2018 15:30	TM2898	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/24/2018 16:30	TM7244	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/27/2018 17:00	TN1166	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	5/30/2018 13:15	TN9750	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	0.0079	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/2/2018 11:00	TO4782	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/3/2018 12:30	TO4800	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/6/2018 10:20	TP0514	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/9/2018 18:40	TP8997	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/12/2018 14:00	TQ4136	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/16/2018 16:25	TR1380	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/18/2018 9:05	TR2129	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/20/2018 13:05	TR8732	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/22/2018	TS2369	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/25/2018	TS9111	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	6/27/2018 10:55	TT1138	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/1/2018	TU0437	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/4/2018 15:45	TU6245	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/6/2018 10:00	TU8091	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/9/2018 13:00	TV1648	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/12/2018	TV9379	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001

Appendix 3-D: Q3Wter Quality Field Blank Data

Station Code	Collect Date/Time	Sample No.	T-K	T-Se	T-Si	T-Ag	T-Na	T-Sr	T-S	T-Tl	T-Sn	T-Ti	T-U	T-V	T-Zn	T-Zr	D-Al	D-Sb	D-As	D-Ba	D-Be	D-Bi	D-B	D-Cd	D-Ca	D-Cr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIELDBLANK	1/3/2018 14:40	ST6564	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/6/2018 12:00	ST9408	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/7/2018 12:00	ST9344	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	1/12/2018 16:54	SU7329	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/13/2018	TV9678	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/16/2018 14:35	TW5084	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	0.0035	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/18/2018 8:00	TW8364	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/20/2018 12:15	TX2838	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	0.0052	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/24/2018 17:00	TY1085	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	7/26/2018 16:00	TY5337	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/9/2018 12:30	UA9167	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/11/2018 15:35	UB4071	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/13/2018 11:20	UB4584	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/15/2018 11:36	UC1590	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/17/2018 6:00	UC4873	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/20/2018 10:35	UD1948	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/22/2018 11:34	UD5023	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	0.0073	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/24/2018 8:49	UD8195	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/27/2018 12:10	UE2118	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	8/31/2018 8:15	UF3972	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	9/2/2018 10:30	UF7759	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	0.178	<0.001
FIELDBLANK	9/6/2018 11:00	UG2792	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	9/10/2018 11:40	UH0973	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	9/12/2018 10:30	UH7642	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	9/14/2018 9:15	UI0647	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	9/17/2018 11:15	UI5118	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	9/19/2018 9:10	UJ0842	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	9/25/2018 9:35	UK2335	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	9/28/2018 10:10	UL0967	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	10/3/2018 12:00	UM2667	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	10/5/2018 9:45	UM6130	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	10/10/2018 12:30	UN2724	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	10/15/2018 15:00	UO4612	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	10/24/2018 13:05	UQ3374	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	10/26/2018 12:00	UQ5563	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	10/28/2018 16:00	UQ8601	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	10/31/2018 15:45	UR7291	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	11/2/2018 8:40	US0226	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	11/8/2018 6:20	UT3574	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	11/11/2018 11:15	UT4849	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	11/13/2018 12:05	UT9225	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	11/14/2018 13:00	UU0942	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	11/18/2018 14:15	UU6368	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	11/21/2018 16:00	UV2696	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	11/24/2018 18:00	UV7554	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	12/5/2018 16:00	UX4958	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	12/8/2018	UX7496	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	12/11/2018 9:45	UY1783	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	12/19/2018 6:50	UZ3483	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	12/23/2018 13:00	UZ8807	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	12/25/2018 15:00	UZ9981	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	12/28/2018 15:20	VA3077	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001
FIELDBLANK	12/30/2018 13:00	VA3024	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001	<0.003	<0.0005	<0.0001	<0.001	<0.0001	<0.001	<0.05	<0.00001	<0.050	<0.001

Note:
Grey shading indicates values above the detection limit

Appendix 3-D: Q3Wter Quality Field Blank Data

Station Code	Collect Date/Time	Sample No.	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn	D-Hg	D-Mo	D-Ni	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIELDBLANK	1/3/2018 14:40	ST6564	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/6/2018 12:00	ST9408	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/7/2018 12:00	ST9344	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/12/2018 16:54	SU7329	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/16/2018 12:09	SV1341	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/21/2018	SV8266	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/24/2018 12:20	SW0800	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.00001	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/28/2018 12:15	SW6659	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.00001	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	2/3/2018 10:05	SX6301	<0.0002	0.00059	<0.01	<0.0002	<0.002	0.984	<0.001	-	<0.001	<0.001	0.148	<0.0001	0.152	<0.00002	3.16	0.0143	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	0.0533	<0.0001
FIELDBLANK	2/7/2018 14:46	SY0768	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	0.250	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	2/12/2018 12:49	SY5621	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	2/15/2018	SZ0955	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	2/21/2018 11:51	SZ7680	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	2/27/2018 12:30	TA7103	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	3/2/2018 17:45	TB0492	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	3/7/2018 13:15	TB7066	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	3/11/2018 11:30	TC1324	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	3/16/2018 13:15	TD1267	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	3/22/2018 11:45	TD7857	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	3/28/2018 9:15	TE7733	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	3/31/2018 13:30	TF0117	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/2/2018 12:00	TF2032	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/6/2018 18:00	TF9868	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/10/2018 19:30	TG4221	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/14/2018 14:25	TH0461	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/18/2018 12:25	TH5888	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/20/2018 14:57	TH5950	<0.0002	0.00359	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/24/2018 12:40	TI1790	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/26/2018 12:05	TI3469	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	4/29/2018 13:45	TI7036	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/4/2018 16:30	TJ5496	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/9/2018 14:45	TK3820	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/11/2018 7:05	TK5494	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/13/2018 8:10	TK7584	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/15/2018 12:50	TL0259	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/18/2018 5:20	TL6450	<0.0002	0.00052	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/21/2018 15:30	TM2898	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/24/2018 16:30	TM7244	<0.0002	0.00059	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/27/2018 17:00	TN1166	<0.0002	0.00121	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	5/30/2018 13:15	TN9750	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/2/2018 11:00	TO4782	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/3/2018 12:30	TO4800	<0.0002	0.00075	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/6/2018 10:20	TP0514	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/9/2018 18:40	TP8997	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/12/2018 14:00	TQ4136	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/16/2018 16:25	TR1380	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/18/2018 9:05	TR2129	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/20/2018 13:05	TR8732	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/22/2018	TS2369	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/25/2018	TS9111	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	6/27/2018 10:55	TT1138	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/1/2018	TU0437	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/4/2018 15:45	TU6245	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/6/2018 10:00	TU8091	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/9/2018 13:00	TV1648	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/12/2018	TV9379	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001

Appendix 3-D: Q3Wter Quality Field Blank Data

Station Code	Collect Date/Time	Sample No.	D-Co	D-Cu	D-Fe	D-Pb	D-Li	D-Mg	D-Mn	D-Hg	D-Mo	D-Ni	D-K	D-Se	D-Si	D-Ag	D-Na	D-Sr	D-S	D-Tl	D-Sn	D-Ti	D-U	D-V	D-Zn	D-Zr
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
FIELDBLANK	1/3/2018 14:40	ST6564	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/6/2018 12:00	ST9408	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/7/2018 12:00	ST9344	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	1/12/2018 16:54	SU7329	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	-	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/13/2018	TV9678	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/16/2018 14:35	TW5084	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/18/2018 8:00	TW8364	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/20/2018 12:15	TX2838	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/24/2018 17:00	TY1085	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	7/26/2018 16:00	TY5337	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/9/2018 12:30	UA9167	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/11/2018 15:35	UB4071	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/13/2018 11:20	UB4584	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/15/2018 11:36	UC1590	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/17/2018 6:00	UC4873	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/20/2018 10:35	UD1948	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	0.067	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/22/2018 11:34	UD5023	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000028	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/24/2018 8:49	UD8195	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000023	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/27/2018 12:10	UE2118	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	8/31/2018 8:15	UF3972	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/2/2018 10:30	UF7759	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001		<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/6/2018 11:00	UG2792	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/10/2018 11:40	UH0973	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/12/2018 10:30	UH7642	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/14/2018 9:15	UI0647	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/17/2018 11:15	UI5118	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/19/2018 9:10	UJ0842	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/25/2018 9:35	UK2335	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	9/28/2018 10:10	UL0967	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	10/3/2018 12:00	UM2667	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	10/5/2018 9:45	UM6130	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	10/10/2018 12:30	UN2724	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	10/15/2018 15:00	UO4612	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000024	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	10/24/2018 13:05	UQ3374	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000075	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	10/26/2018 12:00	UQ5563	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	10/28/2018 16:00	UQ8601	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	10/31/2018 15:45	UR7291	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	0.0000048	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	11/2/2018 8:40	US0226	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	11/8/2018 6:20	UT3574	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	11/11/2018 11:15	UT4849	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	11/13/2018 12:05	UT9225	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	11/14/2018 13:00	UU0942	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	11/18/2018 14:15	UU6368	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	11/21/2018 16:00	UV2696	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	11/24/2018 18:00	UV7554	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	12/5/2018 16:00	UX4958	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	12/8/2018	UX7496	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	12/11/2018 9:45	UY1783	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	12/19/2018 6:50	UZ3483	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	12/23/2018 13:00	UZ8807	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	12/25/2018 15:00	UZ9981	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	12/28/2018 15:20	VA3077	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001
FIELDBLANK	12/30/2018 13:00	VA3024	<0.0002	<0.0005	<0.01	<0.0002	<0.002	<0.050	<0.001	<0.000002	<0.001	<0.001	<0.050	<0.0001	<0.1	<0.00002	<0.050	<0.001	<3.0	<0.00001	<0.005	<0.005	<0.0001	<0.005	<0.005	<0.0001

Note:
Grey shading indicates values above the detection limit

Appendix 3-D: Water Quality QA/QC Program

PEACE RIVER
HYDRO PARTNERS

TECHNICAL MEMORANDUM

To:	**Kael Hanak, Caroline Walmsley; PRHP**	**Date:**	**16 May 2018**
From:	**Meghan Goertzen, Neil Mallen**	**Project #:**	**A416-1**
Subject:	**Surface Water Quality QA/QC Program ARD/ML Management and Monitoring Site C Clean Energy Project**		

The purpose of this Memorandum is to document the Quality Assurance / Quality Control (QA/QC) Program that is employed by Lorax Environmental Services Ltd. (Lorax) on behalf of Peace River Hydro Partners (PRHP) for the Main Civil Works Contract for the Site C Clean Energy Project. The QA/QC program has been developed and implemented for surface water quality monitoring within the construction site. It is intended to validate monitoring data, and to identify potential deficiencies of the monitoring program.

The integrity of the water quality sampling program, and analytical measurements of samples collected within it, are evaluated using various QA/QC practices. It is recommended that these practices include collection of quality control samples (blanks and replicates) and the establishment of data quality objectives for sample results (with specific objectives for dissolved vs. total metal concentrations, and sample hold times). Recommended QA/QC components are presented in further detail below.

The results of the QA/QC Program are documented in quarterly and annual metal leaching and acid rock drainage (ARD/ML) monitoring reports that are prepared by Lorax for submission to PRHP. Reporting includes the number of field blanks and replicates collected, as well as the proportion of these samples as compared with the total number of water quality samples obtained. General industry practice suggests one QA/QC sample (*e.g.*, a blank or duplicate) should be obtained for every 10 water quality samples obtained (or 10%) as part of the monitoring program. The report also includes an analysis and interpretation of samples in which a dissolved metal concentration exceeds the total concentration, and documents exceedance of hold times recommended by the analytical laboratory, as well as certain practical limitations with respect to hold times.

1. Blanks

Blank water quality samples are comprised of analyte-free reagent water and are used to assess sample contamination (as recommended by Clark, 2013). Field blanks are used to detect potential contamination resulting from the sample collection method, handling, filtration, preservation, and exposure to the environment. Blank samples are typically collected by having the environmental monitor pour de-ionized (DI) water into clean sample bottles in the same environment in which

actual samples are collected, and then processing the blank at the laboratory in the same manner as other samples.

2. Replicates

Replicates are independent samples collected as close as possible from the same location and at the same time as the original to characterize environmental variability and the precision of the entire sampling and analytical process (as per Clark, 2013). For the purpose of this Memorandum, originals and duplicates are considered paired replicates collected from the same location sequentially in time.

The BC Field Sampling Manual (Clark, 2013) provides the following acceptability criteria for field duplicates:

> *It should be expected that the Relative Percent Difference (RPD) is somewhat greater than that for laboratory duplicates. If one of a set of duplicate values is at or greater than five times the Method Detection Limit, then RPD values >20% indicate a possible problem, and > 50% indicate a definite problem, most likely either contamination or lack of sample representativeness.*

Any duplicate samples for which the RPD is greater than 20% and greater than 50% are reported. In addition, duplicates that had parameters with RPDs greater than 50%, in which the parameter value was greater than five-times the RDL in at least one of the sample duplicates, are reported in a separate table.

3. Total versus Dissolved Metals

For the purpose of this QA/QC program, a dissolved metal concentration that is higher than the corresponding total metal concentration is considered to be an indication of potential sample contamination or analytical error. Total and dissolved metals data for samples collected at all water quality monitoring stations in each quarter are compared. The dissolved metal concentration is flagged as a potential QA/QC issue if the concentration is >20% higher than the corresponding total metal value in the same sample. Variability of less than 20% is excluded because it is within the analytical margin of error.

Dissolved and total metal pairs are included in this analysis if the dissolved value is greater than five-times its reported detection limit (RDL), similar to guidance presented in the BC Field Sampling Manual (Clark 2013) for acceptability criteria for duplicate sample. This is more conservative than the industry convention which limits the analysis to parameter pairs where *both* total and dissolved values are greater than five-times RDL.

4. Sample Hold Time

Sample hold time is the length of time between collection of a water sample and its analysis at the laboratory. Recommended sample hold times are summarized in Table 4-1 below. In general, transport of samples from the Project site to the designated laboratory (Maxxam) depot in Fort St John typically occur on the same day as sample collection. Samples are then transported to the Maxxam laboratory, located in Burnaby B.C., which typically receives the samples the same evening or the following day.

Based on guidance from Maxxam, parameters with the shortest hold-times (three days or less) include ammonia (if unpreserved), nitrate / nitrite, pH, and turbidity. Results for these parameters may be associated with higher uncertainty if the hold times are exceeded.

Table 4-1:
Recommended water quality sample hold times (Source: Maxxam Analytics)

Analytical Parameter	Hold Time
Alkalinity	14 Days
Ammonia	28 Days
Ammonia, Un-Preserved	3 Days
Bromide	28 Days
Chloride	28 Days
Chromium VI - Dissolved	30 Days
Chromium VI - Total	30 Days
Conductivity	28 Days
Dissolved Organic Carbon (DOC)	28 Days
Fluoride	28 Days
Metals – Dissolved	180 Days
Metals – Total	180 Days
Nitrate/Nitrite	3 Days
pH	15 Minutes
Phosphorus – Total	28 Days
Solids - TDS	7 Days
Solids – TSS	7 Days
Sulphate	28 Days
Total Organic Carbon (TOC)	28 Days
Total Nitrogen (TN)	28 Days
Turbidity	3 Days

As of May 2017, hold time exceedances have been flagged by Maxxam and reported in each sample's Certificate of Analysis (CoA) as a laboratory comment. All comments are entered into PRHP's EQWIN database during data import; hold times are reviewed on a weekly basis by Lorax as part of the weekly ARD report, and recommendations for improvement are provided as necessary.

5. Closure

We trust that this technical memorandum addresses your current needs. Please contact us should you have any questions.

Respectively Submitted,
Lorax Environmental Services Ltd.

Original Signed by:

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Appendix B

Site C Clean Energy Project

PAG Contact RSEM pond Monitoring: Peace River Surface Water Quality and Pond Toxicity 2018 Annual Report



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EXECUTIVE SUMMARY

Ecofish Research Ltd. (Ecofish) was retained by BC Hydro to conduct surface water quality monitoring for the Site C Clean Energy Project (the "Project"). The scope of monitoring is specific to relocated surplus excavated material (RSEM) sediment ponds containing water that has come in contact with potentially acid generating (PAG) material.

This report summarizes the monitoring results for the 2018 calendar year[1]. During this period, only RSEM ponds R5b and R6 discharged to the Peace River. Construction on RSEM R5a was complete but this pond typically did not contain substantial water and did not discharge to the Peace River in 2018, although some water was briefly trucked from the RSEM R5a ponds to the RSEM R5b where it discharged to the Peace River following heavy rain on September 8, 2018. Construction of the RSEM L5 pond was completed in December 2018, but there was no discharge from the pond to the Peace River in 2018. Construction of the RSEM L6 pond was nearing completion at the end of 2018, and no water from this pond has discharged to the Peace River.

Monitoring included acute toxicity testing of RSEM pond water as well as surface water quality monitoring in the Peace River as it relates to discharge from PAG contact RSEM sediment ponds. RSEM pond toxicity and Peace River surface water quality monitoring are requirements of the Acid Rock Drainage and Metal Leachate (ARD ML) Management Plan[2] included as Appendix E of the Construction Environmental Management Plan (CEMP, BC Hydro 2016). The monitoring program was designed to evaluate 1) whether or not RSEM pond water is acutely toxic and 2) pond discharge compliance for a suite of water quality parameters at the downstream edge of the 100 m long initial dilution zone (IDZ) in the Peace River. A summary of each monitoring component is provided below.

RSEM Pond Acute Toxicity

Acute toxicity of RSEM pond water was monitored before initial pond discharge, and at regular intervals thereafter depending on discharge frequency and toxicity results. Acute toxicity was evaluated using a standard laboratory assay (Rainbow Trout 96 hour LC50 test) performed on water samples collected directly from the outflow (when discharging) or the pond (when not discharging). In 2018 one sample was collected from each of three RSEM R5a ponds, 13 samples from the RSEM R5b pond, and 18 samples from RSEM R6 ponds (east and west ponds combined). With the

[1] In addition to this annual report, detailed monthly reports were issued that summarized the current RSEM status, monthly and cumulative monitoring results, and upcoming monitoring requirements. Additional reports are prepared for discharge compliance exceedances when required. An annual and monthly reports were also prepared for the 2017 monitoring period.

[2] Other requirements of the CEMP, including RSEM in-pond water quality monitoring and mitigation implementation, are the responsibility of the project's Main Civil Works contractor, Peace River Hydro Partners (PRHP); these other requirements are reported on separately by PRHP and/or their Qualified Professional consultants and therefore are not included in this report.

exception of one sample collected from the RSEM R5b pond, all samples passed the acute toxicity tests.

End of Pipe (EOP) discharge limits and BC Water Quality Guidelines (WQG) were exceeded when RSEM R5b sediment pond water was discharged into the Peace River following heavy (~50 mm) rains on September 8, 2018. Ecofish collected an opportunistic pond water sample representative of this discharge for acute toxicity testing on September 9, 2018. This testing found that the pond water discharged on September 9, 2018 was acutely toxic to fish.

RSEM Discharge/Peace River Surface Water Quality Monitoring

The ARD ML Management Plan (BC Hydro 2016) stipulates water quality criteria (i.e., BC WQG for the protection of aquatic life) at the IDZ location 100 m downstream of each RSEM discharge location. To evaluate compliance, a full suite of water quality parameters (including physical parameters, nutrients, anions, total metals and dissolved metals) were measured *in-situ* and/or sampled for laboratory analysis. Sampling was conducted on monthly and 5 in 30-day sampling schedules (5 sets of samples over a 30 day period during both turbid and clear flow conditions). Sampling was conducted at IDZ sites 100 m downstream of discharging RSEM ponds, as well as at upstream (upstream of all Site C construction influences), immediate background (just upstream of RSEM discharge points), and far-field downstream locations.

Overall, in 2018, BC WQG were commonly exceeded at all sites due to naturally occurring Peace River conditions, and there were no exceedance of BC WQG measured at IDZ sites that were attributable to discharge of water from RSEM sediment ponds. The range in water quality parameter concentrations measured in 2018 were similar to those measured in 2017, and were within historical water quality data ranges observed in the Peace River.

The RSEM ponds have EOP limits for total suspended solids (TSS), and the continuous turbidity gauges installed on the left and right bank of the Peace River upstream of the confluence with the Moberly River are used to inform the project's Main Civil Works contractor, Peace River Hydro Partners (PRHP), of the Peace River background TSS twice daily via automated email as per Section 2.1 in BC Hydro (2017).

In order to estimate the background Peace River TSS that are provided in the automated emails, Ecofish has developed TSS:turbidity relationships over the course of monitoring which are used to estimate TSS concentrations from the turbidity data logged by the monitoring stations. Development of the TSS relationship is documented in this annual report, however background TSS data are reported by PRHP and are not included in this report.

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1. INTRODUCTION

Ecofish Research Ltd. (Ecofish) was retained by BC Hydro to conduct sediment pond discharge surface water quality monitoring and to conduct acute toxicity monitoring for the Site C Clean Energy Project (the "Project", Map 1) as it relates to five sediment ponds at relocated surplus excavated material (RSEM) areas containing potentially acid generating (PAG) material and/or PAG-contact water potentially discharging to the Peace River.

The Project construction works include management of excavated PAG shale bedrock. The excavated shale bedrock is placed in up to five PAG contact RSEM areas (RSEM R5a, R5b, R6, L5, L6) over the construction period (Map 1). Surface runoff from these RSEM areas and water from PAG excavation sites is directed into the associated PAG contact RSEM sediment ponds (henceforth referred to as RSEM ponds), and water in these ponds is discharged to the Peace River.

An Acid Rock Drainage and Metal Leachate (ARD ML) Management Plan is included as Appendix E of the Construction Environmental Management Plan (CEMP, BC Hydro 2016) for the Project. Section 7.2 of the ARD ML Management Plan specifies compliance requirements related to the RSEM ponds. Ecofish's scope of work is to conduct the monitoring and reporting associated with compliance requirements for acute toxicity (Section 7.2.1 of the ARD ML Management Plan) and for Peace River water quality downstream of each RSEM (Section 7.2.3 of the ARD ML Management Plan). Other requirements of the CEMP, including RSEM in-pond water quality monitoring and mitigation implementation, are the responsibility of the project's Main Civil Works contractor, Peace River Hydro Partners (PRHP); these other requirements are reported on separately by PRHP and/or their Qualified Professional consultants and therefore are not included in this report.

In late 2016 construction of the RSEM R5b pond was completed and in 2017 two additional ponds were constructed: RSEM R5a and RSEM R6 (Table 1). In 2018, only the RSEM R5b and RSEM R6 ponds discharged water to the Peace River, while the RSEM R5a ponds generally did not contain sufficient water for sampling[3]. Construction of the RSEM L5 pond was completed in December 2018 and the pond has not discharged water to the Peace. Construction of the RSEM L6 pond was nearing completion at the end of 2018.

This report fulfils the annual reporting requirement outlined in Section 7.5 of the ARD ML Management Plan (BC Hydro 2016) for the associated monitoring conducted by Ecofish (pond toxicity testing and Peace River water quality sampling) on behalf of BC Hydro in 2018.

[3] Following heavy rainfall (~50 mm) on September 8, 2018, the water levels in the RSEM R5a ponds were elevated. Water was removed from the RSEM R5a ponds from September 8 – 11, 2018 to prevent discharge, and transferred by truck to the RSEM R5b pond.

Table 1. PAG contact RSEM pond construction and discharge history as of the end of 2018.

RSEM Pond	Pond Construction Completed	Discharge to the Peace River Commenced
R5a	July 2017	No discharge
R5b	November 2016	January 2017
R6	March 2017	April 2017
L5	December 2018	No discharge
L6	Construction not complete as of the end of 2018	

628000 629000 630000 631000 632000

N

PAM-LB
PAM-RB
RSEM R5a-D SP Toxicity
RSEM R5a-C SP Toxicity
Peace 03
RSEM R5a
Peace River
L5W SP Toxicity
L5E SP Toxicity
RSEM L5
RSEM R5a-A SP Toxicity

Inset 1
Peace River
R5b Upstream Alternate #1
R5b Upstream Alternate #4
R5b Upstream Alternate #2
R5b Upstream
R5b Discharge
R5b IDZ
R5b EOP Toxicity
R5b SP Toxicity
0 25 50 m

Inset 2
Peace River
R6 IDZ
R6 Discharge
R6 Upstream
R6E EOP Toxicity
R6W EOP Toxicity
R6W SP Toxicity
R6E SP Toxicity
0 12.5 25 m

6232000
6231000
6230000
6229000

Inset 1
R5b Upstream Alternate #1
R5b Upstream
R5b Discharge
R5b SP Toxicity
R5b EOP Toxicity
R5b Upstream Alternate #4
R5b Upstream Alternate #2
R5b IDZ
Moberly River
RSEM R5b
RSEM L6
MOE site (far-field downstream, left bank)
Peace River
Inset 2
R6 Upstream
R6 Discharge
R6W SP Toxicity
R6E SP Toxicity
R6 IDZ
R6W EOP Toxicity
R6E EOP Toxicity
RSEM R6
MOE site (far-field downstream, right bank)

628000 629000 630000 631000 632000

SITE C CLEAN ENERGY PROJECT

Location of PAG Contact RSEM Sediment Ponds and Water Quality Monitoring Locations

Legend

- Pond toxicity sampling collected in the sediment pond (SP) or from the end of pipe (EOP)
- Peace River Water Quality Monitoring
- RSEM Sediment Pond Discharge Point
- Continuous Turbidity Gauge

Sediment Ponds

- RSEM Pond constructed and discharge has commenced
- RSEM Pond constructed but not yet discharging
- RSEM Pond under construction and not yet discharging
- RSEM Pond catchment area



MAP SHOULD NOT BE USED FOR LEGAL OR NAVIGATIONAL PURPOSES

0 75 150 300 450 600 750 Meters

Scale: 1:17,000

NO.	DATE	REVISION	BY
1	2/1/2019	1200_RSEM_WQ_2019Feb01	
2			
3			
4			
5			

Date Saved: 2/1/2019
Coordinate System: NAD 1983 UTM Zone 10N

ECOFISH RESEARCH

Map 1

Path: M:\Templates\1200_RSEM_WQ_2019Feb01.mxd

2. BACKGROUND

2.1. RSEM Pond Acute Toxicity

The acute toxicity (Rainbow Trout 96 hour LC50) monitoring program is designed to confirm that water discharged from the PAG contact RSEM ponds is not acutely toxic to aquatic life at the point of discharge into the Peace River (as per Section 7.1 of ARD ML Management Plan, BC Hydro 2016). Therefore, prior to discharge into the Peace River, and for the duration of discharge into the Peace River, acute toxicity testing is required for each RSEM pond.

The acute toxicity monitoring program is described in Section 7.3.1 of the ARD ML Management Plan, BC Hydro 2016). The acute toxicity testing sampling schedule occurs in three stages (Table 2). Following completion of pond construction and when sufficient water has accumulated to allow sample collection, toxicity sampling is performed on a bi-weekly basis for three consecutive samples (three samples over six weeks). A toxicity test "passes" (i.e., the pond water is not acutely toxic) if the result of the test is ≥ 50% survival in undiluted pond water. Sampling then moves to monthly sampling for 12 consecutive passes followed by quarterly sampling (Table 2, BC Hydro 2016). Note that sampling frequency will revert back to the bi-weekly sampling in the event that a sample is positive for acute toxicity (test failure), or a RSEM pond has not discharged for a period of 30 days. If those bi-weekly tests are passed then sampling reverts to the previous scheduling interval (monthly or quarterly). A revised acute toxicity sampling approach has been proposed (Shelley *et al.* 2018)[4]; if this approach is accepted by regulators then the sampling schedule described above and provided in Table 2 will be revised.

Detailed monthly reports were issued for each month of 2018 which provide results for RSEM pond acute toxicity testing. If a toxicity test failed, results were communicated directly to BC Hydro and PRHP as soon as results were available. A high-level summary of the methods and results of the RSEM pond acute toxicity monitoring conducted in 2018 are provided herein.

[4] The proposed toxicity monitoring approach recommends that regular samples be collected from each PAG-contact RSEM sediment pond every two months as long as there is sufficient water to collect a sample (Shelley *et al.* 2018). This will demonstrate regulatory compliance over a range of operating conditions and provide data to confirm or revise the testing program. In the event of an acute toxicity test failure under the routine monitoring program, an additional sample(s) will be collected to confirm pond water quality returns to non-toxic conditions (Shelley *et al.* 2018). An initial sample will be collected 96 hours after the failed sample; if that sample also fails, additional samples will be collected every 96 hours until a sample passes. After a test passes, routine acute toxicity testing will resume at a bi-monthly frequency from the sample date of the passed test (Shelley *et al.* 2018). Additional targeted acute toxicity testing would also be conducted if pond pH drops below 6.5 for more than one hour, which is more conservative than the lower end of pipe discharge limit of 6.0 (Shelley *et al.* 2018).

Table 2. 96 hour LC50 Rainbow Trout acute toxicity sampling frequency for each RSEM pond.

Frequency[1]	Sampling Requirements[2]
Bi-weekly	3 consecutive passes prior to moving to monthly sampling
Monthly	12 consecutive passes (one year) prior to moving to quarterly sampling
Quarterly	Sampling will be conducted quarterly (every 3 months) for the duration of the construction phase

[1] The sampling frequency will revert back to bi-weekly sampling in the event that a test failure occurs (results are positive for acute toxicity), or the RSEM pond has not discharged for a period of 30 days.

[2] >100% (v/v) for the 96 hr LC 50 toxicity test indicates the test passed.

2.2. Peace River Water Quality

The compliance requirements for the monitoring program for Peace River water quality downstream of each RSEM pond are described in Section 7.2.3 of the ARD ML Management Plan (BC Hydro 2016). A compliance requirement includes defining and approving water quality monitoring sites in the Peace River. Compliance requirements also include confirming that the Peace River samples are in fact sampling within the RSEM ponds' discharge plume area, and confirming discharge plume dynamics under a range of river flows and discharge rates in order to confirm plume modeling predictions. For the RSEM ponds that were discharging in 2018, these compliance requirements were met in 2017 as summarized in Ganshorn *et al.* (2018a), and additional work with respect to these compliance requirements was not required in 2018 as there was no change in discharge locations. No work with respect to these compliance requirements for RSEM R5a is anticipated as this pond is designed not to discharge, and there are operational mitigations in place to prevent unintentional discharge to the Peace River. It is expected that work to meet these requirements will be done for the RSEM L5 and RSEM L6 ponds after they start discharging to the Peace River in 2019.

Water quality monitoring within the RSEM ponds is monitored daily by PRHP. Pond data for the appropriate dates are included for reference in this report in the time series graphs of each water quality parameter (Appendix B and Appendix C).

It is a compliance requirement (for PRHP), to meet end of end-of-pipe (EOP) discharge limits for total suspended solids (TSS) in water that discharges to the Peace River from the RSEM ponds. PRHP reports on compliance with respect to EOP limits, and Ecofish provides PRHP with background Peace River TSS data to inform the TSS EOP limit twice a day via automated email. The background TSS data are derived from continuous turbidity data collected at two background real time monitoring stations in the Peace River, and Ecofish is responsible for developing and maintaining the TSS:turbidity relationships for these stations.

It is also a compliance requirement that during discharge from RSEM ponds, water quality at the initial dilution zone (IDZ) monitoring locations 100 m downstream of the RSEM discharge points shall meet the Peace River IDZ Limits (i.e. BC Water Quality Guidelines (BC WQG)) as specified in Table 2 of the ARD ML Management Plan (BC Hydro 2016). Compliance with this requirement is assessed using a sampling program which is described in Section 7.3.4 of the ARD ML Management Plan. In summary, the program requires sampling only during periods of RSEM discharge and includes three sampling schedules; daily, monthly, and 5 in 30-day sampling (5 samples in 30 days).

Detailed monthly reports were issued for each month of 2018[5] which provide water quality data summary tables, figures, and sampling details to meet the monthly reporting requirement outlined in Section 7.5.3 of the ARD ML Management Plan (BC Hydro 2016). In accordance with Section 7.3.4 of the ARD ML Management Plan, exceedance reports are issued immediately (i.e. within 24 hours

[5] An annual and monthly reports were also prepared for the 2017 monitoring period.

of receipt of *in situ* or laboratory analytical results) if exceedances of the Peace River IDZ limits are identified in any IDZ sample, provided the cause of the exceedance was attributable to discharge from a RSEM pond. A high-level summary of the methods and results of the Peace River and RSEM IDZ surface water quality conducted in 2018 are provided herein.

3. METHODS

3.1. RSEM Pond Acute Toxicity

Two sterile 20 L plastic carboys are provided by ALS Environmental depot in Fort St. John for each acute toxicity test. Carboys are filled with pond water either obtained directly from the outflow pipe when a RSEM pond is discharging, or collected from the pond close to the outflow pipe location if there is no discharge from the RSEM pond. Sampling procedures, chain of custody, and QA/QC follow the guidelines of the British Columbia Field Sampling Manual (Clark 2002).

The acute toxicity testing is performed by Nautilus Environmental in Burnaby (under subcontract to ALS Environmental). Sample carboys are delivered to ALS in Fort St. John shortly after sampling (on the same day) and the samples are shipped to Nautilus Environmental in Burnaby following standard chain of custody and within acceptable hold times.

3.1.1. RSEM R5a

Construction of the permanent RSEM R5a was completed mid-July 2017 with a pond design consisting of four individual cells (A, B, C, and D). Since completion, these cells have contained little water and have not discharged directly to the Peace River. Snowmelt in spring 2018 allowed for the collection of one toxicity sample from three of these cells (A, C, and D) but further sampling from the ponds has not been conducted as discharge is not anticipated under normal operating conditions.

3.1.2. RSEM R5b

Acute toxicity bi-weekly sampling of RSEM R5b pond water commenced on November 30, 2016; 12 consecutive monthly passes were completed in 2017 and quarterly sampling commenced in November 2017. In 2018 a total of 13 acute toxicity samples were collected from the RSEM R5b pond. These include quarterly samples, three bi-weekly samples after a period of more than 30 days with no discharge, three bi-weekly samples as mandated in May 2018 by the Deputy Comptroller of Water Rights (FLNRORD 2018) to address concerns regarding EOP limit exceedances for T-Cd and T-Zn in the RSEM pond water, an opportunistic sample on September 9, 2018 in anticipation of poor water quality following heavy rain, and three bi-weekly samples following failure of the sample collected during opportunistic sampling on September 9, 2018.

3.1.3. RSEM R6

RSEM R6 pond has two basins (RSEM R6E and RSEM R6W) divided by a berm, and acute toxicity samples are collected from each basin provided there is sufficient water for sample collection. Acute toxicity bi-weekly sampling began in March 2017 for R6W and in April 2017 for R6E. Following 12 consecutive monthly passes in April 2018, both R6 basins qualified for a quarterly sampling

schedule. In 2018, a total of 9 toxicity samples were collected from each of the two RSEM R6 basins. These include monthly sampling, two instances of three bi-weekly samples after a period of more than 30 days with no discharge, and quarterly samples.

3.1.4. RSEM L5

There are two RSEM L5 ponds divided by a berm (RSEM L5E and RSEM L5W), and construction of the two ponds was completed in December 2018. Neither pond discharged water to the Peace River in 2018. Nevertheless, in 2018 a single acute toxicity sampling event was completed for both RSEM L5 ponds (L5E and L5W) on July 26, 2018 when the ponds were partially constructed and holding water.

Currently no additional toxicity testing is scheduled for RSEM L5. However, when discharge is anticipated in the future, bi-weekly toxicity testing will be initiated as per the CEMP requirements.

3.1.5. RSEM L6

Construction of the RSEM L6 pond was underway at the end of 2018, and no water from the partially constructed pond was discharged to the Peace River in 2018.

Currently, toxicity testing is not scheduled for RSEM L6. However, when discharge is anticipated in the future, bi-weekly toxicity testing will be initiated as per the CEMP requirements.

3.1.6. Acute Toxicity Test Failure Notification and Evaluation

In the event that the toxicity sample is determined to be acutely toxic, the LC_{50} (i.e., the concentration at which there is mortality in 50% (v/v) of the fish) is estimated and reported by Nautilus based on the toxicity results at serial dilutions of the pond water sample. Data are provided in tabular format as % Survival of Rainbow Trout for serial dilutions (% v/v) of the RSEM Pond Water. Nautilus provides the final laboratory report to ALS at which point the final report is automatically emailed to Ecofish and PRHP.

Although it is not a requirement of the CEMP (BC Hydro 2016) to collect water quality samples from the Peace River in conjunction with acute toxicity sampling, sampling schedules can overlap and in some cases acute toxicity sampling is done in conjunction with water quality sampling in the Peace River. If an acute toxicity test failure occurs, and corresponding water quality samples were collected in the Peace River (upstream of the discharge, at the compliance point 100 m downstream of the discharge and the far-field monitoring sites), data are reviewed to evaluate any effects of the discharge in the Peace River.

If an acute toxicity test failure occurs and water quality sampling was not performed in the Peace River on the date of the toxicity test failure, the potential effects of the discharge on the water quality in the IDZ are modelled using the site-specific mixing model developed for the RSEM IDZs (Ganshorn *et al.* 2017). The background water quality (general parameters, metals) in the Peace River required for modelling is estimated based on historical data during similar environmental conditions (seasonal flow and turbidity), and the pond water quality is provided by PRHP, who collect water

quality samples daily from the RSEM sediment ponds provided there is sufficient water for sample collection.

3.2. Peace River Water Quality

3.2.1. Peace River and RSEM IDZ Surface Water Quality Sampling

The only RSEM ponds to discharge directly to the Peace River in 2018 were R5b and R6. Therefore, the following sections describe the methods used to monitor water quality in the Peace River as it relates to discharge from these ponds.

3.2.1.1. Monthly and 5 in 30-day Surface Water Quality Sampling

Monthly and 5 in 30-day water quality sampling (five evenly spaced sampling events over 30 days performed twice per year, once during clear flow and once during turbid flow) were conducted during periods of RSEM pond discharge in 2018. Sampling consists of collecting measurements in the field with *in-situ* water quality meters, and collection of water quality samples for laboratory analysis. *In-situ* and laboratory sampling procedures, chain of custody procedures, and QA/QC procedures adhered to the guidelines of the British Columbia Field Sampling Manual (Clark 2002). In addition, data screening and management followed the QA/QC procedures outlined in Section 3.2.2. Typically, triplicate readings were collected for *in-situ* data and a duplicate lab sample was collected at one site on each sampling date. Field blanks and travel blanks were also collected on each sampling date.

The full suite of laboratory parameters as specified in Section 7.3.2 of the ARD ML Management Plan (BC Hydro 2016) (physical parameters, nutrients, anions, total metals and dissolved metals) were sampled monthly when the RSEM ponds were discharging. The same parameters were also sampled for the 5 in 30-day sampling, and wherever possible, monthly sampling was used to also fulfil one or more of the 5 in 30-day sampling requirements. These parameters are consistent with those being measured by PRHP in the RSEM ponds. Peace River monthly and 5 in 30-day sampling was coordinated with the daily RSEM pond sampling done by PRHP such that samples were collected at approximately the same time, and during periods of pond discharge to the river.

The following monthly and 5 in 30-day sampling site locations were sampled in the Peace River to monitor discharge from each of the RSEM R5b and RSEM R6 ponds: a control site upstream of the Site C instream works in the Peace River (Peace 03), two far-field locations downstream of the construction footprint on the right bank and left bank of the Peace River (MOE far-field downstream sites), and for each RSEM pond an additional upstream site located 5 m upstream of the discharge point and an initial dilution zone (IDZ) monitoring site located at the edge of the IDZ (100 m downstream of the discharge point) (Table 6, Map 1).

RSEM R5b and R6 background sites (5 m upstream of the discharge) were initially identified by KCB and SNCL (2016a, 2016b). However, field verification identified that these sites were not always appropriate for background data collection depending on mixing conditions. Therefore, the RSEM R5b 5 m upstream site, and to a lesser extent the RSEM R6 5 m upstream site, are

occasionally relocated to an alternate site as required to capture representative background conditions in the Peace River (e.g. during periods of low Peace River flow in which a back eddy condition occurs).

In-situ measurements and laboratory samples were collected 10 to 15 cm below the surface of the water to avoid surface contamination from airborne particulate and approximately 1 m from shore, except for at the Peace 03 site. Samples were collected mid-channel at the Peace 03 site to provide upstream Peace River background data upstream of the confluence of the Moberly River and the Peace River.

Monthly sampling is conducted during months where discharge occurs from the ponds. In January 2018 both RSEM R5b and RSEM R6 ponds were frozen and no discharge occurred. Water quality monitoring commenced once the ponds had thawed out and discharge to the Peace River was initiated (Table 3). In 2018 monthly sampling commenced in February for RSEM R6 and in March for RSEM R5b (Table 3). The 5 in 30-day sampling for RSEM R5b was completed during turbid flows from May 3 to May 31, 2018 and during clear flows from October 1 to 30, 2018. The RSEM R6 pond was not discharging during most of the turbid flow period, therefore 5 in 30-day sampling was only completed during clear flow conditions from October 1 to 30 (Table 3).

Detailed monthly reports were issued for each month of 2018; these reports provide water quality data summary tables, figures, and sampling details to meet the monthly reporting requirement outlined in Section 7.5.3 of the ARD ML Management Plan (BC Hydro 2016). For the purpose of this annual report, a table of summary statistics (average, minimum, maximum and standard deviation) is provided for each sample site that considers all of the data collected at that site in 2018. Replicate samples (duplicates and triplicates) were averaged prior to calculating the summary statistics. Parameters with a concentration below the method detection limit (MDL) were assumed to have a concentration equal to the MDL for calculation of the summary statistics.

In the summary statistics tables, the annual average, minimum, and maximum values for each parameter were screened against the applicable short-term maximum BC WQG (MOE 2018, Appendix A). The annual average values for each parameter were also screened against the applicable long-term (30-day average) BC WQG (MOE 2018, Appendix A).

A number of water quality parameters have BC WQG that are calculated based on an equation (denoted by "EQ" in the summary tables) that depends on the value of another parameter (e.g., pH, hardness (as $CaCO_3$), or chloride). In this case, to apply the short-term BC WQG, the annual minimum and maximum values are screened against the short-term BC WQG calculated based on the pH, hardness, or chloride as measured in the same sample that is associated with the minimum or maximum values.

To apply the long-term BC WQGs, when the guideline is an equation, the annual average values are screened against the short-term and long-term BC WQG calculated using the average pH, hardness, or chloride values based on all data collected at a sampling site in 2018. In the summary statistics

tables, blue shading indicates an exceedance of the short-term maximum BC WQG, and yellow shading indicates an exceedance of the long-term BC WQG.

Illustrative time series figures depicting monthly and 5 in 30-day data collected at each sampling site for each parameter sampled in 2018 were also completed for this annual report (Appendix B), with separate figures for RSEM R5b and RSEM R6. RSEM pond water quality results (sampled by PRHP, analyzed by Maxxam Analytics) were also included for each sampling date in the time series figures. Parameters with a concentration below the MDL were assumed to have a concentration equal to the MDL for the purpose of generating the figures. It should be noted that for some of the parameters, the MDL used for the pond water quality analysis was different than the MDL used for the Peace River water quality analysis as two different laboratories are used for these analyses (pond water quality analyses contracted by PRHP to Maxxam Analytics, whereas Peace River water quality analyses contracted by Ecofish on behalf of BC Hydro to ALS Environmental).

Table 3. Monthly and 5 in 30-day water quality sampling dates and Peace River background turbidity (clear/turbid/very turbid).

Month (2018)	Pond	Sampling Type	Date (2018)	Background Clear/Turbid Flow in Peace River[1]		
				Peace River Upstream[2] (PAM-LB and PAM-RB)	RSEM R5b Upstream[3]	RSEM R6 Upstream[3]
Feb	R6	Monthly	23-Feb	Clear	-	Clear
Mar	R6	Monthly	23-Mar	Clear	-	Clear
	R5b	Monthly	30-Mar	Clear	Clear	-
Apr	R5b,R6	Monthly	19-Apr	Clear	Clear	Clear
May	R6	Monthly	03-May	Very Turbid	-	Very Turbid
	R5b	Monthly/ 5 in 30 day	03-May	Very Turbid	Very Turbid	-
			08-May	Very Turbid	Very Turbid	-
			16-May	Very Turbid	Very Turbid	-
			24-May	Turbid	Very Turbid	-
			31-May	Turbid	Very Turbid	-
Jun	R5b,R6	Monthly	08-Jun	Turbid	Turbid	Turbid
Jul	R5b,R6	Monthly	12-Jul	Clear	Clear	Clear
Aug	R5b,R6	Monthly	15-Aug	Clear	Clear	Clear
Sep	R5b,R6	Monthly	19-Sep	Clear	Clear	Clear
Oct	R5b,R6	Monthly/ 5 in 30 day	01-Oct	Clear	Clear	Clear
			09-Oct	Clear	Clear	Clear
			15-Oct	Clear	Turbid	Clear
			23-Oct	Clear	Clear	Clear
			30-Oct	Clear	Clear	Clear
Nov	R5b,R6	Monthly	13-Nov	Clear	Clear	Clear
Dec	R5b	Monthly	10-Dec	Clear	Clear	-

[1] Clear flow: Peace River TSS ≤ 25 mg/L; Turbid flow: Peace River TSS > 25 mg/L and ≤ 100 mg/L; Very Turbid: Peace River TSS > 100 mg/L.

[2] Peace River upstream background TSS is obtained from the daily average turbidity recorded from continuous turbidity gauges installed at PAM-LB and PAM-RB and the site specific TSS:Turbidity relationship.

[3] RSEM R5b upstream (RBPR-5.60,5.65,5.69 and 5.70) and R6 upstream (RBPR-7.05) TSS is obtained from ALS laboratory data for each sampling date.

A dash (-) indicates that data were not collected at these sites on the sampling date.

3.2.1.2. Peace River Background TSS

The RSEM ponds have EOP limits for TSS, and the continuous turbidity gauges installed on the left and right bank of the Peace River upstream of the confluence with the Moberly River (PAM-LB and PAM-RB respectively, Map 1) are used to inform PRHP of the Peace River background TSS twice daily via automated email as per Section 2.1 in BC Hydro (2017). After both gauges have transmitted data logged at 06:00 MST, the average of all of the turbidity data collected over the previous 12 hours from both the left and right bank PAM turbidity gauges is used to estimate the Peace River background TSS, which is automatically emailed to PRHP, BC Hydro, and Ecofish personnel. Similarly, this is done for the previous 12 hours after both gauges have transmitted data logged at 18:00 MST.

In order to estimate the background Peace River TSS that are provided in the automated emails, TSS:turbidity relationships developed over the course of monitoring are used to estimate TSS concentrations from the turbidity data logged by the monitoring stations. Note that background TSS data are reported by PRHP and are not included in this report.

This relationship between TSS and turbidity is dynamic and depends upon a variety of factors, including snowmelt and precipitation driven changes in the relative contributions of various sediment sources, as well as hydrology related changes in the sediment carrying capacity of the Peace River (MOE 2018). As such, a site-specific TSS:turbidity relationship has been developed for the Peace River over a range of flow and turbidity conditions and this relationship is updated regularly with additional *in-situ* turbidity measurements and laboratory analysed TSS samples to ensure the relationship reflects current conditions.

In 2018, a total of 48 water samples were collected from March 14 to November 1, 2018 in the Peace River for laboratory analysis of TSS. These samples were collected across six monitoring sites where continuous turbidity loggers are present.

These lab-analyzed TSS data (and 4 additional samples from December 2017) were paired with data from the real time turbidity loggers to determine the TSS:turbidity ratio of each paired sample. The TSS:turbidity ratios of these individual samples were then plotted over time to identify whether shifts in the relationship had occurred. For each period identified, data from within that period are combined and analyzed to determine the appropriate relationship. The analysis of this TSS:turbidity ratio consists of using either a linear model with site specific interactions (if Tukey post hoc tests shows that this ratio differs amongst sites) or if there is no clear evidence of site-specific interactions, then a single common linear relationship is used.

3.2.1.3. BC WQG Exceedance Evaluation and Exceedance Notifications

To determine if an exceedance of the BC WQG (short-term maximum and long-term average) observed at the Peace River IDZ monitoring sites is related to the RSEM pond discharge, or alternately, is naturally occurring, the following steps are taken upon collection of *in-situ* data and upon receipt of laboratory data:

1. The RSEM pond discharge logs (kept by PRHP) are reviewed; if there is no discharge corresponding to the exceedance (including discharge residence time), it is assumed that the exceedance was naturally occurring.
2. The IDZ monitoring result is compared to the Peace River upstream location data (RSEM R5b upstream or RSEM R6 upstream).
3. The IDZ monitoring value is compared to the RSEM pond data (pond data are provided by PRHP/ Maxxam Analytics).
4. If the IDZ monitoring result is higher than the RSEM pond data, then it is assumed that the exceedance was naturally occurring.
5. If the IDZ monitoring result is lower than the RSEM pond data, and the pond data exceeds the Peace River upstream data, then it is assumed that the exceedance was attributed to the RSEM pond and in accordance with the ARD ML Management Plan requirements (BC Hydro 2016), an Exceedance Notification memorandum is issued to BC Hydro immediately (within 24 hours):
    a. Prior to composing the Exceedance Notification memorandum, BC Hydro will be notified immediately following identification of the exceedance.
    b. In the Exceedance Notification memorandum, the data are evaluated in the context of the corresponding water quality monitoring results for the Peace 03 upstream site, the two far-field downstream sites, as well as historical water quality data for the Peace River (Golder 2012, Ganshorn *et al.* 2018a).
    c. The Exceedance Notification memorandum is distributed by BC Hydro to one or more representatives of each of the following parties: the Project's Independent Environmental Monitor (EDI Environmental Dynamics Inc.), BC Government (Ministry of Environment and Office of the Comptroller of Water Rights), PRHP, and PRHP's ARD Qualified Professional (Lorax Environmental).
    d. Exceedance Notification summary tables including the distribution list, are also provided as required in the applicable monthly report that Ecofish prepares for BC Hydro.

3.2.2. QA/QC

To ensure accurate and reliable results, all data collection and analyses undergo rigorous QA/QC. *In-situ* measurements are recorded in triplicate for each parameter. *In-situ* meters are maintained and calibrated as per manufacturer's guidelines; repair and calibration data are recorded and stored in a detailed log. QA/QC replicates (duplicates/triplicates), travel blanks, and field blanks are included in water quality sampling for laboratory analysis as required based on sampling frequency. Laboratory

sample analysis is completed by ALS Environmental[6], an accredited analytical laboratory with an ISO 9001:2008 and Canadian Association for Laboratory Accreditation certification. All samples are transported under standard chain of custody procedures and comprehensive QC checks are completed by the laboratory with every analysis.

Data are entered into EcoDAT, our proprietary data management system, where comprehensive manual and automated QA/QC procedures are implemented. Sample data and QA/QC results are evaluated based on the BC Guidelines for Interpreting Water Quality Data (RISC 1998) and British Columbia Field Sampling Manual (Clark (2002).

The overall QA/QC objectives for the program were established based on Clark (2002) and RISC (1998):

- % QA/QC samples (e.g., replicates, field blanks and travel blanks) collected should be at least 10% of the overall sampling program (Clark 2002).
- Field and travel blanks detections (value greater than the ALS method detection limit (MDL)) should not exceed 5% of all parameter results, not including pH which is detectable in both samples and blanks.
- Precision between duplicates are expected to meet the Clark (2002) guidelines, unless variability between replicates is a natural occurrence (e.g., during highly turbid flow TSS, metals and turbidity may be highly variable or mixing between the Moberly River and Peace River flows may cause variability):
    - Relative percent deviation (RPD) between duplicates should be <20%; and
    - This metric is only calculated if at least one of the replicates was >5 x MDL.
- Precision between triplicates are expected to meet the RISC 1998 guidelines, unless variability between replicates is a natural occurrence (e.g., during highly turbid flow TSS, metals and turbidity may be highly variable or mixing between the Moberly River and Peace River flows may cause variability):
    - Relative standard deviation (RSD) between triplicates should be <18%; and
    - This metric is only calculated if at least one of the replicates was >5 x MDL.
- The cation - anion balance (%) should be <10% for samples that include the necessary major anions and cations for this calculation. The total anion sum and cation sum are expected to be within 10% of each other (ALS 2017).

[6] RSEM pond water quality data provided by PRHP were analyzed by Maxxam Analytics using their own analysis and QA/QC protocols.

- Considering the paired dissolved and total metals parameters, the dissolved metals (D-metals) concentration should be <1.2 * the total metals (T-metals) concentration. This metric was calculated if the D-metal concentration was at least 5 x >MDL.

Additional QA/QC checks and procedures in 2018 included:

- Review of field data sheets, QA/QC of *in-situ* and toxicity data manually entered into EcoDAT;
- Review of electronically uploaded ALS Environmental laboratory data;
- Review of laboratory hold time exceedances and sample qualifiers, the hold time for pH is 15 minutes and therefore exceedance of this hold time is unavoidable for all field samples; and
- Review of *in-situ* measurements and corresponding laboratory results for pH, turbidity and specific conductivity. Date are evaluated to ensure that they are comparable. It is expected that these values will vary due to differences in analytical methods and precision between *in-situ* meters and laboratory instruments, therefore this comparison, completed by a Qualified Professional is largely qualitative ensuring that values measured in the field and in the lab are within reasonable agreement.

Laboratory hold time exceedances, sample qualifiers, field and travel blank results, and precision between replicates were reviewed by a Qualified Professional for QA/QC issues that may affect interpretation of the data presented in each of the 2018 monthly sampling reports. Duplicate laboratory results were provided individually in the monthly report summary tables for each sampling date for transparency; and error bars were included in the illustrative figures where duplicate data were available.

4. RESULTS

4.1. RSEM Pond Acute Toxicity

The RSEM pond acute toxicity testing (Rainbow Trout 96-hour LC50) summary results tables are provided in Appendix A. Sampling results for each constructed RSEM pond are summarized below.

4.1.1. RSEM R5a

In 2018 the three toxicity samples collected from three cells in RSEM R5a pond (A, C, and D) passed the acute toxicity test. No acute toxicity testing was conducted on water from cell B as there was insufficient water for sample collection on the sample date.

4.1.2. RSEM R5b

In 2018, 12 of 13 toxicity samples collected the RSEM R5b pond passed the acute toxicity test. Details for tests conducted outside of the regular sampling schedule specified in Appendix E of the CEMP (BC Hydro 2016) are provided below.

In May 2018, collection of three bi-weekly acute toxicity samples from RSEM R5b were mandated by the Deputy Comptroller of Water Rights (FLNRORD 2018) to address concerns regarding EOP limit exceedances for T-Cd and T-Zn in the RSEM pond water. All three of these acute toxicity samples were collected in May 2018, and each passed the toxicity test. The results were reported on in a memorandum prepared for BC Hydro on June 20, 2018 (Shelley *et al.* 2018). No toxicity samples were collected in June 2018, and sampling reverted back to a quarterly schedule in August 2018. A toxicity sample was collected from RSEM R5b on August 16, and the test passed.

On September 9, 2018, *in-situ* monitoring conducted by PRHP indicated that the pH of the RSEM R5b pond discharge water was below the EOP discharge limits, following heavy (~50 mm) rains on Sept 8, 2018. In response, Ecofish collected a pond water sample representative of this discharge on September 9, 2018 at 10:35 am for acute toxicity testing. The sample did not pass the acute toxicity test: no fish survived in the undiluted and 50% volume/volume (v/v) diluted pond water, while 40% of the fish survived in the 25% v/v dilution. The LC_{50} (i.e., the concentration at which there is mortality in 50% of the fish) is estimated to be 23.3% v/v (i.e., the pond water must be diluted by >3:1 to be not acutely toxic to Rainbow Trout). As a result of the toxicity test failure, three rounds of bi-weekly sampling commenced on September 25, 2018, in accordance with the Appendix E of the CEMP (BC Hydro 2016), with all tests passing.

4.1.3. RSEM R6

In 2018, all 18 toxicity samples (9 samples from each of the west and east basins) passed the acute toxicity test.

4.1.4. RSEM L5

Neither pond (RSEM L5E and RSEM L5W) discharged water to the Peace River in 2018. Nevertheless, in 2018 a single acute toxicity sampling event was completed for both RSEM L5 ponds (L5E and L5W) on July 26, 2018 when the ponds were partially constructed and holding water and the samples passed the acute toxicity test.

Currently no additional toxicity testing is scheduled for RSEM L5. However, when discharge is anticipated in the future, bi-weekly toxicity testing will be initiated as per the CEMP requirements.

4.1.5. Acute Toxicity Test Failure Notification and Evaluation

In 2018, a single acute toxicity test failure occurred for a sample collected on September 9, 2018 from the RSEM R5b pond as described in Section 4.1.2. The test began in the laboratory on September 13, 2018 and the final, formal laboratory report documenting the test conditions and results was provided to BC Hydro via email on September 19, 2018.

It was determined that the most likely cause of the test failure was high concentrations of dissolved aluminium in conjunction with low pH (Ganshorn *et al.* 2018b). Ecofish modelled the effects of this discharge on Peace River water quality using a field-calibrated dilution model for the RSEM R5b IDZ (Ganshorn *et al.* 2018b). The results of this model suggest that total copper, total zinc, dissolved aluminium, and dissolved cadmium variously exceeded BC WQG within the IDZ from

September 9 to 20, 2018. However, model results also predict that BC WQG were achieved for all parameters within 20-75 m of the discharge point (Table 4). This distance may extend during the lowest Peace River flows, as the exposed riverbed (25 m long) and an associated backeddy (20-50 m long) can interrupt mixing.

Dilution modelling suggests that IDZ water quality may have exceeded toxicity thresholds for fish and invertebrates (based on 96 hr exposure data in the literature) for the first 2–34 m of the IDZ under the worst-case condition following the rain event (Ganshorn *et al.* 2018b). However, these effects are likely an overestimate due to conservative assumptions throughout our analysis, a shorter actual exposure period, and the ability of these biota to disperse from the small exposure zone.

Table 4. Modelled concentrations of key parameters in the RSEM R5b IDZ of the Peace River, under the worst-case scenario (September 9, 2018 11:45 to 23:55).

Parameter	Background Concentration (mg/L)[1]	RSEM R5b Pond Concentration (mg/L)[2]	Predicted Concentration (mg/L) in the Peace River IDZ									BC WQG Max[3] (mg/L)
			Distance Downstream of R5b Discharge (m)									
			2	5	10	15	25	40	50	75	100	
Period: Sept 9 at 11:45 - Sept 9 at 23:55; Peace River Flow 477 m^3/s; Pond Discharge 0.039 m^3/s												
pH (pH units) lab	8.27	5.25	-	-	-	-	-	-	-	-	-	6.5 - 9
Hardness (as $CaCO_3$)	109.0	552.0	490.0	261.4	185.2	159.8	139.5	128.1	124.2	119.2	116.6	
Alkalinity, Total (as $CaCO_3$)	109.0	1.0	16.1	71.8	90.4	96.6	101.6	104.4	105.3	106.5	107.1	
T-Cadmium (Cd)	0.00007	0.00670	0.005772	0.00235	0.00121	0.00083	0.00052	0.00035	0.00029	0.00022	0.00018	
T-Cobalt (Co)	0.004	0.103	0.089	0.038	0.021	0.015	0.010	0.008	0.007	0.006	0.005	0.110
T-Copper (Cu)	0.003	0.101	0.087	0.037	0.020	0.014	0.010	0.007	0.006	0.005	0.005	0.012
T-Zinc (Zn)	0.009	1.180	1.016	0.412	0.211	0.144	0.090	0.060	0.050	0.036	0.030	0.047
D-Aluminum (Al)	0.033	2.780	2.396	0.978	0.506	0.348	0.222	0.151	0.128	0.096	0.081	0.100
D-Cadmium (Cd)	0.00001	0.00674	0.00580	0.00233	0.00117	0.00079	0.00048	0.00030	0.00025	0.00017	0.00013	0.00064

[1] Background data were compiled from 4 previous sampling events under similar Peace River flows and turbidity at the R5b upstream site (RBPR-5.65 or RBPR 5.70). The most conservative (maximum) observed values were selected for dilution calculations and BC WQG application.

[2] Pond data were provided by Maxxam Analytics from sample collected by PRHP.

[3] BC WQG which are dependent on pH or hardness were calculated using the most conservative historical data for similar conditions of flow and turbidity in comparison to that measured during the discharge from RSEM R5b. These estimates were conservative and resulted in the most stringent guidelines values. Note that the D-Al BC WQG is 0.1 mg/L unless the pH is ≤6.5 at which point an equation is used. In the Peace River the pH is assumed to be greater than 6.5 therefore the applicable BC WQG is 0.1 mg/L.
Yellow shading indicates exceedance of the BC WQG (short-term maximum, MOE 2018). BC WQG are only applied to the predicted Peace River data.

Blue shading indicates exceedance of the Site C EOP Limits pH (6.0 to 9.0); T-Cd 0.00029 mg/L; T-Co 0.55 mg/L; T-Cu 0.011 mg/L, T-Zn 0.033 mg/L) (Table 2, Appendix E (Rev 4) of the CEMP). EOP limits are only applied to the pond data

4.2. Peace River Water Quality Downstream of each RSEM

4.2.1. Peace River and RSEM IDZ Surface Water Quality Sampling

4.2.1.1. Monthly and 5 in 30-day Surface Water Quality Sampling

Annual *in-situ* and laboratory water quality data summary tables based on data collected for monthly and 5 in 30-day sampling in 2018 are provided in Appendix A; separate tables are provided for each sampling site (Peace 03, RSEM R5b upstream, RSEM R5b IDZ, RSEM R6 upstream, RSEM R6 IDZ, and two far-field downstream sites). Annual average, minimum, maximum, and standard deviation for each parameter are provided in the tables. Data were screened against the long-term and short-term BC WQG for the protection of aquatic life, and exceedances are highlighted in the summary tables. Exceedances are discussed in Section 4.2.1.3.

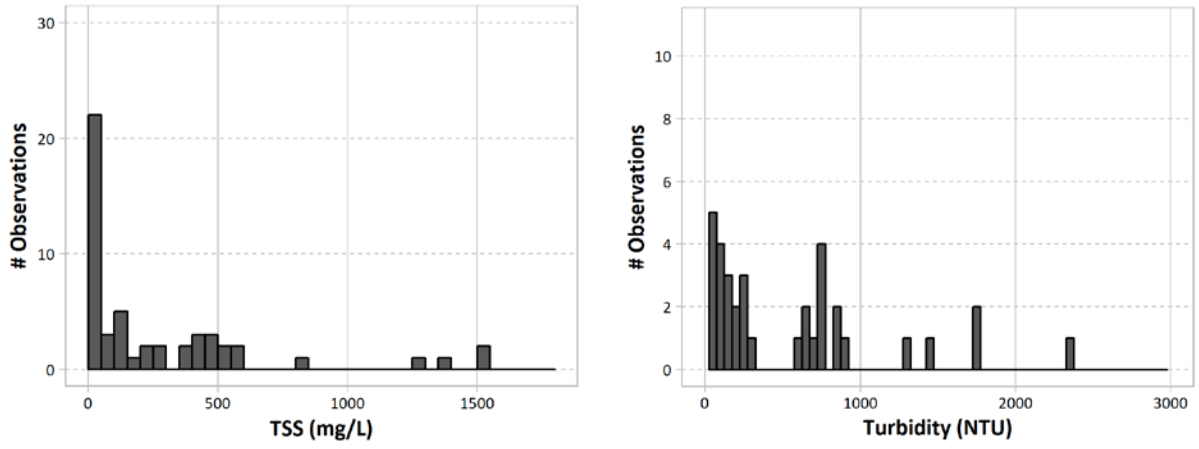
Annual time series bar plots for each water quality parameter based on data collected for monthly and 5 in 30-day sampling in 2018 are provided for RSEM R5b in Appendix B, and for RSEM R6 Appendix C. Applicable BC WQG and Site C EOP limits for each parameter are shown in the figures along with the corresponding RSEM pond water quality data (from PRHP) for each monthly and 5 in 30-day sampling date. These figures illustrate patterns in Peace River and RSEM pond water quality over the course of 2018.

4.2.1.2. Peace River Background TSS

The RSEM ponds have EOP limits for TSS, and the continuous turbidity gauges installed on the left and right bank of the Peace River upstream of the confluence with the Moberly River (PAM-LB and PAM-RB respectively, Map 1) are used to inform PRHP of the Peace River background TSS twice daily via automated email as per Section 2.1 in BC Hydro (2017). In order to do this, TSS:turbidity relationships developed over the course of monitoring are used to estimate TSS concentrations from the continuous turbidity data loggers, and the relationship used in 2018 is documented below. Note that background TSS data are reported by PRHP and are not included in this report.

TSS data from the Peace River extending back to early 2017 show that the TSS:turbidity ratio was high prior to December 2017 and then declined to a range which has persisted throughout 2018. Thus, data collected from December 15, 2017 to November 1, 2018 were used to determine the TSS:turbidity relationship in the Peace River for the 2018 reporting period. This dataset includes 52 samples collected over 11 dates including 48 samples from 10 dates in 2018. These data encompass a wide range of turbidity (4 NTU to 2,365 NTU) and TSS (3 mg/L to 1,535 mg/L) observations (Figure 1).

Figure 1. Range of TSS and turbidity in the observations used to determine the TSS:turbidity ratio for the current reporting period (2018). TSS ranged from 3 mg/L to 1,535 mg/L, while turbidity ranged from 4 NTU to 2,365 NTU.



These data were analyzed using a linear model that allowed site specific interactions in order to determine whether the TSS:turbidity relationship differed across sites. These results found that the TSS:turbidity relationship varied from 0.64:1 to 0.82:1 across the six sites (Figure 2). Tukey post hoc tests found that the relationship at PAM-RB (0.64:1) was significantly lower than at some other sites. However, given the overall similarity of these relationships, the low sample sizes at individual sites (n = 6 to 9) and the high leverage of a single value at PAM-RB, the decision was made to continue with a single combined relationship for the Peace River until stronger evidence of site-specific differences is available.

Proceeding with a linear model common to all sites in the Peace River, a combined TSS:turbidity relationship of 0.73:1 was found (i.e., TSS = 0.73*Turbidity, Figure 3). This relationship has strong agreement amongst the data (R^2 = 0.97). Thus, this TSS:turbidity relationship of 0.73:1 has been applied for the entire 2018 reporting period.

Figure 2. Site-specific relationships between turbidity and TSS. Tukey post hoc tests found that the relationship at PAM-RB (0.64:1) was significantly lower than some other sites (0.65 to 0.82:1). Shaded areas are 95% confidence intervals.

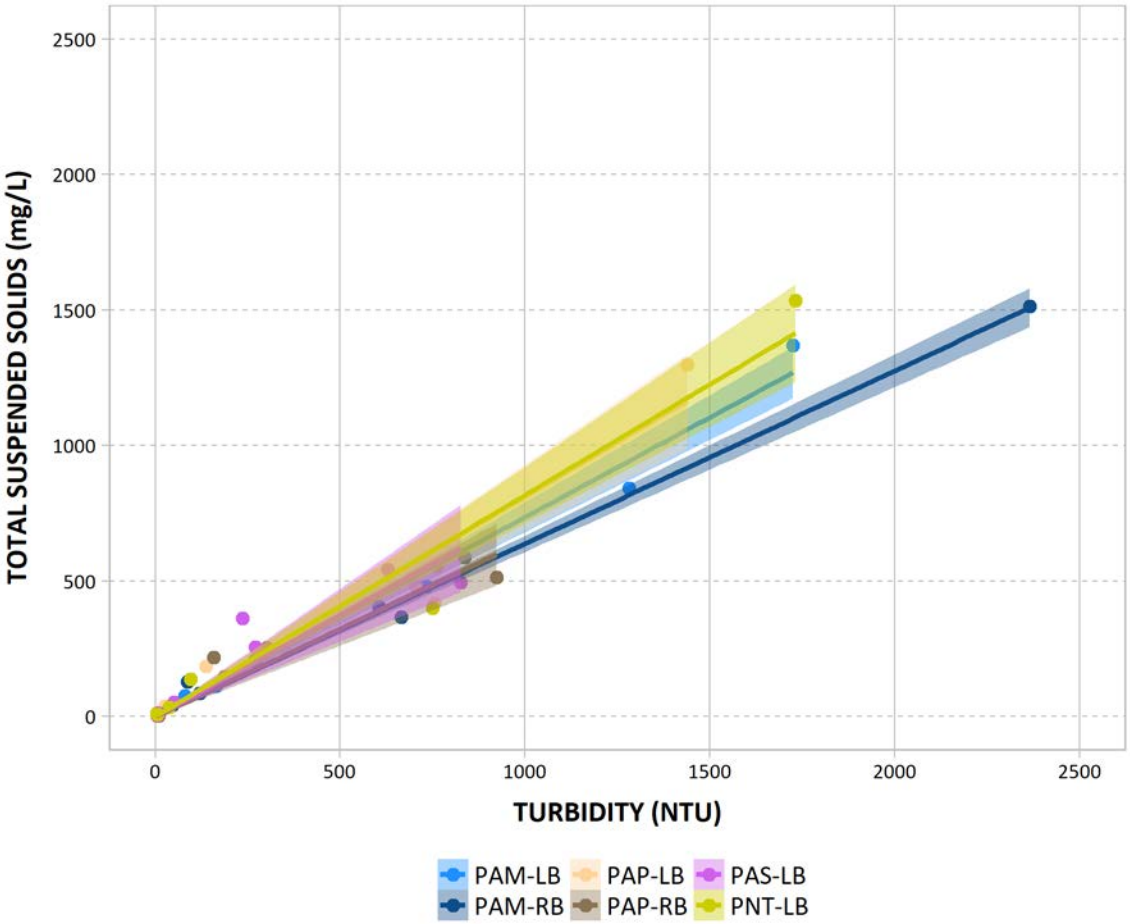
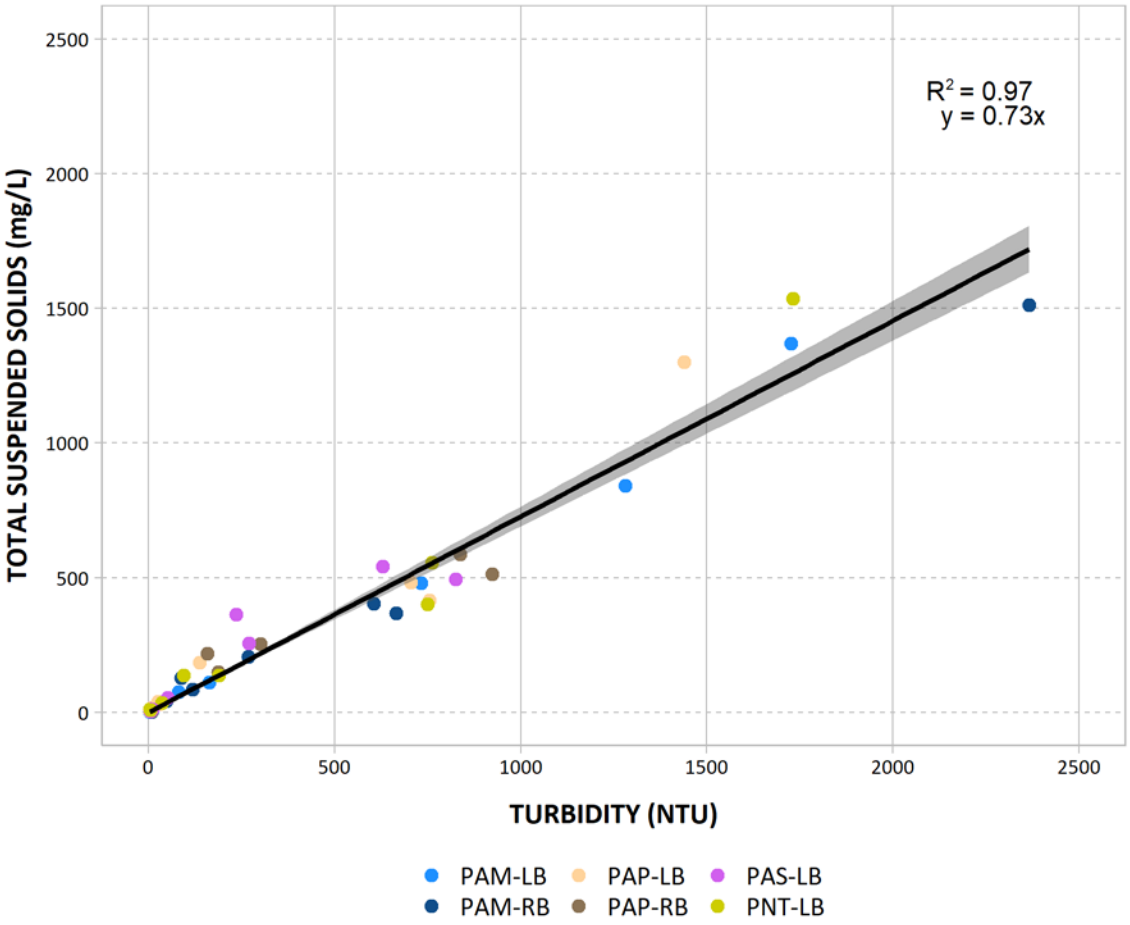


Figure 3. Combined relationship for TSS:turbidity in the Peace River for 2018. Shaded areas are 95% confidence intervals.



4.2.1.3. BC WQG Exceedances

In the monitoring conducted in 2018, there were no observations of exceedances in the Peace River of the BC WQG for the protection of aquatic life that were related to discharge of water from the RSEM ponds. Similar to 2017 (Ganshorn *et al.* 2018a) and baseline monitoring (Golder 2012), there were natural exceedances in the Peace River of the BC WQG for the protection of aquatic life. Natural exceedances occurred predominantly during the freshet period (April to the end of June), were observed at all sample sites, and were associated with elevated concentrations of suspended sediment in the Peace River. The BC WQG exceedances shown on the tables in Appendix A and on the graphs shown in Appendix B and Appendix C are all natural exceedances.

4.2.2. QA/QC

Overall QA/QC objectives were met in 2018. All QA/QC issues were reviewed and no data were excluded due to QA/QC failures in 2018 with the exception of one set of replicate data for ammonia, orthophosphate, D-phosphorous and T-phosphorous collected at the RSEM R5b IDZ site on May 31, 2018. These parameters were flagged as outliers in summary tables and removed from further data analysis due to low precision between duplicates (RPD>>20%) and comparison to the historical range for each parameter.

The results of the QA/QC checks and procedures completed in 2018 are provided in summary tables in Appendix D. The number of QA/QC laboratory samples (19 replicates, 20 field blanks, and 20 travel blanks) comprised 36% of the overall sampling program based on the total number of monthly and 5 in 30-day samples collected in 2018 (59/164 samples). The number of QA/QC *in-situ* measurements is 66% (2/3) based on the triplicate measurement for each parameter. Overall, sampling in 2018 has surpassed the QA/QC objective of at least 10% QA/QC effort.

The 2018 field blank and travel blank results were non-detectable (below the MDL) for 98.5% of the data (29/2943) set thereby meeting the QA/QC objective of >95% non-detectable results for field and travel blanks (Appendix D).

On occasion, hold times were exceeded for D-orthophosphate, nitrite, nitrate, and turbidity in 2018 due to field sampling logistics, shipping delays, ALS backlog and ALS equipment issues. Results were reviewed to ensure parameter values were consistent with previous sampling results, and no data were flagged in 2018 due to hold time exceedances. All hold time exceedances which occurred in 2018 are summarized in Appendix D, with the exception of pH which has a hold time of only 15 minutes (laboratory analysis within this time frame is not practical).

Elevated variability between duplicate samples (RPD > 20%) and triplicate samples (RSD > 18%) was observed on a number of occasions for TSS, TDS, turbidity, dissolved organic carbon, hardness, and total and dissolved metals, predominantly during turbid flow conditions. Variability in excess of the QA/QC objective thresholds occurred on 49 of 1,718 occasions (2.9%) for duplicate samples and 3 of 1,108 occasions (0.3%) for *in-situ* samples (Appendix D).

The cation-anion balance was less than 10% in all samples. The majority of dissolved/total metal parameter pairs (99.7% or 4,962 out of a total of 4,975 parameter pairs), met the QA/QC objective: the concentration of D-metals was <1.2 * the concentration of T-metals (data summary is provided in Appendix D).

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APPENDICES

Appendix A. Site C PAG Contact RSEM Surface Water Quality Monitoring Data Tables

Table 5. Peace River continuous turbidity gauge site description and coordinates, data from gauges were used to estimate background TSS concentrations in the Peace River commencing in September 2017.

Site Name[1]	Description	UTM Coordinates (Zone 10V)	
		Easting (m)	Northing (m)
PAM-LB	Continuous turbidity gauge installed in the Peace River above Moberly River - Left Bank	627,684	6,232,396
PAM-RB	Continuous turbidity gauge installed in the Peace River above Moberly River - Right Bank	627,221	6,232,276

Table 6. Peace River water quality monitoring site descriptions and coordinates, 2018.

Site Name[1]	Site Common Name	Description	UTM Coordinates (Zone 10V)	
			Easting (m)	Northing (m)
PR-3.88	Peace 03	In the Peace River upstream of the confluence with the Moberly River.	628,027	6,231,374
RBPR-5.60	R5b Upstream Alternate #1	In Peace River, downstream of the Moberly River confluence with the Peace River. Alternate R5b upstream sample location established to avoid back eddy effects at the R5b discharge.	629,055	6,229,994
RBPR-5.65	R5b Upstream Alternate #4	In Peace River, downstream of the Moberly River confluence with the Peace River. Alternate R5b upstream sample location was sampled as water was shallow at the primary monitoring site (RBPR-5.70).	629,101	6,229,966
RBPR-5.69	R5b Upstream Alternate #2	In Peace River, downstream of the Moberly River confluence with the Peace River. Alternate R5b upstream location was sampled to avoid back eddy effects and shallow water at the primary monitoring site (RBPR-5.70).	629,079	6,229,932
RBPR-5.70	R5b Upstream	In Peace River, downstream of the Moberly River confluence with the Peace River, 5m upstream of the R5b discharge channel.	629,056	6,229,883
RBPR-5.81	R5b IDZ	In the Peace River, 100m downstream of R5b discharge channel.	629,135	6,229,813
RBPR-7.05	R6 Upstream	In the Peace River, 5m upstream of the R6 discharge channel.	630,283	6,229,254
RBPR-7.15	R6 IDZ	In the Peace River, 100m downstream of the R6 discharge channel.	630,383	6,229,259
LBPR-9.34	MOE far-field downstream left bank	In the Peace River, downstream of the project.	632,498	6,229,678
RBPR-9.34	MOE far-field downstream right bank	In the Peace River, downstream of the project.	632,614	6,229,369

[1] Site names follow a river chainage convention with the exception of PAM-LB and PAM-RB. The numbers in the site name indicate the distance (in km) downstream of the W.A.C. Bennett Dam less 100 km. River chainages at each site are measured perpendicular to the Peace River center line, obtained from the BC government GIS data set.

Table 7. RSEM R5a pond toxicity sampling, 2018 results.

Year	Date	Site[1]	Sampling Schedule	96 hr LC50 % (v/v)
2018	1-May	RSEMR5aA-SPTOX	Single Event	>100
		RSEMR5aC-SPTOX	Single Event	>100
		RSEMR5aD-SPTOX	Single Event	>100

Note >100% (v/v) indicates toxicity test passed.

[1] The acute toxicity sample is collected from the RSEM pond (as indicated by SP in the site name). No discharge occurred from RSEM R5a in 2018.

Table 8. RSEM R5b pond toxicity sampling, 2016 - 2018 results.

Year	Date	Site[1]	Sampling Schedule	96 hr LC50 % (v/v) [95% CL]
2016	30-Nov	RSEMR5B-SPTOX	First bi-weekly	>100
	14-Dec	RSEMR5B-SPTOX	Second bi-weekly	>100
2017	5-Jan	RSEMR5B-SPTOX	Third bi-weekly	>100
	2-Feb	RSEMR5B-SPTOX	Monthly	>100
	3-Mar	RSEMR5B-EOPTOX	Monthly	>100
	3-Apr	RSEMR5B-EOPTOX	Monthly	>100
		RSEMR5B-DISCHAN	Adaptive Management	>100
	3-May	RSEMR5B-EOPTOX	Monthly	>100
	8-Jun	RSEMR5B-EOPTOX	Monthly	>100
	12-Jul	RSEMR5B-EOPTOX	Monthly	>100
	9-Aug	RSEMR5B-EOPTOX	Monthly	>100
	21-Sep	RSEMR5B-EOPTOX	Monthly	>100
	25-Oct	RSEMR5B-EOPTOX	Monthly	>100
	21-Nov	RSEMR5B-EOPTOX	Quarterly	>100
2018	13-Feb	RSEMR5B-SPTOX	Insufficient water level	
	1-Mar	RSEMR5B-SPTOX	Insufficient water level	
	14-Mar	RSEMR5B-SPTOX	[2]First bi-weekly	>100
	28-Mar	RSEMR5B-SPTOX	Second bi-weekly	>100
	11-Apr	RSEMR5B-EOPTOX	Third bi-weekly	>100
	11-May	RSEMR5B-EOPTOX	Mandated testing	>100
	18-May	RSEMR5B-EOPTOX	Mandated testing	>100
	25-May	RSEMR5B-EOPTOX	Mandated testing	>100
	16-Aug	RSEMR5B-EOPTOX	Quarterly	>100
	9-Sep	RSEMR5B-EOPTOX	Opportunistic testing	23.3 [18.8 - 28.9] test failure
	25-Sep	RSEMR5B-EOPTOX	[3]First bi-weekly	>100
	10-Oct	RSEMR5B-EOPTOX	Second bi-weekly	>100
	23-Oct	RSEMR5B-EOPTOX	Third bi-weekly	>100

Note >100% (v/v) indicates toxicity test passed.

[1] The acute toxicity sample is collected from the RSEM pond if the pond is not discharging (indicated by SP in the site name), or collected from the outflow of the discharge pipe if the pond is discharging (indicated by EOP (end of pipe) in the site name).

[2] Sampling reverted to bi-weekly due to 30 days without discharge.

[3] Sampling reverted to bi-weekly due to test failure.

Table 9. RSEM R6 pond toxicity sampling, 2017 - 2018 results.

Year	Date	Site[1]	Sampling Schedule	96 hr LC50 % (v/v)
2017	17-Mar	RSEMR6W-SPTOX	First bi-weekly	>100
		RSEMR6E	Insufficient water level in pond	
	31-Mar	RSEMR6W-SPTOX	Second bi-weekly	>100
		RSEMR6E	Insufficient water level in pond	
	12-Apr	RSEMR6W-EOPTOX	Third bi-weekly	>100
		RSEMR6E-EOPTOX	First bi-weekly	>100
	10-May	RSEMR6W-SPTOX	Monthly	>100
		RSEMR6E-SPTOX	Monthly	>100
	13-Jun	RSEMR6W	Insufficient water level in pond	
		RSEMR6E-EOPTOX	Monthly	>100
	12-Jul	RSEMR6W-SPTOX	[2]First bi-weekly	>100
		RSEMR6E-SPTOX	Monthly	>100
	27-Jul	RSEMR6W-SPTOX	Second bi-weekly	>100
	9-Aug	RSEMR6W-EOPTOX	Third bi-weekly	>100
		RSEMR6E-EOPTOX	Monthly	>100
	21-Sep	RSEMR6W-EOPTOX	Monthly	>100
		RSEMR6E-SPTOX	Monthly	>100
	25-Oct	RSEMR6W-EOPTOX	Monthly	>100
		RSEMR6E-EOPTOX	Monthly	>100
	21-Nov	RSEMR6W-SPTOX	Monthly	>100
		RSEMR6E-EOPTOX	Monthly	>100
	19-Dec	RSEMR6W-EOPTOX	Monthly	>100
		RSEMR6E-EOPTOX	Monthly	>100

Note that on April 18, 2017 the berm dividing RSEM R6W and RSEM R6E failed, allowing the pond water to mix therefore additional bi-weekly sampling was not necessary. The berm was repaired on June

Note >100% (v/v) indicates toxicity test passed.

[1] The acute toxicity sample is collected from the RSEM pond if the pond is not discharging (indicated by SP in the site name), or collected from the outflow of the discharge pipe if the pond is discharging (indicated by EOP (end of pipe) in the site name).

[2] Sampling reverted to bi-weekly due to 30 days without discharge.

[3] Sampling reverted to bi-weekly due to test failure.

Table 9. Continued.

Year	Date	Site[1]	Sampling Schedule	96 hr LC50 % (v/v)
2018	19-Jan	RSEMR6W-SPTOX	Monthly	>100
		RSEMR6E-SPTOX	Monthly	>100
	13-Feb	RSEMR6W-SPTOX	[2]First bi-weekly	>100
		RSEMR6E-SPTOX	[2]First bi-weekly	>100
	1-Mar	RSEMR6W-SPTOX	Second bi-weekly	>100
		RSEMR6E-SPTOX	Second bi-weekly	>100
	14-Mar	RSEMR6W-SPTOX	Third bi-weekly	>100
		RSEMR6E-SPTOX	Third bi-weekly	>100
	16-Apr	RSEMR6W-SPTOX	Monthly	>100
		RSEMR6E-EOPTOX	Monthly	>100
	7-Jun	RSEMR6W-EOPTOX	[2]First bi-weekly	>100
		RSEMR6E-SPTOX	[2]First bi-weekly	>100
	21-Jun	RSEMR6W-EOPTOX	Second bi-weekly	>100
		RSEMR6E-SPTOX	Second bi-weekly	>100
	28-Jun	RSEMR6W-EOPTOX	Third bi-weekly	>100
		RSEMR6E-SPTOX	Third bi-weekly	>100
	18-Sep	RSEMR6W-SPTOX	Quarterly	>100
		RSEMR6E-EOPTOX	Quarterly	>100
	12-Dec	RSEMR6W	No discharge/low water	
		RSEMR6E	No discharge/low water	

Note that on April 18, 2017 the berm dividing RSEM R6W and RSEM R6E failed, allowing the pond water to mix therefore additional bi-weekly sampling was not necessary. The berm was repaired on June

Note >100% (v/v) indicates toxicity test passed.

[1] The acute toxicity sample is collected from the RSEM pond if the pond is not discharging (indicated by SP in the site name), or collected from the outflow of the discharge pipe if the pond is discharging (indicated by EOP (end of pipe) in the site name).

[2] Sampling reverted to bi-weekly due to 30 days without discharge.

[3] Sampling reverted to bi-weekly due to test failure.

Table 10. RSEM L5 pond toxicity sampling results, 2018.

Year	Date	Site[1]	Sampling Schedule	96 hr LC50 % (v/v)
2018	26-Jul	RSEML5W-SPTOX	Single Event	>100
		RSEML5E-SPTOX	Single Event	>100

Note >100% (v/v) indicates toxicity test passed.

[1] The acute toxicity sample is collected from the RSEM pond if the pond is not discharging (indicated by SP in the site name). No discharge occurred from RSEM L5 in 2018.

Table 11. 2018 annual data summary statistics for lab and *in-situ* sampling (physical tests, anions and nutrients) collected at the PR-3.88 site (Peace 03).

Parameter (mg/L)	MDL	PEACE 03/ PR-3.88						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Physical Tests										
Sp. Conductivity (In Situ, µS/cm)		57	0	203.8	148.2	239	21.5			0
Sp. Conductivity (lab, µS/cm)	2	22	0	203	182	236	18.6			0
Hardness (as CaCO3)	0.5	22	0	106	91	131	11			0
Total Dissolved Solids	13	22	0	146	110	269	42.2			0
Total Suspended Solids	1	22	0	94.5	1.8	905	230			0
Turbidity (In Situ, NTU)		57	0	61.2	0.7	636	150			0
Turbidity (lab, NTU)	0.1	22	0	90.7	0.86	1,020	243			0
pH (In Situ, pH units)		54	0	7.92	7.55	8.19	0.22		6.5 to 9	0
pH (lab, pH units)	0.1	22	0	8.17	8.03	8.27	0.06		6.5 to 9	0
Anions and Nutrients										
Alkalinity, Total (as CaCO3)	1	22	0	93.1	82.5	112	9.34			0
Ammonia, Total (as N)	0.005	22	16	<0.00979	<0.005	0.0474	0.0115	0.102	0.68	0
Anion Sum	0	22	0	2.24	1.98	2.72	0.249			0
Bromide (Br)	0.05	22	22	<0.05	<0.05	<0.05				0
Cation - Anion Balance	0	22	15	-0.9026	-4.1	3.8	2.25			0
Cation Sum	0	22	0	2.2	1.88	2.75	0.234			0
Chloride (Cl)	0.5	22	22	<0.5	<0.5	<0.5		150	600	0
Dissolved Orthophosphate (as P)	0.001	22	13	<0.00196	<0.001	0.0081	0.00179			0
Fluoride (F)	0.02	22	0	0.0489	0.037	0.073	0.0115		EQ	0
Nitrate (as N)	0.005	22	0	0.0608	0.0242	0.129	0.0221	3	32	0
Nitrite (as N)	0.001	22	21	<0.00102	<0.001	0.0013	0.000067	0.02	EQ	0
Sulfate (SO4)	0.3	22	0	17.8	14.1	23.4	3.18	EQ		0
Total Phosphorus (P)	0.002	22	0	0.089	0.0032	0.802	0.2			0
Dissolved Organic Carbon	0.5	22	0	3.77	2.3	10.8	2.55			0
Total Organic Carbon	0.5	22	0	5.24	2.47	22.2	5.39			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc" column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 12. 2018 annual data summary statistics for total metals collected at the PR-3.88 site (Peace 03).

Parameter (mg/L)	MDL	PEACE 03/ PR-3.88						BC Long-Term	BC Short-Term Max	
Date: 2018		n	n<MDL	Avg.	Min.	Max.	S.D.	WQG[1]	WQG[2]	# Exc
Total Metals										
Aluminum (Al)	0.003	22	0	1.24	0.024	11.7	2.9			0
Antimony (Sb)	0.0001	22	14	<0.000164	<0.0001	0.00059	0.000137			0
Arsenic (As)	0.0001	22	0	0.00115	0.00018	0.00932	0.00229		0.005	2
Barium (Ba)	0.0001	22	0	0.0854	0.0295	0.497	0.118	1		0
Beryllium (Be)	0.00002	22	18	<0.0000892	<0.00002	0.00069	0.000169	0.00013		0
Bismuth (Bi)	0.00005	22	20	<0.0000632	<0.00005	0.00023	0.0000423			0
Boron (B)	0.01	22	20	<0.0109	<0.01	0.02	0.00265		1.2	0
Cadmium (Cd)	0.00001	22	0	0.000147	0.00001	0.00125	0.000313			0
Calcium (Ca)	0.05	22	0	32.4	26.5	54	6.69			0
Cesium (Cs)	0.00001	4	0	0.00109	0.00018	0.00271	0.00115			0
Chromium (Cr)	0.0001	22	0	0.00248	0.00015	0.0214	0.00531			0
Cobalt (Co)	0.0001	22	13	<0.00111	<0.0001	0.0106	0.00262	0.004	0.11	0
Copper (Cu)	0.0005	22	0	0.00373	0.00063	0.0313	0.00755	EQ	EQ	2
Iron (Fe)	0.01	22	0	2.47	0.037	24.9	6.16		1	7
Lead (Pb)	0.00005	22	8	<0.00134	<0.00005	0.0136	0.00333	EQ	EQ	0
Lithium (Li)	0.001	22	1	<0.00328	<0.001	0.0171	0.00402			0
Magnesium (Mg)	0.1	22	0	7.96	5.56	14.9	2.3			0
Manganese (Mn)	0.0001	22	0	0.0392	0.0018	0.382	0.0925	EQ	EQ	0
Mercury (Hg)	0.000005	22	22	<0.0000268	0.00001	<0.00025	0.0000367	0.00002		0
Molybdenum (Mo)	0.00005	22	0	0.00108	0.00072	0.00179	0.000326	1	2	0
Nickel (Ni)	0.0005	22	0	0.00459	0.00075	0.0373	0.00919	EQ		0
Phosphorus (P)	0.05	22	15	<0.139	<0.05	1.03	0.243			0
Potassium (K)	0.1	22	0	0.855	0.41	3.92	0.888			0
Rubidium (Rb)	0.0002	4	0	0.00933	0.00219	0.0217	0.00878			0
Selenium (Se)	0.00005	22	0	0.000464	0.00021	0.00133	0.00028	0.002		0
Silicon (Si)	0.1	22	0	3.96	1.93	20.1	4.44			0
Silver (Ag)	0.00001	22	15	<0.0000368	<0.00001	0.00031	0.0000736	0.0015	0.003	0
Sodium (Na)	0.05	22	0	1.69	1.22	3.01	0.467			0
Strontium (Sr)	0.0002	22	0	0.127	0.101	0.194	0.0235			0
Sulfur (S)	0.5	22	0	6.24	4.57	8.89	1.26			0
Tellurium (Te)	0.0002	4	4	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	22	15	<0.0000442	<0.00001	0.00034	0.0000844			0
Thorium (Th)	0.0001	4	0	0.00155	0.0002	0.0041	0.0018			0
Tin (Sn)	0.0001	22	22	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	22	0	0.0107	0.00066	0.0712	0.019			0
Tungsten (W)	0.0001	4	4	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	22	0	0.000613	0.00044	0.00169	0.000296	0.0085		0
Vanadium (V)	0.0005	22	7	<0.00534	<0.0005	0.0436	0.0112			0
Zinc (Zn)	0.003	22	14	<0.0149	<0.003	0.129	0.0316	EQ	EQ	2
Zirconium (Zr)	0.0003	22	0	0.000313	0.00012	0.0007	0.000116			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc" column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG. Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 13. 2018 annual data summary statistics for dissolved metals collected at the PR-3.88 site (Peace 03).

Parameter (mg/L)	MDL	PEACE 03/ PR-3.88						BC Long-Term	BC Short-Term Max	
Date: 2018		n	n<MDL	Avg.	Min.	Max.	S.D.	WQG[1]	WQG[2]	# Exc
Dissolved Metals										
Aluminum (Al)	0.001	22	0	0.00948	0.0027	0.0349	0.0099	0.05	0.1	0
Antimony (Sb)	0.0001	22	18	<0.000105	<0.0001	0.00016	0.0000146			0
Arsenic (As)	0.0001	22	0	0.000216	0.00015	0.00044	0.0000746			0
Barium (Ba)	0.0001	22	0	0.0399	0.0299	0.0578	0.00893			0
Beryllium (Be)	0.00002	22	22	<0.0000326	<0.00002	<0.0001	0.0000292			0
Bismuth (Bi)	0.00005	22	22	<0.00005	<0.00005	<0.00005				0
Boron (B)	0.01	22	22	<0.01	<0.01	<0.01				0
Cadmium (Cd)	0.00001	22	16	0.0000142	0.00001	0.00004	0.00000936	EQ	EQ	0
Calcium (Ca)	0.05	22	0	30.4	26.2	37.1	2.91			0
Cesium (Cs)	0.00001	4	4	<0.00001	<0.00001	<0.00001				0
Chromium (Cr)	0.0001	22	15	<0.000113	<0.0001	0.00019	0.0000251			0
Cobalt (Co)	0.0001	22	20	<0.000107	<0.0001	0.00018	0.0000205			0
Copper (Cu)	0.0002	22	0	0.000896	0.00038	0.00336	0.000768			0
Iron (Fe)	0.01	22	14	<0.0251	<0.01	0.116	0.03		0.35	0
Lead (Pb)	0.00005	22	20	<0.0000526	<0.00005	0.00009	0.00000909			0
Lithium (Li)	0.001	22	2	<0.00177	<0.001	0.0031	0.000733			0
Magnesium (Mg)	0.1	22	0	7.2	6.02	9.41	0.971			0
Manganese (Mn)	0.0001	22	0	0.00182	0.00021	0.00847	0.00236			0
Mercury (Hg)	0.00001	22	22	<0.00001	<0.00001	<0.00001				0
Molybdenum (Mo)	0.00005	22	0	0.000989	0.00074	0.00139	0.000223			0
Nickel (Ni)	0.0005	22	0	0.00101	0.00061	0.00287	0.000635			0
Phosphorus (P)	0.05	22	22	<0.05	<0.05	<0.05				0
Potassium (K)	0.1	22	0	0.55	0.4	1.42	0.239			0
Rubidium (Rb)	0.0002	4	0	0.000407	0.00032	0.00051	0.0000785			0
Selenium (Se)	0.00005	22	0	0.000376	0.00023	0.00063	0.000128			0
Silicon (Si)	0.05	22	0	2.03	1.86	2.13	0.0783			0
Silver (Ag)	0.00001	22	22	<0.00001	<0.00001	<0.00001				0
Sodium (Na)	0.05	22	0	1.66	1.2	2.76	0.396			0
Strontium (Sr)	0.0002	22	0	0.119	0.0993	0.153	0.0158			0
Sulfur (S)	0.5	22	0	5.82	4.44	7.25	0.975			0
Tellurium (Te)	0.0002	4	4	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	22	22	<0.00001	<0.00001	<0.00001				0
Thorium (Th)	0.0001	4	4	<0.0001	<0.0001	<0.0001				0
Tin (Sn)	0.0001	22	22	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	22	14	<0.000866	<0.0003	0.00378	0.00109			0
Tungsten (W)	0.0001	4	4	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	22	0	0.000502	0.00043	0.0006	0.0000457			0
Vanadium (V)	0.0005	22	21	<0.000501	<0.0005	0.00051	0.00000223			0
Zinc (Zn)	0.001	22	22	<0.001	<0.001	<0.001				0
Zirconium (Zr)	0.0003	22	18	<0.000299	<0.00006	0.00053	0.0000777			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc" column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG. Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 14. 2018 annual data summary statistics for lab and *in-situ* sampling (physical tests, anions and nutrients) collected at the RSEM R5b upstream sites (RBPR-5.60, RBPR-5.65, RBPR-5.69 and RBPR 5.70).

Parameter (mg/L)	MDL	RSEM R5b Upstream RBPR-(5.60,5.65,5.69 and 5.70)						BC Long-Term	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.	WQG[1]	WQG[2]	# Exc
Physical Tests										
Sp. Conductivity (In Situ, µS/cm)		51	0	236.3	188.1	328.8	42.4			0
Sp. Conductivity (lab, µS/cm)	2	23	0	227	181	311	37			0
Hardness (as CaCO3)	0.5	23	0	120	97	171	18			0
Total Dissolved Solids	13	23	0	175	132	262	33			0
Total Suspended Solids	2	23	0	203.8	6.1	1,320.0	388			0
Turbidity (In Situ, NTU)		51	0	126.6	2.1	852.0	224			0
Turbidity (lab, NTU)	0.1	23	0	186.8	3.8	1,470.0	382			0
pH (In Situ, pH units)		48	0	8.00	7.65	8.44	0.23		6.5 to 9	0
pH (lab, pH units)	0.1	23	0	8.21	8.04	8.32	0.07		6.5 to 9	0
Anions and Nutrients										
Alkalinity, Total (as CaCO3)	1	23	0	114	97	154	17			0
Ammonia, Total (as N)	0.005	23	13	<0.0127	<0.005	0.0567	0.018	0.102	0.68	0
Anion Sum		23	0	2.6	2.2	3.5	0.4			0
Bromide (Br)	0.05	23	23	<0.05	<0.05	<0.05				0
Cation - Anion Balance		23	0	-1.2	-5.2	3.0	2.6			0
Cation Sum		23	0	2.5	2.1	3.6	0.4			0
Chloride (Cl)	0.5	23	14	<0.661	<0.5	1.9	0.36	150	600	0
Dissolved Orthophosphate (as P)	0.001	23	4	<0.0028	<0.001	0.0091	0.002			0
Fluoride (F)	0.02	23	0	0.07	0.04	0.09	0.01		EQ	0
Nitrate (as N)	0.005	23	7	<0.058	<0.005	0.14	0.05	3	32	0
Nitrite (as N)	0.001	23	22	<0.001	<0.001	<0.001		0.02	EQ	0
Sulfate (SO4)	0.3	23	0	14.48	8.64	35.80	6.14	EQ		0
Total Phosphorus (P)	0.02	23	0	0.253	0.009	2.430	0.581			0
Dissolved Organic Carbon	0.5	23	0	6.23	2.60	11.30	2.42			0
Total Organic Carbon	0.5	23	0	9.13	3.01	31.90	6.89			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.
[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc" column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.
Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary
BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 15. 2018 annual data summary statistics for total metals collected at the RSEM R5b upstream sites (RBPR-5.60, RBPR-5.65, RBPR-5.69 and RBPR 5.70).

Parameter (mg/L)	MDL	RSEM R5b Upstream RBPR-(5.60,5.65,5.69 and 5.70)						BC Long-Term	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.	WQG[1]	WQG[2]	# Exc.
Total Metals										
Aluminum (Al)	0.003	23	0	2.56	0.0812	16.7	4			0
Antimony (Sb)	0.0001	23	4	<0.000210	<0.0001	0.00065	0.000158			0
Arsenic (As)	0.0001	23	0	0.0021	0.00021	0.0127	0.00306		0.005	3
Barium (Ba)	0.0001	23	0	0.214	0.0461	0.767	0.172	1		0
Beryllium (Be)	0.00002	23	6	<0.000166	<0.00002	0.00099	0.000252	0.00013		0
Bismuth (Bi)	0.00005	23	18	<0.00008	<0.00005	0.00031	0.0000766			0
Boron (B)	0.01	23	18	<0.0116	<0.01	0.023	0.00716		1.2	0
Cadmium (Cd)	0.00001	23	0	0.00022	0.00002	0.00154	0.000367			0
Calcium (Ca)	0.05	23	0	37.55	28.3	61.3	7.44			0
Cesium (Cs)	0.00001	4	0	0.00136	0.0003	0.00312	0.00122			0
Chromium (Cr)	0.0001	23	0	0.00478	0.00035	0.0302	0.00732			0
Cobalt (Co)	0.0001	23	1	0.00232	0.0001	0.0156	0.00383	0.004	0.11	0
Copper (Cu)	0.0005	23	0	0.00706	0.00081	0.0432	0.0103	EQ	EQ	6
Iron (Fe)	0.01	23	0	5.38	0.154	35	8.78		1	12
Lead (Pb)	0.00005	23	0	0.00283	0.00013	0.0193	0.00474	EQ	EQ	0
Lithium (Li)	0.001	23	0	0.00631	0.0016	0.0232	0.00515			0
Magnesium (Mg)	0.1	23	0	10.26	7.08	18.7	2.5			0
Manganese (Mn)	0.0001	23	0	0.09618	0.00601	0.609	0.145	EQ	EQ	0
Mercury (Hg)	0.00025	23	22	<0.00004	<0.00001	<0.00025	0.0000248	0.00002		0
Molybdenum (Mo)	0.00005	23	0	0.00078	0.00054	0.00152	0.000238	1	2	0
Nickel (Ni)	0.0005	23	0	0.00909	0.00105	0.0532	0.0129	EQ		0
Phosphorus (P)	0.05	23	10	<0.228	<0.05	1.35	0.344			0
Potassium (K)	0.1	23	0	1.428	0.53	4.9	1.02			0
Rubidium (Rb)	0.0002	4	0	0.0128	0.00343	0.0278	0.0105			0
Selenium (Se)	0.00005	23	0	0.00039	0.00015	0.00132	0.000275	0.002		0
Silicon (Si)	0.1	23	0	5.66	1.98	26.6	5.86			0
Silver (Ag)	0.00001	23	15	<0.0000638	<0.00001	0.00042	0.000103	EQ	EQ	0
Sodium (Na)	0.05	23	0	2.8	1.72	8.24	1.4			0
Strontium (Sr)	0.0002	23	0	0.10845	0.0722	0.199	0.0277			0
Sulfur (S)	0.5	23	0	5.56	2.93	18.4	3.2			0
Tellurium (Te)	0.0002	4	4	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	23	7	<0.00007	<0.00001	0.0004	0.0000983			0
Thorium (Th)	0.0001	4	0	0.00197	0.00032	0.00516	0.00217			0
Tin (Sn)	0.0001	23	20	<0.00011	<0.0001	0.00019	0.0000491			0
Titanium (Ti)	0.0003	23	0	0.0203	0.00145	0.0855	0.0223			0
Tungsten (W)	0.0001	4	4	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	23	0	0.00058	0.00029	0.00196	0.000373	0.0085		0
Vanadium (V)	0.0005	23	0	0.0095	0.00058	0.0572	0.014			0
Zinc (Zn)	0.003	23	5	<0.0271	<0.003	0.18	0.0439	EQ	EQ	3
Zirconium (Zr)	0.0003	23	0	0.00037	0.00016	0.00132	0.000359			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 16. 2018 annual data summary statistics for dissolved metals collected at the RSEM R5b upstream sites (RBPR-5.60, RBPR-5.65, RBPR-5.69 and RBPR-5.70).

Parameter (mg/L)	MDL	RSEM R5b Upstream RBPR-(5.60,5.65,5.69 and 5.70)						BC Long-Term	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.	WQG[1]	WQG[2]	# Exc.
Dissolved Metals								0.05	EQ	
Aluminum (Al)	0.001	23	0	0.0169	0.0064	0.0339	0.00841			0
Antimony (Sb)	0.0001	23	14	<0.00011	<0.0001	0.00014	0.0000624			0
Arsenic (As)	0.0001	23	0	0.00026	0.00017	0.00039	0.0000643			0
Barium (Ba)	0.0001	23	0	0.11	0.0436	0.163	0.038			0
Beryllium (Be)	0.00002	23	23	<0.0000333	<0.00002	<0.0001				0
Bismuth (Bi)	0.00005	23	23	<0.00005	<0.00005	<0.00005				0
Boron (B)	0.01	23	23	<0.01	<0.01	<0.01		EQ	EQ	0
Cadmium (Cd)	0.00001	23	13	0.0000145	0.00001	0.00003	5.93E-06			0
Calcium (Ca)	0.05	23	0	33.5	26.5	47.5	4.86			0
Cesium (Cs)	0.00001	4	4	<0.00001	<0.00001	<0.00001				0
Chromium (Cr)	0.0001	23	16	<0.00011	<0.0001	0.00016	0.0000642			0
Cobalt (Co)	0.0001	23	14	<0.000107	<0.0001	0.00013	0.0000584			0
Copper (Cu)	0.0002	23	0	0.00134	0.00059	0.00334	0.000675		0.35	0
Iron (Fe)	0.01	23	1	0.0882	0.01	0.158	0.0473			0
Lead (Pb)	0.00005	23	13	<0.0000636	<0.00005	0.00012	0.0000443			0
Lithium (Li)	0.001	23	0	0.00312	0.0011	0.0052	0.000898			0
Magnesium (Mg)	0.1	23	0	8.74	6.73	12.6	1.46			0
Manganese (Mn)	0.0001	23	0	0.0073	0.00159	0.0175	0.00583			0
Mercury (Hg)	0.00001	23	23	<0.00001	<0.00001	<0.00001				0
Molybdenum (Mo)	0.00005	23	0	0.00064	0.00042	0.00113	0.000167			0
Nickel (Ni)	0.0005	23	0	0.00158	0.00081	0.00275	0.00046			0
Phosphorus (P)	0.05	23	23	<0.05	<0.05	<0.05				0
Potassium (K)	0.1	23	0	0.83	0.48	1.73	0.266			0
Rubidium (Rb)	0.0002	4	0	0.00031	0.00023	0.00044	0.0000906			0
Selenium (Se)	0.00005	23	0	0.00026	0.00017	0.00042	0.0000596			0
Silicon (Si)	0.05	23	0	1.8	1.37	2.16	0.229			0
Silver (Ag)	0.00001	23	23	<0.00001	<0.00001	<0.00001				0
Sodium (Na)	0.05	23	0	2.74	1.67	8.06	1.4			0
Strontium (Sr)	0.0002	23	0	0.0949	0.0701	0.123	0.0176			0
Sulfur (S)	0.5	23	0	4.79	2.81	11.4	1.86			0
Tellurium (Te)	0.0002	4	4	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	23	23	<0.00001	<0.00001	<0.00001				0
Thorium (Th)	0.0001	4	4	<0.0001	<0.0001	<0.0001				0
Tin (Sn)	0.0001	23	23	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	23	6	<0.00186	<0.0003	0.0043	0.00136			0
Tungsten (W)	0.0001	4	4	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	23	0	0.00038	0.00024	0.00054	0.000102			0
Vanadium (V)	0.0005	23	23	<0.0005	<0.0005	<0.0005				0
Zinc (Zn)	0.001	23	23	<0.001	<0.001	<0.001				0
Zirconium (Zr)	0.0003	23	0	<0.00031	<0.0003	0.00039	0.000165			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 17. 2018 annual data summary statistics for lab and *in-situ* sampling (physical tests, anions and nutrients) collected at the RSEM R5b IDZ site (RBPR-5.81).

Parameter (mg/L)	MDL	RSEM R5b IDZ RBPR-5.81						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Physical Tests										
Sp. Conductivity (In Situ, µS/cm)		51	0	228.6	194.8	301.1	25.1			0
Sp. Conductivity (lab, µS/cm)	2	20	0	220	187	268	23.9			0
Hardness (as CaCO3)	0.5	20	0	117	96.6	158	15			0
Total Dissolved Solids	13	20	0	171	123	250	38.9			0
Total Suspended Solids	1	20	0	192	3.8	1,120	329			0
Turbidity (In Situ, NTU)		51	0	123	2.1	787	197			0
Turbidity (lab, NTU)	0.1	20	0	182	2.56	1,290	342			0
pH (In Situ, pH units)		48	0	7.96	7.64	8.24	0.19		6.5 to 9	0
pH (lab, pH units)	0.1	20	0	8.19	8.03	8.28	0.06		6.5 to 9	0
Anions and Nutrients										
Alkalinity, Total (as CaCO3)	1	20	0	107	85.4	134	12			0
Ammonia, Total (as N)	0.005	20	8	<0.0512	<0.005	1.34	0.156	0.102	0.68	1
Anion Sum	0	20	0	2.49	1.97	3.03	0.266			0
Bromide (Br)	0.05	20	20	<0.05	<0.05	<0.05				0
Cation - Anion Balance	0	20	11	0.324	-6.4	8	3.72			0
Cation Sum	0	20	0	2.51	2.07	3.4	0.321			0
Chloride (Cl)	0.5	20	5	<0.696	<0.5	1.61	0.253	150	600	0
Dissolved Orthophosphate (as P)	0.001	20	4	<0.0187	<0.001	0.527	0.0643			0
Fluoride (F)	0.02	20	0	0.0675	0.041	0.086	0.0126		EQ	0
Nitrate (as N)	0.005	20	1	<0.0643	<0.005	0.151	0.0429	3	32	0
Nitrite (as N)	0.001	20	19	<0.00104	<0.001	0.0016	0.000141	0.02	EQ	0
Sulfate (SO4)	0.3	20	0	15.2	9.45	23.1	3.49	EQ		0
Total Phosphorus (P)	0.002	20	0	0.267	0.0056	3.22	0.456			0
Dissolved Organic Carbon	0.5	20	0	6.01	2.75	12	2.44			0
Total Organic Carbon	0.5	20	0	8.82	3.21	28.3	6.29			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG. Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 18. 2018 annual data summary statistics for total metals collected at the RSEM R5b IDZ site (RBPR-5.81).

Parameter (mg/L)	MDL	RSEM R5b IDZ/ RBPR-5.81						BC Long-Term	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.	WQG[1]	WQG[2]	# Exc
Total Metals										
Aluminum (Al)	0.003	20	0	2.47	0.0549	14.3	3.86			0
Antimony (Sb)	0.0001	20	5	<0.000204	<0.0001	0.00054	0.000143			0
Arsenic (As)	0.0001	20	0	0.00206	0.00021	0.0104	0.00288		0.005	3
Barium (Ba)	0.00005	20	0	0.201	0.0449	0.657	0.166	1		0
Beryllium (Be)	0.00002	20	8	<0.000162	<0.00002	0.00086	0.000242	0.00013		0
Bismuth (Bi)	0.00005	20	16	<0.0000747	<0.00005	0.00026	0.0000554			0
Boron (B)	0.01	20	16	<0.0118	<0.01	0.021	0.00357		1.2	0
Cadmium (Cd)	0.00001	20	0	0.000223	0.00002	0.00142	0.000371			0
Calcium (Ca)	0.05	20	0	37.4	28.9	56.4	7.36			0
Cesium (Cs)	0.00001	3	0	0.00133	0.00029	0.00258	0.000946			0
Chromium (Cr)	0.0001	20	0	0.00458	0.00026	0.0255	0.00702			0
Cobalt (Co)	0.0001	20	1	<0.00229	<0.0001	0.0133	0.00362	0.004	0.11	0
Copper (Cu)	0.0005	20	0	0.0069	0.00073	0.0374	0.00998	EQ	EQ	4
Iron (Fe)	0.01	20	0	5.24	0.11	29.9	8.43		1	13
Lead (Pb)	0.00005	20	0	0.00279	0.00006	0.0171	0.00467	EQ	EQ	0
Lithium (Li)	0.001	20	0	0.00637	0.0015	0.0203	0.00522			0
Magnesium (Mg)	0.1	20	0	9.97	6.89	17.5	2.5			0
Manganese (Mn)	0.0001	20	0	0.0947	0.00529	0.527	0.139	EQ	EQ	0
Mercury (Hg)	0.00001	20	19	<0.0000471	<0.00001	<0.00025	0.0000649	0.00002		0
Molybdenum (Mo)	0.00005	20	0	0.000791	0.00054	0.00125	0.00019	1	2	0
Nickel (Ni)	0.0005	20	0	0.00903	0.00096	0.0458	0.0124	EQ		0
Phosphorus (P)	0.05	20	10	<0.226	<0.05	1.18	0.321			0
Potassium (K)	0.1	20	0	1.39	0.5	4.48	1.05			0
Rubidium (Rb)	0.0002	3	0	0.0128	0.00329	0.0236	0.00834			0
Selenium (Se)	0.00005	20	0	0.000409	0.0002	0.00128	0.000273	0.002		0
Silicon (Si)	0.1	20	0	5.57	2	22.5	5.63			0
Silver (Ag)	0.00001	20	10	<0.0000615	<0.00001	0.00034	0.000094	EQ	EQ	0
Sodium (Na)	0.05	20	0	3.2	1.71	6.58	1.38			0
Strontium (Sr)	0.0002	20	0	0.11	0.0749	0.18	0.0257			0
Sulfur (S)	0.5	20	0	5.66	3.1	12.2	2.02			0
Tellurium (Te)	0.0002	3	3	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	20	7	<0.0000653	<0.00001	0.00034	0.0000945			0
Thorium (Th)	0.0001	3	0	0.00207	0.00031	0.00446	0.00175			0
Tin (Sn)	0.0001	20	20	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0008	20	3	<0.0189	<0.0008	0.069	0.0205			0
Tungsten (W)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	20	0	0.000606	0.00031	0.00179	0.000368	0.0085		0
Vanadium (V)	0.0005	20	1	<0.00926	<0.0005	0.0488	0.0136			0
Zinc (Zn)	0.003	20	4	<0.0261	<0.003	0.151	0.041	EQ	EQ	4
Zirconium (Zr)	0.0003	20	14	0.000324	0.00015	0.00071	0.000113			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 19. 2018 annual data summary statistics for dissolved metals collected at the RSEM R5b IDZ site (RBPR-5.81).

Parameter (mg/L)	MDL	RSEM R5b IDZ/ RBPR-5.81						BC Long-Term	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.	WQG[1]	WQG[2]	# Exc
Dissolved Metals								0.05	EQ	
Aluminum (Al)	0.001	20	0	0.0161	0.0066	0.0331	0.00791			0
Antimony (Sb)	0.0001	20	14	<0.00011	<0.0001	0.00015	0.0000165			0
Arsenic (As)	0.0001	20	0	0.000261	0.00017	0.00059	0.0000844			0
Barium (Ba)	0.00005	20	0	0.097	0.0481	0.146	0.0286			0
Beryllium (Be)	0.00002	20	20	<0.0000341	<0.00002	<0.0001	0.0000305			0
Bismuth (Bi)	0.00005	20	20	<0.00005	<0.00005	<0.00005				0
Boron (B)	0.01	20	20	<0.01	<0.01	<0.01		EQ	EQ	0
Cadmium (Cd)	0.00001	20	13	0.0000147	0.00001	0.00003	6.96E-06			0
Calcium (Ca)	0.05	20	0	33	26.7	44.7	4.23			0
Cesium (Cs)	0.00001	3	3	<0.00001	<0.00001	<0.00001				0
Chromium (Cr)	0.0001	20	13	<0.000112	<0.0001	0.00015	0.0000172			0
Cobalt (Co)	0.0001	20	14	<0.000111	<0.0001	0.00019	0.000028			0
Copper (Cu)	0.0002	20	0	0.00127	0.00064	0.00301	0.000683		0.35	0
Iron (Fe)	0.01	20	1	<0.0785	<0.01	0.166	0.0445			0
Lead (Pb)	0.00005	20	12	<0.0000638	<0.00005	0.00012	0.0000225			0
Lithium (Li)	0.001	20	1	<0.00322	<0.001	0.0057	0.00101			0
Magnesium (Mg)	0.1	20	0	8.46	7.27	11.2	1.15			0
Manganese (Mn)	0.0001	20	0	0.00704	0.00097	0.0203	0.00479			0
Mercury (Hg)	0.00001	20	20	<0.00001	<0.00001	<0.00001				0
Molybdenum (Mo)	0.00005	20	0	0.000663	0.00045	0.00089	0.000115			0
Nickel (Ni)	0.0005	20	0	0.00167	0.00086	0.00276	0.000577			0
Phosphorus (P)	0.05	20	19	<0.133	<0.05	2.87	0.332			0
Potassium (K)	0.1	20	0	0.808	0.54	1.68	0.274			0
Rubidium (Rb)	0.0002	3	0	0.000347	0.00025	0.00049	0.000103			0
Selenium (Se)	0.00005	20	0	0.000277	0.00018	0.00052	0.0000731			0
Silicon (Si)	0.05	20	0	1.83	1.43	2.15	0.176			0
Silver (Ag)	0.00001	20	20	<0.00001	<0.00001	<0.00001				0
Sodium (Na)	0.05	20	0	3.1	1.91	6.18	1.13			0
Strontium (Sr)	0.0002	20	0	0.0964	0.0695	0.124	0.0171			0
Sulfur (S)	0.5	20	0	5.01	3.06	7.19	1.14			0
Tellurium (Te)	0.0002	3	3	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	20	20	<0.00001	<0.00001	<0.00001				0
Thorium (Th)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Tin (Sn)	0.0001	20	20	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	20	3	<0.00164	<0.0003	0.00421	0.00114			0
Tungsten (W)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	20	0	0.000396	0.00025	0.00057	0.0000914			0
Vanadium (V)	0.0005	20	20	<0.0005	<0.0005	<0.0005				0
Zinc (Zn)	0.001	20	19	<0.00106	<0.001	0.002	0.000235			0
Zirconium (Zr)	0.0003	20	15	0.000311	0.00029	0.00038	0.0000241			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 20. 2018 annual data summary statistics for lab and *in-situ* sampling (physical tests, anions and nutrients) collected at the RSEM R6 upstream site (RBPR-7.05).

Parameter (mg/L)	MDL	RSEM R6 Upstream/ RBPR-7.05						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Physical Tests										
Sp. Conductivity (In Situ, µS/cm)		39	0	198.7	184.2	231.2	12.9			0
Sp. Conductivity (lab, µS/cm)	2	16	0	197	175	232	15.9			0
Hardness (as CaCO3)	0.5	16	0	103	90.9	127	11.2			0
Total Dissolved Solids	13	16	0	134	109	226	31.1			0
Total Suspended Solids	1	16	0	97.7	3.4	1,230	307			0
Turbidity (In Situ, NTU)		39	0	58.9	0.9	664	173			0
Turbidity (lab, NTU)	0.1	16	0	69.7	1.32	900	220			0
pH (In Situ, pH units)		36	0	8	7.6	8.91	0.33		6.5 to 9	0
pH (lab, pH units)	0.1	16	0	8.15	8	8.25	0.06		6.5 to 9	0
Anions and Nutrients										
Alkalinity, Total (as CaCO3)	1	16	0	91.3	80.2	109	8.98			0
Ammonia, Total (as N)	0.005	16	11	<0.00825	<0.005	0.0337	0.00799	0.102	0.68	0
Anion Sum	0	16	0	2.17	1.94	2.62	0.229			0
Bromide (Br)	0.05	16	16	<0.05	<0.05	<0.05				0
Cation - Anion Balance	0	16	10	-0.675	-4.6	4.4	2.66			0
Cation Sum	0	16	0	2.15	1.89	2.66	0.239			0
Chloride (Cl)	0.5	16	16	<0.5	<0.5	<0.5		150	600	0
Dissolved Orthophosphate (as P)	0.001	16	12	<0.0017	<0.001	0.0079	0.00177			0
Fluoride (F)	0.02	16	0	0.0464	0.039	0.072	0.0104		EQ	0
Nitrate (as N)	0.005	16	0	0.0599	0.0343	0.138	0.0232	3	32	0
Nitrite (as N)	0.001	16	15	<0.0011	<0.001	0.0024	0.000361	0.02	EQ	0
Sulfate (SO4)	0.3	16	0	16.4	14.2	21.3	2.38	EQ		0
Total Phosphorus (P)	0.002	16	0	0.0812	0.0056	0.967	0.236			0
Dissolved Organic Carbon	0.5	16	0	3.48	2.29	11.4	2.36			0
Total Organic Carbon	0.5	16	0	5.19	2.39	30	6.81			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.
[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.
Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 21. 2018 annual data summary statistics for total metals collected at the RSEM R6 upstream site (RBPR-7.05).

Parameter (mg/L)	MDL	RSEM R6 Upstream/ RBPR-7.05						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Total Metals										
Aluminum (Al)	0.003	16	0	1.13	0.0357	13.5	3.35			0
Antimony (Sb)	0.0001	16	12	<0.000142	<0.0001	0.00058	0.000124			0
Arsenic (As)	0.0001	16	0	0.00103	0.00019	0.0103	0.00253		0.005	2
Barium (Ba)	0.00005	16	0	0.086	0.0307	0.615	0.144	1		0
Beryllium (Be)	0.00002	16	14	<0.0000807	<0.00002	0.00082	0.000198	0.00013		0
Bismuth (Bi)	0.00005	16	14	<0.0000639	<0.00005	0.00025	0.0000502			0
Boron (B)	0.01	16	14	<0.0107	<0.01	0.02	0.00258		1.2	0
Cadmium (Cd)	0.00001	16	2	0.000127	0.00001	0.00139	0.000345			0
Calcium (Ca)	0.05	16	0	31.5	26.8	55.5	7.07			0
Cesium (Cs)	0.00001	3	0	0.00148	0.00037	0.00263	0.00111			0
Chromium (Cr)	0.0001	16	0	0.00227	0.00016	0.0247	0.00615			0
Cobalt (Co)	0.0001	16	11	<0.00106	<0.0001	0.0124	0.00315	0.004	0.11	0
Copper (Cu)	0.0005	16	0	0.00352	0.0006	0.0356	0.00891	EQ	EQ	2
Iron (Fe)	0.01	16	0	2.3	0.056	28.1	7.16		1	3
Lead (Pb)	0.00005	16	5	<0.00125	<0.00005	0.0155	0.00391	EQ	EQ	0
Lithium (Li)	0.001	16	1	0.00298	0.001	0.0191	0.00443			0
Magnesium (Mg)	0.1	16	0	7.77	5.62	16.3	2.59			0
Manganese (Mn)	0.0001	16	0	0.0407	0.00234	0.479	0.12	EQ	EQ	0
Mercury (Hg)	0.00001	16	14	<0.0000193	<0.00001	0.00012	0.0000284	0.00002		0
Molybdenum (Mo)	0.00005	16	0	0.000945	0.00068	0.00149	0.000218	1	2	0
Nickel (Ni)	0.0005	16	0	0.0043	0.00069	0.0429	0.0107	EQ		0
Phosphorus (P)	0.05	16	13	<0.131	<0.05	1.22	0.281			0
Potassium (K)	0.1	16	0	0.798	0.41	4.27	0.948			0
Rubidium (Rb)	0.0002	3	0	0.0137	0.00409	0.0235	0.00958			0
Selenium (Se)	0.00005	16	0	0.000399	0.00022	0.00141	0.000281	0.002		0
Silicon (Si)	0.1	16	0	3.75	1.98	22.3	4.9			0
Silver (Ag)	0.00001	16	13	<0.0000339	<0.00001	0.00033	0.0000809	EQ	EQ	0
Sodium (Na)	0.05	16	0	1.66	1.23	2.79	0.426			0
Strontium (Sr)	0.0002	16	0	0.117	0.0981	0.187	0.0207			0
Sulfur (S)	0.5	16	0	5.68	4.27	8.08	1.01			0
Tellurium (Te)	0.0002	3	3	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	16	12	<0.0000375	<0.00001	0.00035	0.0000859			0
Thorium (Th)	0.0001	3	0	0.00225	0.00035	0.00416	0.0019			0
Tin (Sn)	0.0001	16	16	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0012	16	4	0.00821	0.0007	0.0741	0.0182			0
Tungsten (W)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	16	0	0.000582	0.00044	0.00171	0.000313	0.0085		0
Vanadium (V)	0.0005	16	2	<0.00448	<0.0005	0.0479	0.0118			0
Zinc (Zn)	0.003	16	12	<0.0138	<0.003	0.144	0.0361	EQ	EQ	2
Zirconium (Zr)	0.0003	16	13	0.00032	0.00014	0.00078	0.000122			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 22. 2018 annual data summary statistics for dissolved metals collected at the RSEM R6 upstream site (RBPR-7.05).

Parameter (mg/L)	MDL	RSEM R6 Upstream/ RBPR-7.05						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Dissolved Metals										
Aluminum (Al)	0.001	16	0	0.00849	0.0036	0.0353	0.00852	0.05	EQ	
Antimony (Sb)	0.0001	16	13	<0.000105	<0.0001	0.00019	0.0000167			0
Arsenic (As)	0.0001	16	0	0.000214	0.00016	0.00043	0.0000596			0
Barium (Ba)	0.00005	16	0	0.0421	0.033	0.0673	0.0116			0
Beryllium (Be)	0.00002	16	16	<0.0000314	<0.00002	<0.0001	0.000028			0
Bismuth (Bi)	0.00005	16	16	<0.00005	<0.00005	<0.00005				0
Boron (B)	0.01	16	16	<0.01	<0.01	<0.01				0
Cadmium (Cd)	0.00001	16	13	0.0000129	0.00001	0.00004	7.95E-06	EQ	EQ	0
Calcium (Ca)	0.05	16	0	29.6	25.9	36.1	3.09			0
Cesium (Cs)	0.00001	3	3	<0.00001	<0.00001	<0.00001				0
Chromium (Cr)	0.0001	16	12	<0.000114	<0.0001	0.00024	0.0000284			0
Cobalt (Co)	0.0001	16	14	<0.000102	<0.0001	0.00013	6.44E-06			0
Copper (Cu)	0.0002	16	0	0.000793	0.00049	0.00323	0.000668			0
Iron (Fe)	0.01	16	10	<0.0218	<0.01	0.09	0.0258		0.35	0
Lead (Pb)	0.00005	16	15	<0.0000504	<0.00005	0.00006	1.29E-06			0
Lithium (Li)	0.001	16	1	<0.00167	<0.001	0.0031	0.000679			0
Magnesium (Mg)	0.1	16	0	7.04	6.06	9.03	0.947			0
Manganese (Mn)	0.0001	16	0	0.00134	0.00036	0.00577	0.0013			0
Mercury (Hg)	0.00001	16	16	<0.00001	<0.00001	<0.00001				0
Molybdenum (Mo)	0.00005	16	0	0.000903	0.00074	0.00127	0.000163			0
Nickel (Ni)	0.0005	16	0	0.000941	0.00064	0.00287	0.000575			0
Phosphorus (P)	0.05	16	16	<0.05	<0.05	<0.05				0
Potassium (K)	0.1	16	0	0.56	0.41	1.63	0.29			0
Rubidium (Rb)	0.0002	3	0	0.000463	0.00039	0.00055	0.0000725			0
Selenium (Se)	0.00005	16	0	0.000323	0.00021	0.00056	0.000101			0
Silicon (Si)	0.05	16	0	2.01	1.8	2.19	0.0925			0
Silver (Ag)	0.00001	16	16	<0.00001	<0.00001	<0.00001				0
Sodium (Na)	0.05	16	0	1.62	1.25	2.57	0.358			0
Strontium (Sr)	0.0002	16	0	0.114	0.1	0.14	0.0129			0
Sulfur (S)	0.5	16	0	5.36	4.25	6.58	0.801			0
Tellurium (Te)	0.0002	3	3	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	16	16	<0.00001	<0.00001	<0.00001				0
Thorium (Th)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Tin (Sn)	0.0001	16	16	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	16	13	<0.000649	<0.0003	0.00359	0.000871			0
Tungsten (W)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	16	0	0.000486	0.00044	0.00054	0.0000329			0
Vanadium (V)	0.0005	16	16	<0.0005	<0.0005	<0.0005				0
Zinc (Zn)	0.001	16	16	<0.001	<0.001	<0.001				0
Zirconium (Zr)	0.0003	16	13	<0.000303	<0.0003	0.00033	7.73E-06			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 23. 2018 annual data summary statistics for lab and *in-situ* sampling (physical tests, anions and nutrients) collected at the RSEM R6 IDZ site (RBPR-7.15).

Parameter (mg/L)	MDL	RSEM R6 IDZ/ RBPR-7.15						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Physical Tests										
Sp. Conductivity (In Situ, µS/cm)		42	0	205	182.5	238.9	16			0
Sp. Conductivity (lab, µS/cm)	2	17	0	199	180	235	16.7			0
Hardness (as CaCO3)	0.5	17	0	103	90.3	126	11.4			0
Total Dissolved Solids	13	17	0	137	107	234	33.4			0
Total Suspended Solids	1	17	0	82.5	2.9	1,000	255			0
Turbidity (In Situ, NTU)		42	0	54.6	0.9	690	166			0
Turbidity (lab, NTU)	0.1	17	0	84.6	1.34	1,070	274			0
pH (In Situ, pH units)		39	0	8.03	7.61	8.79	0.3		6.5 to 9	0
pH (lab, pH units)	0.1	17	0	8.16	8.07	8.24	0.04		6.5 to 9	0
Anions and Nutrients										
Alkalinity, Total (as CaCO3)	1	17	0	92.2	77.8	112	10.1			0
Ammonia, Total (as N)	0.005	17	12	<0.00759	<0.005	0.0352	0.00771	0.102	0.68	0
Anion Sum	0	17	0	2.2	1.89	2.67	0.248			0
Bromide (Br)	0.05	17	17	<0.05	<0.05	<0.05				0
Cation - Anion Balance	0	17	13	-1.039	-4.7	4.7	2.31			0
Cation Sum	0	17	0	2.16	1.87	2.65	0.248			0
Chloride (Cl)	0.5	17	16	<0.517	<0.5	0.74	0.0618	150	600	0
Dissolved Orthophosphate (as P)	0.001	17	13	<0.00173	<0.001	0.008	0.00184			0
Fluoride (F)	0.02	17	0	0.0467	0.039	0.071	0.0104		EQ	0
Nitrate (as N)	0.005	17	0	0.0632	0.0372	0.136	0.0219	3	32	0
Nitrite (as N)	0.001	17	16	<0.0011	<0.001	0.0024	0.000361	0.02	EQ	0
Sulfate (SO4)	0.3	17	0	16.8	14.2	21.5	2.41	EQ		0
Total Phosphorus (P)	0.002	17	0	0.0837	0.005	0.975	0.248			0
Dissolved Organic Carbon	0.5	17	0	3.46	2.21	11.7	2.46			0
Total Organic Carbon	0.5	17	0	5.15	2.27	29	6.78			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.
Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.
BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 24. 2018 annual data summary statistics for total metals collected at the RSEM R6 IDZ site (RBPR-7.15).

Parameter (mg/L)	MDL	RSEM R6 IDZ/ RBPR-7.15						BC Long-Term	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.	WQG[1]	WQG[2]	# Exc
Total Metals										
Aluminum (Al)	0.003	17	0	1.19	0.0319	13.8	3.51			0
Antimony (Sb)	0.0001	17	12	<0.000147	<0.0001	0.0006	0.000129			0
Arsenic (As)	0.0001	17	0	0.00109	0.0002	0.0108	0.0027		0.005	1
Barium (Ba)	0.00005	17	0	0.0886	0.0309	0.623	0.15	1		0
Beryllium (Be)	0.00002	17	15	<0.0000829	<0.00002	0.00081	0.000203	0.00013		0
Bismuth (Bi)	0.00005	17	16	<0.0000643	<0.00005	0.00025	0.0000515			0
Boron (B)	0.01	17	16	<0.0107	<0.01	0.02	0.00258		1.2	0
Cadmium (Cd)	0.00001	17	2	0.000127	0.00001	0.00137	0.000346			0
Calcium (Ca)	0.05	17	0	31.6	26.5	53.3	6.63			0
Cesium (Cs)	0.00001	2	0	0.00159	0.00039	0.00279	0.0012			0
Chromium (Cr)	0.0001	17	0	0.00249	0.00017	0.0257	0.00648			0
Cobalt (Co)	0.0001	17	13	<0.0011	<0.0001	0.0127	0.00323	0.004	0.11	0
Copper (Cu)	0.0005	17	0	0.00366	0.00064	0.0364	0.00912	EQ	EQ	1
Iron (Fe)	0.01	17	0	2.45	0.049	29.7	7.58		1	2
Lead (Pb)	0.00005	17	7	<0.00127	<0.00005	0.0154	0.00393	EQ	EQ	0
Lithium (Li)	0.001	17	2	<0.00306	<0.001	0.0188	0.00446			0
Magnesium (Mg)	0.1	17	0	7.73	5.79	16.6	2.7			0
Manganese (Mn)	0.0001	17	0	0.0413	0.00235	0.475	0.121	EQ	EQ	0
Mercury (Hg)	0.00001	17	17	<0.0000179	<0.00001	<0.0001	0.0000234	0.00002		0
Molybdenum (Mo)	0.00005	17	0	0.00102	0.00066	0.00165	0.000278	1	2	0
Nickel (Ni)	0.0005	17	0	0.00442	0.00077	0.0437	0.011	EQ		0
Phosphorus (P)	0.05	17	15	<0.13	<0.05	1.11	0.272			0
Potassium (K)	0.1	17	0	0.831	0.42	4.53	1.04			0
Rubidium (Rb)	0.0002	2	0	0.0145	0.00447	0.0245	0.01			0
Selenium (Se)	0.00005	17	0	0.000391	0.00024	0.0013	0.000265	0.002		0
Silicon (Si)	0.1	17	0	3.87	2.01	23.1	5.35			0
Silver (Ag)	0.00001	17	15	<0.000035	<0.00001	0.00034	0.0000847	EQ	EQ	0
Sodium (Na)	0.05	17	0	1.84	1.33	2.88	0.475			0
Strontium (Sr)	0.0002	17	0	0.119	0.0983	0.192	0.0232			0
Sulfur (S)	0.5	17	0	5.84	4.73	7.76	0.956			0
Tellurium (Te)	0.0002	2	2	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	17	14	<0.0000379	<0.00001	0.00035	0.0000872			0
Thorium (Th)	0.0001	2	0	0.00241	0.00038	0.00443	0.00203			0
Tin (Sn)	0.0001	17	16	<0.000101	<0.0001	0.00011	0.00000258			0
Titanium (Ti)	)0090(1) / 0.0	17	0	<0.00877	<0.0006	0.0792	0.02			0
Tungsten (W)	0.0001	2	2	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	17	0	0.000585	0.00043	0.00169	0.00031	0.0085		0
Vanadium (V)	0.0005	17	4	<0.00484	<0.0005	0.0507	0.0128			0
Zinc (Zn)	0.003	17	12	<0.0151	<0.003	0.151	0.0378	EQ	EQ	1
Zirconium (Zr)	0.0003	17	15	0.000316	0.00015	0.00068	0.000108			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 25. 2018 annual data summary statistics for dissolved metals collected at the RSEM R6 IDZ site (RBPR-7.15).

Parameter (mg/L)	MDL	RSEM R6 IDZ/ RBPR-7.15						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Dissolved Metals										
Aluminum (Al)	0.001	17	0	0.00917	0.0033	0.037	0.00901	0.05	EQ	0
Antimony (Sb)	0.0001	17	16	<0.000103	<0.0001	0.00014	0.0000103			0
Arsenic (As)	0.0001	17	0	0.000211	0.00015	0.00042	0.0000658			0
Barium (Ba)	0.00005	17	0	0.0425	0.0319	0.0667	0.0124			0
Beryllium (Be)	0.00002	17	17	<0.0000314	<0.00002	<0.0001	0.000028			0
Bismuth (Bi)	0.00005	17	17	<0.00005	<0.00005	<0.00005				0
Boron (B)	0.01	17	17	<0.01	<0.01	<0.01				0
Cadmium (Cd)	0.00001	17	15	0.0000121	0.00001	0.00003	0.00000558	EQ	EQ	0
Calcium (Ca)	0.05	17	0	29.6	26	35.5	3.05			0
Cesium (Cs)-Dissolved	0.00001	2	2	<0.00001	<0.00001	<0.00001				0
Chromium (Cr)	0.0001	17	12	<0.000115	<0.0001	0.00018	0.0000244			0
Cobalt (Co)	0.0001	17	17	<0.0001	<0.0001	<0.0001				0
Copper (Cu)	0.0002	17	0	0.000852	0.00052	0.00336	0.000724			0
Iron (Fe)	0.01	17	12	<0.0222	<0.01	0.096	0.0274		0.35	0
Lead (Pb)	0.00005	17	16	<0.0000514	<0.00005	0.00007	0.00000515			0
Lithium (Li)	0.001	17	2	<0.00175	<0.001	0.003	0.00067			0
Magnesium (Mg)	0.1	17	0	7.07	6.15	9.17	0.995			0
Manganese (Mn)	0.0001	17	0	0.00125	0.00021	0.0041	0.000963			0
Mercury (Hg)	0.00001	17	17	<0.00001	<0.00001	<0.00001				0
Molybdenum (Mo)	0.00005	17	0	0.000913	0.0007	0.00129	0.000178			0
Nickel (Ni)	0.0005	17	0	0.000962	0.00063	0.00289	0.000589			0
Phosphorus (P)	0.05	17	17	<0.05	<0.05	<0.05				0
Potassium (K)	0.1	17	0	0.572	0.41	1.66	0.31			0
Rubidium (Rb)	0.0002	2	0	0.00044	0.00034	0.00054	0.0001			0
Selenium (Se)	0.00005	17	0	0.000321	0.00022	0.00052	0.0000881			0
Silicon (Si)	0.05	17	0	2	1.76	2.12	0.0904			0
Silver (Ag)	0.00001	17	17	<0.00001	<0.00001	<0.00001				0
Sodium (Na)	0.05	17	0	1.82	1.32	2.63	0.407			0
Strontium (Sr)	0.0002	17	0	0.114	0.0983	0.14	0.0132			0
Sulfur (S)	0.5	17	0	5.35	4.07	6.56	0.831			0
Tellurium (Te)	0.0002	2	2	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	17	17	<0.00001	<0.00001	<0.00001				0
Thorium (Th)	0.0001	2	2	<0.0001	<0.0001	<0.0001				0
Tin (Sn)	0.0001	17	17	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	17	15	<0.000694	<0.0003	0.00377	0.000942			0
Tungsten (W)	0.0001	2	2	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	17	0	0.000491	0.00042	0.00055	0.0000362			0
Vanadium (V)	0.0005	17	17	<0.0005	<0.0005	<0.0005				0
Zinc (Zn)	0.001	17	17	<0.001	<0.001	<0.001				0
Zirconium (Zr)	0.0003	17	15	<0.000302	<0.0003	0.00032	0.00000558			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 26. 2018 annual data summary statistics for lab and *in-situ* sampling (physical tests, anions and nutrients) collected at the MOE far-field downstream right bank site (RBPR-9.34).

Parameter	MDL	MOE far-field/ RBPR-9.34						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc.
Physical Tests (mg/L)										
Sp. Conductivity (In Situ, µS/cm)		57	0	203.3	184.7	235	14.9			0
Sp. Conductivity (lab, µS/cm)	2	20	0	199	180	232	16.2			0
Hardness (as CaCO3)	0.5	20	0	104	89.2	125	10.3			0
Total Dissolved Solids	13	20	0	142	107	235	33			0
Total Suspended Solids	1	20	0	136	2.6	1,100	266			0
Turbidity (In Situ, NTU)		57	0	76.4	0.8	699	163			0
Turbidity (lab, NTU)	0.1	20	0	116	1.33	1,110	273			0
pH (In Situ, pH units)		54	0	7.89	7.42	8.18	0.22		6.5 to 9	0
pH (lab, pH units)	0.1	20	0	8.17	8.09	8.24	0.05		6.5 to 9	0
Anions and Nutrients (mg/L)										
Alkalinity, Total (as CaCO3)	1	20	0	93.9	78.7	112	10.3			0
Ammonia, Total (as N)	0.005	20	12	<0.0118	<0.005	0.0633	0.0147	0.102	0.68	0
Anion Sum	0	20	0	2.23	1.91	2.67	0.243			0
Bromide (Br)	0.05	20	20	<0.05	<0.05	<0.05				0
Cation - Anion Balance	0	20	15	-1.179	-6.6	5	3.17			0
Cation Sum	0	20	0	2.17	1.85	2.63	0.222			0
Chloride (Cl)	0.5	20	20	<0.5	<0.5	<0.5		150	600	0
Dissolved Orthophosphate (as P)	0.001	20	10	<0.00216	<0.001	0.0074	0.00185			0
Fluoride (F)	0.02	20	0	0.05	0.037	0.078	0.0125		EQ	0
Nitrate (as N)	0.005	20	0	0.0639	0.0297	0.135	0.0238	3	32	0
Nitrite (as N)	0.001	20	20	<0.001	<0.001	<0.001		0.02	EQ	0
Sulfate (SO4)	0.3	20	0	16.6	14.1	21	2.11	EQ		0
Total Phosphorus (P)	0.002	20	0	0.122	0.0052	0.932	0.236			0
Dissolved Organic Carbon	0.5	20	0	4.01	2.17	10.9	2.6			0
Total Organic Carbon	0.5	20	0	6	2.34	25	6.09			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.
Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.
BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 27. 2018 annual data summary statistics for total metals collected at the MOE far-field downstream right bank site (RBPR-9.34).

Parameter (mg/L)	MDL	MOE far-field/ RBPR-9.34						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Total Metals										
Aluminum (Al)	0.003	20	0	1.6	0.0493	12.9	3.25			0
Antimony (Sb)	0.0001	20	11	<0.000173	<0.0001	0.0006	0.000139			0
Arsenic (As)	0.0001	20	0	0.00141	0.00021	0.00972	0.00245		0.005	3
Barium (Ba)	0.00005	20	0	0.108	0.0313	0.547	0.134	1		0
Beryllium (Be)	0.00002	20	11	<0.000109	<0.00002	0.00077	0.000197	0.00013		0
Bismuth (Bi)	0.00005	20	17	<0.0000647	<0.00005	0.00024	0.0000459			0
Boron (B)	0.01	20	16	<0.011	<0.01	0.02	0.00277		1.2	0
Cadmium (Cd)	0.00001	20	0	0.000166	0.00001	0.00126	0.000316			0
Calcium (Ca)	0.05	20	0	32.5	27	53	6.46			0
Cesium (Cs)	0.00001	3	0	0.00116	0.00036	0.00266	0.00106			0
Chromium (Cr)	0.0001	20	0	0.00314	0.00018	0.0234	0.00595			0
Cobalt (Co)	0.0001	20	9	<0.0014	<0.0001	0.0114	0.00289	0.004	0.11	0
Copper (Cu)	0.0005	20	0	0.0045	0.00066	0.0329	0.00815	EQ	EQ	3
Iron (Fe)	0.01	20	0	3.25	0.073	26.8	6.85		1	8
Lead (Pb)	0.00005	20	3	<0.00174	<0.00005	0.0149	0.00372	EQ	EQ	0
Lithium (Li)	0.001	20	1	0.00376	0.001	0.0193	0.00464			0
Magnesium (Mg)	0.1	20	0	8.15	6.05	15.3	2.33			0
Manganese (Mn)	0.0001	20	0	0.0525	0.00261	0.424	0.105	EQ	EQ	0
Mercury (Hg)	0.00001	20	19	<0.0000368	<0.00001	<0.00025	0.0000582	0.00002		0
Molybdenum (Mo)	0.00005	20	0	0.00106	0.0007	0.00154	0.000243	1	2	0
Nickel (Ni)	0.0005	20	0	0.00567	0.00076	0.0397	0.0101	EQ		0
Phosphorus (P)	0.05	20	11	<0.164	<0.05	1	0.244			0
Potassium (K)	0.1	20	0	0.981	0.43	4.2	0.972			0
Rubidium (Rb)	0.0002	3	0	0.0103	0.00376	0.0223	0.00851			0
Selenium (Se)	0.00005	20	0	0.000433	0.0002	0.00122	0.000248	0.002		0
Silicon (Si)	0.1	20	0	4.47	1.97	21.7	4.9			0
Silver (Ag)	0.00001	20	12	<0.0000437	<0.00001	0.00031	0.0000777	EQ	EQ	0
Sodium (Na)	0.05	20	0	1.72	1.26	2.69	0.4			0
Strontium (Sr)	0.0002	20	0	0.122	0.0992	0.188	0.0194			0
Sulfur (S)	0.5	20	0	5.86	4.53	7.87	0.899			0
Tellurium (Te)	0.0002	3	3	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	20	11	0.0000503	0.00001	0.00034	0.0000857			0
Thorium (Th)	0.0001	3	0	0.00166	0.00034	0.00413	0.00175			0
Tin (Sn)	0.0001	20	20	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	20	0	0.0134	0.00092	0.0751	0.02			0
Tungsten (W)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	20	0	0.00062	0.00045	0.00169	0.000294	0.0085		0
Vanadium (V)	0.0005	20	1	<0.00649	<0.0005	0.046	0.0119			0
Zinc (Zn)	0.003	20	10	<0.0189	<0.003	0.134	0.0336	EQ	EQ	3
Zirconium (Zr)	0.0003	20	15	0.000315	0.00013	0.0007	0.000115			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 28. 2018 annual data summary statistics for dissolved metals collected at the MOE far-field downstream right bank site (RBPR-9.34).

Parameter (mg/L)	MDL	MOE far-field/ RBPR-9.34						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Dissolved Metals										
Aluminum (Al)	0.001	20	0	0.0101	0.0033	0.035	0.00869	0.05	EQ	0
Antimony (Sb)	0.0001	20	16	<0.000106	<0.0001	0.00015	0.0000143			0
Arsenic (As)	0.0001	20	0	0.000222	0.00014	0.00041	0.0000711			0
Barium (Ba)	0.00005	20	0	0.0463	0.0313	0.0775	0.0154			0
Beryllium (Be)	0.00002	20	20	<0.0000326	<0.00002	<0.0001	0.0000292			0
Bismuth (Bi)	0.00005	20	20	<0.00005	<0.00005	<0.00005				0
Boron (B)	0.01	20	20	<0.01	<0.01	<0.01				0
Cadmium (Cd)	0.00001	20	16	0.0000134	0.00001	0.00004	8.59E-06	EQ	EQ	0
Calcium (Ca)	0.05	20	0	29.9	25.8	35.6	2.78			0
Cesium (Cs)-Dissolved	0.00001	3	3	<0.00001	<0.00001	<0.00001				0
Chromium (Cr)	0.0001	20	14	<0.00011	<0.0001	0.00018	0.0000165			0
Cobalt (Co)	0.0001	20	17	<0.000103	<0.0001	0.00014	7.84E-06			0
Copper (Cu)	0.0002	20	0	0.000987	0.00048	0.00328	0.000807			0
Iron (Fe)	0.01	20	11	<0.0322	<0.01	0.114	0.0329		0.35	0
Lead (Pb)	0.00005	20	15	<0.0000537	<0.00005	0.00009	8.09E-06			0
Lithium (Li)	0.001	20	2	<0.0018	<0.001	0.003	0.000733			0
Magnesium (Mg)	0.1	20	0	7.2	6.01	8.9	0.941			0
Manganese (Mn)	0.0001	20	1	0.00151	0.0001	0.00541	0.00142			0
Mercury (Hg)	0.00001	20	20	<0.00001	<0.00001	<0.00001				0
Molybdenum (Mo)	0.00005	20	0	0.000977	0.00072	0.00147	0.000207			0
Nickel (Ni)	0.0005	20	0	0.0011	0.00063	0.00274	0.000625			0
Phosphorus (P)	0.05	20	19	<0.0558	<0.05	0.16	0.0246			0
Potassium (K)	0.1	20	0	0.587	0.4	1.52	0.269			0
Rubidium (Rb)	0.0002	3	0	0.000377	0.00028	0.00049	0.0000865			0
Selenium (Se)	0.00005	20	0	0.000339	0.00024	0.00049	0.000084			0
Silicon (Si)	0.05	20	0	2.01	1.75	2.19	0.107			0
Silver (Ag)	0.00001	20	20	<0.00001	<0.00001	<0.00001				0
Sodium (Na)	0.05	20	0	1.67	1.22	2.5	0.325			0
Strontium (Sr)	0.0002	20	0	0.113	0.0967	0.137	0.0125			0
Sulfur (S)	0.5	20	0	5.37	4.29	6.47	0.676			0
Tellurium (Te)	0.0002	3	3	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	20	20	<0.00001	<0.00001	<0.00001				0
Thorium (Th)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Tin (Sn)	0.0001	20	20	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	20	13	<0.000952	<0.0003	0.00359	0.001			0
Tungsten (W)	0.0001	3	3	<0.0001	<0.0001	<0.0001				0
Uranium (U)	0.00001	20	0	0.000485	0.00043	0.00053	0.0000287			0
Vanadium (V)	0.0005	20	20	<0.0005	<0.0005	<0.0005				0
Zinc (Zn)	0.001	20	20	<0.001	<0.001	<0.001				0
Zirconium (Zr)	0.0003	20	15	0.000298	0.00016	0.00043	0.000041			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 29. 2018 annual data summary statistics for lab and *in-situ* sampling (physical tests, anions and nutrients) collected at the MOE far-field downstream right bank site (LBPR-9.34).

Parameter	MDL	MOE far-field/ LBPR-9.34						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Physical Tests (mg/L)										
Specific Conductivity (In Situ, µS/cm)		57	0	210.4	190.3	250	18.6			0
Conductivity (lab, µS/cm)	2	21	0	206	185	243	19			0
Hardness (as CaCO3)	0.5	21	0	107	94.3	128	10.9			0
Total Dissolved Solids	13	21	0	144	109	238	38.6			0
Total Suspended Solids	1	21	0	118	3.7	1,040	250			0
Turbidity (In Situ, NTU)		57	0	67.4	1.1	620	152			0
Turbidity (lab, NTU)	0.1	21	0	94.8	1.41	920	229			0
pH (In Situ, pH units)		54	0	7.95	7.58	8.22	0.19		6.5 to 9	0
pH (lab, pH units)	0.1	21	0	8.18	8.05	8.29	0.05		6.5 to 9	0
Anions and Nutrients (mg/L)										
Alkalinity, Total (as CaCO3)	1	21	0	94.7	82.3	111	9.61			0
Ammonia, Total (as N)	0.005	21	15	<0.00844	<0.005	0.0389	0.00857	0.102	0.68	0
Anion Sum	0	21	0	2.29	1.98	2.73	0.259			0
Bromide (Br)	0.05	21	21	<0.05	<0.05	<0.05				0
Cation - Anion Balance	0	21	15	-1.395	-4.9	4.9	2.63			0
Cation Sum	0	21	0	2.22	1.96	2.67	0.232			0
Chloride (Cl)	0.5	21	18	<0.515	<0.5	0.63	0.0365	150	600	0
Dissolved Orthophosphate (as P)	0.001	21	13	<0.00196	<0.001	0.0082	0.00183			0
Fluoride (F)	0.02	21	0	0.0497	0.036	0.077	0.012		EQ	0
Nitrate (as N)	0.005	21	0	0.0615	0.0332	0.13	0.0223	3	32	0
Nitrite (as N)	0.001	21	21	<0.001	<0.001	<0.001		0.02	EQ	0
Sulfate (SO4)	0.3	21	0	18.6	14.4	24.1	3.32	EQ		0
Total Phosphorus (P)	0.002	21	0	0.129	0.0043	1.12	0.276			0
Dissolved Organic Carbon	0.5	21	0	3.83	2.12	12.4	2.9			0
Total Organic Carbon	0.5	21	0	5.84	2.23	26.3	6.61			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc" column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 30. 2018 annual data summary statistics for total metals collected at the MOE far-field downstream right bank site (LBPR-9.34).

Parameter (mg/L)	MDL	MOE far-field/ LBPR-9.34						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Total Metals										
Aluminum (Al)	0.003	21	0	1.42	0.0364	12.4	3.05			0
Antimony (Sb)	0.0001	21	13	<0.000172	<0.0001	0.00061	0.000141			0
Arsenic (As)	0.0001	21	0	0.00131	0.00021	0.01	0.00244		0.005	2
Barium (Ba)	0.00005	21	0	0.0958	0.0308	0.51	0.121	1		0
Beryllium (Be)	0.00002	21	14	<0.0000992	<0.00002	0.00075	0.000189	0.00013		0
Bismuth (Bi)	0.00005	21	18	<0.0000663	<0.00005	0.00024	0.0000453			0
Boron (B)	0.01	21	19	<0.0109	<0.01	0.02	0.00265		1.2	0
Cadmium (Cd)	0.00001	21	0	0.000169	0.00001	0.00133	0.000329			0
Calcium (Ca)	0.05	21	0	33.2	27.5	53.6	6.6			0
Cesium (Cs)	0.00001	3	0	0.00123	0.00048	0.00272	0.00105			0
Chromium (Cr)	0.0001	21	0	0.00286	0.00018	0.0235	0.00578			0
Cobalt (Co)	0.0001	21	11	<0.00131	<0.0001	0.0119	0.00289	0.004	0.11	0
Copper (Cu)	0.0005	21	0	0.00423	0.00068	0.0344	0.00819	EQ	EQ	2
Iron (Fe)	0.01	21	0	2.86	0.056	26.4	6.49		1	7
Lead (Pb)	0.00005	21	3	<0.00154	<0.00005	0.0142	0.00348	EQ	EQ	0
Lithium (Li)	0.001	21	1	<0.00352	<0.001	0.0178	0.0042			0
Magnesium (Mg)	0.1	21	0	8.23	5.95	15.9	2.45			0
Manganese (Mn)	0.0001	21	0	0.0476	0.0025	0.426	0.101	EQ	EQ	0
Mercury (Hg)	0.00001	21	20	<0.0000237	<0.00001	0.00013	0.0000323	0.00002		0
Molybdenum (Mo)	0.00005	21	0	0.00111	0.00073	0.00175	0.000321	1	2	0
Nickel (Ni)	0.0005	21	0	0.00526	0.00074	0.0409	0.00998	EQ		0
Phosphorus (P)	0.05	21	14	<0.148	<0.05	0.984	0.233			0
Potassium (K)	0.1	21	0	0.919	0.42	4.12	0.933			0
Rubidium (Rb)	0.0002	3	0	0.0114	0.00484	0.0238	0.00878			0
Selenium (Se)	0.00005	21	0	0.000492	0.00023	0.00153	0.00031	0.002		0
Silicon (Si)	0.1	21	0	4.2	1.98	21.1	4.67			0
Silver (Ag)	0.00001	21	15	<0.0000392	<0.00001	0.00031	0.0000733	EQ	EQ	0
Sodium (Na)	0.05	21	0	1.8	1.31	3.38	0.54			0
Strontium (Sr)	0.0002	21	0	0.129	0.103	0.196	0.0232			0
Sulfur (S)	0.5	21	0	6.55	4.99	9.75	1.34			0
Tellurium (Te)	0.0002	3	3	<0.0002	<0.0002	<0.0002				0
Thallium (Tl)	0.00001	21	13	<0.0000497	<0.00001	0.00034	0.0000864			0
Tin (Sn)	0.0001	21	21	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	21	0	<0.0123	<0.0006	0.078	0.02			0
Uranium (U)	0.00001	21	0	0.000641	0.00045	0.00176	0.00031	0.0085		0
Vanadium (V)	0.0005	21	2	<0.00613	<0.0005	0.0465	0.0118			0
Zinc (Zn)	0.003	21	12	<0.0171	<0.003	0.139	0.0337	EQ	EQ	2
Zirconium (Zr)	0.0003	21	17	0.00032	0.00016	0.00072	0.000117			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc" column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Table 31. 2018 annual data summary statistics for dissolved metals collected at the MOE far-field downstream right bank site (LBPR-9.34).

Parameter (mg/L)	MDL	MOE far-field/ LBPR-9.34						BC Long-Term WQG[1]	BC Short-Term Max	
Date: 2018		n.	n<MDL	Avg.	Min.	Max.	S.D.		WQG[2]	# Exc
Dissolved Metals										
Aluminum (Al)	0.001	21	0	0.0107	0.0035	0.0369	0.00991	0.05	EQ	0
Antimony (Sb)	0.0001	21	18	<0.000106	<0.0001	0.00016	0.0000169			0
Arsenic (As)	0.0001	21	0	0.000222	0.00015	0.00046	0.0000779			0
Barium (Ba)	0.00005	21	0	0.041	0.0322	0.055	0.00867			0
Beryllium (Be)	0.00002	21	21	<0.0000326	<0.00002	<0.0001	0.0000292			0
Bismuth (Bi)	0.00005	21	21	<0.00005	<0.00005	<0.00005				0
Boron (B)	0.01	21	21	<0.01	<0.01	<0.01				0
Cadmium (Cd)	0.00001	21	17	0.0000147	<0.00001	0.00005	0.0000109	EQ	EQ	0
Calcium (Ca)	0.05	21	0	30.6	27	36.1	2.8			0
Chromium (Cr)	0.0001	21	14	<0.000119	<0.0001	0.00023	0.0000352			0
Cobalt (Co)	0.0001	21	19	<0.000108	<0.0001	0.00019	0.0000248			0
Copper (Cu)	0.0002	21	0	0.000942	0.00048	0.00341	0.000825			0
Iron (Fe)	0.01	21	14	<0.0267	<0.01	0.126	0.0329		0.35	0
Lead (Pb)	0.00005	21	19	<0.0000532	<0.00005	0.00009	9.76E-06			0
Lithium (Li)	0.001	21	1	<0.00187	<0.001	0.0032	0.000741			0
Magnesium (Mg)	0.1	21	0	7.36	6.26	9.45	1.07			0
Manganese (Mn)	0.0001	21	0	0.0023	0.00022	0.0117	0.00294			0
Mercury (Hg)	0.00001	21	21	<0.00001	<0.00001	<0.00001				0
Molybdenum (Mo)	0.00005	21	0	0.00101	0.00074	0.00141	0.000217			0
Nickel (Ni)	0.0005	21	0	0.00106	0.00061	0.00317	0.000718			0
Phosphorus (P)	0.05	21	21	<0.05	<0.05	<0.05				0
Potassium (K)	0.1	21	0	0.573	0.41	1.56	0.273			0
Selenium (Se)	0.00005	21	0	0.000373	0.0002	0.0006	0.000123			0
Silicon (Si)	0.05	21	0	2.05	1.85	2.19	0.0918			0
Silver (Ag)	0.00001	21	21	<0.00001	<0.00001	<0.00001				0
Sodium (Na)	0.05	21	0	1.75	1.31	3.04	0.452			0
Strontium (Sr)	0.0002	21	0	0.121	0.107	0.152	0.0143			0
Sulfur (S)	0.5	21	0	6.15	4.38	7.73	1.1			0
Thallium (Tl)	0.00001	21	21	<0.00001	<0.00001	<0.00001				0
Tin (Sn)	0.0001	21	21	<0.0001	<0.0001	<0.0001				0
Titanium (Ti)	0.0003	21	14	<0.000907	<0.0003	0.00401	0.00116			0
Uranium (U)	0.00001	21	0	0.000514	0.00044	0.00063	0.0000488			0
Vanadium (V)	0.0005	21	21	<0.0005	<0.0005	<0.0005				0
Zinc (Zn)	0.001	21	21	<0.001	<0.001	<0.001				0
Zirconium (Zr)	0.0003	21	18	<0.000299	<0.00006	0.00052	0.0000772			0

[1] Only average parameter values are compared to the long-term BC WQG. See the methods section of the report for details on how the comparisons are made.

[2] The average, minimum, and maximum values are compared to the short-term max BC WQG. See the methods section of the report for details on how the comparisons are made. A count of the total number of exceedances considering all sampling dates is provided in the "# Exc." column.

Yellow shading indicates an exceedance of the long-term BC WQG, and blue shading indicates an exceedance of the short-term max BC WQG.

Parameters that have a concentration below the detection limit are assumed to have a concentration equal to the detection limit for calculation of the summary statistics.

BC WQG exceedances were not related to RSEM Pond discharge unless otherwise indicated.

Appendix B. Site C PAG Contact RSEM Surface Water Quality Monitoring Time Series Plots – R5b Monthly and 5 in 30-day Data.

Figure 4. 2018 Peace River (*in-situ*) and RSEM R5b pond (lab) specific conductivity.

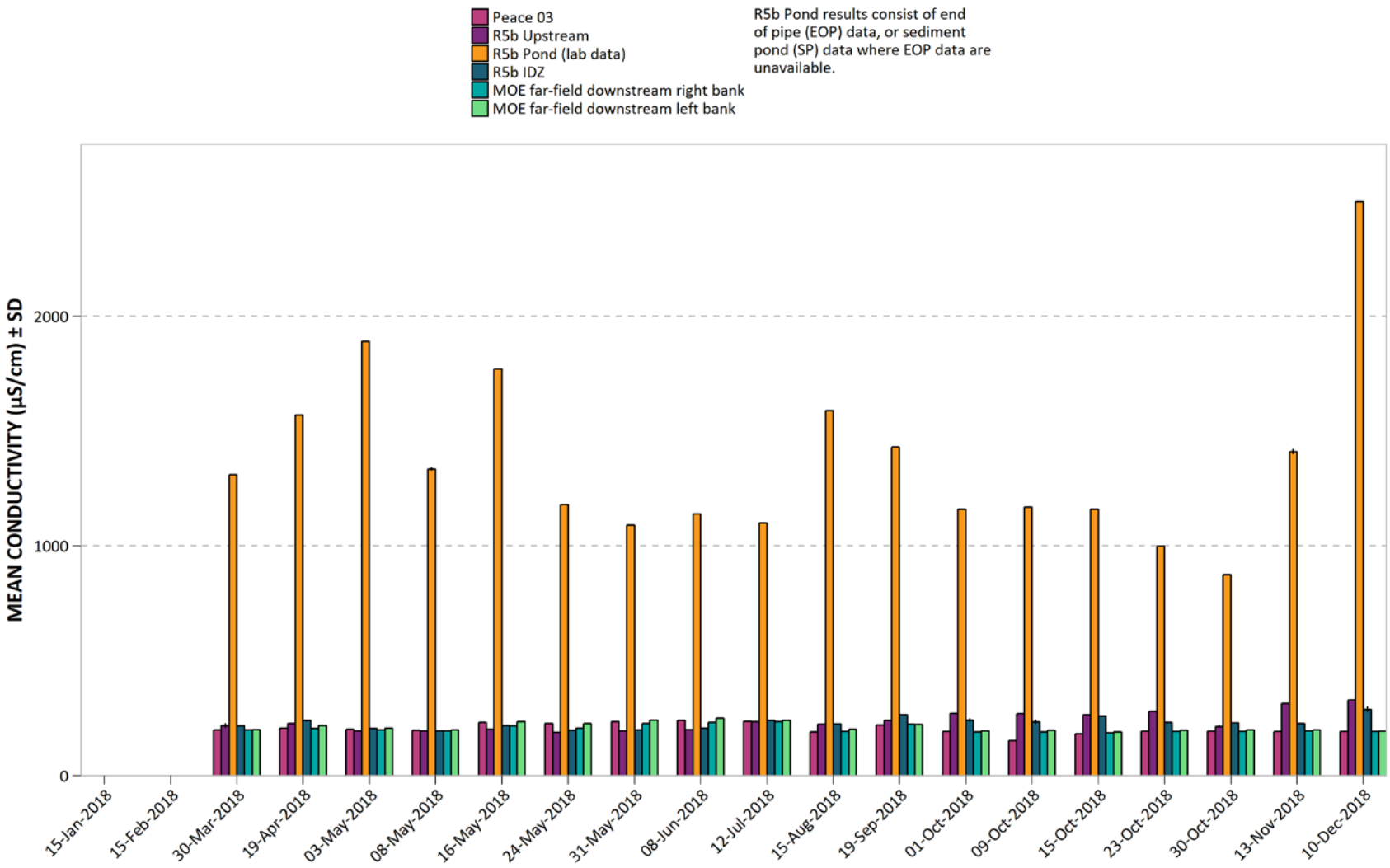


Figure 5. 2018 Peace River and RSEM R5b pond lab specific conductivity.

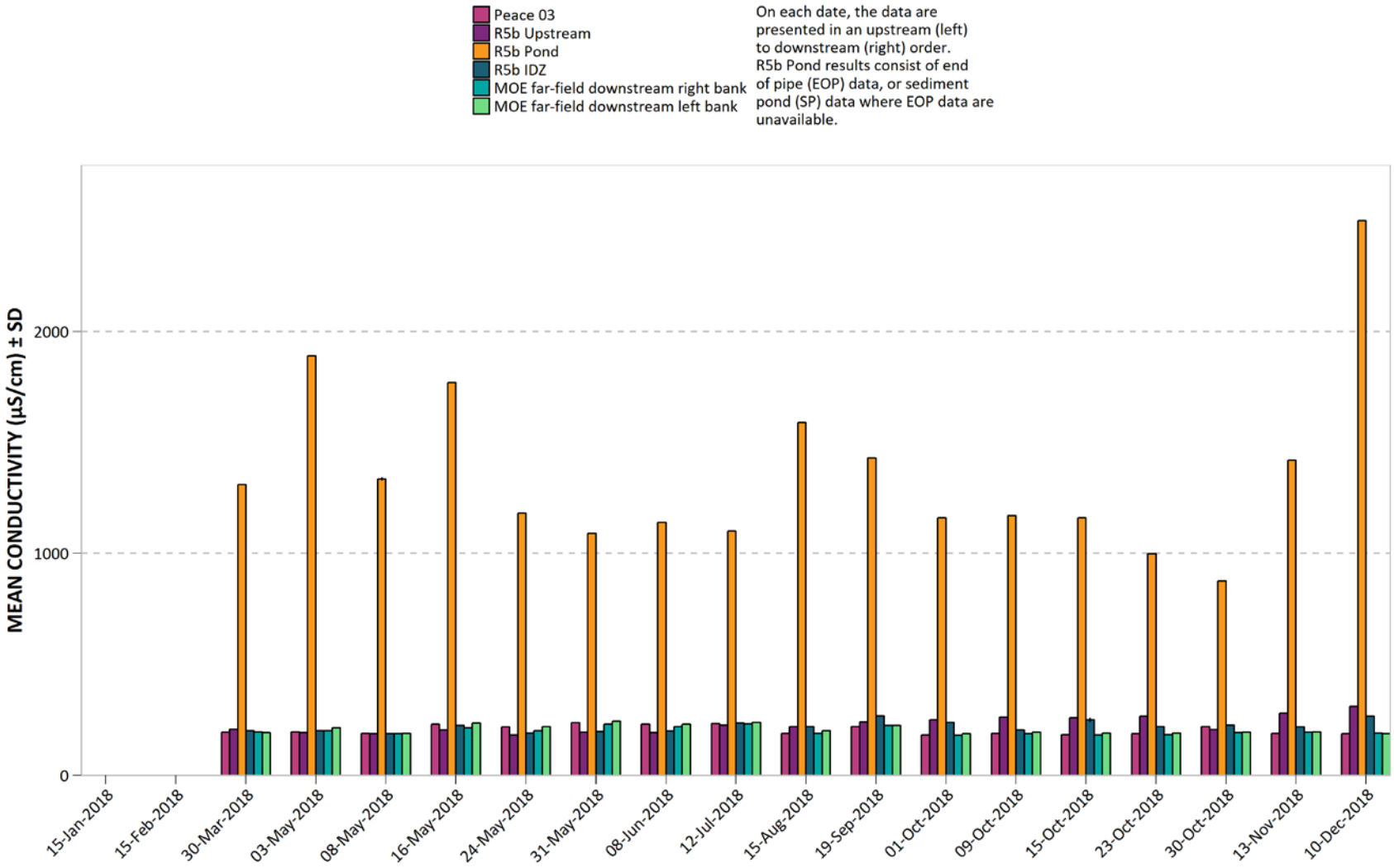


Figure 6. 2018 Peace River and RSEM R5b pond hardness (as $CaCO_3$).

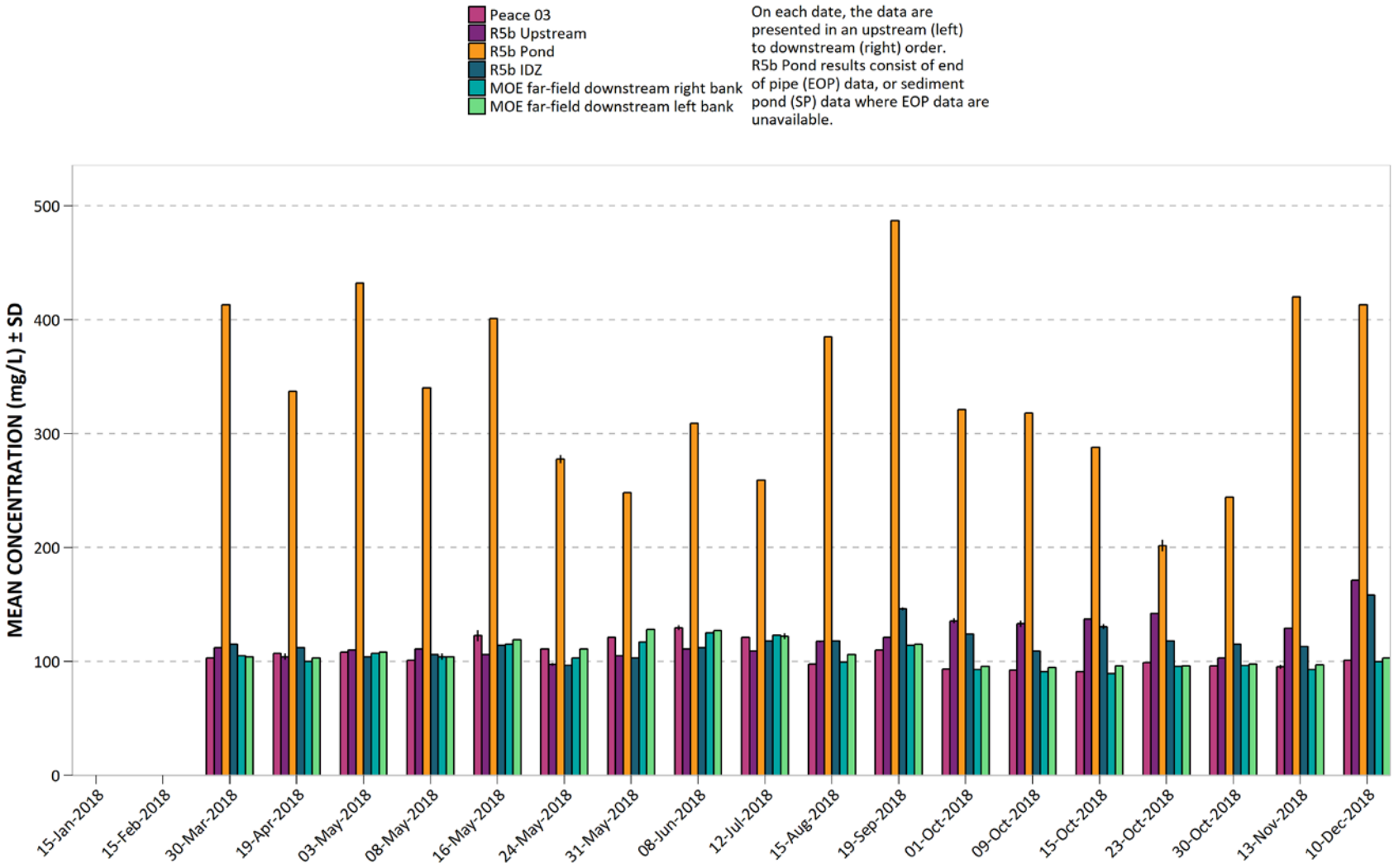


Figure 7. 2018 Peace River and RSEM R5b pond total dissolved solids (TDS).

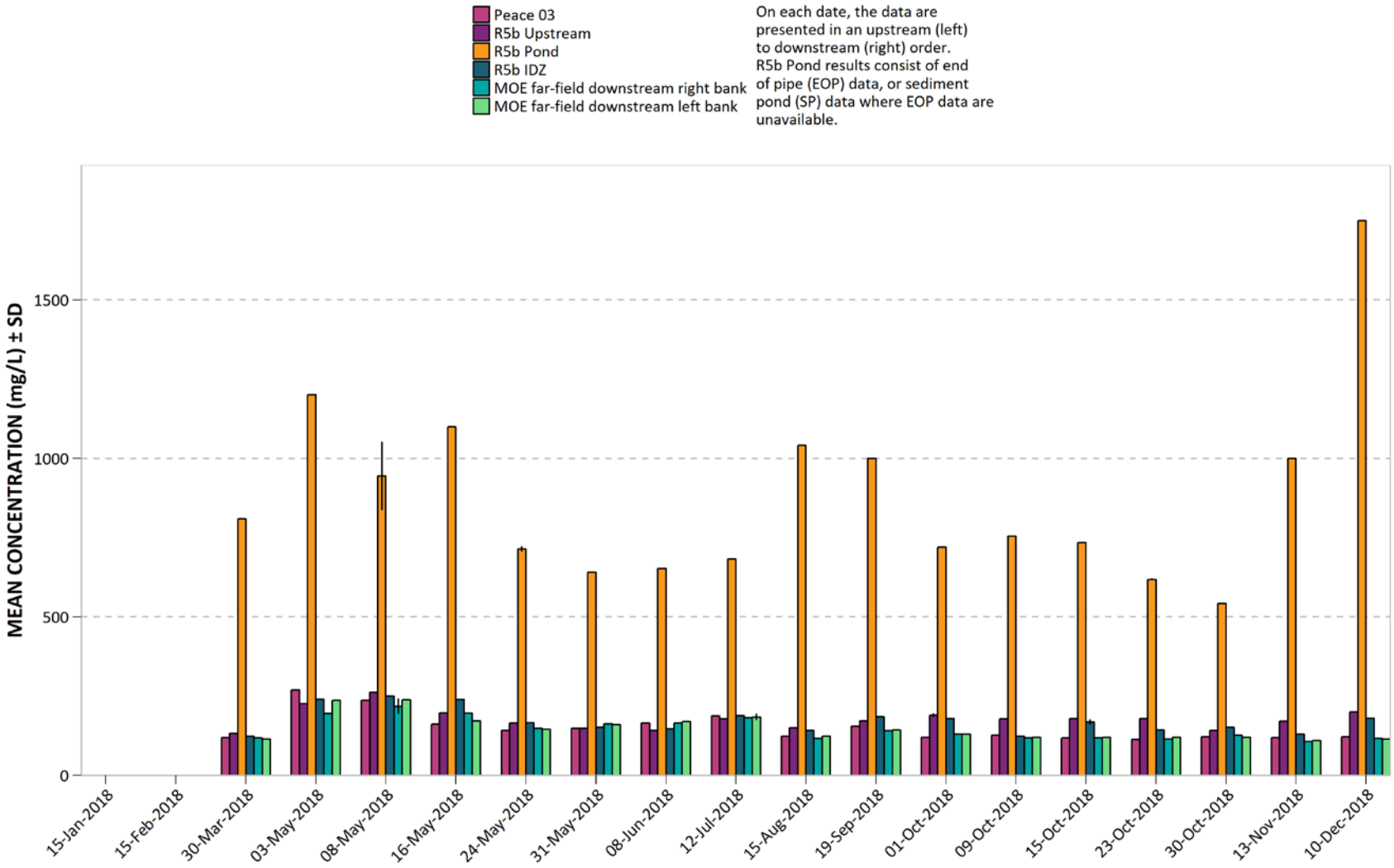
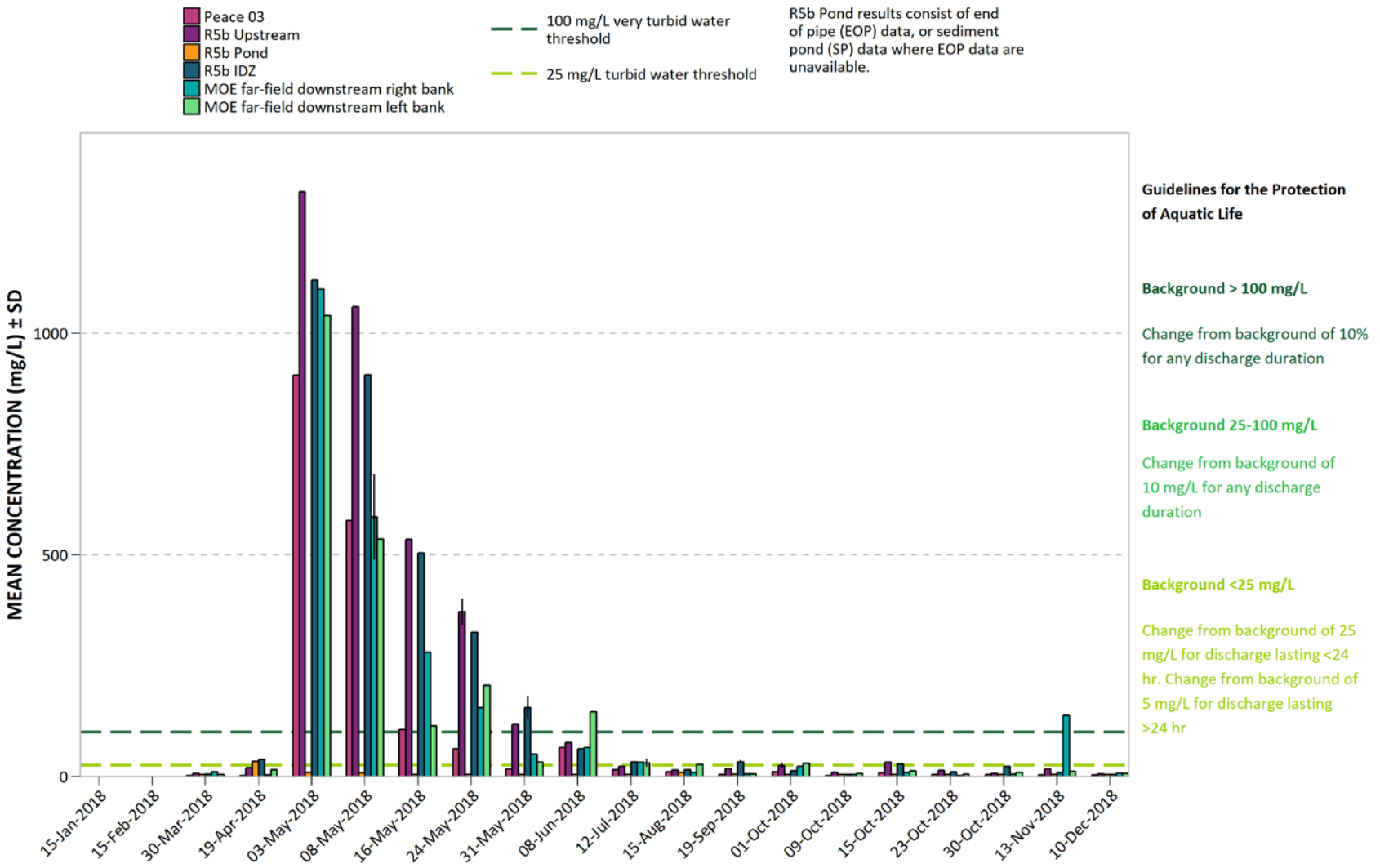


Figure 8. 2018 Peace River and RSEM R5b pond total suspended solids (TSS).



At the Peace River sampling locations, the concentration of total suspended solids (TSS) is obtained preferentially from laboratory data, however if laboratory data are unavailable, TSS is calculated from *in-situ t*urbidity data using site specific TSS:Turbidity relationships.

Figure 9. 2018 Peace River (*in-situ*) RSEM R5b pond (lab) turbidity.

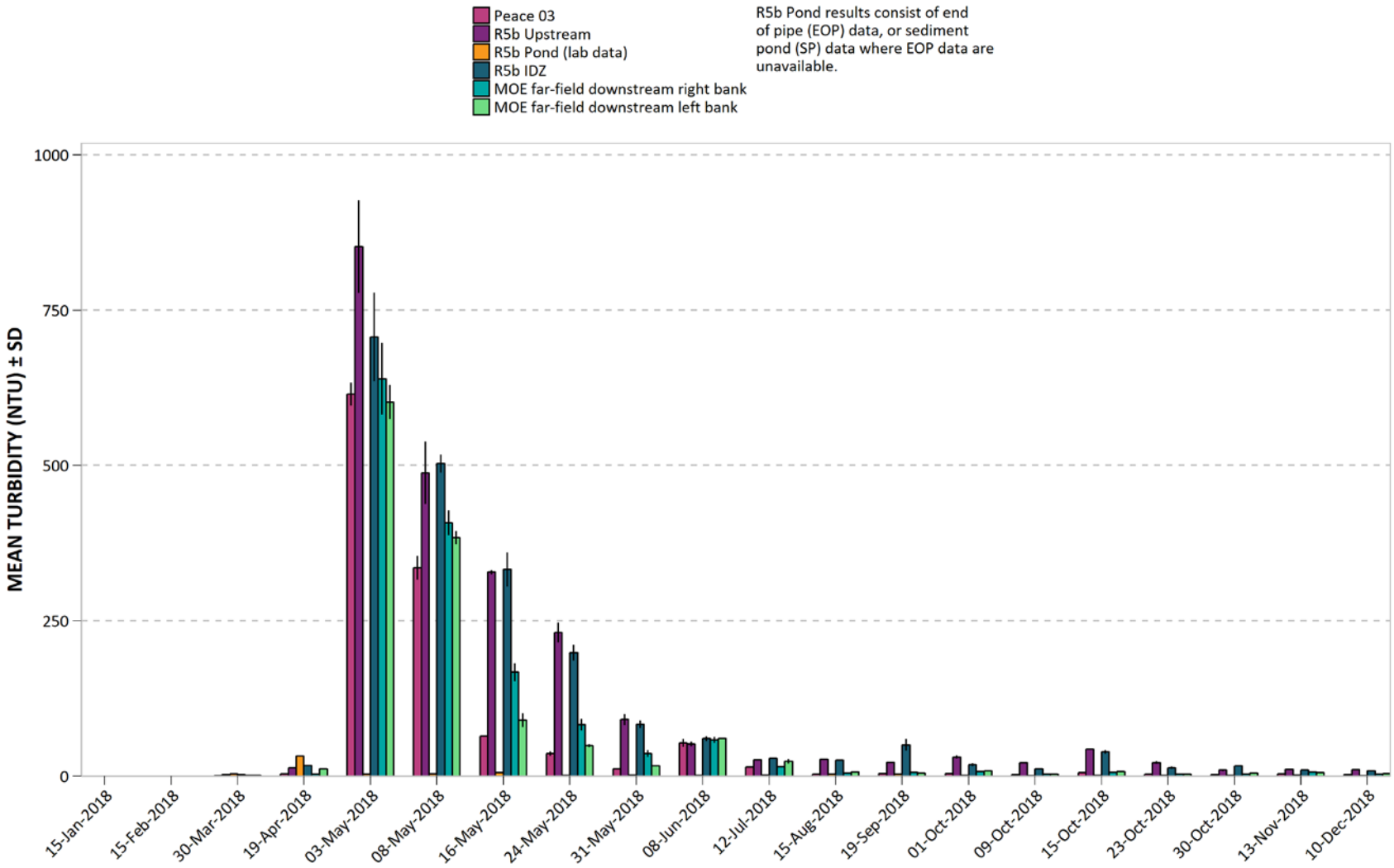


Figure 10. 2018 Peace River (*in*-situ) and RSEM R5b pond (lab) pH.

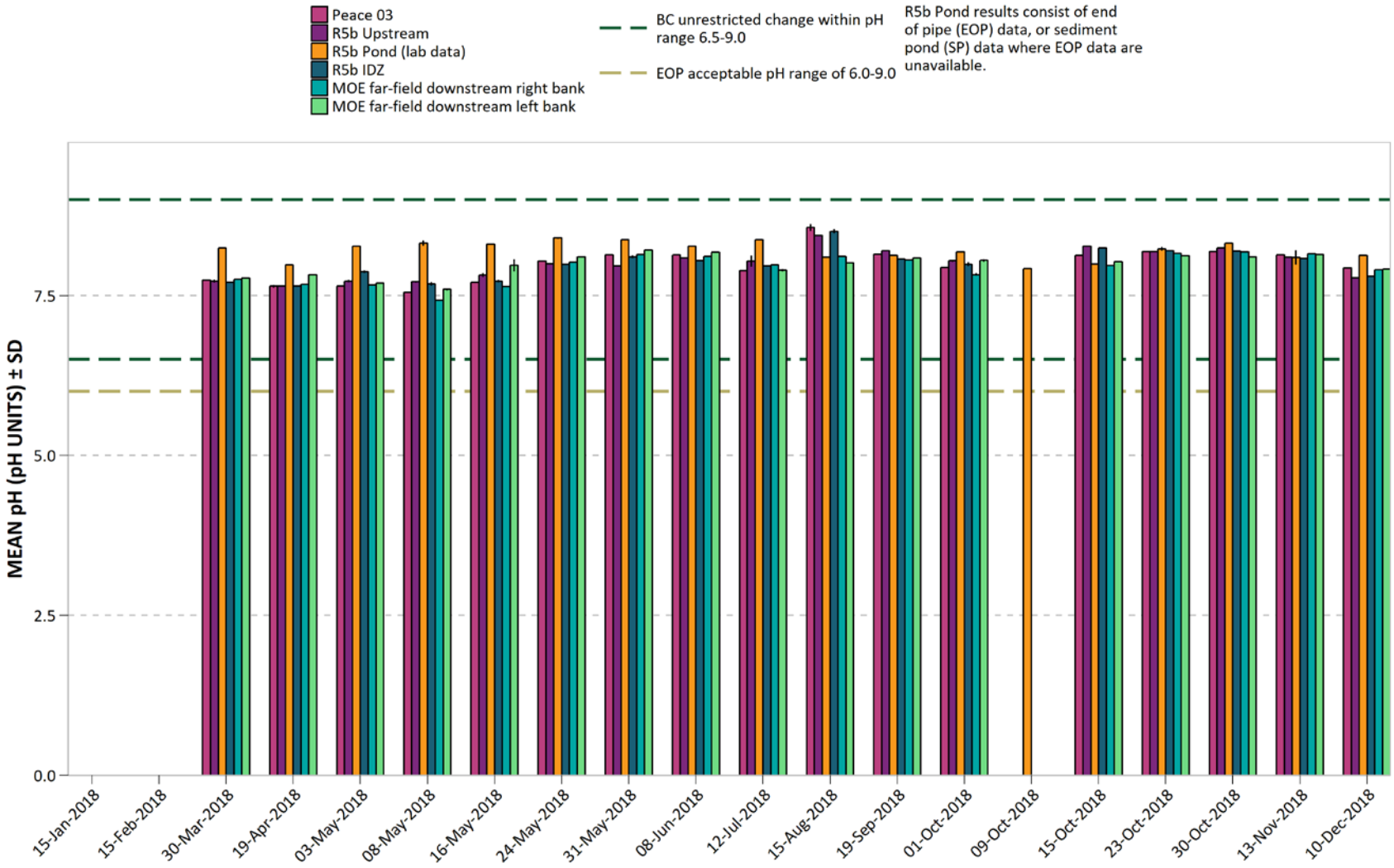


Figure 11. 2018 Peace River and RSEM R5b pond lab pH.

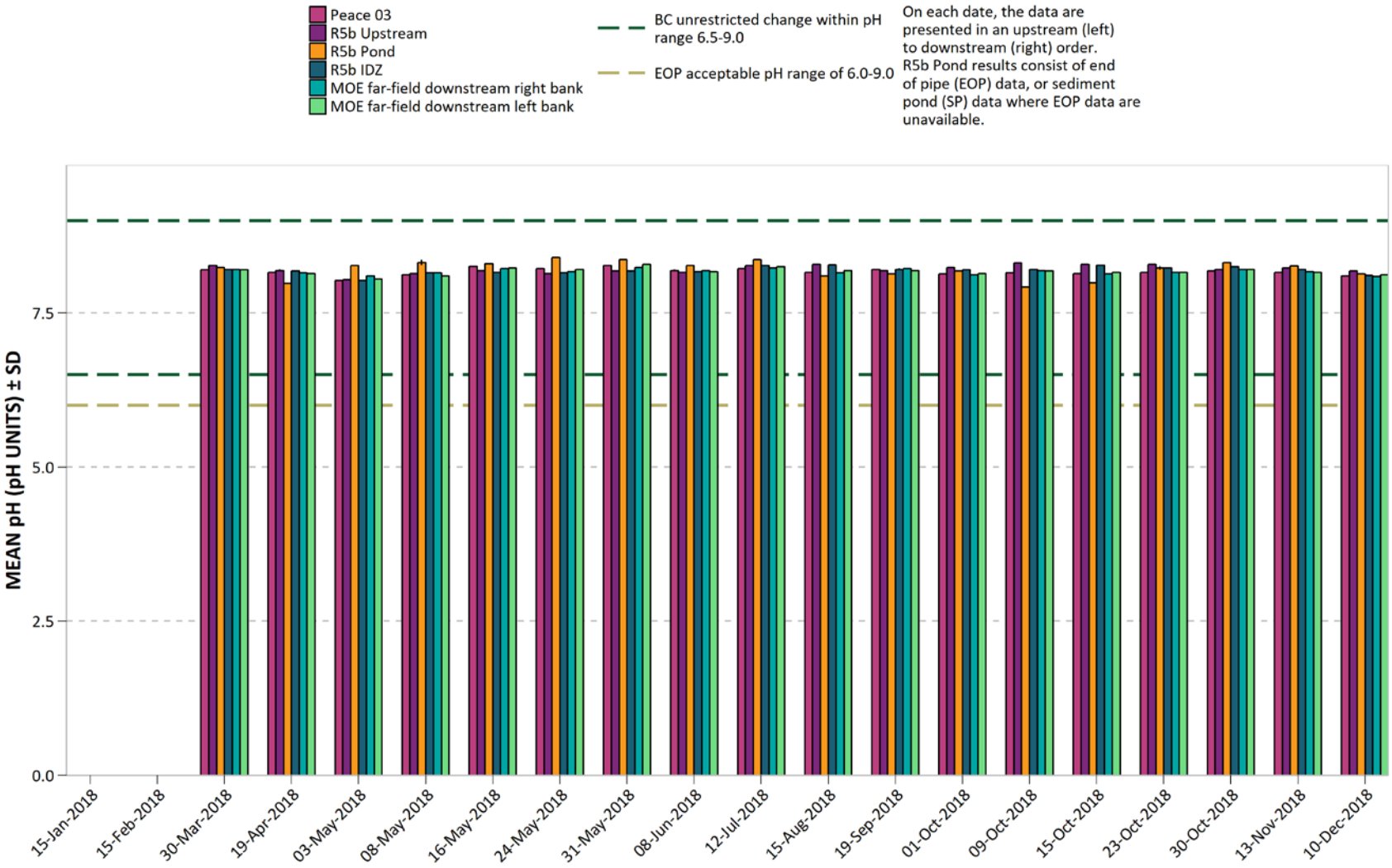


Figure 12. 2018 Peace River and RSEM R5b pond total alkalinity (as $CaCO_3$).

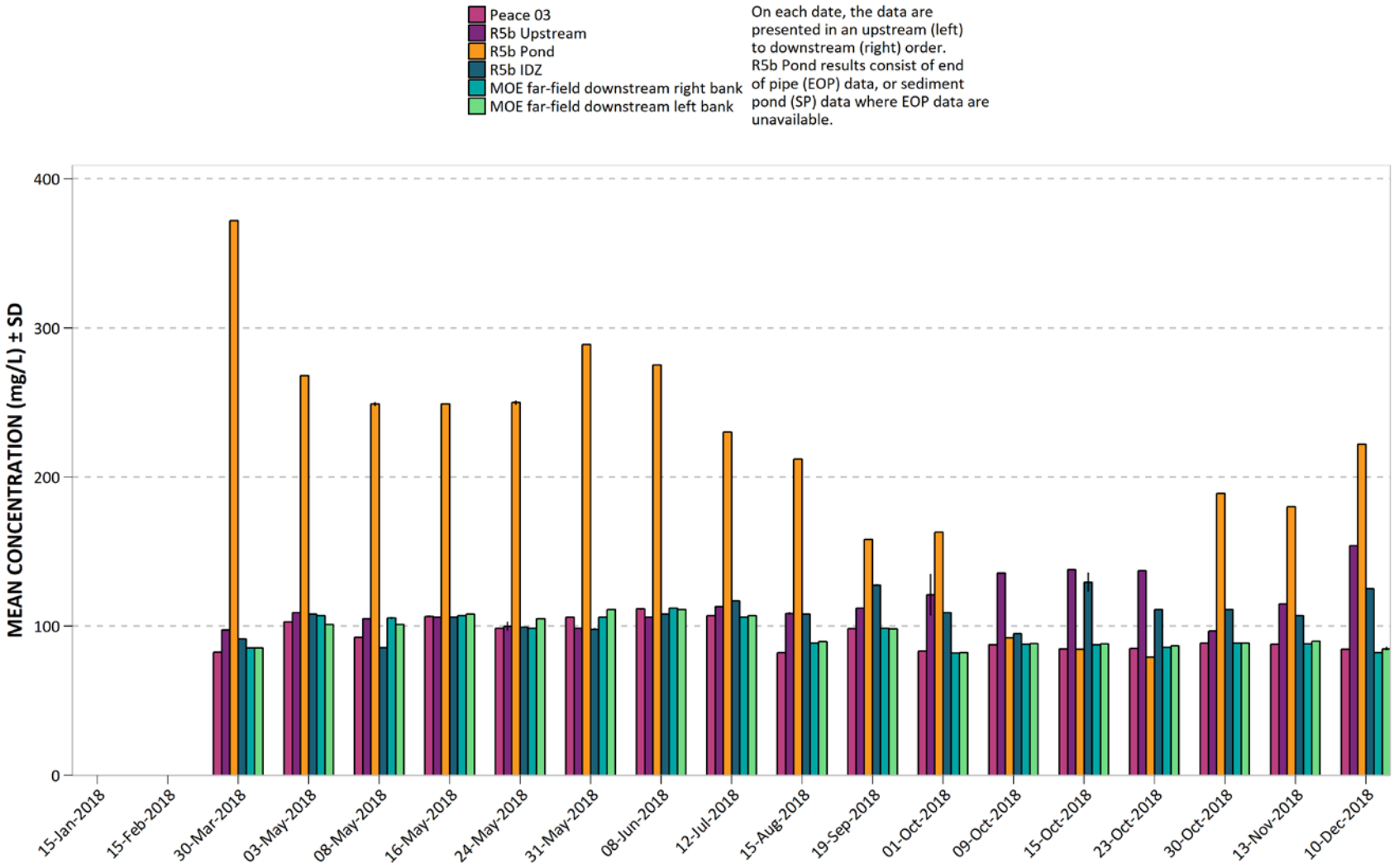


Figure 13. 2018 Peace River and RSEM R5b pond total ammonia (as N).

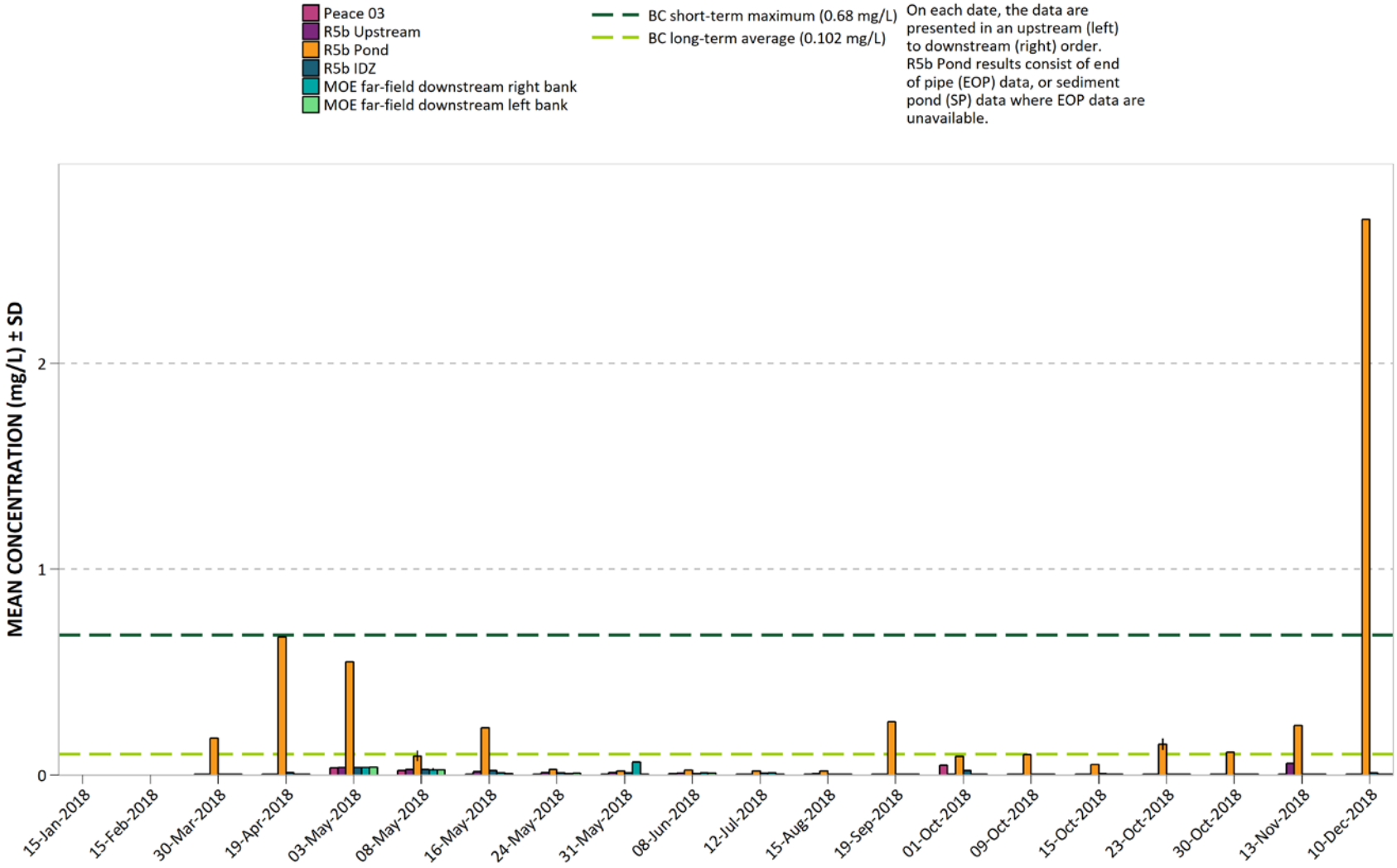
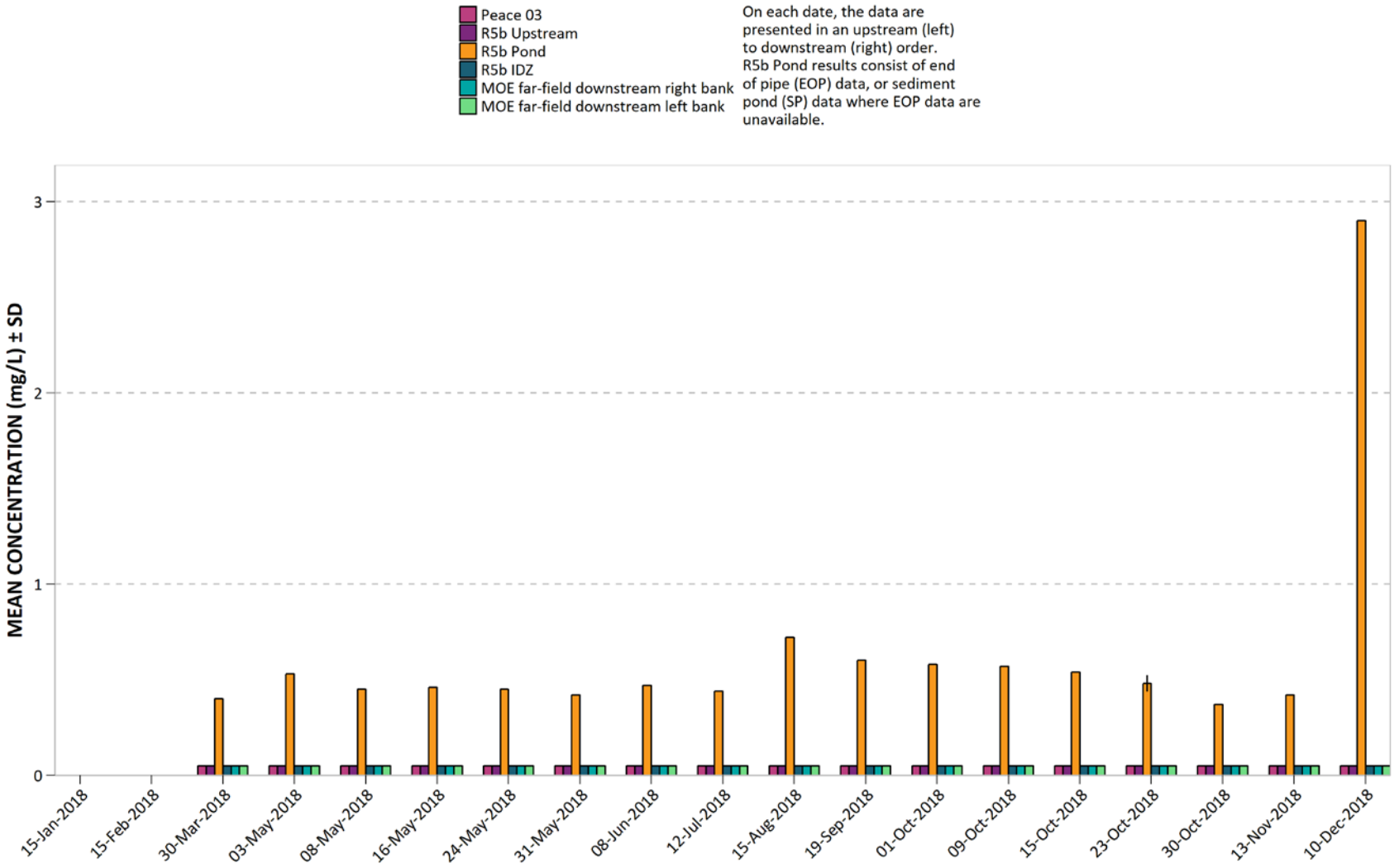


Figure 14. 2018 Peace River and RSEM R5b pond bromide (Br).



Peace River results less than the MDL were assigned the MDL value of 0.05 mg/L

Figure 15. 2018 Peace River and RSEM R5b pond chloride (Cl).

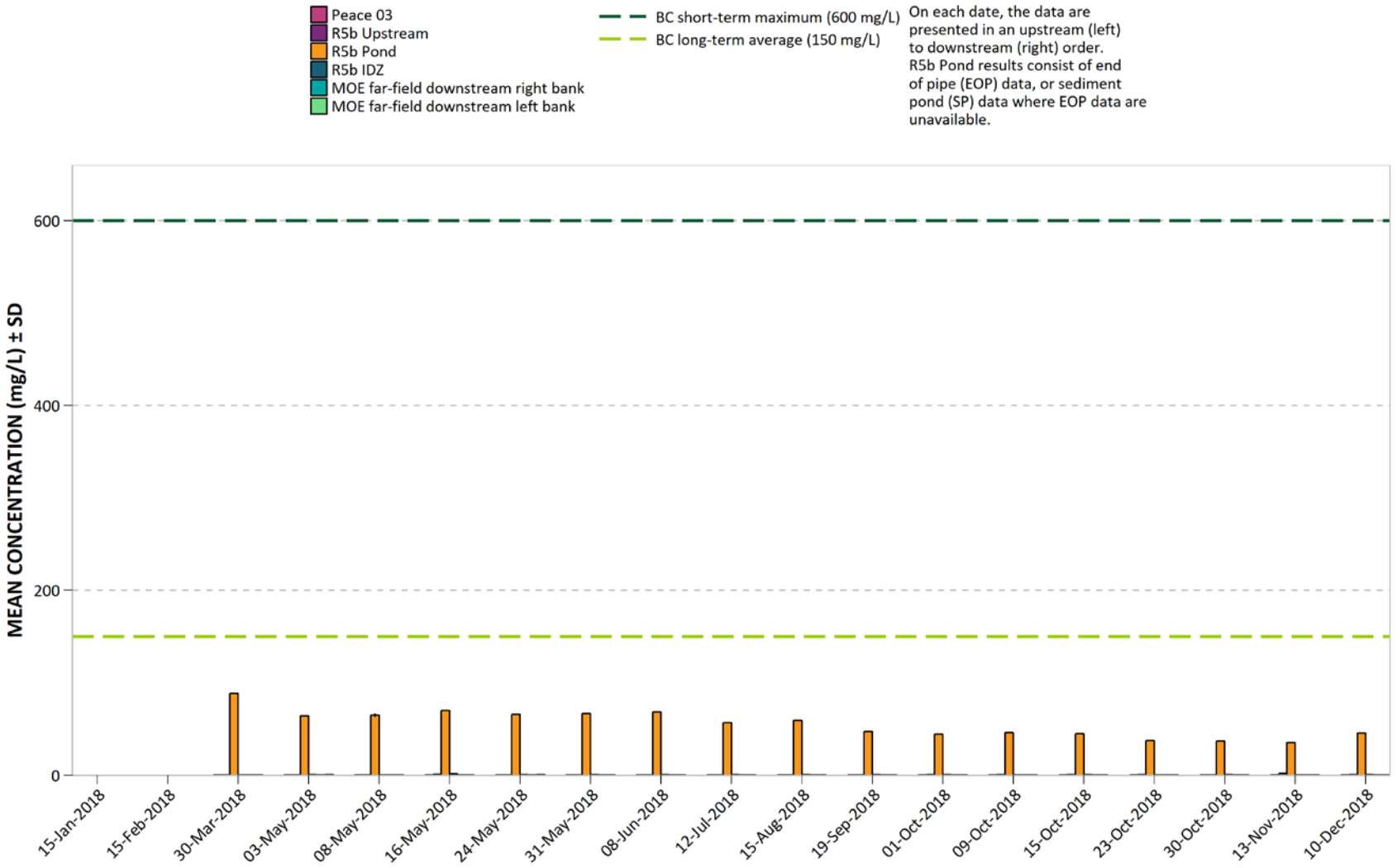


Figure 16. 2018 Peace River and RSEM R5b pond dissolved orthophosphate.

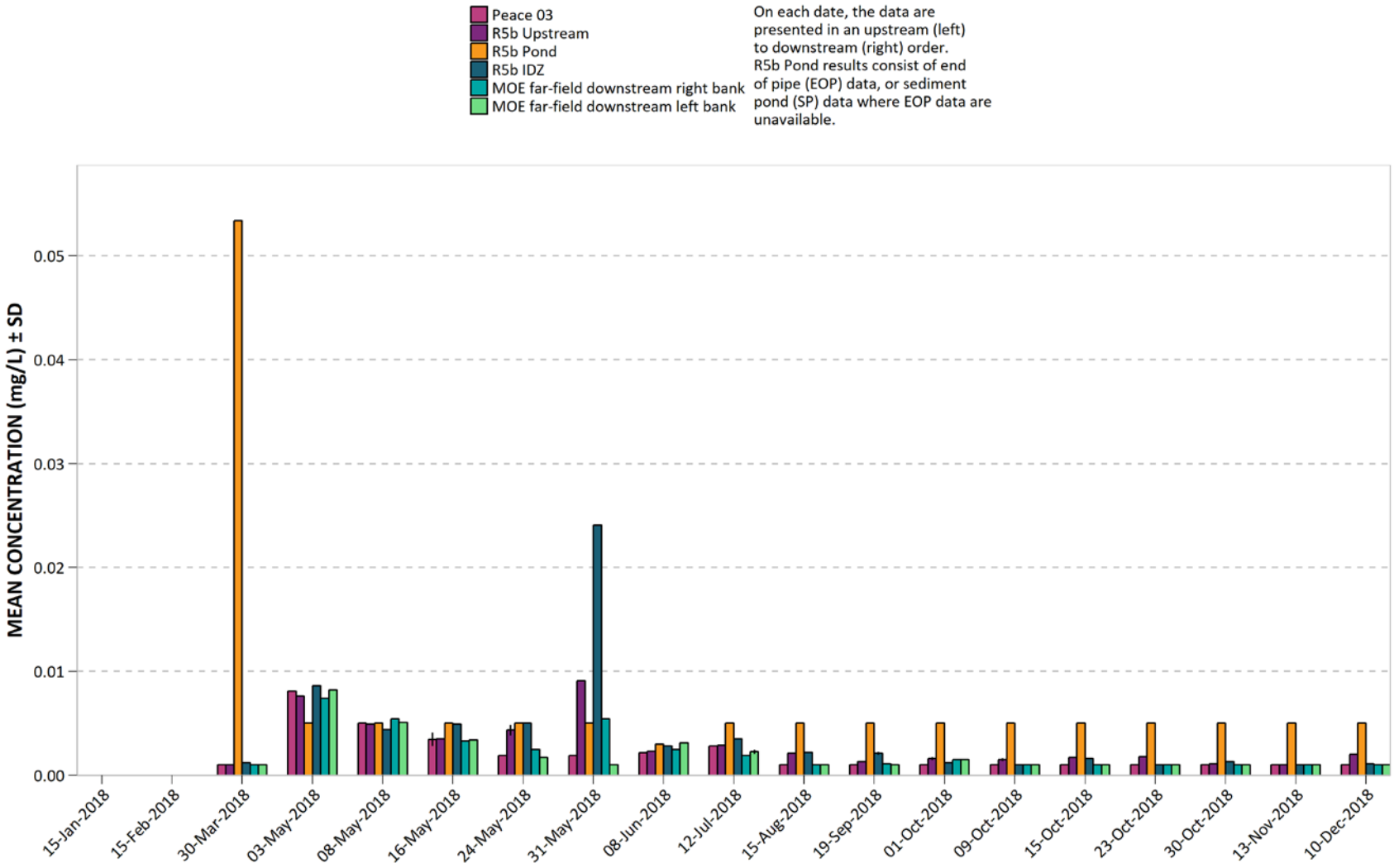


Figure 17. 2018 Peace River and RSEM R5b pond fluoride (F).

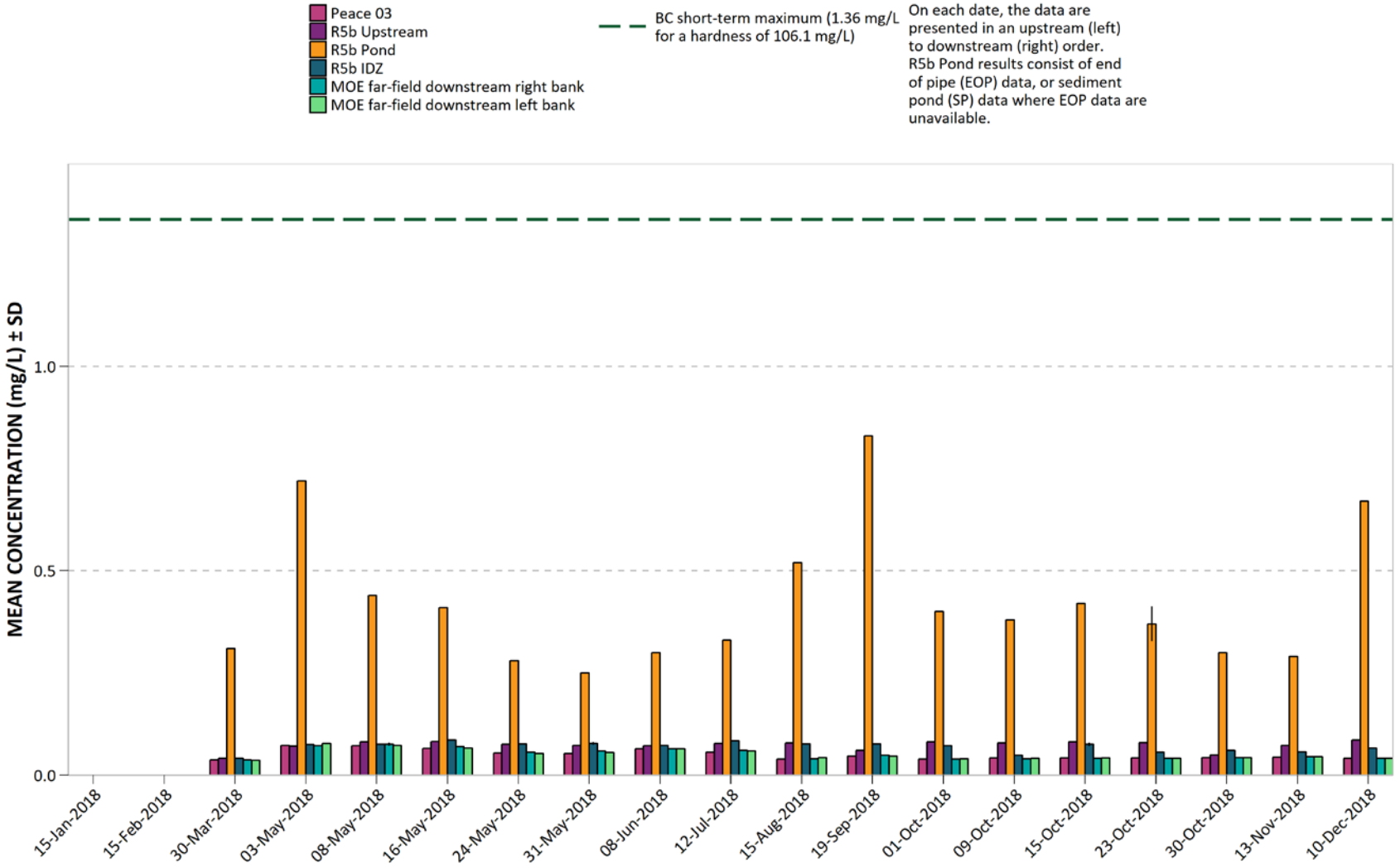


Figure 18. 2018 Peace River and RSEM R5b pond nitrate (as N).

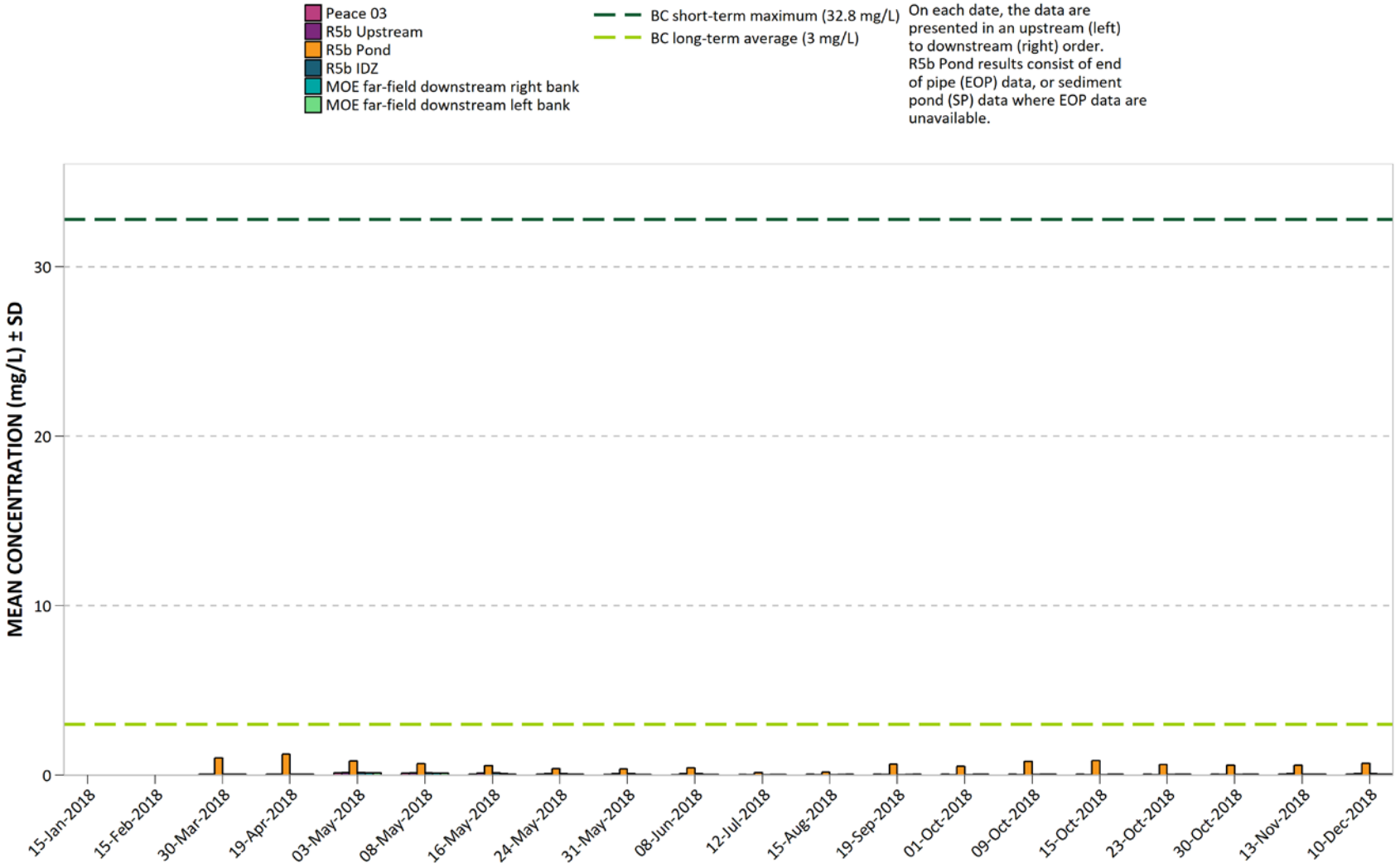
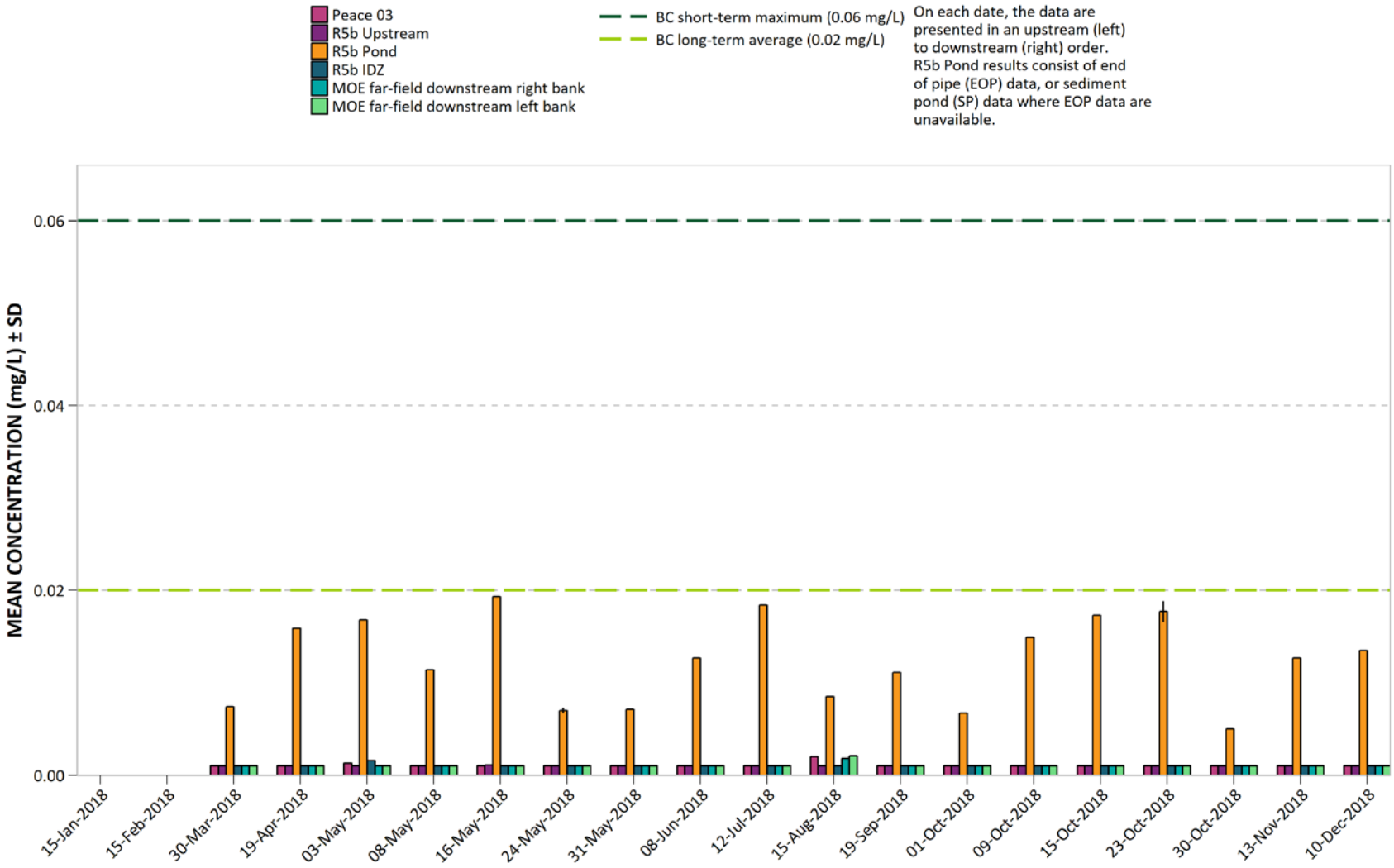


Figure 19. 2018 Peace River and RSEM R5b pond nitrite (as N).



Note: BC WQG for nitrite are chloride dependent, and therefore guidelines depicted in the plot are applicable for Peace River sites only. Based on the range of chloride values observed in the R5b pond, the applicable BC Maximum and 30-day guidelines are 0.6 mg/L and 0.2 mg/L, respectively. Most of the Peace River data are <MDL.

Figure 20. 2018 Peace River and RSEM R5b pond sulfate (SO_4).

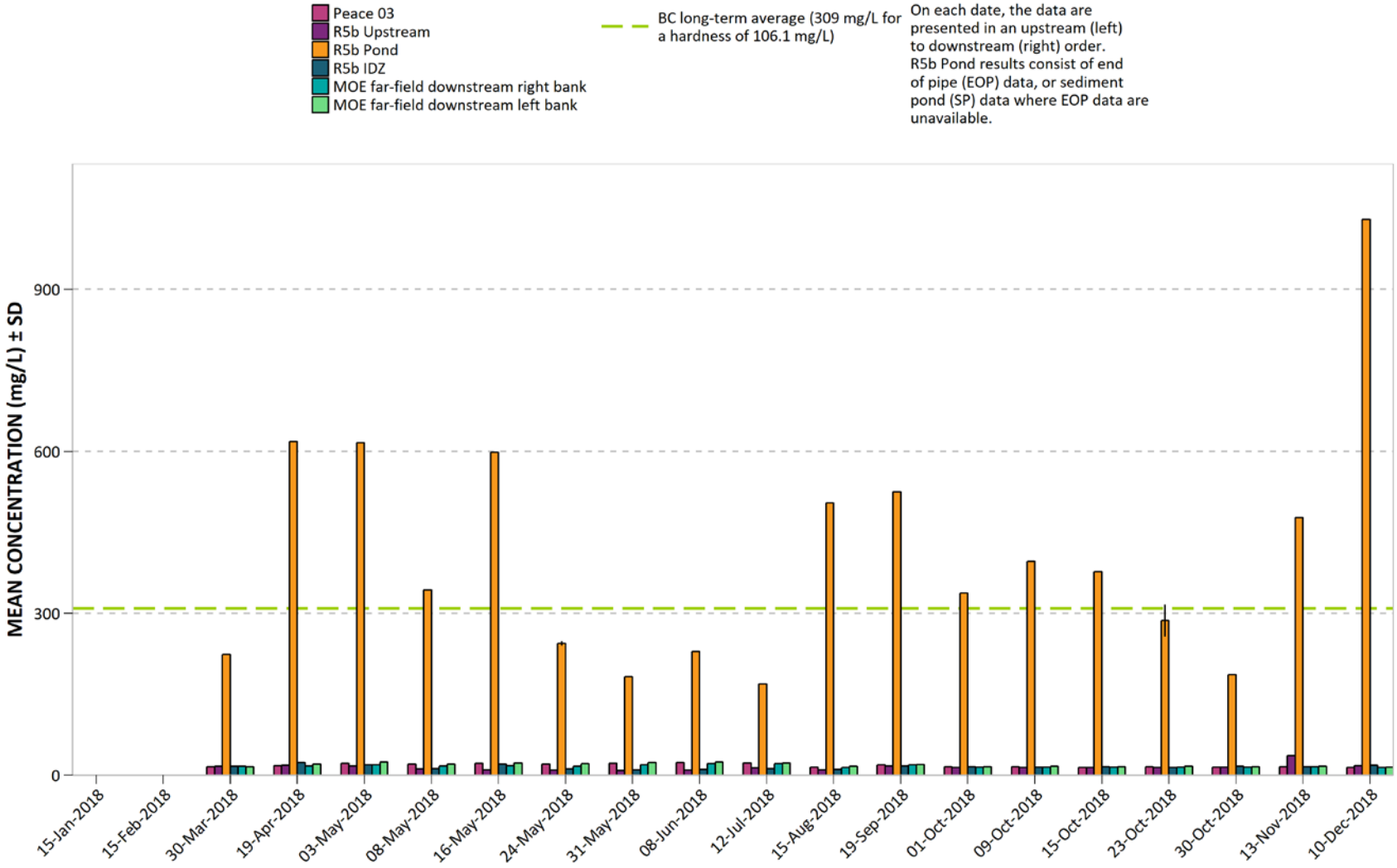


Figure 21. 2018 Peace River and RSEM R5b pond dissolved organic carbon (DOC).

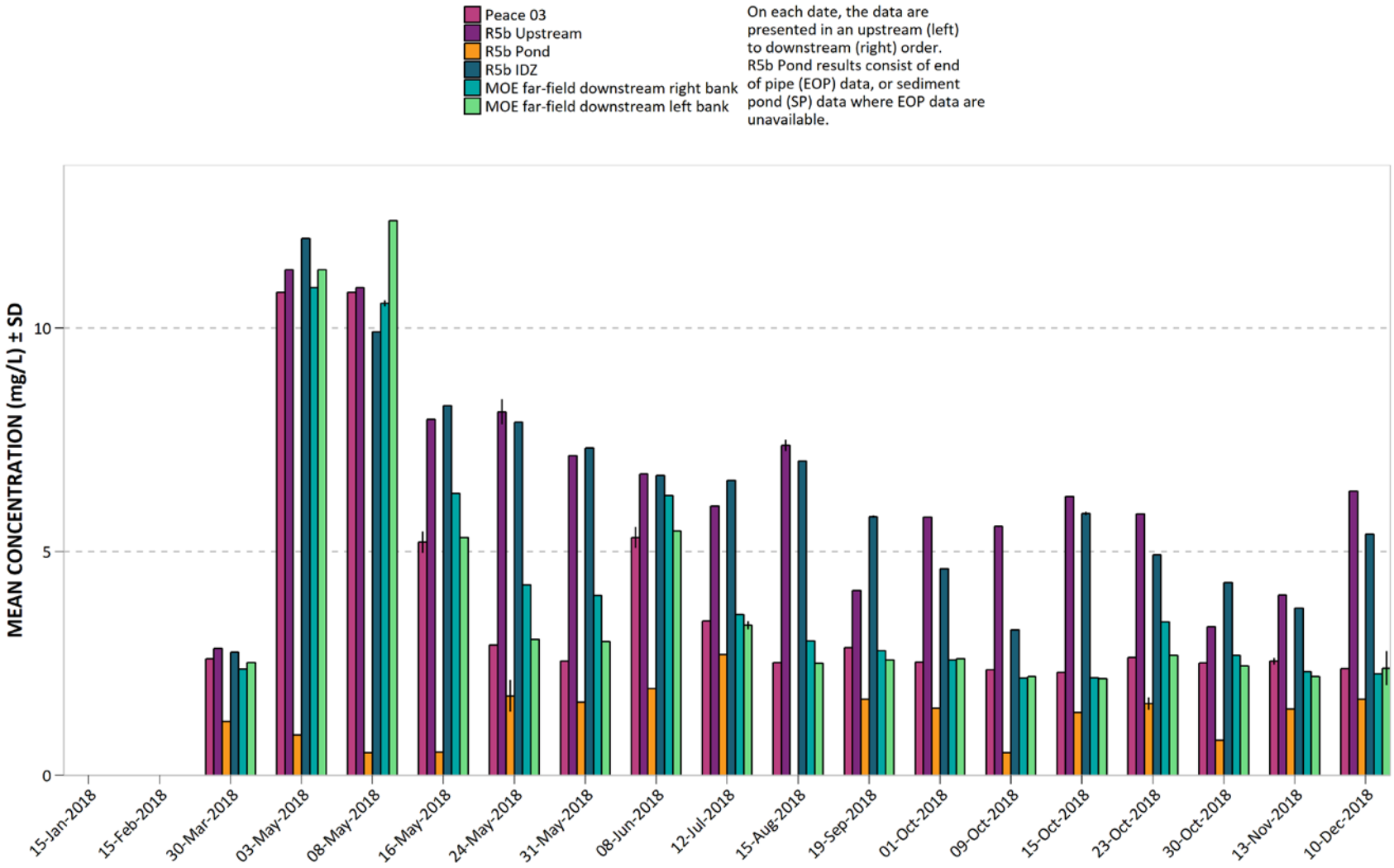


Figure 22. 2018 Peace River and RSEM R5b pond total organic carbon (TOC).

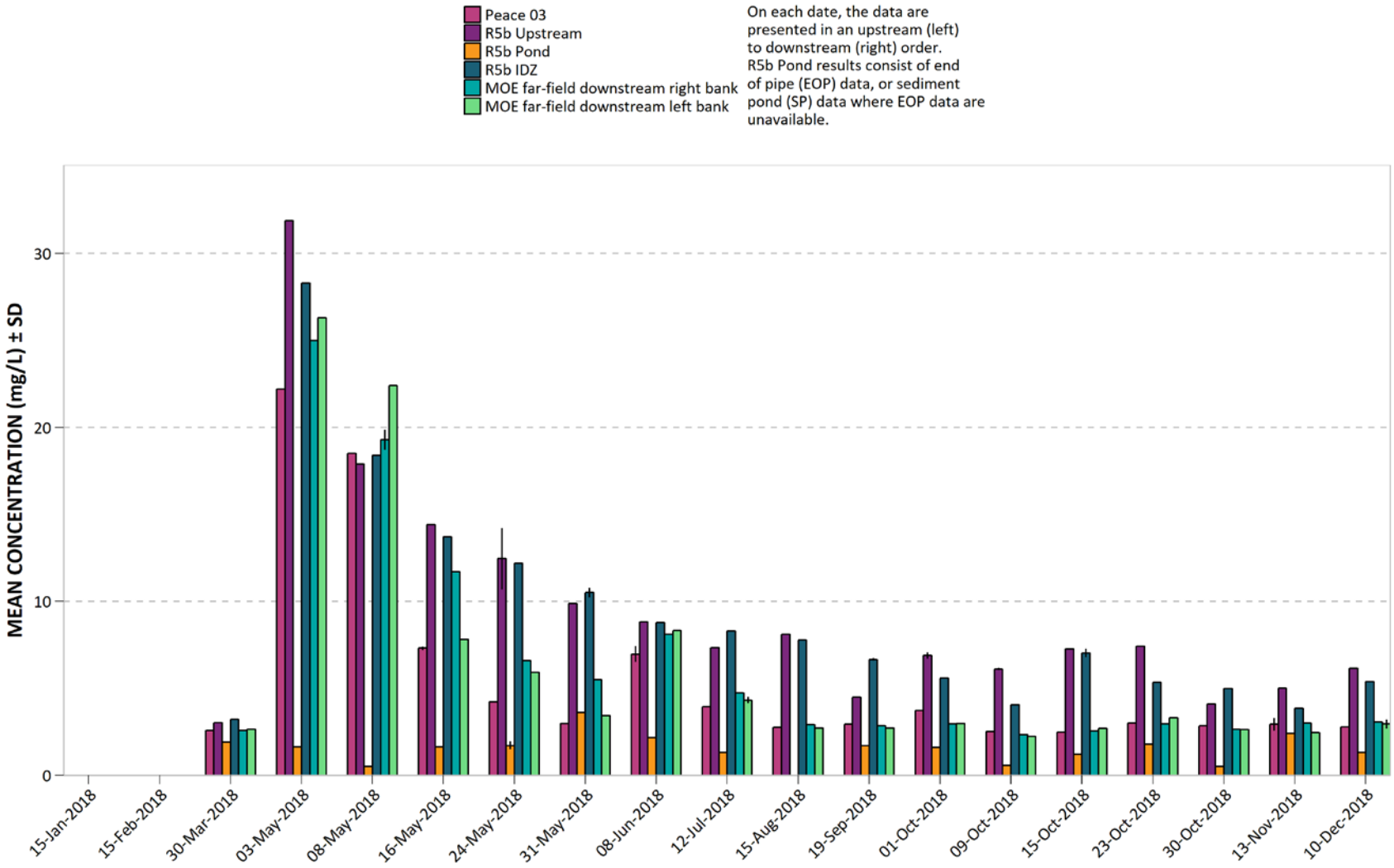


Figure 23. 2018 Peace River and RSEM R5b pond total aluminum (Al).

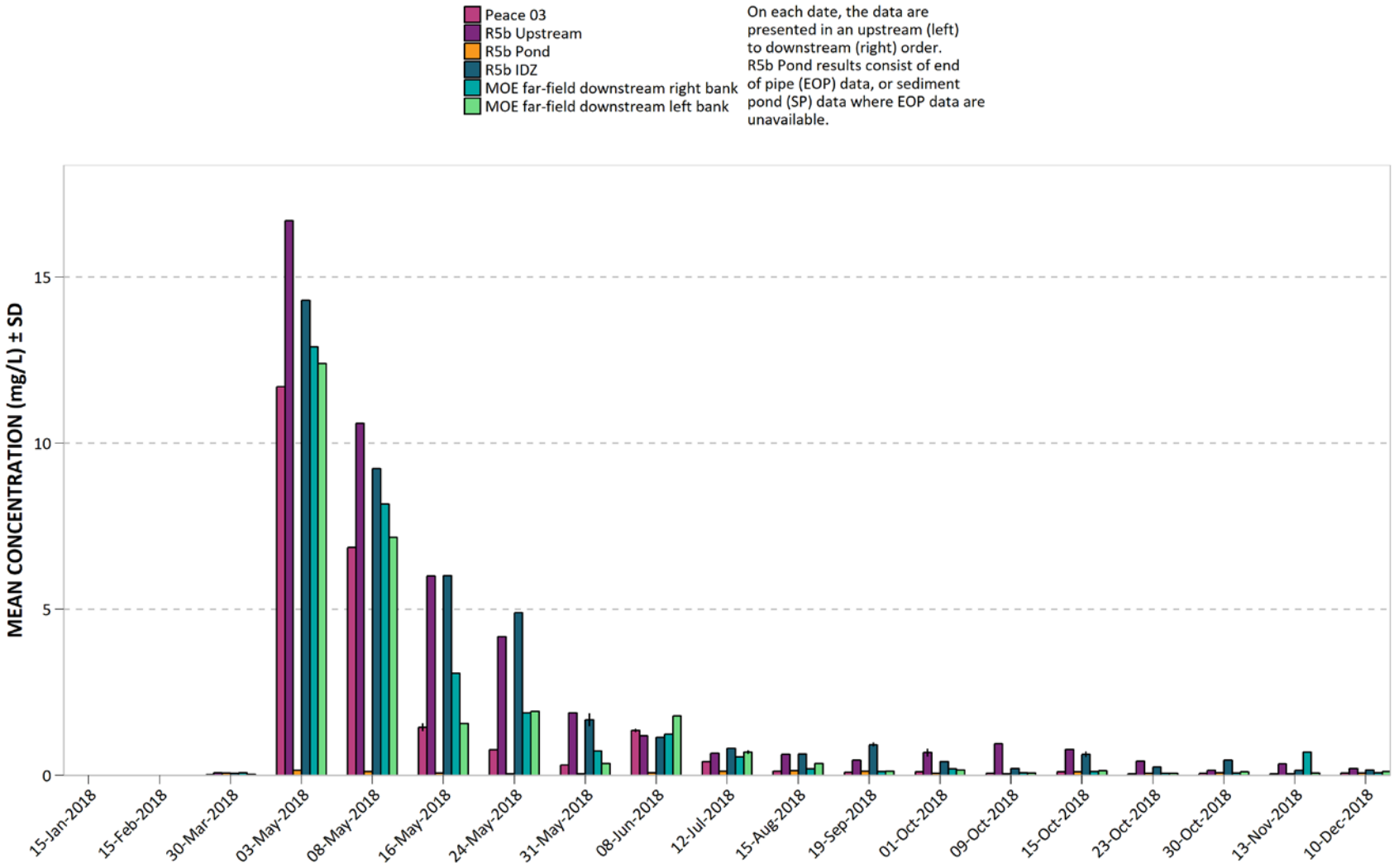
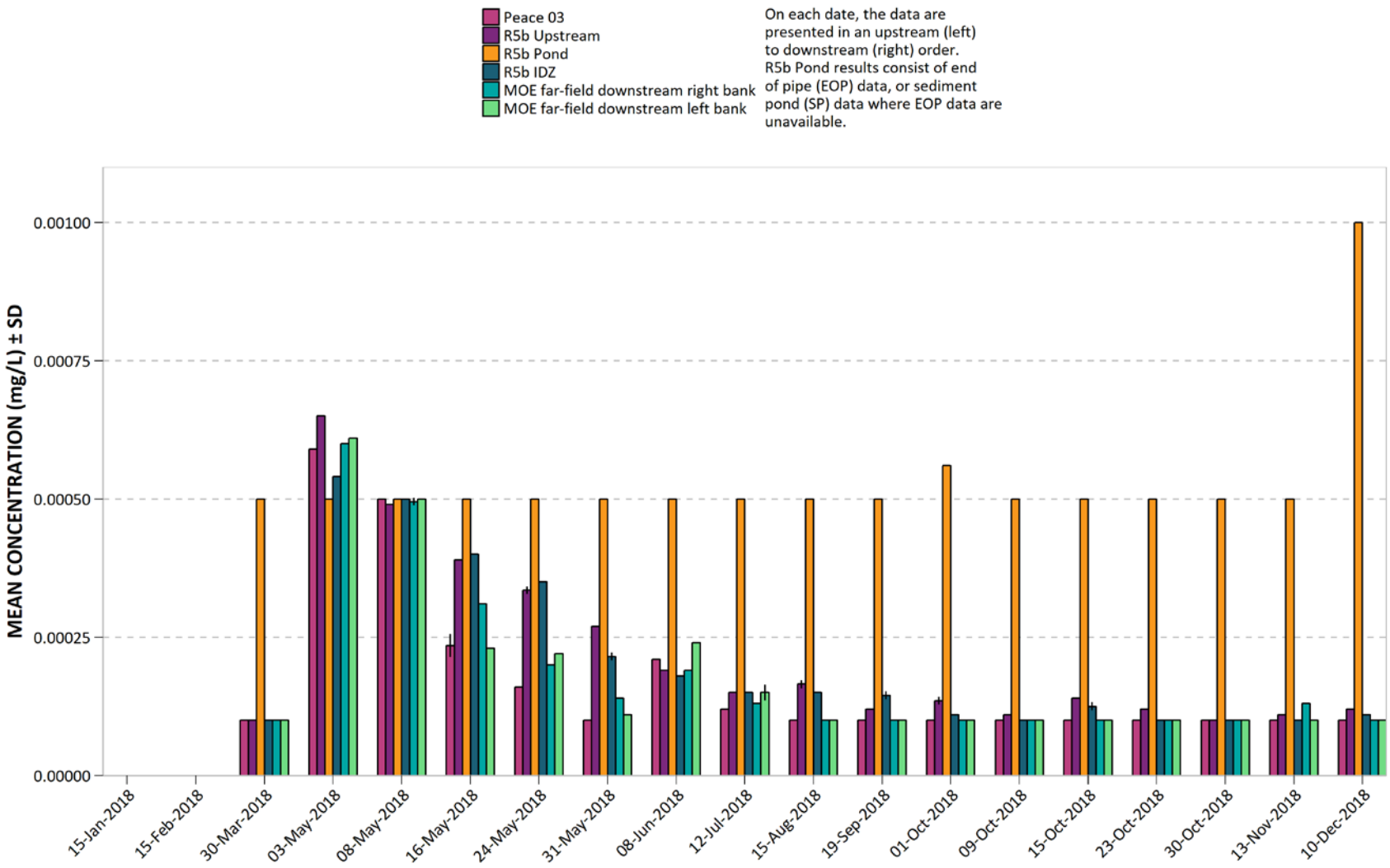


Figure 24. 2018 Peace River and RSEM R5b pond total antimony (Sb).



Results less than the MDL were assigned the MDL value of 0.001 mg/L (R5b pond in December 2018), 0.0005 mg/L (R5b pond in January to November, 2018) or 0.0001 mg/L (Peace River).

Figure 25. 2018 Peace River and RSEM R5b pond total arsenic (As).

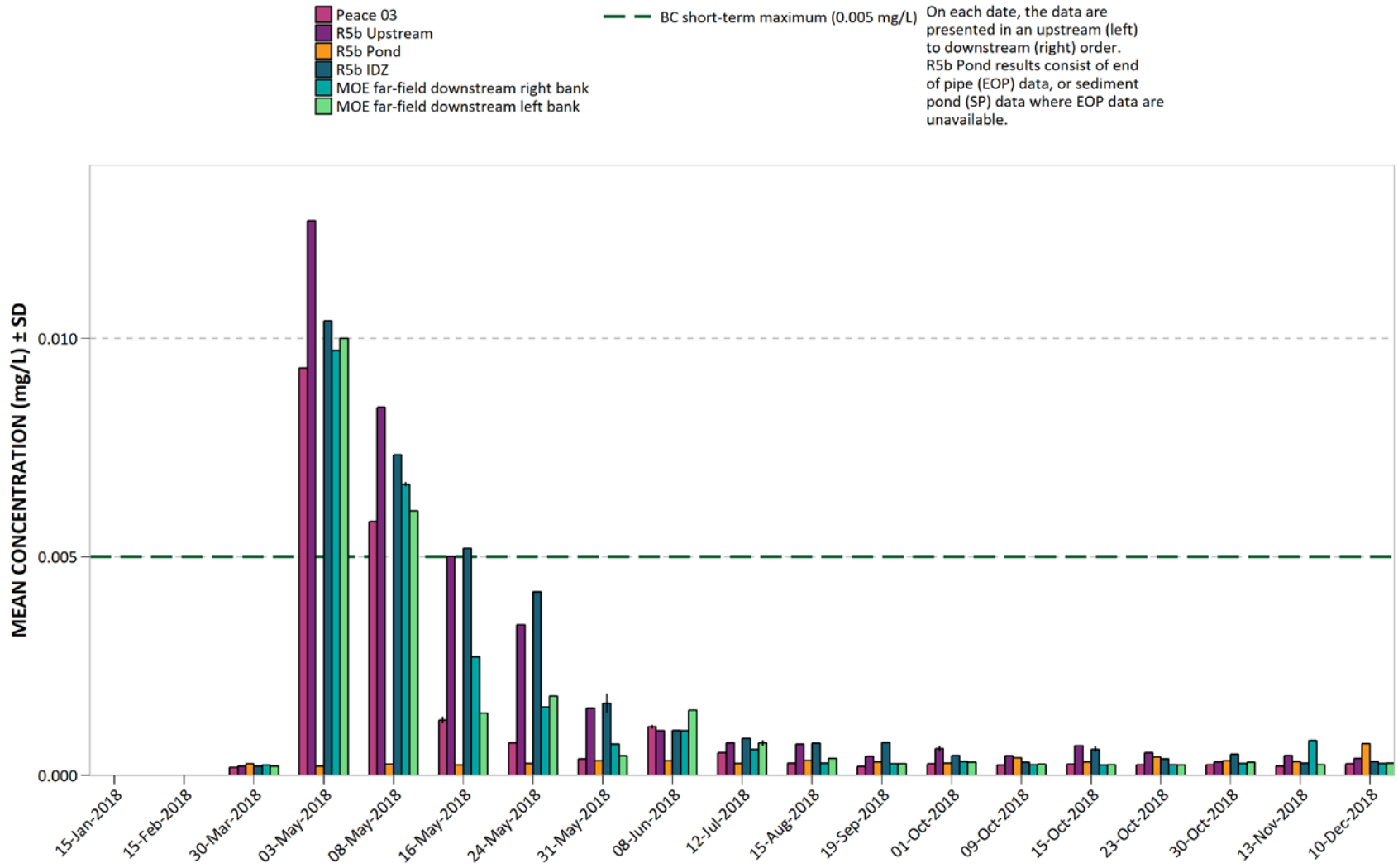


Figure 26. 2018 Peace River and RSEM R5b pond total barium (Ba).

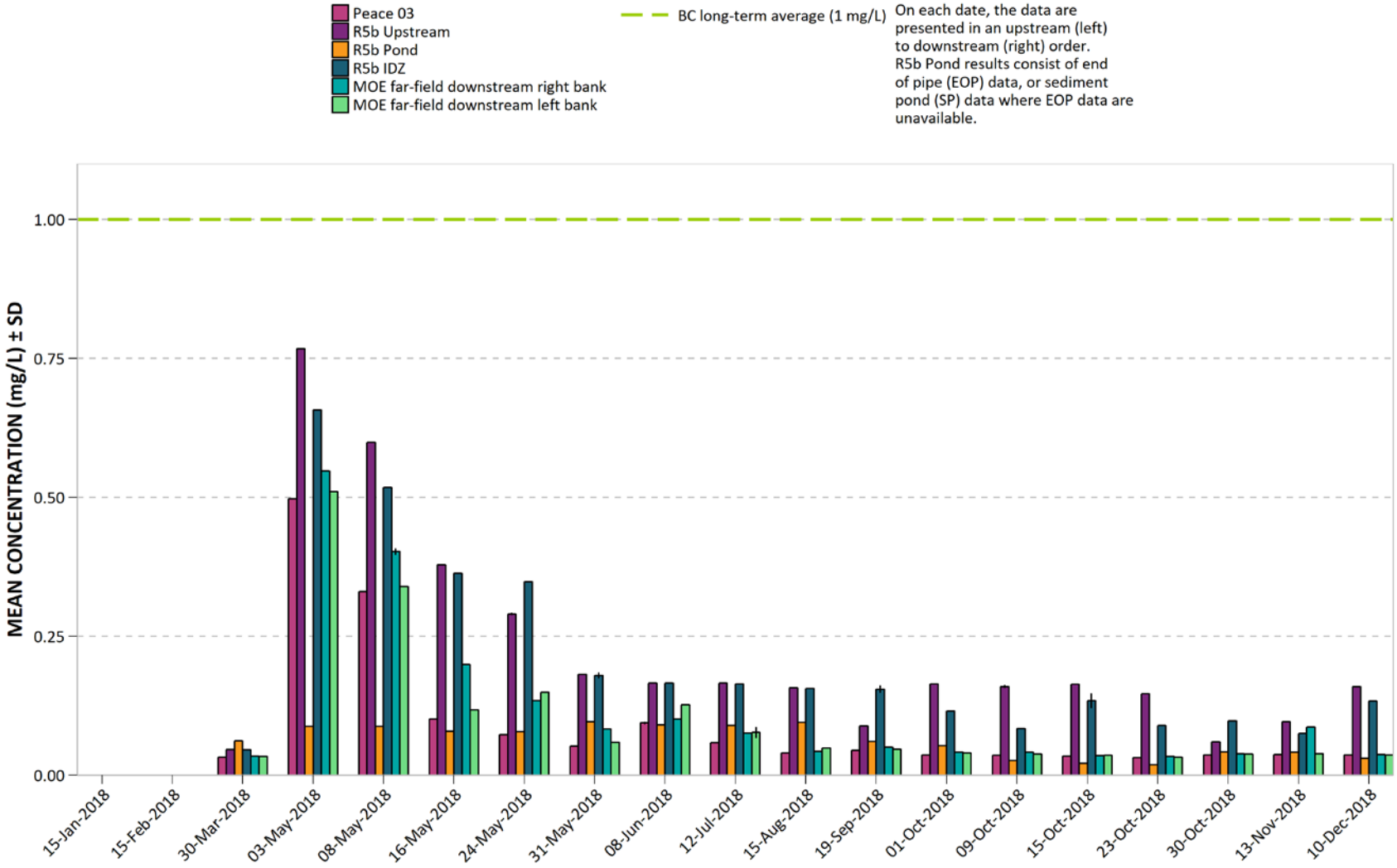
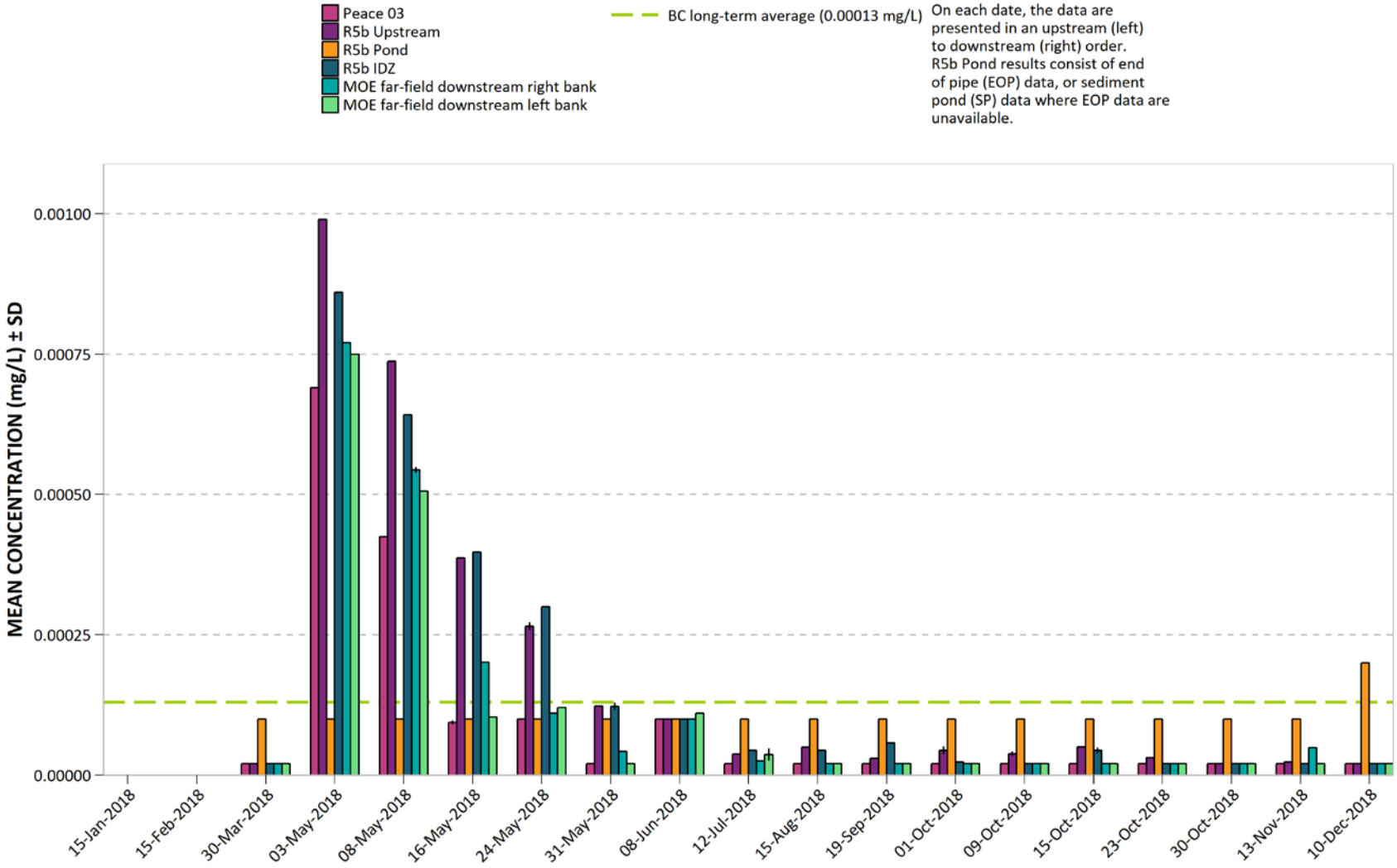
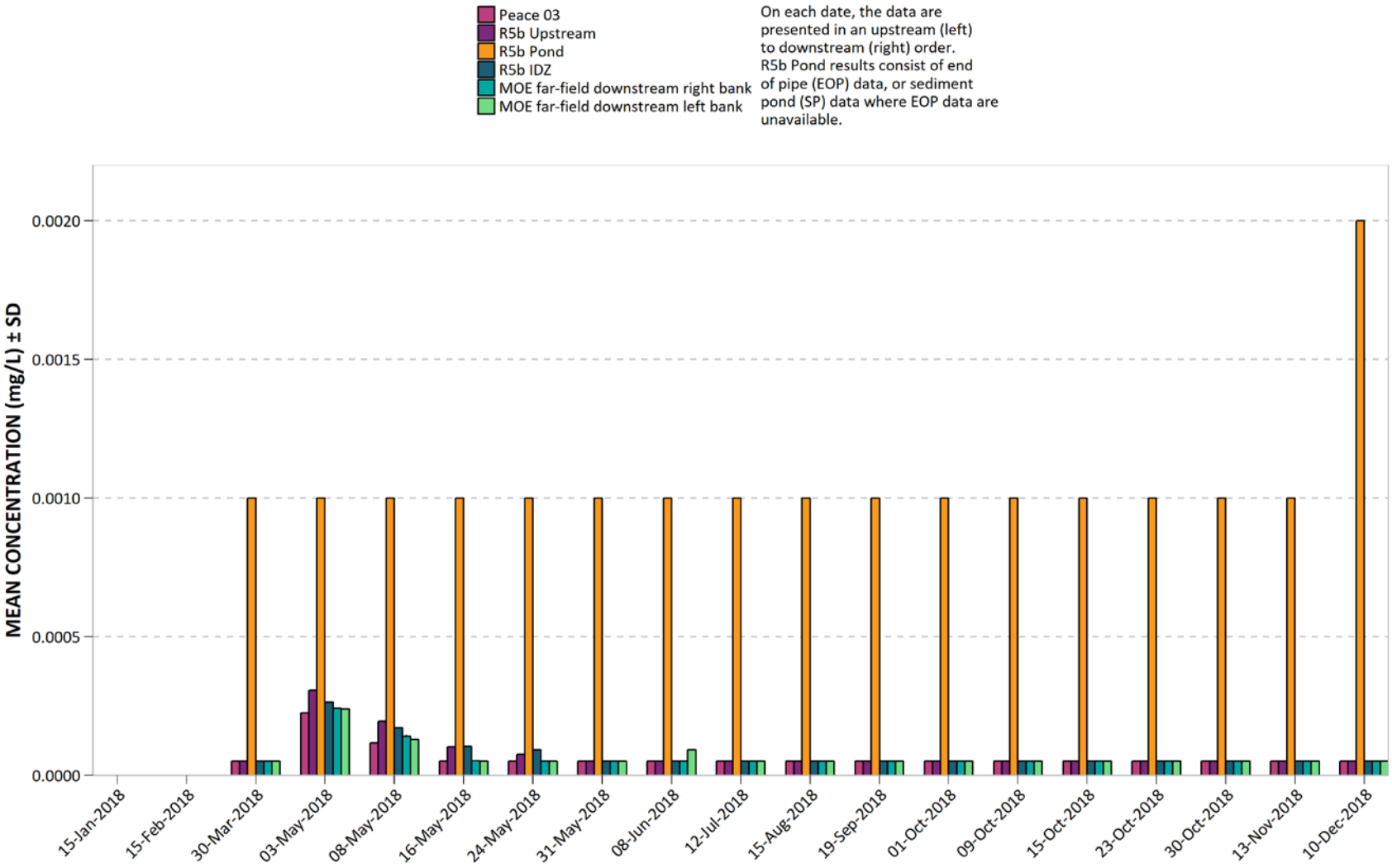


Figure 27. 2018 Peace River and RSEM R5b pond total beryllium (Be).



Results less than the MDL were assigned the MDL value of 0.0002 mg/L (R5b pond in December 2018), 0.0001 mg/L (R5b pond in January to November, 2018; Peace River on May 3, May 24 and June 8) or 0.00002 mg/L (Peace River on remaining dates).

Figure 28. 2018 Peace River and RSEM R5b pond total bismuth (Bi).



Results less than the MDL were assigned the MDL value of 0.002 mg/L (R5b pond in December 2018), 0.001 mg/L (R5b pond in January to November, 2018) or 0.0001 mg/L (Peace River).

Figure 29. 2018 Peace River and RSEM R5b pond total boron (B).

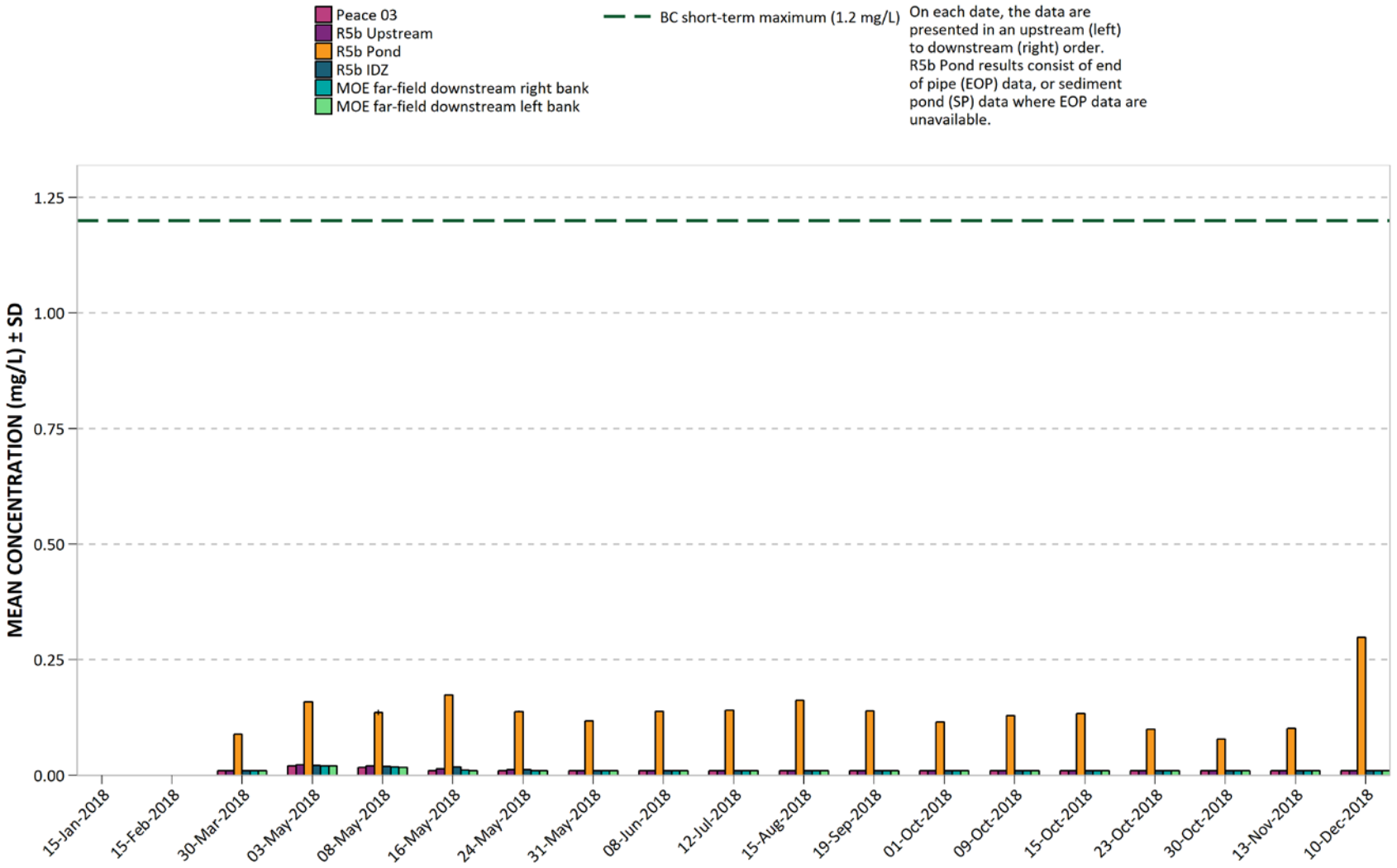


Figure 30. 2018 Peace River and RSEM R5b pond total cadmium (Cd).

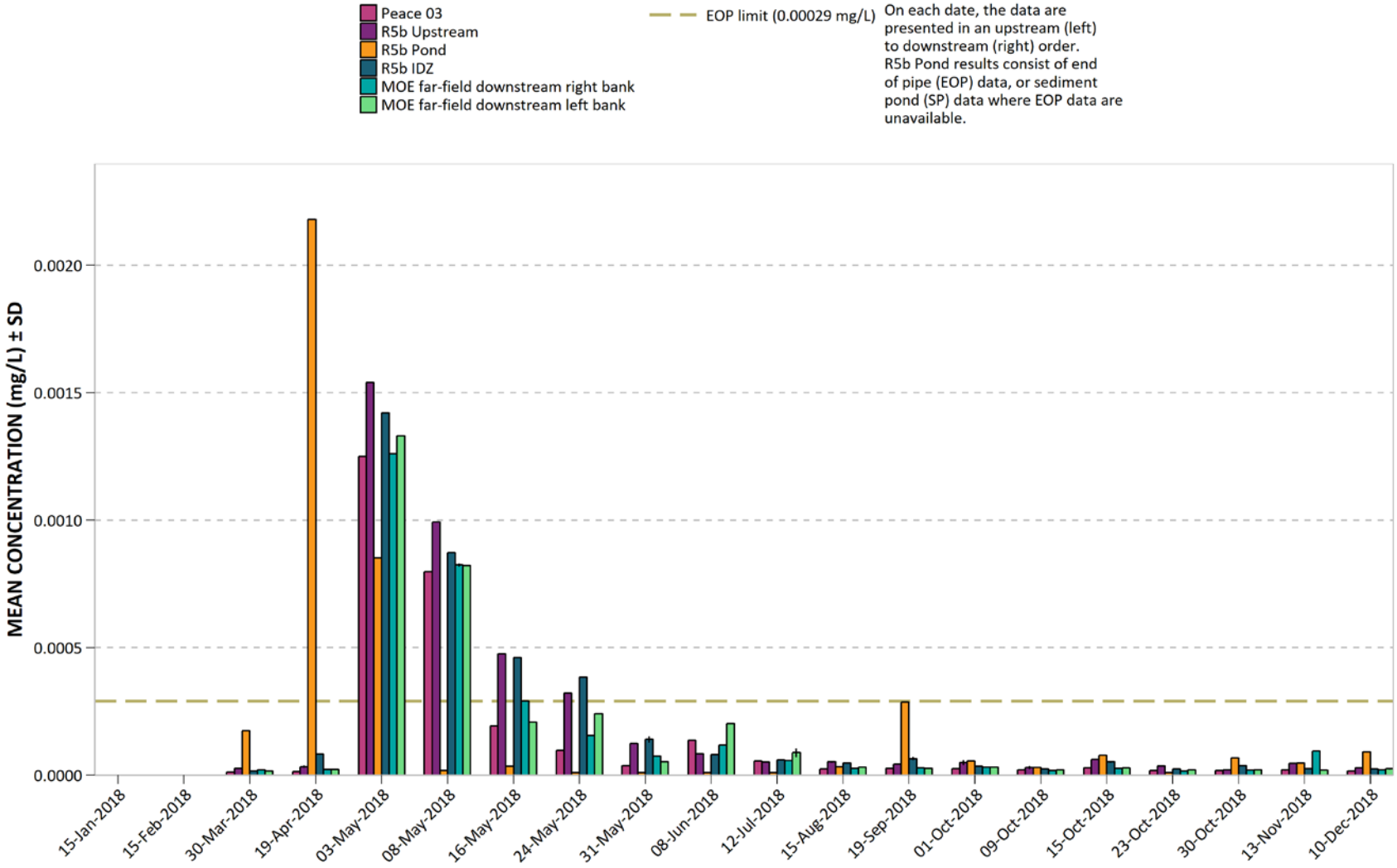


Figure 31. 2018 Peace River and RSEM R5b pond total calcium (Ca).

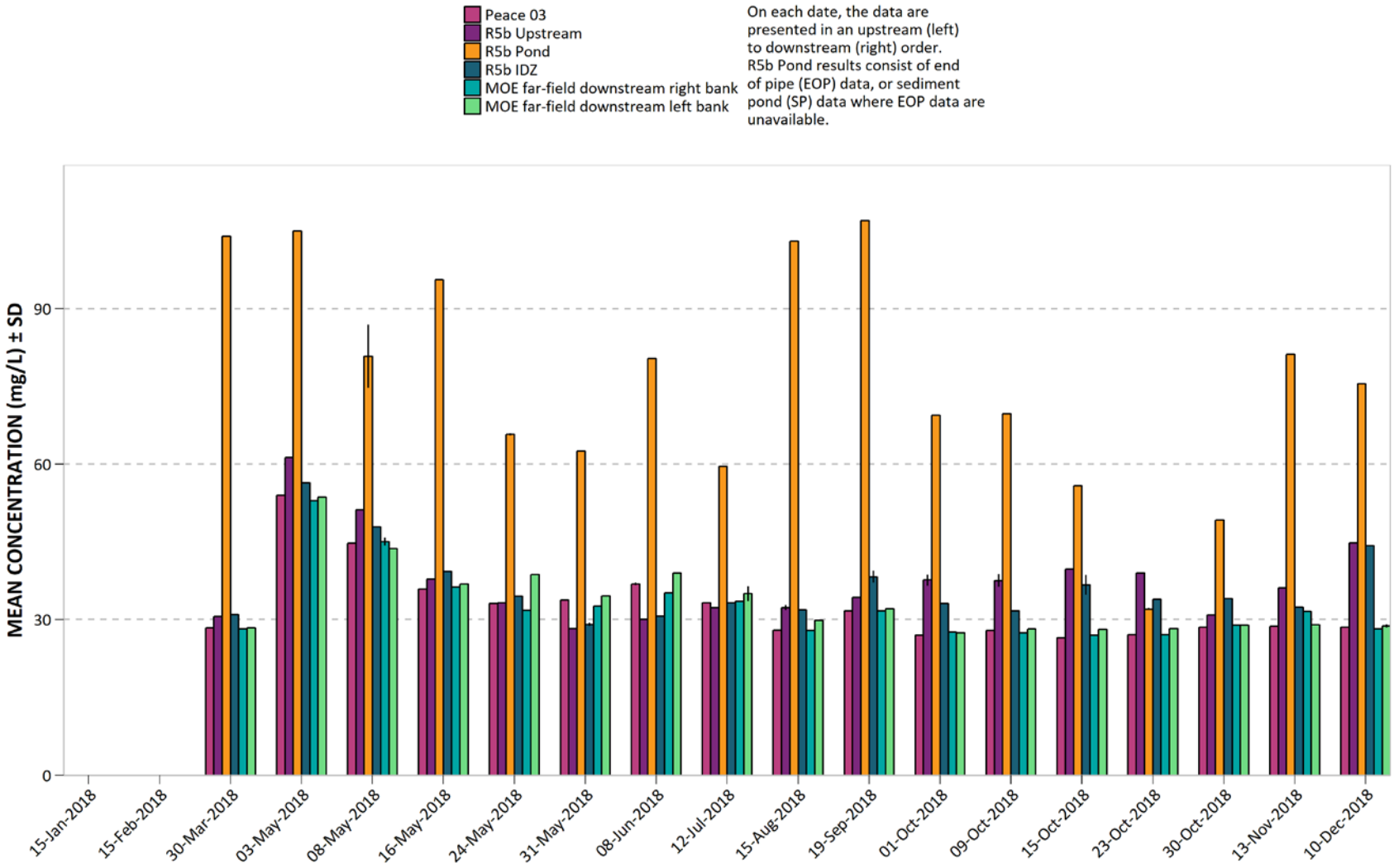


Figure 32. 2018 Peace River and RSEM R5b pond total chromium (Cr).

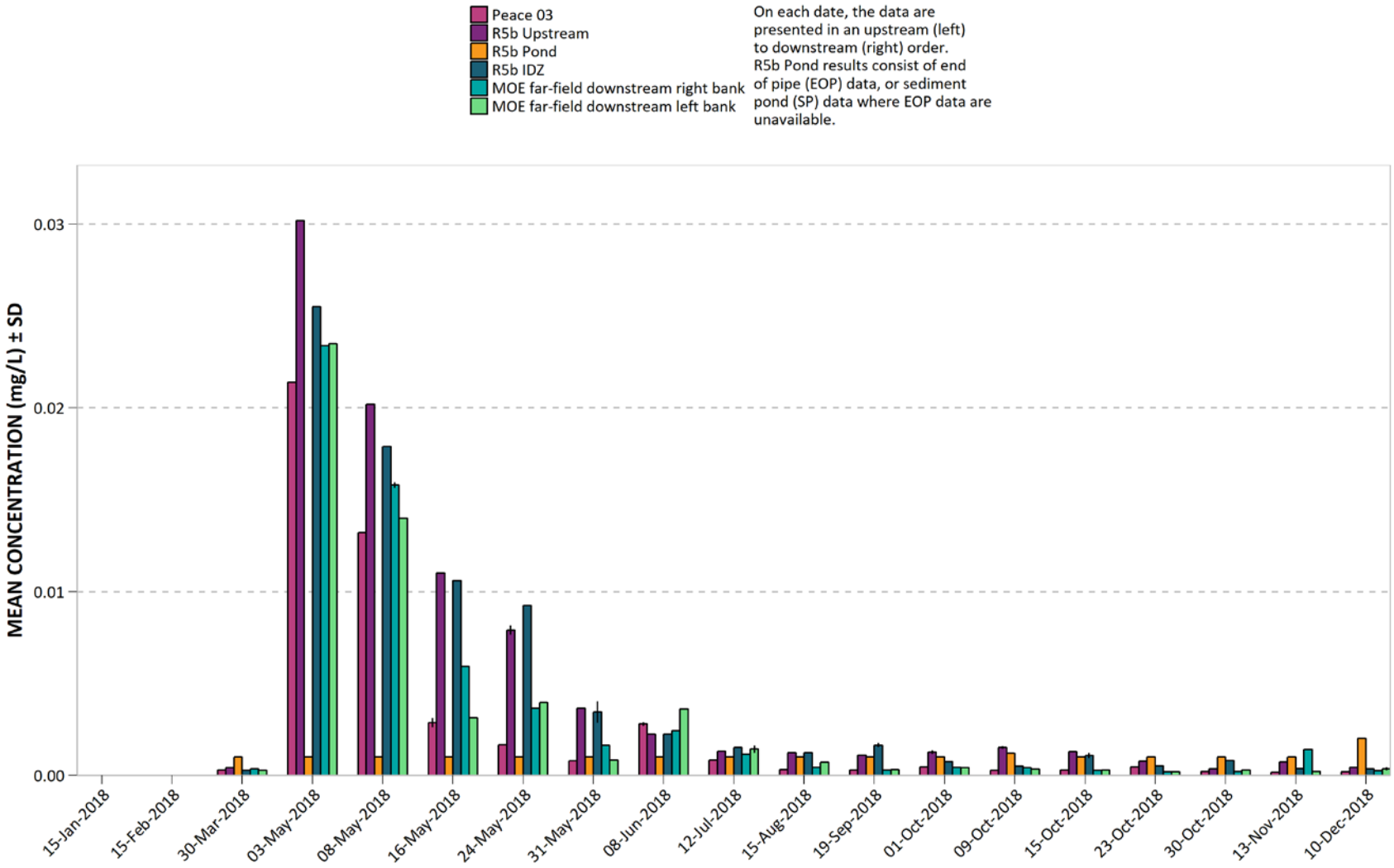


Figure 33. 2018 Peace River and RSEM R5b pond total cobalt (Co).

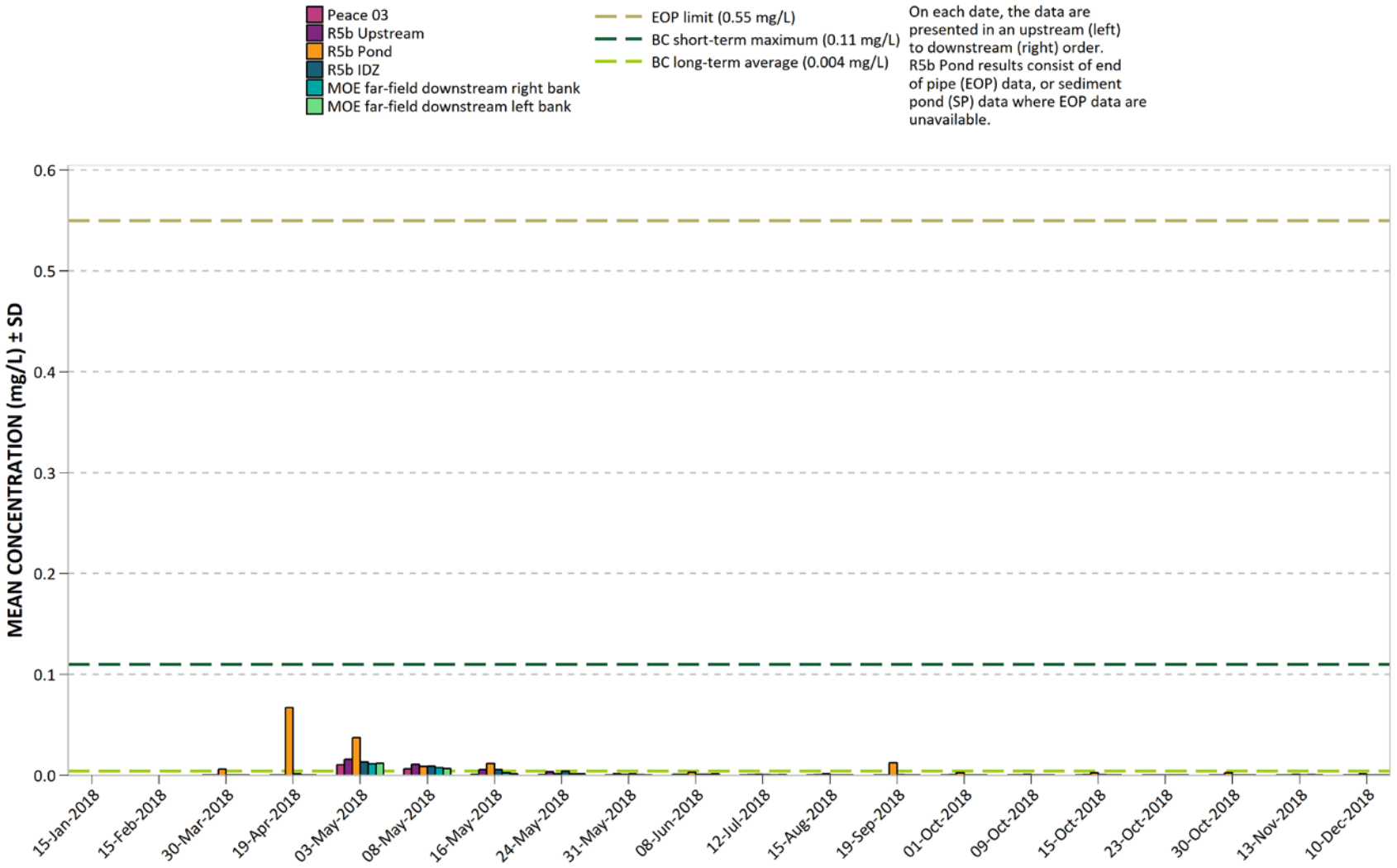


Figure 34. 2018 Peace River and RSEM R5b pond total copper (Cu).

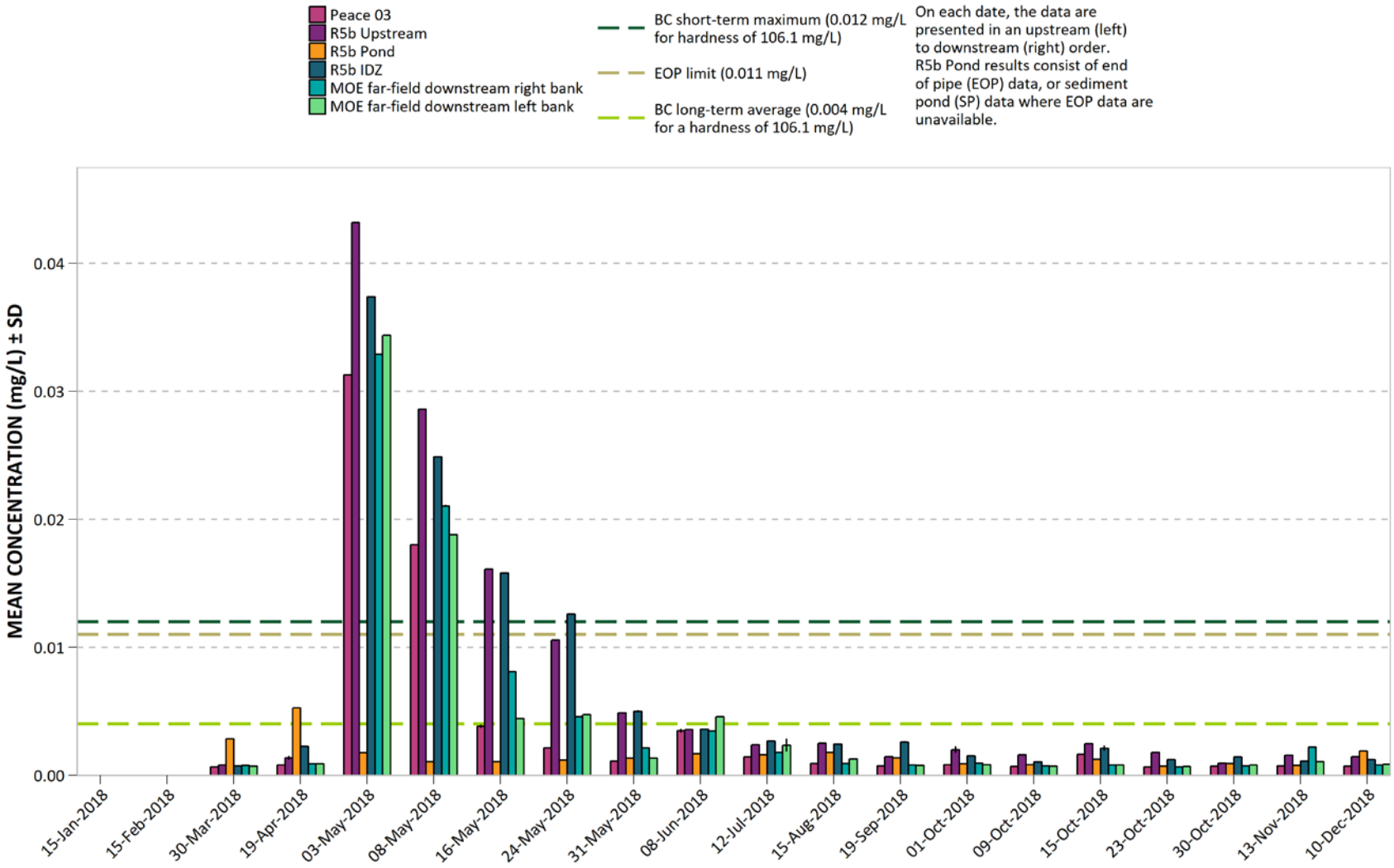


Figure 35. 2018 Peace River and RSEM R5b pond total iron (Fe).

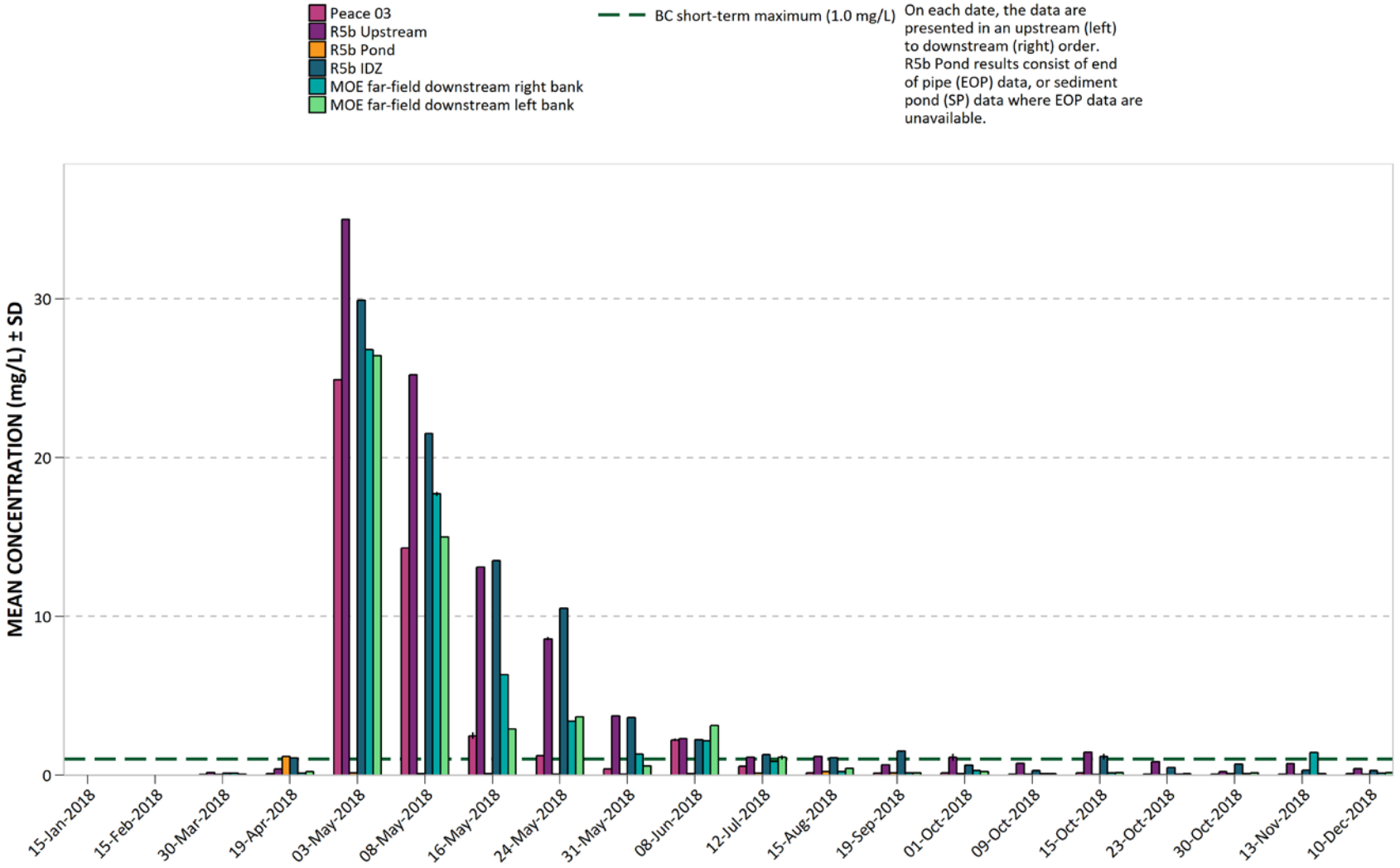


Figure 36. 2018 Peace River and RSEM R5b pond total lead (Pb).

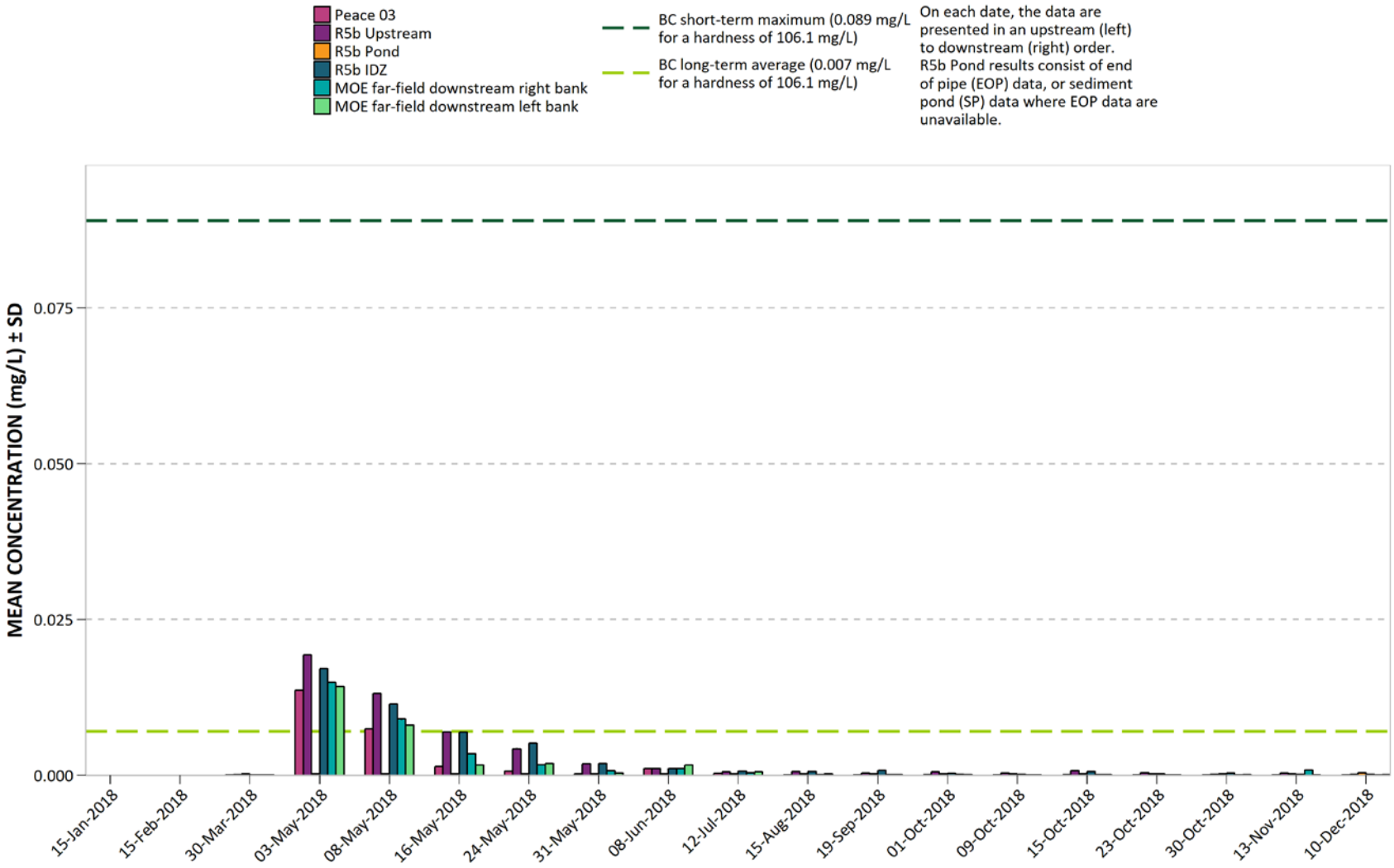


Figure 37. 2018 Peace River and RSEM R5b pond total lithium (Li).

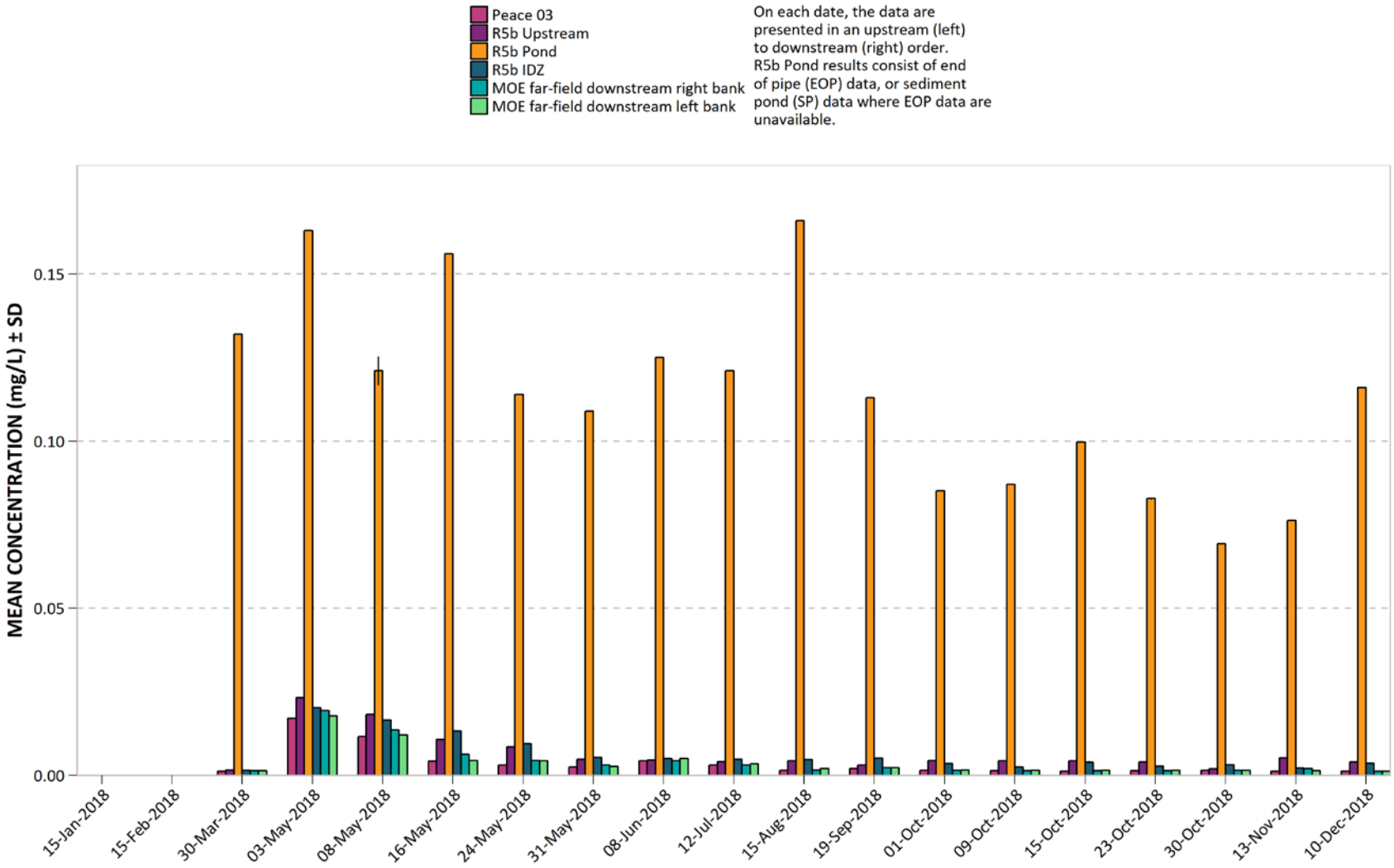


Figure 38. 2018 Peace River and RSEM R5b pond total magnesium (Mg).

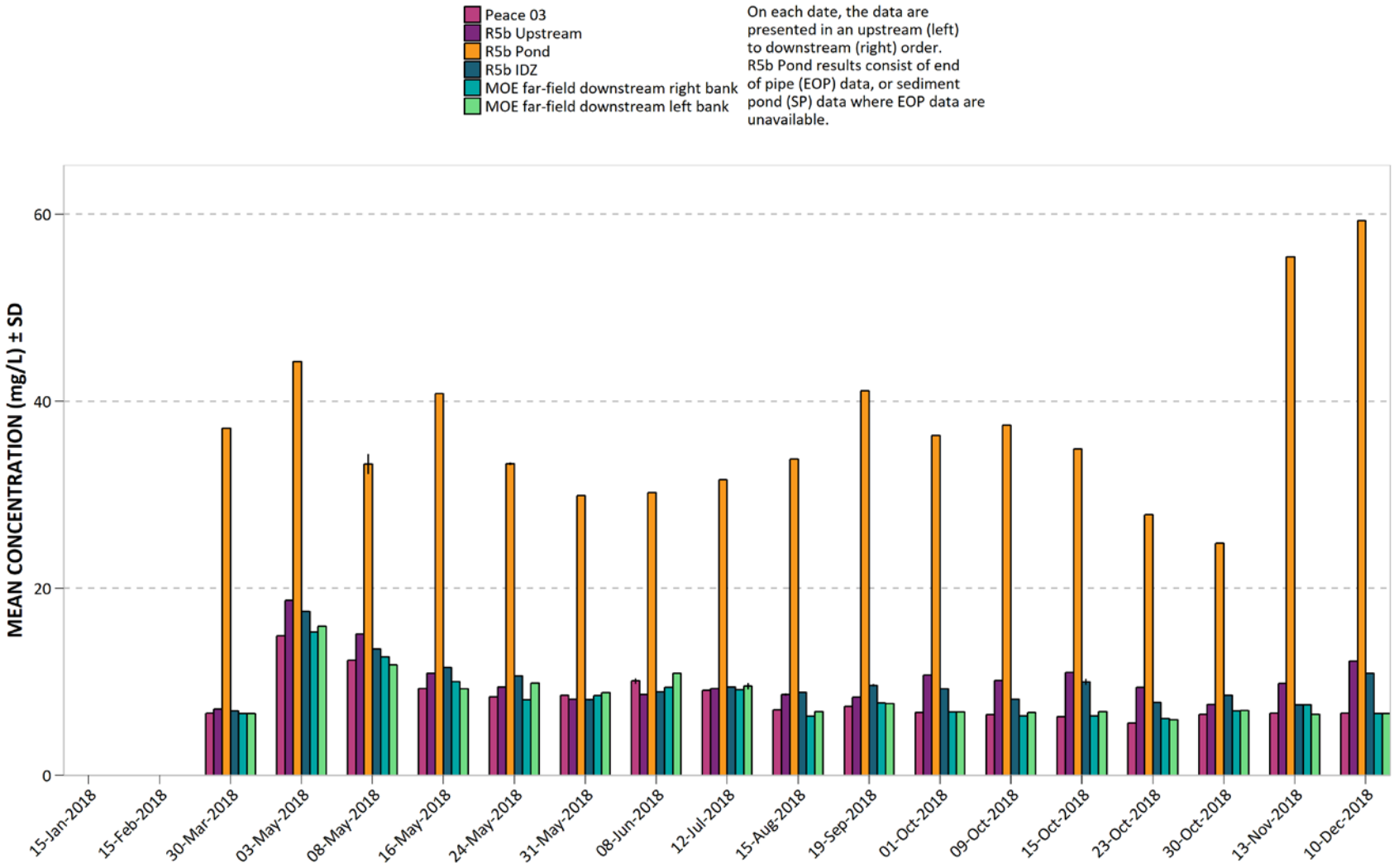


Figure 39. 2018 Peace River and RSEM R5b pond total manganese (Mn).

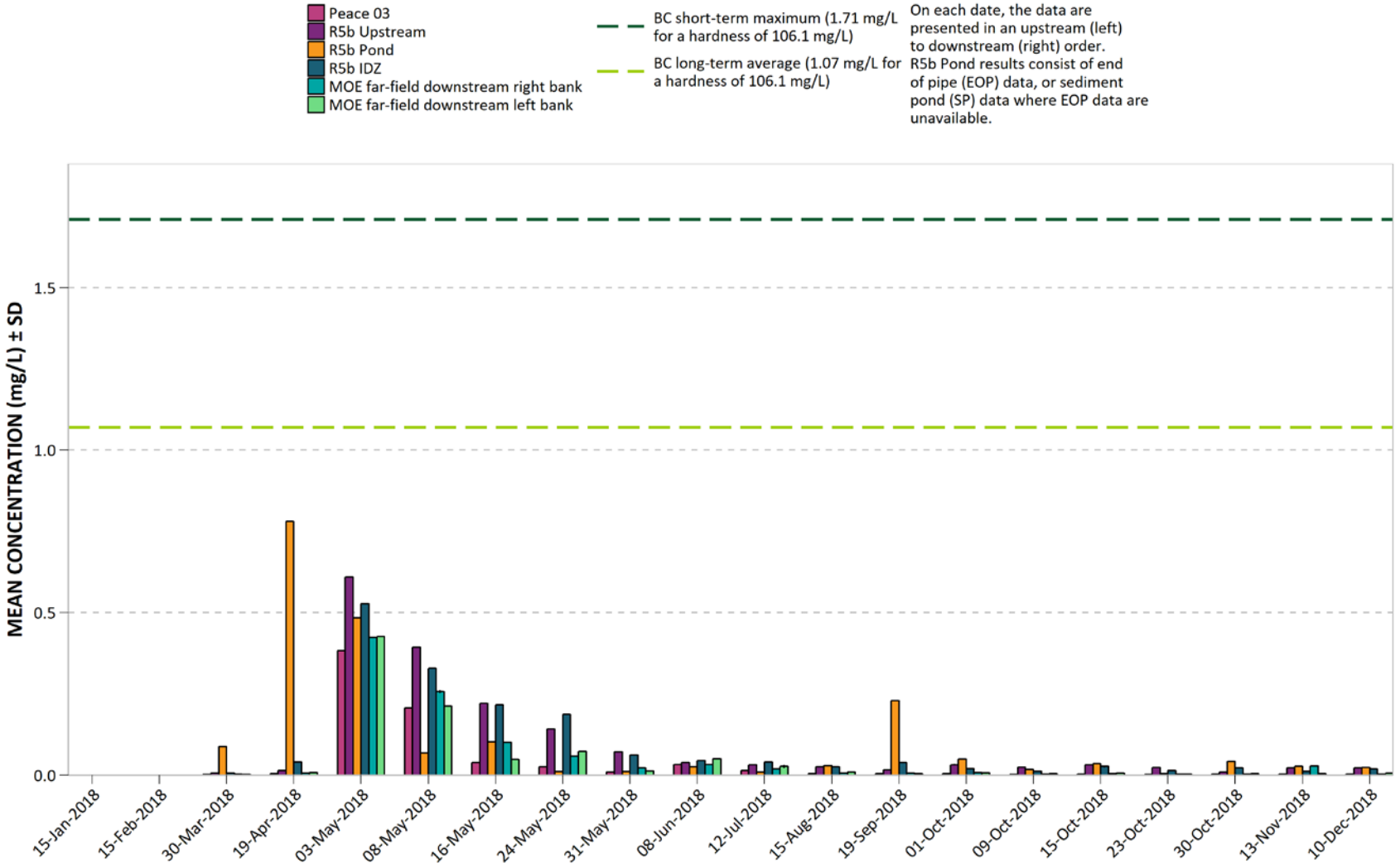
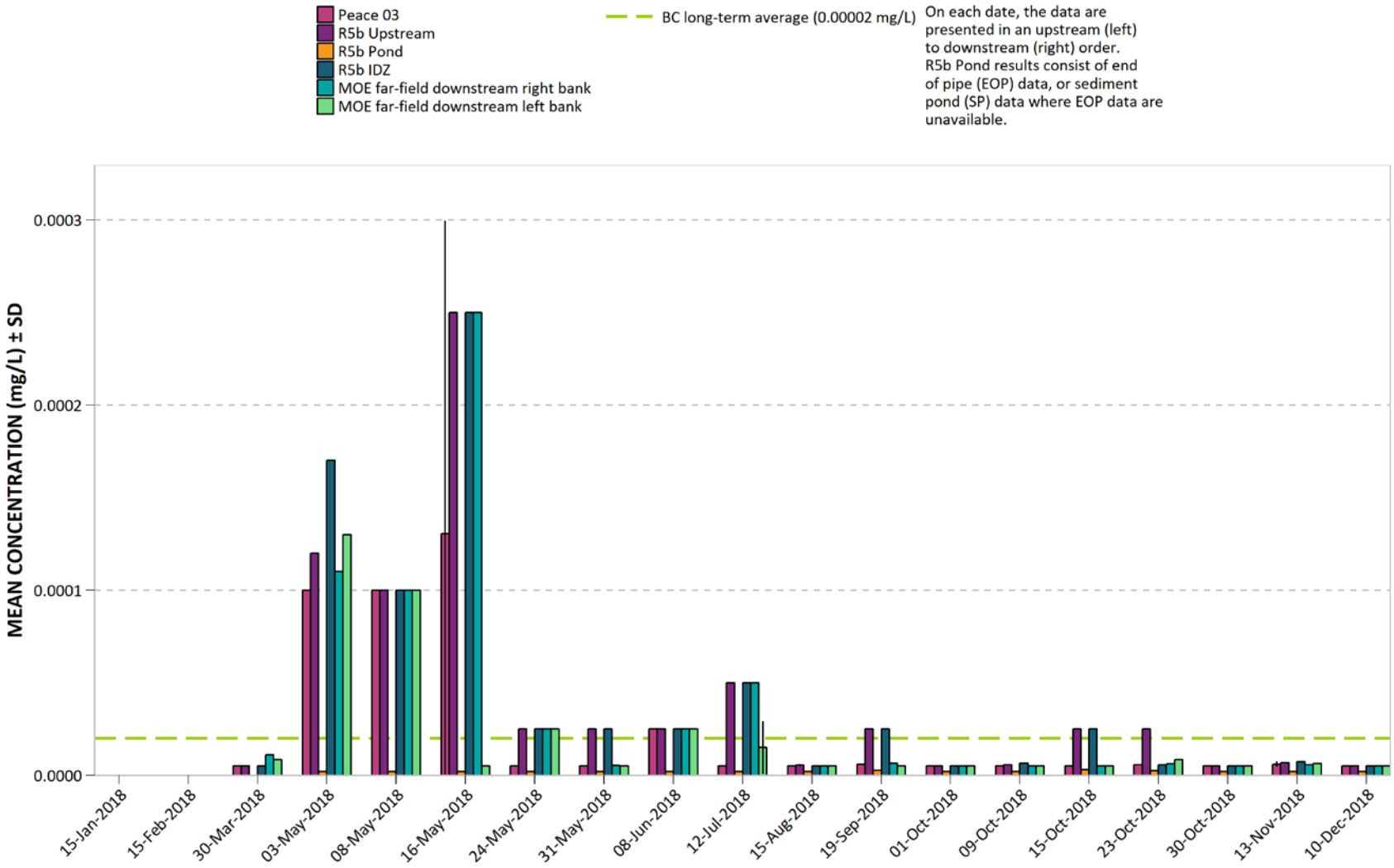


Figure 40. 2018 Peace River and RSEM R5b pond total mercury (Hg).



The MDL for total mercury varies depending on matrix effects. At various times in 2018 it was 0.000005, 0.000025, 0.00005, 0.0001 or 0.00025 mg/L in the Peace River. Most of the Peace River results other than May 3, 2018 were assigned an MDL value.

Figure 41. 2018 Peace River and RSEM R5b pond total molybdenum (Mo).

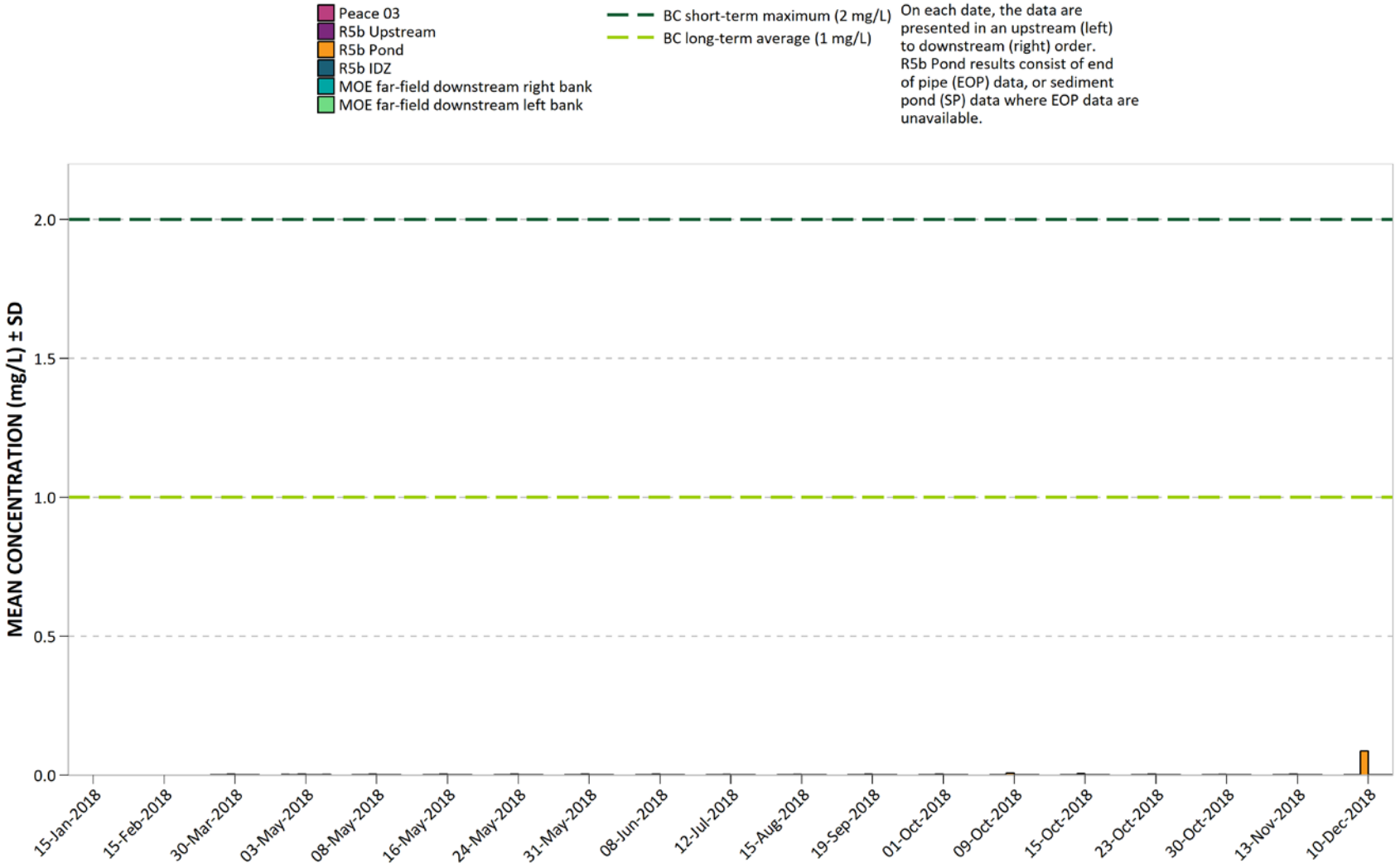


Figure 42. 2018 Peace River and RSEM R5b pond total nickel (Ni).

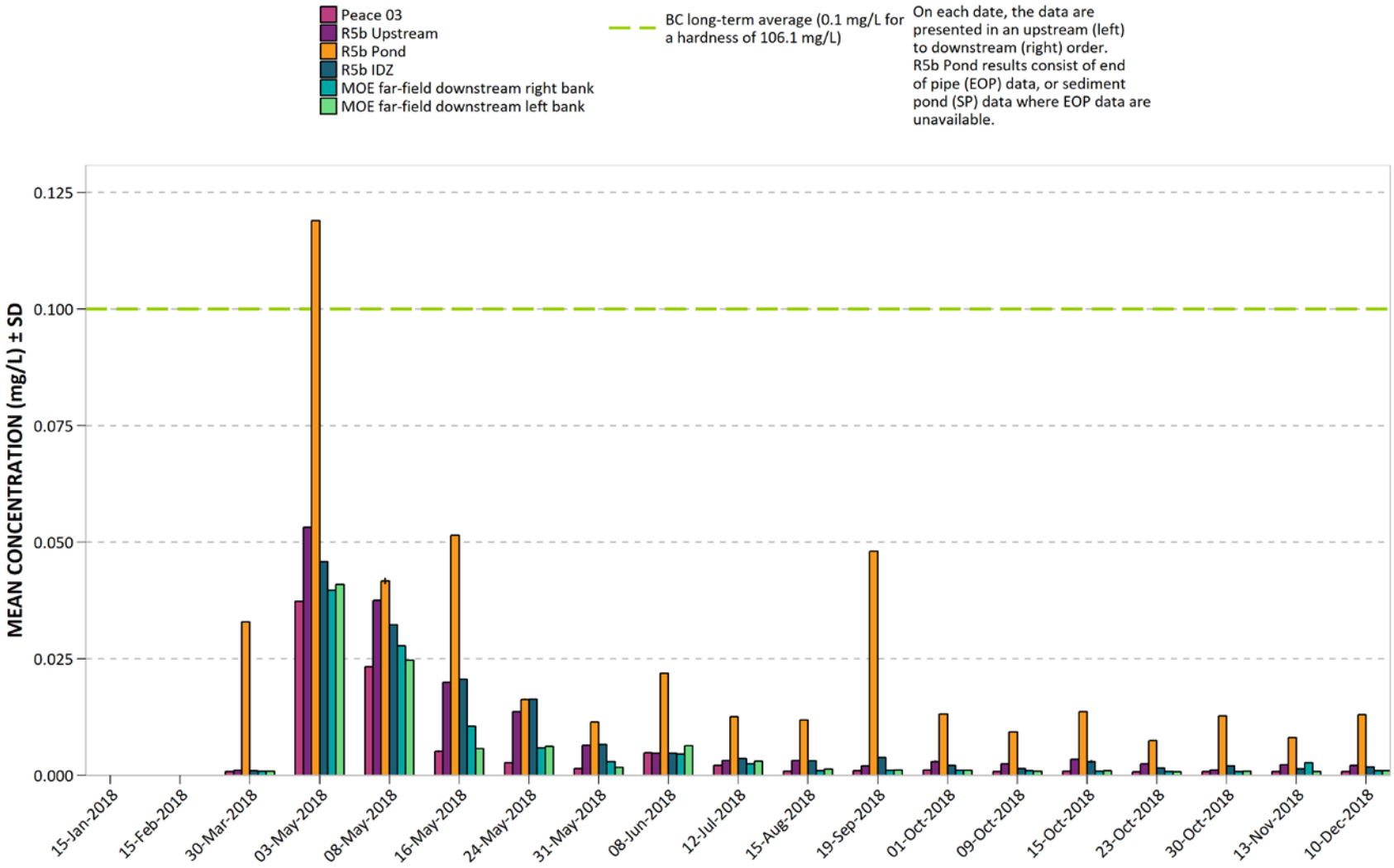


Figure 43. 2018 Peace River and RSEM R5b pond total potassium (K).

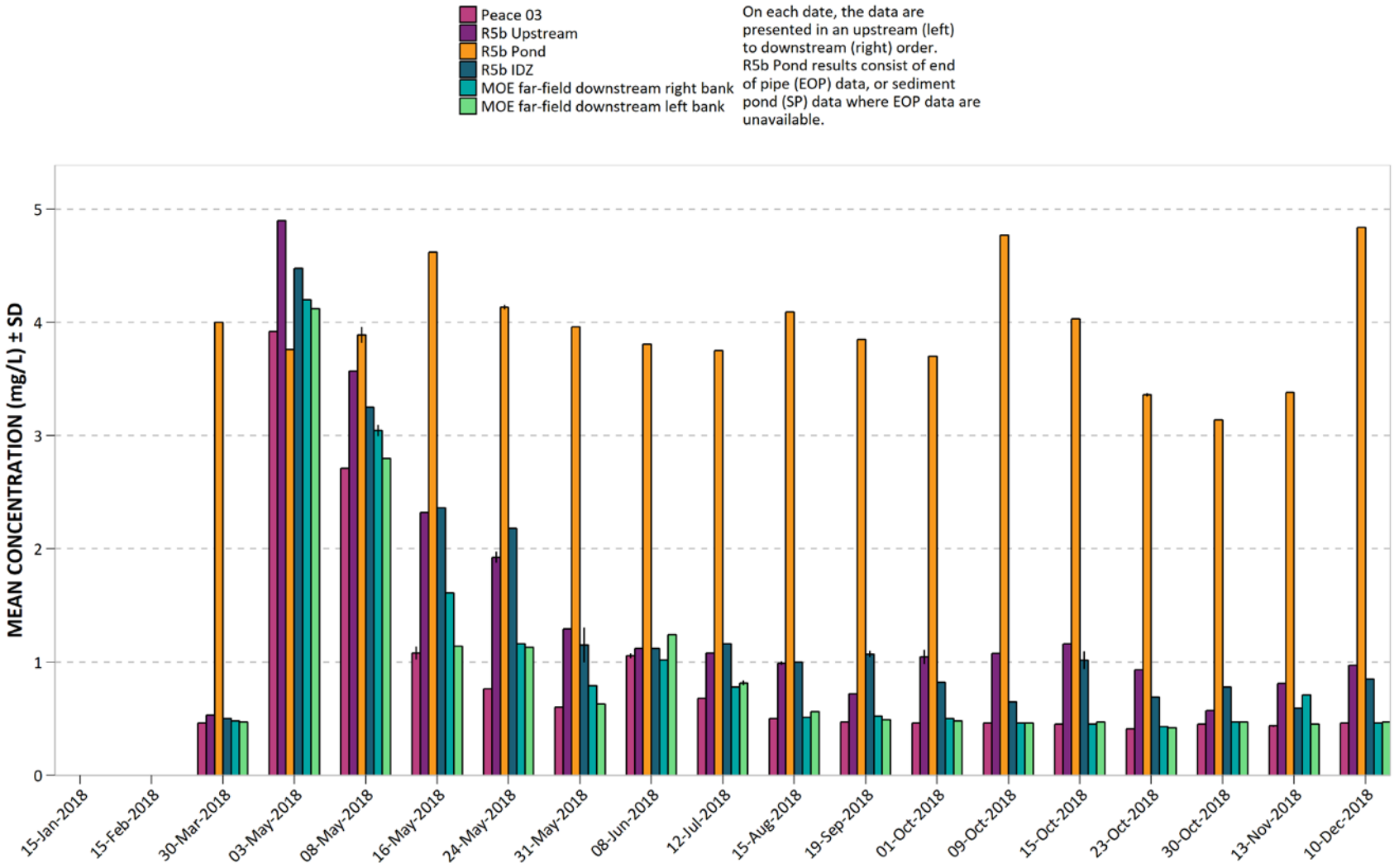


Figure 44. 2018 Peace River and RSEM R5b pond total selenium (Se).

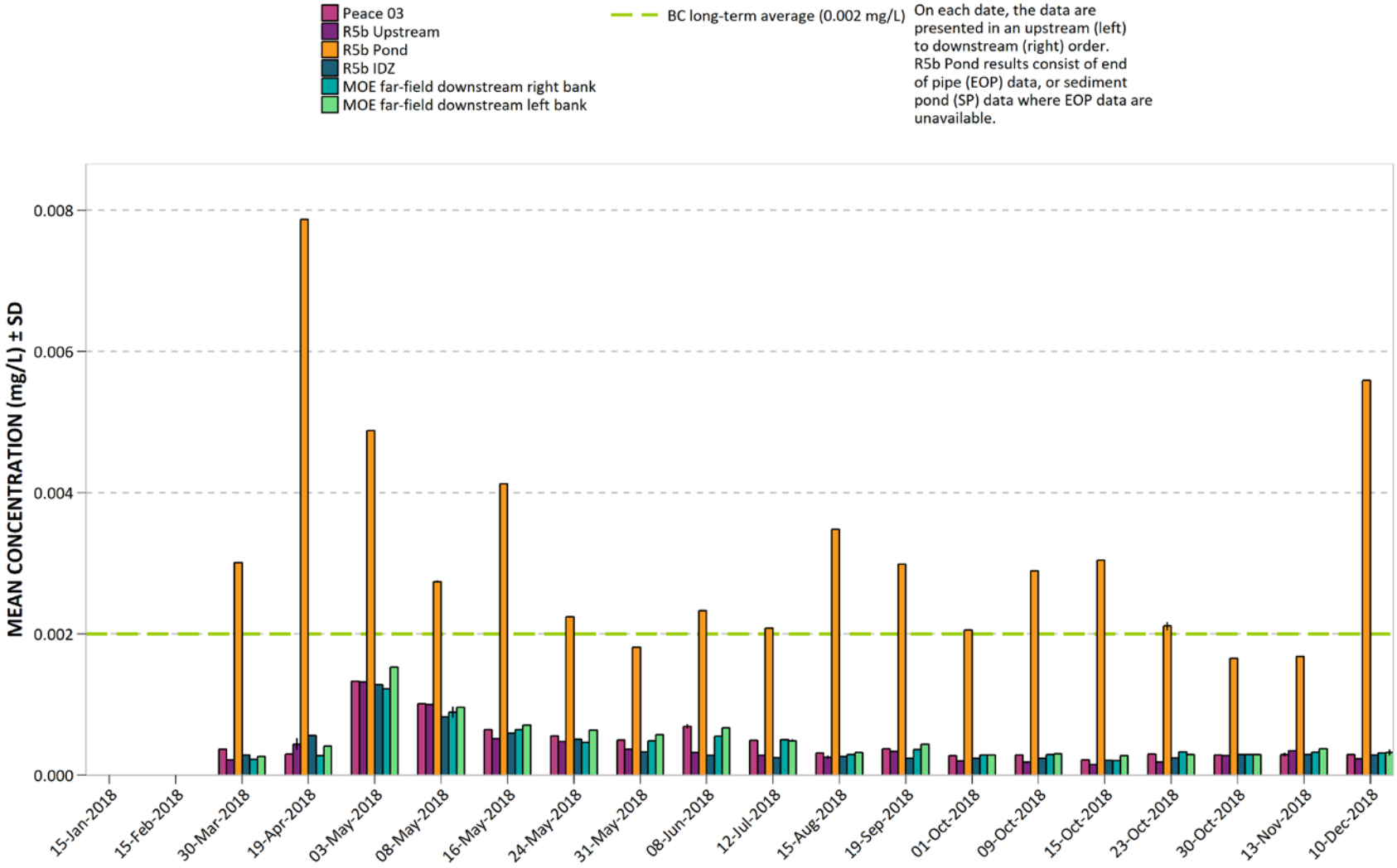


Figure 45. 2018 Peace River and RSEM R5b pond total silicon (Si).

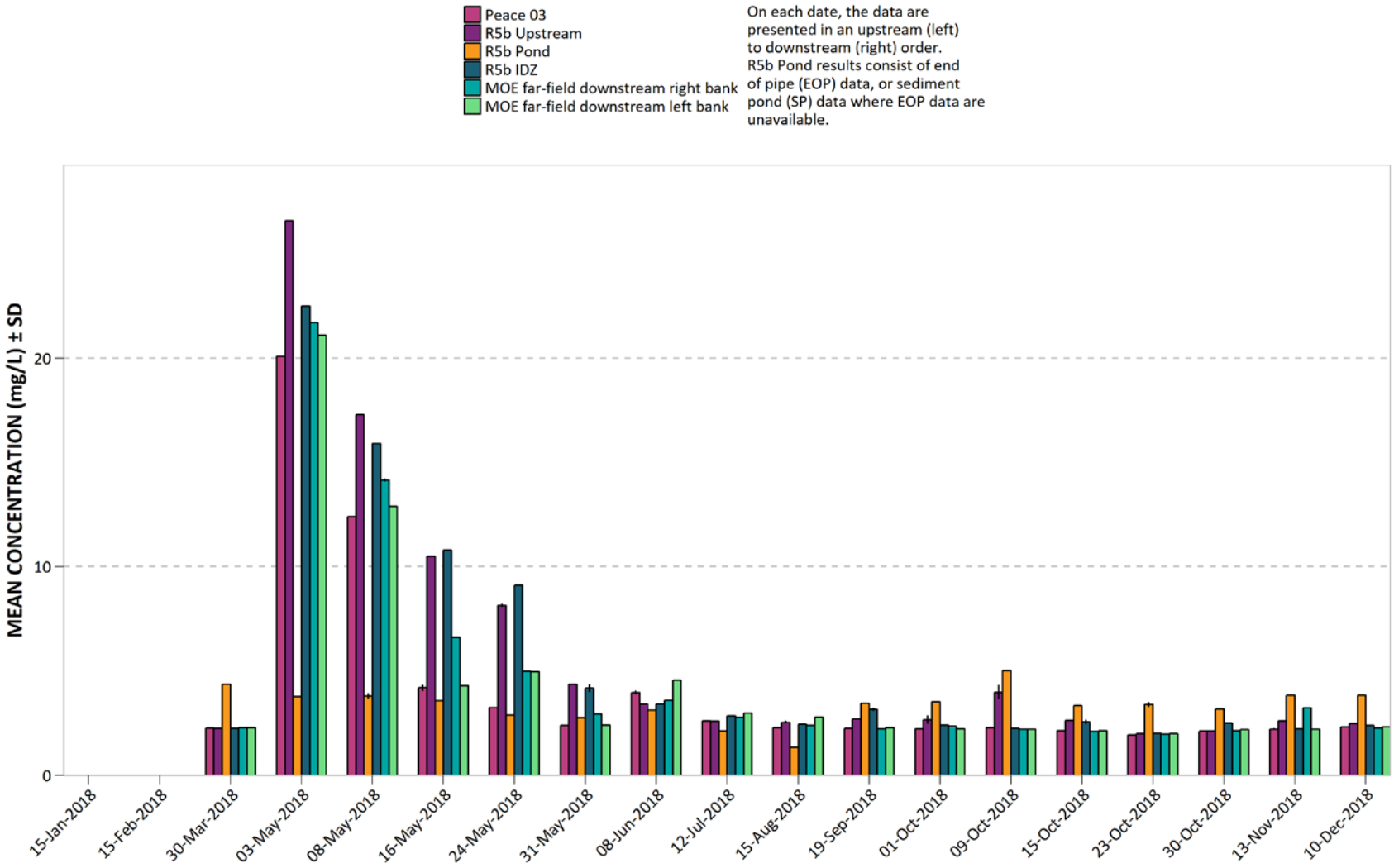


Figure 46. 2018 Peace River and RSEM R5b pond total silver (Ag).

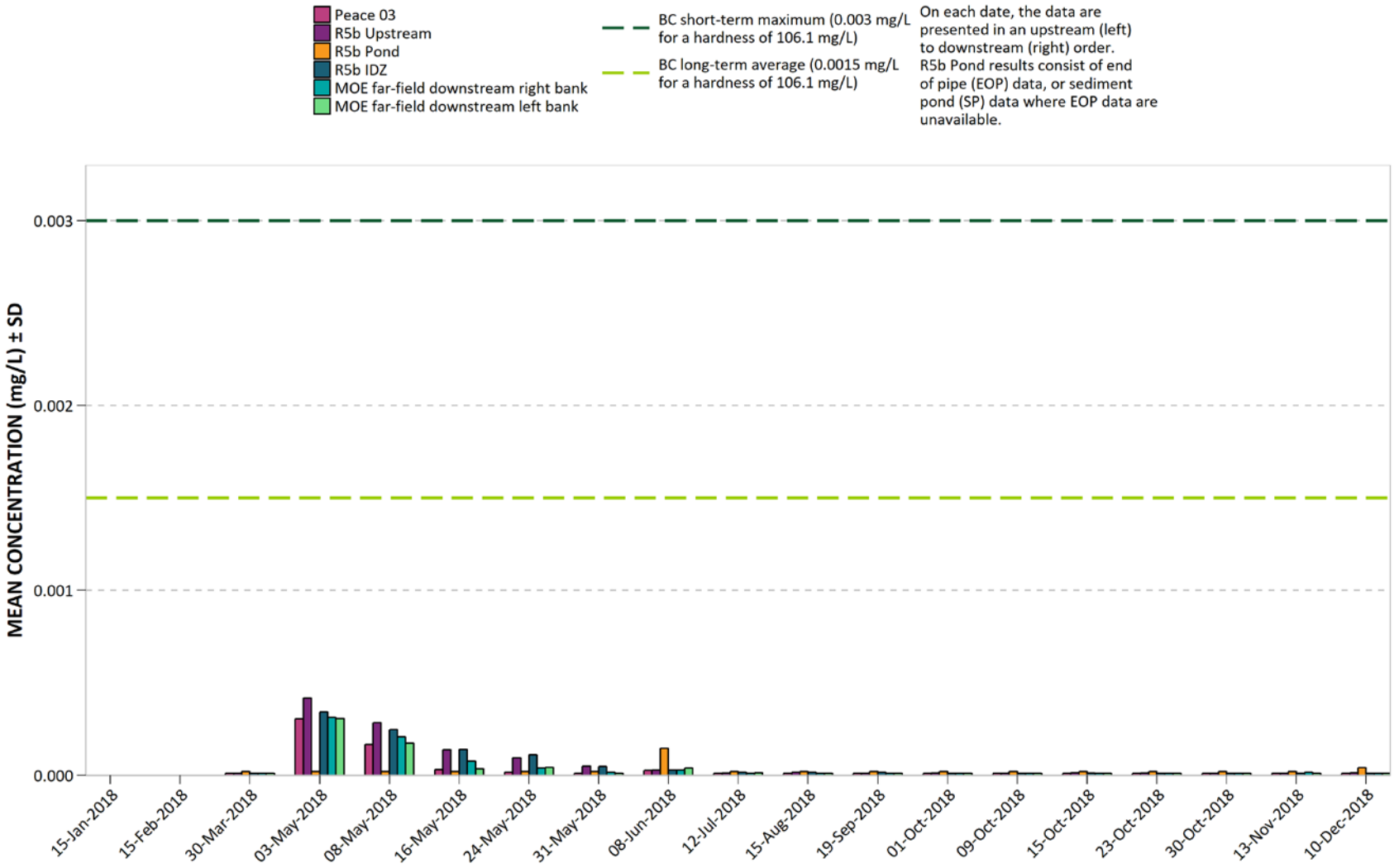


Figure 47. 2018 Peace River and RSEM R5b pond total sodium (Na).

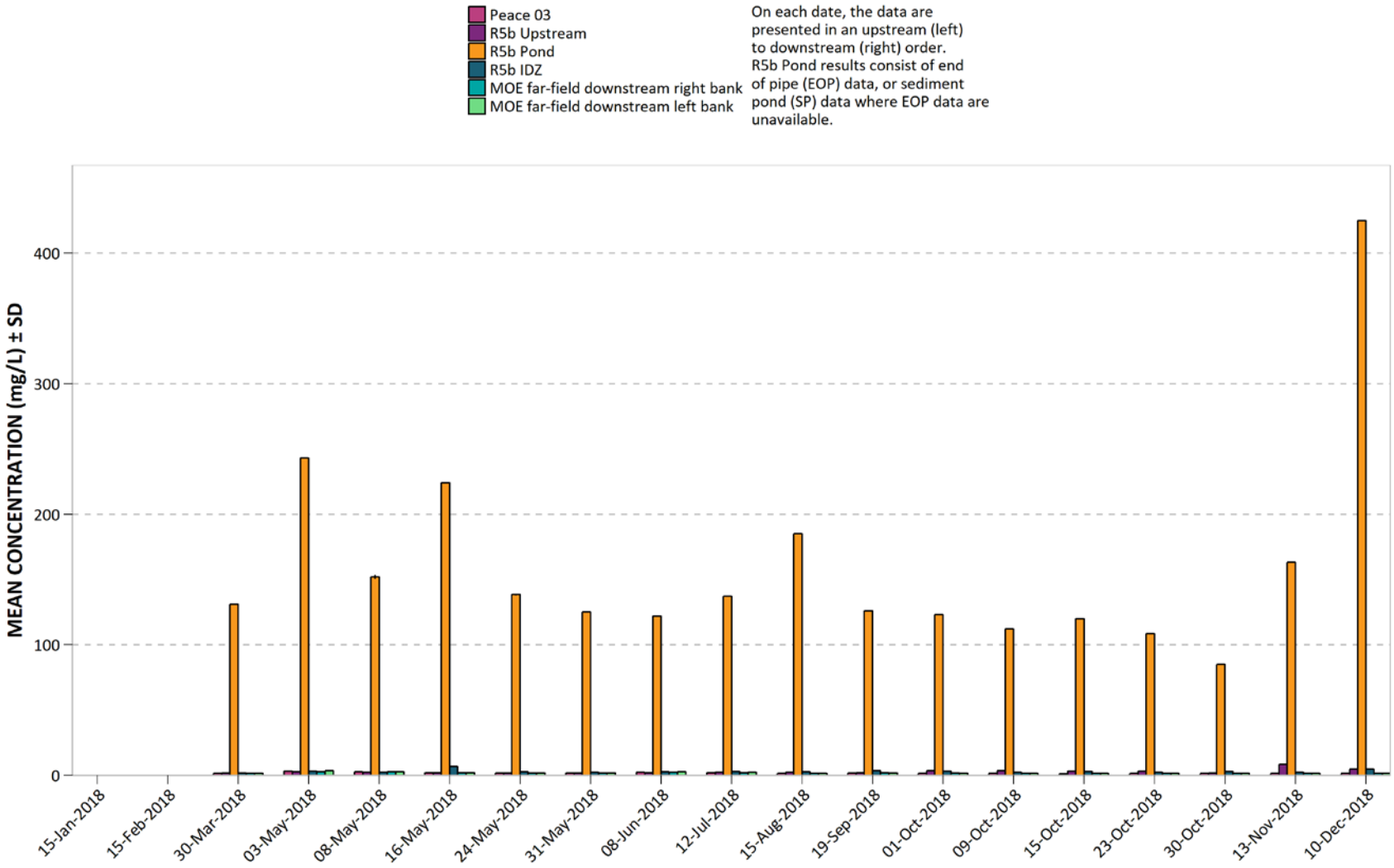


Figure 48. 2018 Peace River and RSEM R5b pond total strontium (Sr).

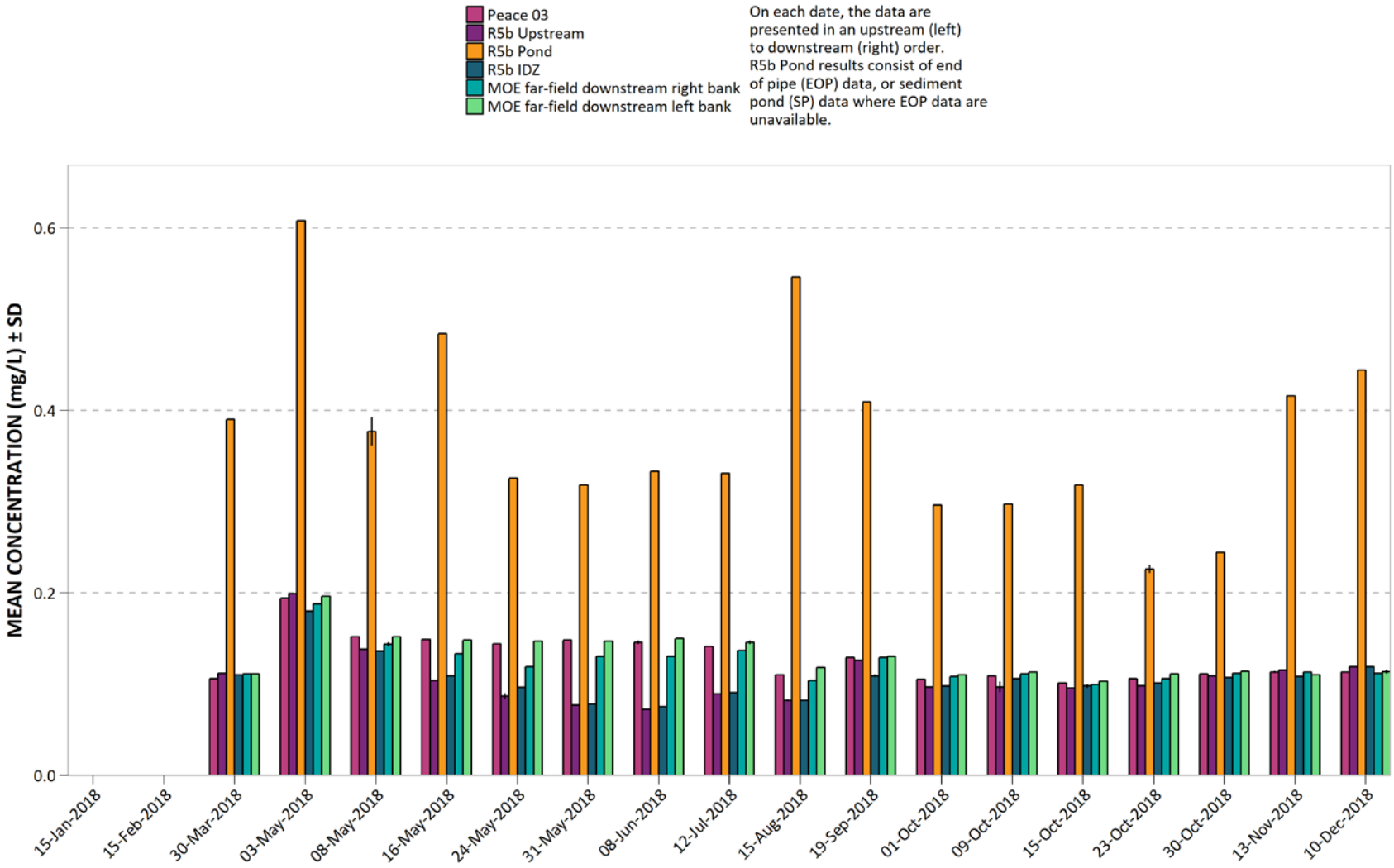


Figure 49. 2018 Peace River and RSEM R5b pond total sulfur (S).

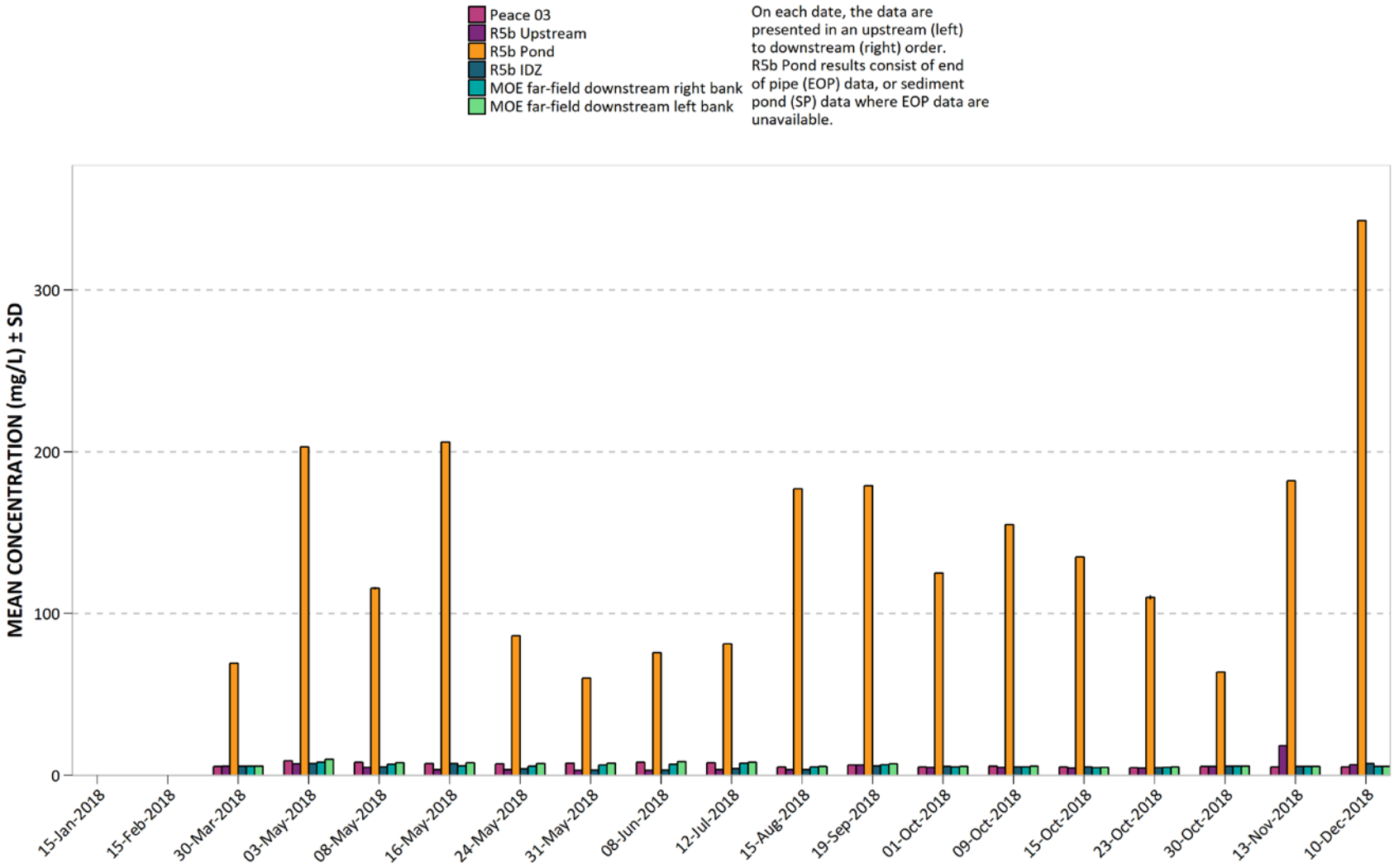
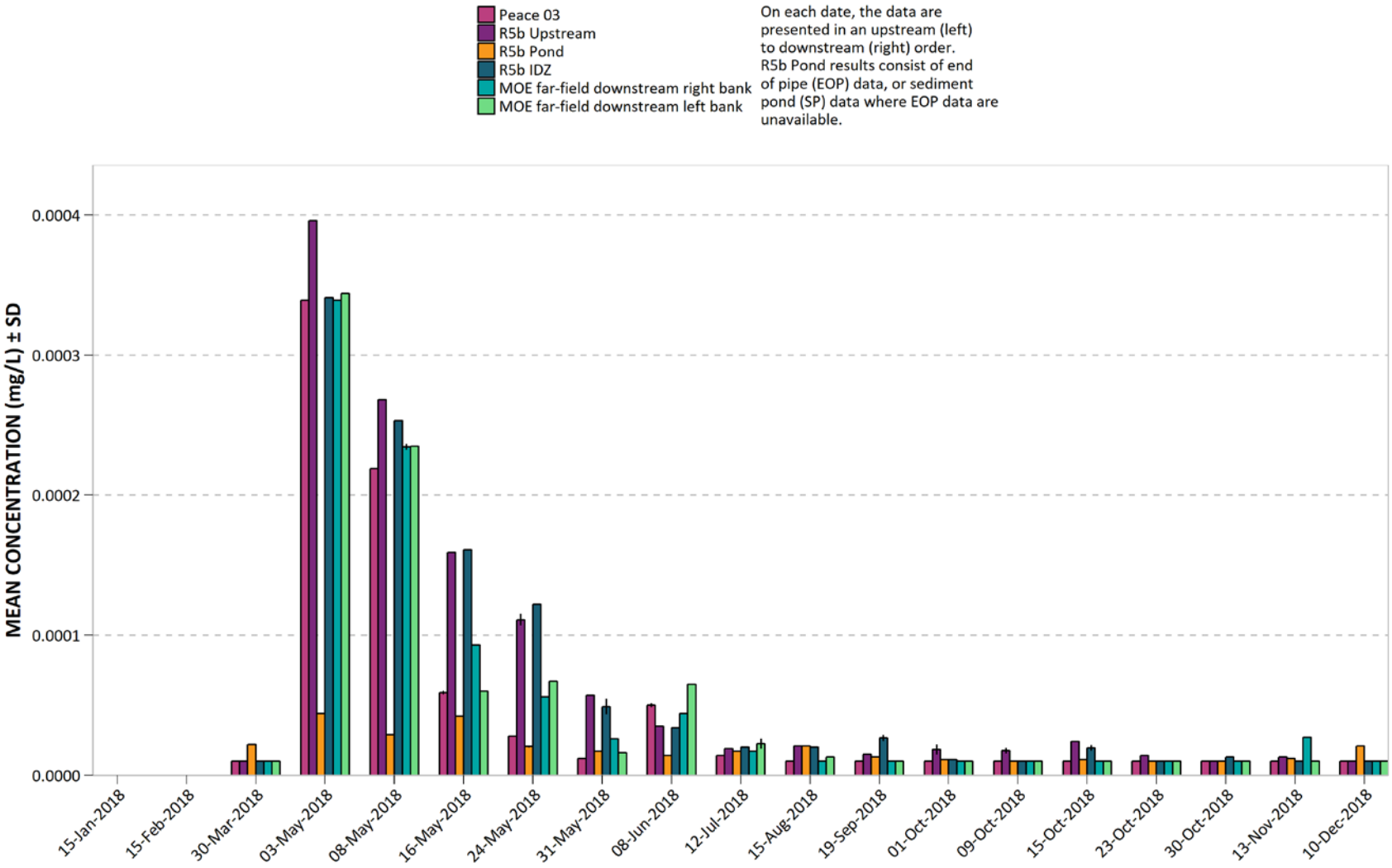
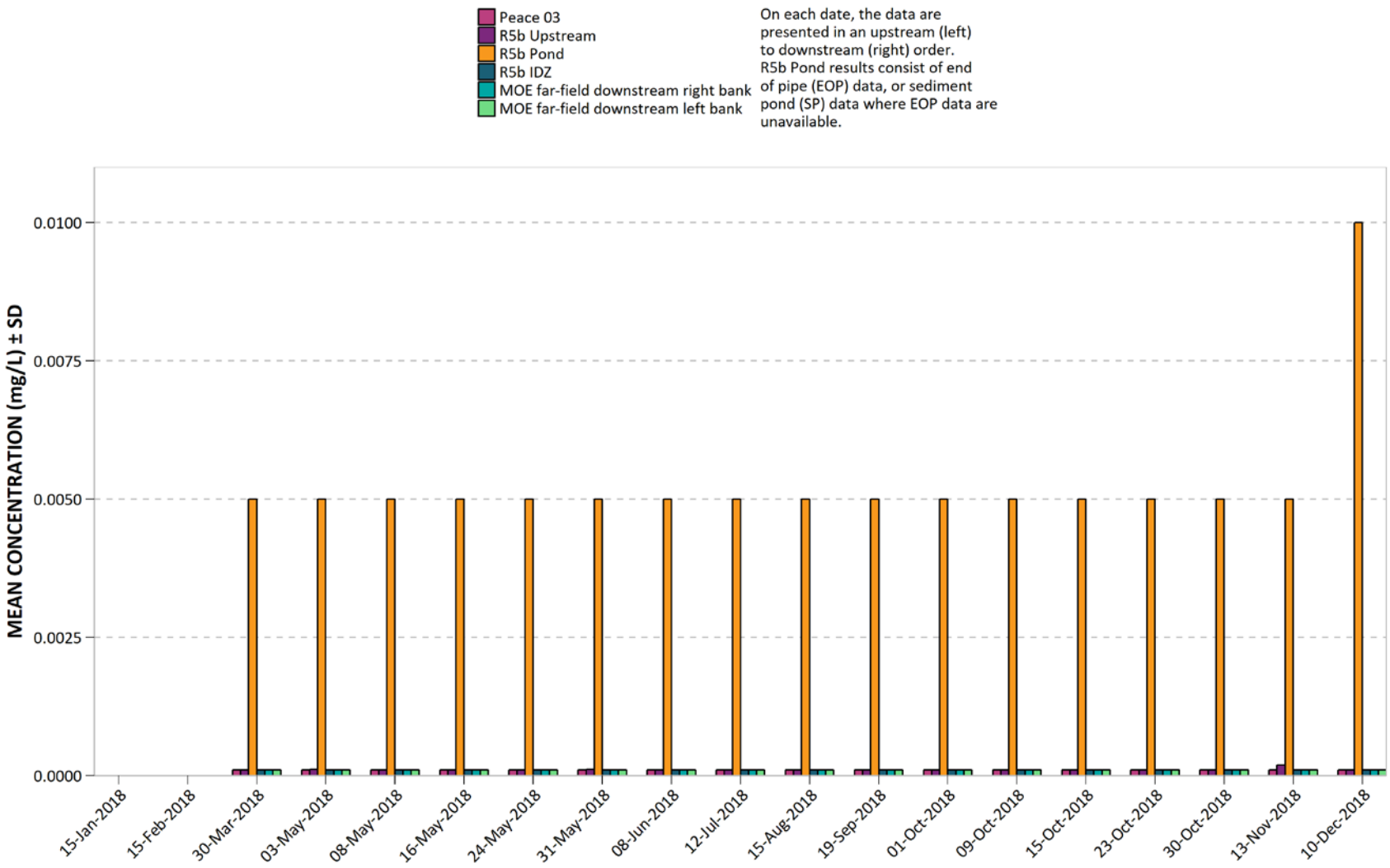


Figure 50. 2018 Peace River and RSEM R5b pond total thallium (Tl).



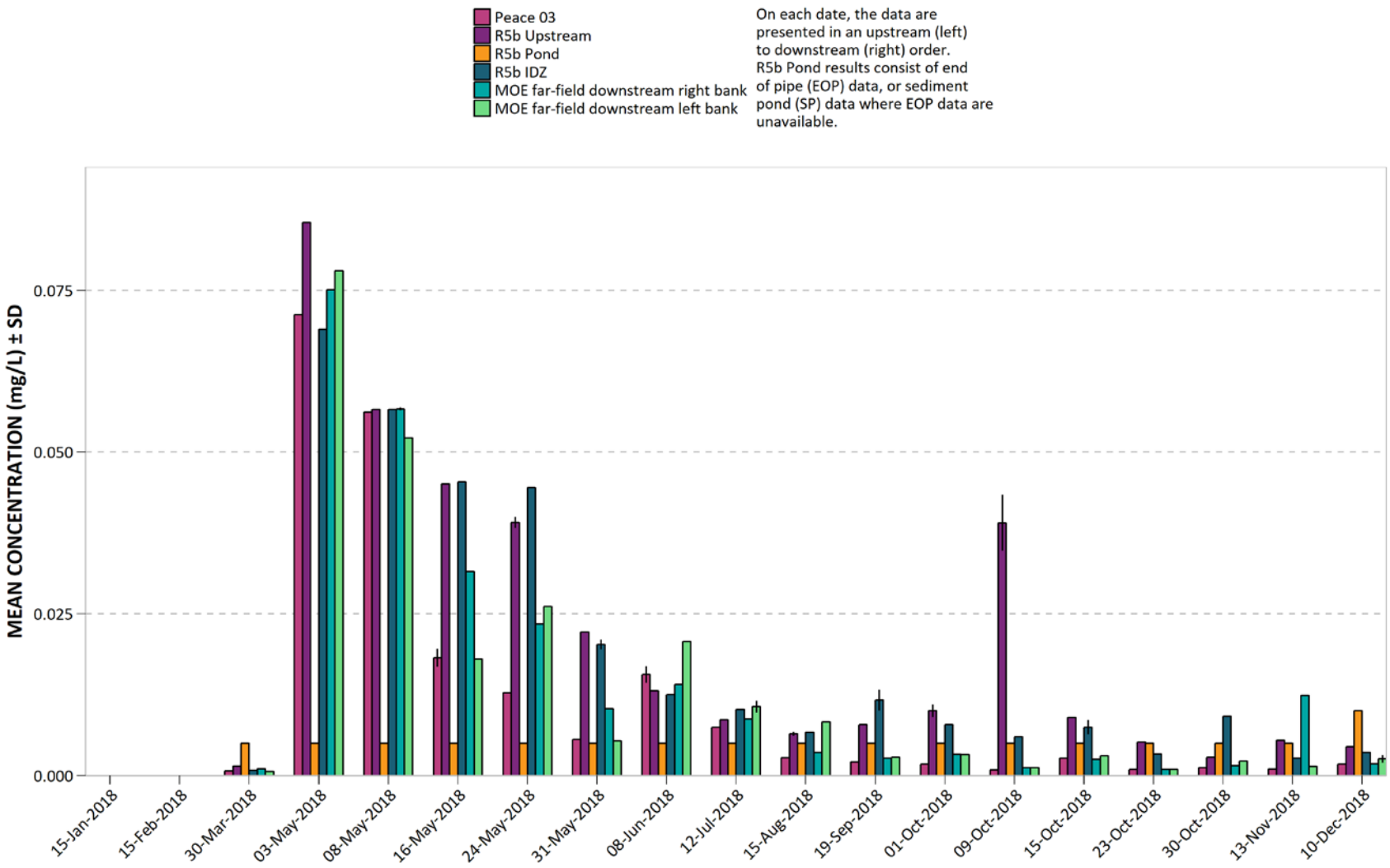
Results less than the MDL were assigned the MDL value of 0.00001 mg/L (R5b pond and Peace River).

Figure 51. 2018 Peace River and RSEM R5b pond total tin (Sn).



Results less than the MDL were assigned the MDL value of 0.01 mg/L (R5b in December), 0.005 mg/L (R5b pond other than December) or 0.0001 mg/L (Peace River).

Figure 52. 2018 Peace River and RSEM R5b pond total titanium (Ti).



R5b pond results less than the MDL were assigned the MDL value of 0.01 mg/L (December) or 0.005 mg/L (January to November).

Figure 53. 2018 Peace River and RSEM R5b pond total uranium (U).

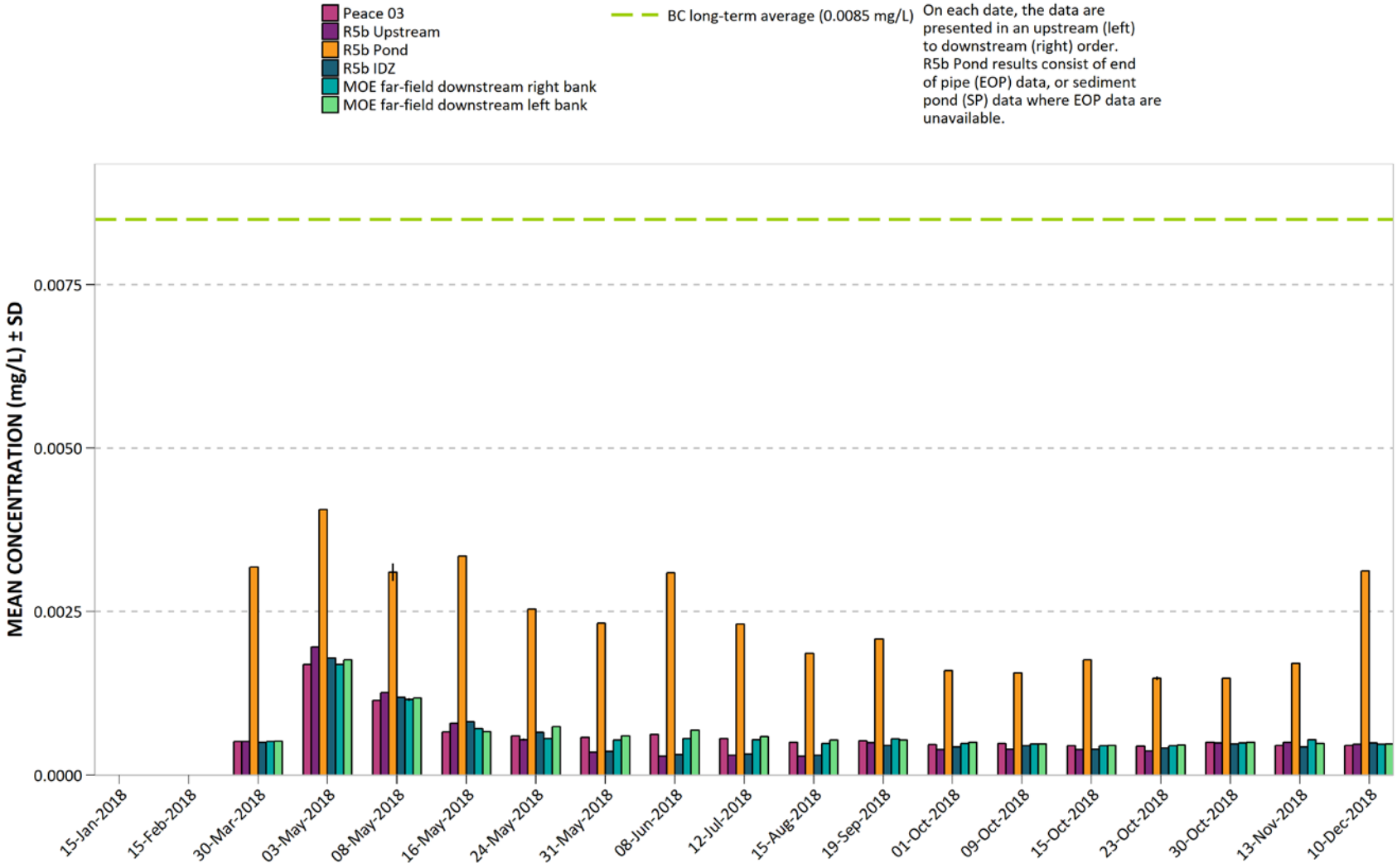
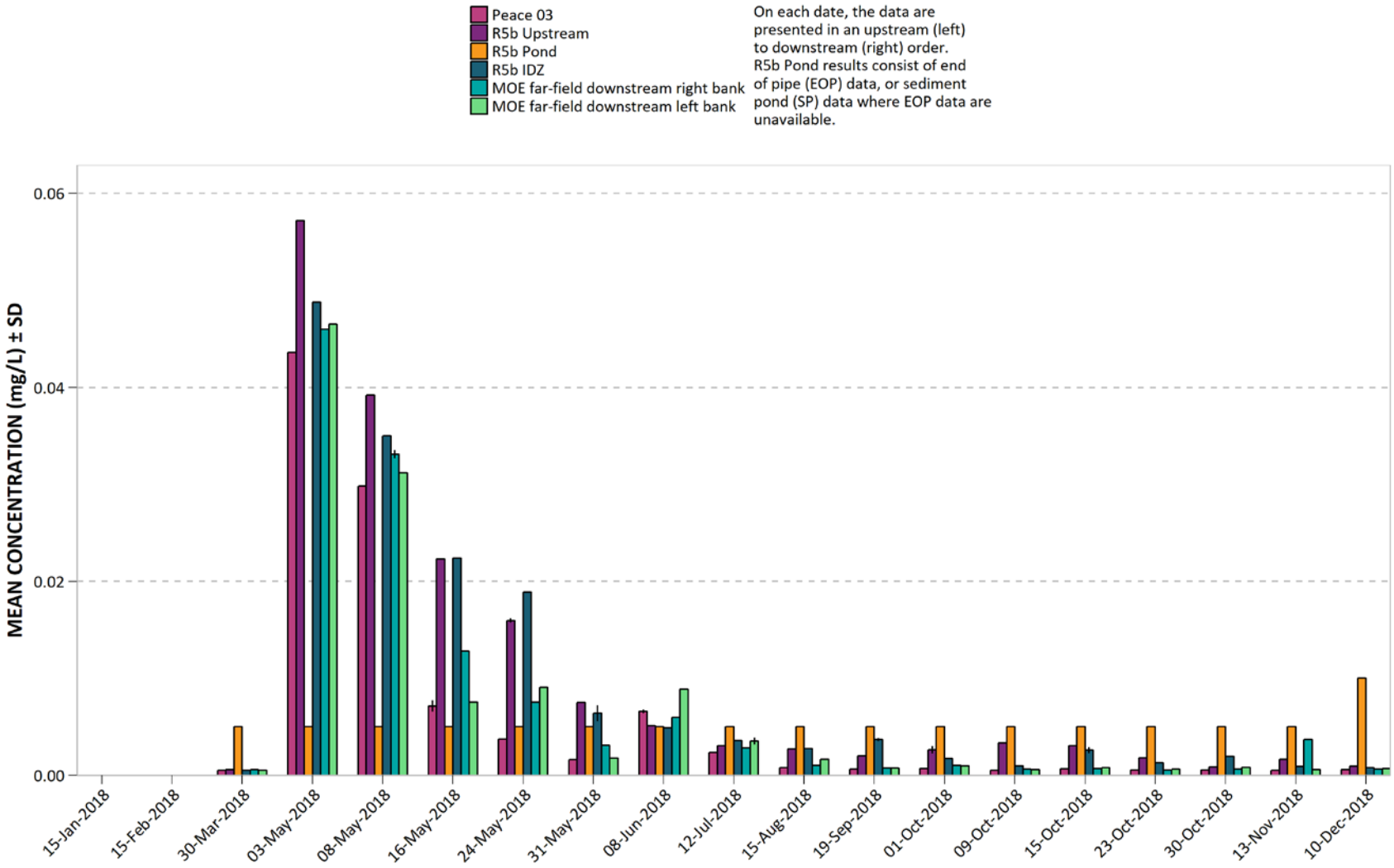


Figure 54. 2018 Peace River and RSEM R5b pond total vanadium (V).



Results less than the MDL were assigned the MDL value of 0.01 mg/L (R5b pond in December), 0.005 mg/L (R5b pond in January - November) or 0.0005 mg/L (Peace River).

Figure 55. 2018 Peace River and RSEM R5b pond total zinc (Zn).

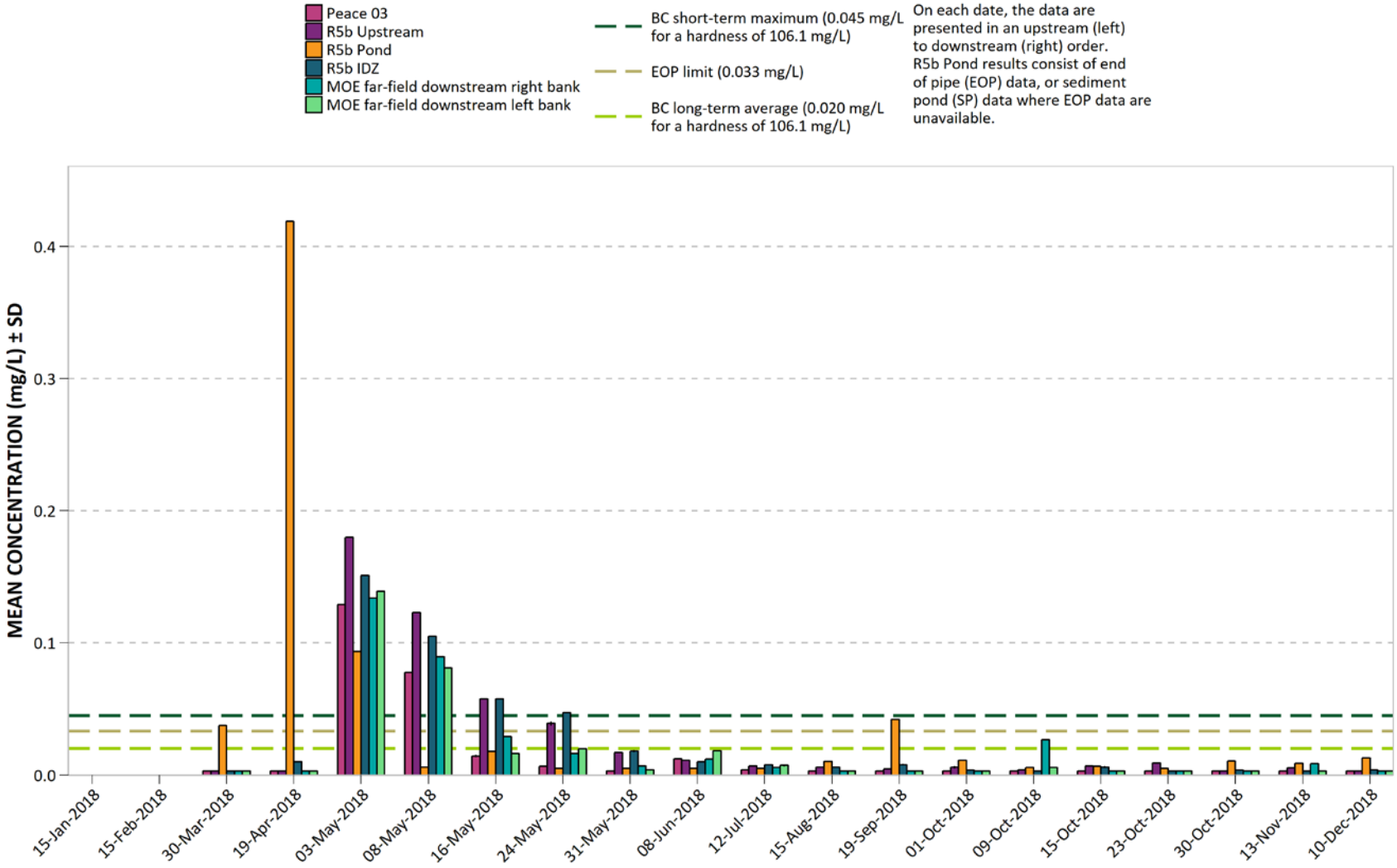
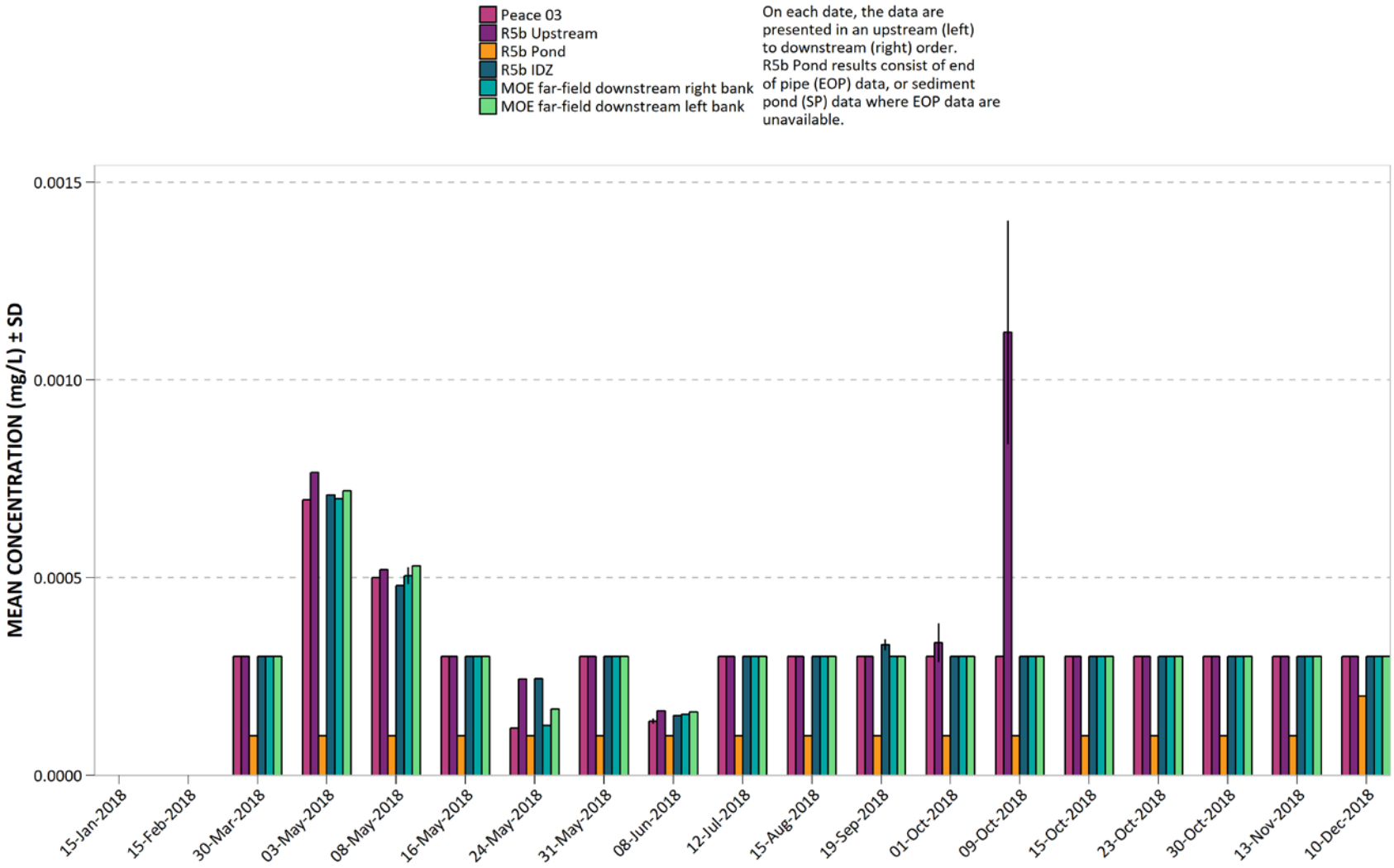


Figure 56. 2018 Peace River and RSEM R5b pond total zirconium (Zr).



R5b pond results less than the MDL were assigned the MDL value of 0.0003 mg/L (December) or 0.0001 mg/L (January – November). The MDL in the Peace River varied in 2018 between 0.00006 and 0.0003 mg/L, such that much of the data were assigned the MDL of 0.0003 mg/L while lower values exist on some dates when the MDL was lower.

Figure 57. 2018 Peace River and RSEM R5b pond dissolved aluminum (Al).

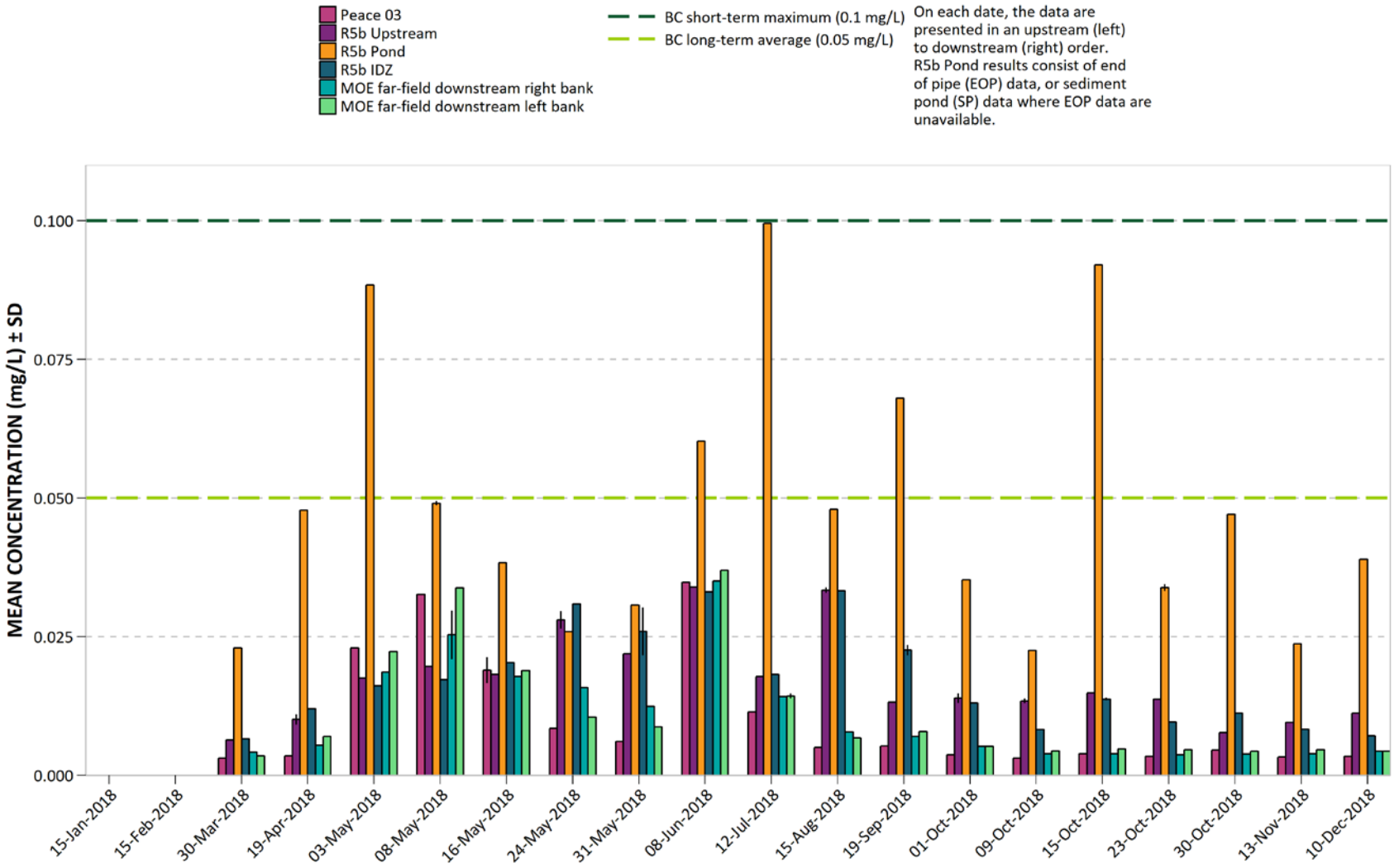
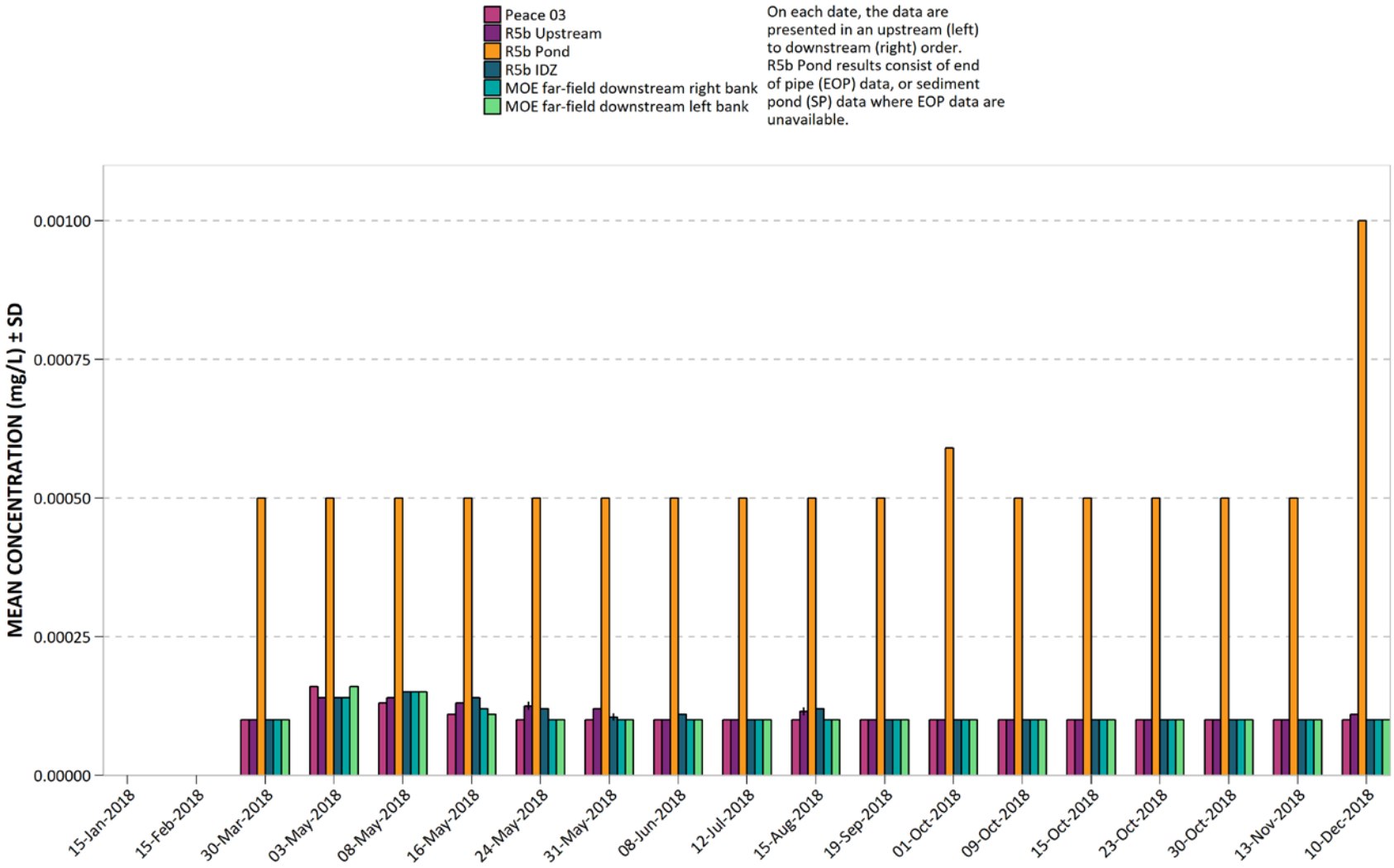


Figure 58. 2018 Peace River and RSEM R5b pond dissolved antimony (Sb).



Results less than the MDL were assigned the MDL value of 0.001 mg/L (R5b pond in December), 0.0005 mg/L (R5b pond in January - November) or 0.0001 mg/L (Peace River).

Figure 59. 2018 Peace River and RSEM R5b pond dissolved arsenic (As).

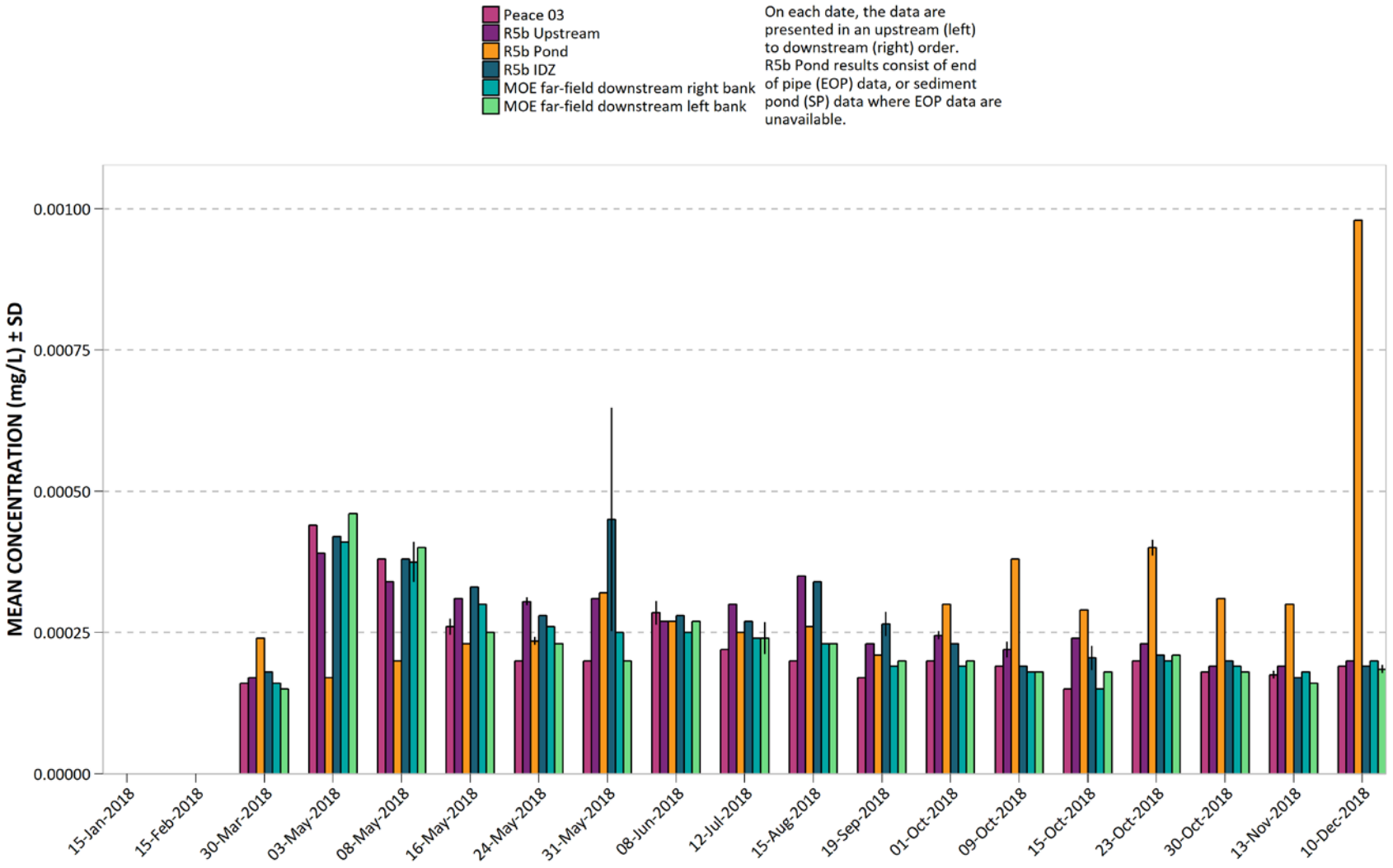


Figure 60. 2018 Peace River and RSEM R5b pond dissolved barium (Ba).

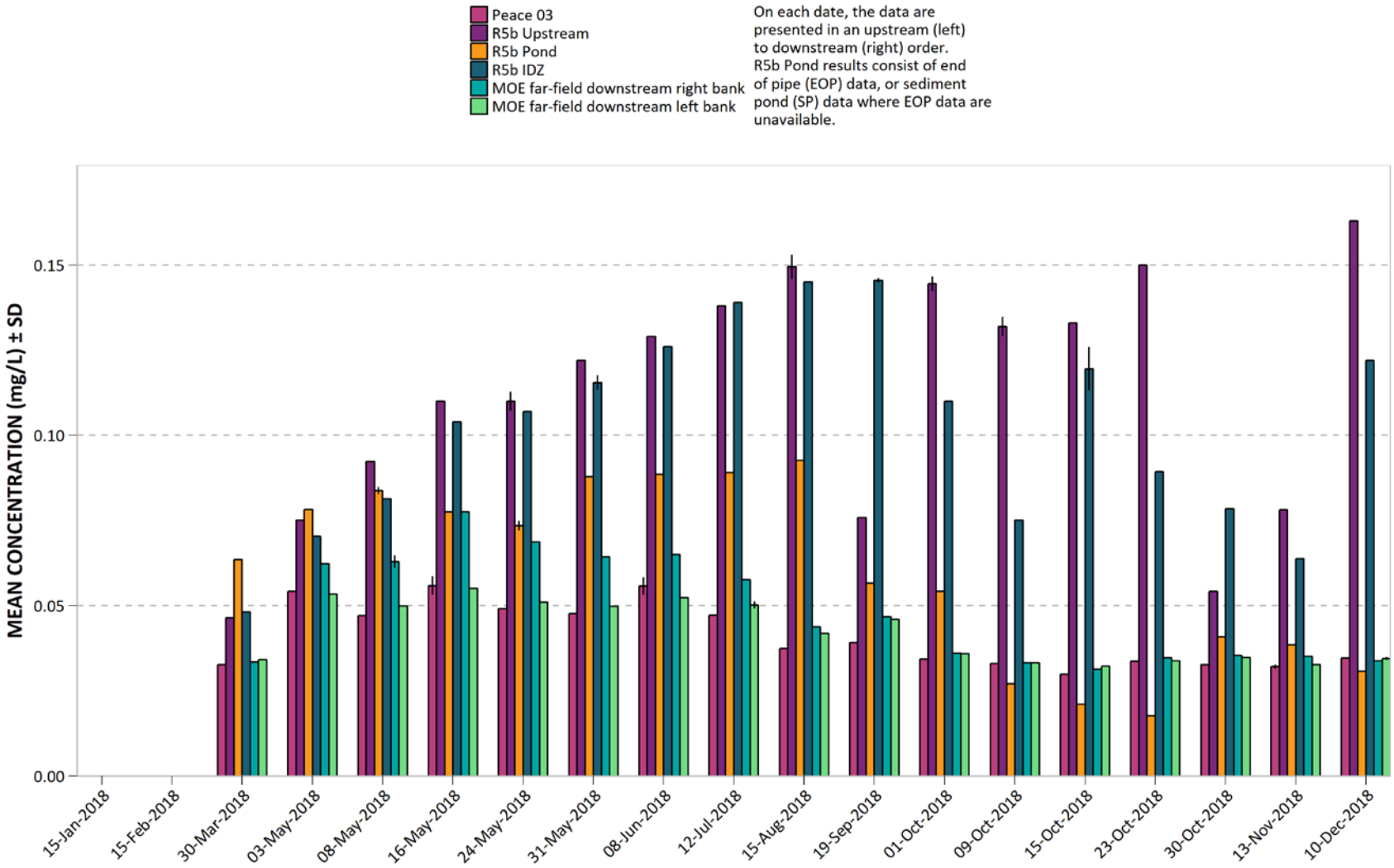
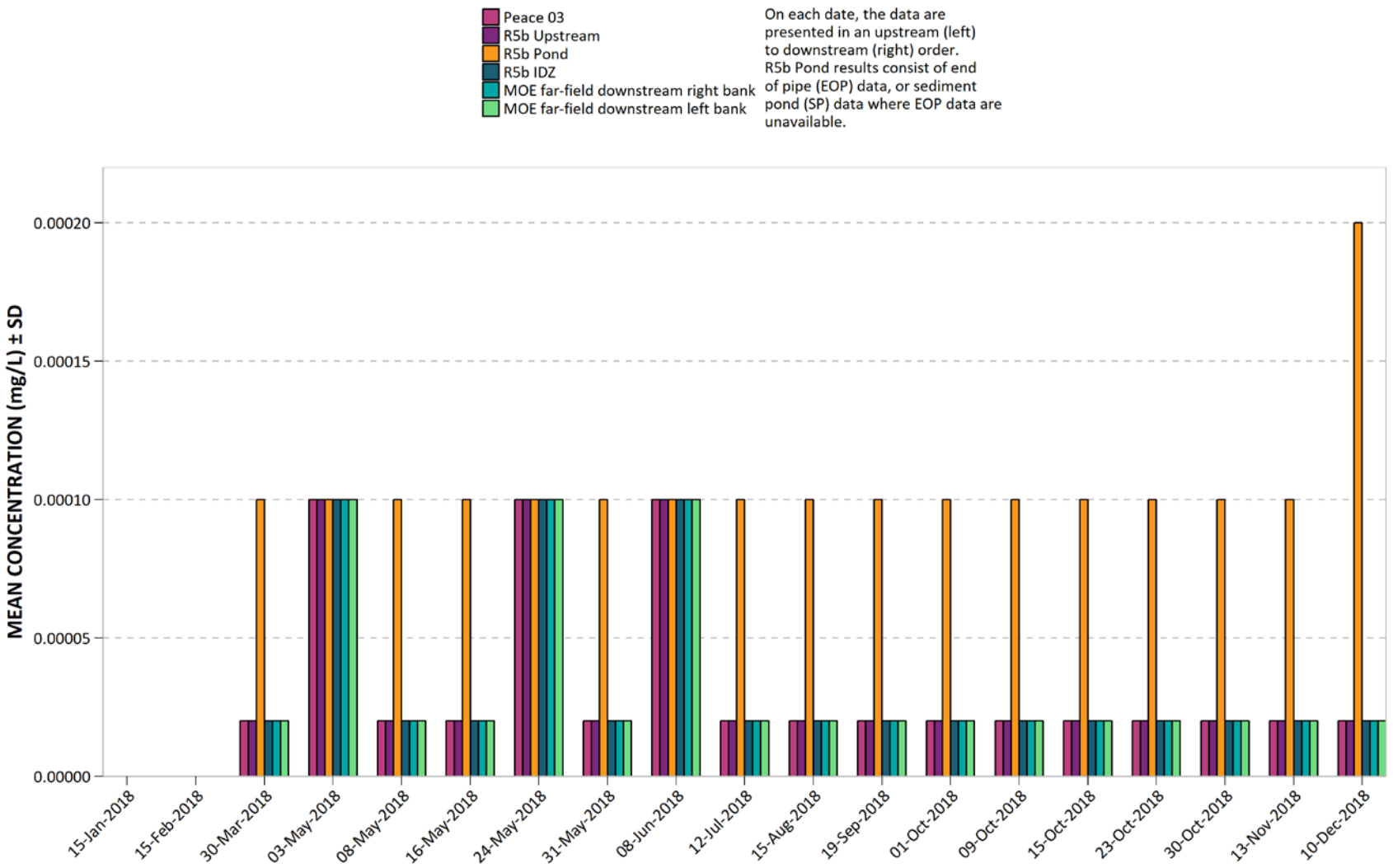
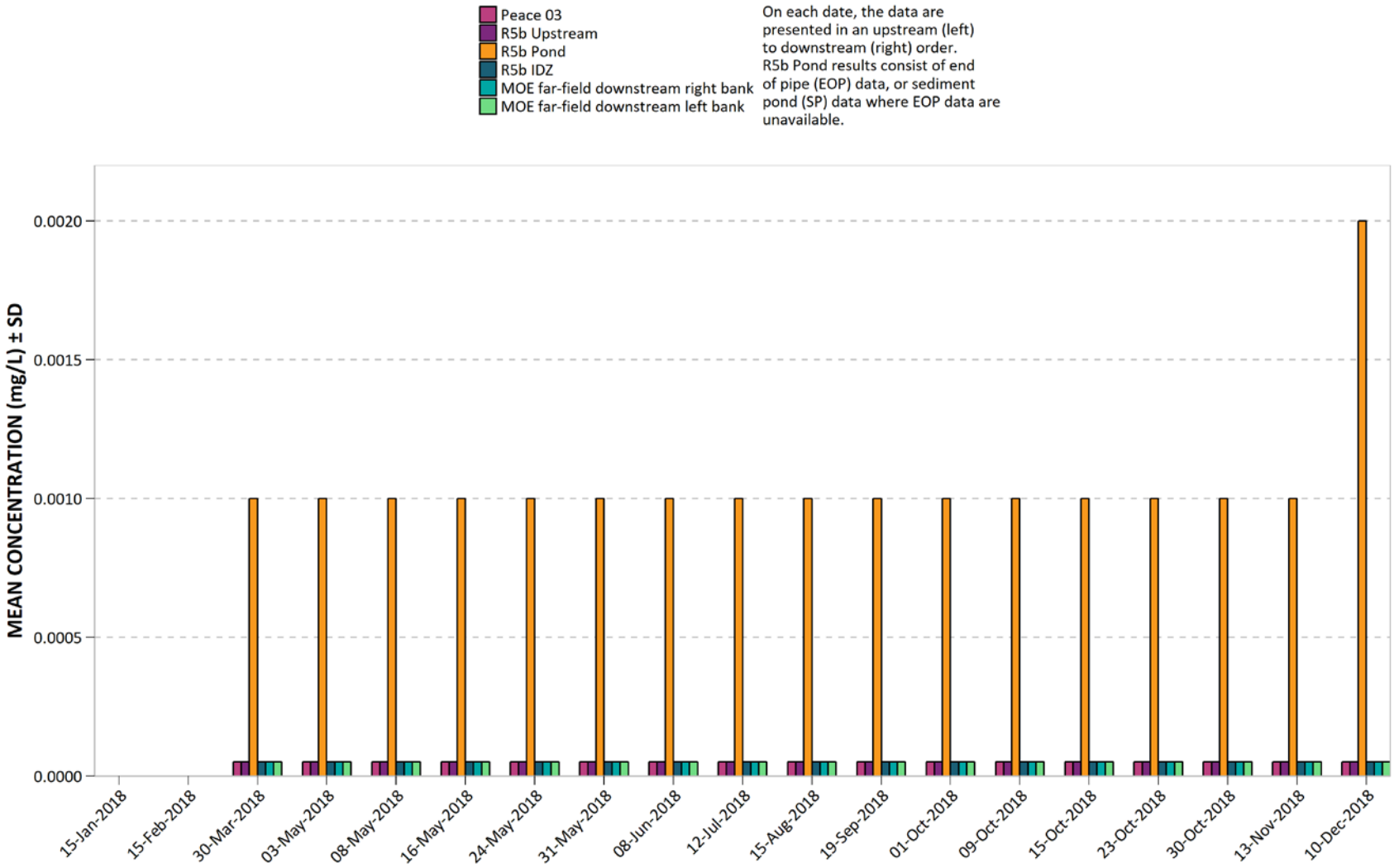


Figure 61. 2018 Peace River and RSEM R5b pond dissolved beryllium (Be).



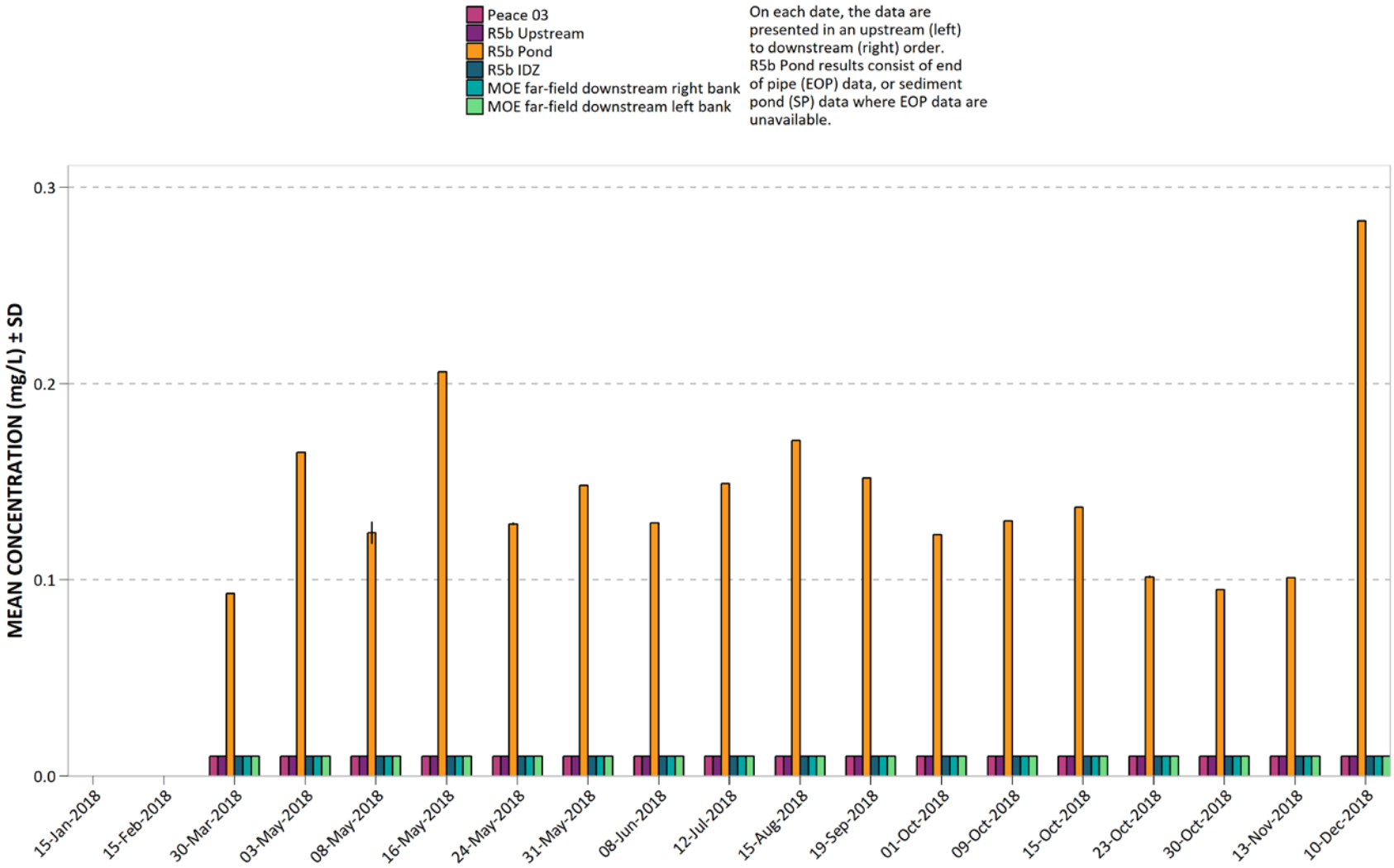
All results were less than the MDL and thus were assigned the MDL value of 0.0002 mg/L (R5b pond in December 2018), 0.0001 mg/L (R5b pond in January to November, 2018, Peace River on May 3, May 24 and June 8) or 0.00002 mg/L (Peace River on remaining dates).

Figure 62. 2018 Peace River and RSEM R5b pond dissolved bismuth (Bi).



All results were less than the MDL and thus were assigned the MDL value of 0.002 mg/L (R5b pond in December), 0.001 mg/L (R5b pond in January - November) or 0.00005 mg/L (Peace River).

Figure 63. 2018 Peace River and RSEM R5b pond dissolved boron (B).



Peace River results were less than the MDL and thus were assigned the MDL value of 0.01 mg/L.

Figure 64. 2018 Peace River and RSEM R5b pond dissolved cadmium (Cd).

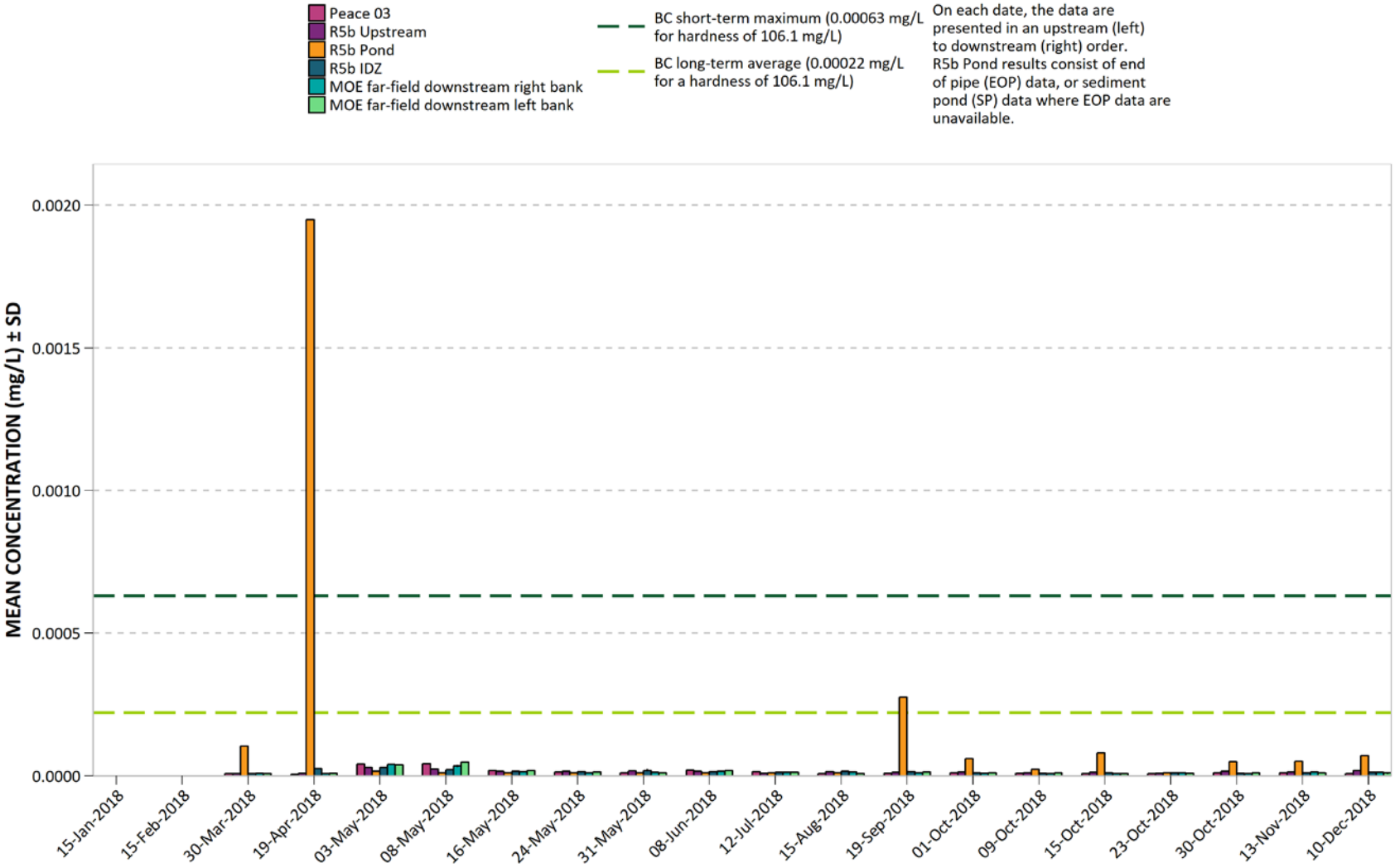


Figure 65. 2018 Peace River and RSEM R5b pond dissolved calcium (Ca).

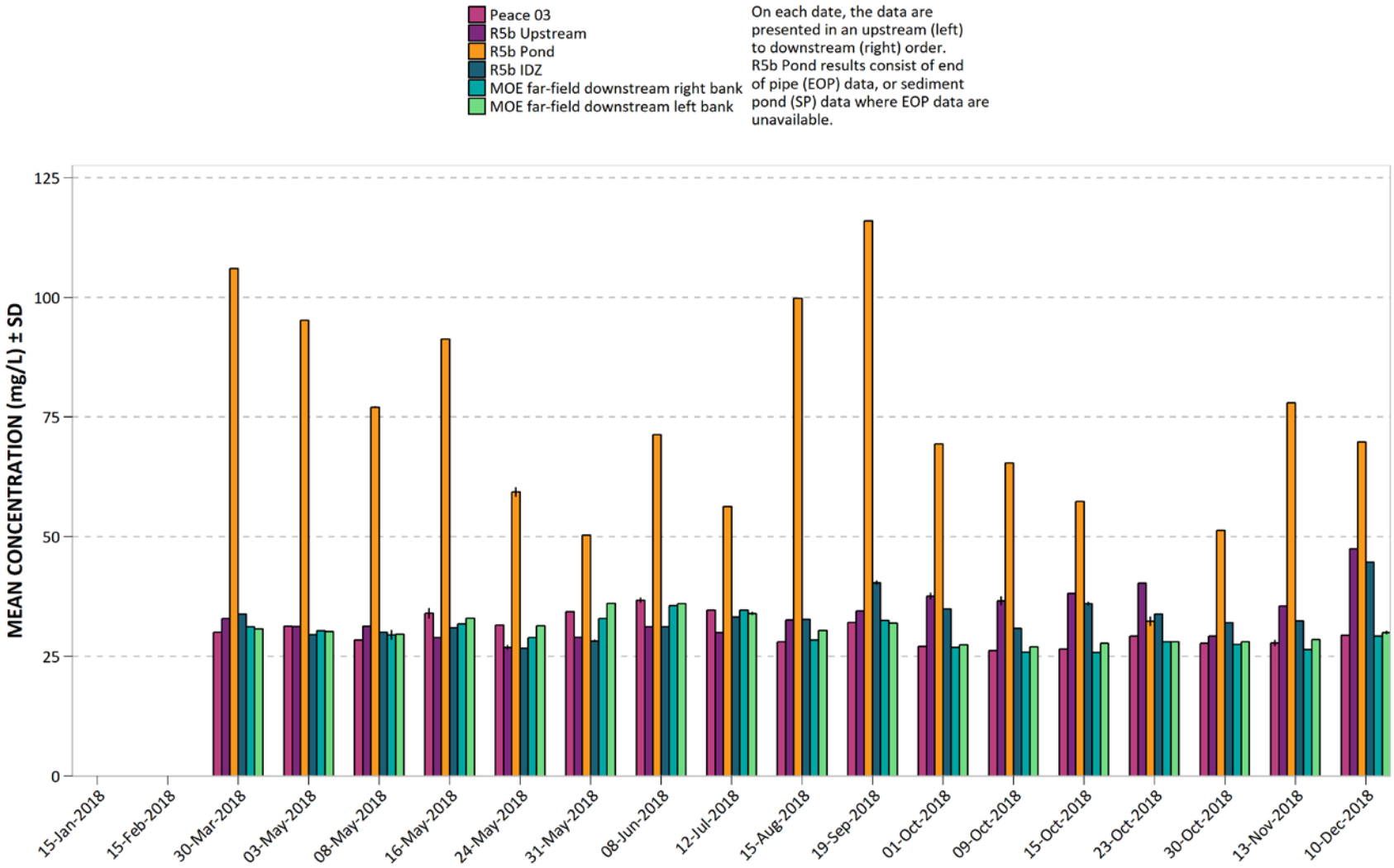
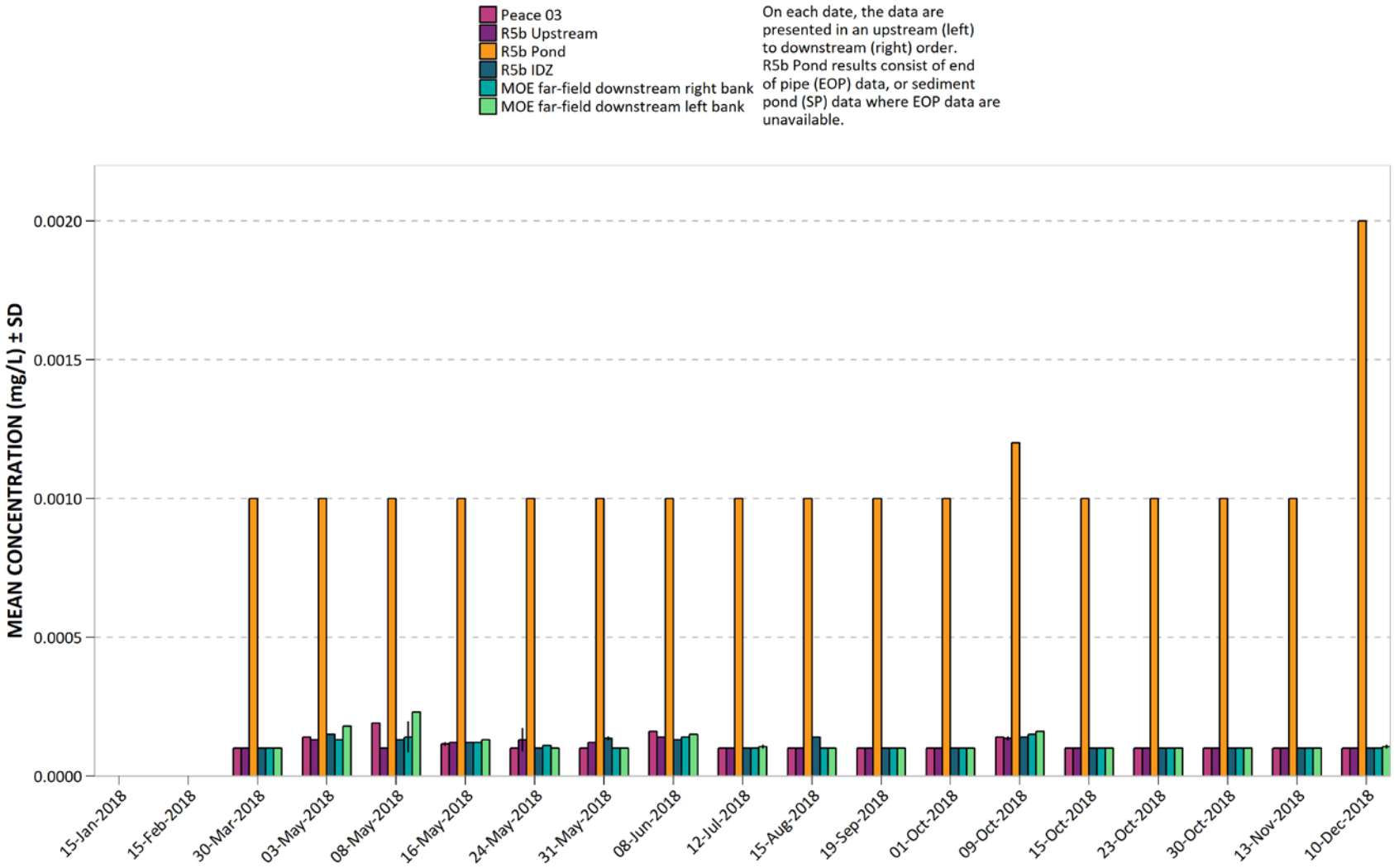


Figure 66. 2018 Peace River and RSEM R5b pond dissolved chromium (Cr).



Results less than the MDL were assigned the MDL value of 0.002 mg/L (R5b pond in December), 0.001 mg/L (R5b pond in January - November) or 0.0001 mg/L (Peace River).

Figure 67. 2018 Peace River and RSEM R5b pond dissolved cobalt (Co).

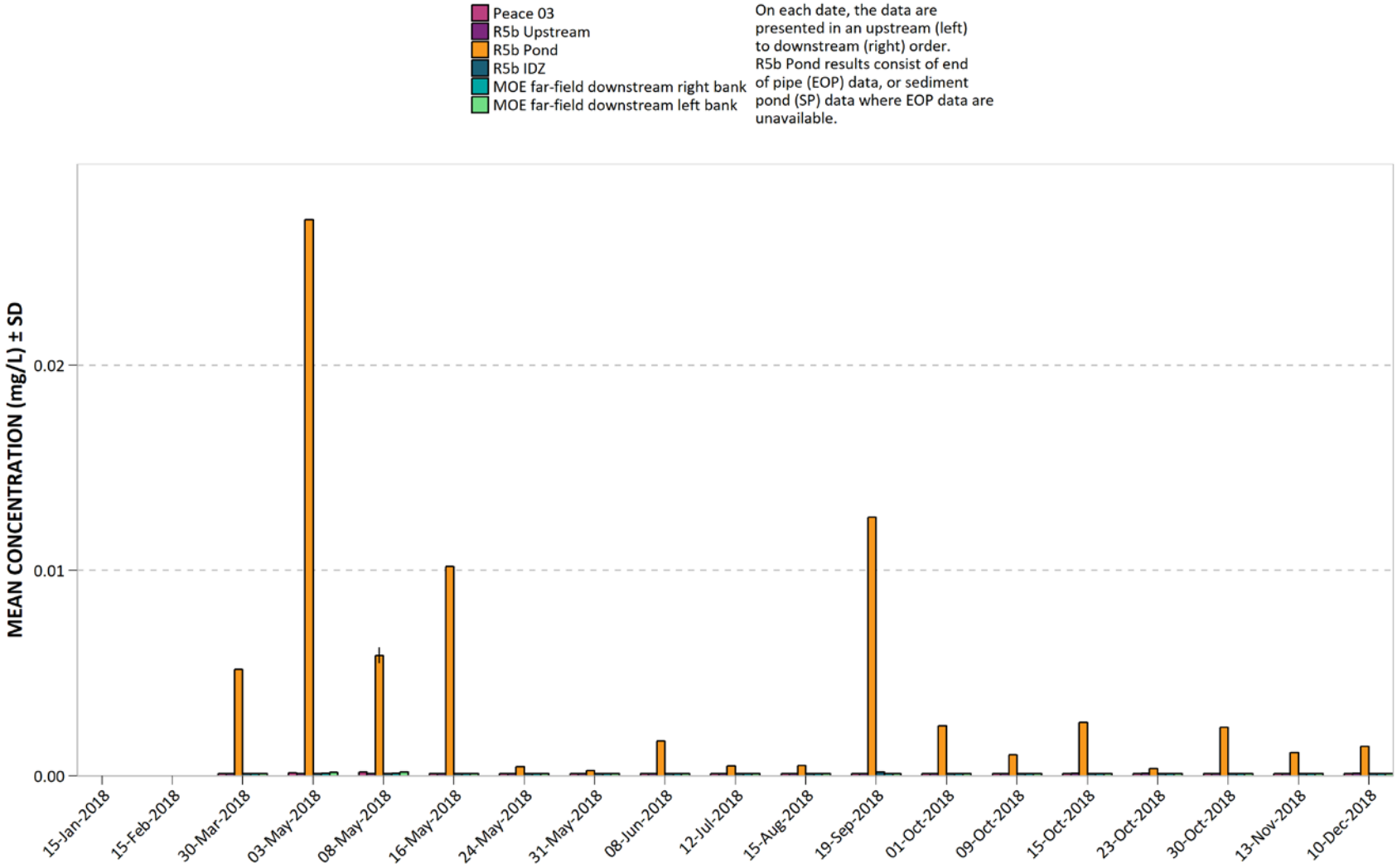


Figure 68. 2018 Peace River and RSEM R5b pond dissolved copper (Cu).

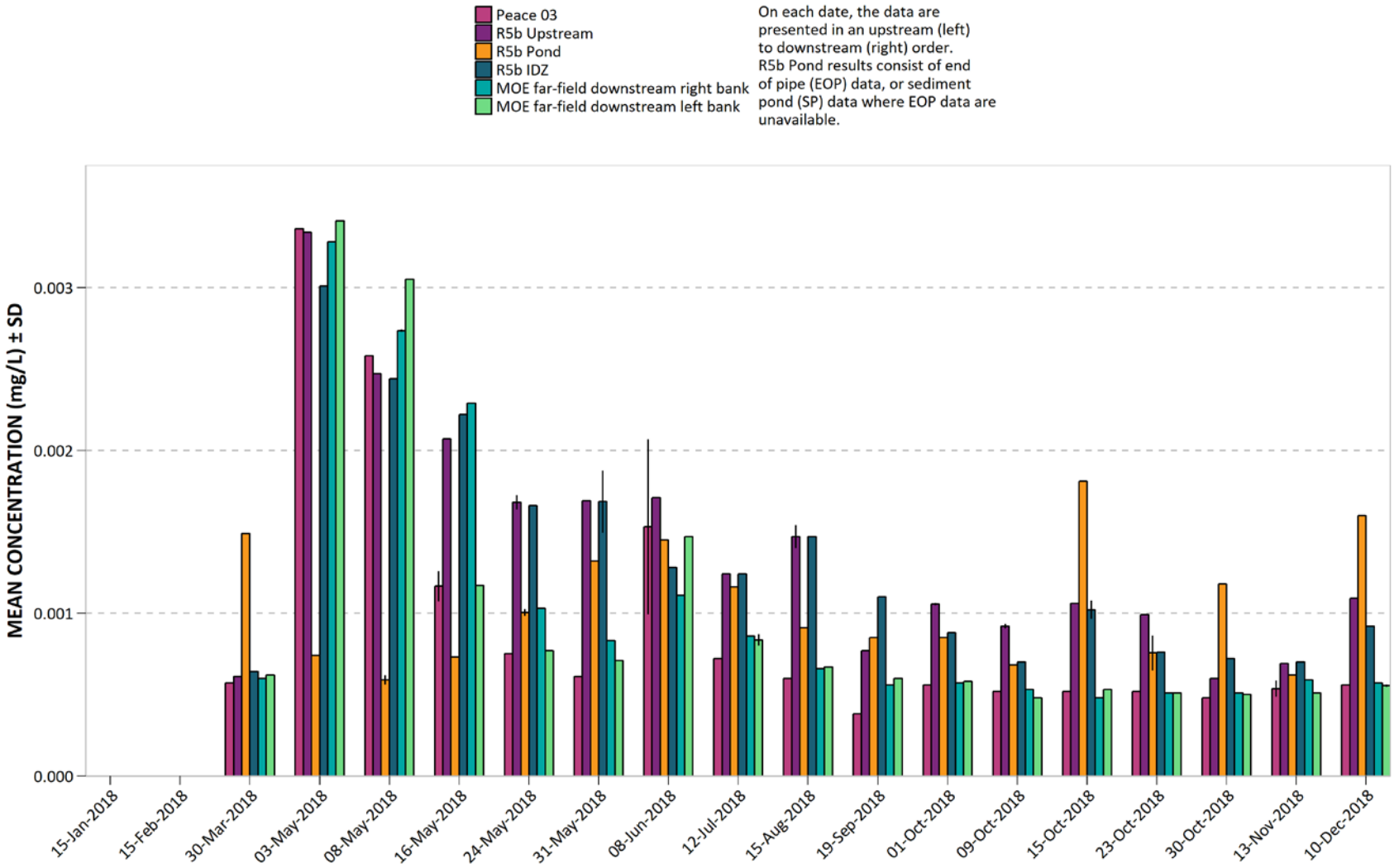
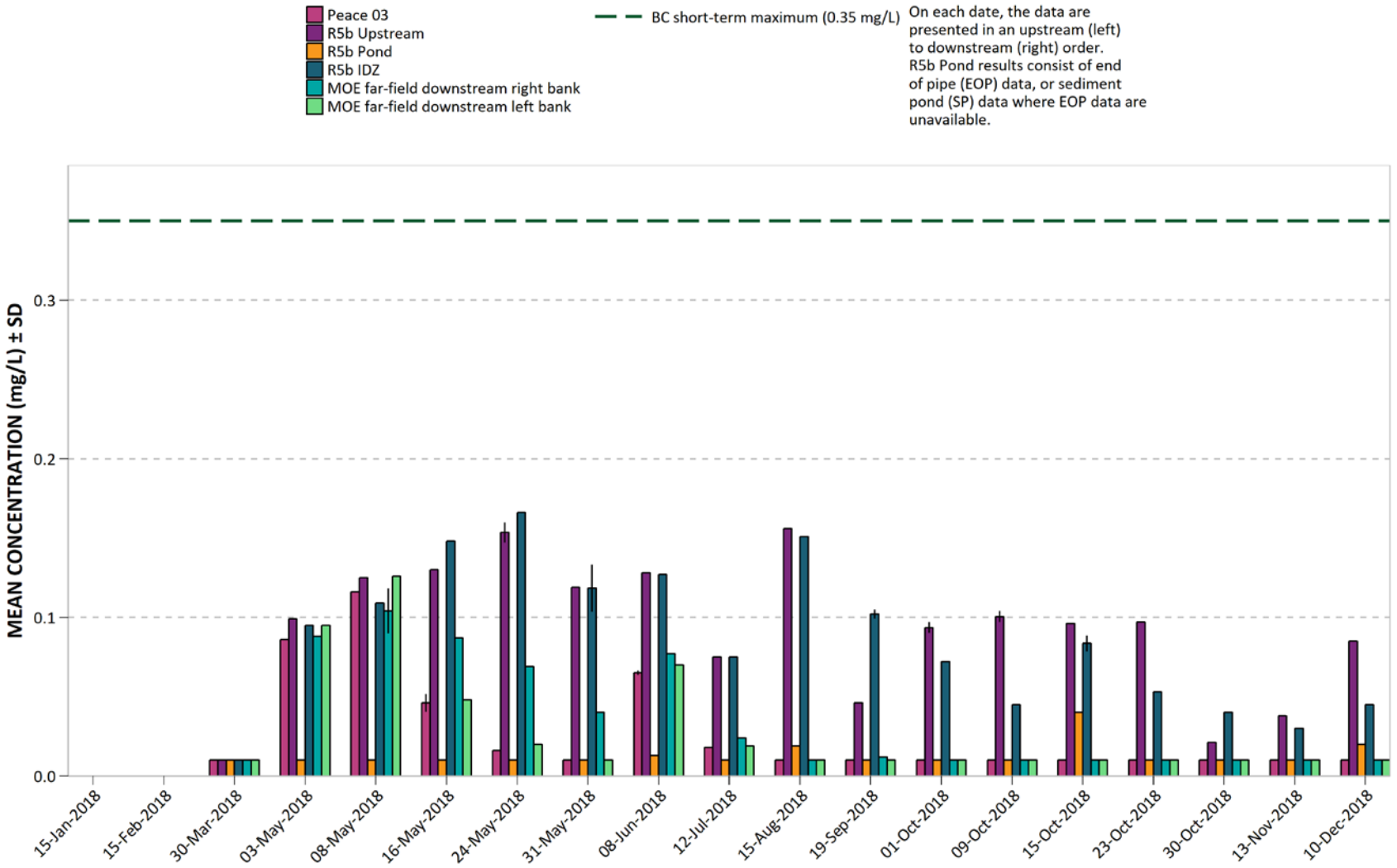
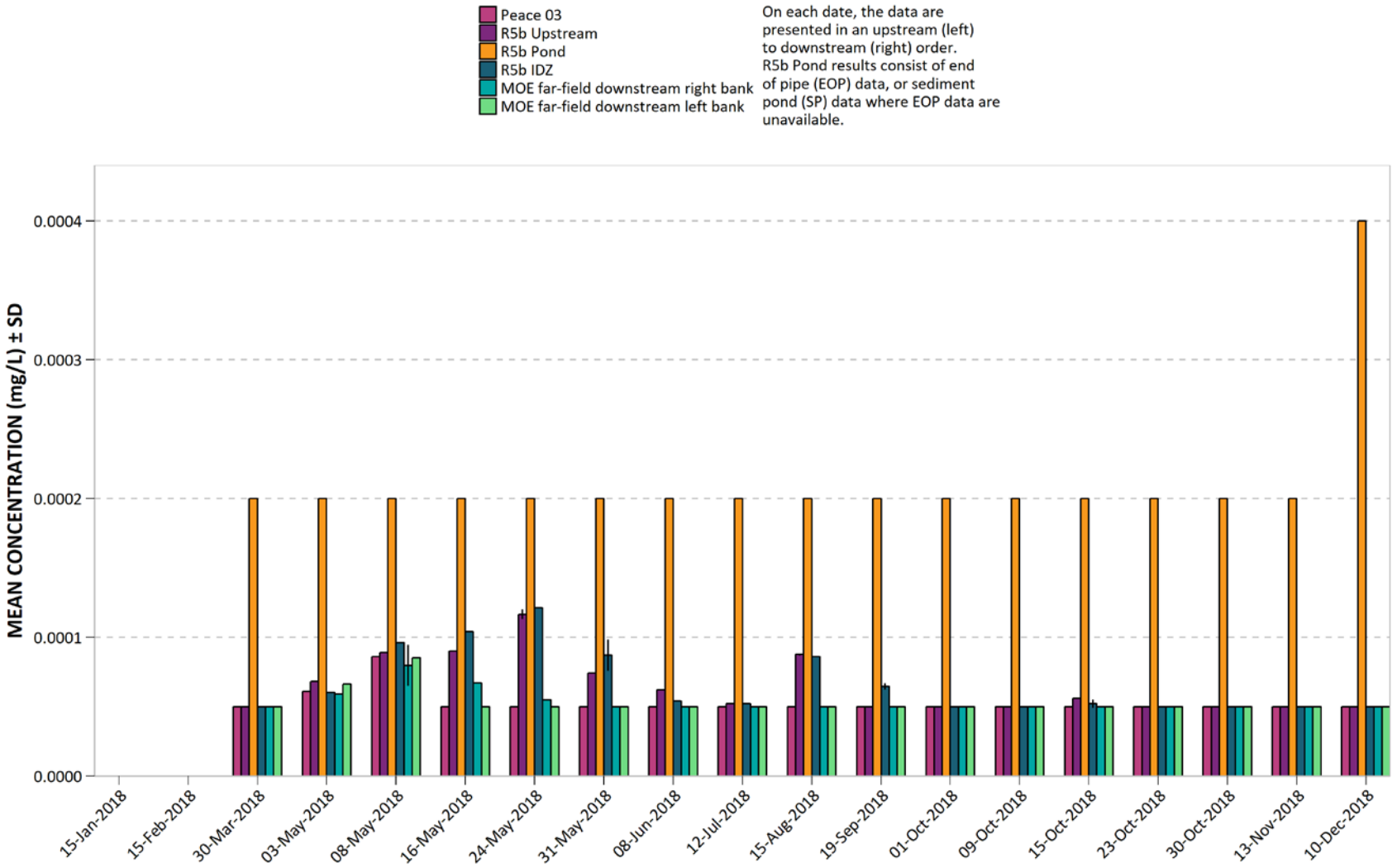


Figure 69. 2018 Peace River and RSEM R5b pond dissolved iron (Fe).



Results less than the MDL were assigned the MDL value of 0.01 mg/L.

Figure 70. 2018 Peace River and RSEM R5b pond dissolved lead (Pb).



Results less than the MDL were assigned the MDL value of 0.0004 mg/L (R5b pond in December), 0.0002 mg/L (R5b pond in January - November) or 0.00005 mg/L (Peace River).

Figure 71. 2018 Peace River and RSEM R5b pond dissolved lithium (Li).

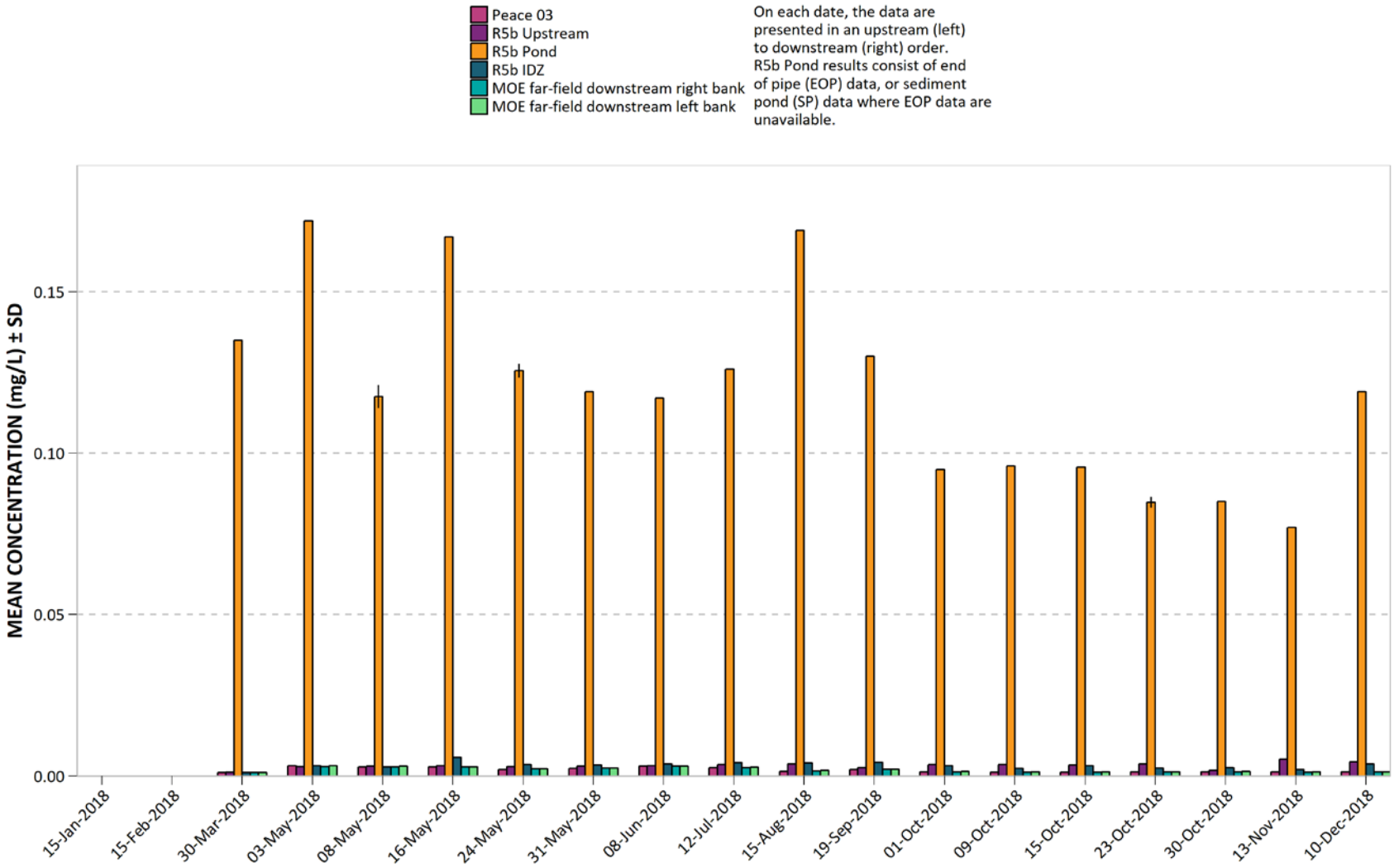


Figure 72. 2018 Peace River and RSEM R5b pond dissolved magnesium (Mg).

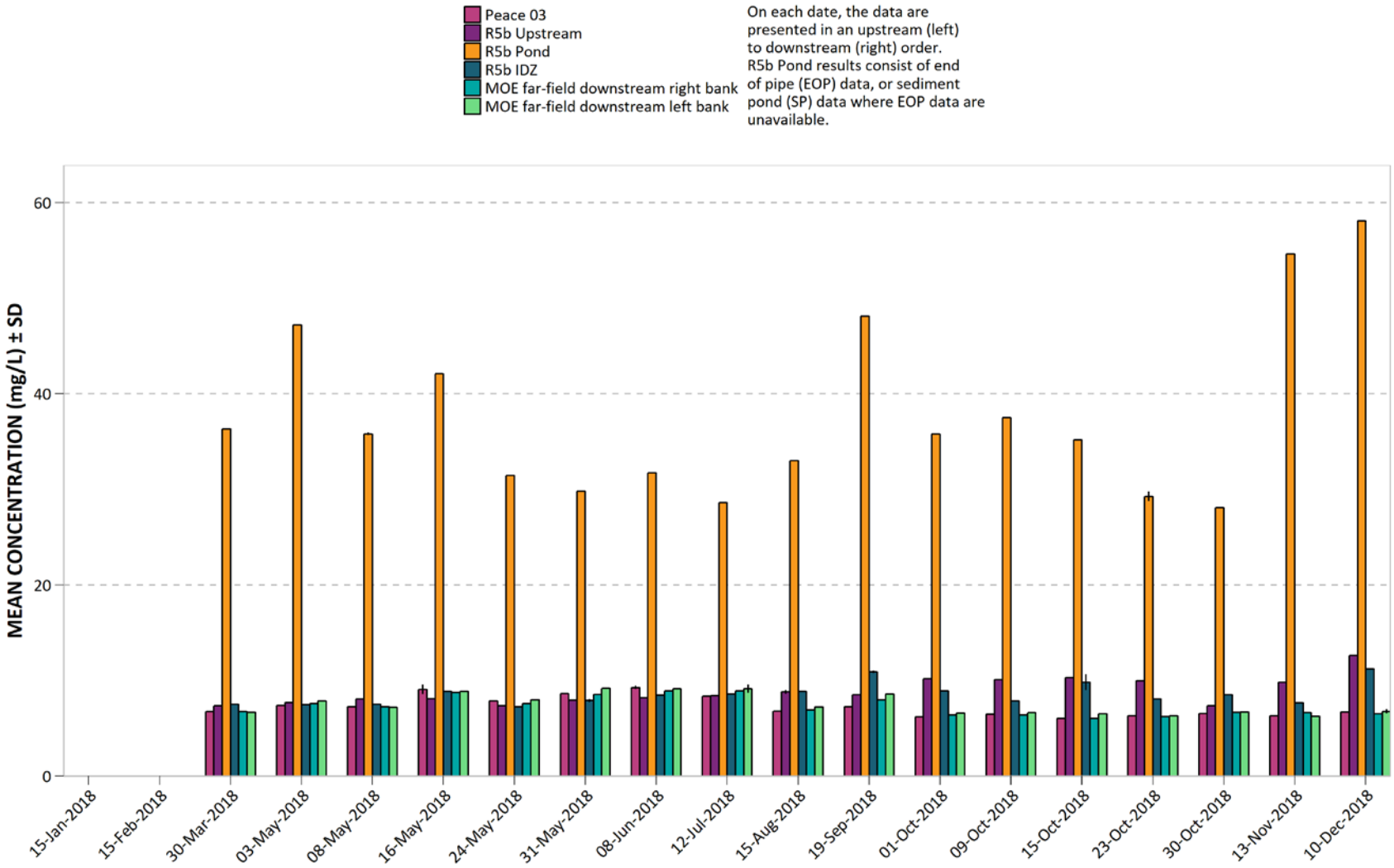


Figure 73. 2018 Peace River and RSEM R5b pond dissolved manganese (Mn).

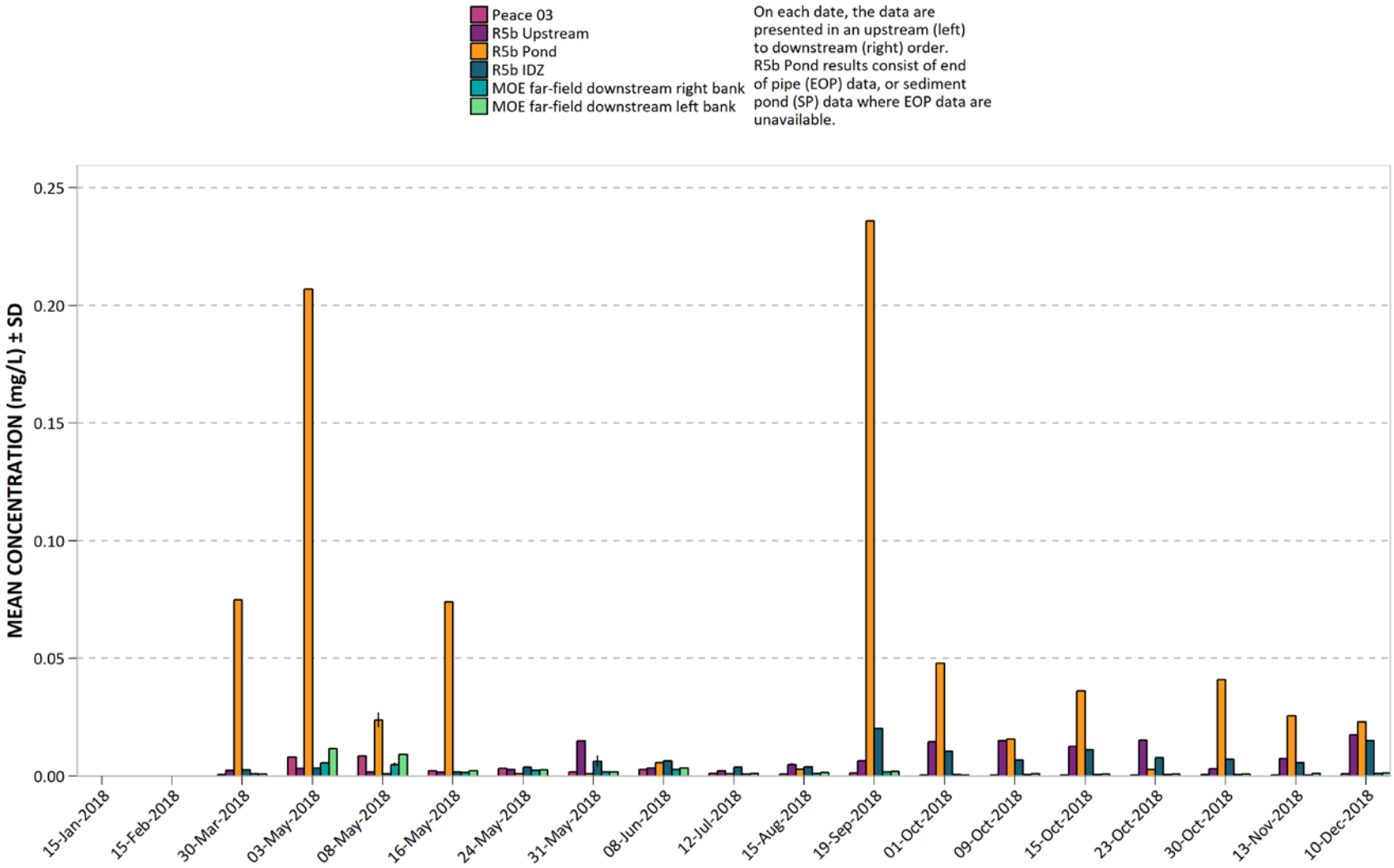
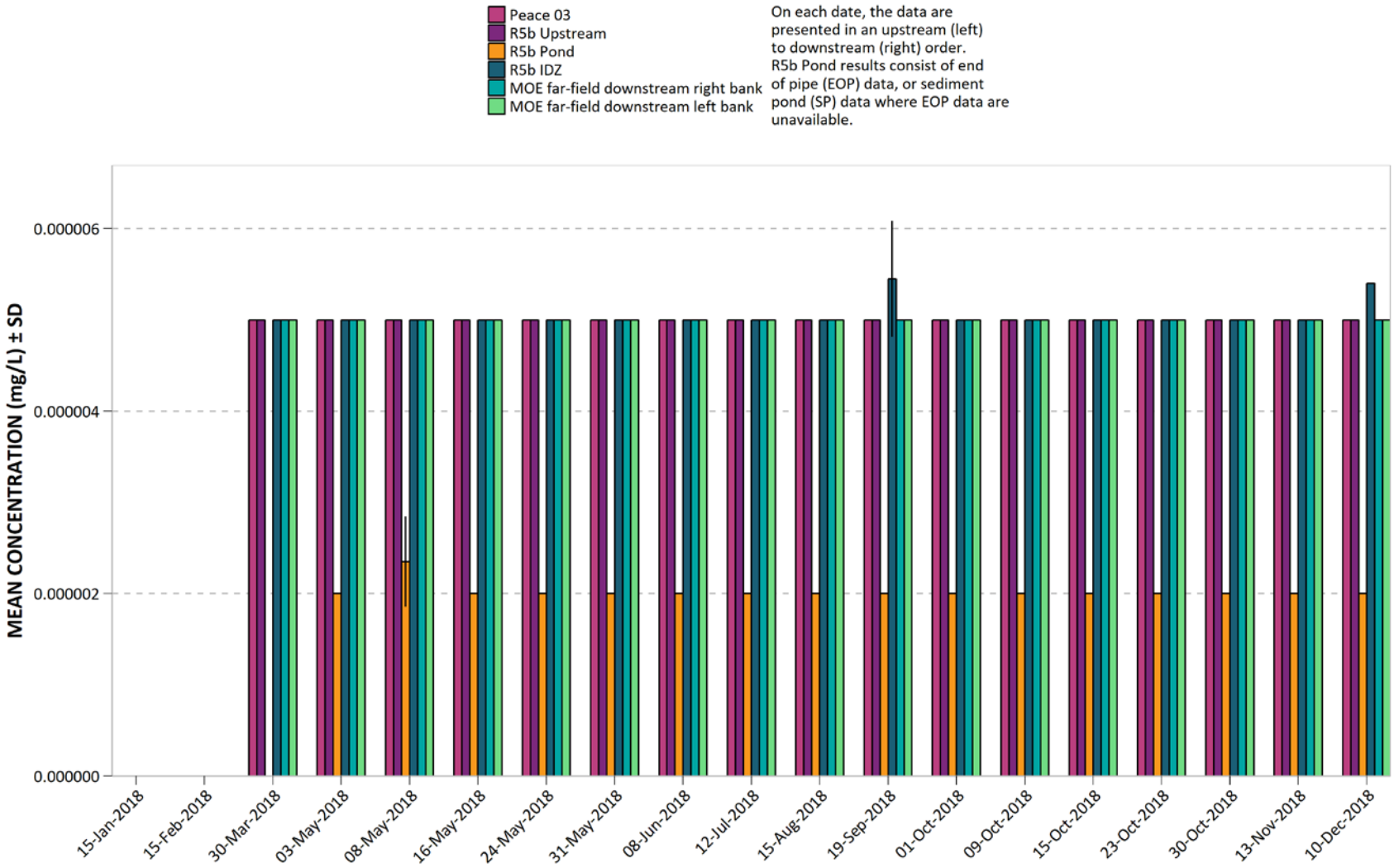


Figure 74. 2018 Peace River and RSEM R5b pond dissolved mercury (Hg).



Results less than the MDL were assigned the MDL value of 0.000005 mg/L (Peace River), 0.000002 mg/L (R5b pond)

Figure 75. 2018 Peace River and RSEM R5b pond dissolved molybdenum (Mo).

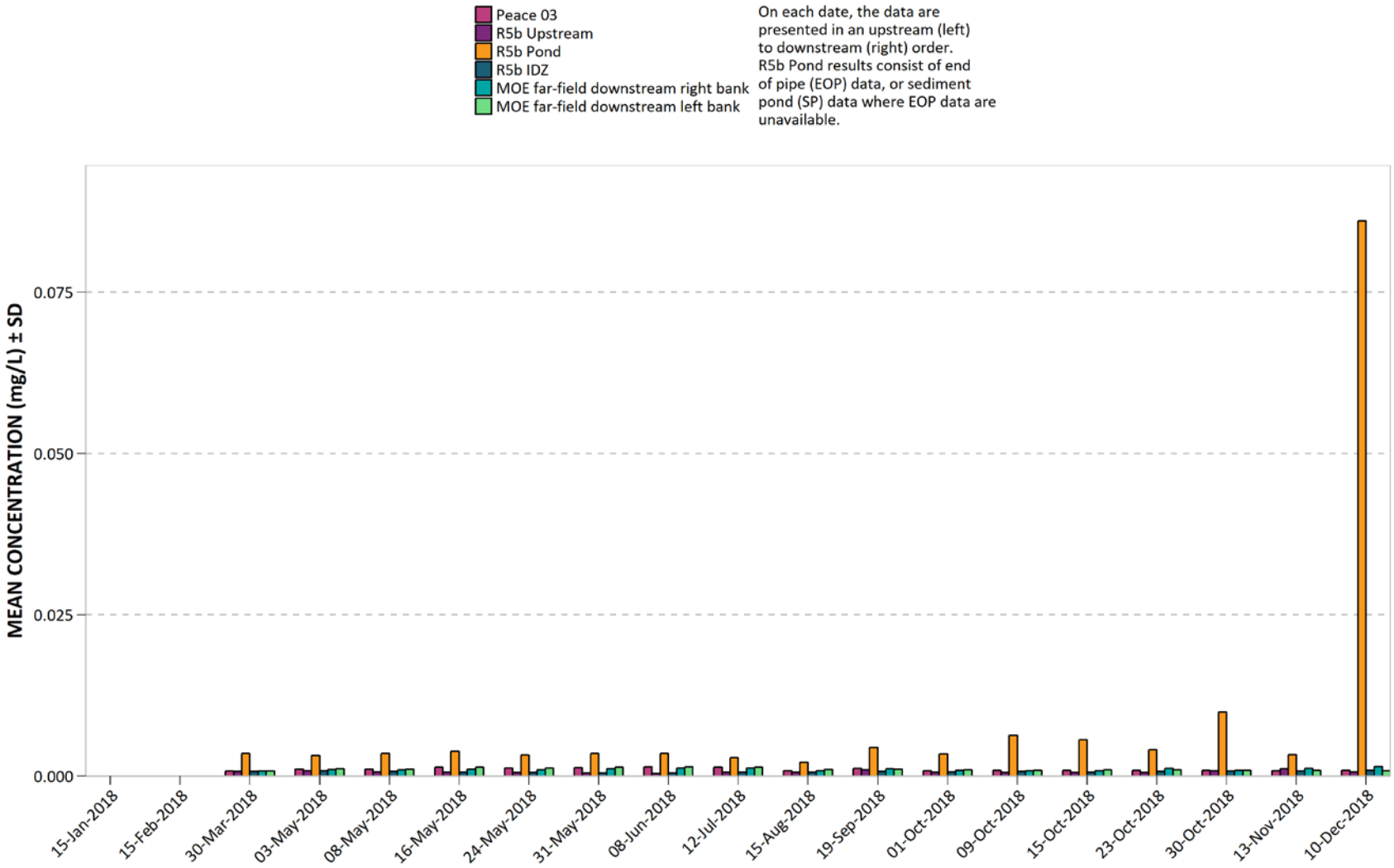


Figure 76. 2018 Peace River and RSEM R5b pond dissolved nickel (Ni).

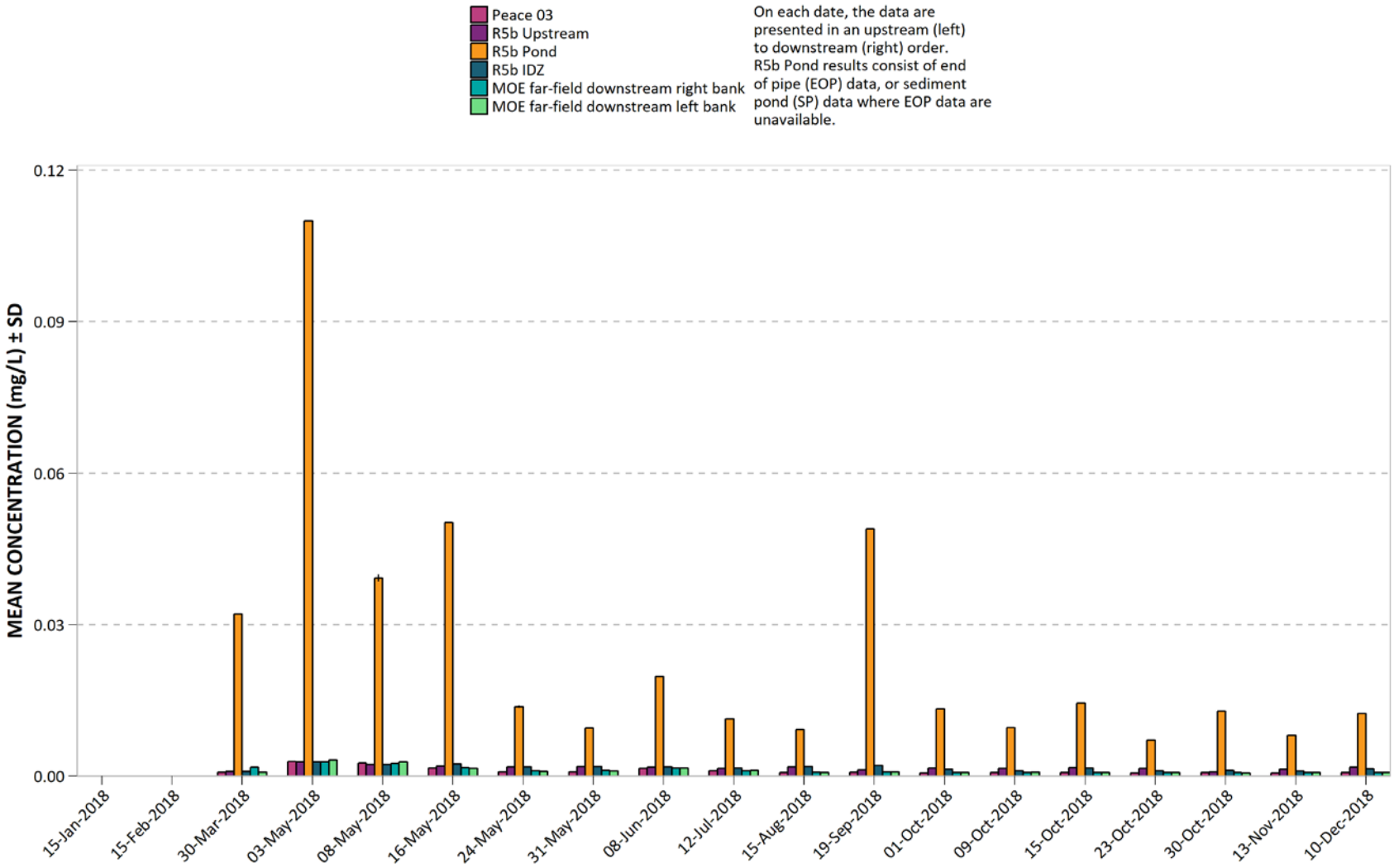


Figure 77. 2018 Peace River and RSEM R5b pond dissolved potassium (K).

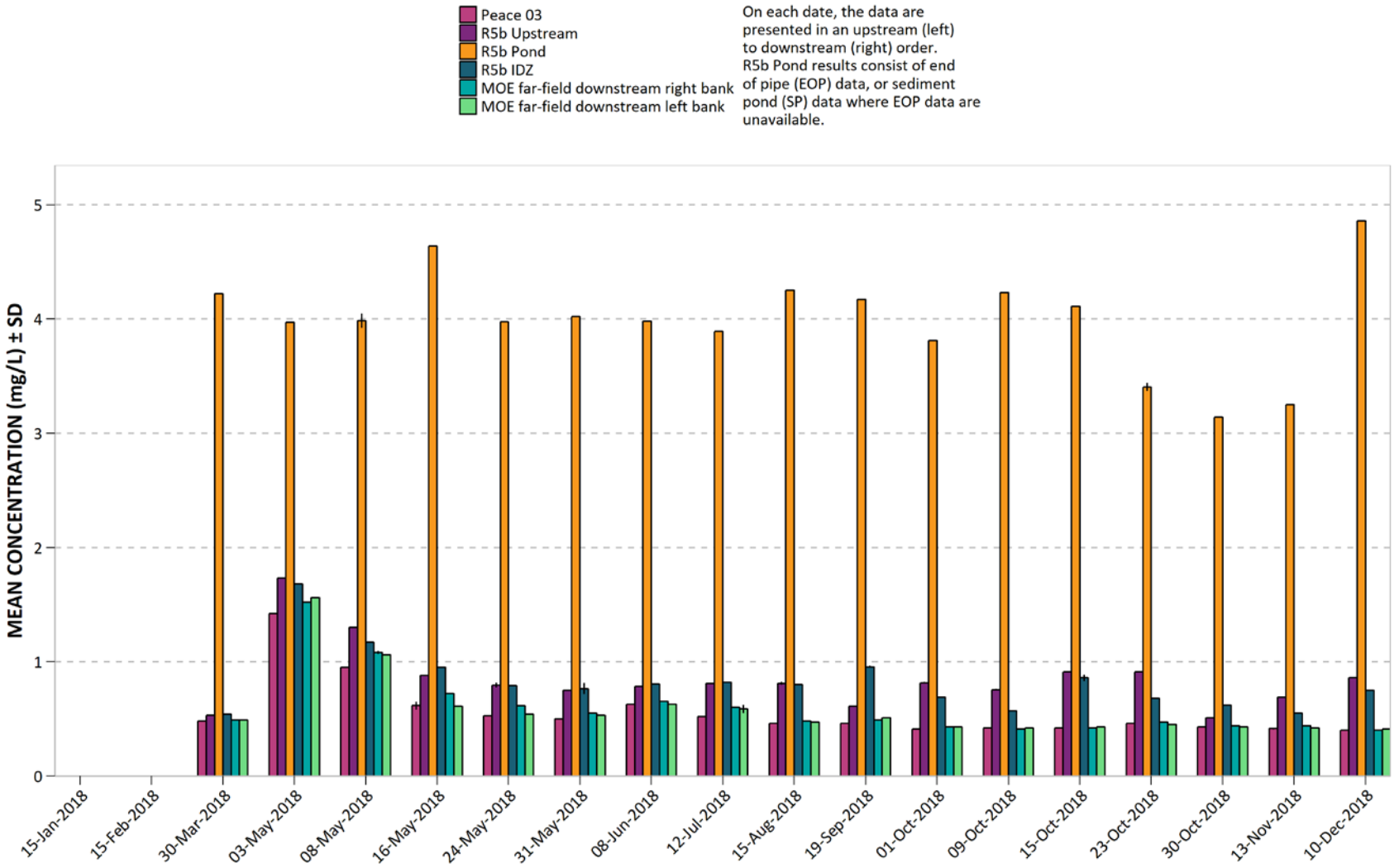


Figure 78. 2018 Peace River and RSEM R5b pond dissolved selenium (Se).

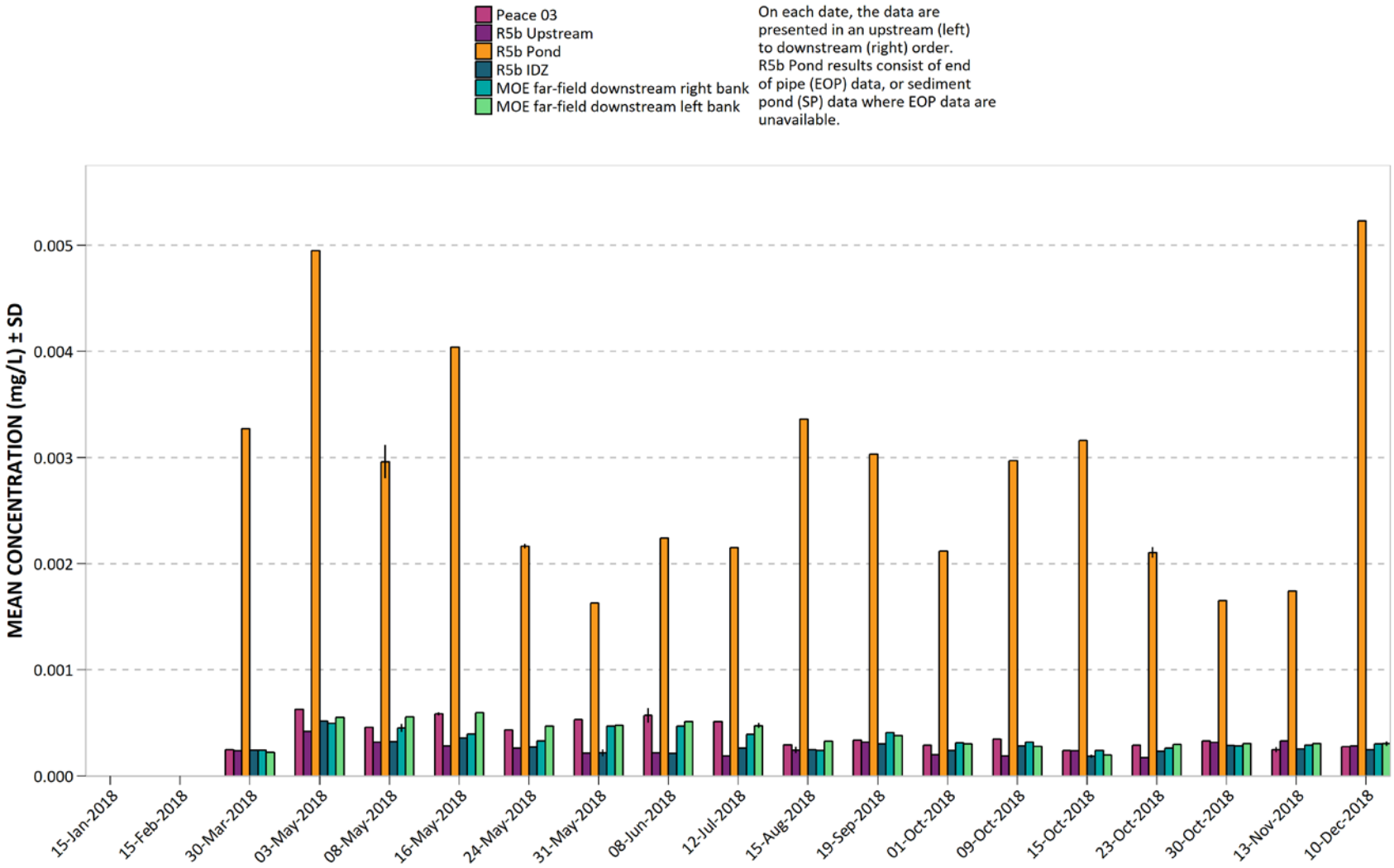


Figure 79. 2018 Peace River and RSEM R5b pond dissolved silicon (Si).

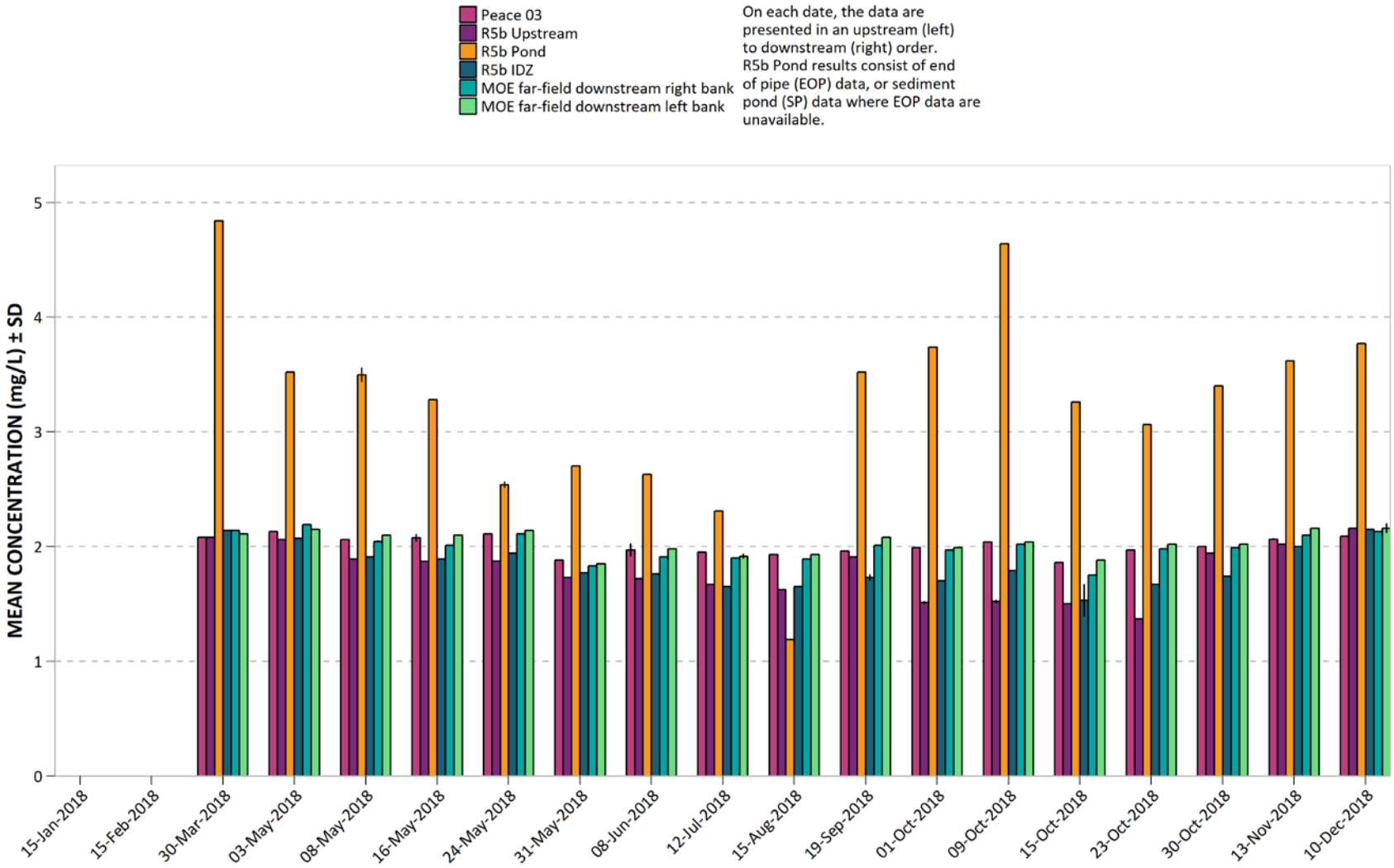
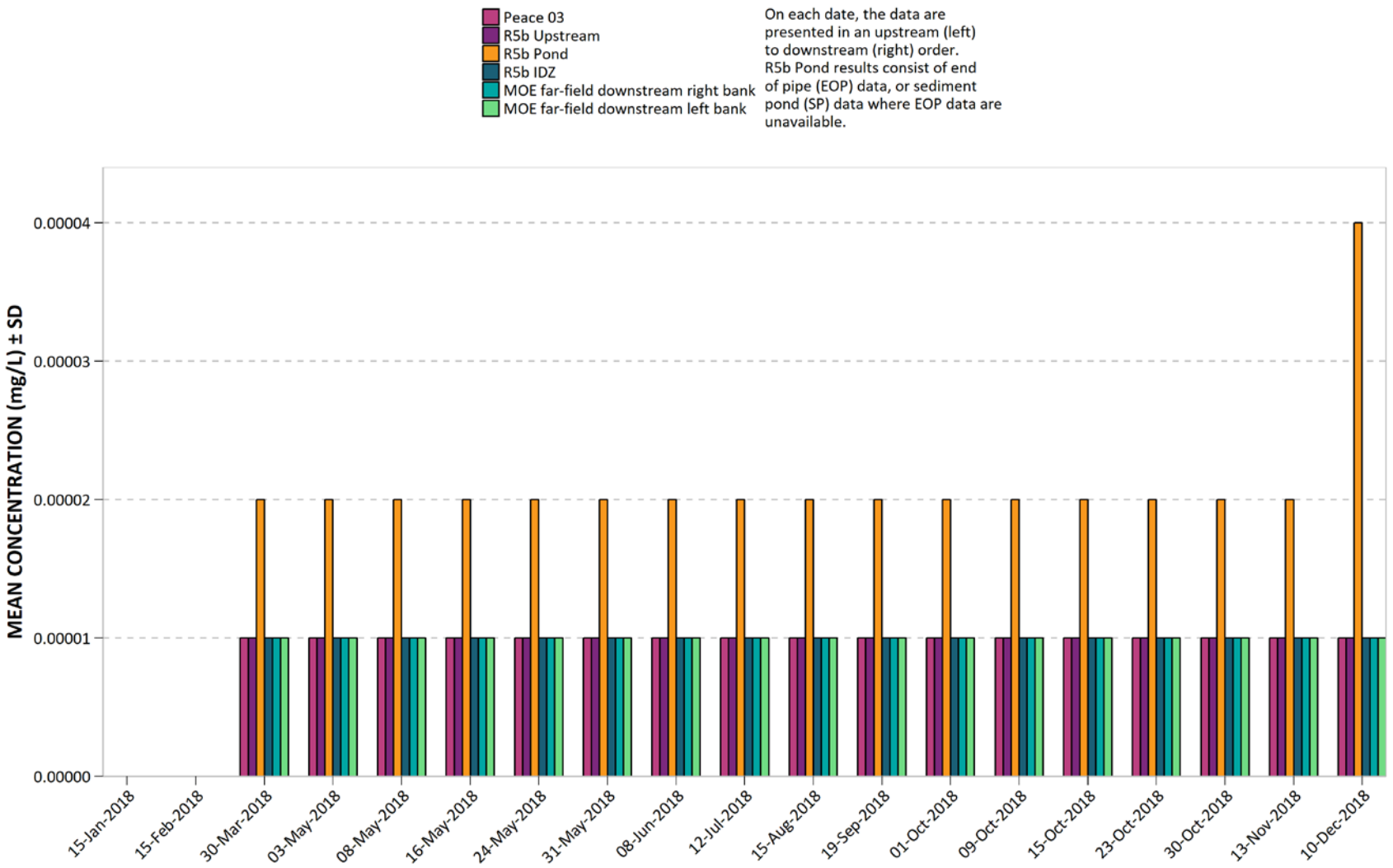


Figure 80. 2018 Peace River and RSEM R5b pond dissolved silver (Ag).



Results less than the MDL were assigned the MDL value of 0.00004 mg/L (R5b pond in December), 0.00002 mg/L (R5b pond in January - November) or 0.00001 mg/L (Peace River).

Figure 81. 2018 Peace River and RSEM R5b pond dissolved sodium (Na).

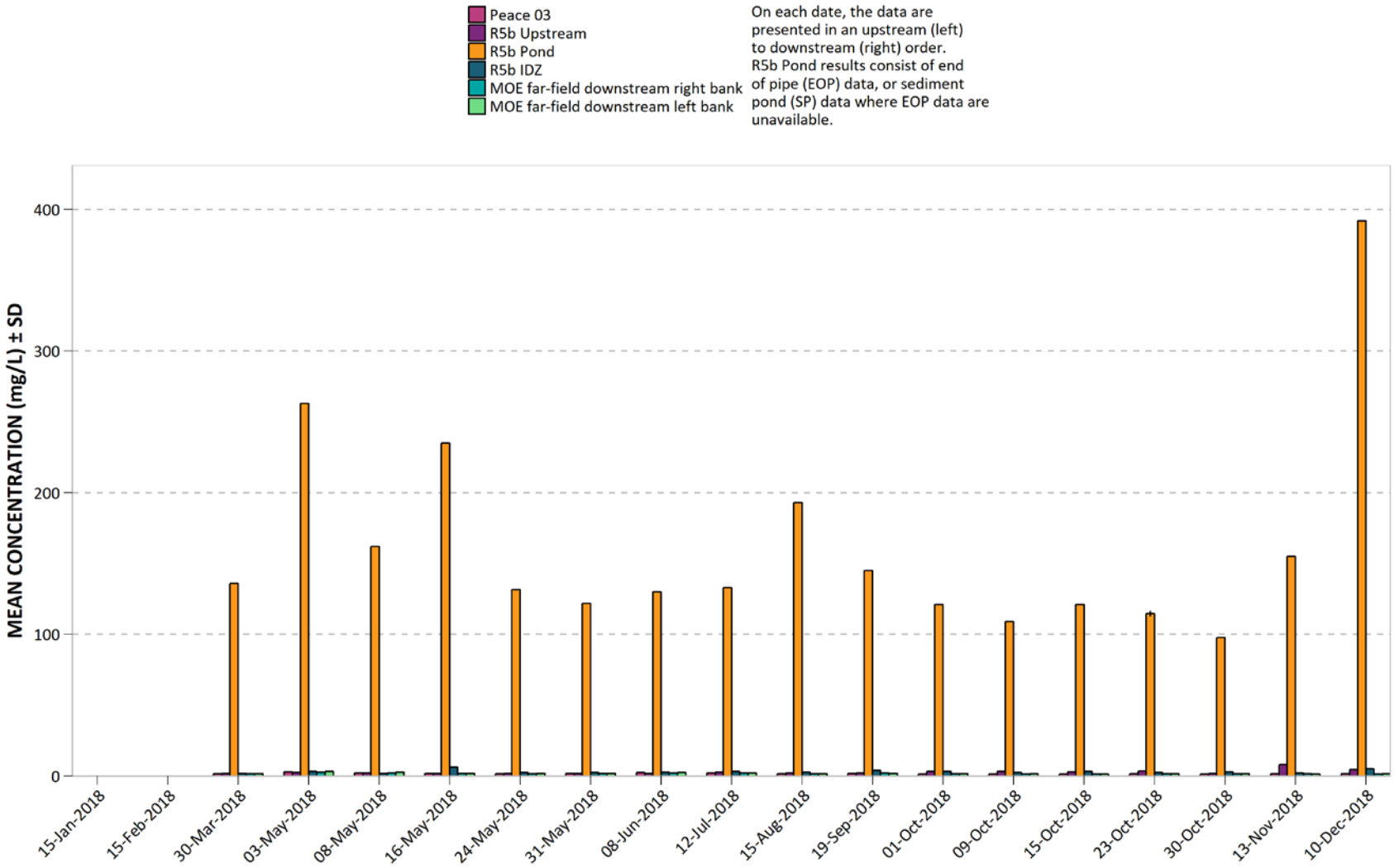


Figure 82. 2018 Peace River and RSEM R5b pond dissolved strontium (Sr).

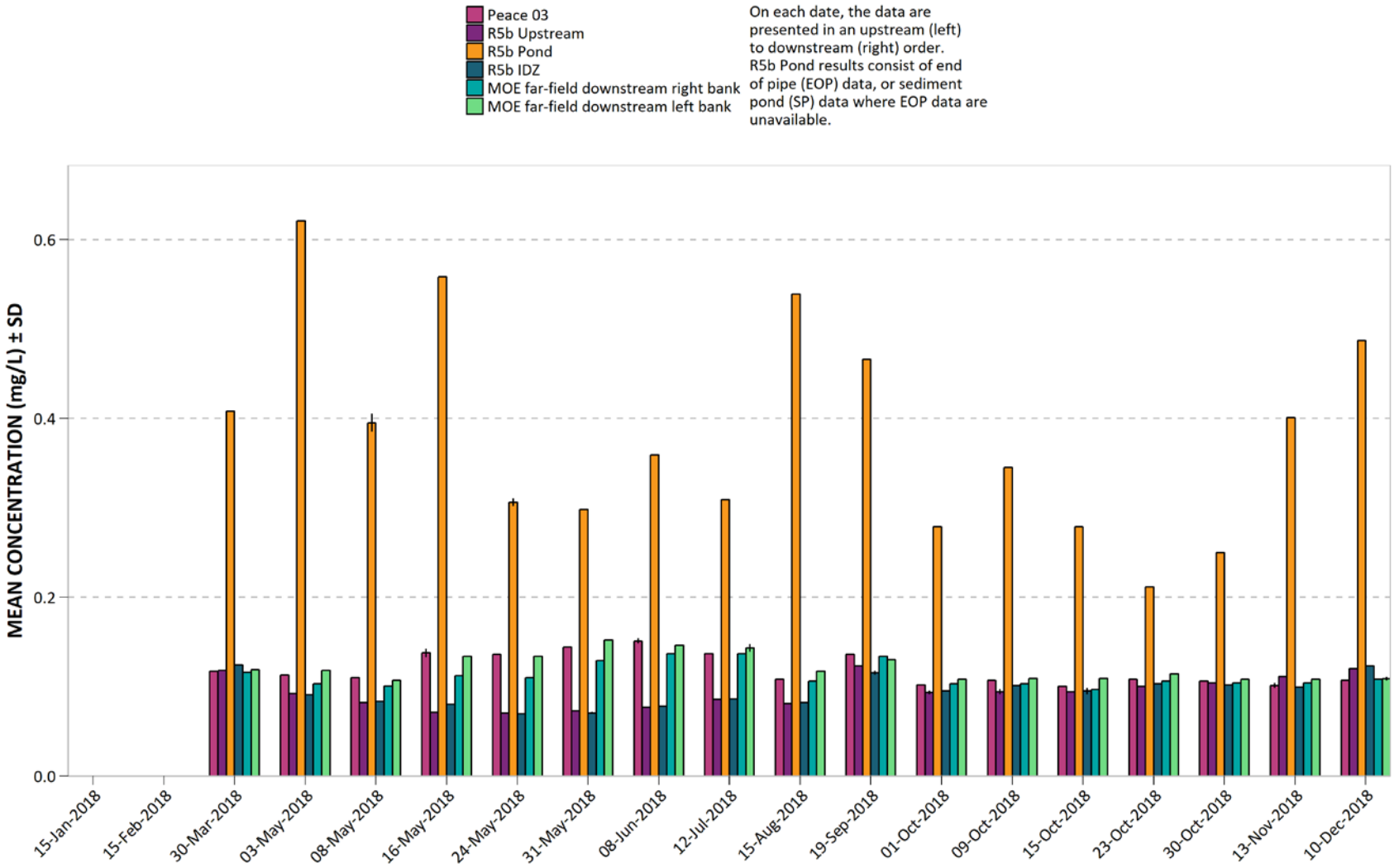


Figure 83. 2018 Peace River and RSEM R5b pond dissolved sulfur (S).

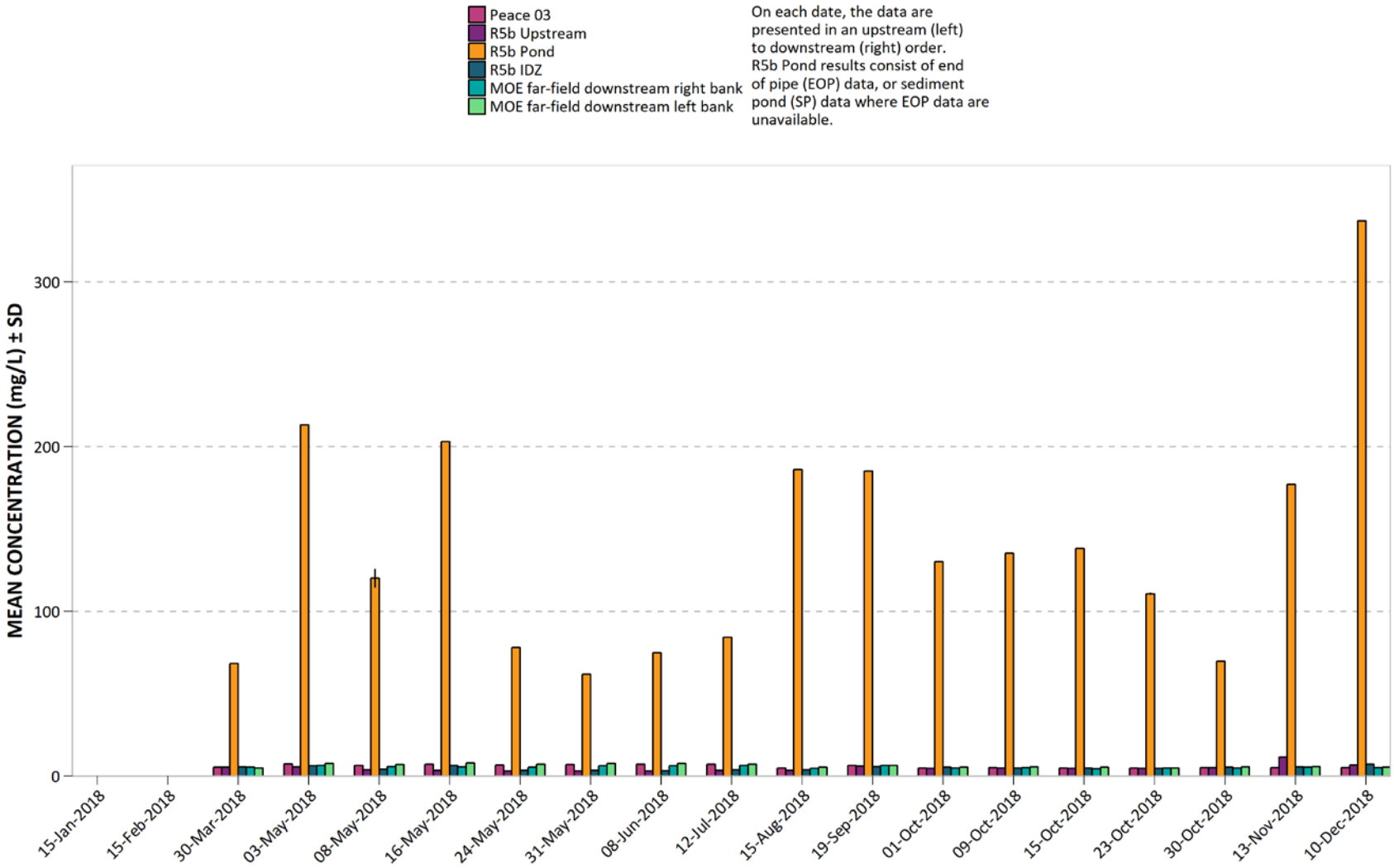
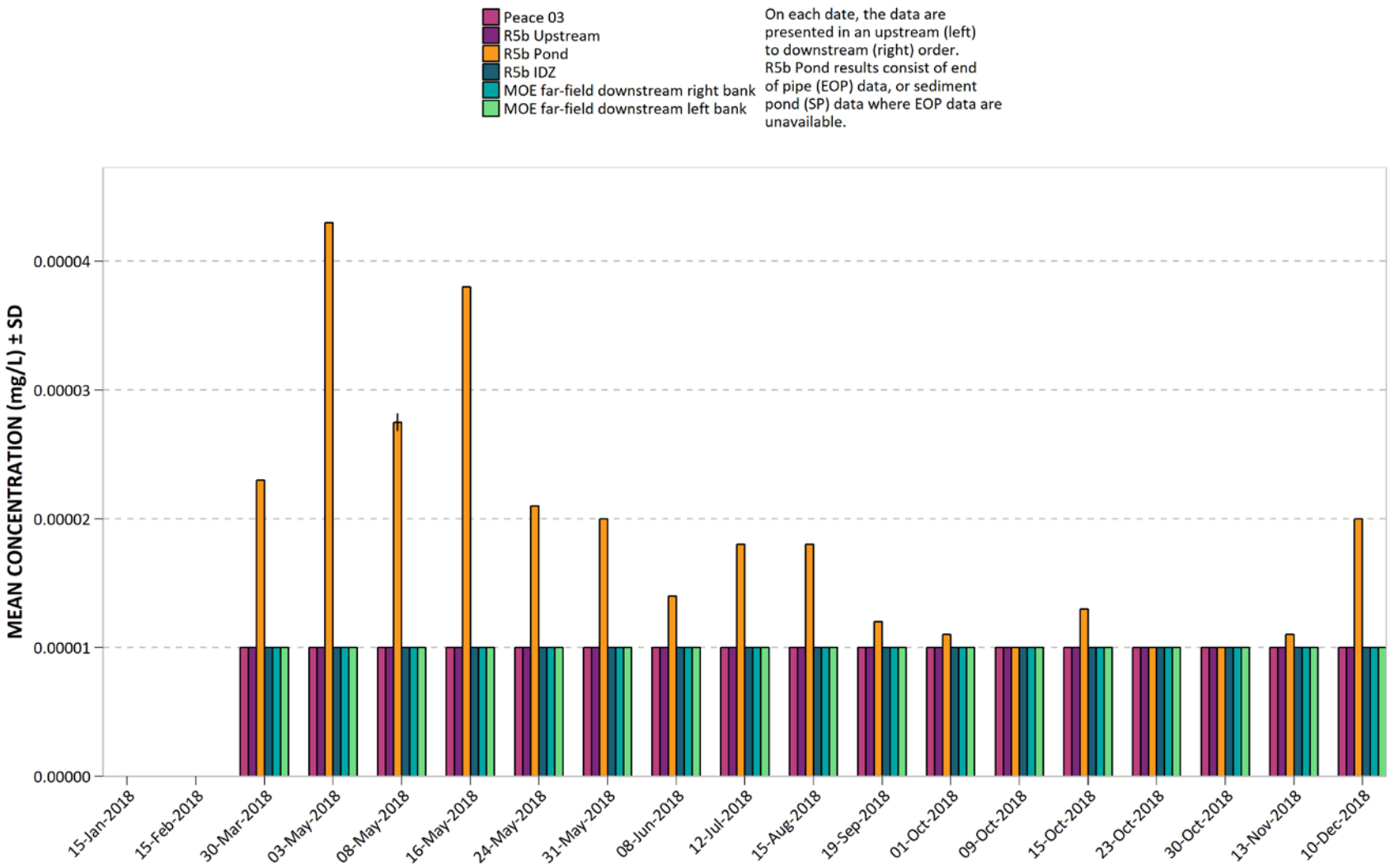
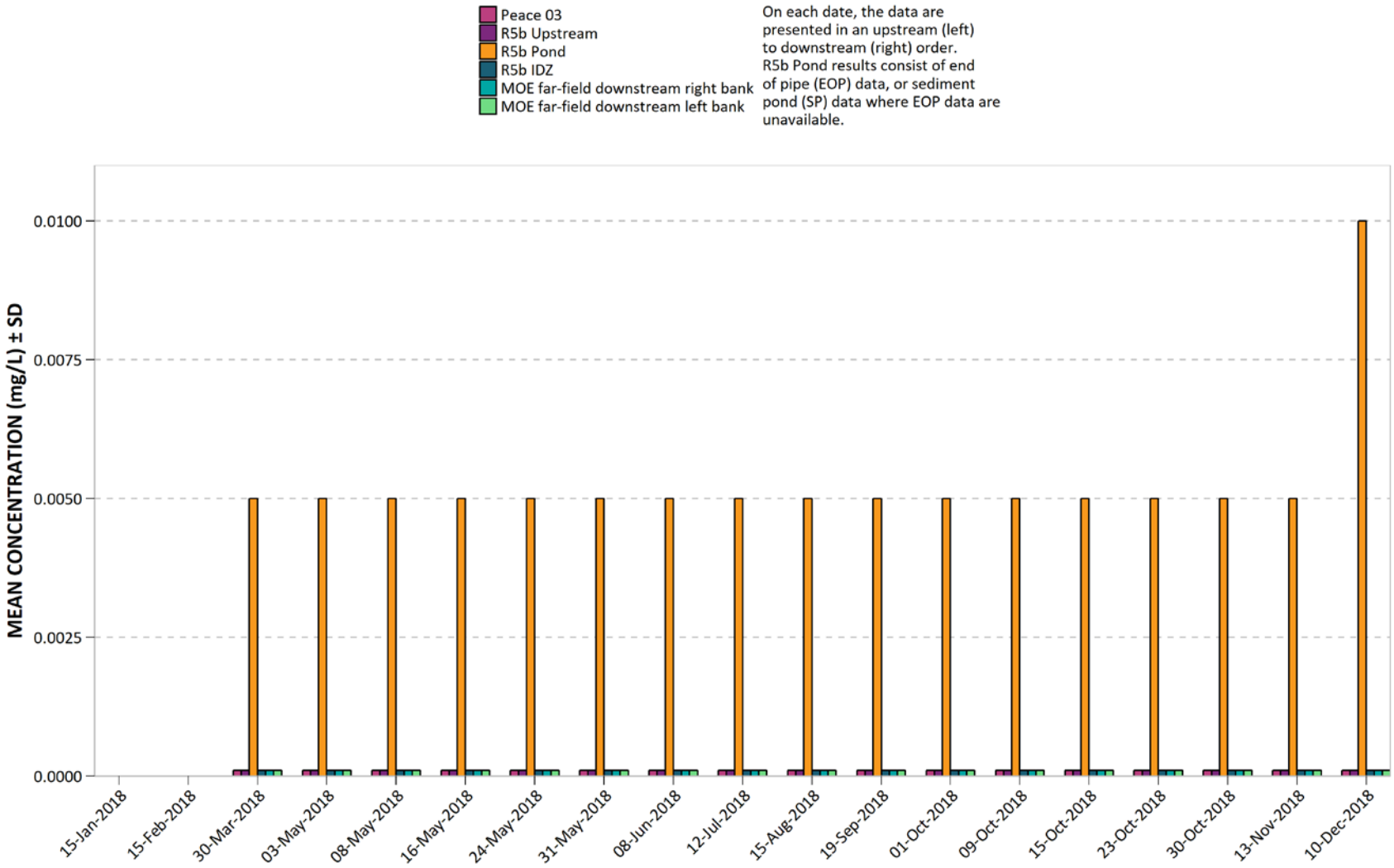


Figure 84. 2018 Peace River and RSEM R5b pond dissolved thallium (Tl).



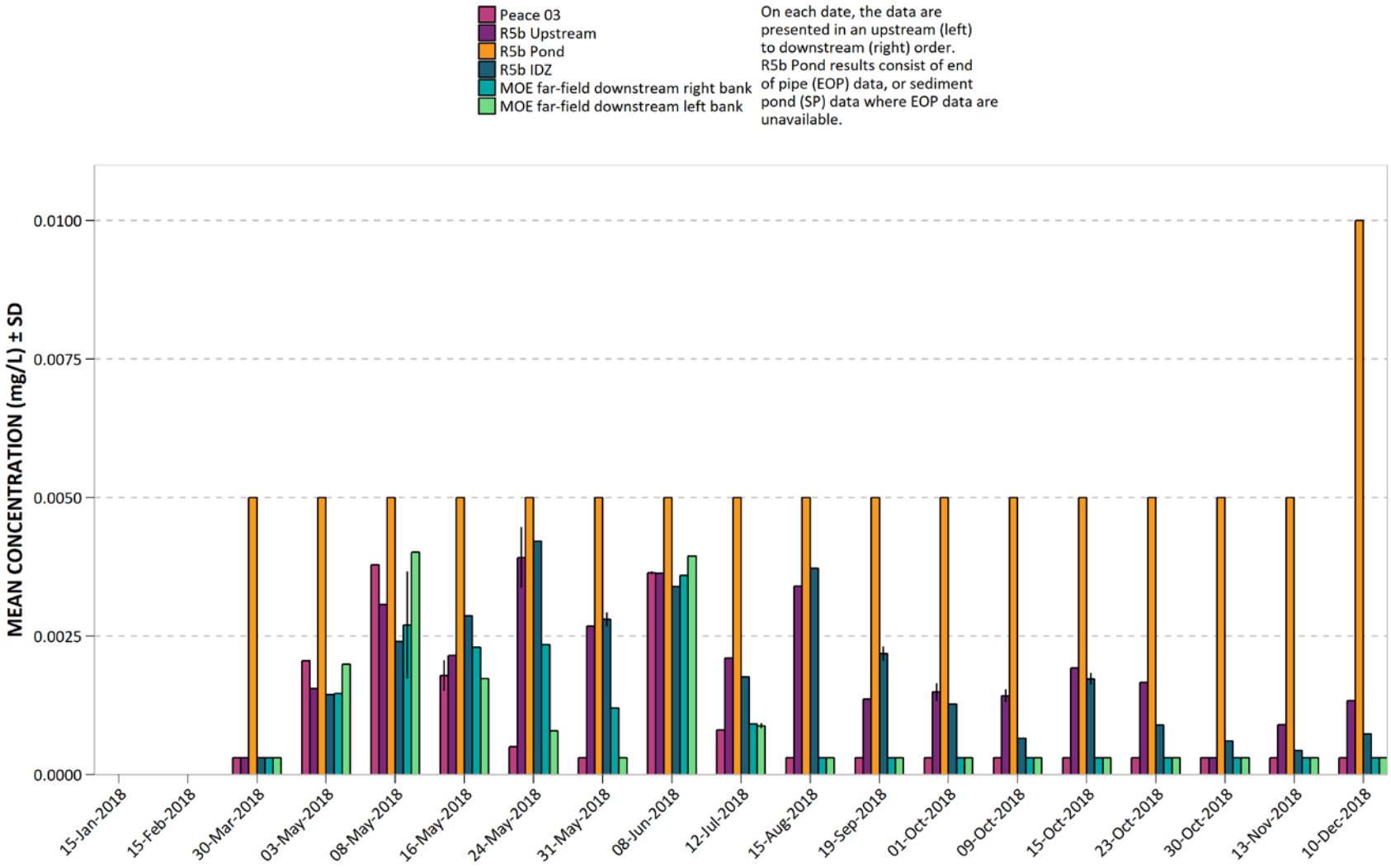
Results less than the MDL were assigned the MDL value of 0.00001 mg/L.

Figure 85. 2018 Peace River and RSEM R5b pond dissolved tin (Sn).



All results were less than the MDL and thus were assigned the MDL value of 0.01 mg/L (R5b pond in December), 0.005 mg/L (R5b pond in January - November) or 0.0001 mg/L (Peace River).

Figure 86. 2018 Peace River and RSEM R5b pond dissolved titanium (Ti).



Results less than the MDL were assigned the MDL value of 0.01 mg/L (R5b pond in December), 0.005 mg/L (R5b pond in January - November) or 0.0003 mg/L (Peace River).

Figure 87. 2018 Peace River and RSEM R5b pond dissolved uranium (U).

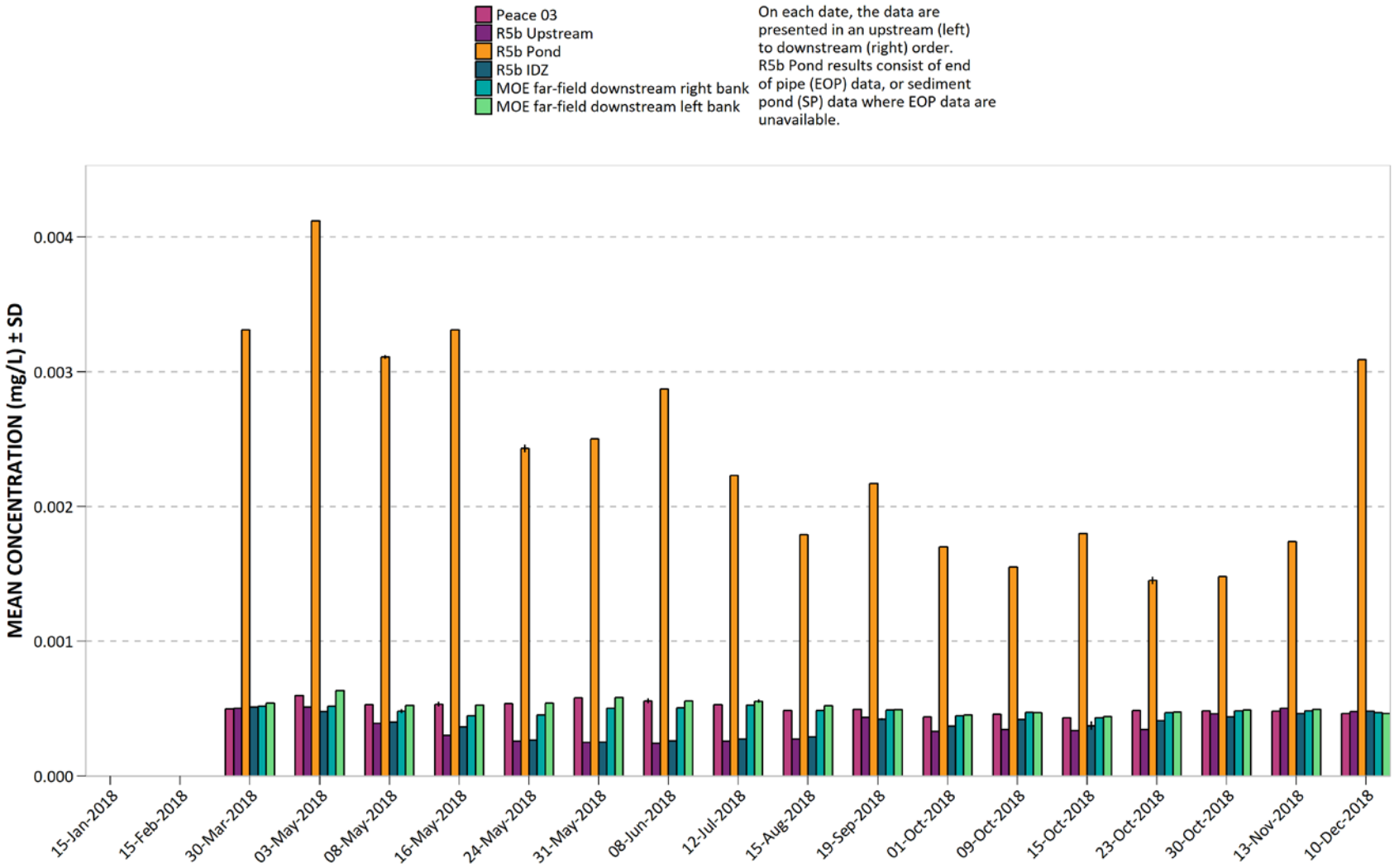
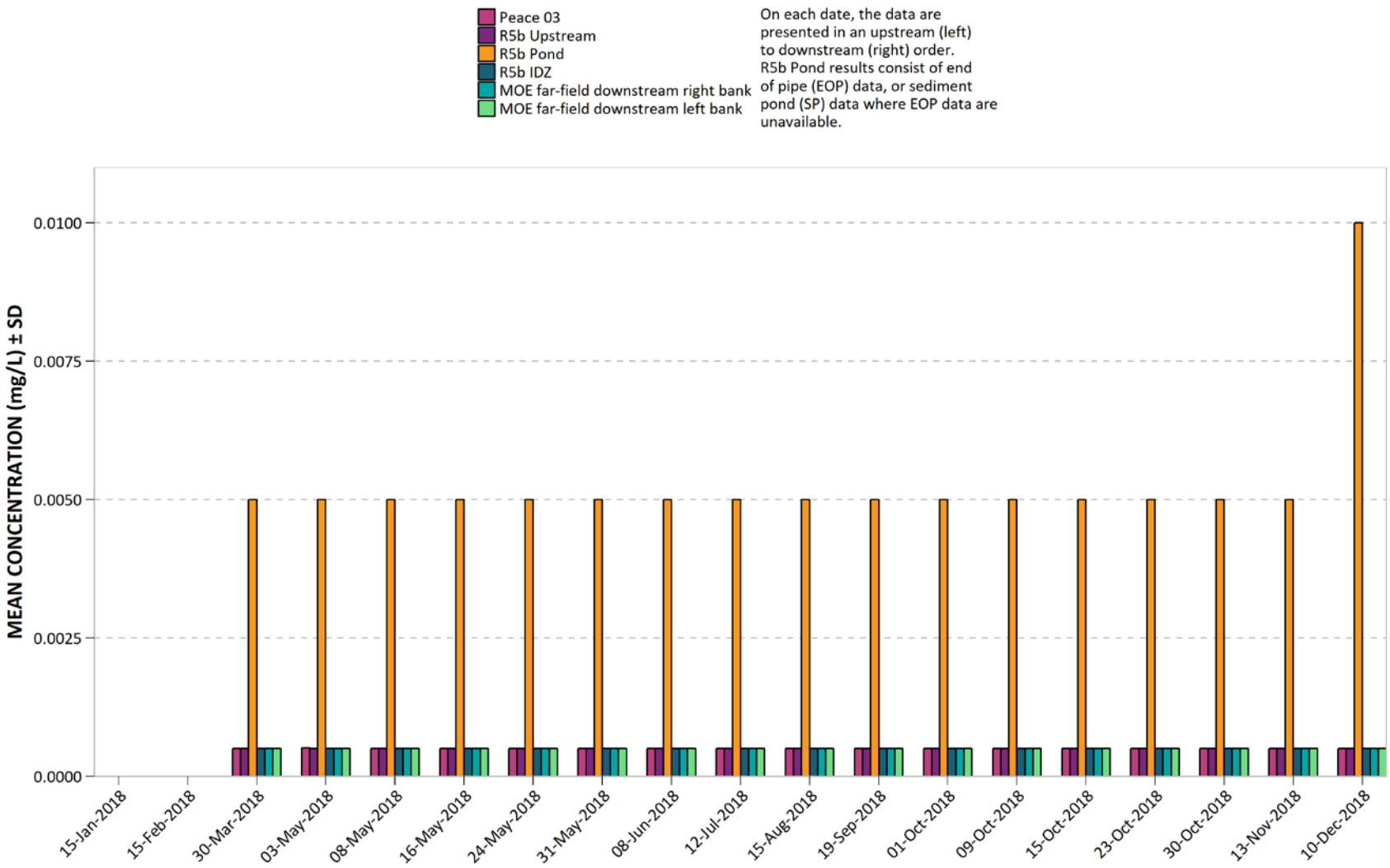
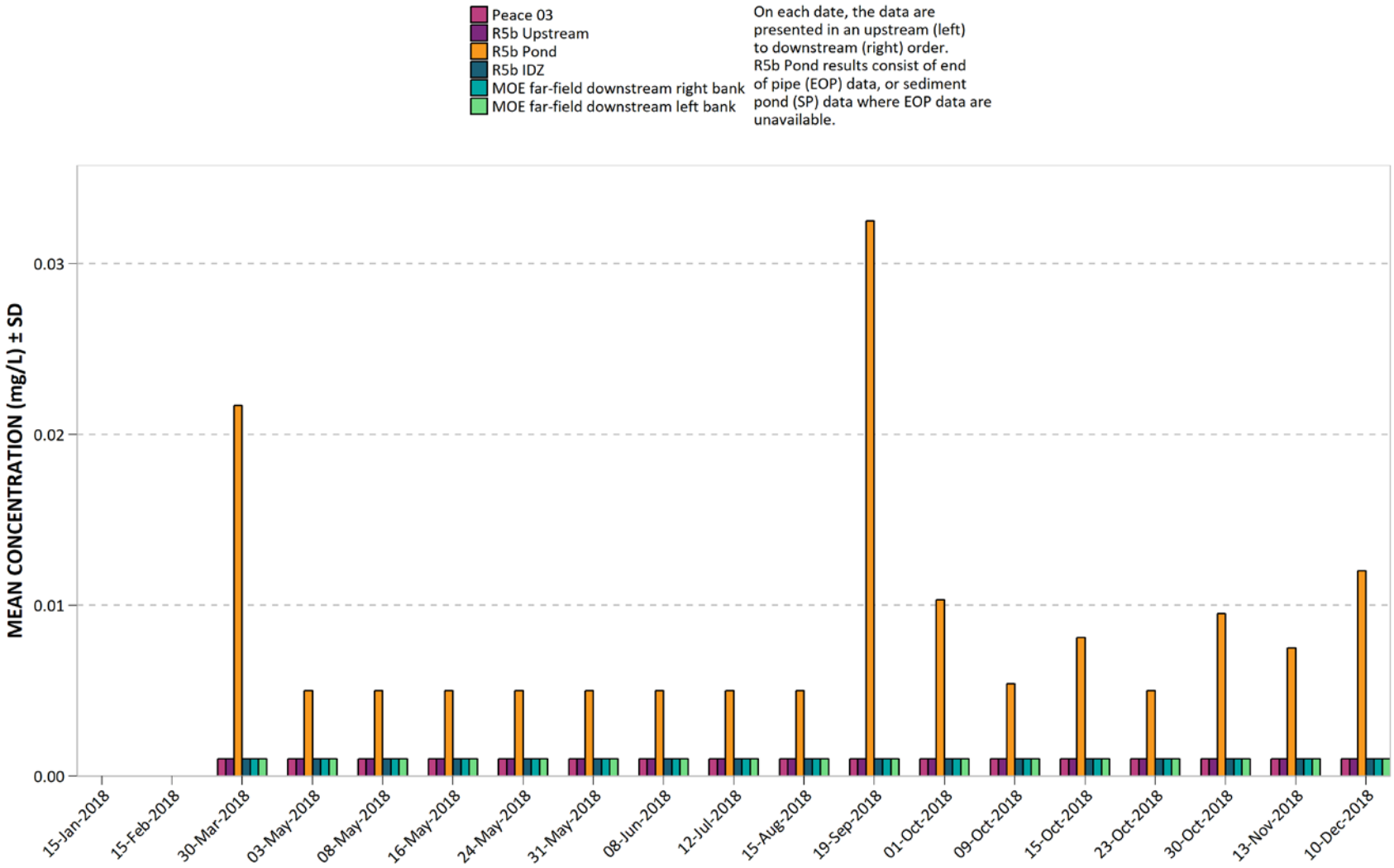


Figure 88. 2018 Peace River and RSEM R5b pond dissolved vanadium (V).



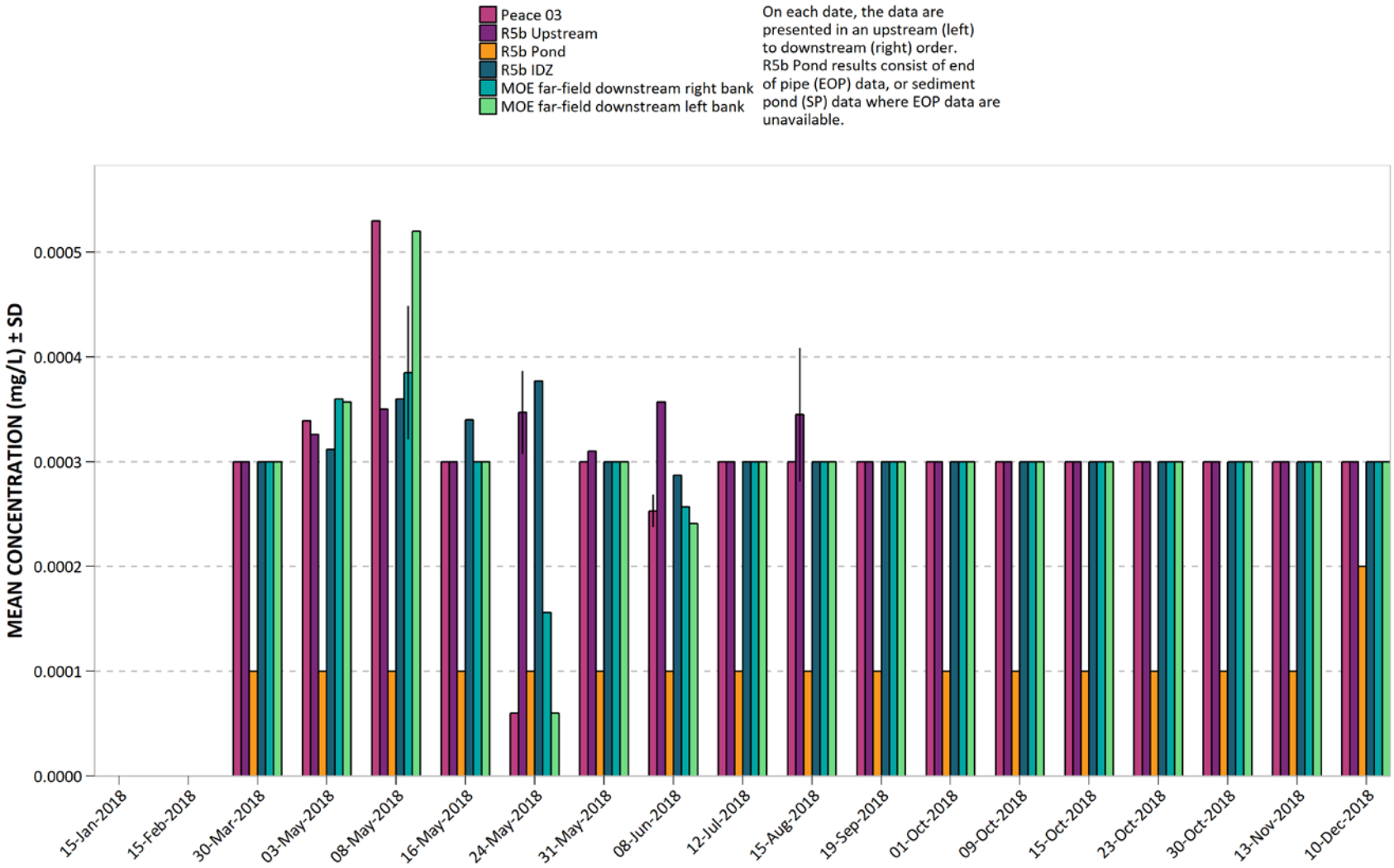
Results less than the MDL were assigned the MDL value of 0.01 mg/L (R5b pond in December), 0.005 mg/L (R5b pond in January - November) or 0.0005 mg/L (Peace River).

Figure 89. 2018 Peace River and RSEM R5b pond dissolved zinc (Zn).



Results less than the MDL were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.001 mg/L (Peace River).

Figure 90. 2018 Peace River and RSEM R5b pond dissolved zirconium (Zr).



Results less than the MDL were assigned the MDL value of 0.0003 mg/L (Peace River except May 24 and June 8), 0.0002 mg/L (R5b pond in December), 0.0001 mg/L (R5b pond in January - November) or 0.00006 mg/L (Peace River on May 24 and June 8).

Appendix C. Site C PAG Contact RSEM Surface Water Quality Monitoring Time Series Plots – RSEM R6 Monthly and 5 in 30-day Data.

Figure 91. 2018 Peace River (*in-situ*) and RSEM R6 pond (lab) specific conductivity.

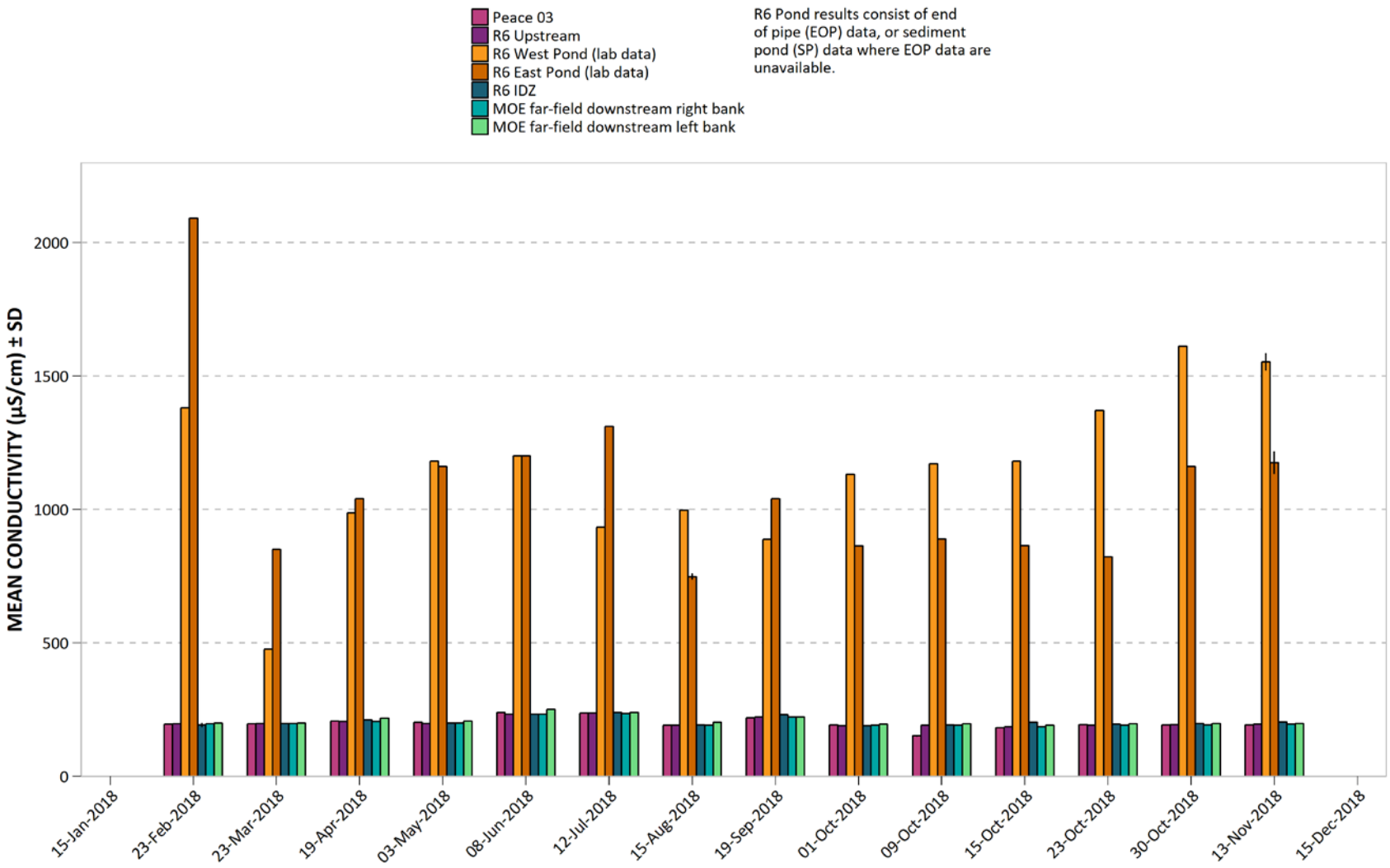


Figure 92. 2018 Peace River and RSEM R6 pond lab specific conductivity.

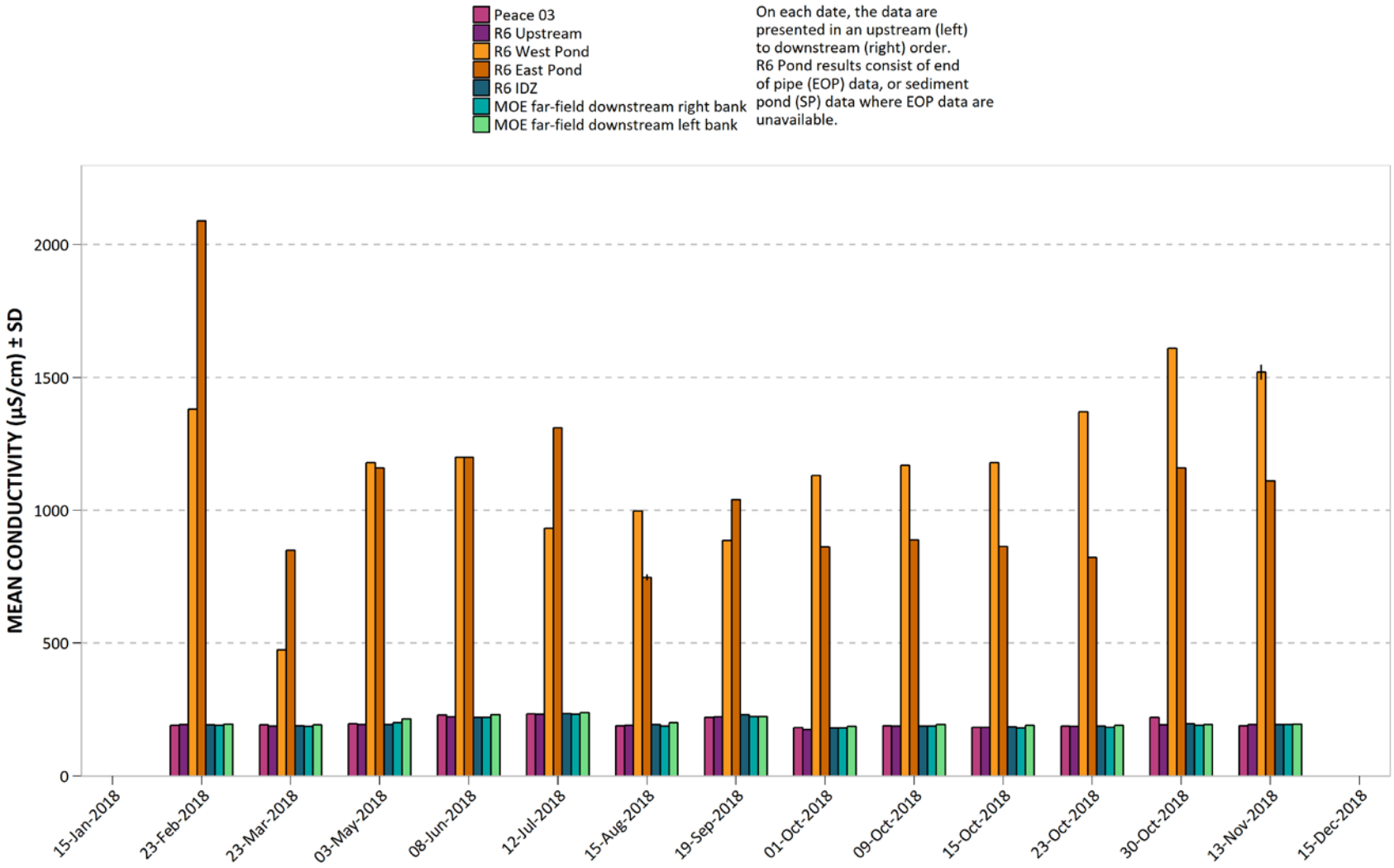


Figure 93. 2018 Peace River and RSEM R6 pond hardness (as $CaCO_3$).

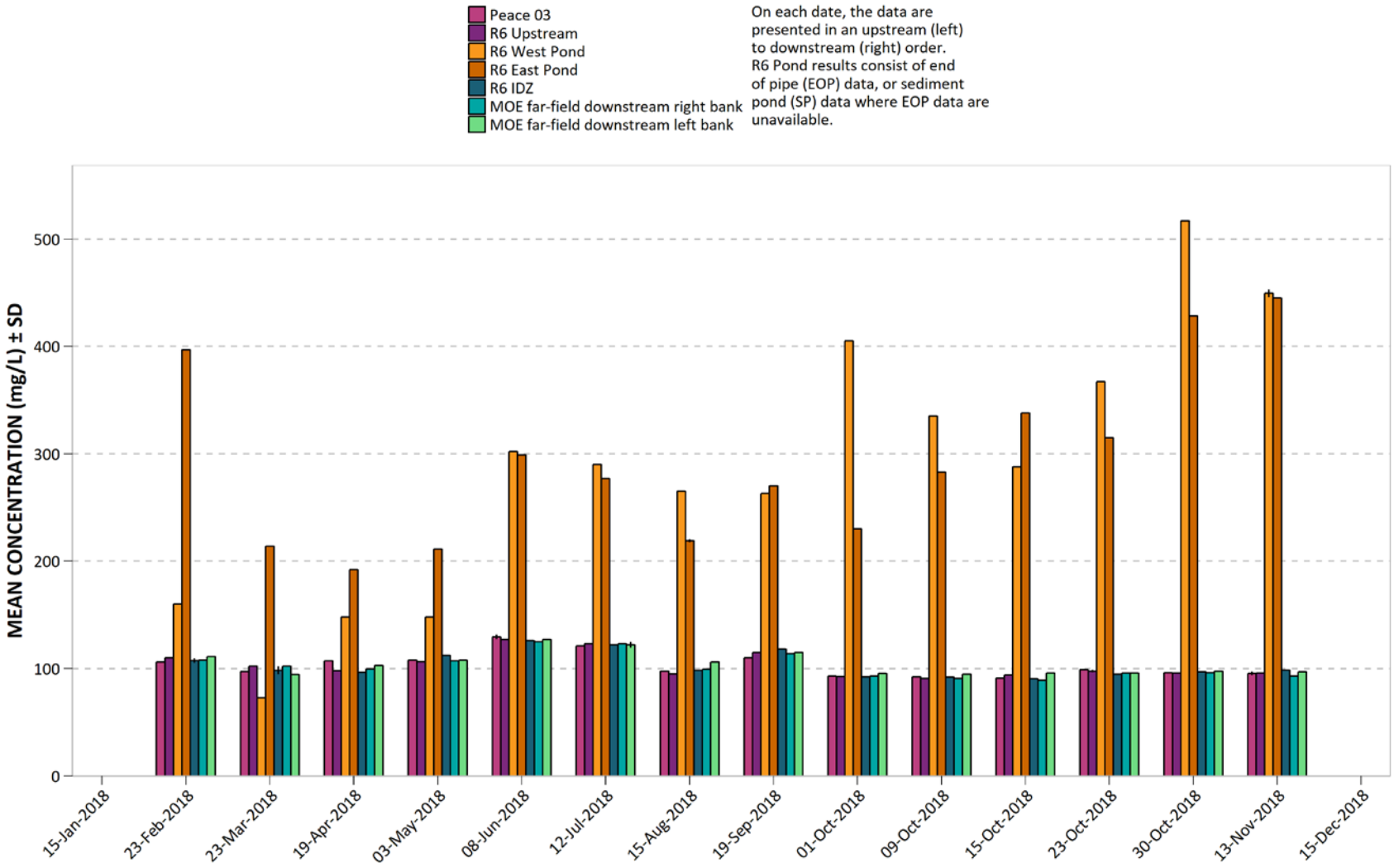


Figure 94. 2018 Peace River and RSEM R6 pond total dissolved solids (TDS).

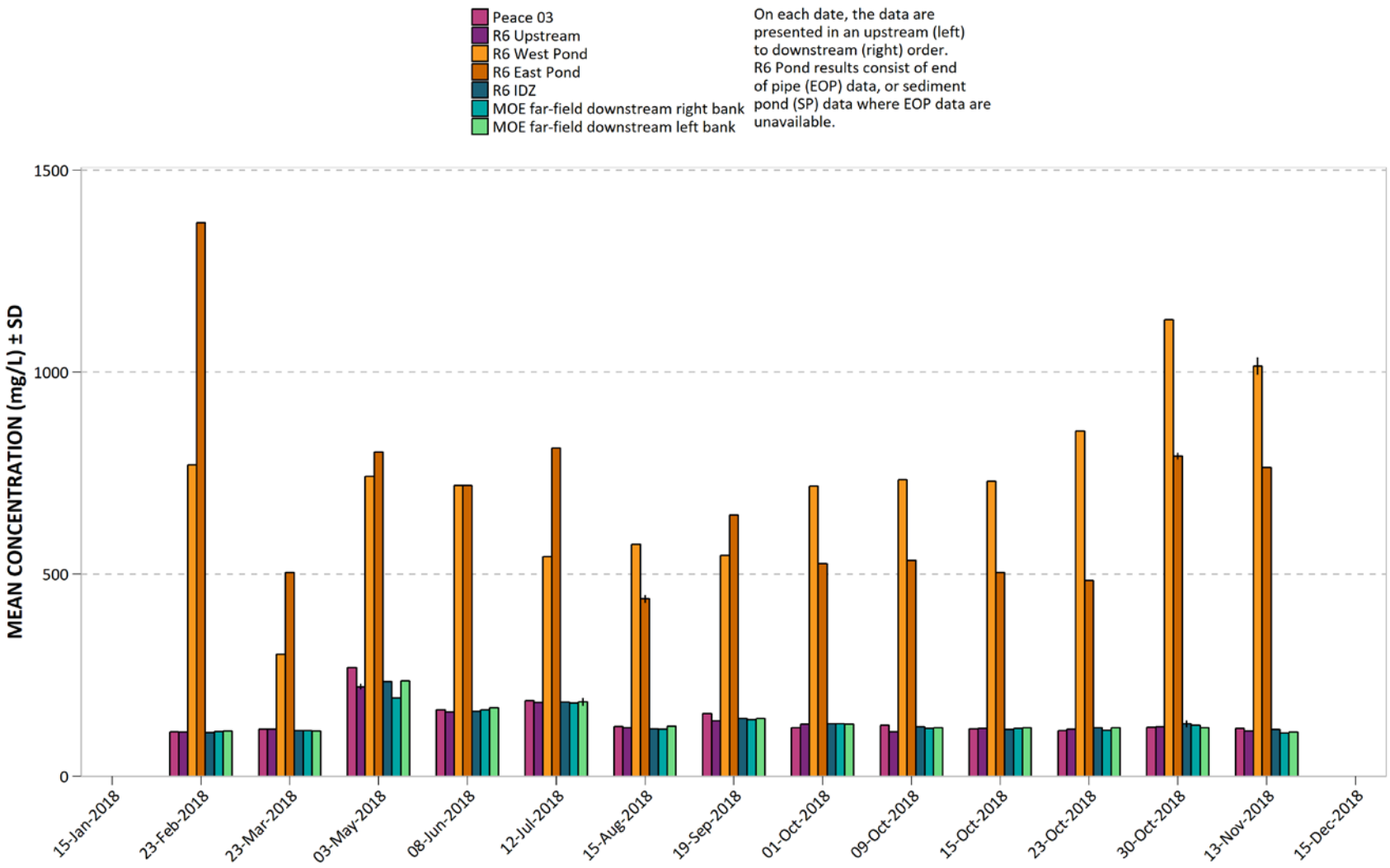
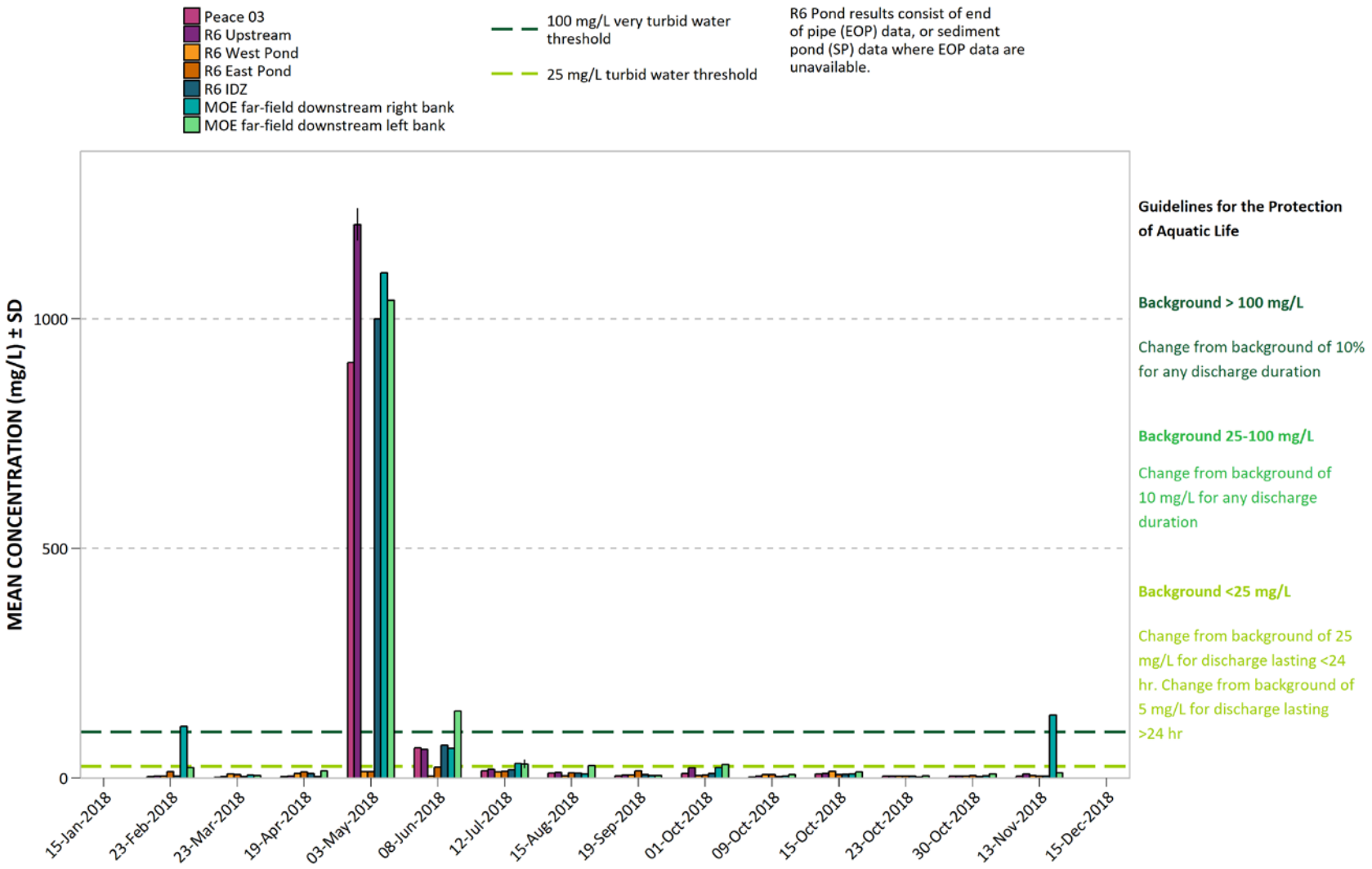


Figure 95. 2018 Peace River and RSEM R6 pond total suspended solids (TSS).



At the Peace River sampling locations, the concentration of total suspended solids (TSS) is obtained preferentially from laboratory data, however if laboratory data are unavailable, TSS is calculated from *in-situ t*urbidity data using site specific TSS:Turbidity relationships.

Figure 96. 2018 Peace River (*in-situ*) and RSEM R6 pond (lab) turbidity.

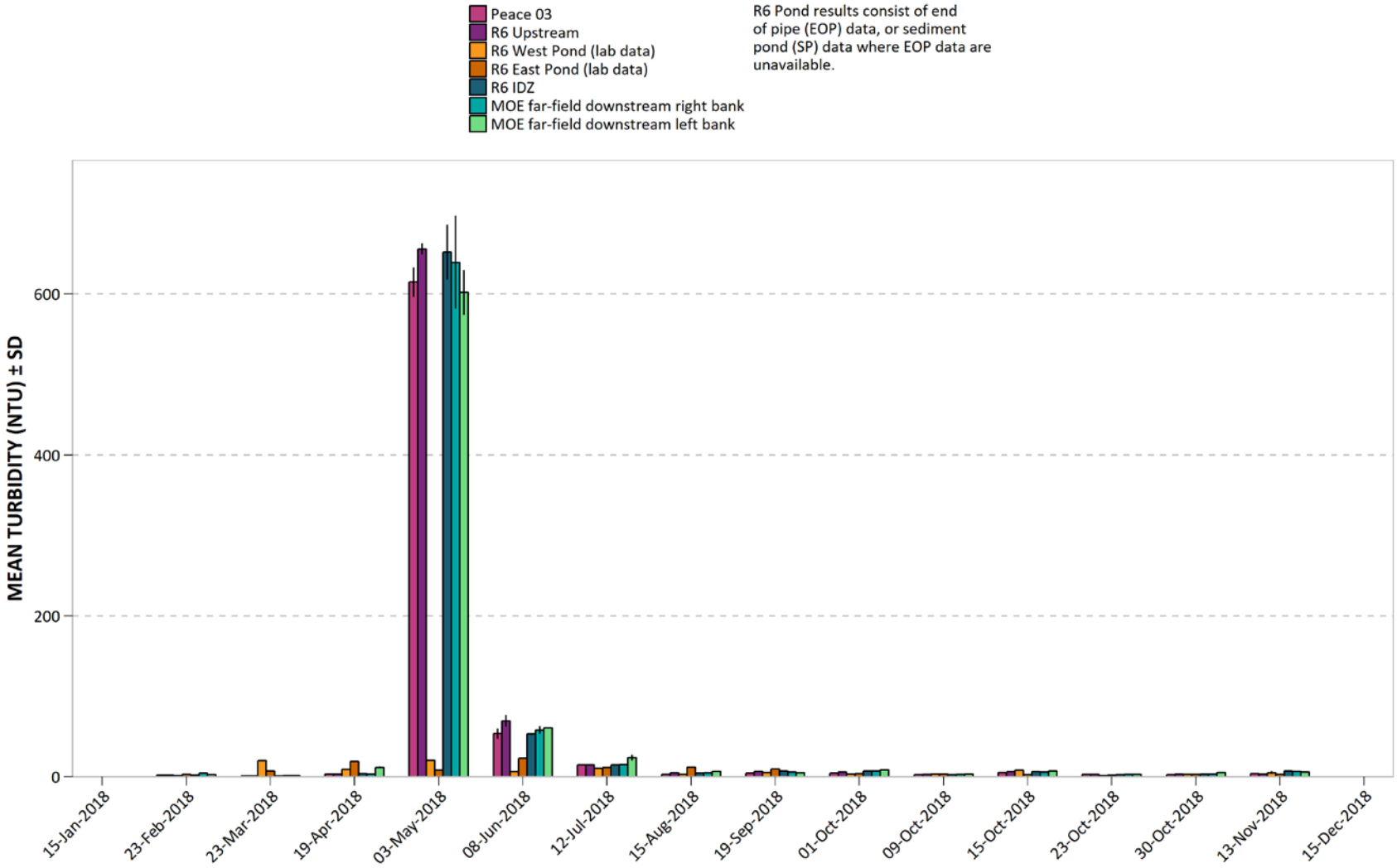


Figure 97. 2018 Peace River (*in-situ*) and RSEM R6 pond (lab) pH.

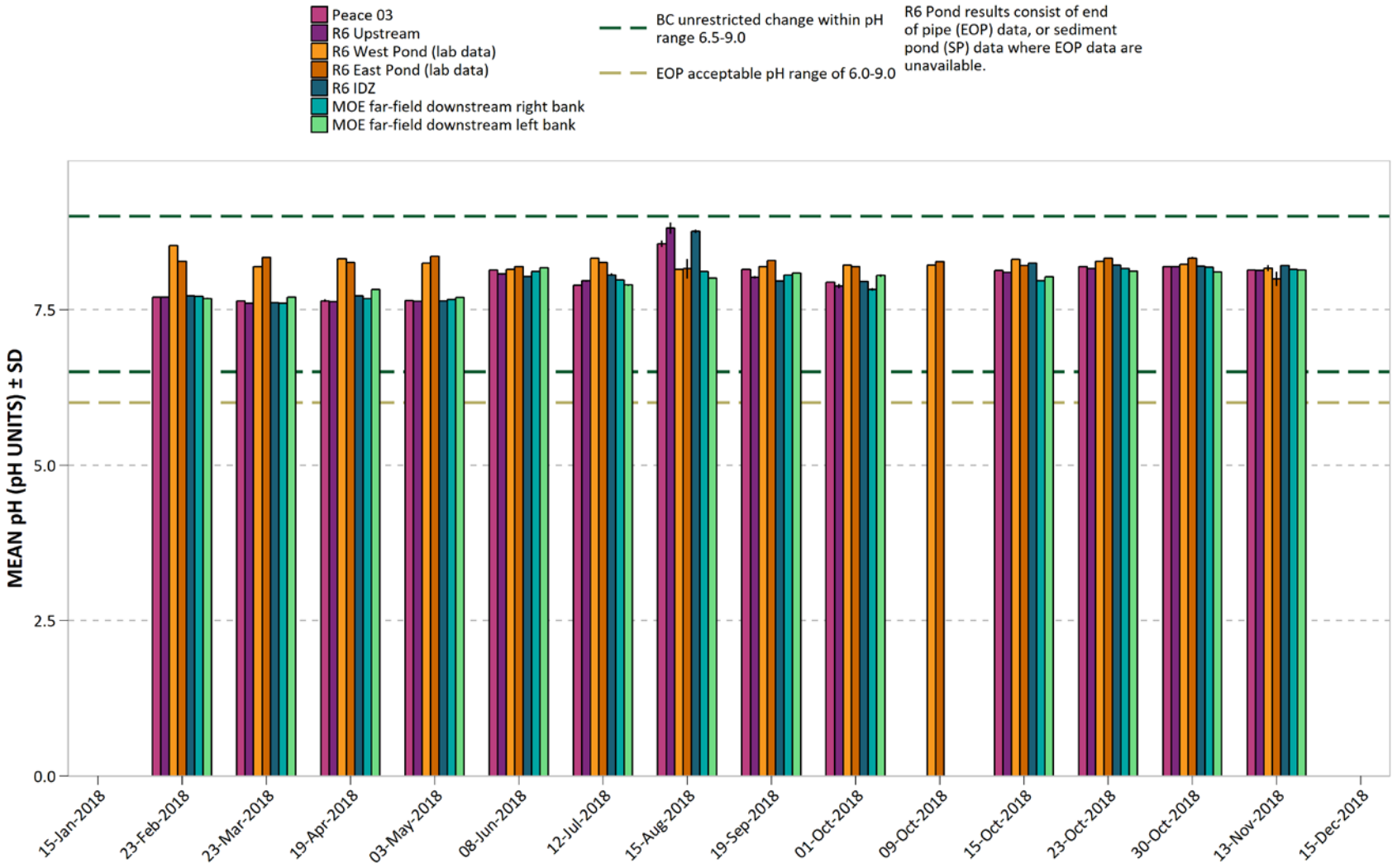


Figure 98. 2018 Peace River and RSEM R6 pond lab pH.

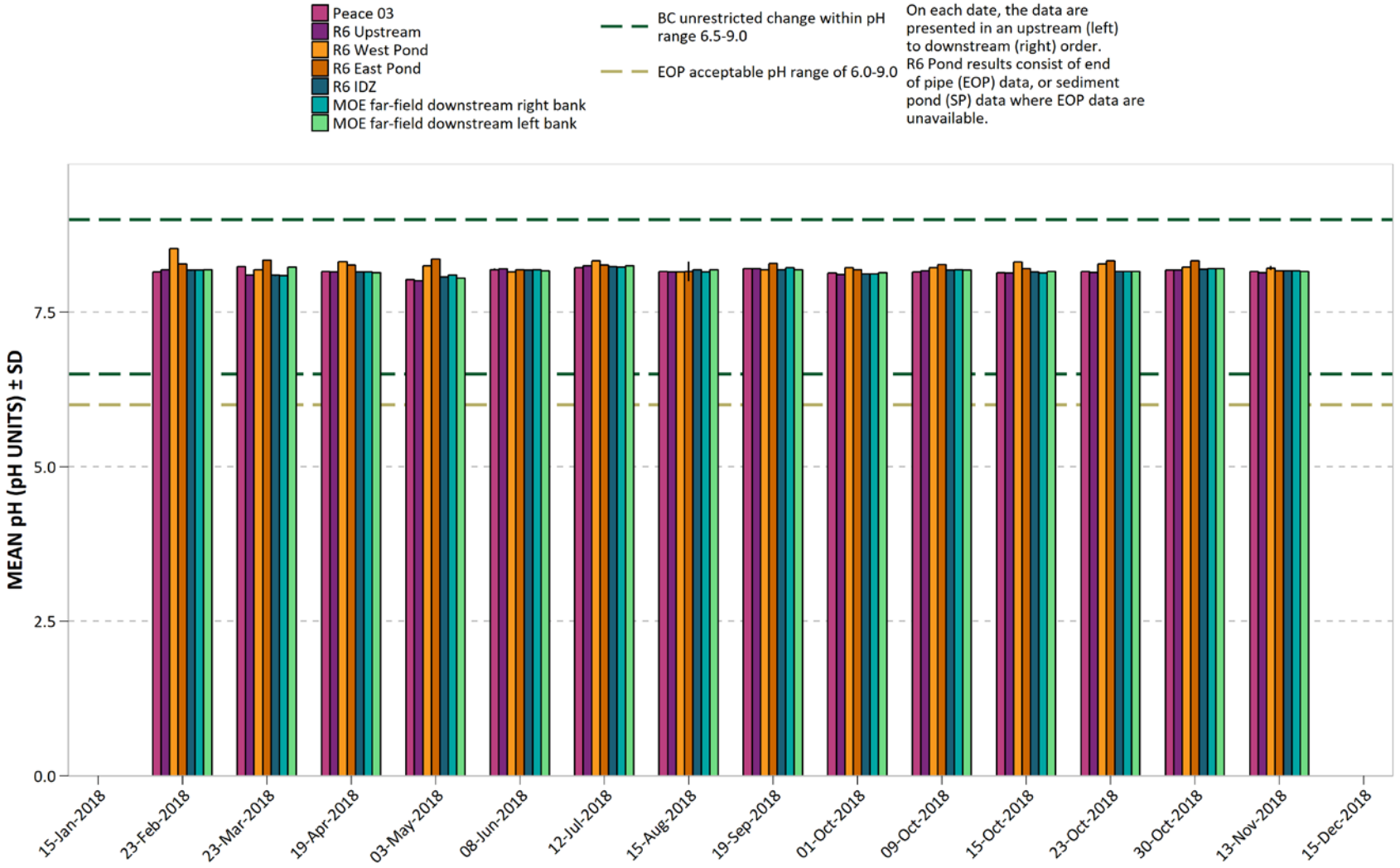


Figure 99. 2018 Peace River and RSEM R6 pond total alkalinity (as $CaCO_3$).

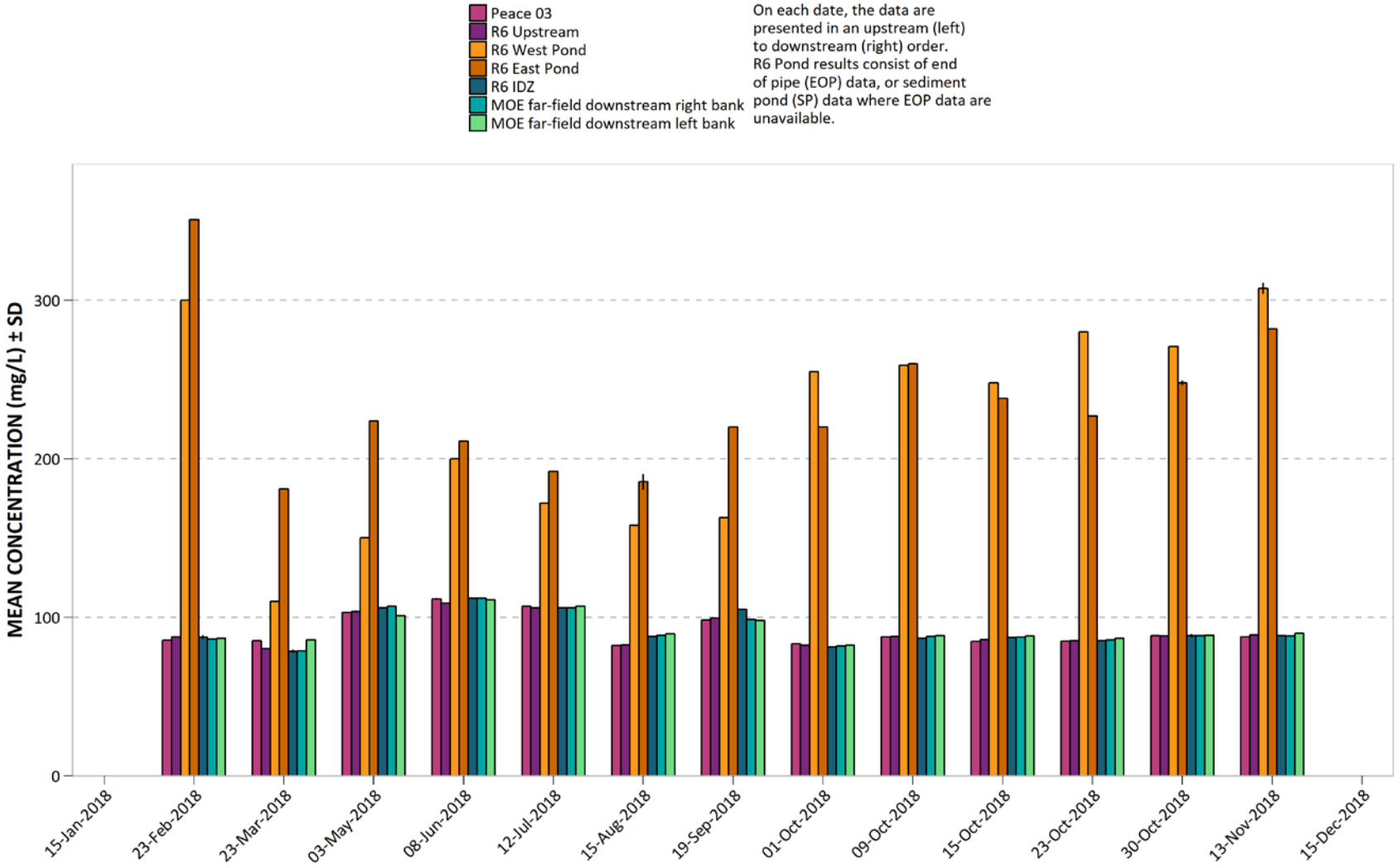


Figure 100. 2018 Peace River and RSEM R6 pond total ammonia (as N).

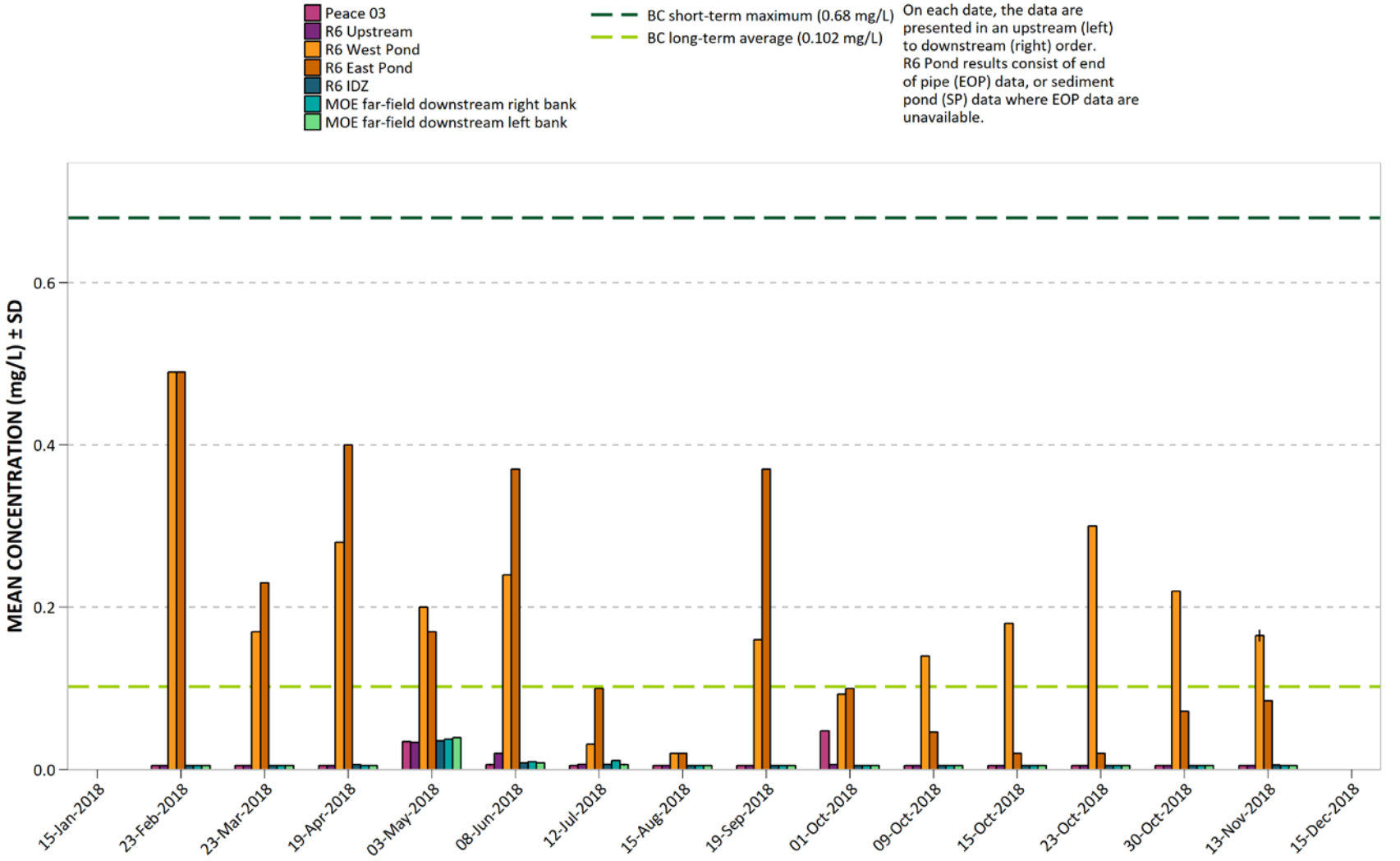
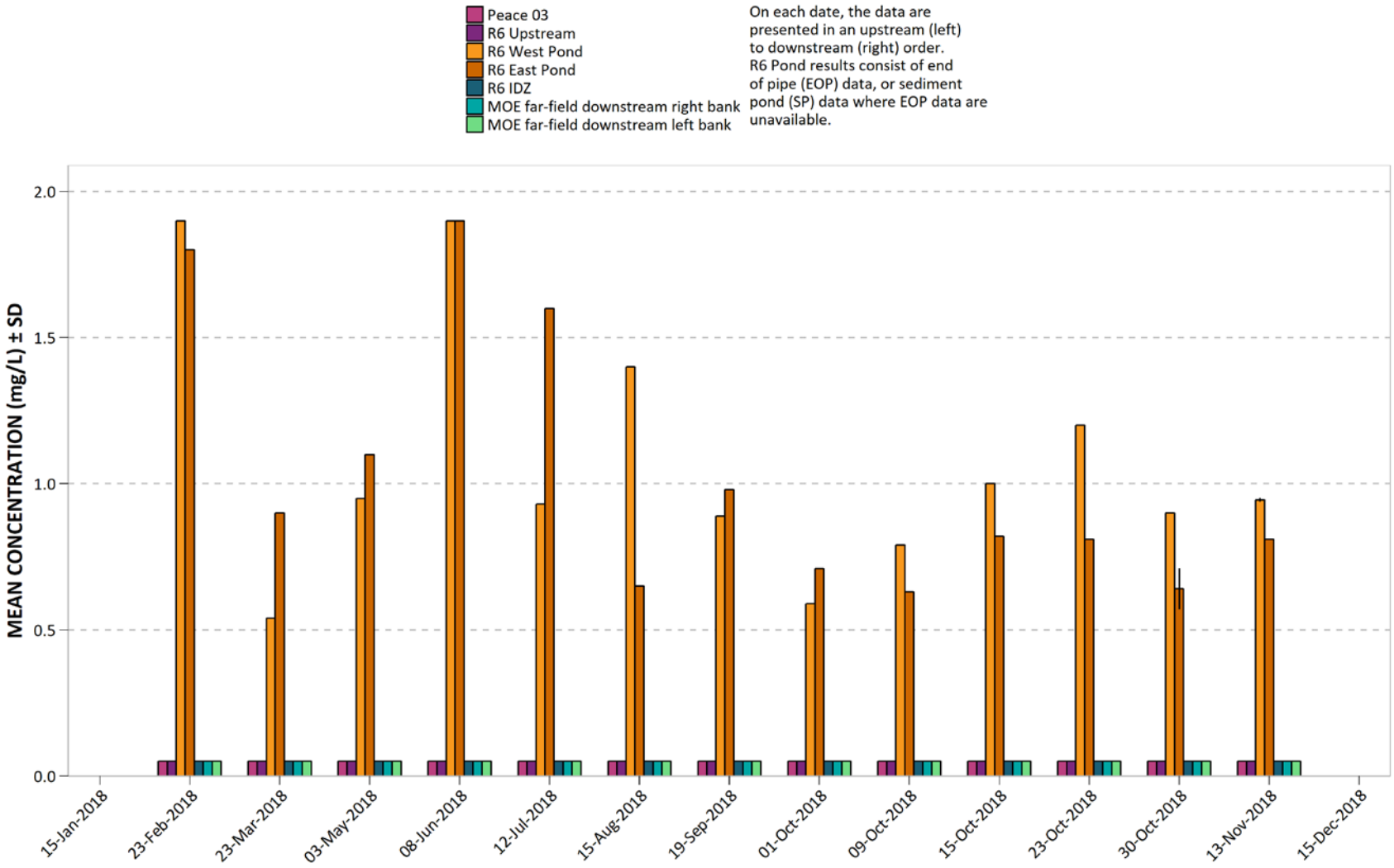
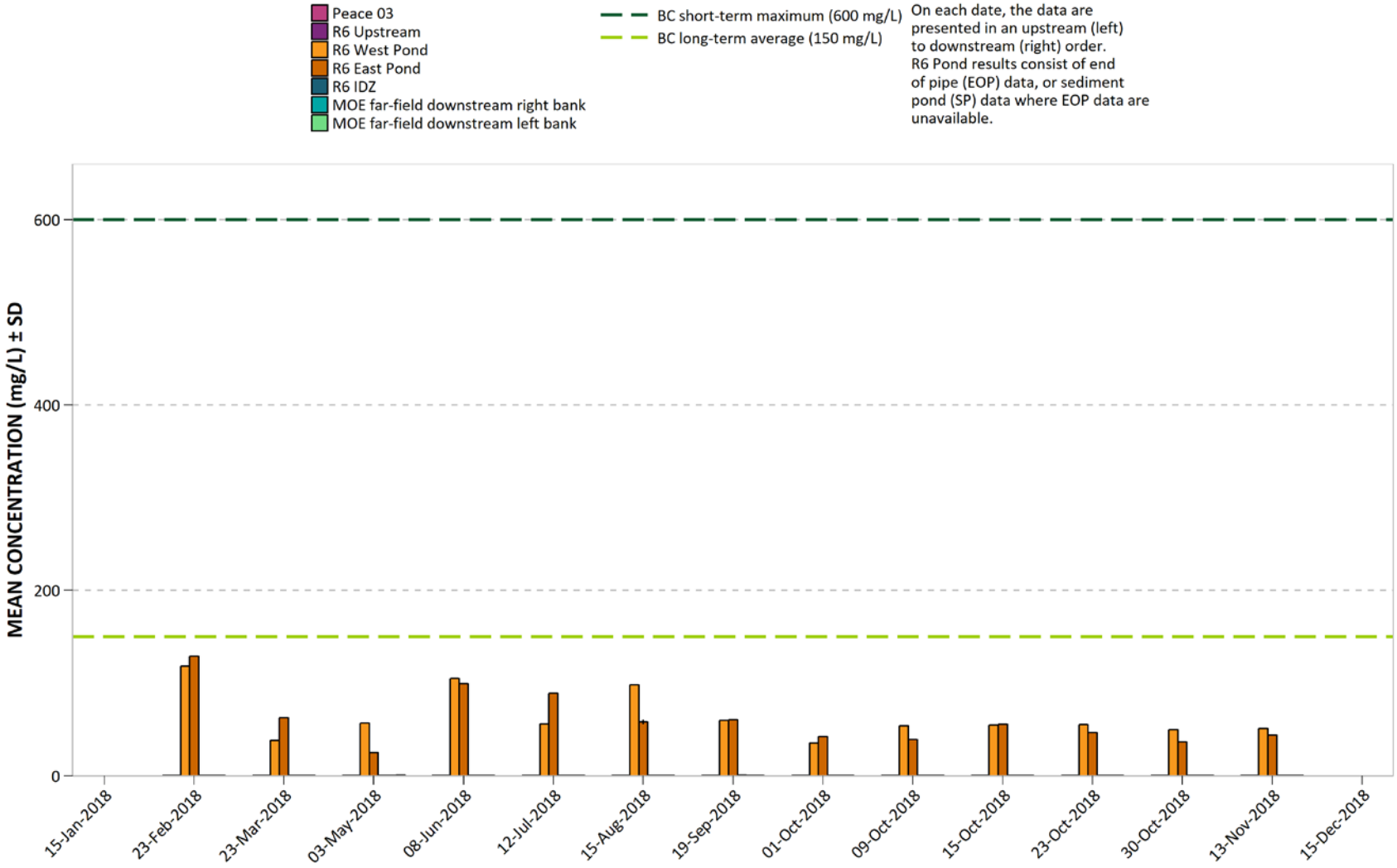


Figure 101. 2018 Peace River and RSEM R6 pond bromide (Br).



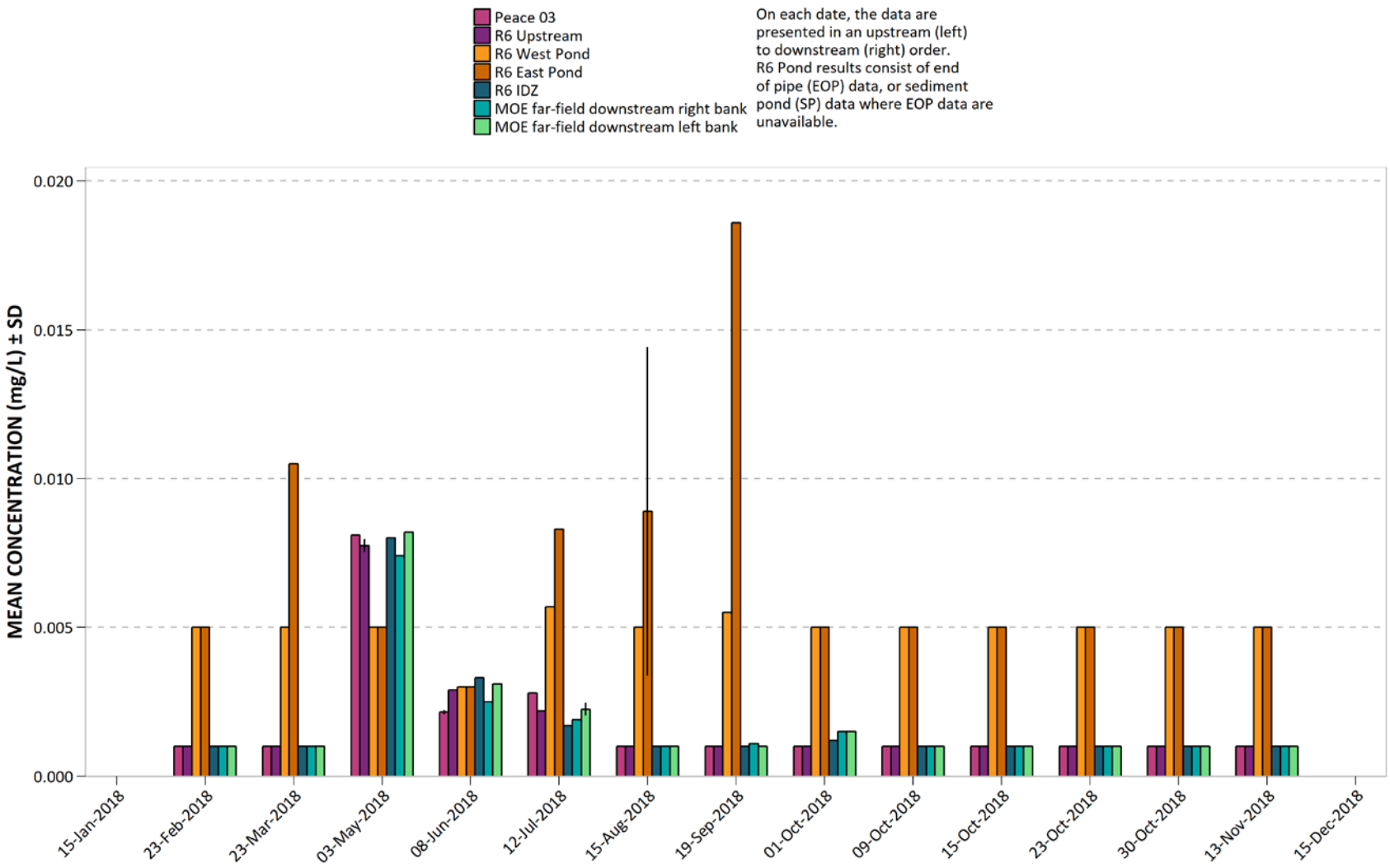
All Peace River results were less than the MDL and thus were assigned the MDL value of 0.05 mg/L.

Figure 102. 2018 Peace River and RSEM R6 pond chloride (Cl).



All Peace River results were less than the MDL and thus were assigned the MDL value of 0.5 mg/L.

Figure 103. 2018 Peace River and RSEM R6 pond dissolved orthophosphate.



Results less than the MDL were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.001 mg/L (Peace River).

Figure 104. 2018 Peace River and RSEM R6 pond fluoride (F).

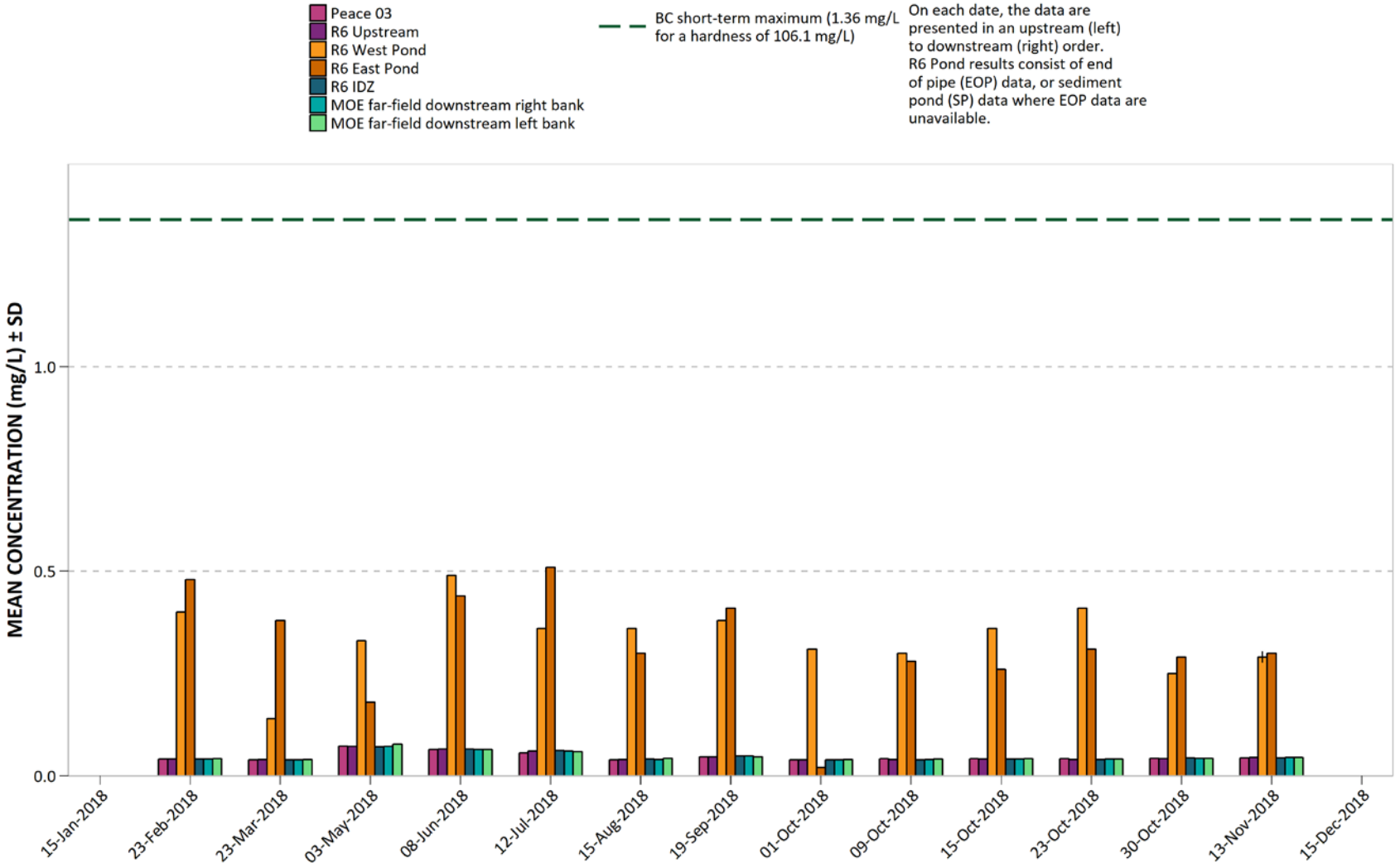


Figure 105. 2018 Peace River and RSEM R6 pond nitrate (as N).

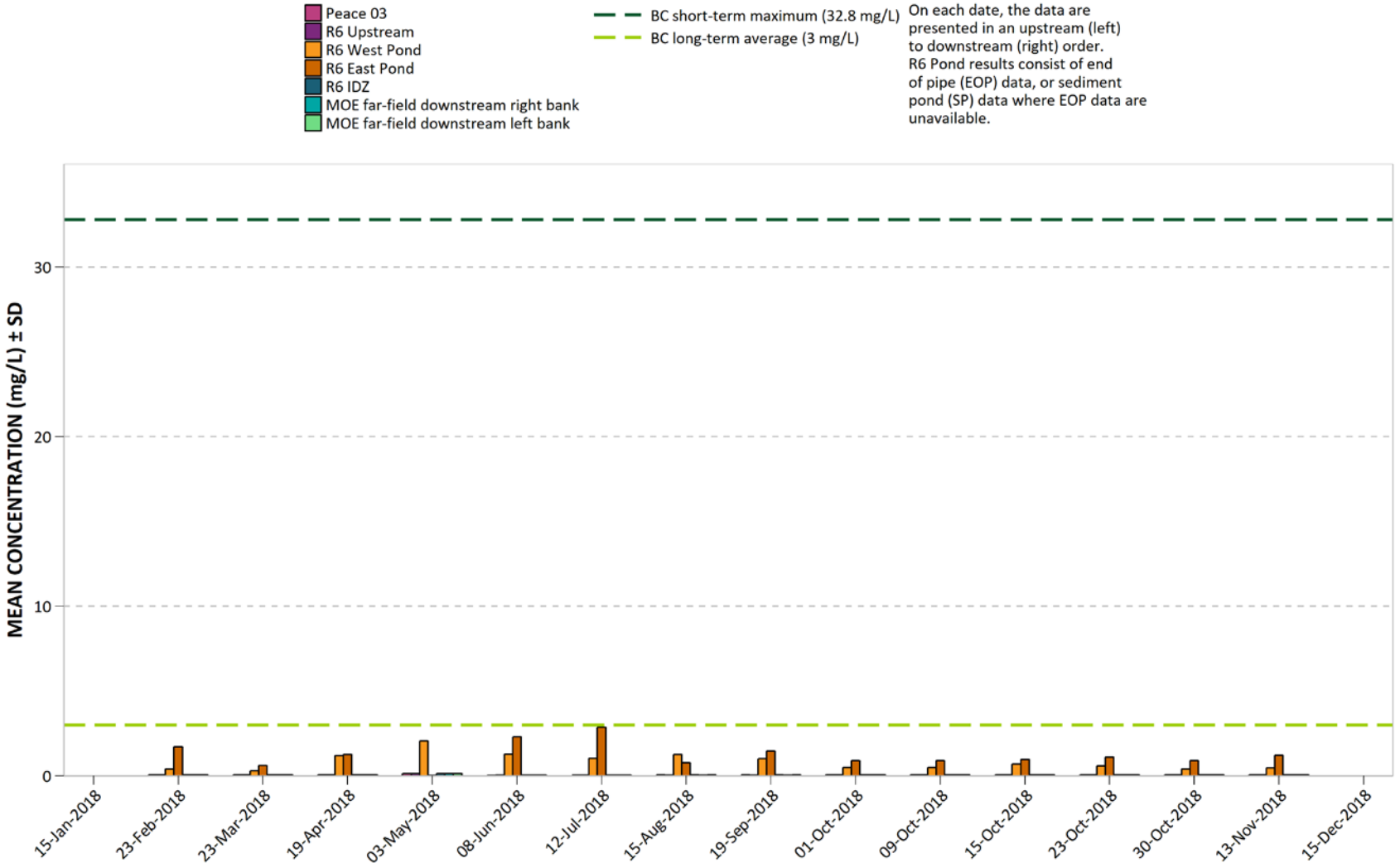
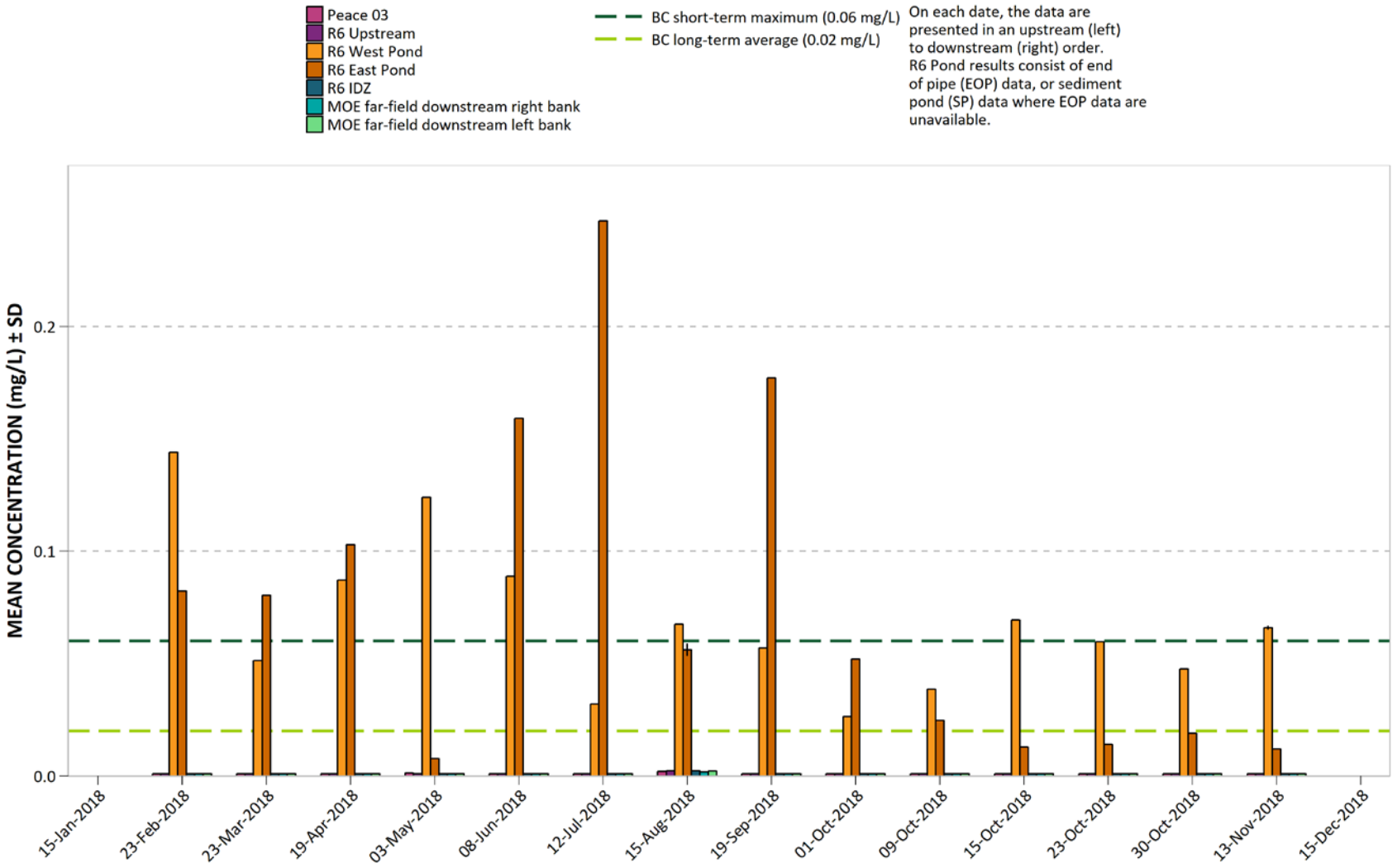


Figure 106. 2018 Peace River and RSEM R6 pond nitrite (as N).



Note: BC WQG for nitrite are chloride dependent, and therefore guidelines depicted in the plot are applicable for Peace River sites only. Based on the range of chloride values observed in the R6 pond, the applicable BC Maximum and 30-day guidelines are 0.6 mg/L and 0.2 mg/L, respectively.

Figure 107. 2018 Peace River and RSEM R6 pond sulfate (SO_4).

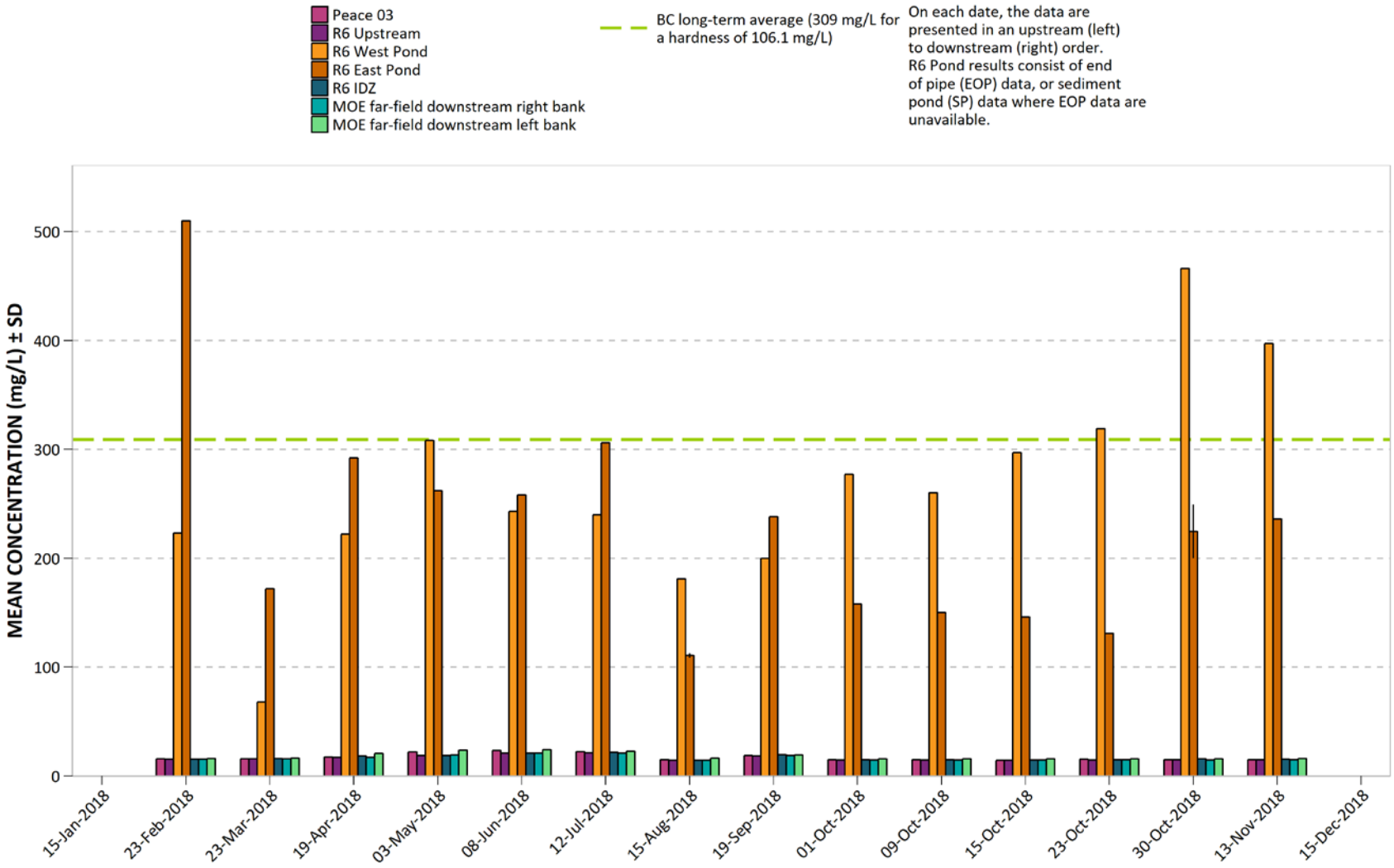


Figure 108. 2018 Peace River and RSEM R6 pond dissolved organic carbon (DOC).

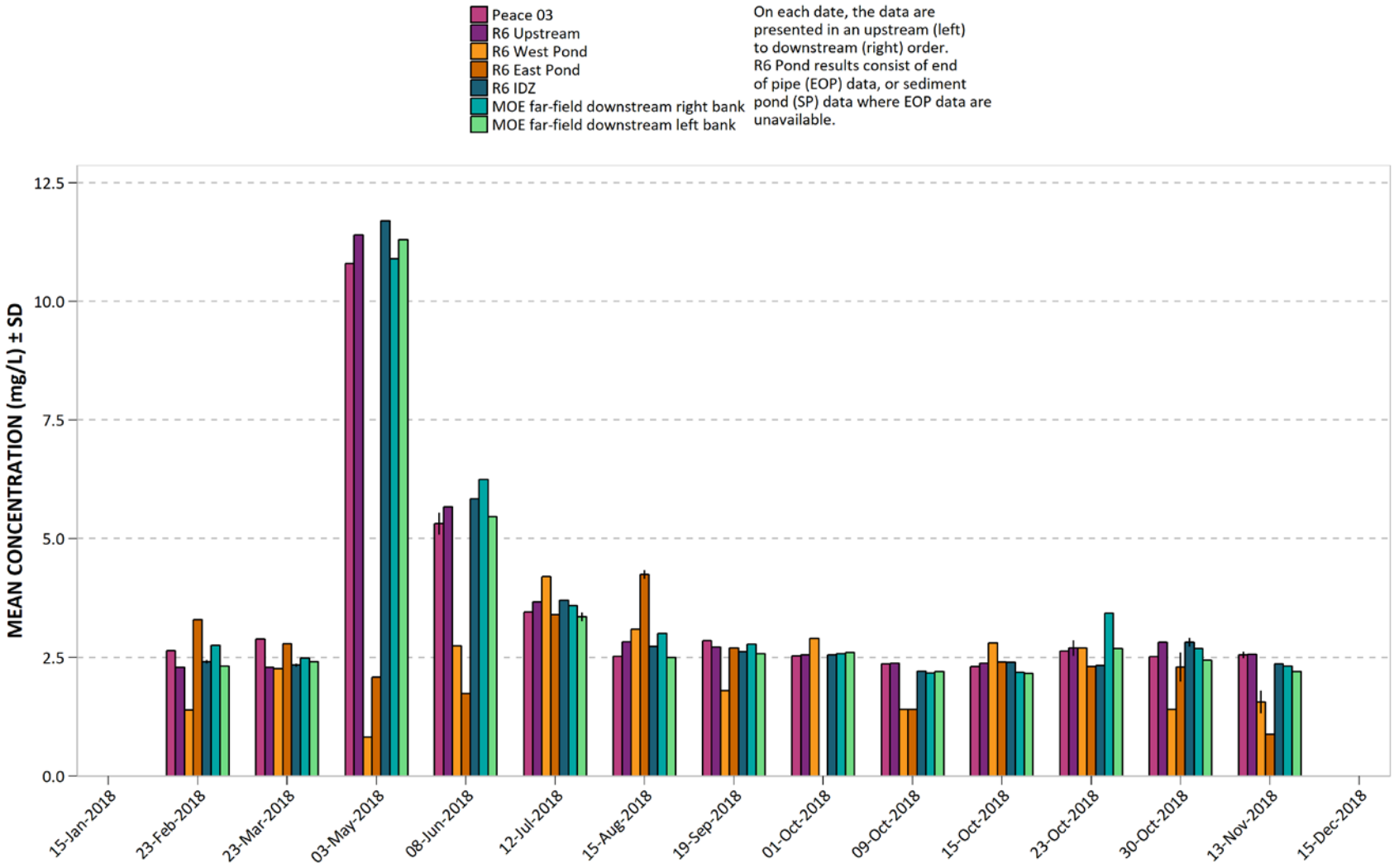


Figure 109. 2018 Peace River and RSEM R6 pond total organic carbon (TOC).

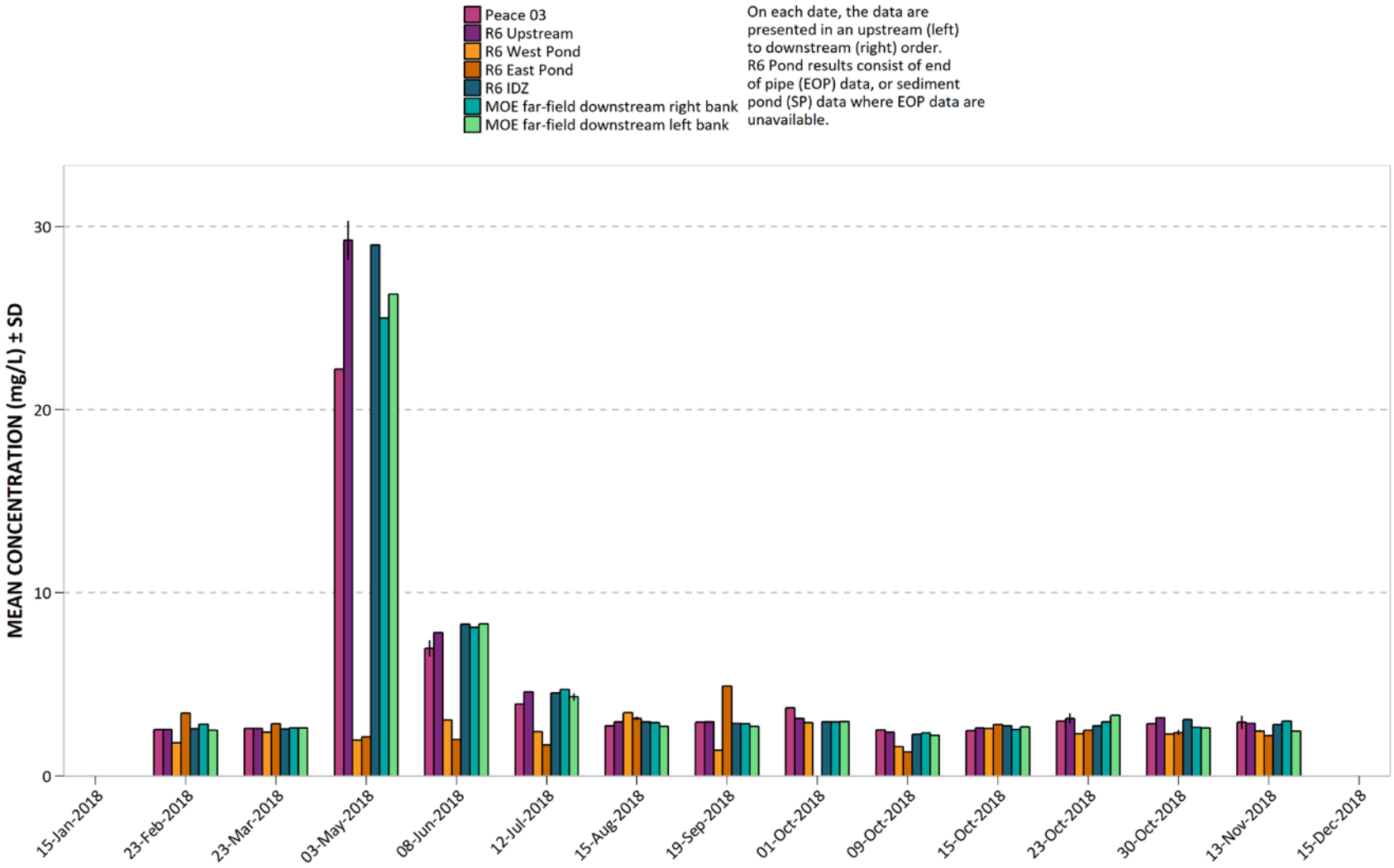


Figure 110. 2018 Peace River and RSEM R6 pond total aluminum (Al).

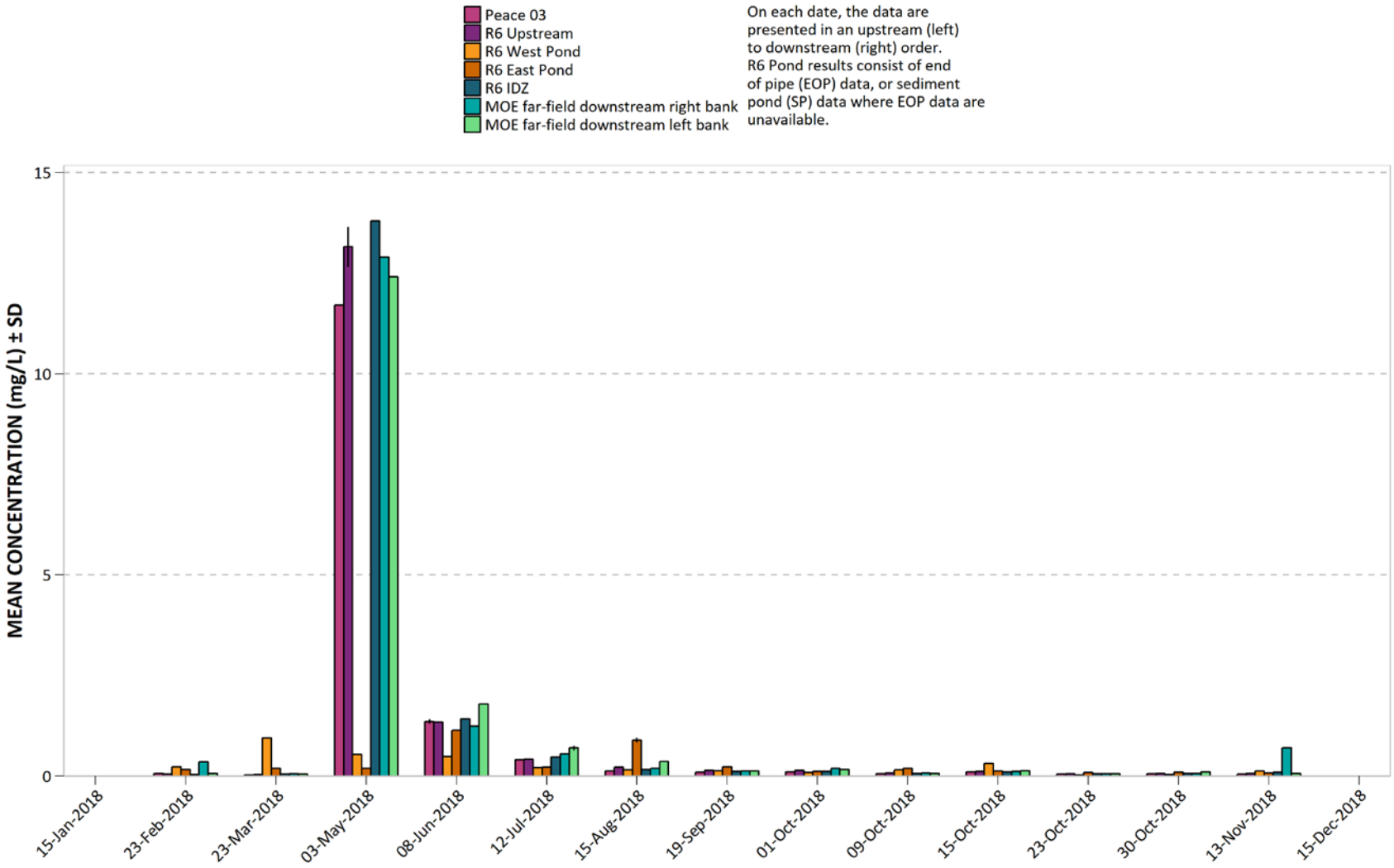
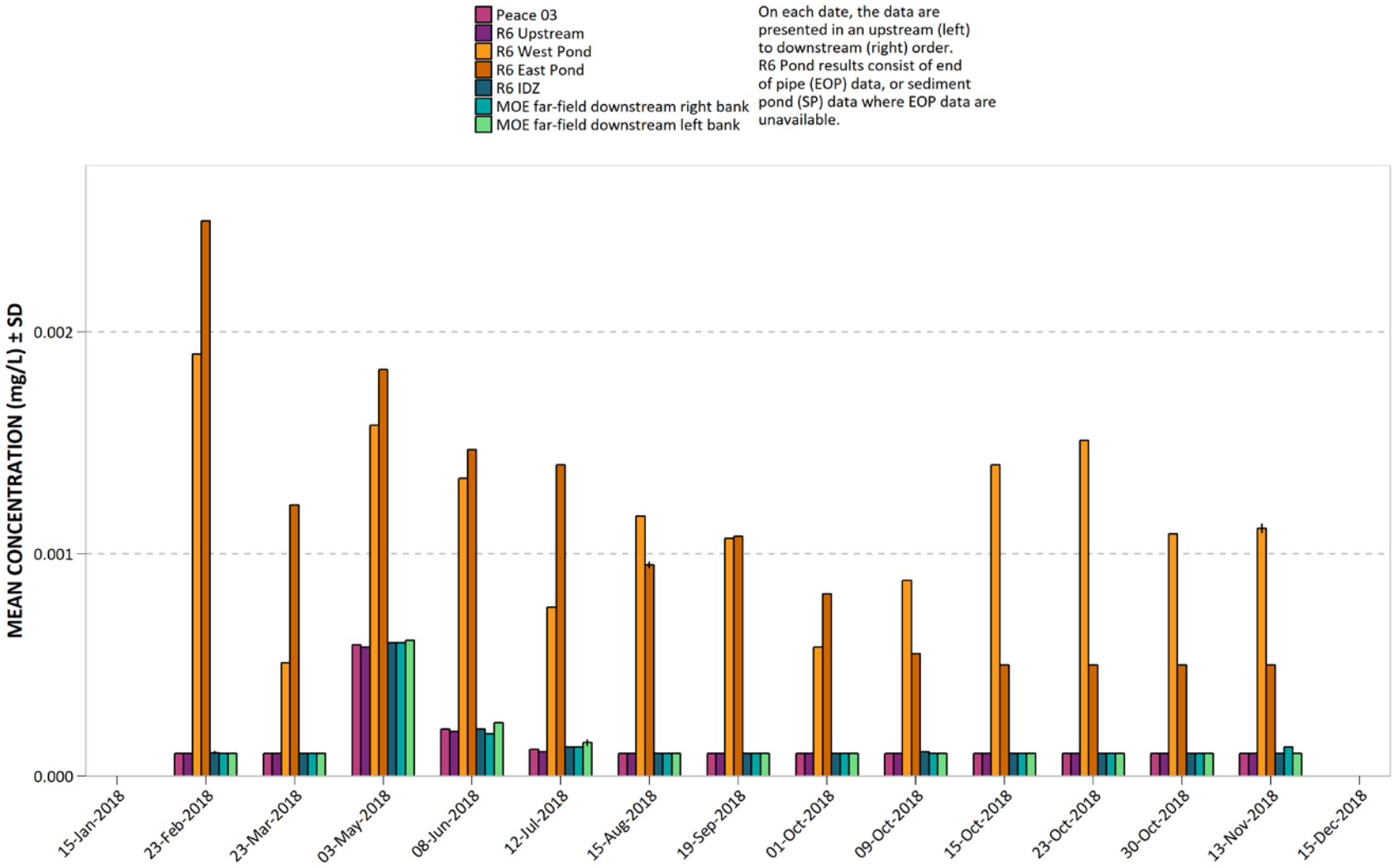


Figure 111. 2018 Peace River and RSEM R6 pond total antimony (Sb).



Results less than the MDL were assigned the MDL value of 0.0005 mg/L (R5b pond) or 0.0001 mg/L (Peace River).

Figure 112. 2018 Peace River and RSEM R6 pond total arsenic (As).

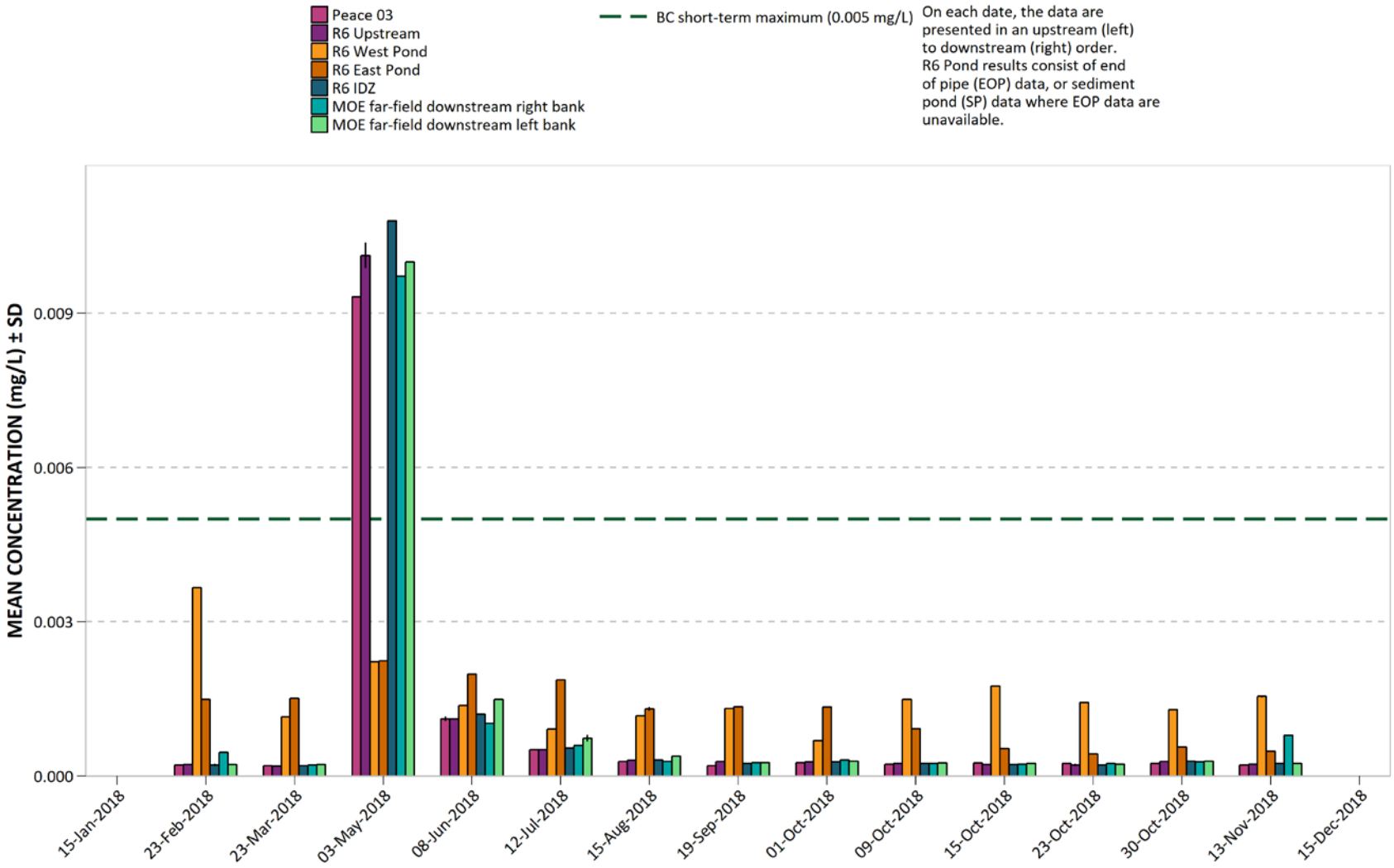


Figure 113. 2018 Peace River and RSEM R6 pond total barium (Ba).

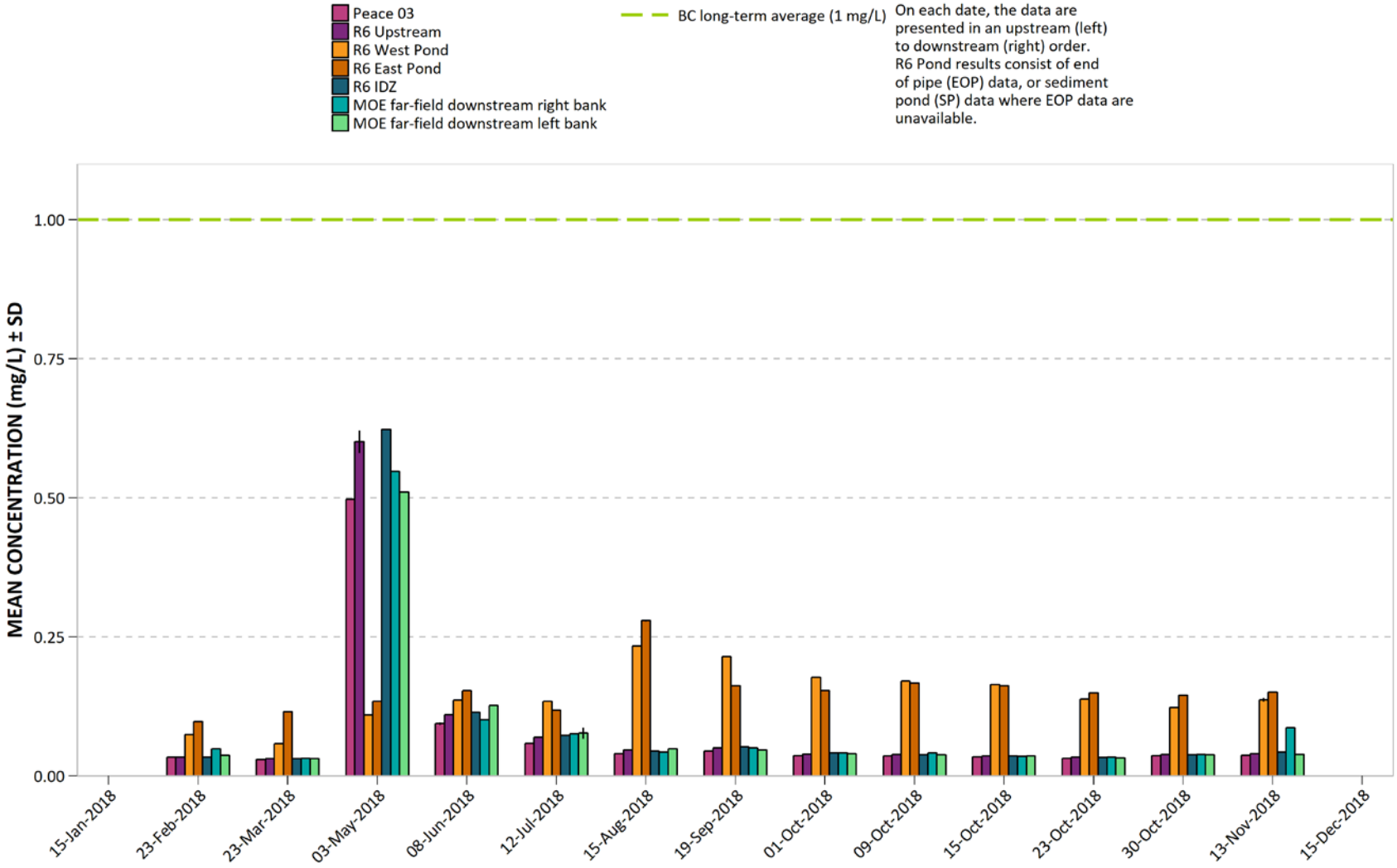
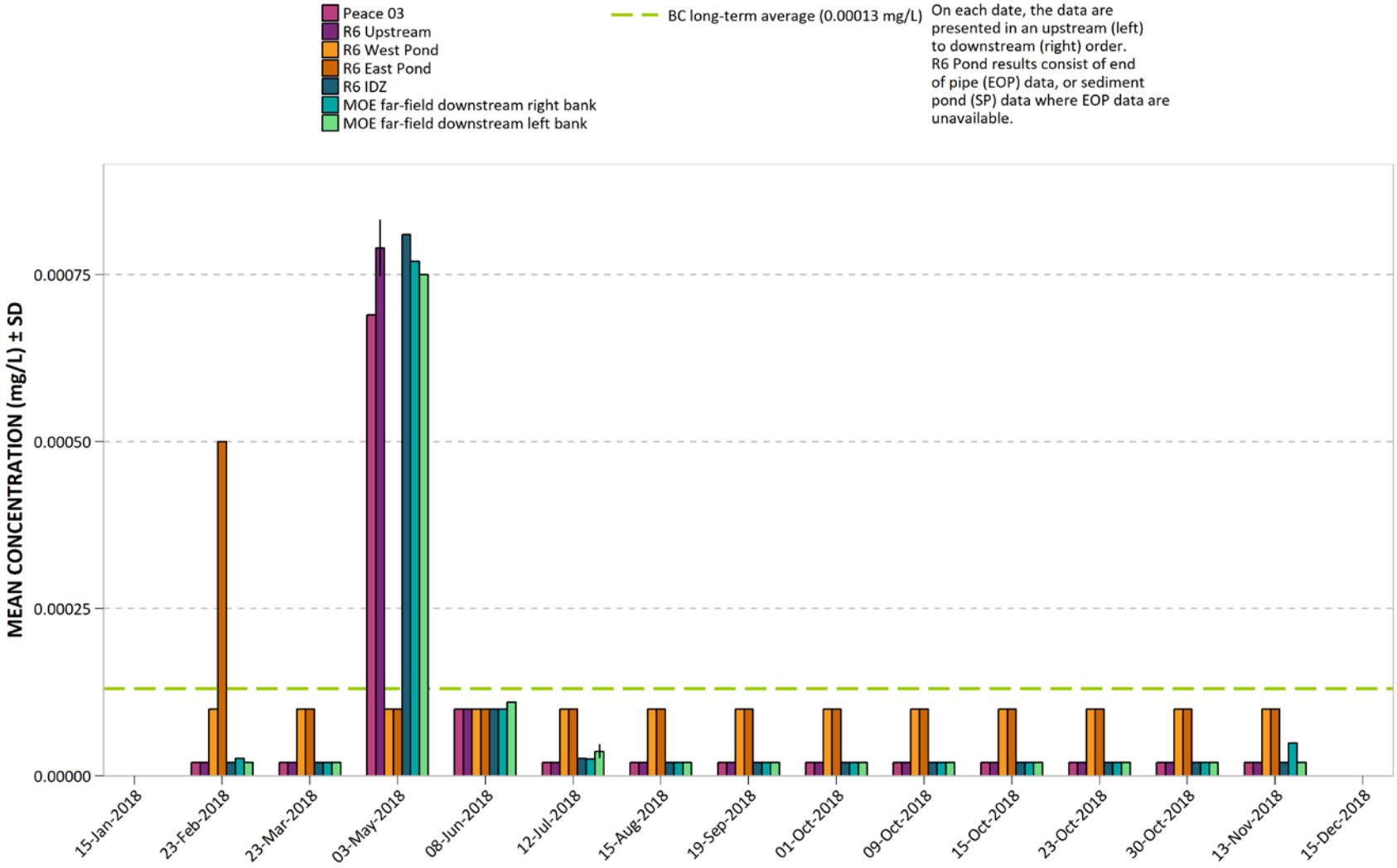
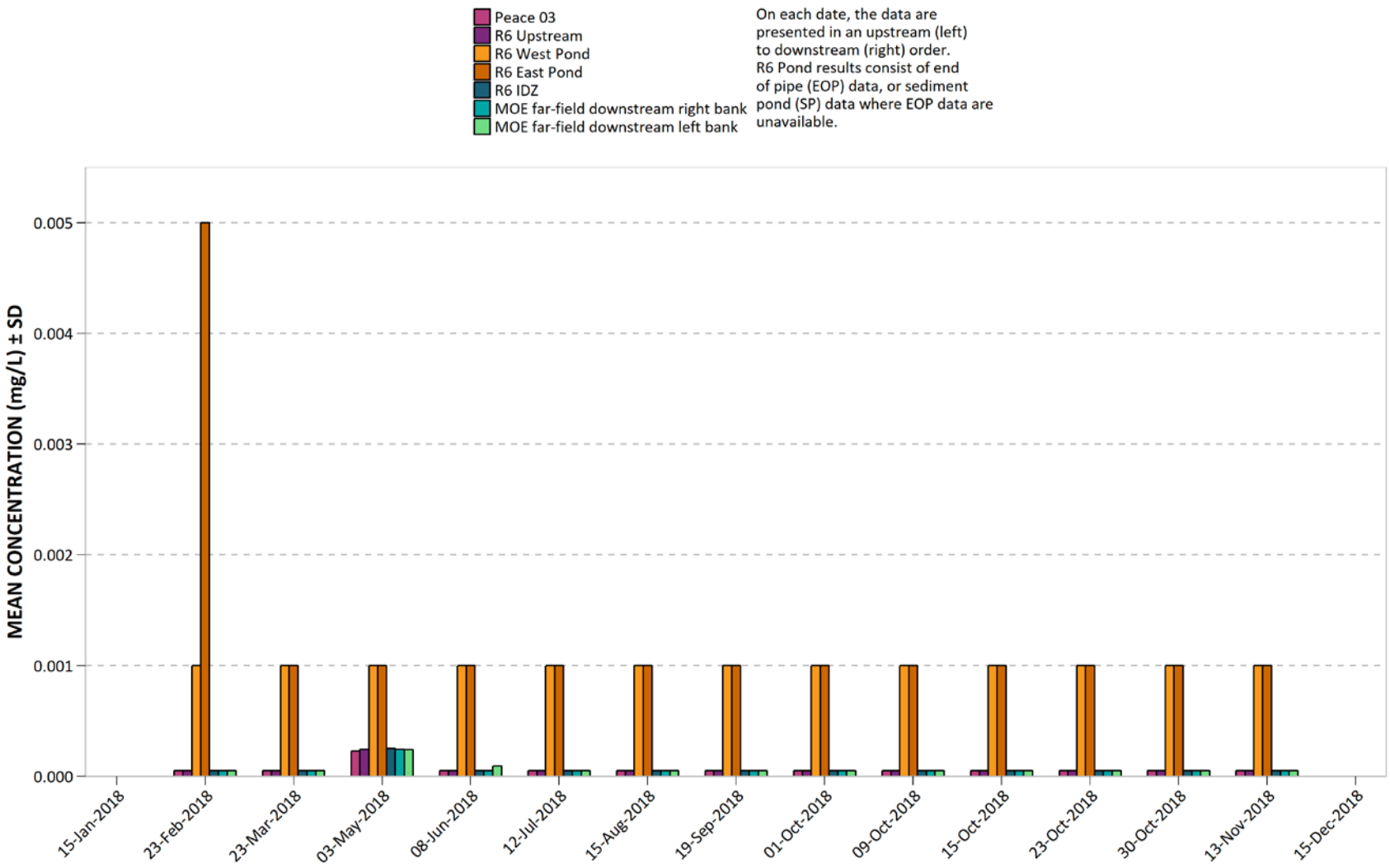


Figure 114. 2018 Peace River and RSEM R6 pond total beryllium (Be).



Results less than the MDL were assigned the MDL value of 0.0001 mg/L (R5b pond, Peace River on June 8) or 0.00002 mg/L (Peace River on remaining dates).

Figure 115. 2018 Peace River and RSEM R6 pond total bismuth (Bi).



Results less than the MDL were assigned the MDL value of 0.001 mg/L (R5b pond) or 0.0001 mg/L (Peace River).

Figure 116. 2018 Peace River and RSEM R6 pond total boron (B).

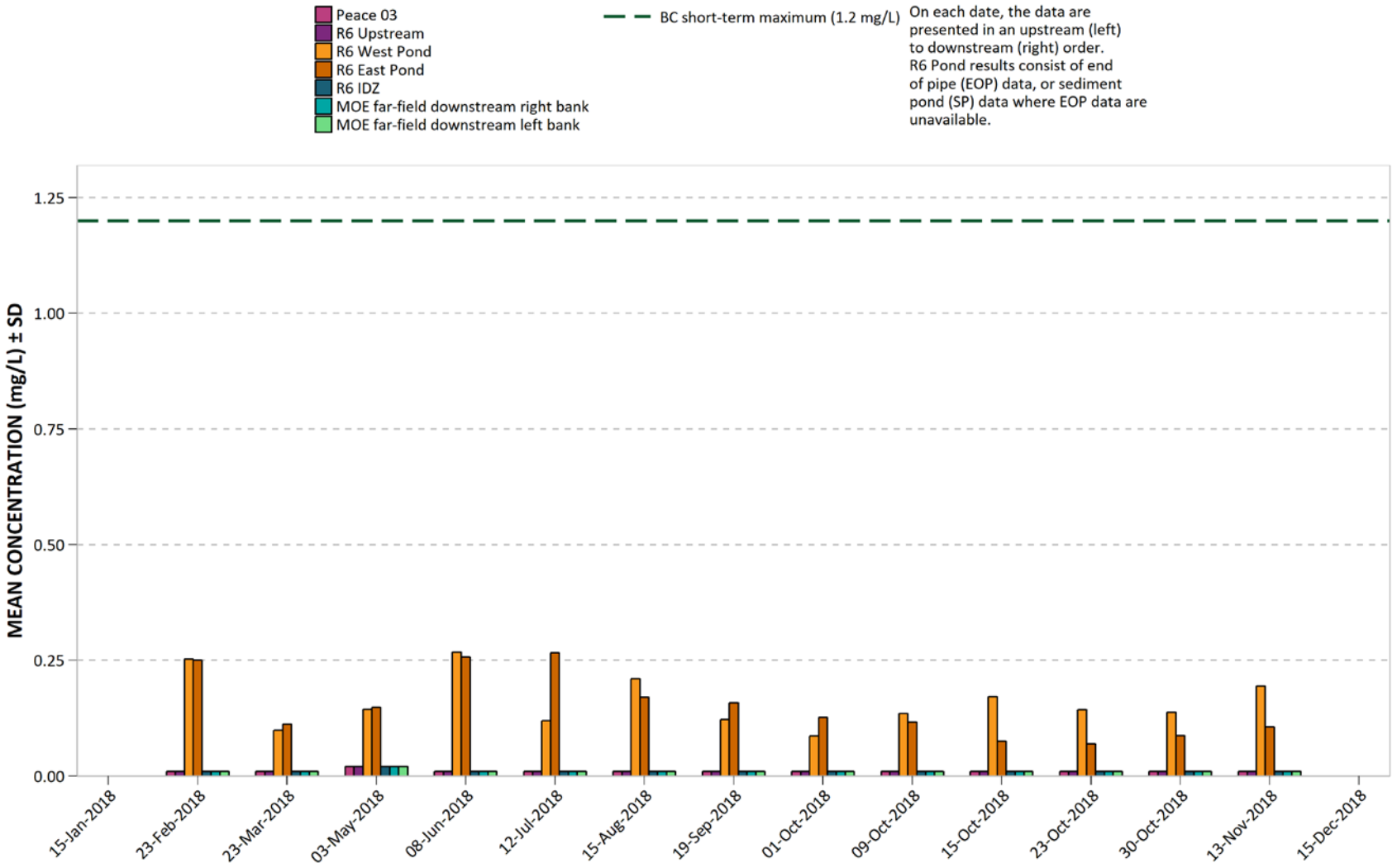


Figure 117. 2018 Peace River and RSEM R6 pond total cadmium (Cd).

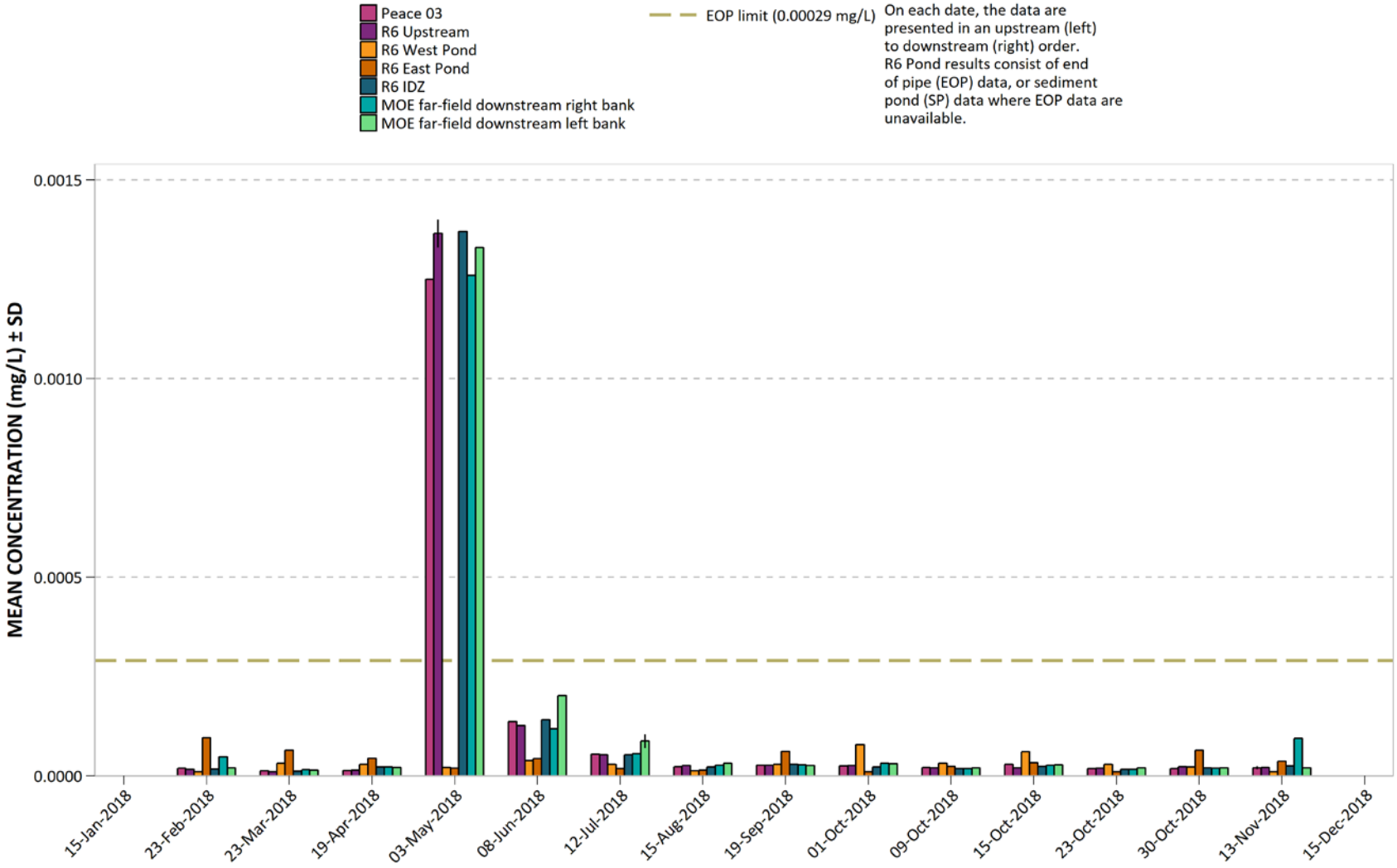


Figure 118. 2018 Peace River and RSEM R6 pond total calcium (Ca).

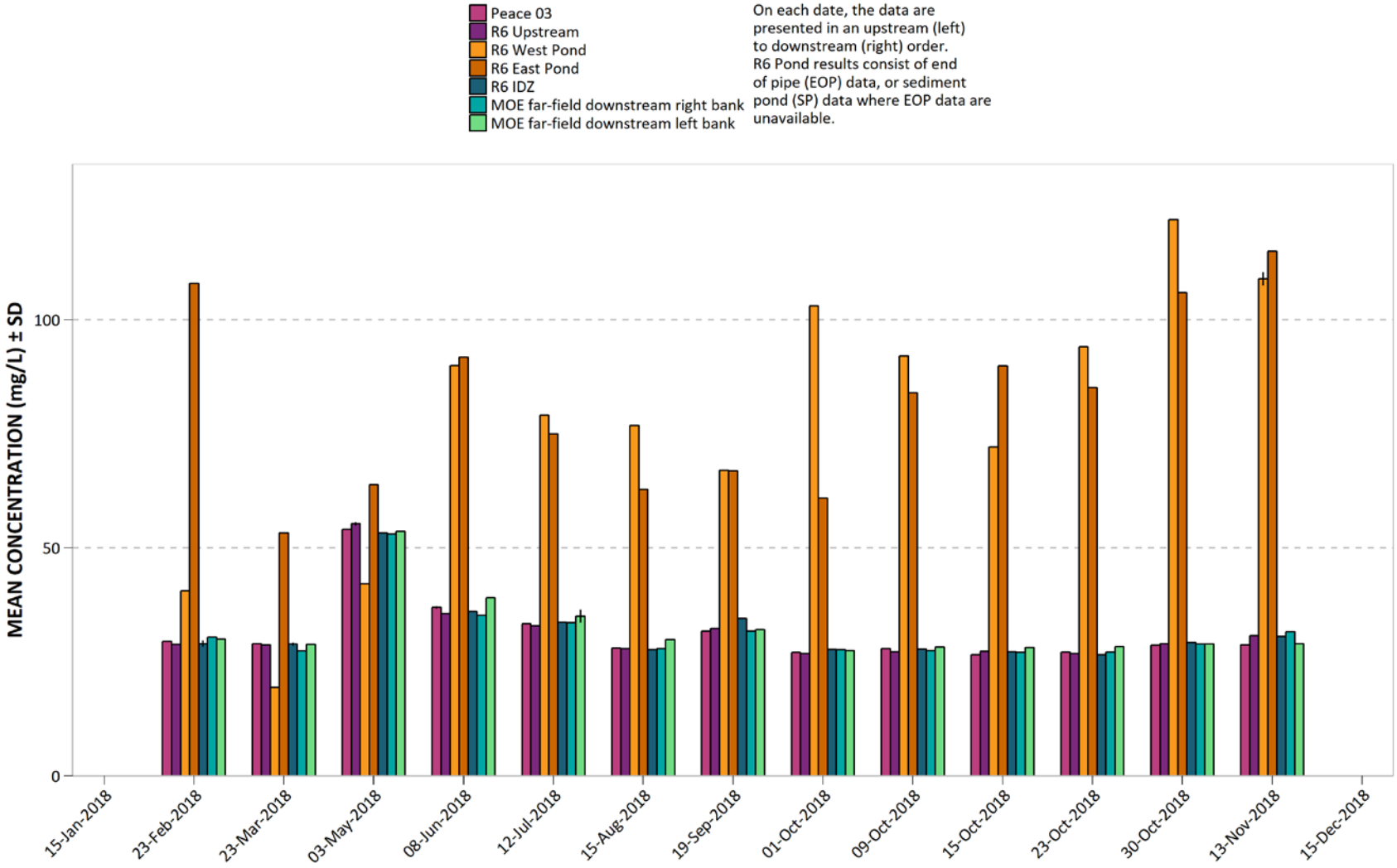


Figure 119. 2018 Peace River and RSEM R6 pond total chromium (Cr).

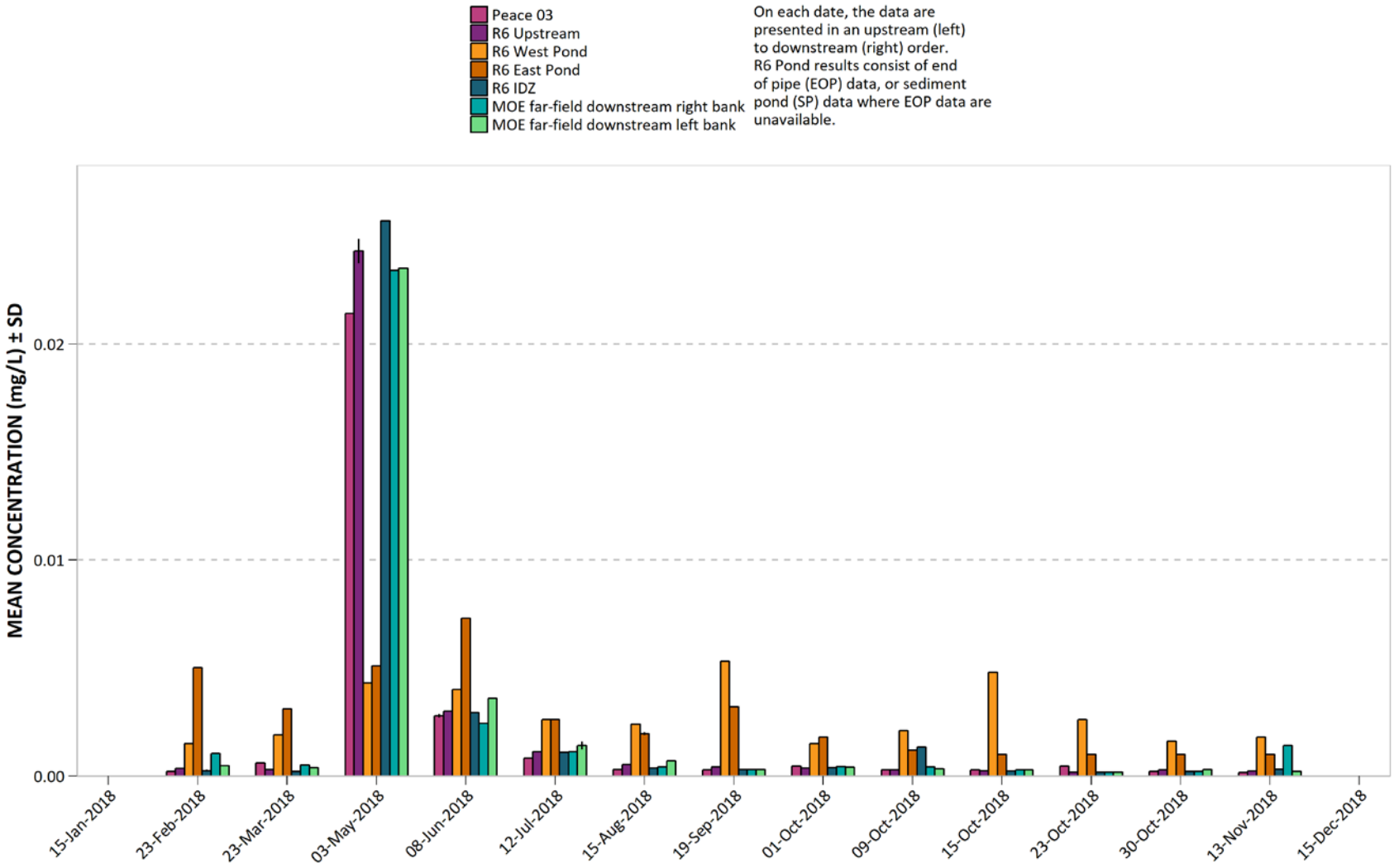


Figure 120. 2018 Peace River and RSEM R6 pond total cobalt (Co).

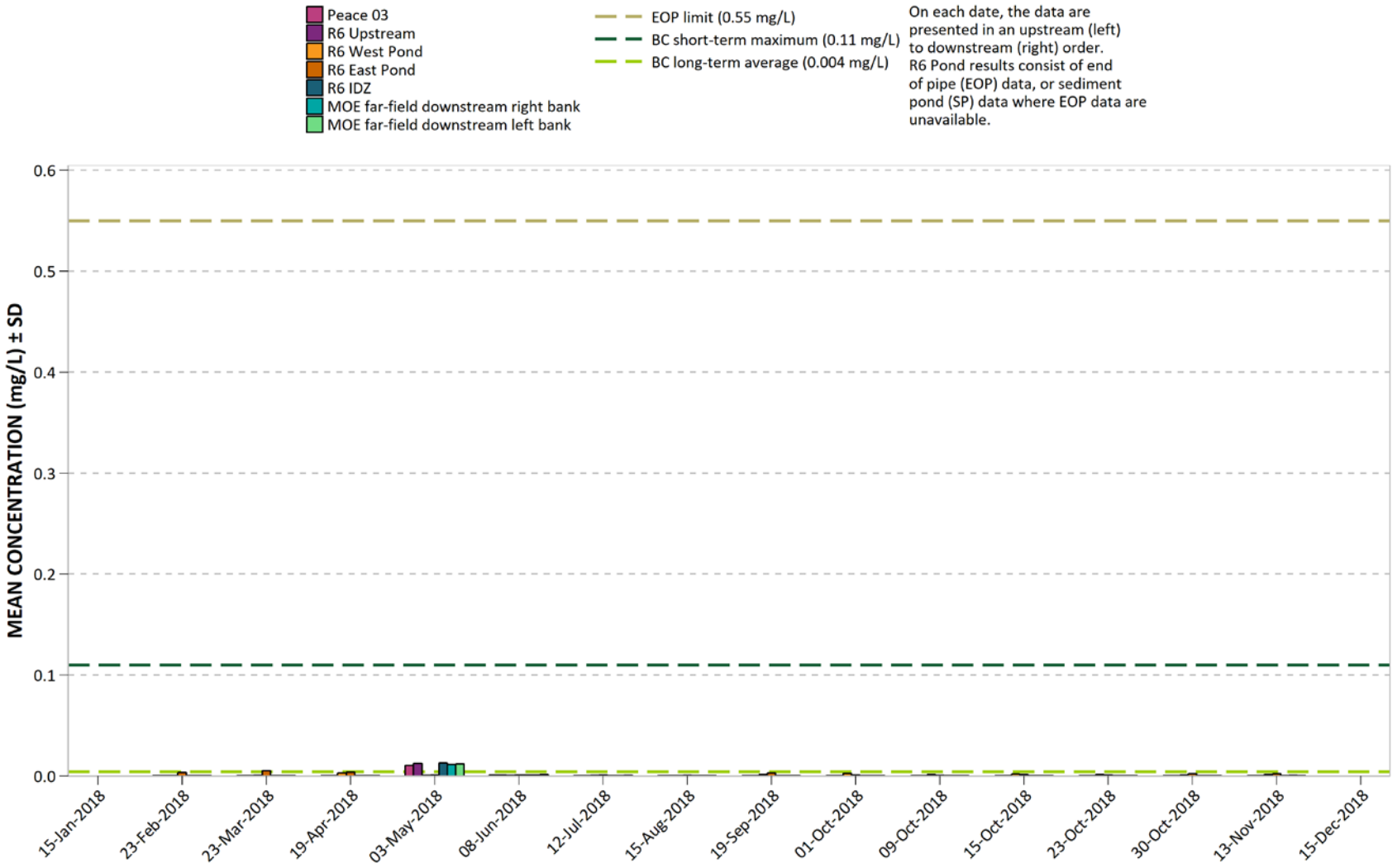


Figure 121. 2018 Peace River and RSEM R6 pond total copper (Cu).

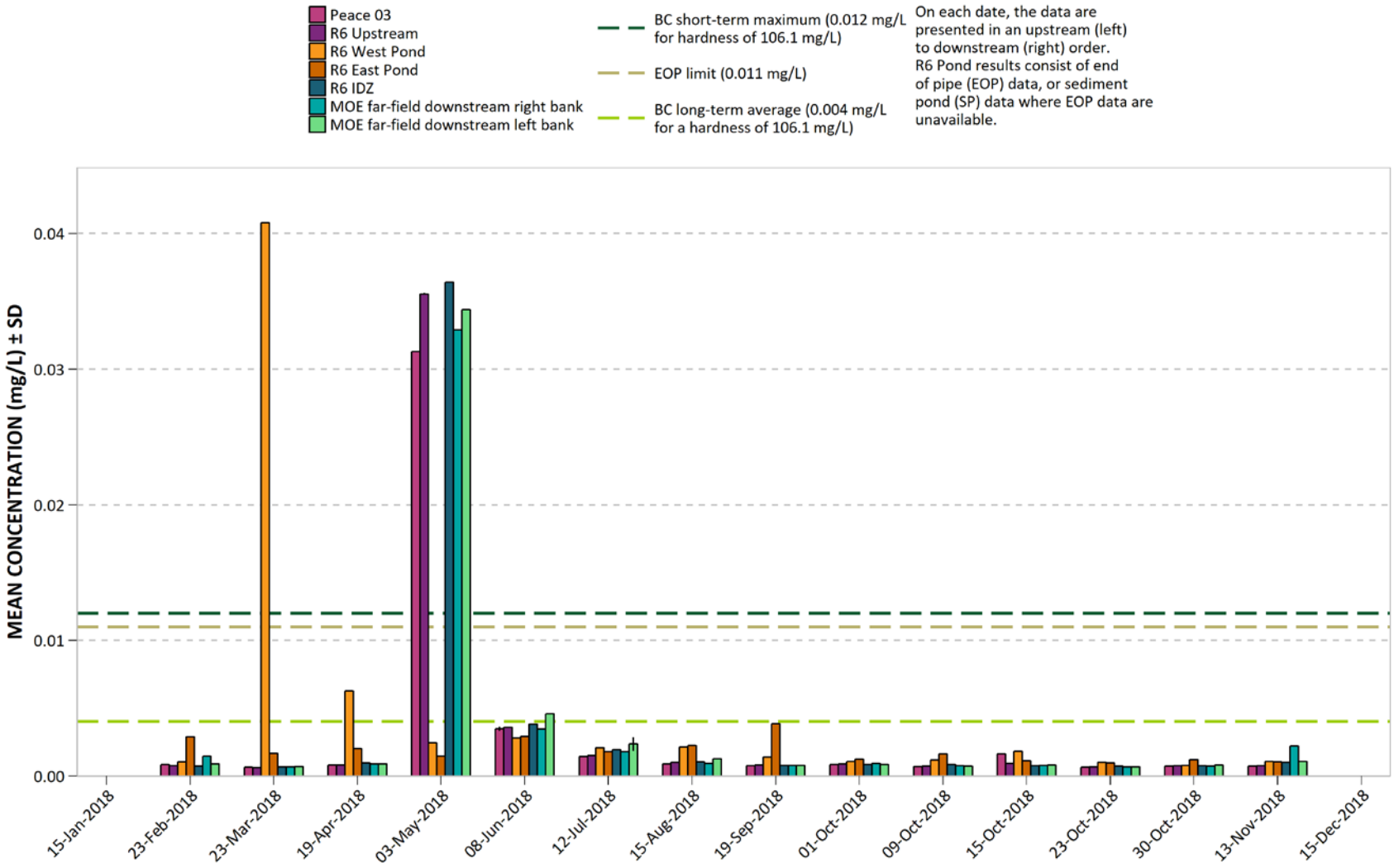


Figure 122. 2018 Peace River and RSEM R6 pond total iron (Fe).

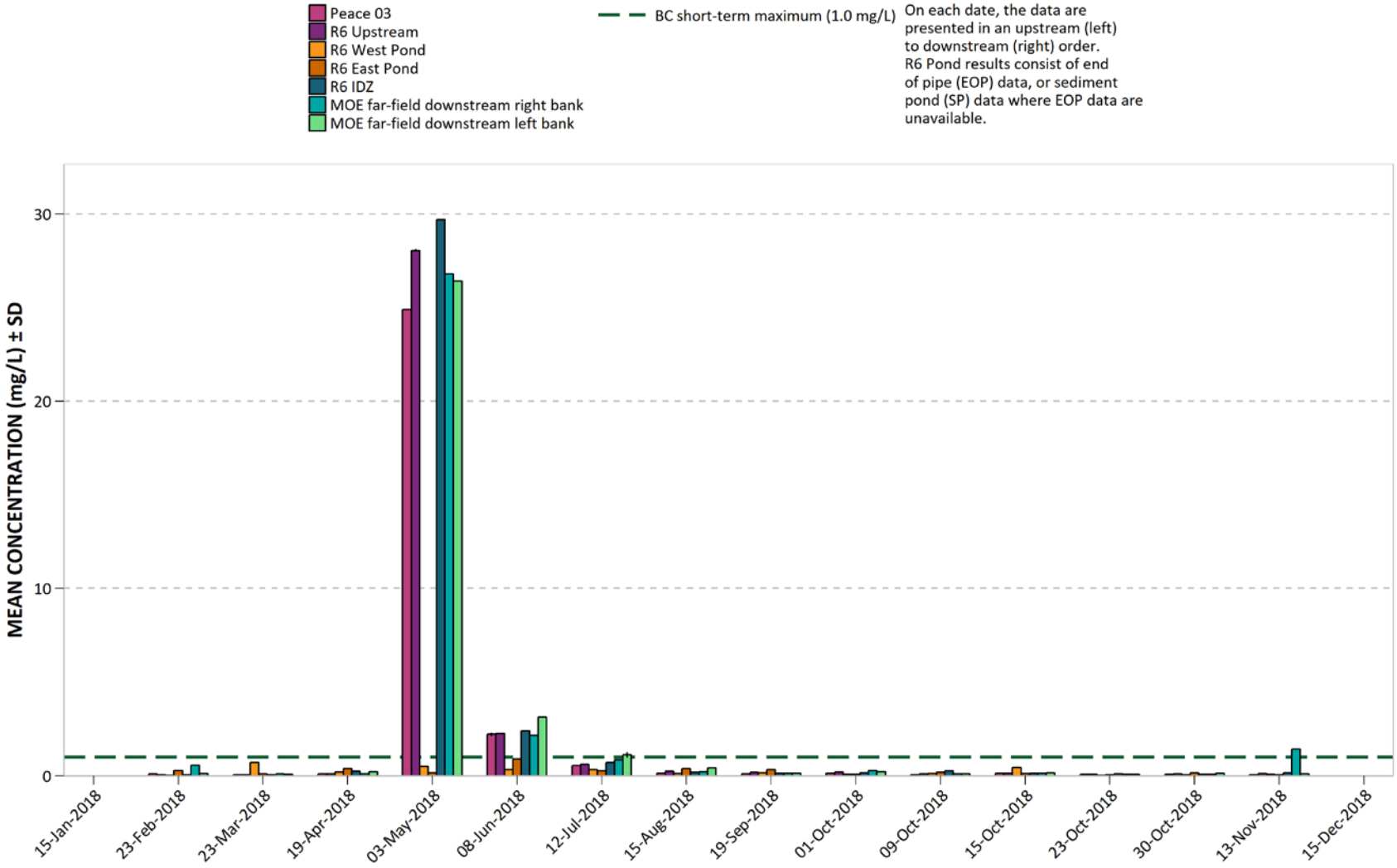


Figure 123. 2018 Peace River and RSEM R6 pond total lead (Pb).

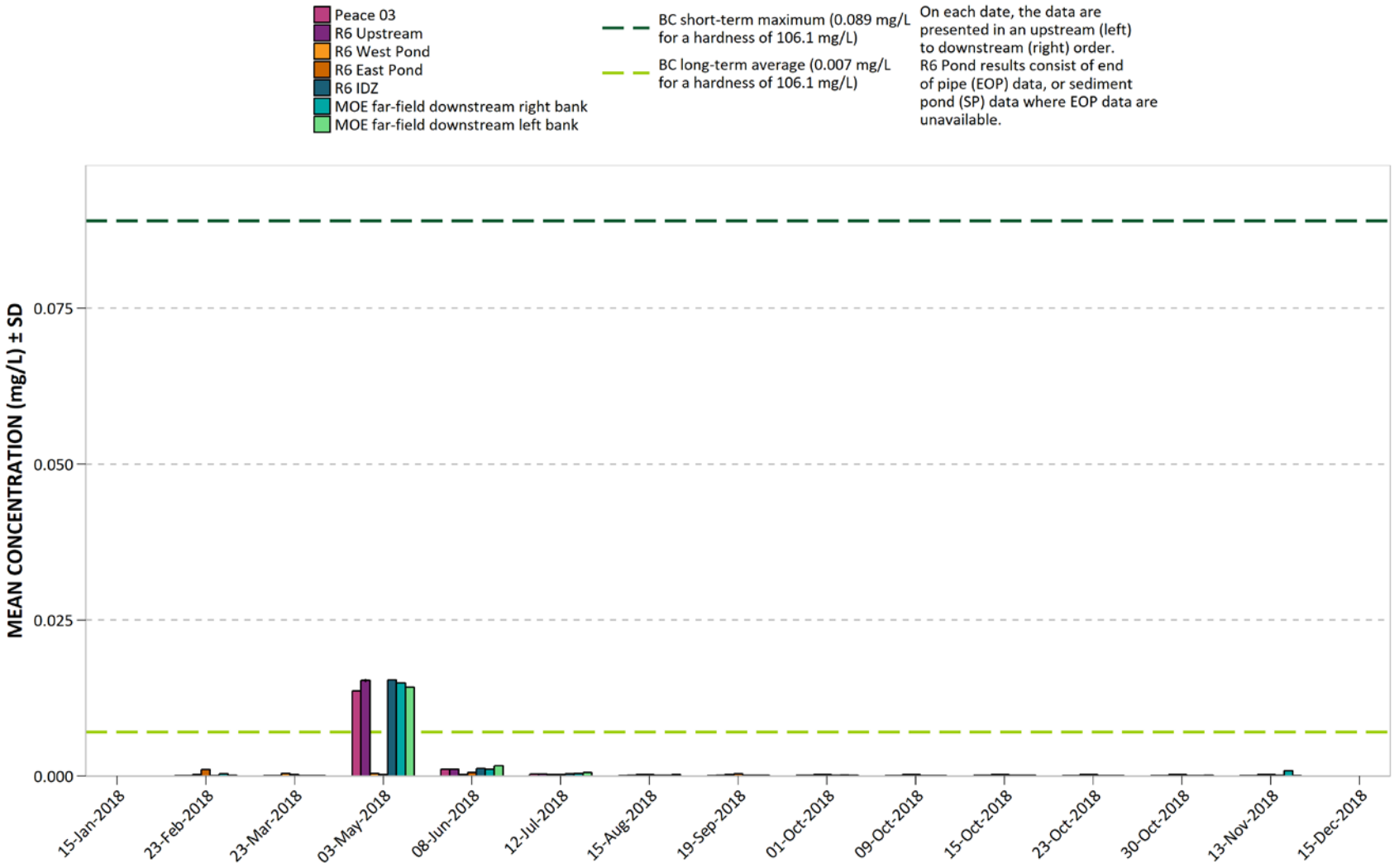


Figure 124. 2018 Peace River and RSEM R6 pond total lithium (Li).

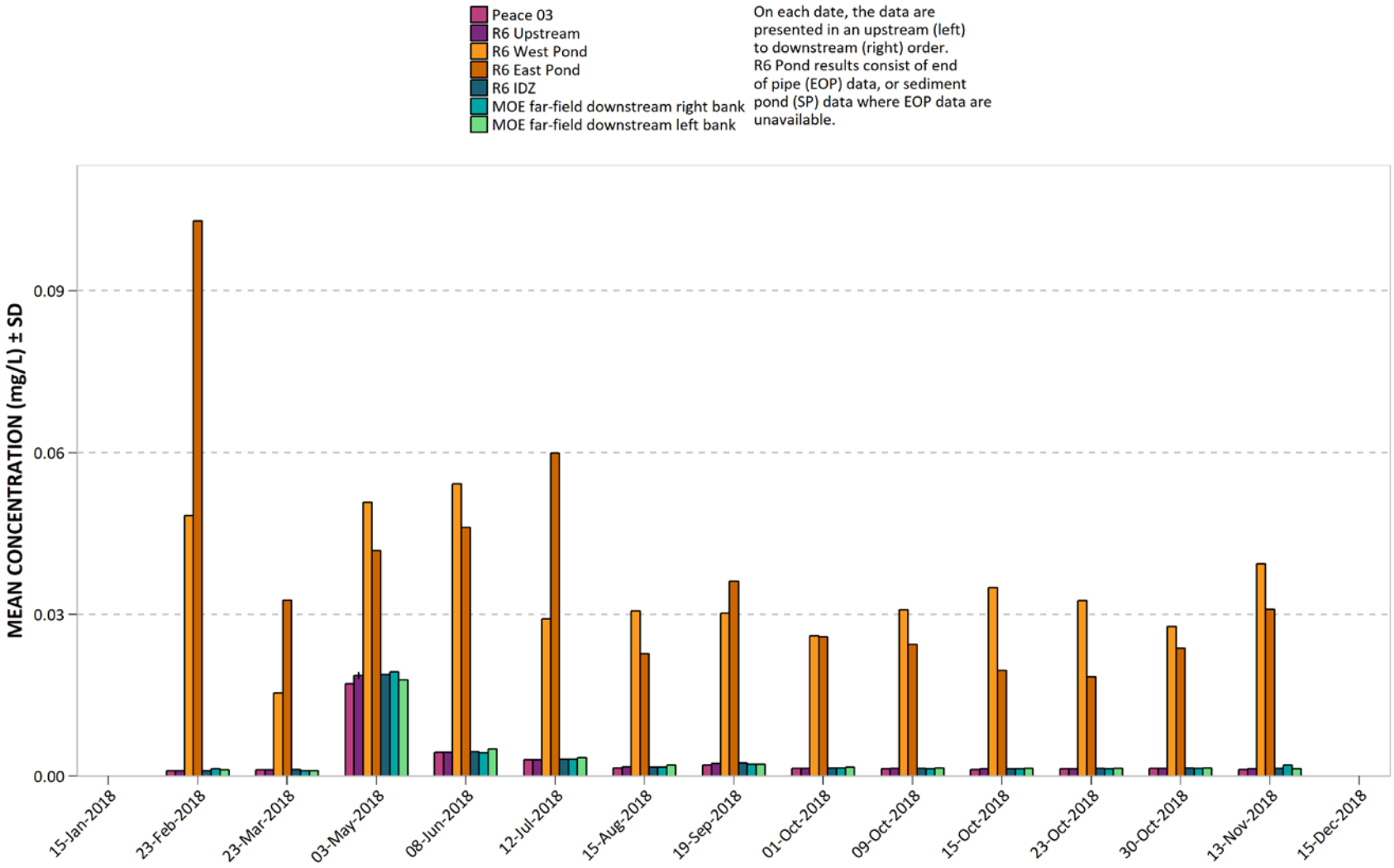


Figure 125. 2018 Peace River and RSEM R6 pond total magnesium (Mg).

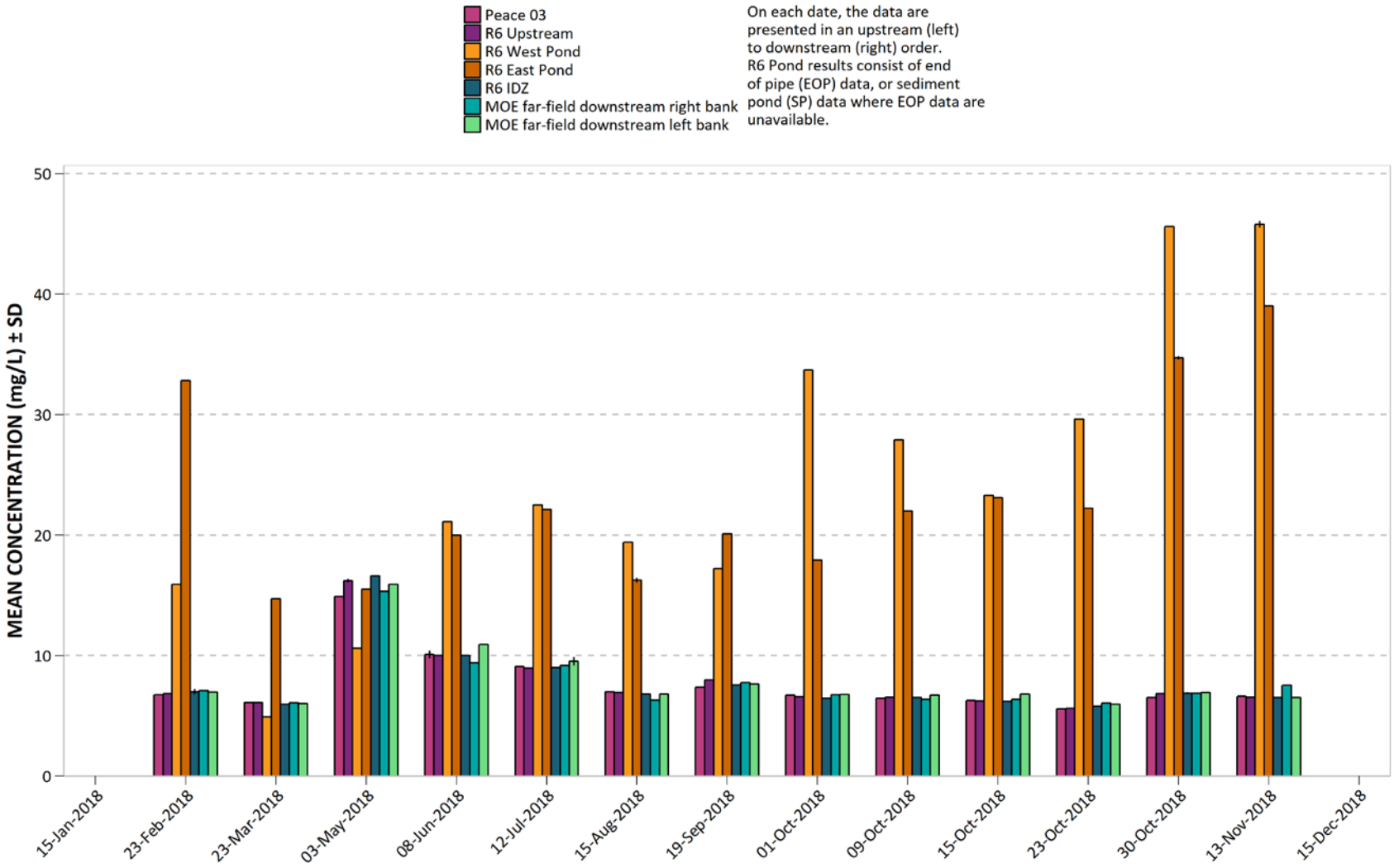


Figure 126. 2018 Peace River and RSEM R6 pond total manganese (Mn).

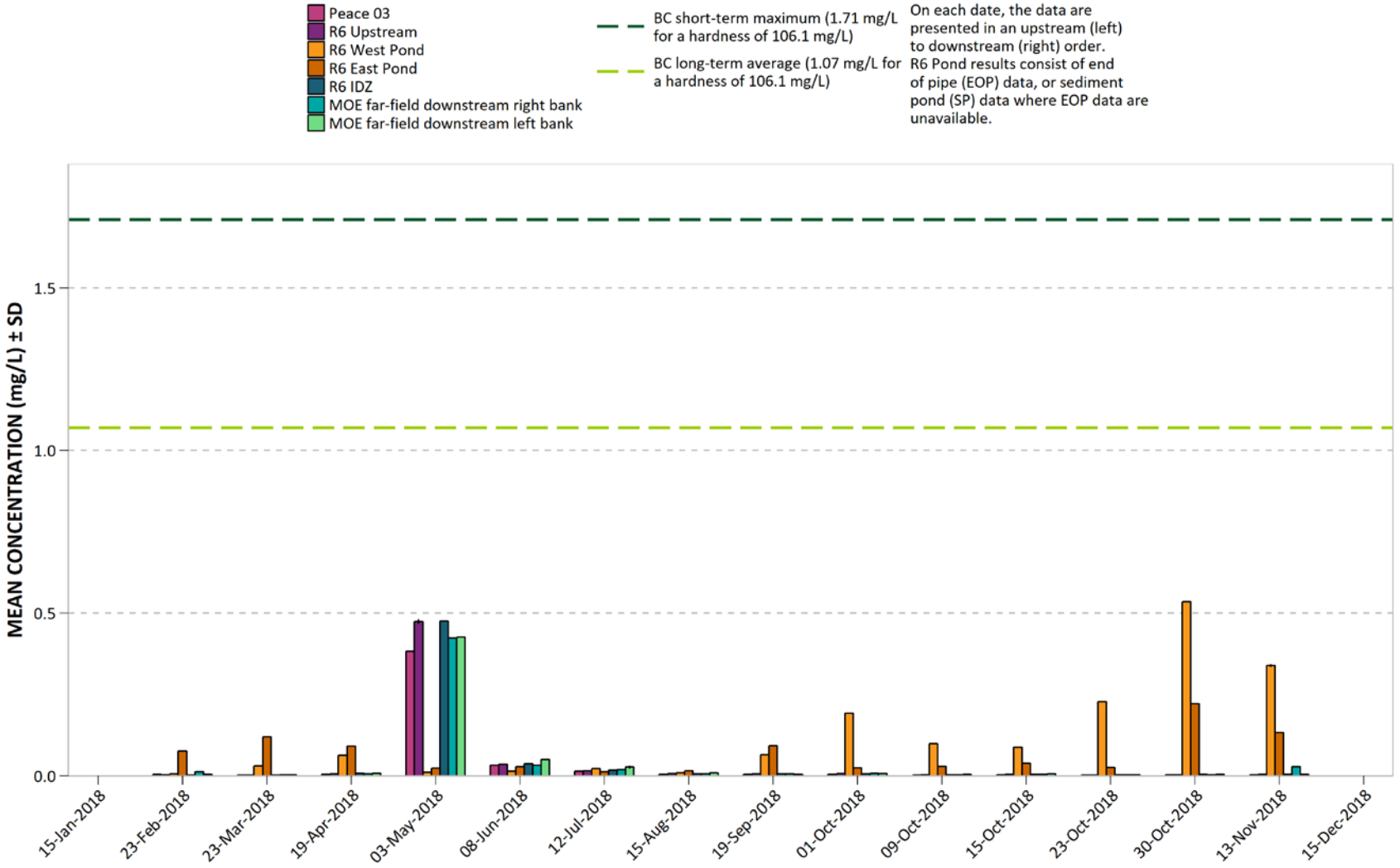
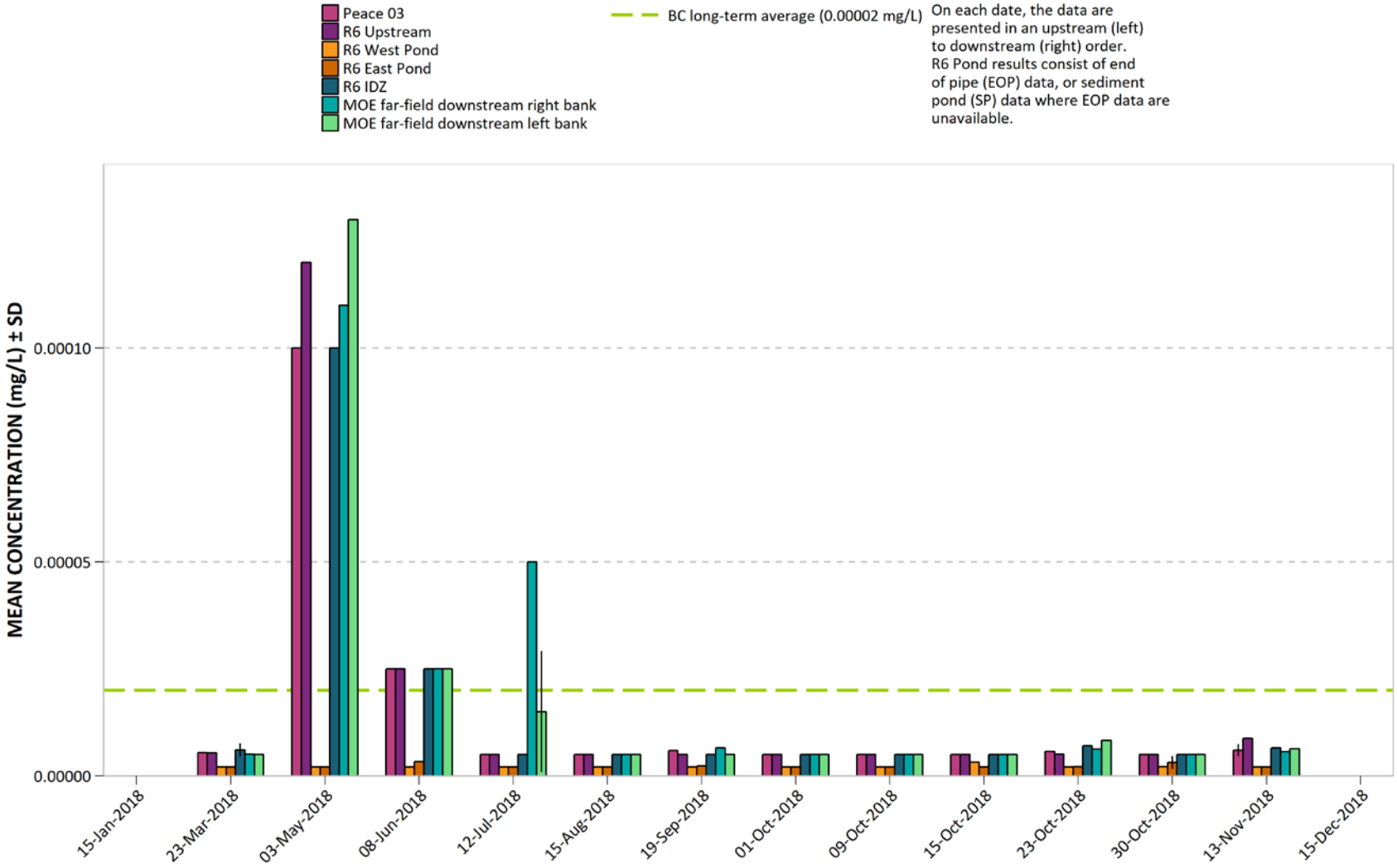


Figure 127. 2018 Peace River and RSEM R6 pond total mercury (Hg).



Results lower than the MDL are assigned the MDL value, which varies for total mercury depending on matrix effects. At various times in 2018 it was 0.000005, 0.000025 or 0.0001 mg/L in the Peace River, while the MDL was 0.000002 mg/L in the R5b pond. Most results in 2018 were assigned the MDL value.

Figure 128. 2018 Peace River and RSEM R6 pond total molybdenum (Mo).

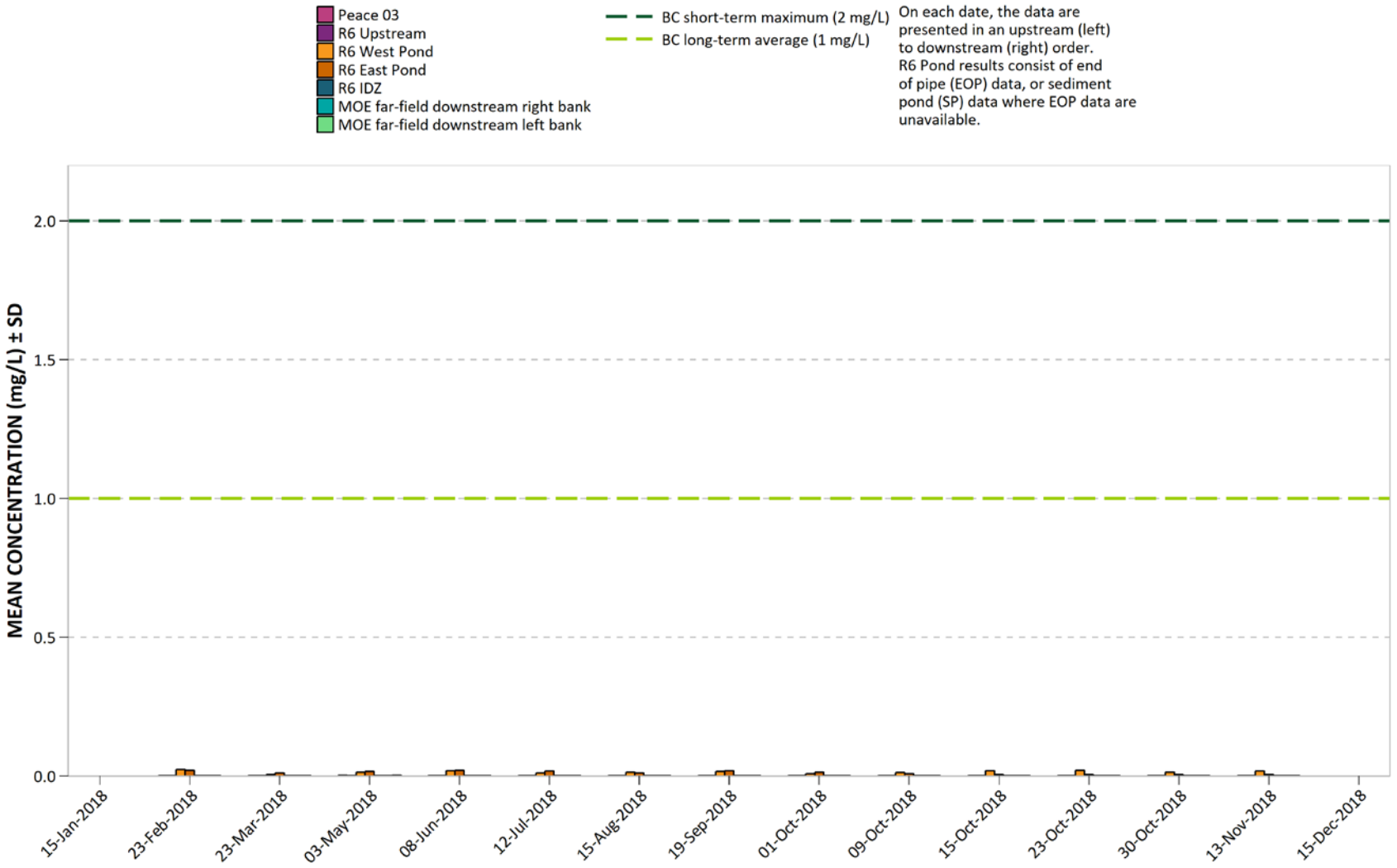


Figure 129. 2018 Peace River and RSEM R6 pond total nickel (Ni).

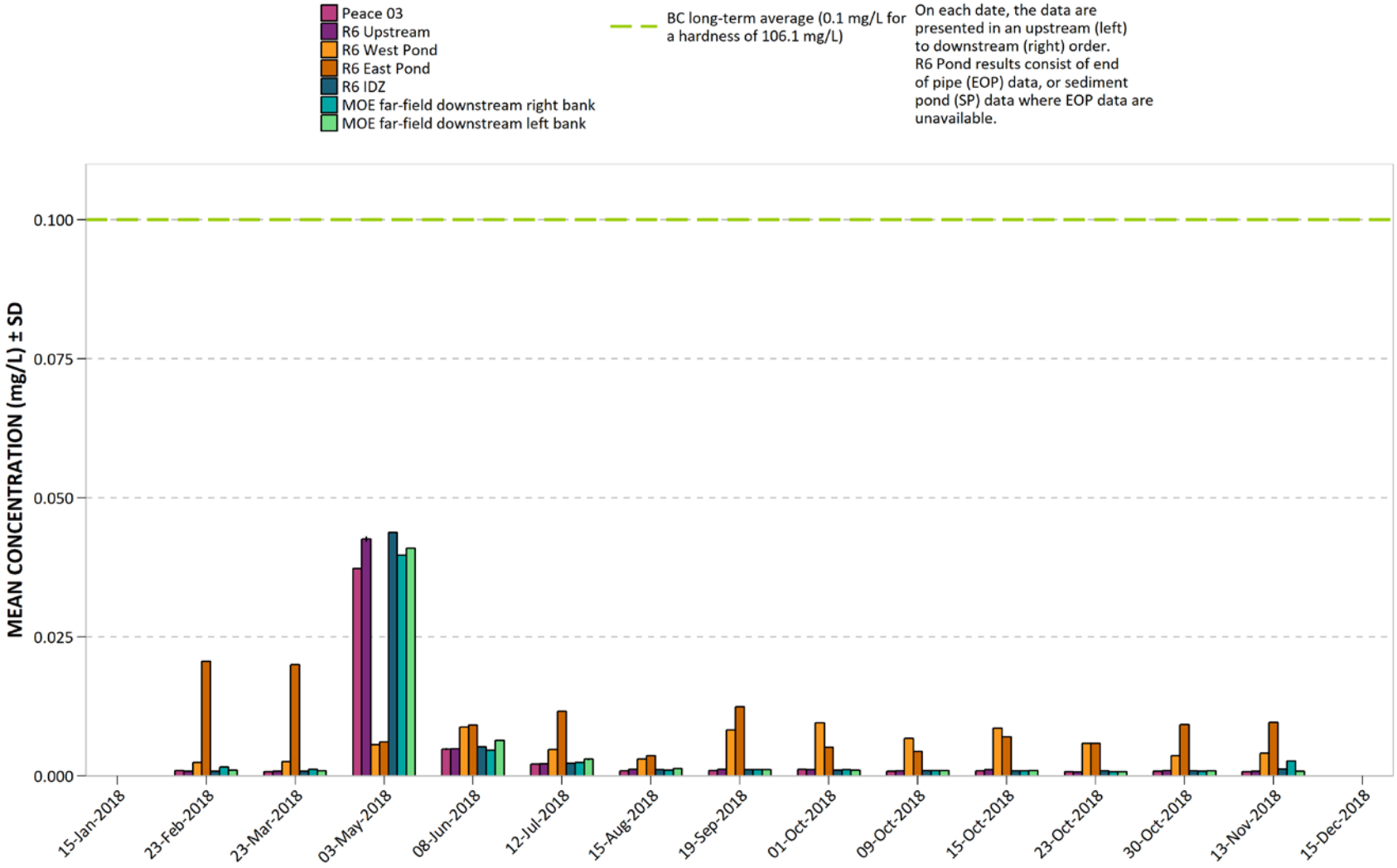


Figure 130. 2018 Peace River and RSEM R6 pond total potassium (K).

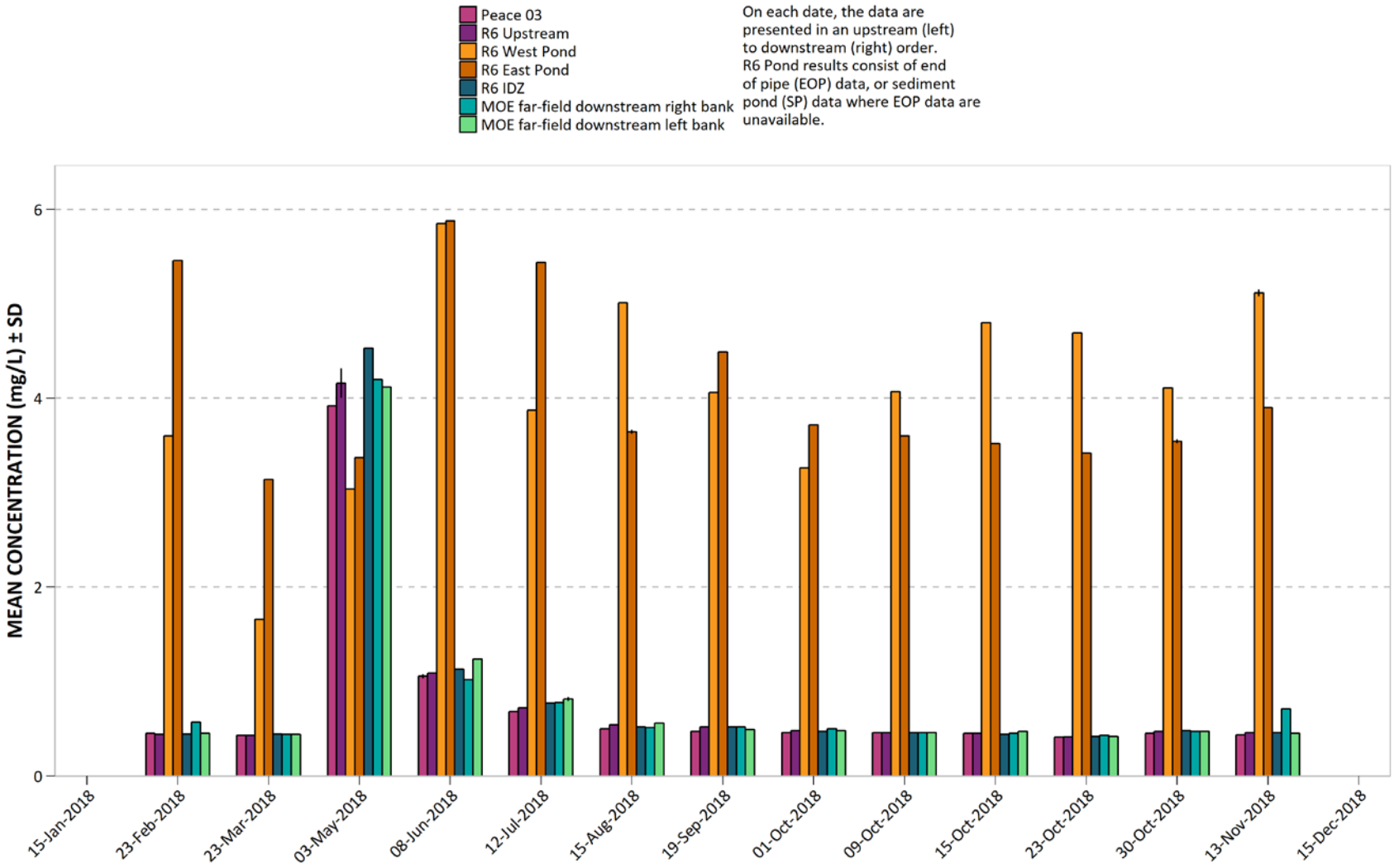


Figure 131. 2018 Peace River and RSEM R6 pond total selenium (Se).

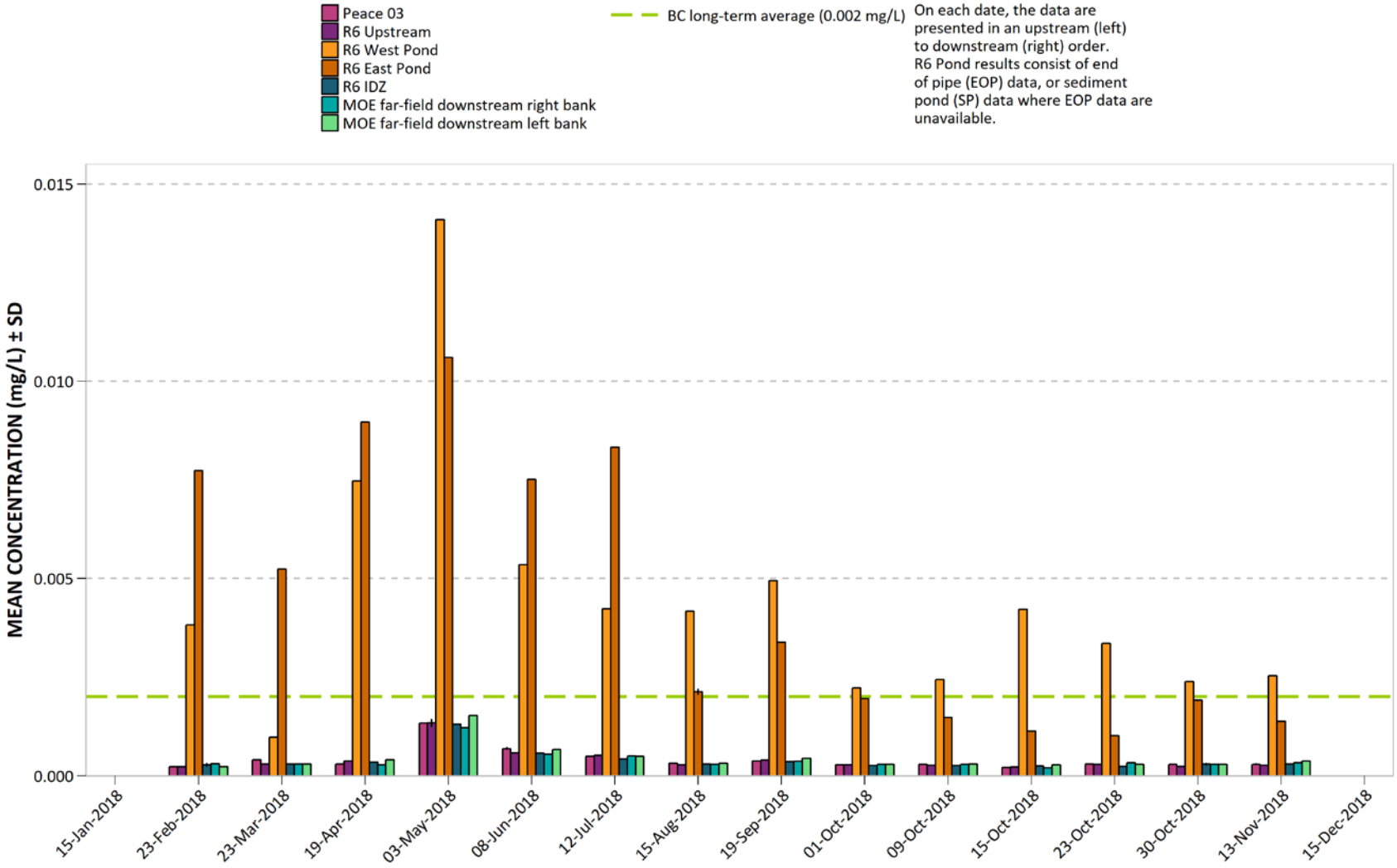


Figure 132. 2018 Peace River and RSEM R6 pond total silicon (Si).

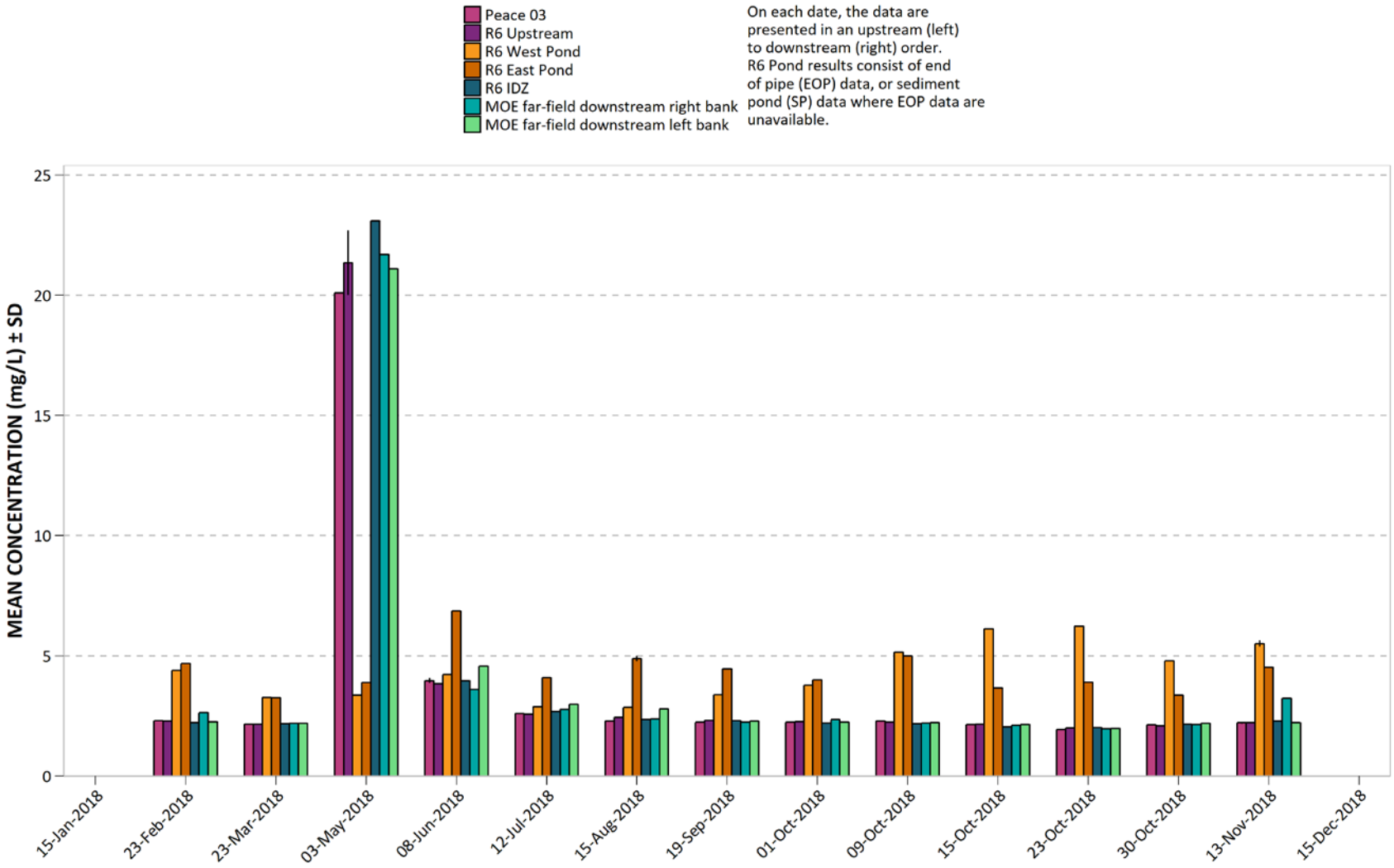


Figure 133. 2018 Peace River and RSEM R6 pond total silver (Ag).

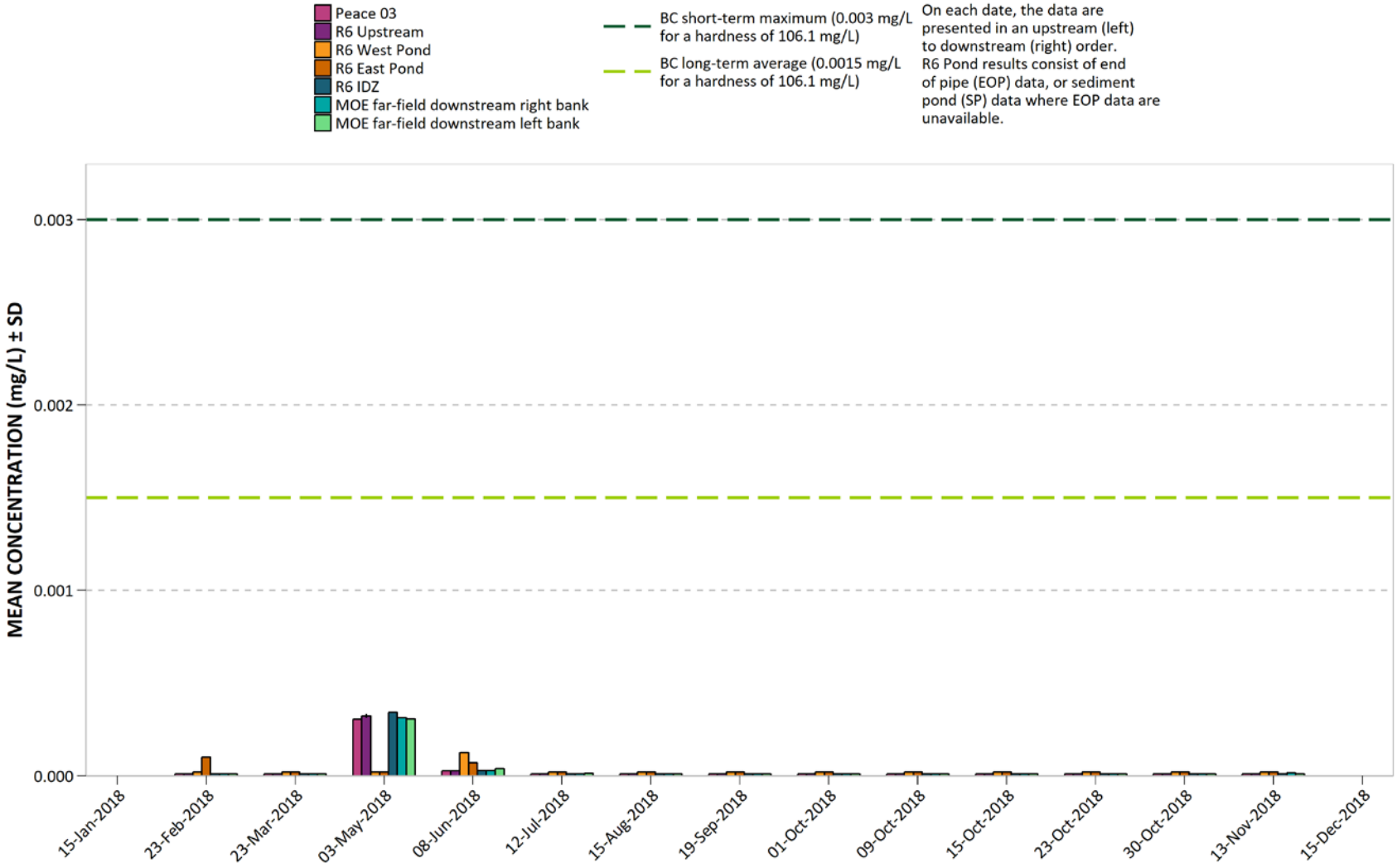


Figure 134. 2018 Peace River and RSEM R6 pond total sodium (Na).

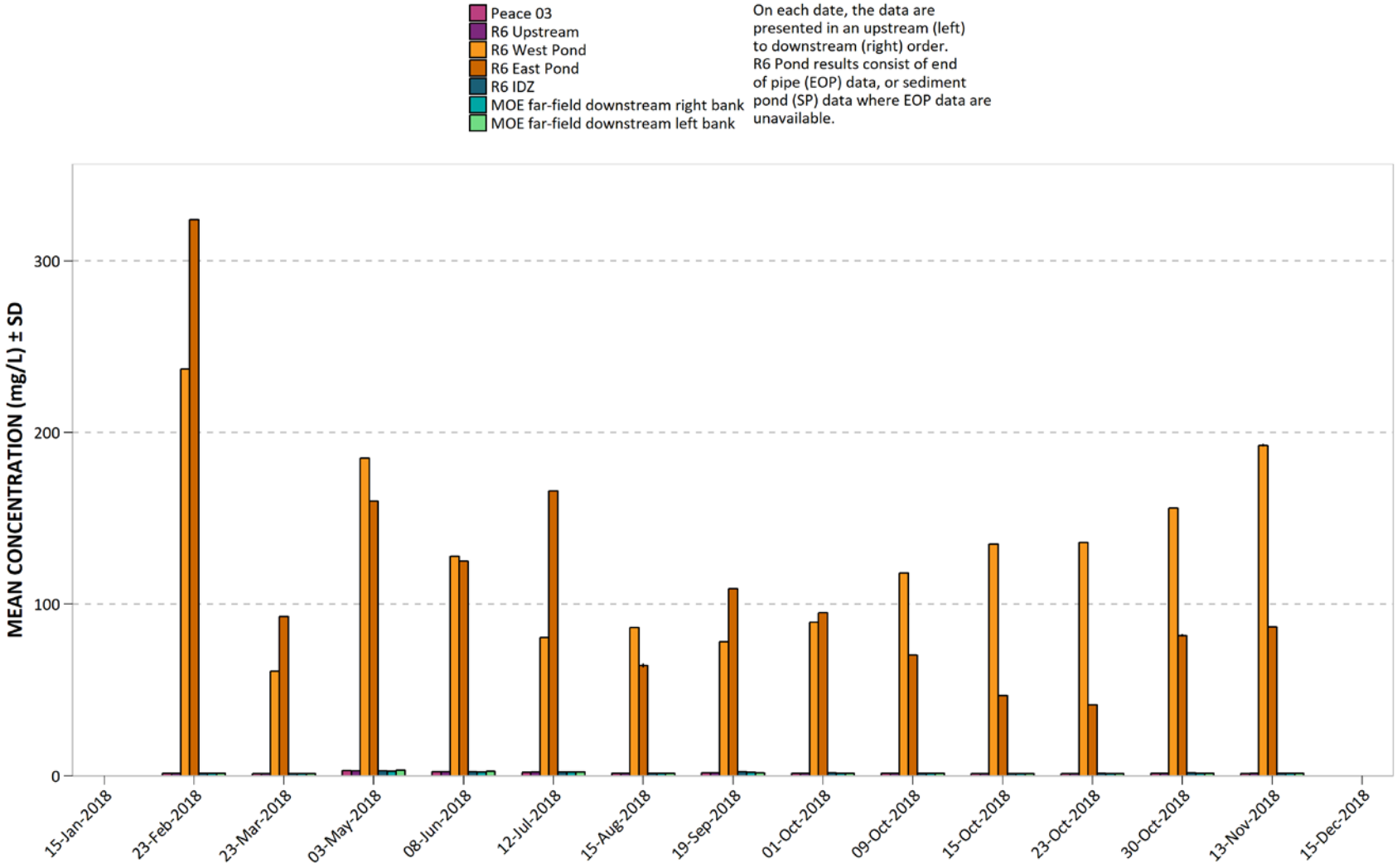


Figure 135. 2018 Peace River and RSEM R6 pond total strontium (Sr).

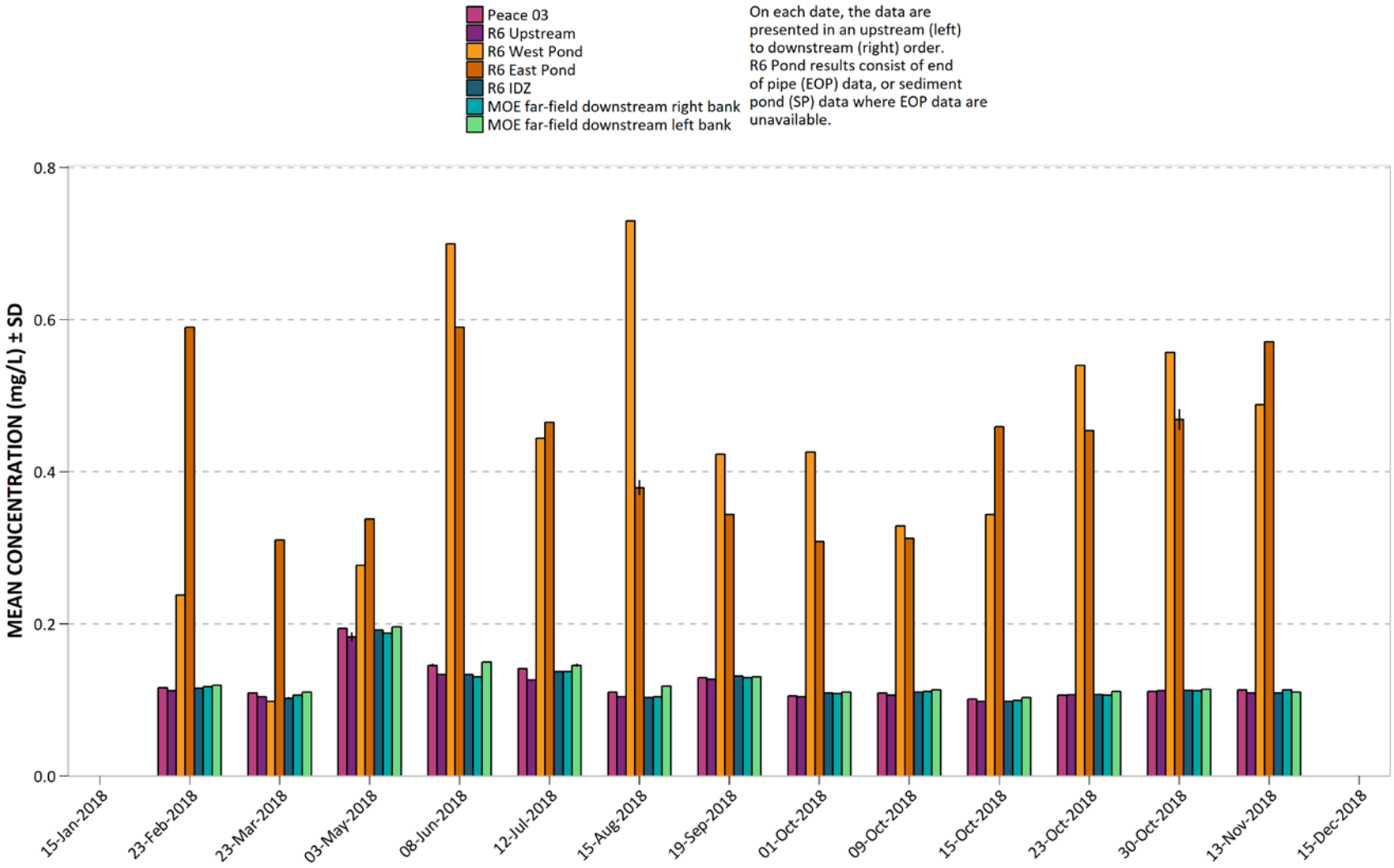


Figure 136. 2018 Peace River and RSEM R6 pond total sulfur (S).

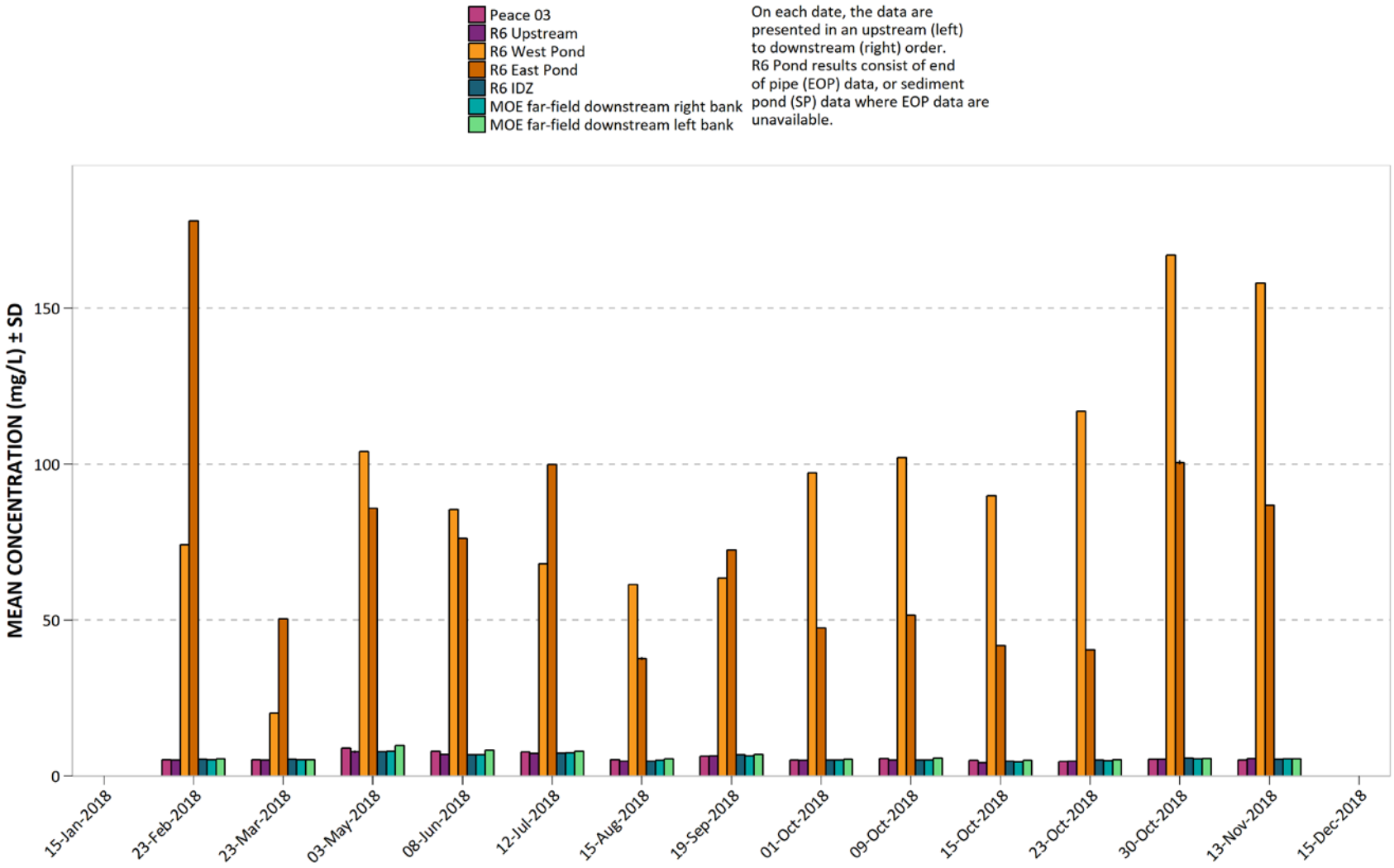
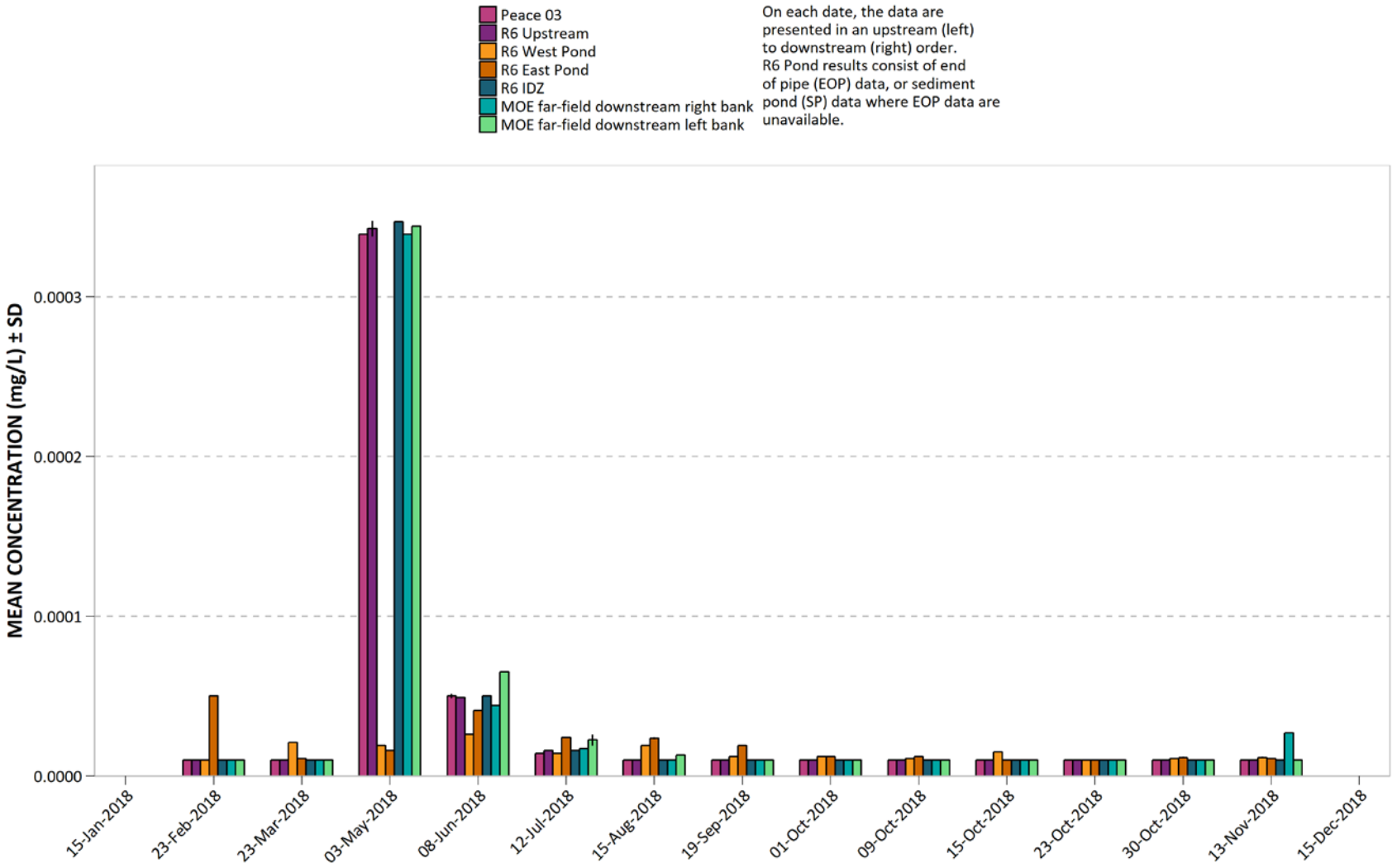
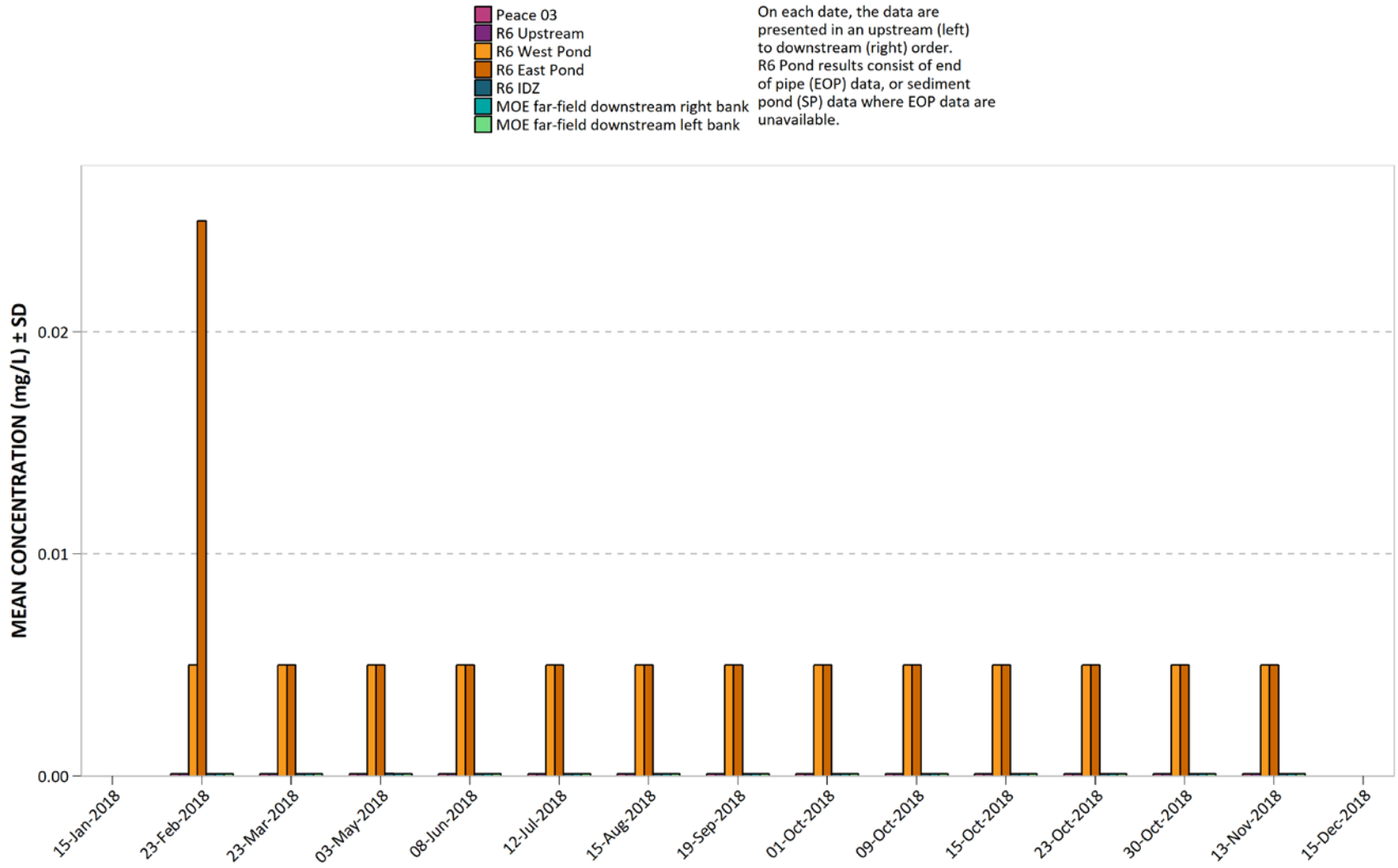


Figure 137. 2018 Peace River and RSEM R6 pond total thallium (Tl).



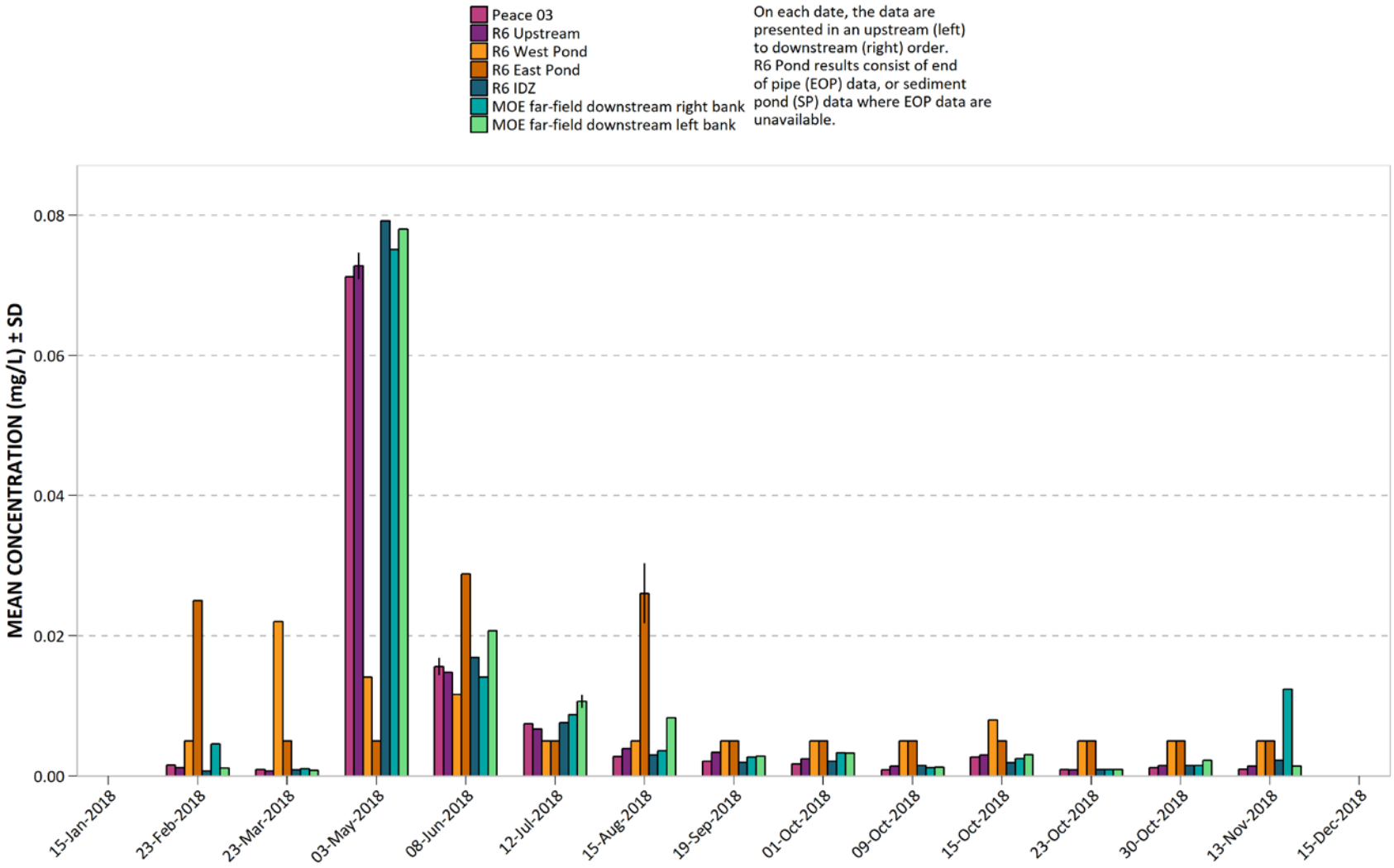
Results less than the MDL were assigned the MDL value of 0.00001 mg/L (R5b pond and Peace River).

Figure 138. 2018 Peace River and RSEM R6 pond total tin (Sn).



Results less than the MDL were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.0001 mg/L (Peace River).

Figure 139. 2018 Peace River and RSEM R6 pond total titanium (Ti).



R5b pond results less than the MDL were assigned the MDL value of 0.005 mg/L.

Figure 140. 2018 Peace River and RSEM R6 pond total uranium (U).

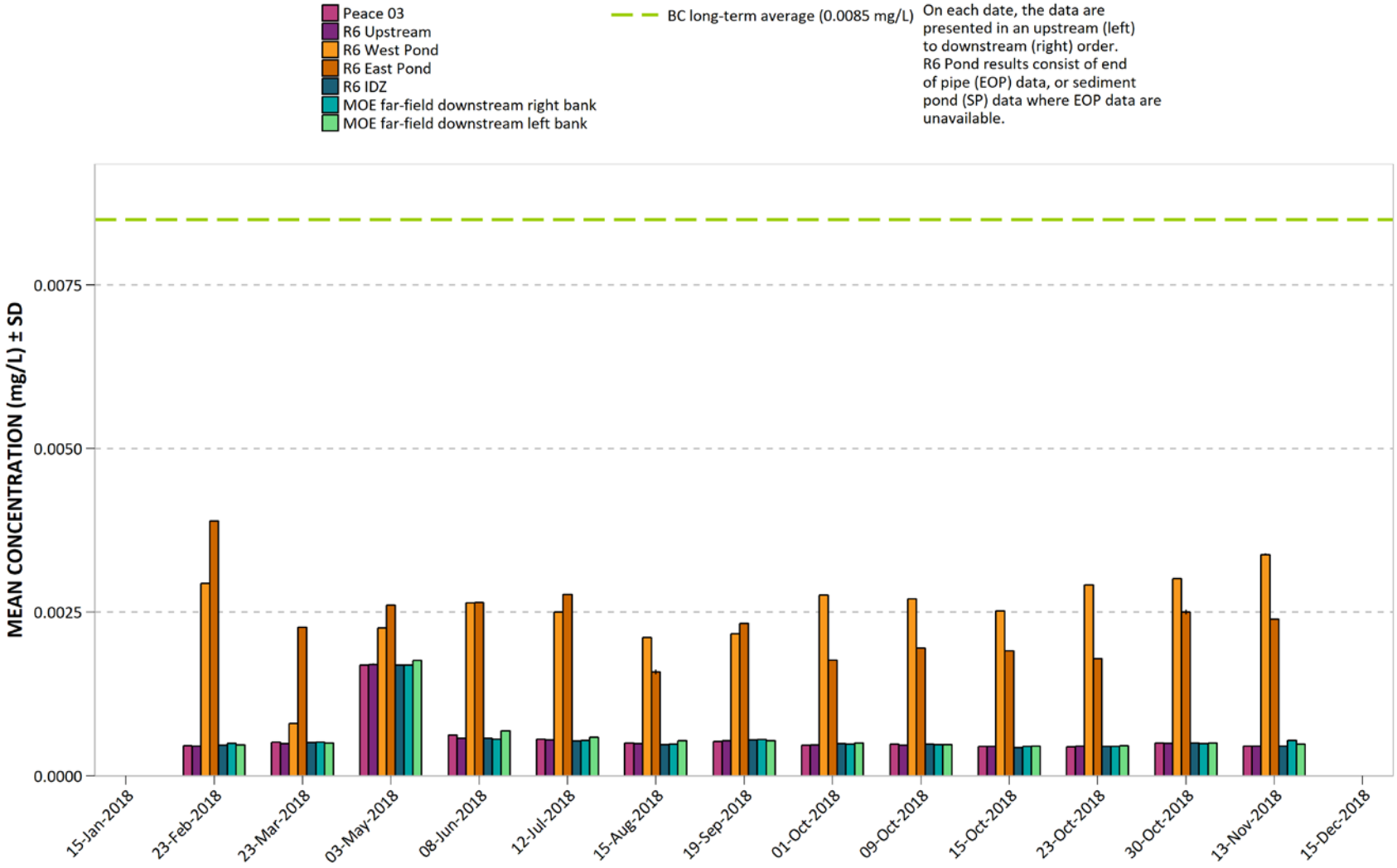
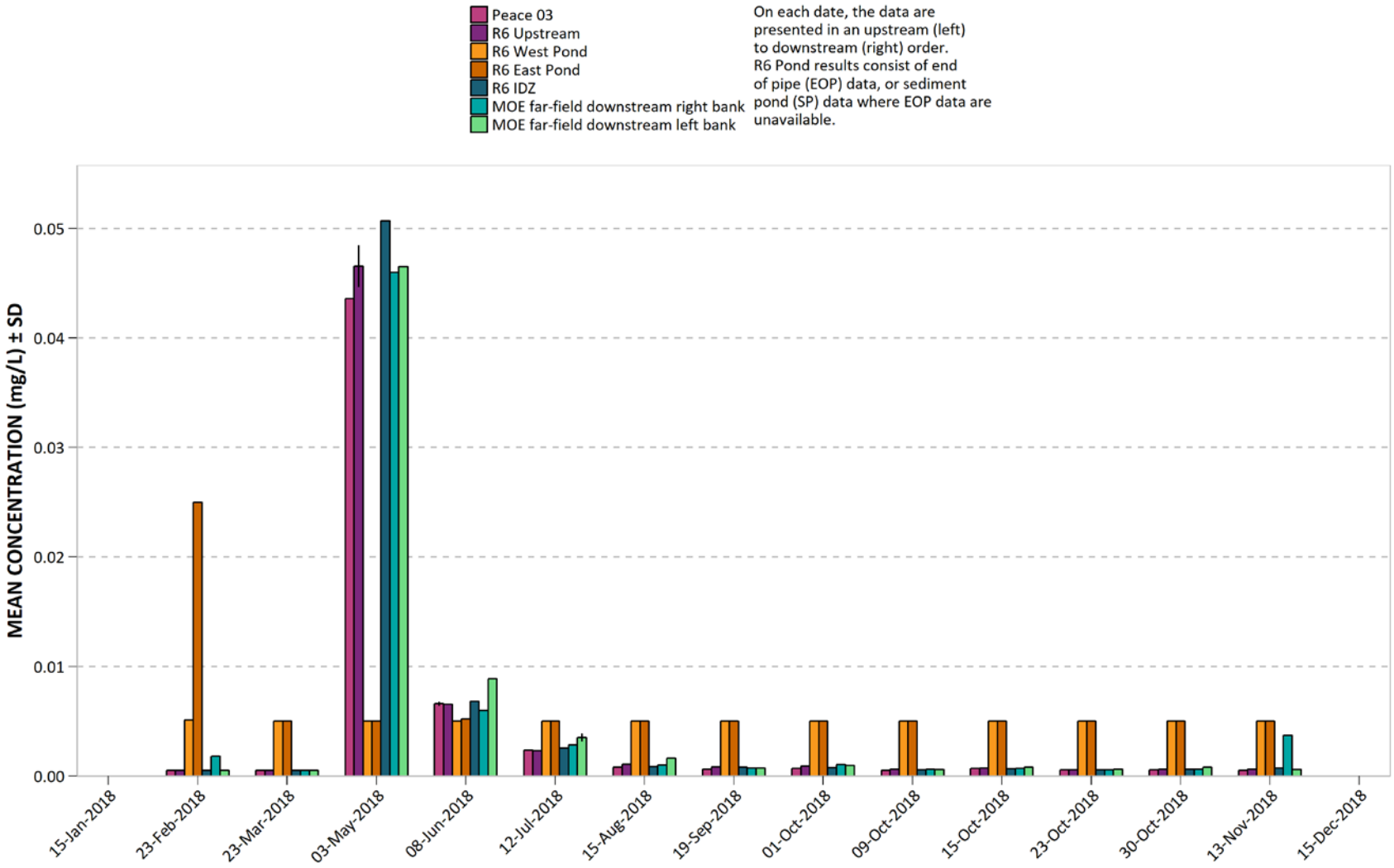
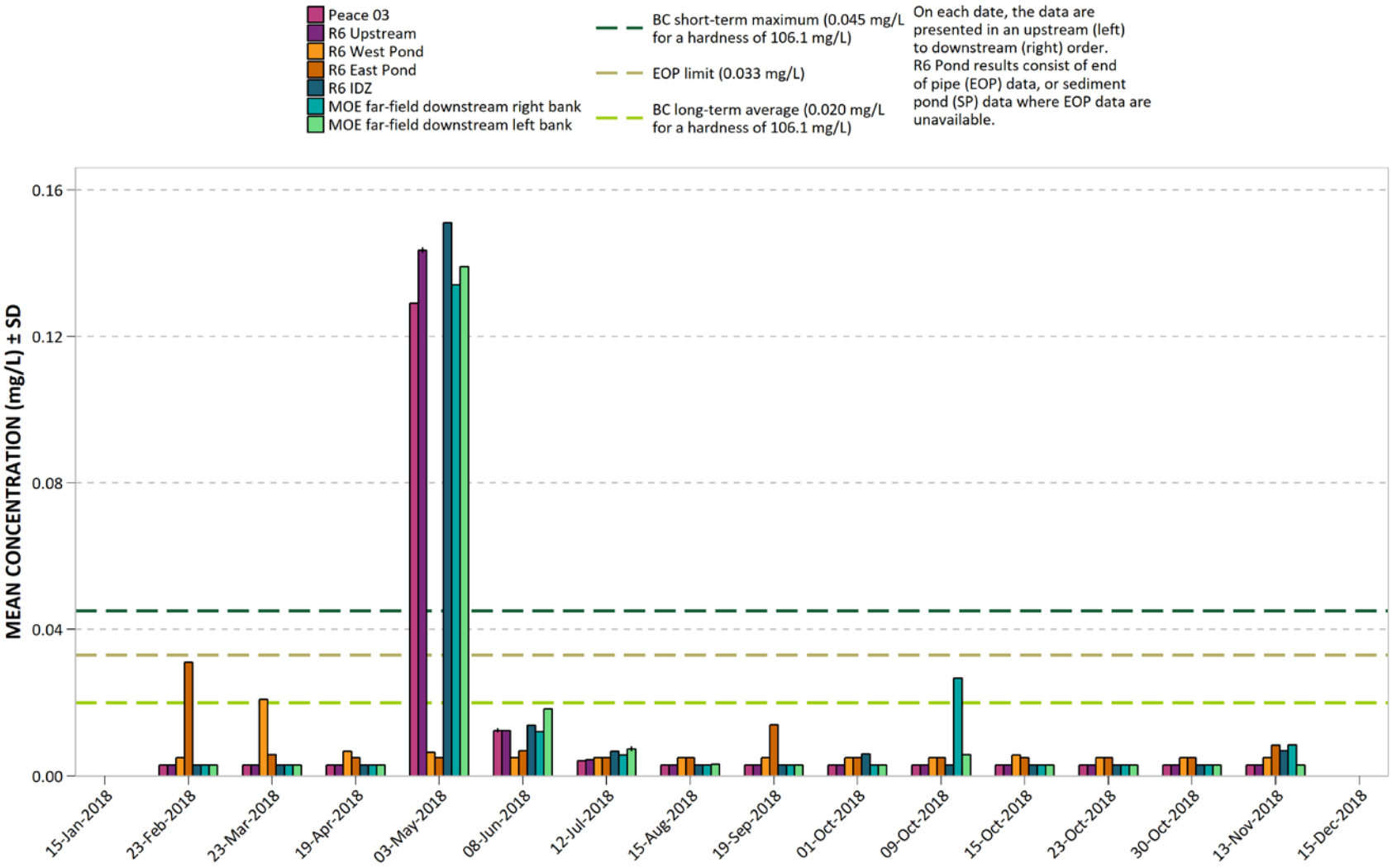


Figure 141. 2018 Peace River and RSEM R6 pond total vanadium (V).



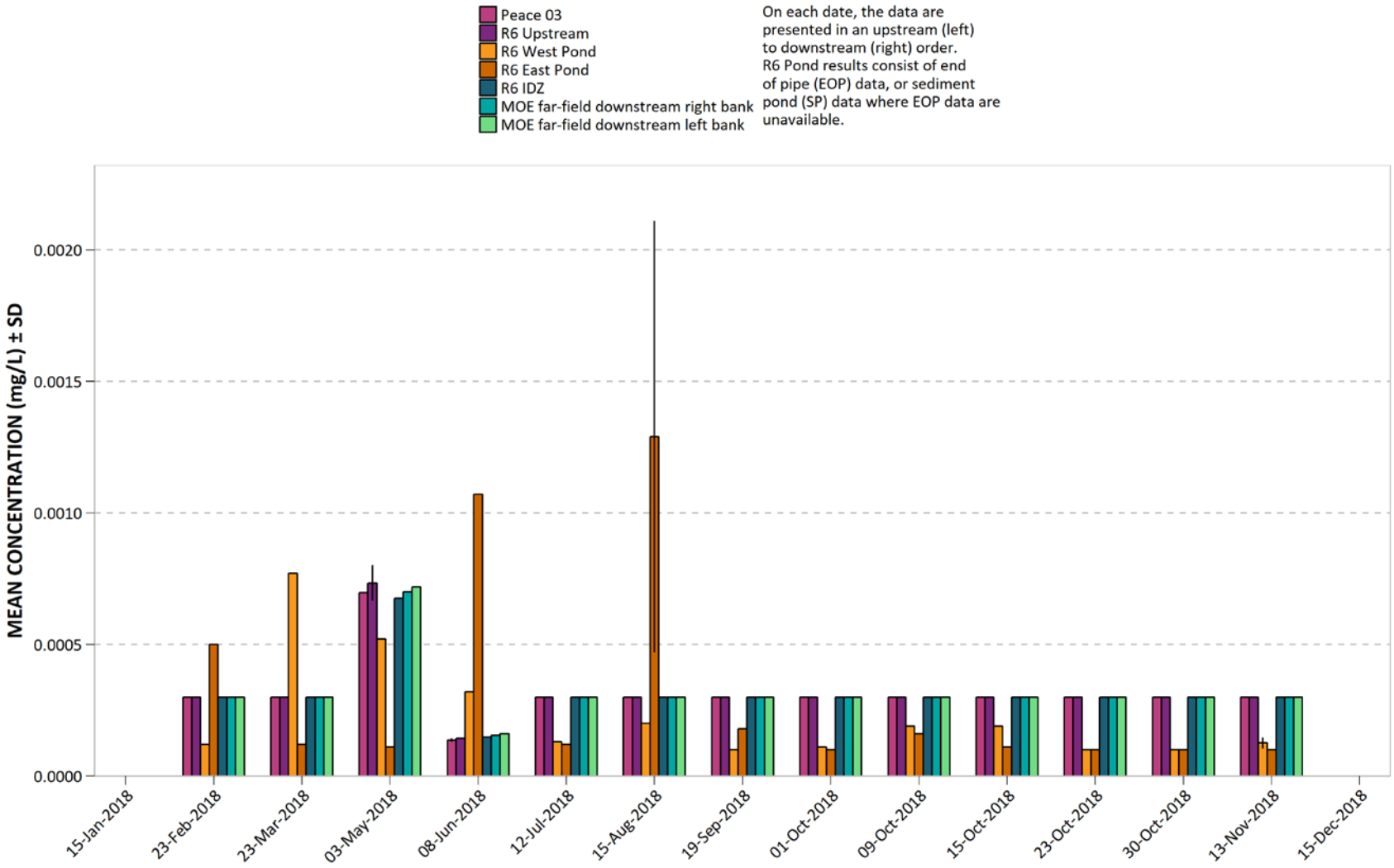
Results less than the MDL were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.0005 mg/L (Peace River).

Figure 142. 2018 Peace River and RSEM R6 pond total zinc (Zn).



Results less than the MDL were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.003 mg/L (Peace River).

Figure 143. 2018 Peace River and RSEM R6 pond total zirconium (Zr).



R5b pond results less than the MDL were assigned the MDL value of 0.0003 mg/L. The MDL in the Peace River varied in 2018 between 0.00006 and 0.0003 mg/L, such that much of the data were assigned the MDL of 0.0003 mg/L while lower values exist on some dates.

Figure 144. 2018 Peace River and RSEM R6 pond dissolved aluminum (Al).

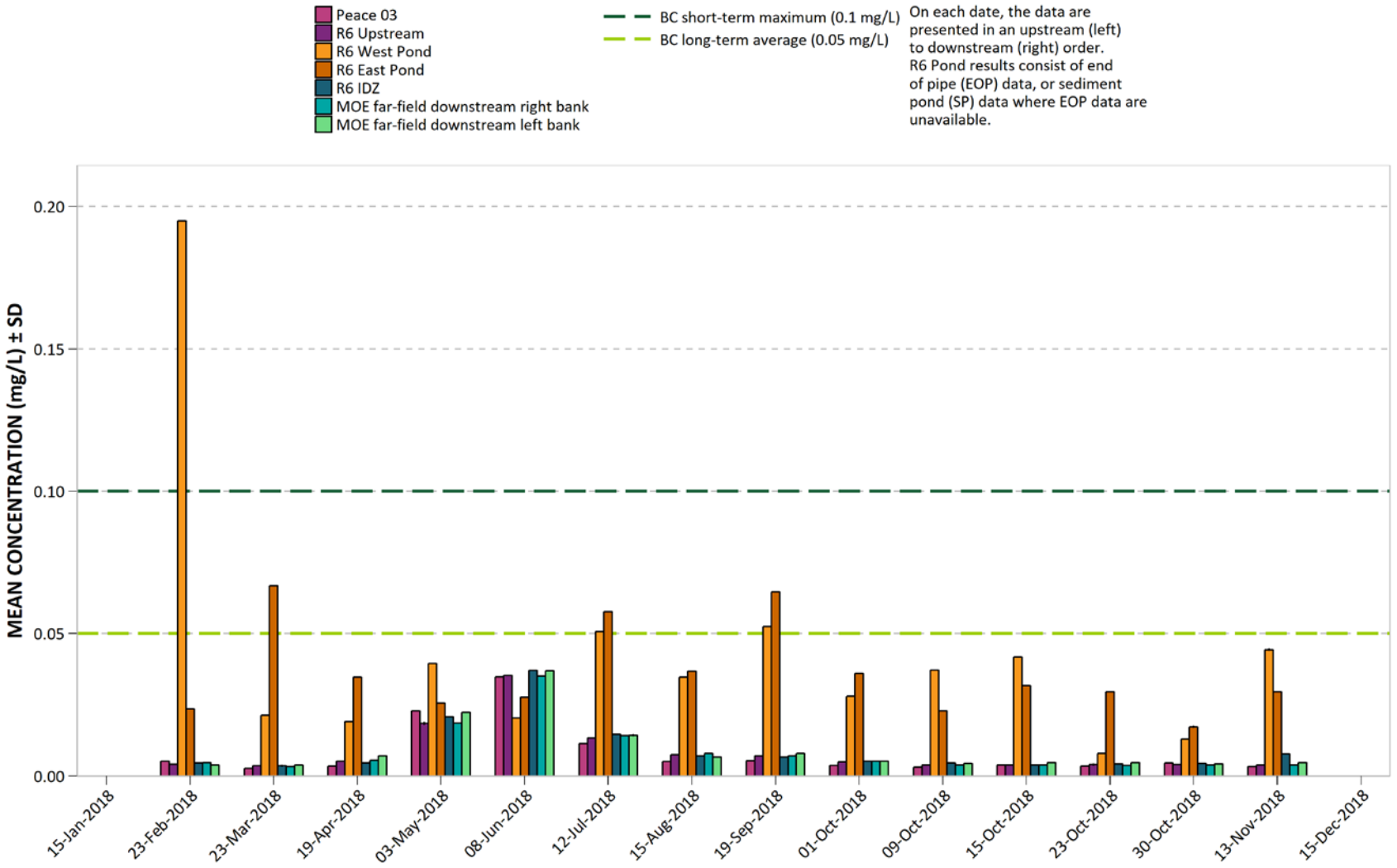
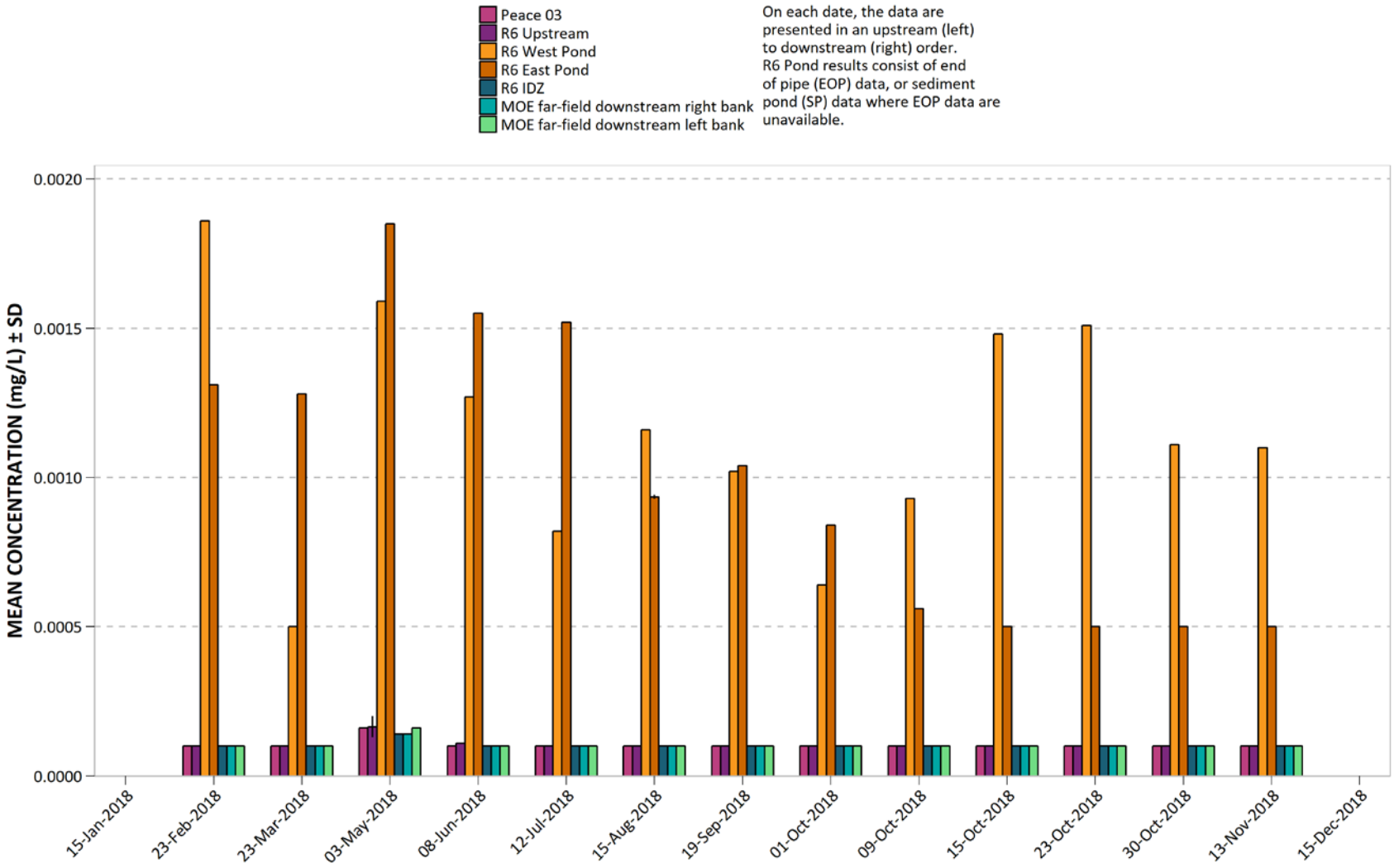


Figure 145. 2018 Peace River and RSEM R6 pond dissolved antimony (Sb).



Results less than the MDL were assigned the MDL value of 0.0005 mg/L (R5b pond) or 0.0001 mg/L (Peace River).

Figure 146. 2018 Peace River and RSEM R6 pond dissolved arsenic (As).

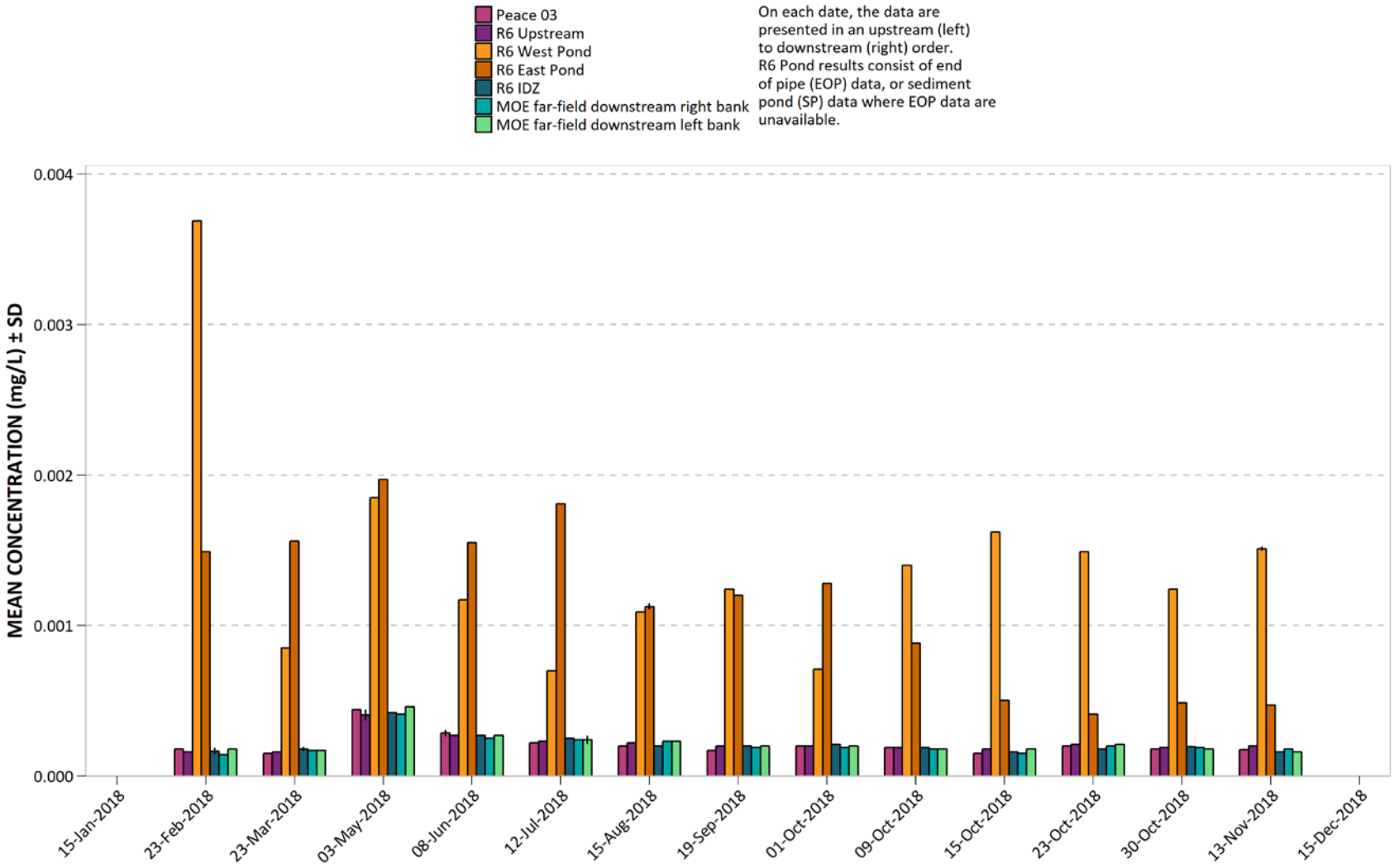


Figure 147. 2018 Peace River and RSEM R6 pond dissolved barium (Ba).

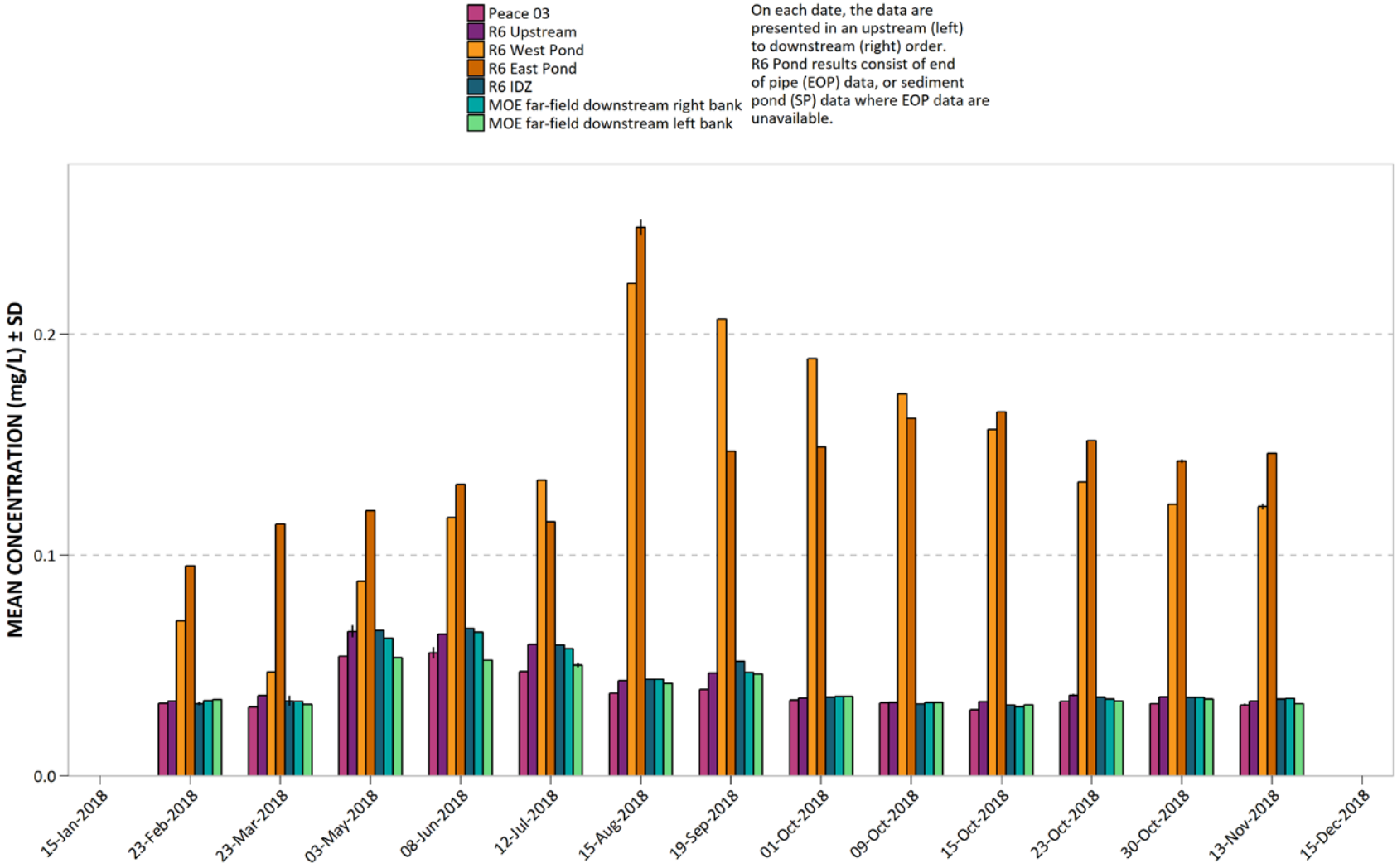
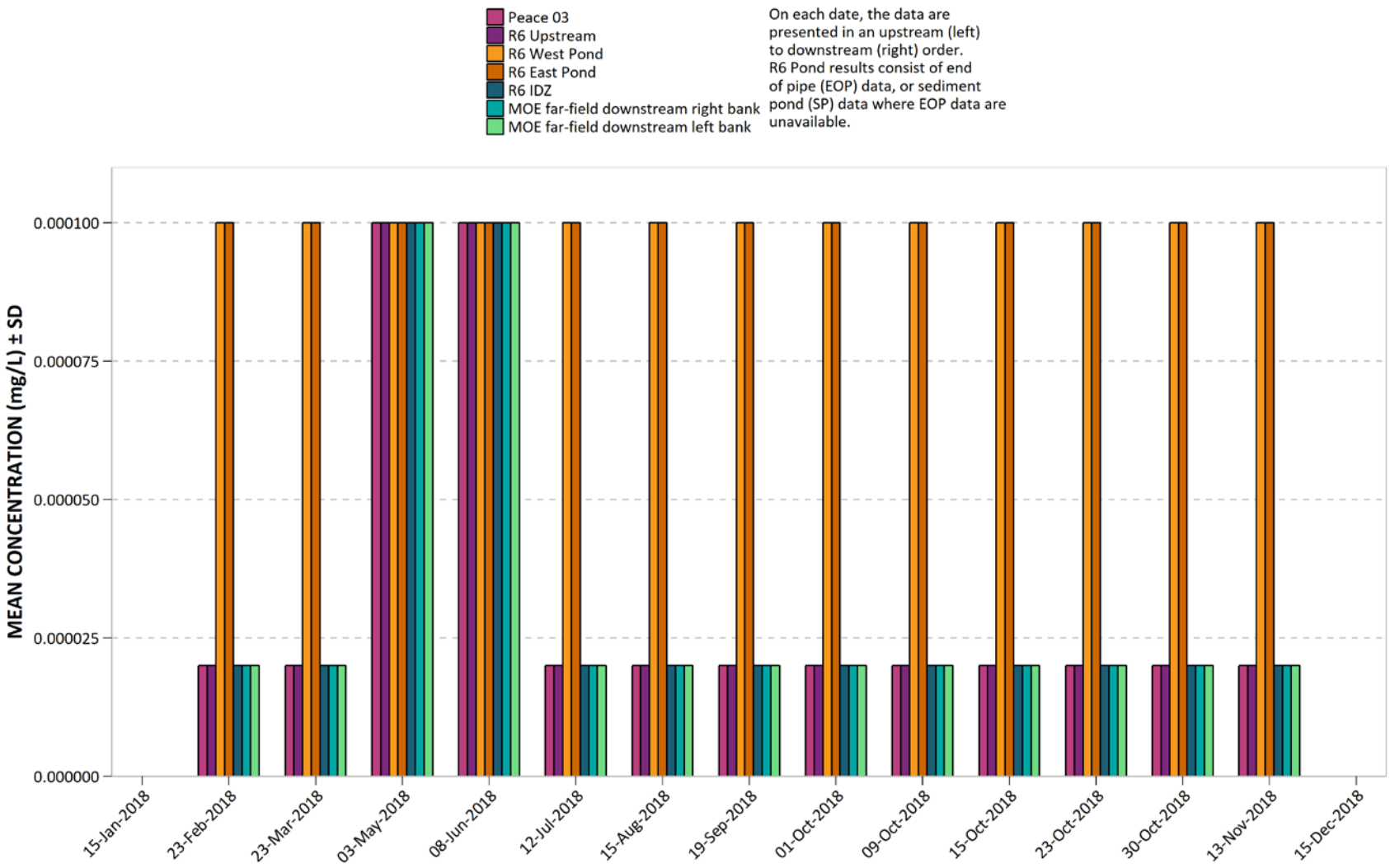
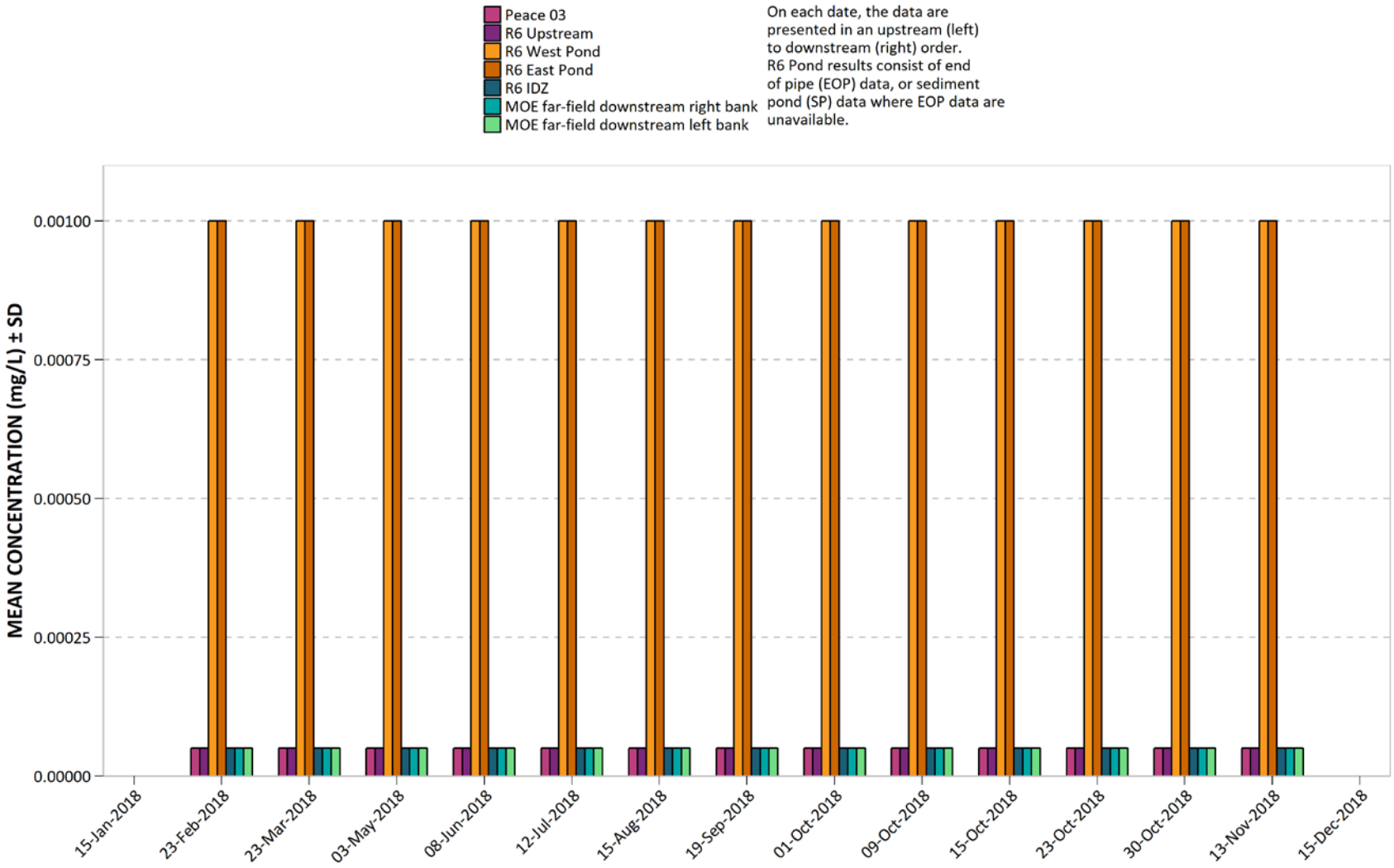


Figure 148. 2018 Peace River and RSEM R6 pond dissolved beryllium (Be).



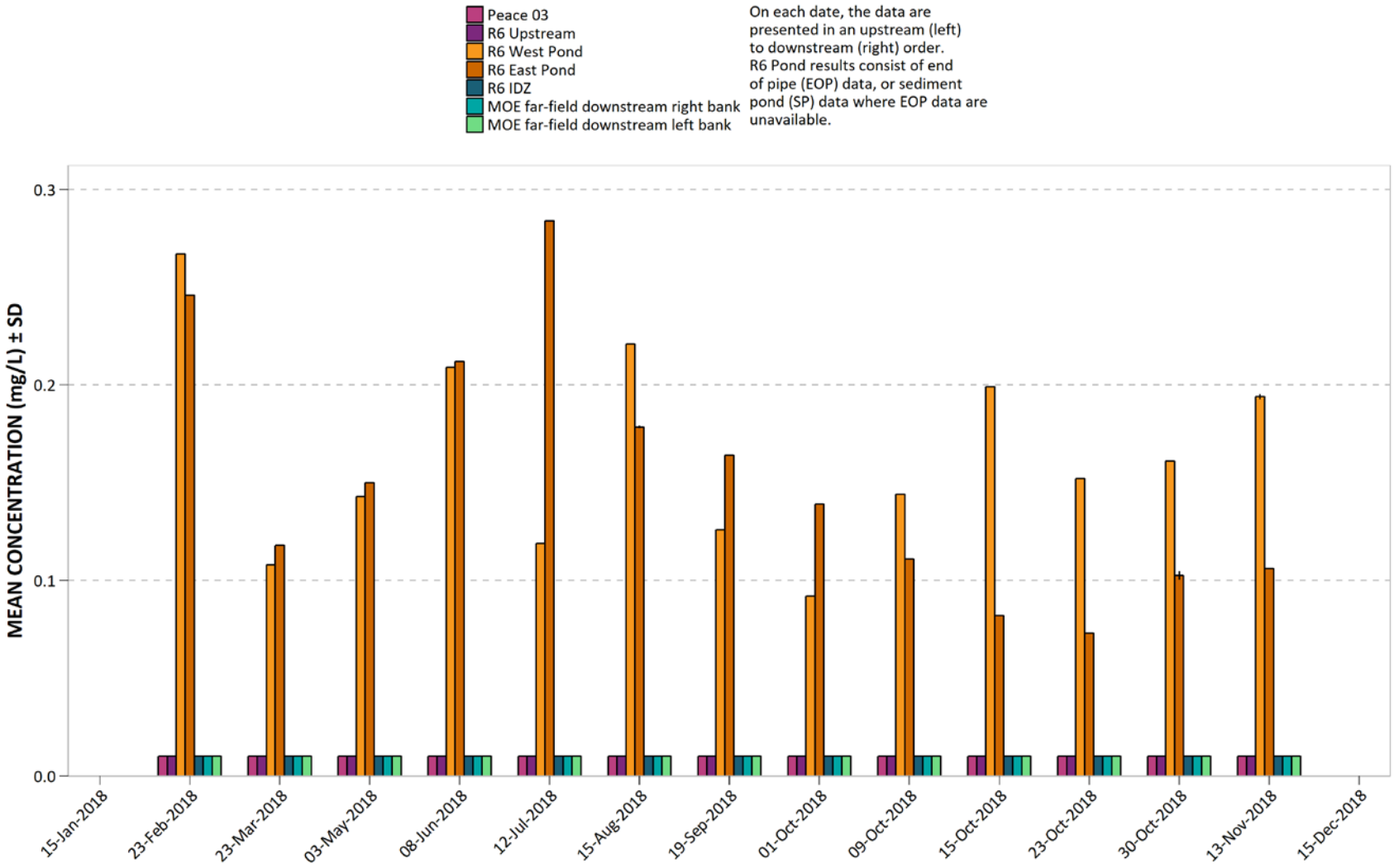
All results were less than the MDL and thus were assigned the MDL value of 0.0001 mg/L (R5b pond, Peace River on May 3 and June 8) or 0.00002 mg/L (Peace River on remaining dates).

Figure 149. 2018 Peace River and RSEM R6 pond dissolved bismuth (Bi).



All results were less than the MDL and thus were assigned the MDL value of 0.001 mg/L (R5b pond) or 0.00005 mg/L (Peace River).

Figure 150. 2018 Peace River and RSEM R6 pond dissolved boron (B).



Peace River results were less than the MDL and thus were assigned the MDL value of 0.01 mg/L.

Figure 151. 2018 Peace River and RSEM R6 pond dissolved cadmium (Cd).

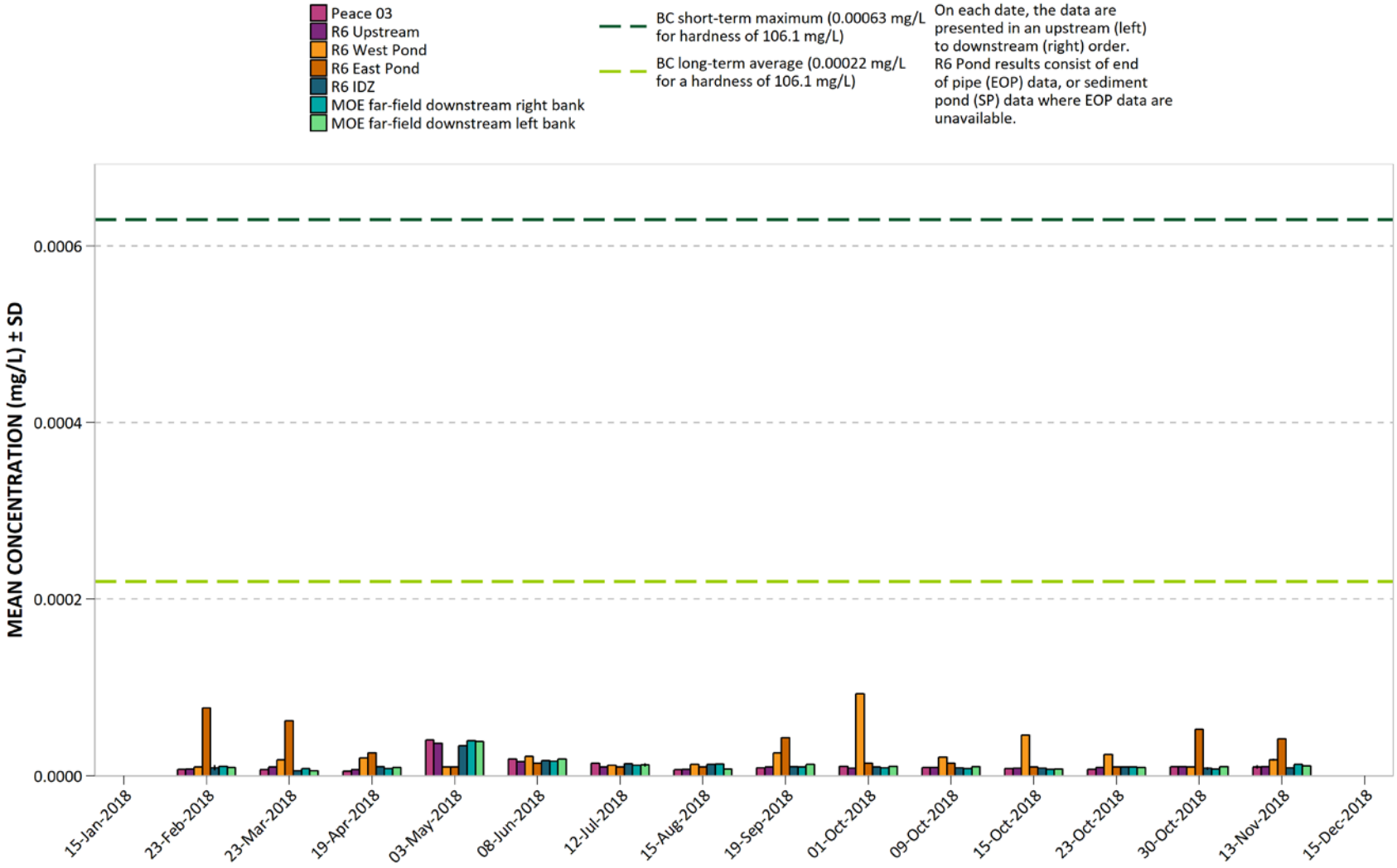


Figure 152. 2018 Peace River and RSEM R6 pond dissolved calcium (Ca).

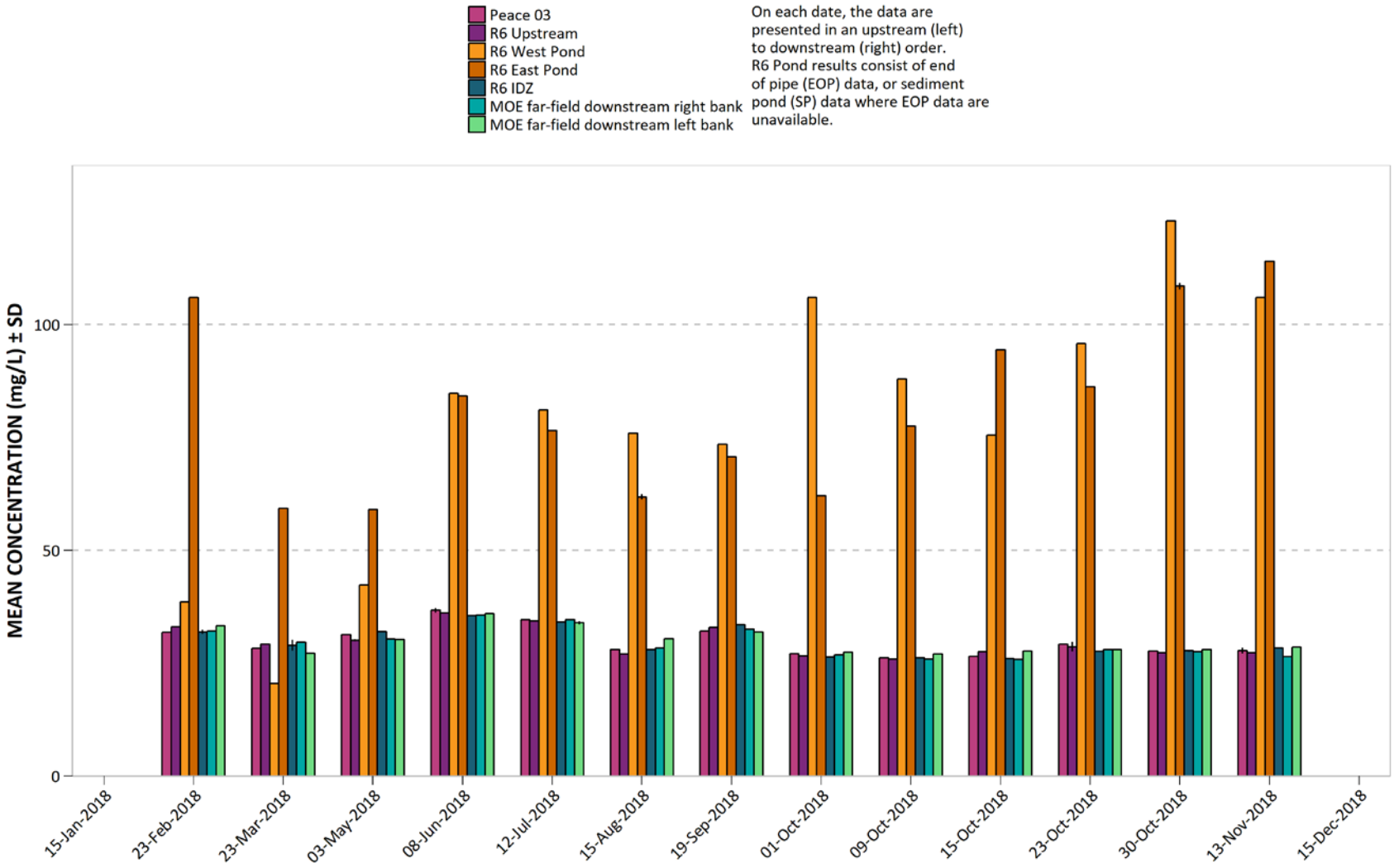
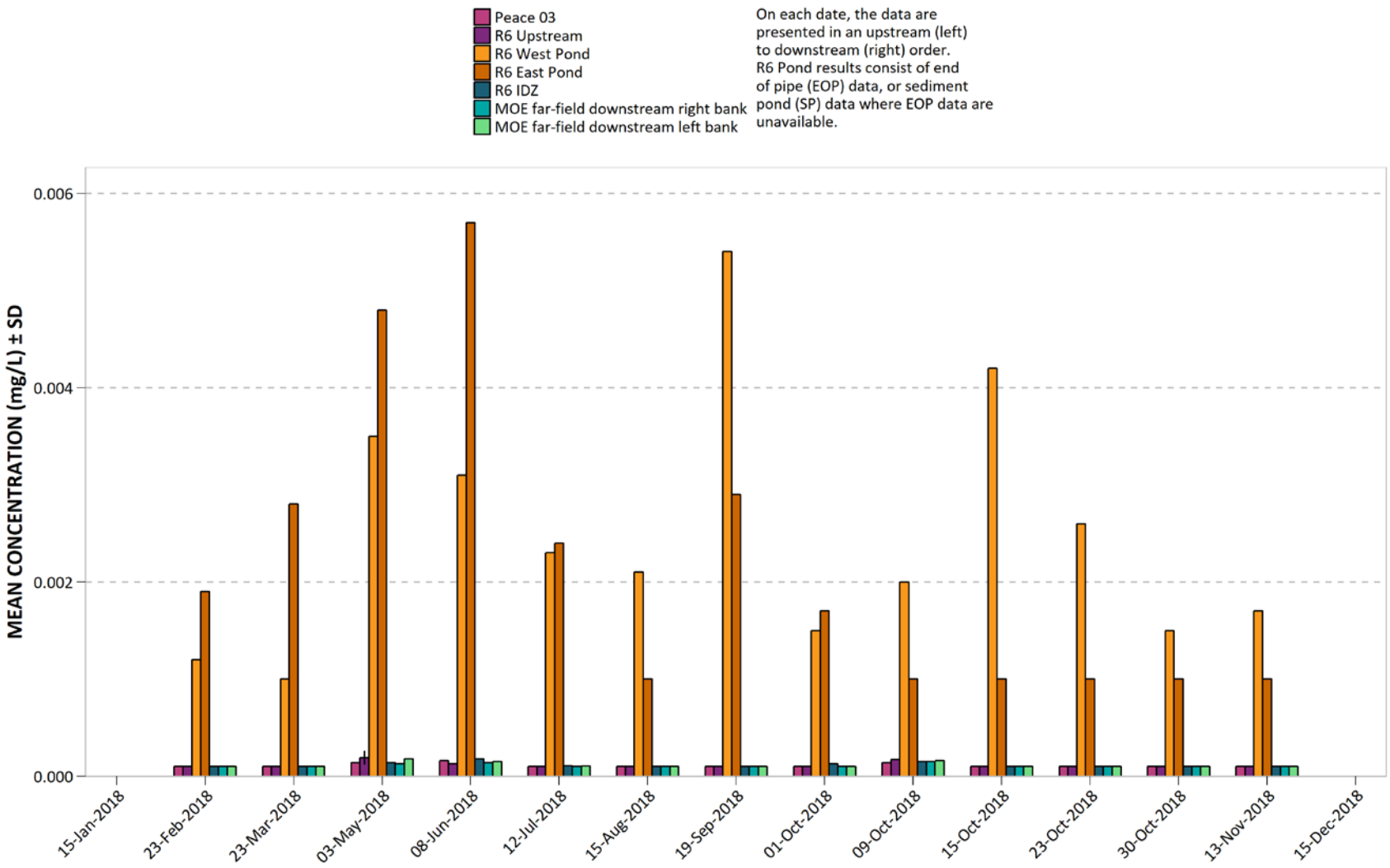
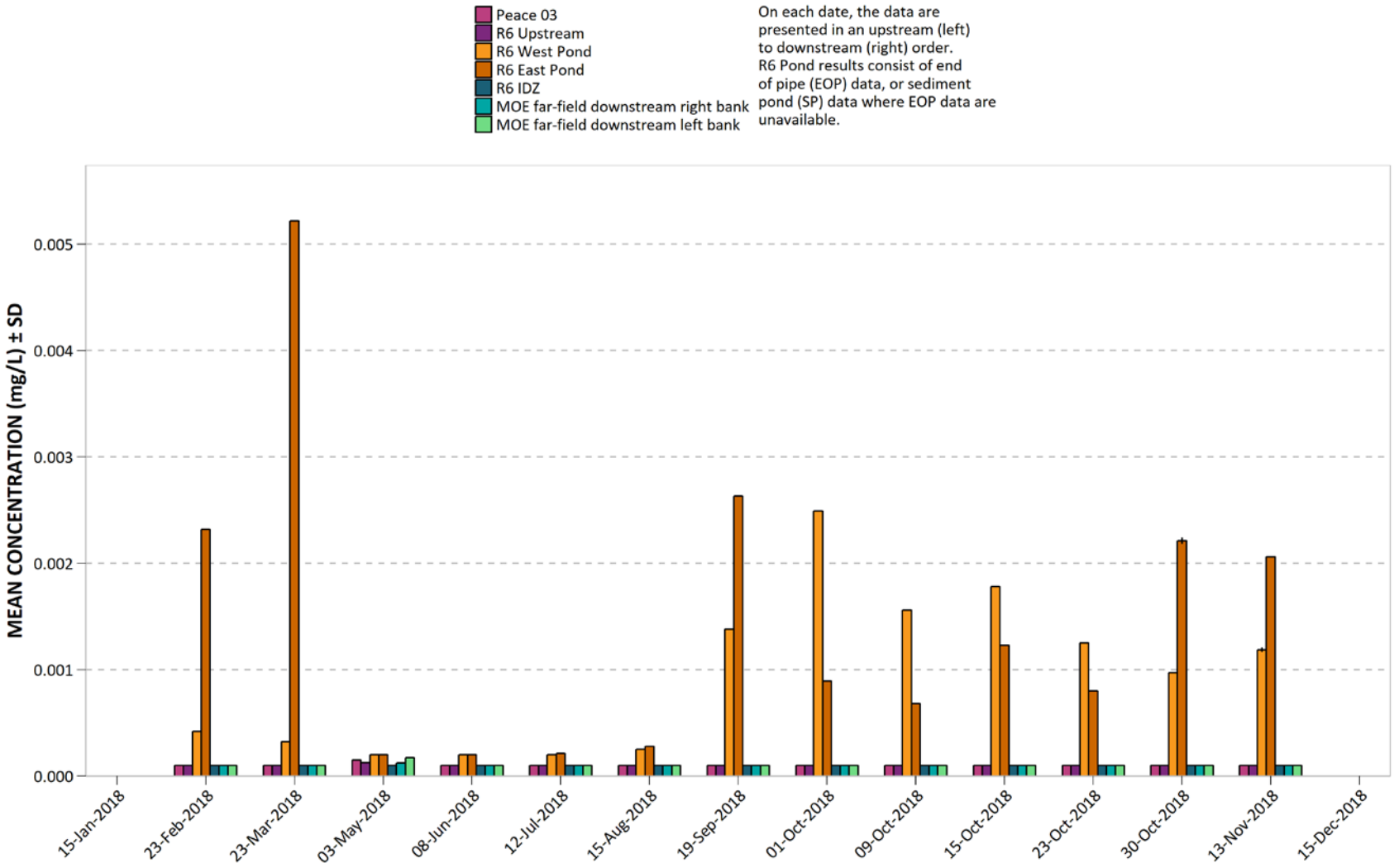


Figure 153. 2018 Peace River and RSEM R6 pond dissolved chromium (Cr).



Results less than the MDL were assigned the MDL value of 0.001 mg/L (R5b pond) or 0.0001 mg/L (Peace River).

Figure 154. 2018 Peace River and RSEM R6 pond dissolved cobalt (Co).



Results less than the MDL were assigned the MDL value of 0.0002 mg/L (R5b pond) or 0.0001 mg/L (Peace River).

Figure 155. 2018 Peace River and RSEM R6 pond dissolved copper (Cu).

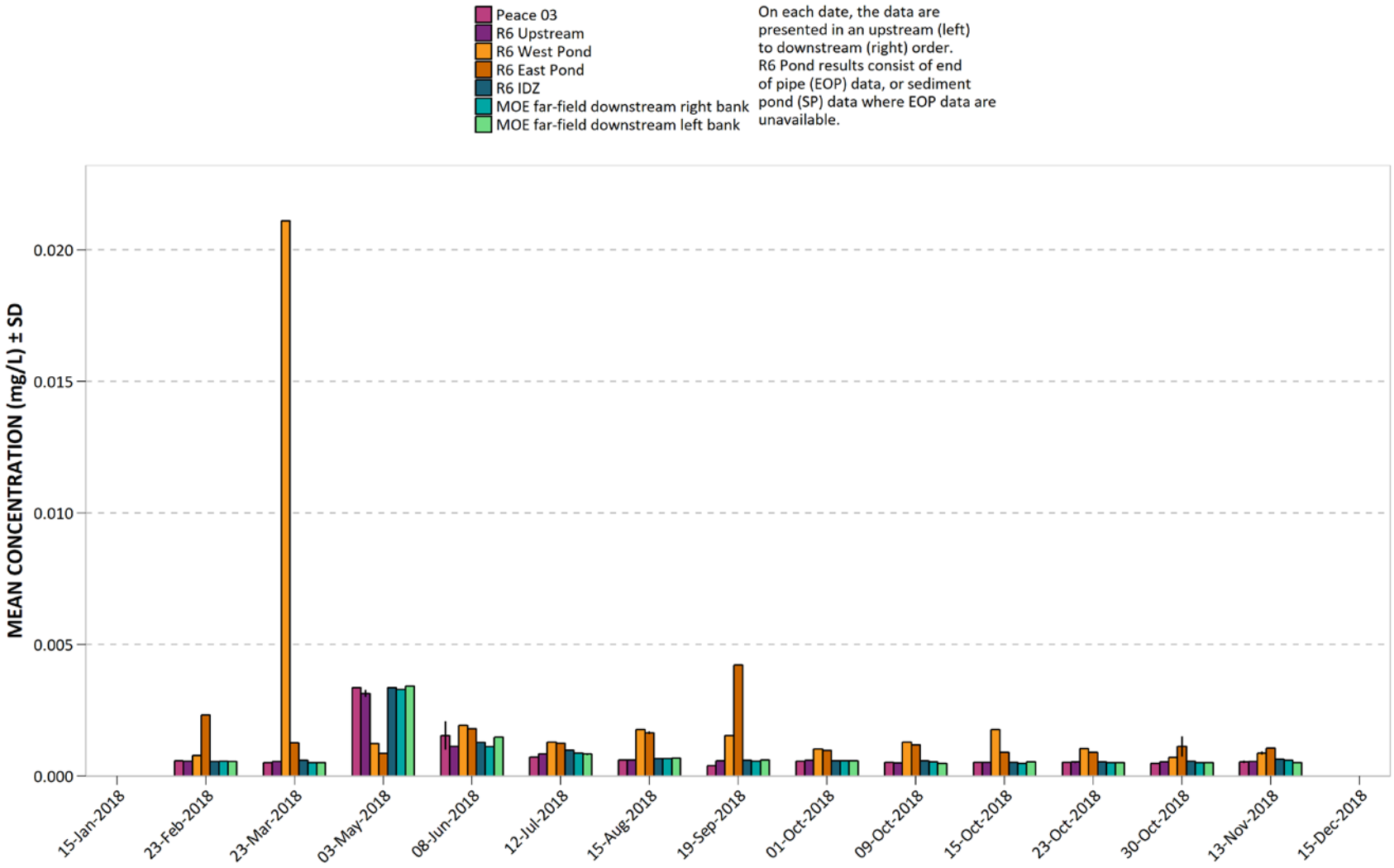
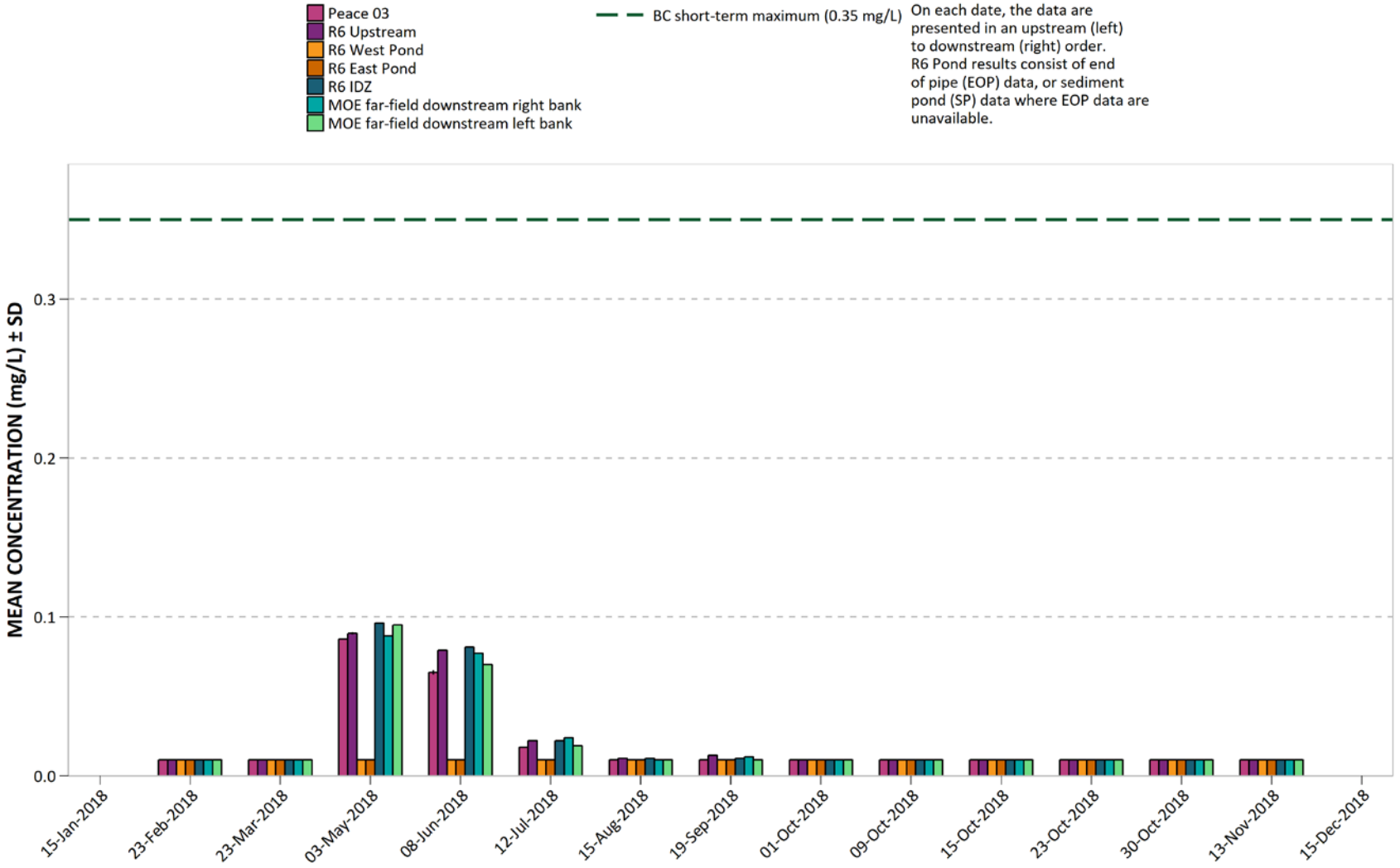
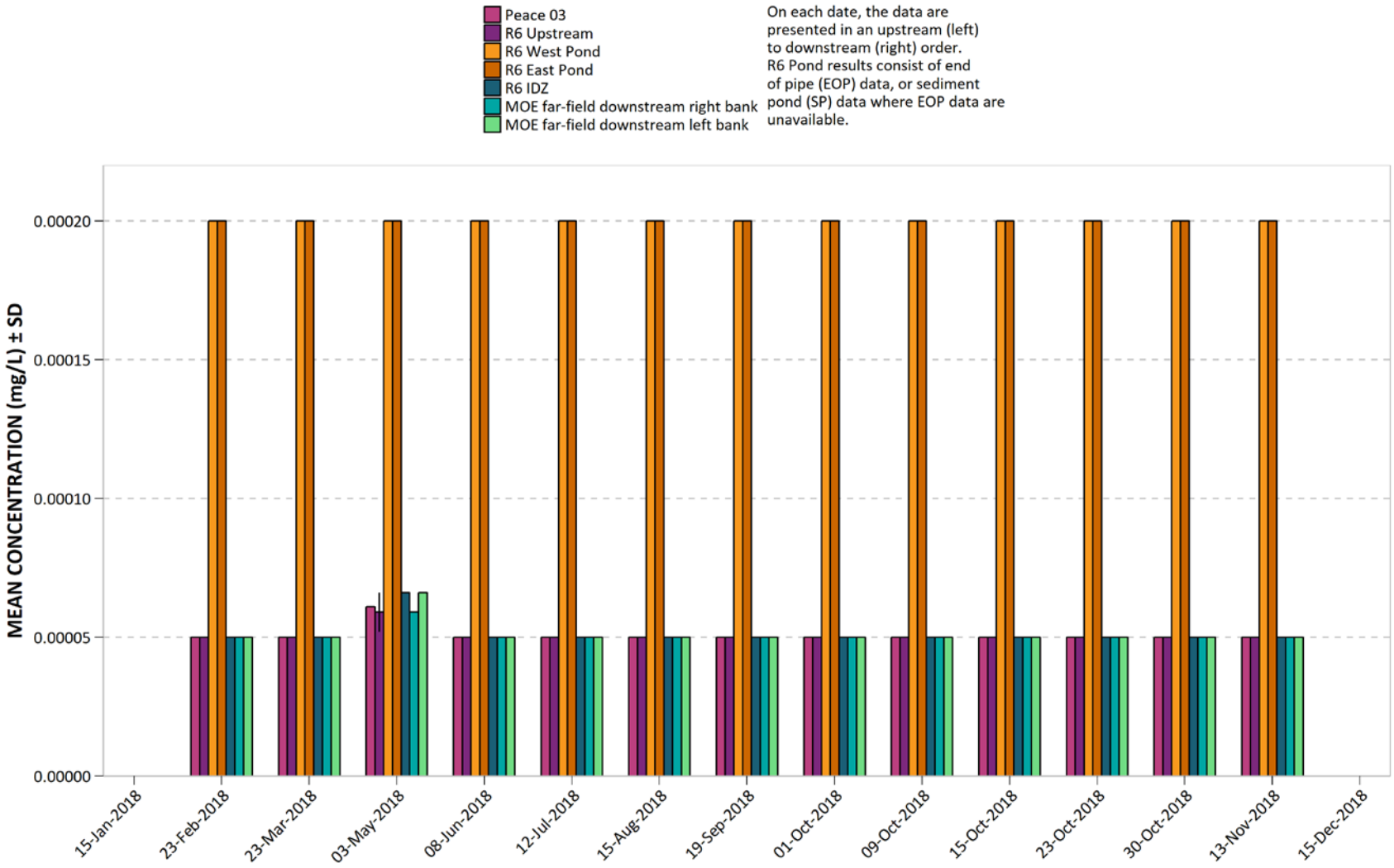


Figure 156. 2018 Peace River and RSEM R6 pond dissolved iron (Fe).



Results less than the MDL were assigned the MDL value of 0.01 mg/L.

Figure 157. 2018 Peace River and RSEM R6 pond dissolved lead (Pb).



Results less than the MDL were assigned the MDL value of 0.0002 mg/L (R5b pond) or 0.00005 mg/L (Peace River).

Figure 158. 2018 Peace River and RSEM R6 pond dissolved lithium (Li).

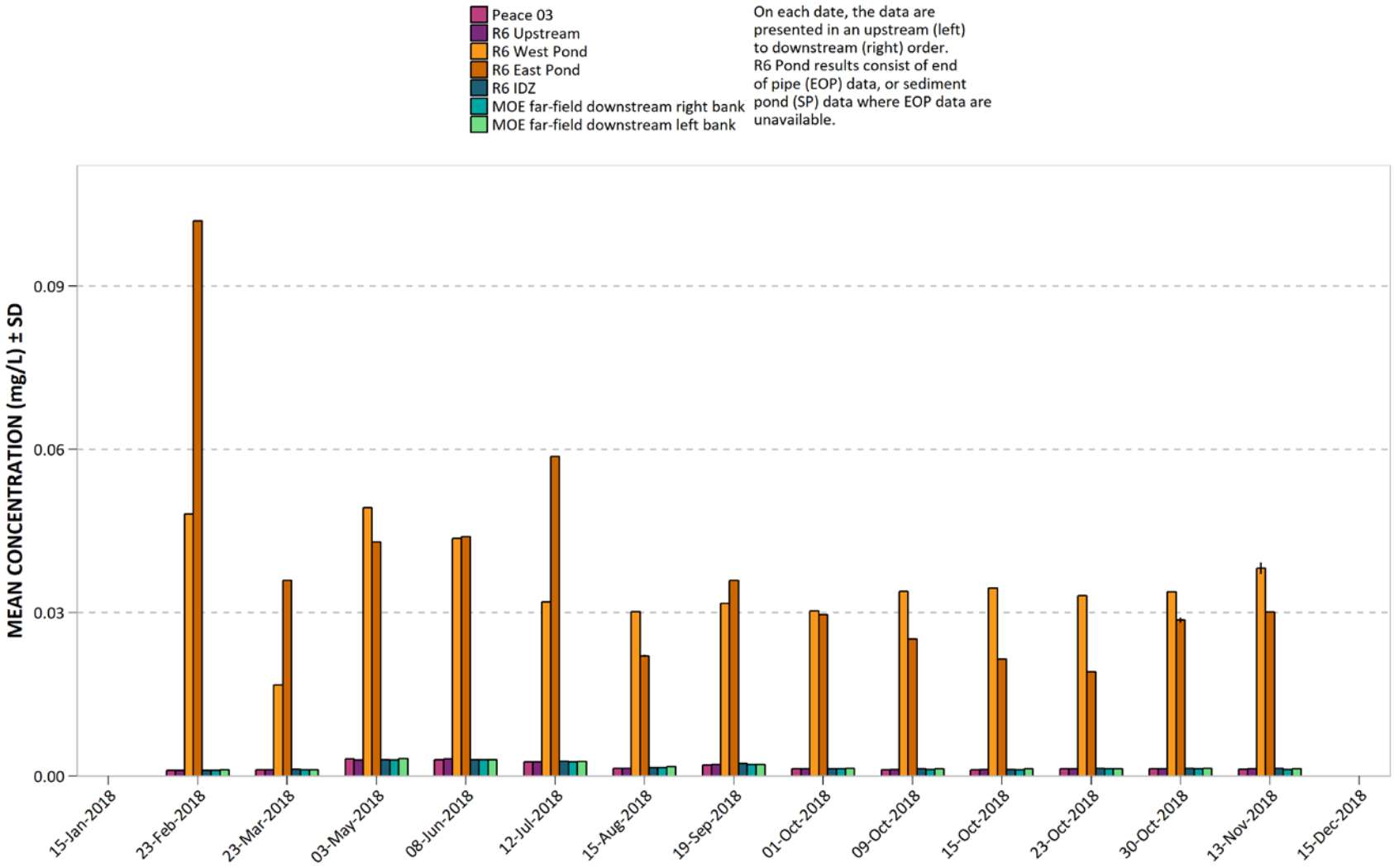


Figure 159. 2018 Peace River and RSEM R6 pond dissolved magnesium (Mg).

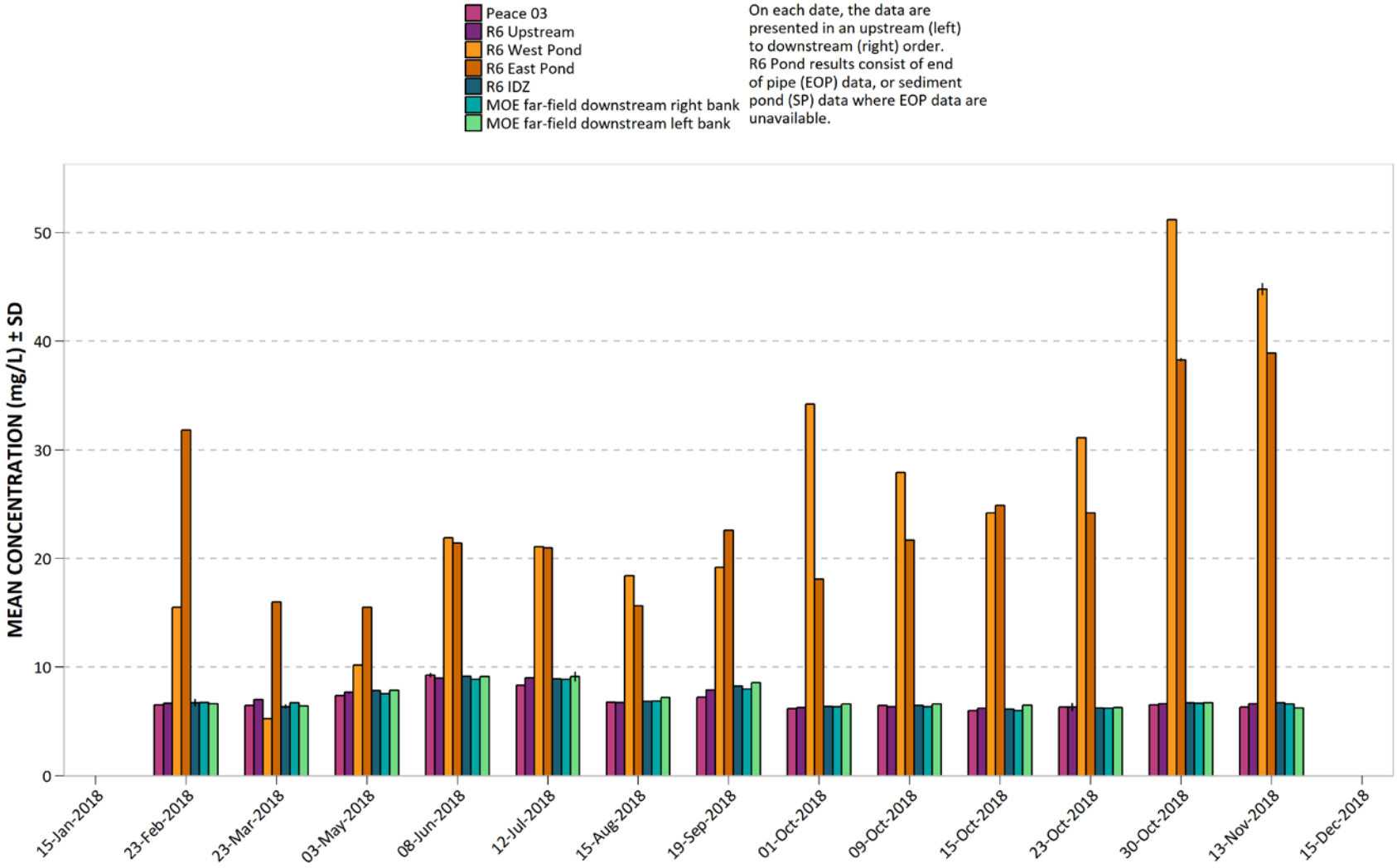


Figure 160. 2018 Peace River and RSEM R6 pond dissolved manganese (Mn).

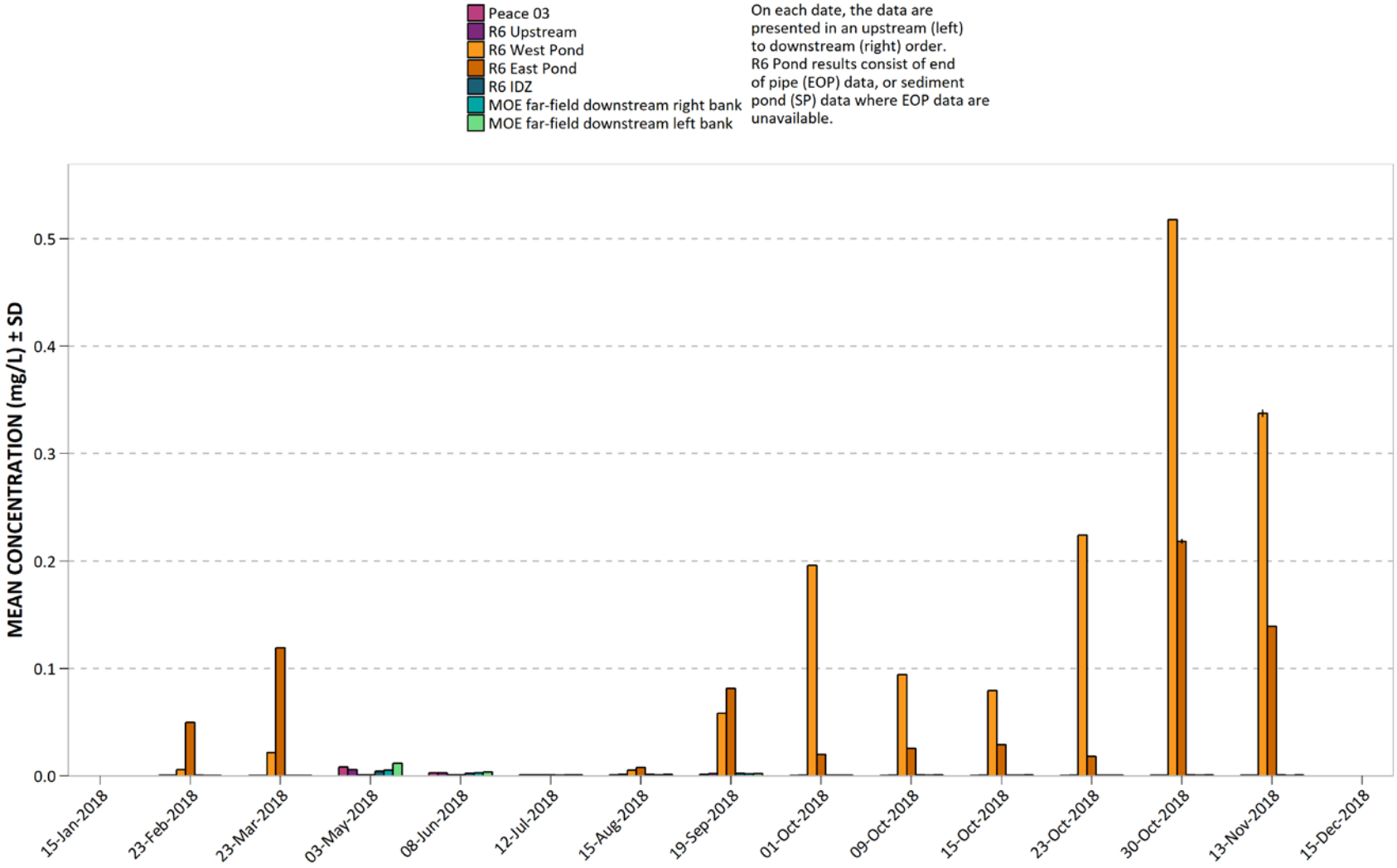
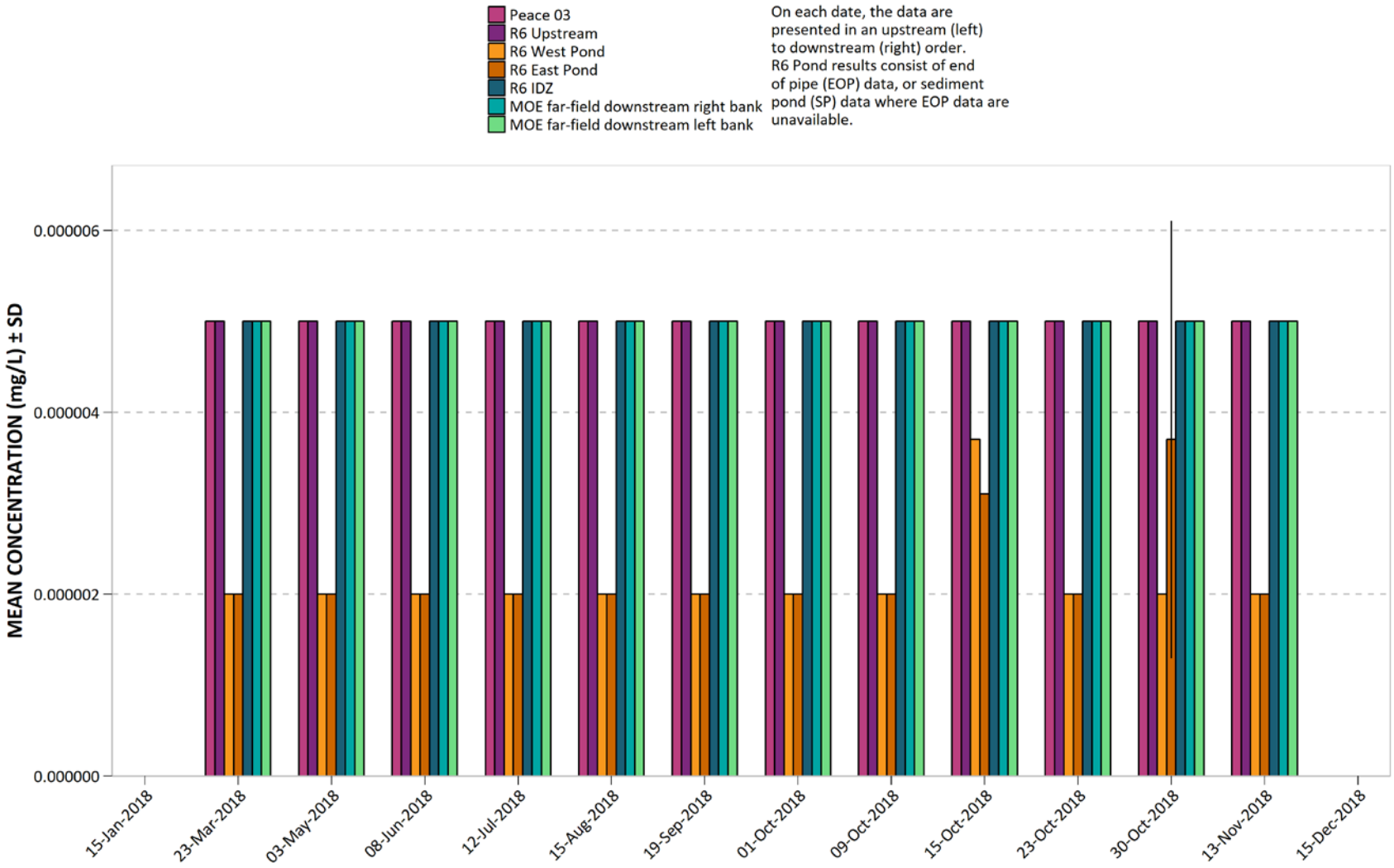


Figure 161. 2018 Peace River and RSEM R6 pond dissolved mercury (Hg).



Results less than the MDL were assigned the MDL value of 0.000005 mg/L (Peace River), 0.000002 mg/L (R5b pond)

Figure 162. 2018 Peace River and RSEM R6 pond dissolved molybdenum (Mo).

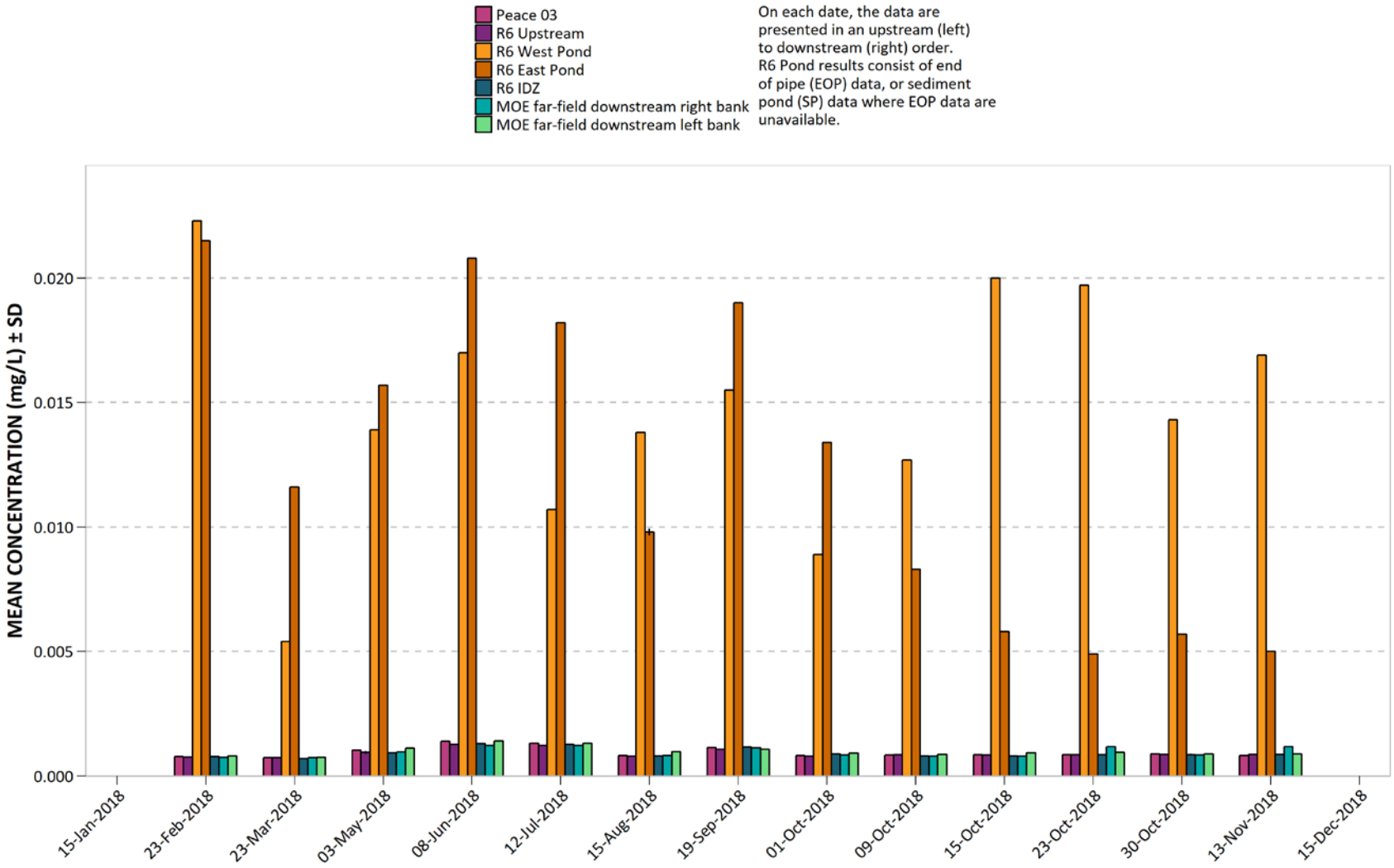


Figure 163. 2018 Peace River and RSEM R6 pond dissolved nickel (Ni).

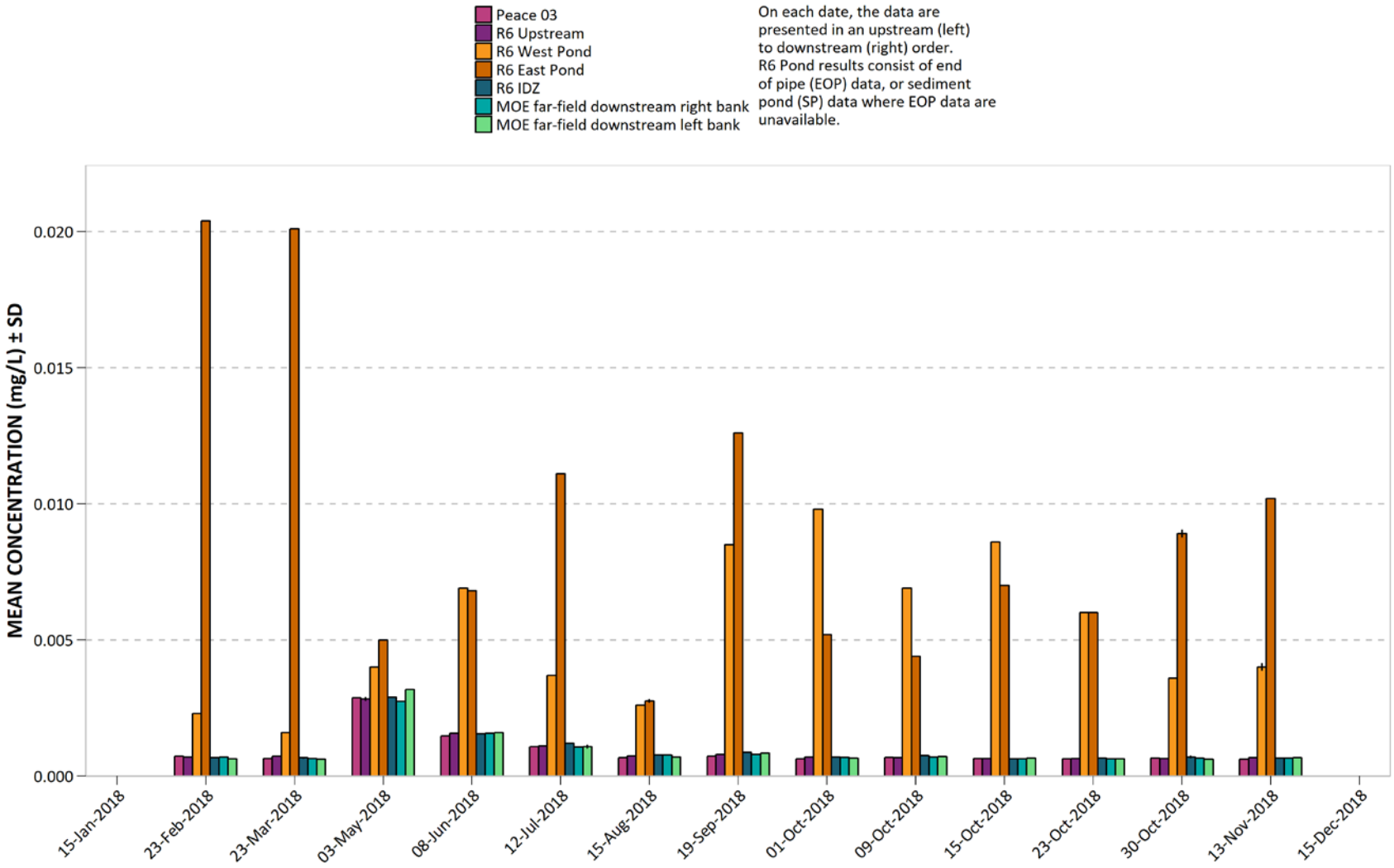


Figure 164. 2018 Peace River and RSEM R6 pond dissolved potassium (K).

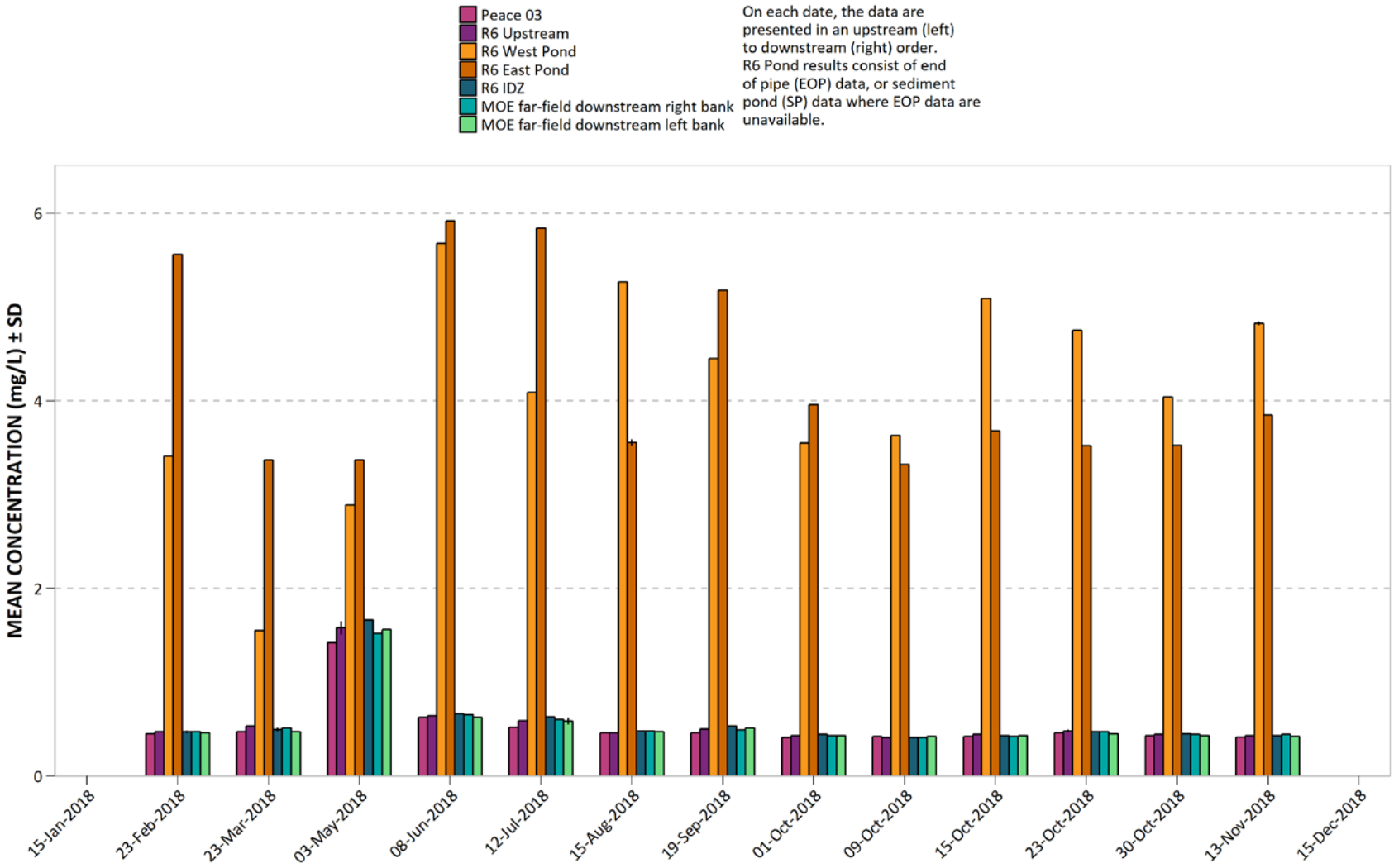


Figure 165. 2018 Peace River and RSEM R6 pond dissolved selenium (Se).

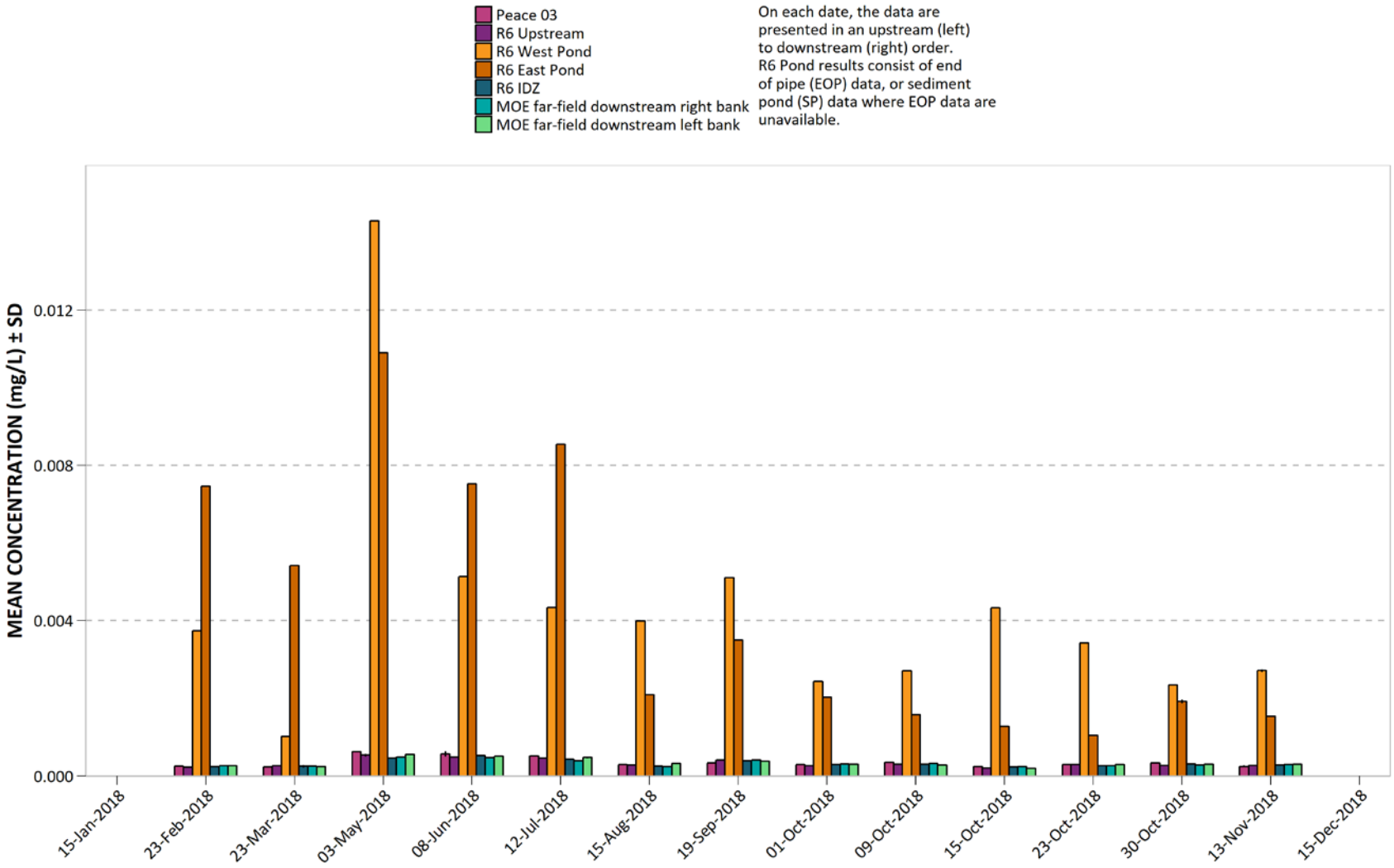


Figure 166. 2018 Peace River and RSEM R6 pond dissolved silicon (Si).

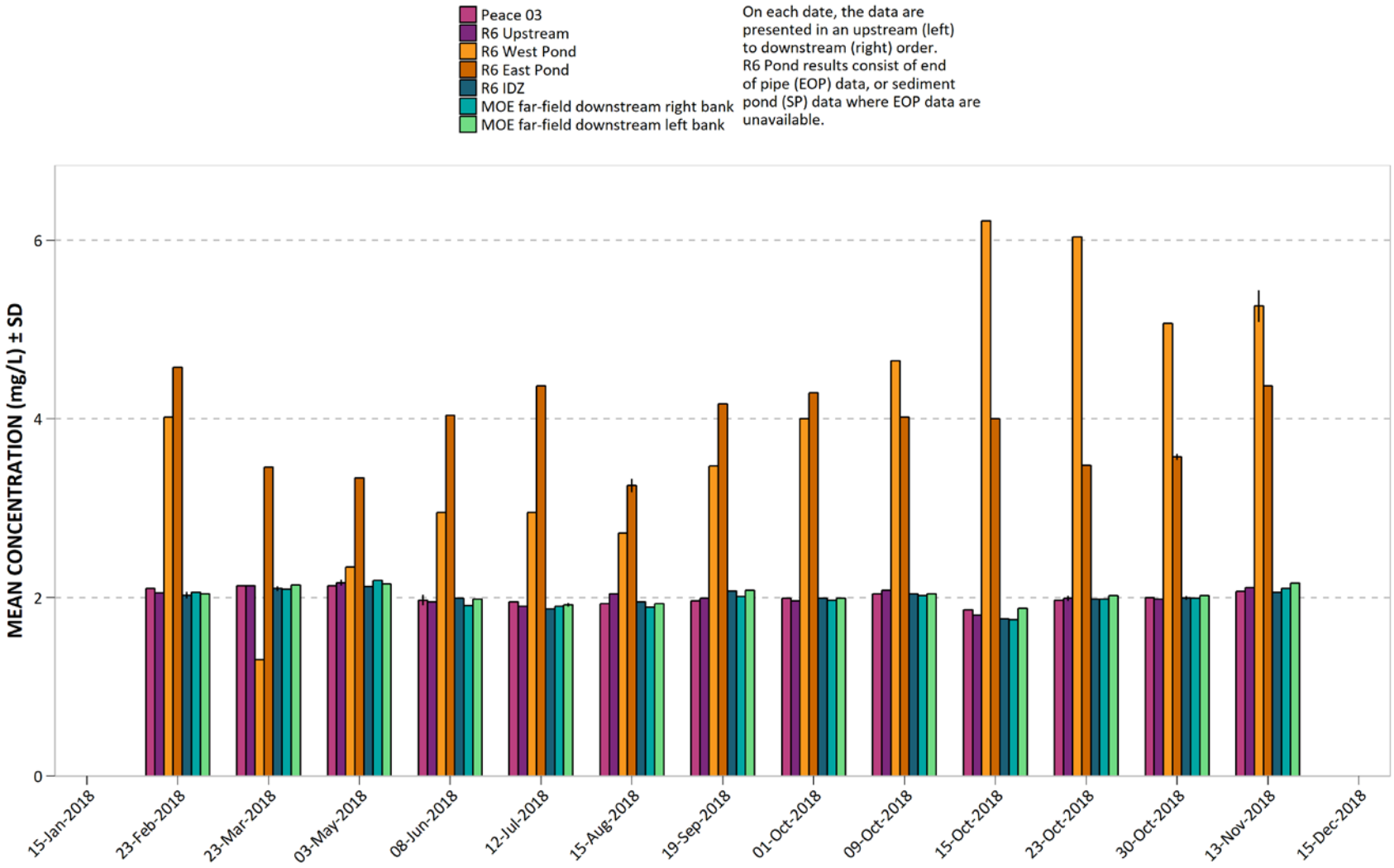
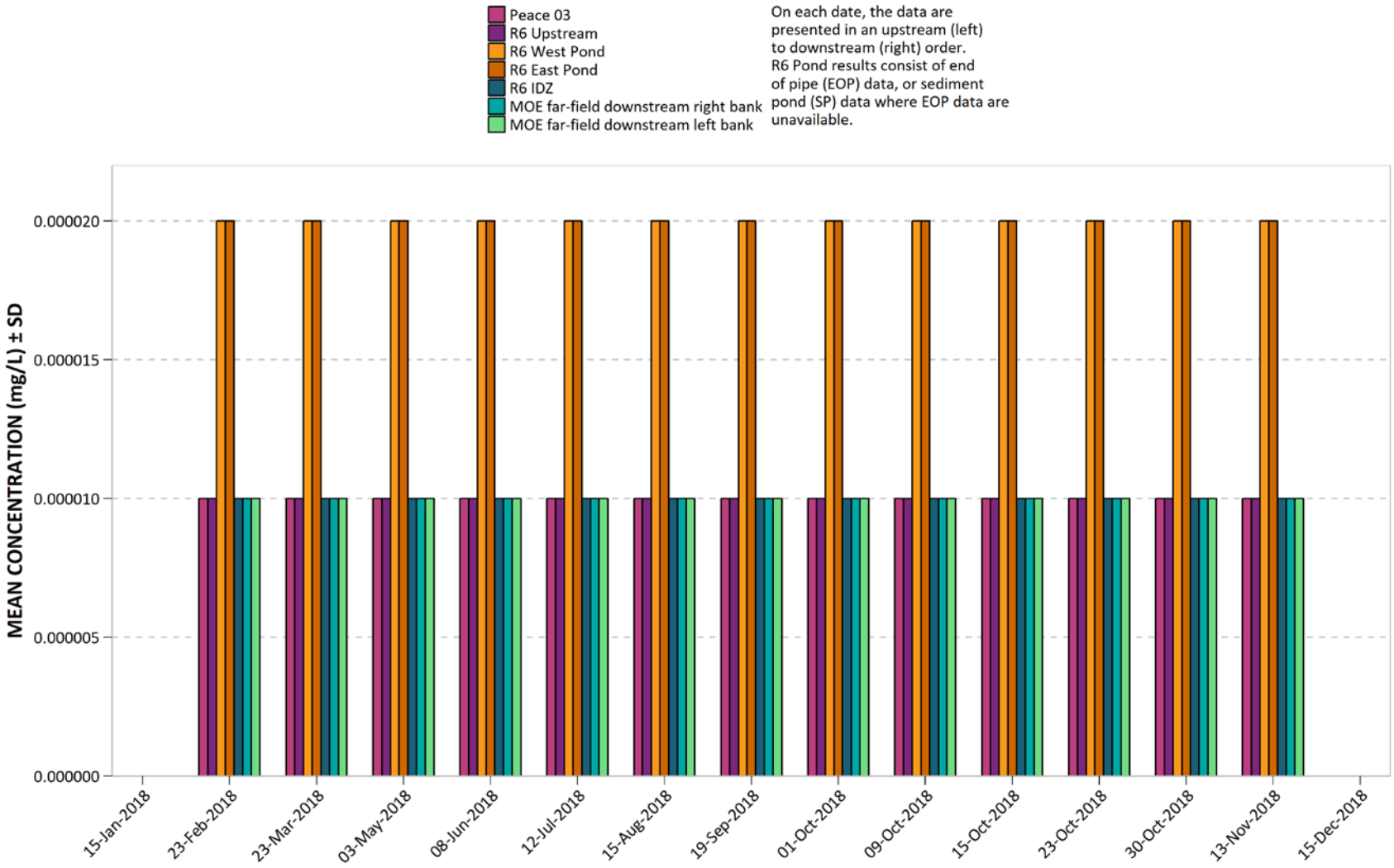


Figure 167. 2018 Peace River and RSEM R6 pond dissolved silver (Ag).



Results less than the MDL were assigned the MDL value of 0.00002 mg/L (R5b pond) or 0.00001 mg/L (Peace River).

Figure 168. 2018 Peace River and RSEM R6 pond dissolved sodium (Na).

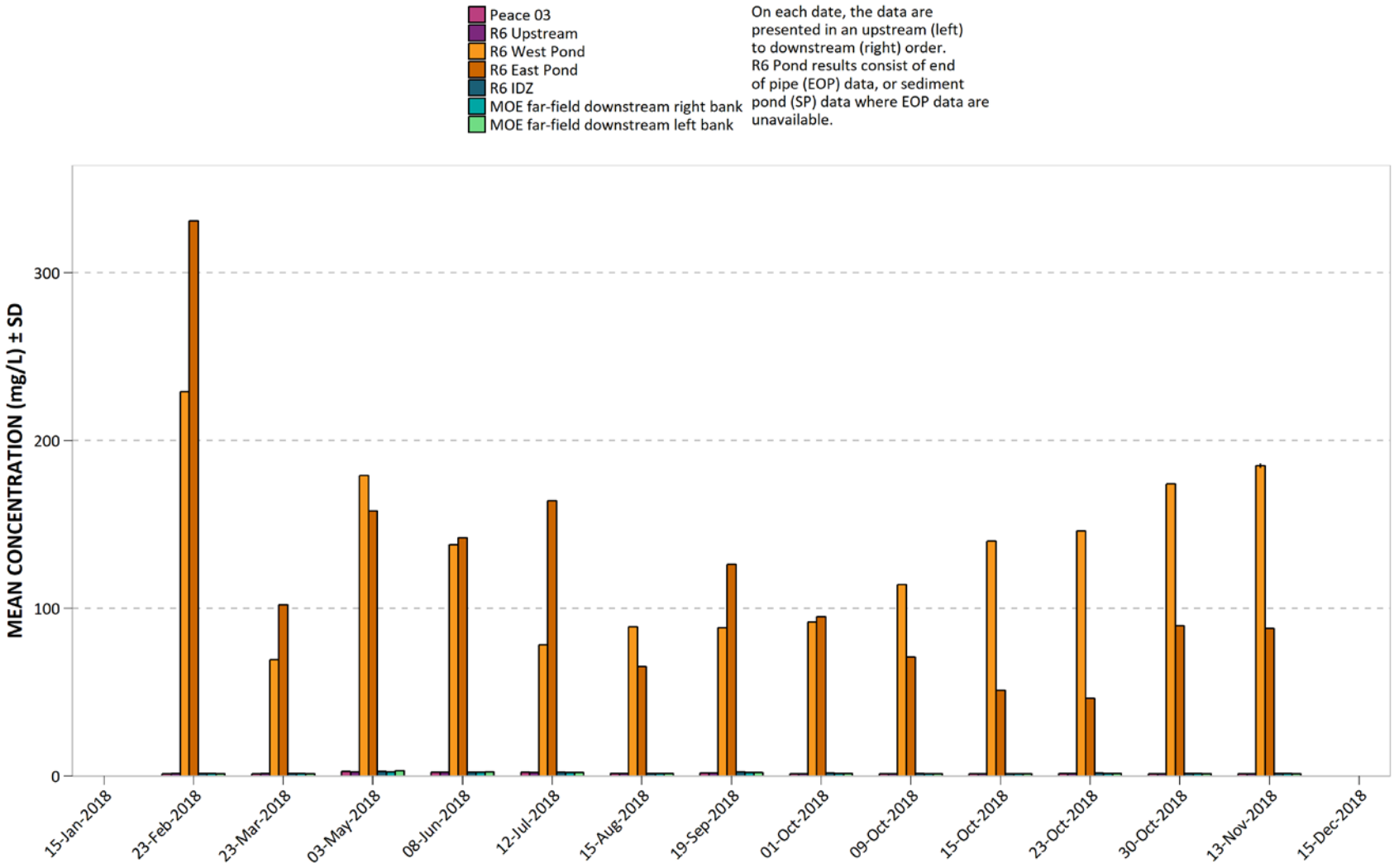


Figure 169. 2018 Peace River and RSEM R6 pond dissolved strontium (Sr).

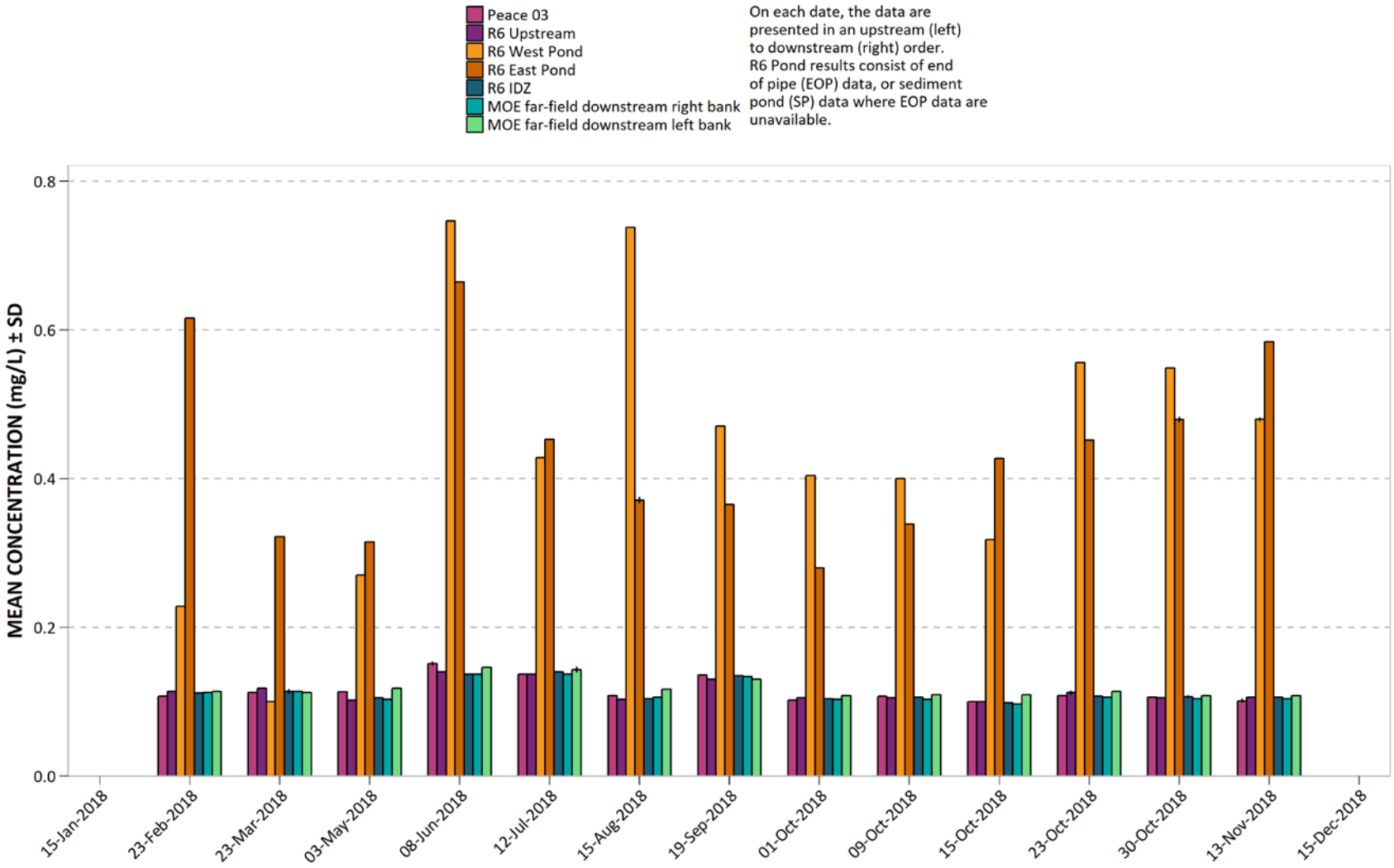


Figure 170. 2018 Peace River and RSEM R6 pond dissolved sulfur (S).

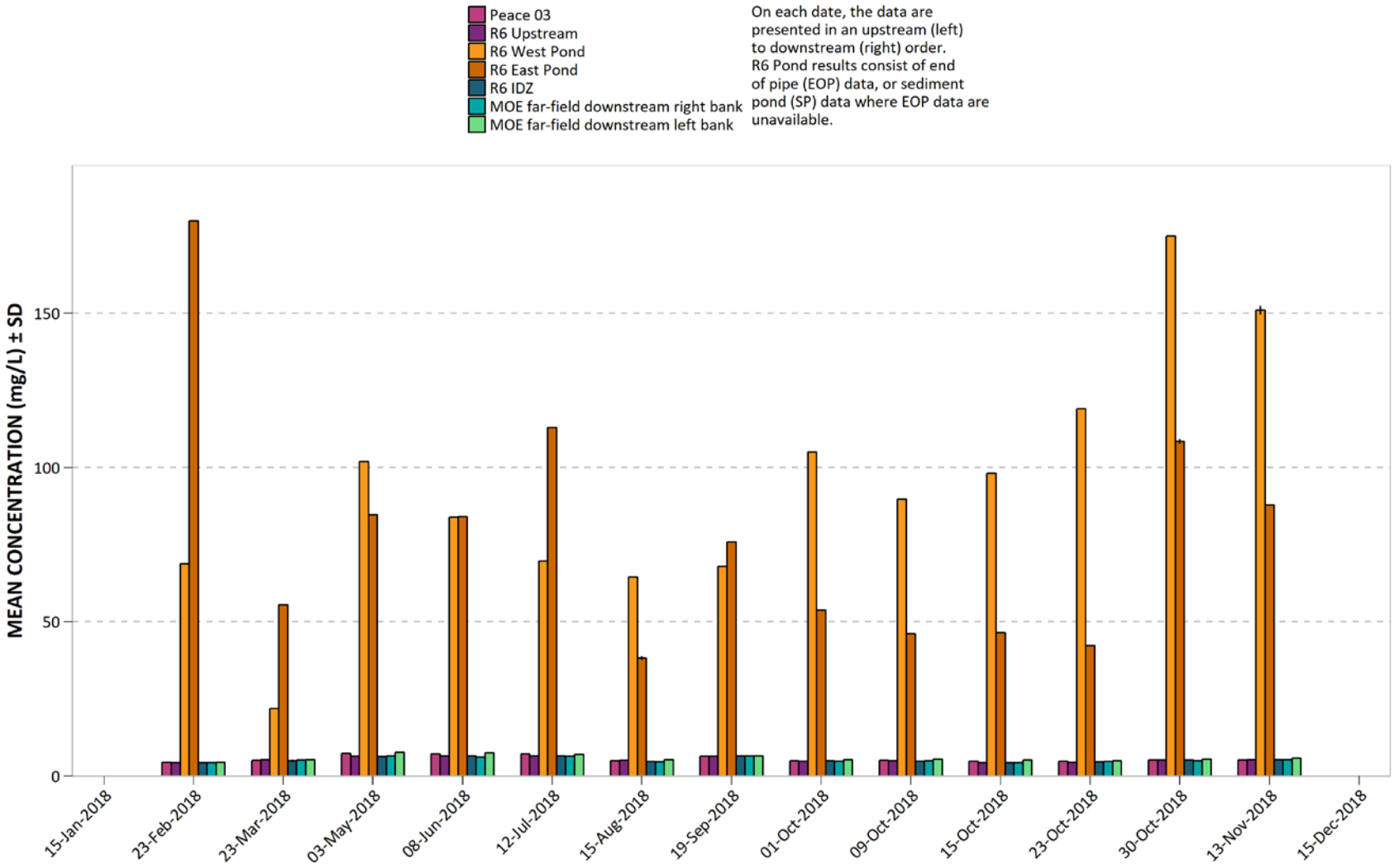
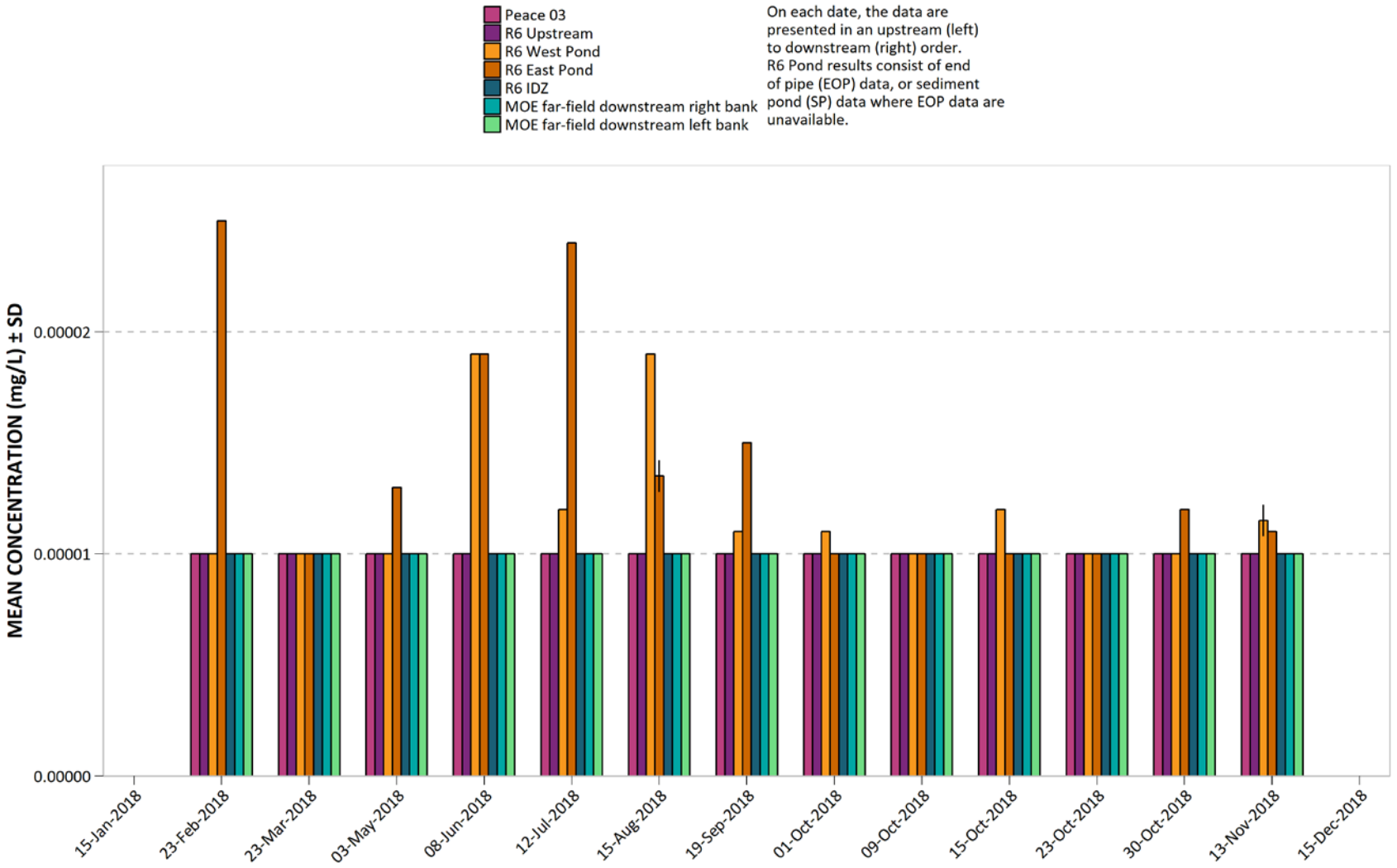
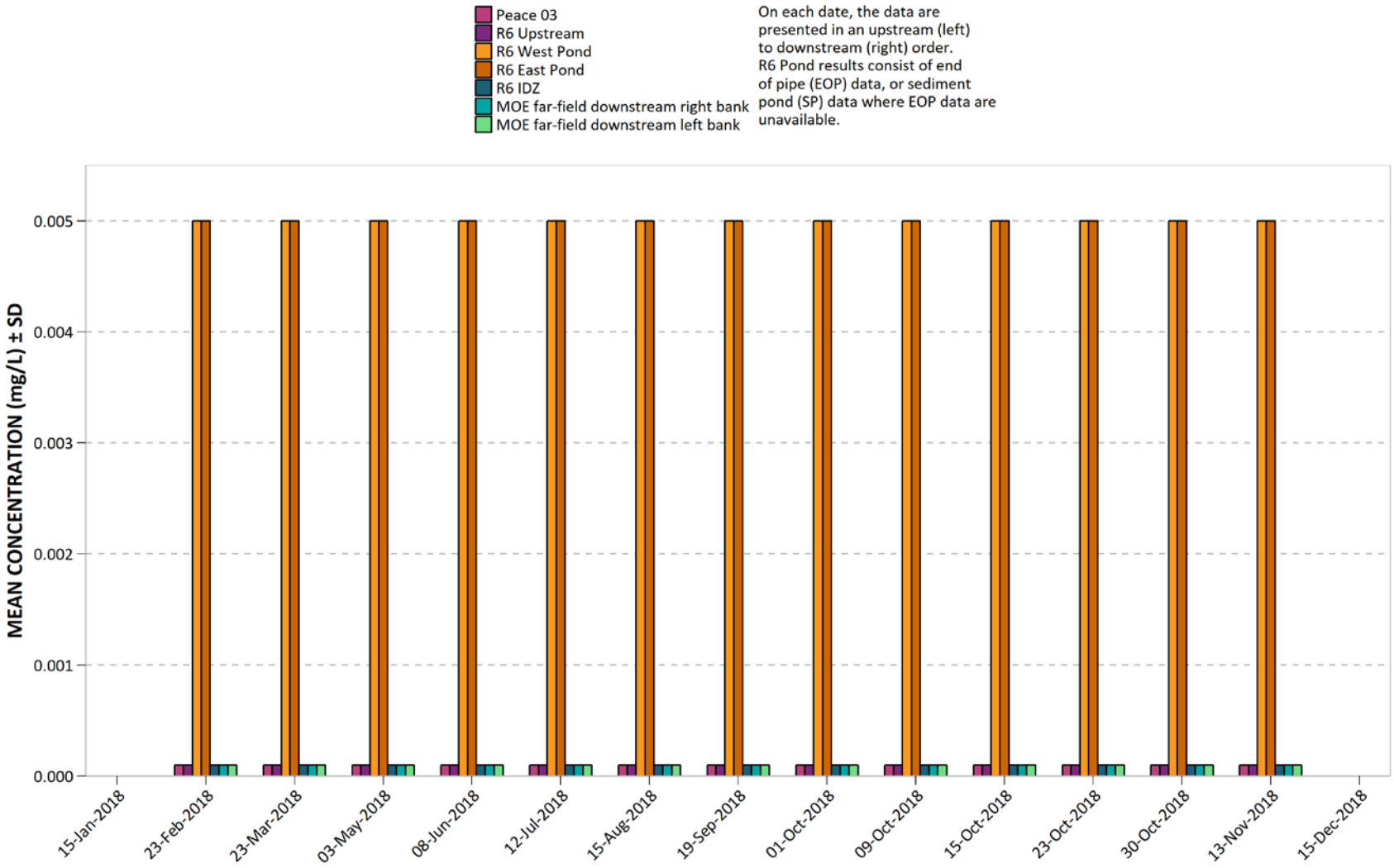


Figure 171. 2018 Peace River and RSEM R6 pond dissolved thallium (Tl).



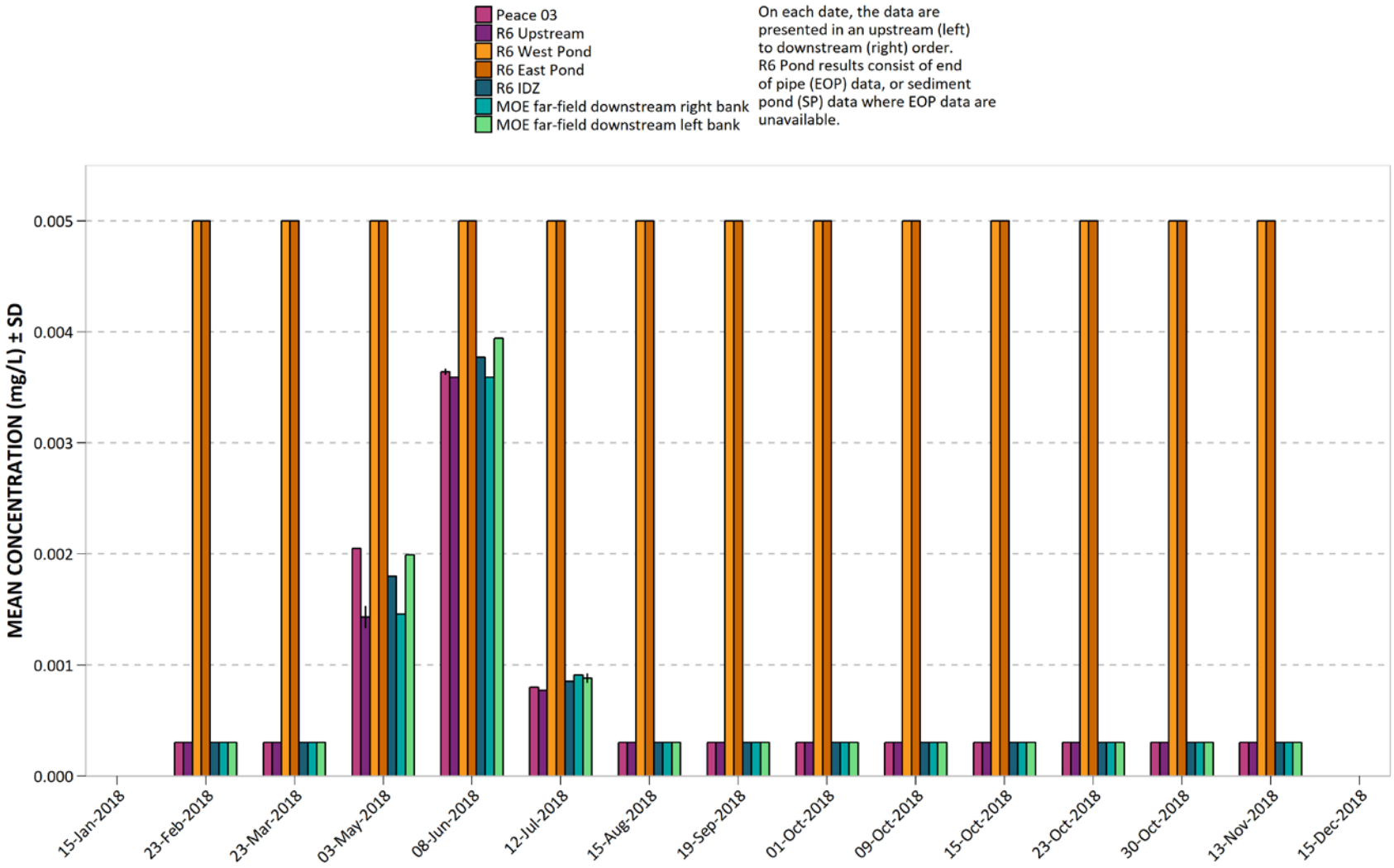
Results less than the MDL were assigned the MDL value of 0.00001 mg/L.

Figure 172. 2018 Peace River and RSEM R6 pond dissolved tin (Sn).



All results were less than the MDL and thus were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.0001 mg/L (Peace River).

Figure 173. 2018 Peace River and RSEM R6 pond dissolved titanium (Ti).



Results less than the MDL were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.0003 mg/L (Peace River).

Figure 174. 2018 Peace River and RSEM R6 pond dissolved uranium (U).

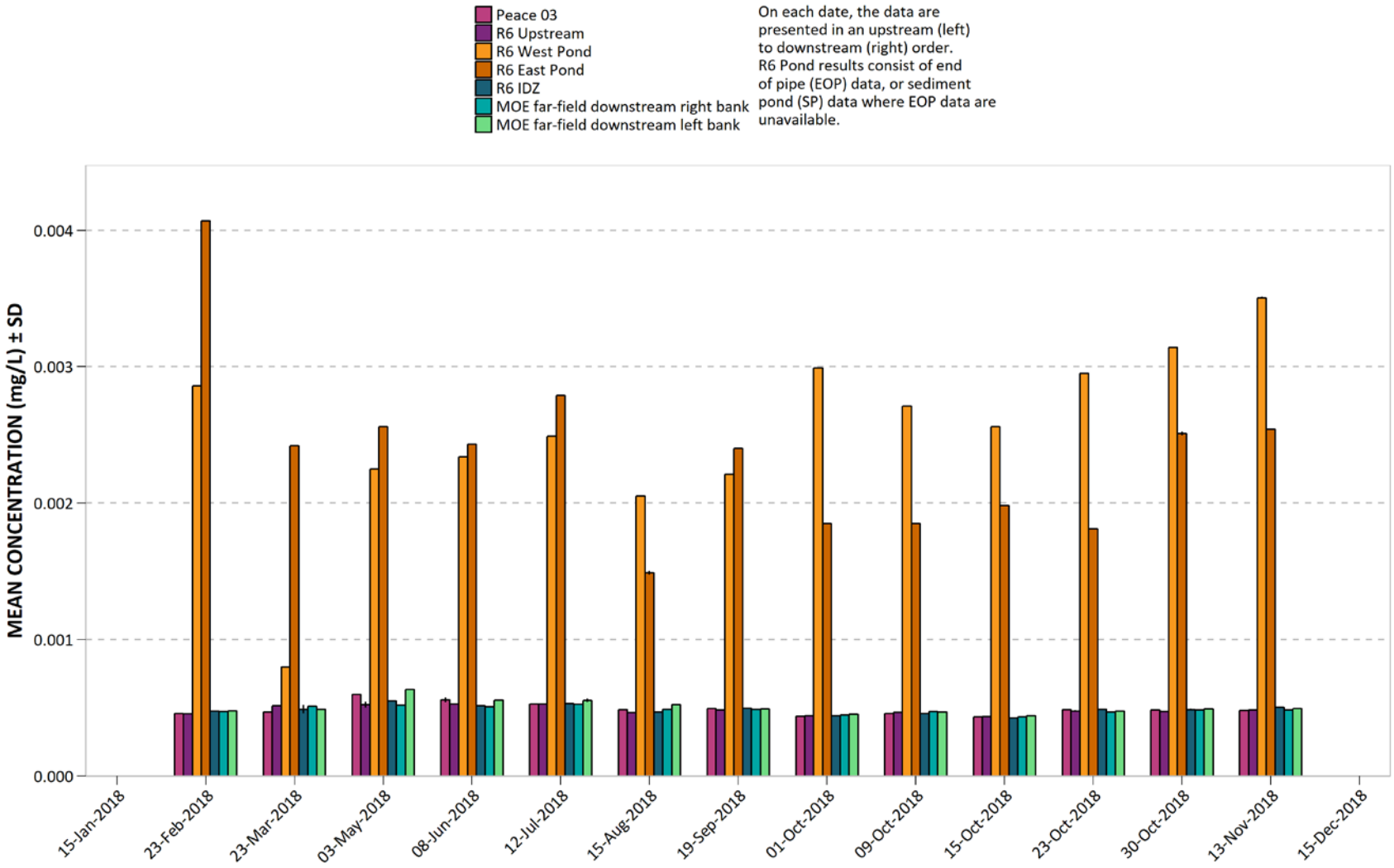
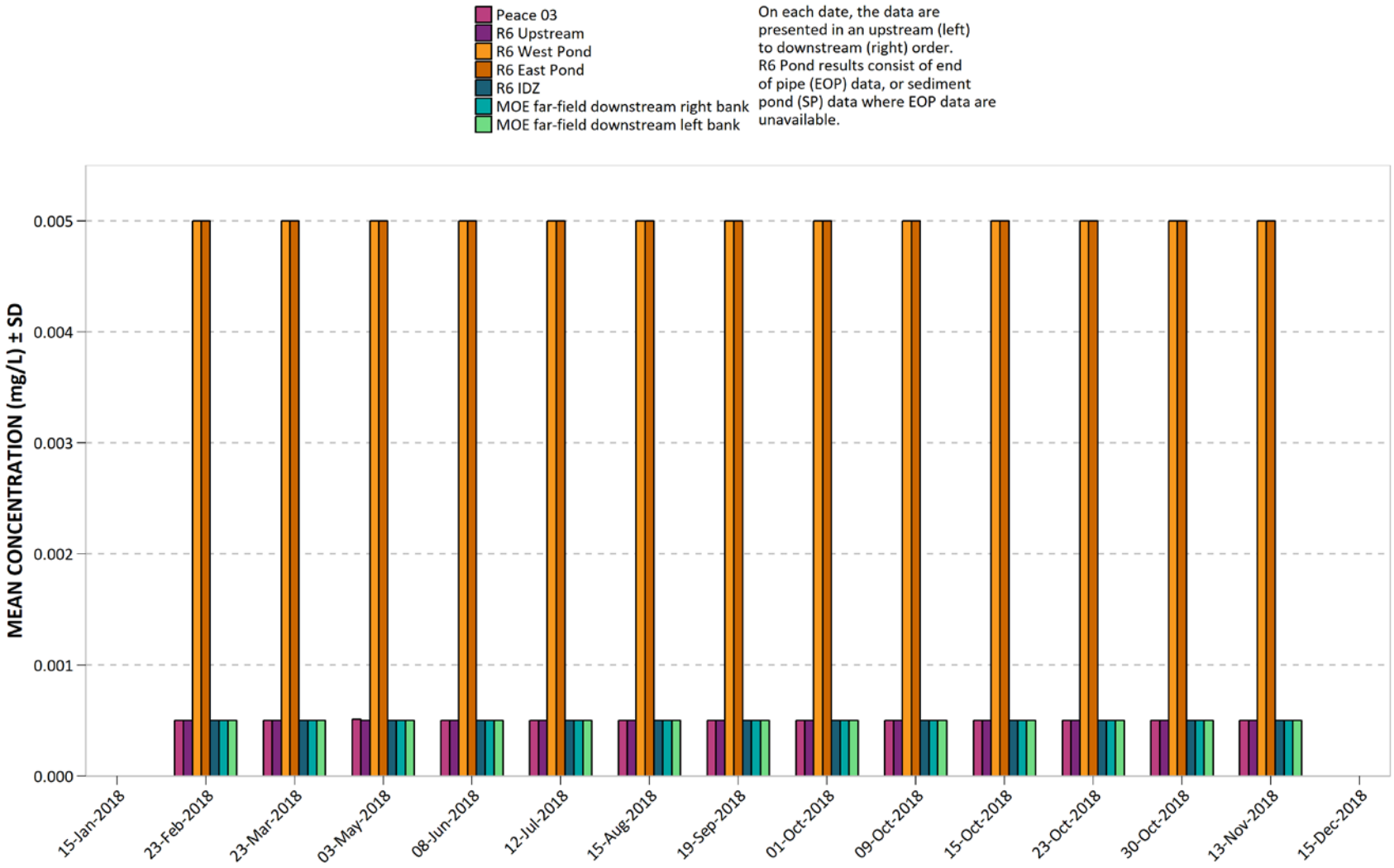
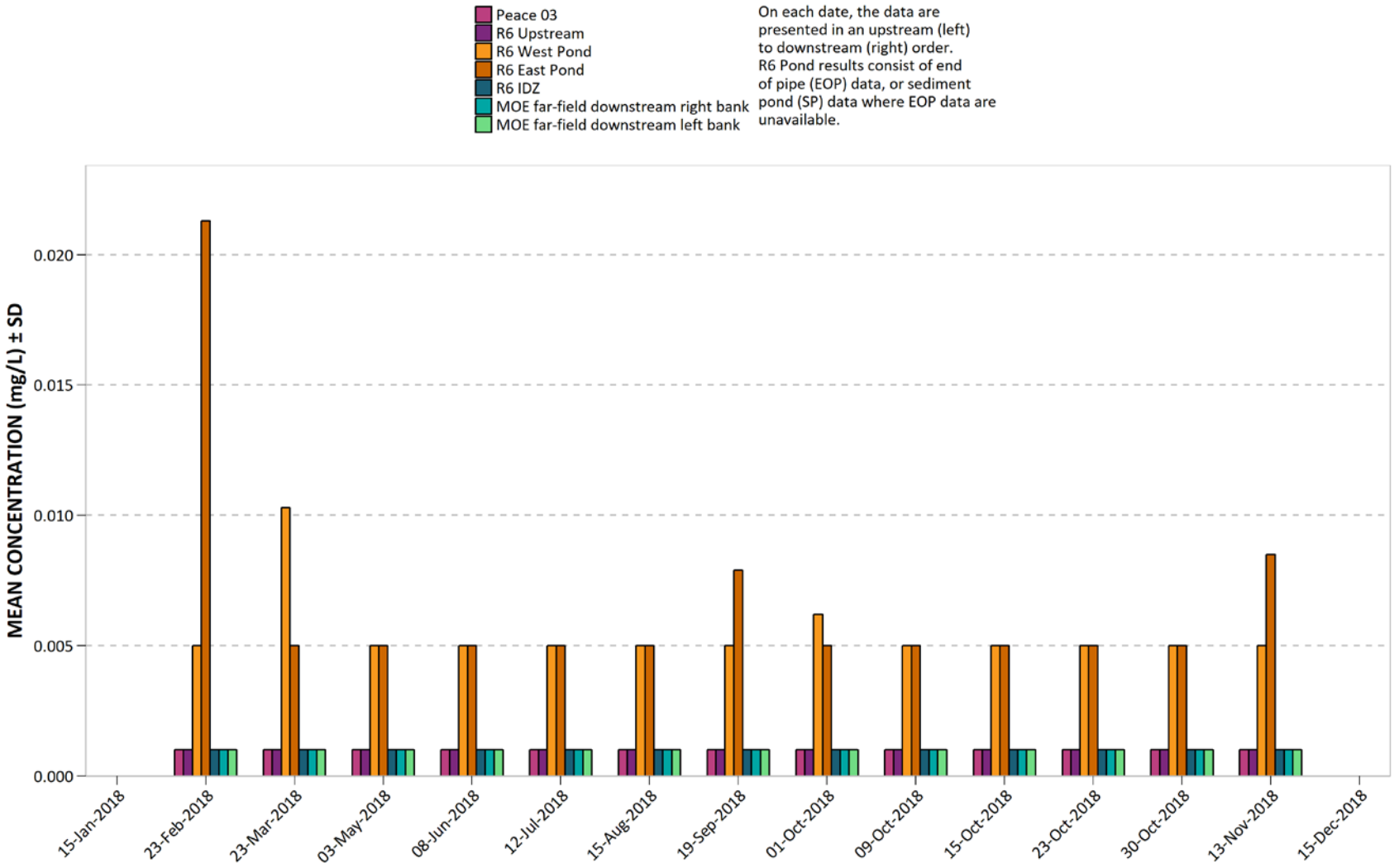


Figure 175. 2018 Peace River and RSEM R6 pond dissolved vanadium (V).



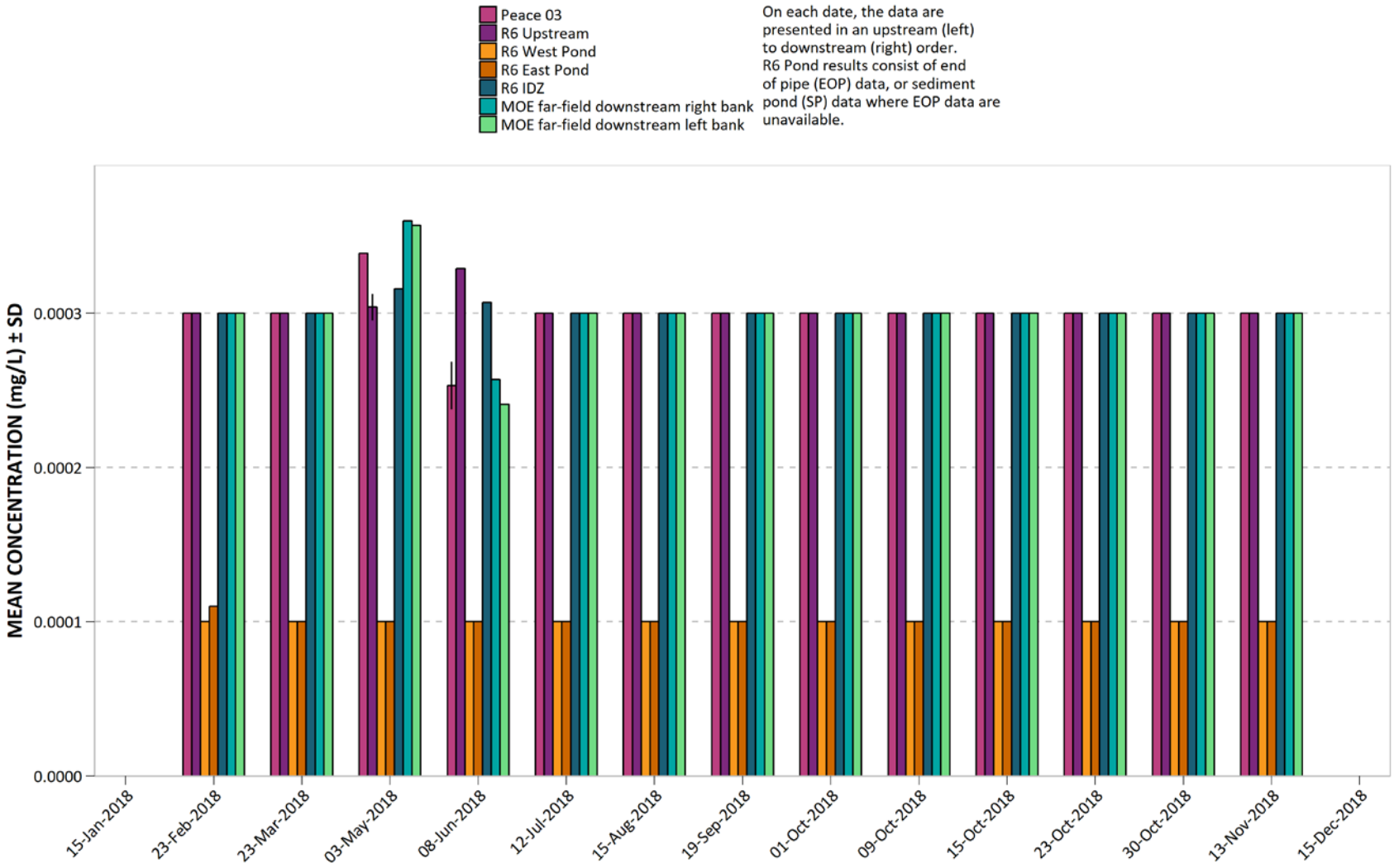
Results less than the MDL were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.0005 mg/L (Peace River).

Figure 176. 2018 Peace River and RSEM R6 pond dissolved zinc (Zn).



Results less than the MDL were assigned the MDL value of 0.005 mg/L (R5b pond) or 0.001 mg/L (Peace River).

Figure 177. 2018 Peace River and RSEM R6 pond dissolved zirconium (Zr).



Results less than the MDL were assigned the MDL value of 0.0003 mg/L (Peace River except June 8) or 0.0001 mg/L (R5b pond).

Appendix D. 2018 Quality Assurance and Quality Control Summary.

Table 32. ALS Environmental hold time exceedance summary for 2018.

Parameter	Date	Hold Time		Number of Samples Exceeded[1]	Qualifier
		Recommended	Actual		
Diss. Orthophosphate in Water by Colour	30-Mar	3	4	4	EHTL
			5	1	EHTL
	12-Jul	3	4	8	EHT
	24-May	3	4	3	EHT
			5	3	EHT
	8-Jun	3	4	8	EHT
Nitrate in Water by IC (Low Level)	30-Mar	3	4	5	EHTL
	24-May	3	4	6	EHT
	3-May	3	5	6	EHT
			6	2	EHT
	19-Apr	3	4	8	EHT
	23-Mar	3	4	6	EHT
	16-May	3	4	6	EHT
	30-Oct	3	8	1	EHT
Nitrite in Water by IC (Low Level)	30-Mar	3	4	5	EHTL
	24-May	3	4	6	EHT
	3-May	3	5	6	EHT
			6	2	EHT
	19-Apr	3	4	8	EHT
	23-Mar	3	4	6	EHT
	16-May	3	4	6	EHT
	30-Oct	3	8	1	EHT
Turbidity by Meter	30-Mar	3	5	5	EHTL
	31-May	3	4	2	EHT

[1]Specific sample sites where hold time exceedances occurred are provided in ALS laboratory reports.
Hold time exceedances for monthly, 5 in 30 day and TSS/turbidity grab samples collected in 2017.

ALS Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Table 33. Field blank and travel blank detections in 2018.

Sample Type	No. of Sampling Dates (2018)	Field Blank QA/QC Objective (≤5.0% Detectable)			
		No. of Parameter Results (n) [1]	No. of Detectable Results (>MDL)	% Detectable Results	QA/QC Objective Met
Field Blanks	20	1847	22	1.19%	Yes
Travel Blanks	20	1096	5	0.46%	Yes

[1] n refers to the total number of parameters analyzed in the field and travel blanks (non-detectable and detectable).
pH is not included in the calculation of detectable results.

The field blank QA/QC objective of ≤5% detectable is applied to the entire data set for the monitoring period (CCME 2011).

Table 34. Summary of cases with relative percent difference >20% for duplicate samples in 2018.

Date (2018)	Clear/ Turbid Flow [1]	Site	Parameter	Relative Percent Difference (%) [2]
23-Feb	Clear	RBPR-7.15	Selenium (Se) - Total	26.1
			Manganese (Mn) - Dissolved	40.5
23-Mar	Clear	RBPR-7.15	Selenium (Se) - Dissolved	20.9
19-Apr	Clear	RBPR-5.69	Chromium (Cr) - Total	25.5
			Manganese (Mn) - Total	21.1
			Selenium (Se) - Total	27.1
			Calcium (Ca) - Total	22.9
8-May	Very Turbid	RBPR-9.34	Aluminum (Al) - Dissolved	24.5
			Titanium (Ti) - Dissolved	50.8
			Total Suspended Solids	23.4
			Manganese (Mn) - Dissolved	21
			Ammonia, Total (as N)	36.9
16-May	Very Turbid	PR-3.88	Titanium (Ti) - Dissolved	21.8
24-May	Very Turbid	RBPR-5.65	Manganese (Mn) - Dissolved	22.1
			Total Organic Carbon	20.1
31-May	Turbid	RBPR-5.81	Aluminum (Al) - Dissolved	23.5
			Arsenic (As) - Dissolved	62.2
			Chromium (Cr) - Total	23.8
			Dissolved Orthophosphate (as P)	183
			Phosphorus (P) - Dissolved	193
			Total Phosphorus (P)	183
			Total Suspended Solids	23.8
			Manganese (Mn) - Dissolved	55.3
			Ammonia, Total (as N)	197
8-Jun	Turbid	PR-3.88	Copper (Cu) - Dissolved	49.7
			Total Phosphorus (P)	23.6
12-Jul	Clear	LBPR-9.34	Cadmium (Cd) - Total	27.6
			Cobalt (Co) - Total	23.7
			Copper (Cu) - Total	30.6
			Lead (Pb) - Total	22.7
			Manganese (Mn) - Total	26
			Total Phosphorus (P)	90.5
			Total Suspended Solids	44.3
			Manganese (Mn) - Dissolved	49.3
1-Oct	Clear	RBPR-5.70	Aluminum (Al) - Total	24.9
			Cadmium (Cd) - Total	27.7
			Cobalt (Co) - Total	24
			Iron (Fe) - Total	29.2
			Lead (Pb) - Total	23.5
			Total Suspended Solids	33.1
			Vanadium (V) - Total	21
9-Oct	Clear	RBPR-5.70	Cadmium (Cd) - Total	26.9
			Total Suspended Solids	33.7
			Nitrate (as N)	138
15-Oct	Clear	RBPR-5.81	Iron (Fe) - Total	20.7
			Titanium (Ti) - Total	20.7
10-Dec	Clear	LBPR-9.34	Dissolved Organic Carbon	22.6
			Cadmium (Cd) - Total	20.9
			Titanium (Ti) - Total	31.8

[1] Clear flow: Peace River sampling site TSS ≤ 25 mg/L; Turbid flow: Peace River TSS > 25 mg/L and ≤ 100 mg/L; Very Turbid: Peace River TSS > 100 mg/L.

[2] RPD was calculated if at least one replicate was > 5 times the MDL.

Grey shading indicates one replicate result was an outlier and was removed from the data set. Data were considered outliers if RPD>>20% and results were not within typical ranges for the parameter.

Table 35. Summary of cases with a relative standard deviation >18% for triplicate samples in 2018.

Date (2018)	Site	Parameter (units)	Average	SD	Relative Standard Deviation (%)[1]
30-Mar	RBPR-9.34	Turbidity (In Situ, NTU)	2.47	0.473	19.2
19-Sep	RBPR-5.81	Turbidity (In Situ, NTU)	50.3	9.59	19.1
9-Oct	RBPR-5.70	Turbidity (In Situ, NTU)	2.23	0.404	18.1

Table 36. Summary of cases where the dissolved metals to total metals ratio was >1.2 in 2018.

Date (2018)	Site	Parameter	Concentration (mg/L)		D-Metal/ T-Metal Ratio
			Total Metal	Dissolved Metal	
23-Mar	RBPR-7.05	Potassium (K)	0.43	0.53	1.23
		Sodium (Na)	1.24	1.52	1.23
24-May	RBPR-5.65	Zirconium (Zr)	0.000243	0.000375	1.54
			0.000244	0.000319	1.31
	RBPR-5.81	Zirconium (Zr)	0.000244	0.000377	1.55
8-Jun	RBPR-5.65	Zirconium (Zr)	0.000163	0.000357	2.19
	RBPR-7.05	Zirconium (Zr)	0.000143	0.000329	2.30
	RBPR-7.15	Zirconium (Zr)	0.000148	0.000307	2.07
19-Sep	RBPR-5.81	Selenium (Se)	0.000237	0.000298	1.26
			0.000239	0.000307	1.28
9-Oct	PR-3.88	Selenium (Se)	0.000283	0.000349	1.23
10-Dec	RBPR-5.70	Selenium (Se)	0.000232	0.000284	1.22
	RBPR-9.34	Molybdenum (Mo)	0.0012	0.00147	1.23

Appendix C

TETRA TECH

TECHNICAL MEMO

ISSUED FOR USE

To:	Greg Scarborough, Molly Brewis BC Hydro	**Date:**	March 22, 2019
c:		**Memo No.:**	
From:	Lara Reggin/James Barr	**File:**	704-ENG.VMIN03021-01
Subject:	Site C Clean Energy Annual Report Site Audits 2018		

1.0 INTRODUCTION

This report presents a summary of field reviews completed during 2018 for the Site C Clean Energy Project related to auditing the acid rock drainage and metal leaching (ARD-ML) materials management on-site in reference to:

- BC Hydro Construction Environmental Management Plan (CEMP rev 04, July 26, 2016);
- Site C Clean Energy Project, Peace River Hydro Partners Main Civil Works Contract, Appendix 6-2 Technical Specifications, Relocated Surplus Excavation Materials and Water Management, Section 13 40 00, revision 4, Dec 4, 2015.
- Peace River Hydro Partners (PRHP) Environmental Management Plan (EMP), Appendix A: Acid Rock Drainage and Metal Leachate Management Plan (Rev 10rev_1, 2016-10-27); and
- PRHP Environmental Protection Plans (EPP), specific to facility or construction area.

Four site audits were completed in 2018 conducted by James Barr, P.Geo., and/or Lara Reggin, P.Geo., both of Tetra Tech, on the following dates: March 26-27, May 29-31, July 24-25, and September 26, 2018. Mr. Barr and Ms. Reggin fulfill the role as BCH QP(ARD) as per the CEMP Appendix E, S. 6.1.2.

- Monday March 26 and Tuesday March 27, 2018: The site audit was conducted by James Barr, P.Geo., and Lara Reggin, P.Geo., of Tetra Tech. Mr. Barr and Ms. Reggin were accompanied by Molly Brewis and Brian Hawes on the Main Civil Works site on Monday, and by Brian Hawes to the Main Civil works on Tuesday. On Wednesday, March 28 Mr. Barr participated in the Monthly Independent Engineer (T.E. Little Consulting) and Independent Environmental Monitor (Environment Dynamics Inc.) site tour accompanied by Steve Abbey (BC Hydro) and several representatives from PRHP, BC Hydro, and Lorax. Time on-site was spent reviewing ARD-ML materials management at various construction areas and RSEM (Relocated Surplus Excavation Material) facilities and designated water discharge points. While on-site, contact and discussions were had with Steve Abbey, Molly Brewis, and Brian Hawes of BC Hydro; Kael Hanak of PRHP and Bruce Mattson of Lorax (ARD-ML QP for PRHP).
- Tuesday May 29 to Thursday May 31, 2018: A site visit to the Main Civil Works site during the afternoon of May 29 by James Barr, P.Geo. On May 30, Mr. Barr attended the monthly IEM Site Tour. On Thursday, May 31, 2018, the Portage Mountain Quarry was visited by Mr. Barr. During the visit, Mr. Barr met with Duz Cho representatives, Jacob (Superintendent), Nick (Site Foreman) and from Plan B Consultants, Jono (QEP for Duz Cho). Communication prior to the site visit was conducted with Vicki Burtt, BC Hydro Environmental Task Manager for Site C.
- Tuesday July 24 and Wednesday July 25, 2018: The site audit was conducted by James Barr, P. Geo. Mr. Barr was accompanied by Brian Hawes and Josh Stoski (both BC Hydro) on July 24, and by Andre Sidorowicz (Tetra

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Tech) on July 25. Time was spent on the Main Civil Works site both days. On Wednesday, July 25, Mr. Barr contributed to an ARD-ML workshop held at the BC Hydro offices which was organized by Molly Brewis; site Natural Resources Specialists (NRS's), Melissa Mukai and Molly Brewis, were in attendance. Time on-site was spent reviewing ARD-ML materials management at various construction areas and RSEM facilities, and designated water discharge points. While on-site, contact and discussions were had with Steve Abbey, Molly Brewis, Josh Stoski, Ian Kerr and Brian Hawes of BC Hydro.

- Wednesday September 26, 2018: The site audit was conducted by James Barr, P. Geo. Mr. Barr was accompanied by Josh Stoski (NRS, BC Hydro). Time was spent on the Main Civil Works site. Time on-site was spent reviewing ARD-ML materials management at various construction areas and RSEM facilities and designated water discharge points. While on-site, contact and discussions were had with Steve Abbey, Molly Brewis and Josh Stoski. On Tuesday, September 25, 2018, prior to the site visit, Mr. Barr attended a meeting with BC Hydro and representatives from the BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development, Comptroller for Water Rights.

2.0 2018 SITE AUDITS OVERVIEW AND SITE CONDITIONS

Each site visit and ARD-ML audit was comprised of visiting areas on-site with stored or exposed shale rock (PAG), or areas in construction intended for future storage of PAG. In addition, several water conveyances and ponds contact both PAG and non-PAG potentially influenced by PAG materials, were observed and field data collected, as required.

2.1 Weather Conditions

The weather conditions during the four site visits for 2018 varied from snow covered, frozen conditions to dry conditions, with temperatures as low as -10°C in March, to highs of 25°C in July.

Some flowing water or seepages were noted at various locations on-site. Due to either frozen (March) or dry (May and September) conditions, flow was characterized as low within the ditches and on slopes.

Table 1: Weather Conditions and Observations During Site Audits

Site Audit Date	Weather	Observations
March 26 - 27, 2018	Cloudy, intermittent snow fall, -10°C to - 5°C, ground snow covered 24 hr. precipitation: 1.07 mm (snow water equivalent), 7-day trailing precipitation: 18.87mm (North Camp_B_Met60)	The weather conditions experienced during the site visit were considered cold for late March conditions, as cold, cloudy with intermittent snow cover. There was no flowing water or seepages noted within ditches and slopes due to frozen conditions and low 7-day total precipitation measuring 18.87 mm (equivalent to approximately 18.87 cm of snow) prior to March 26, 2018.
May 29 - 31, 2018	Partly sunny, 15-20°C, dry, no rain previous 24-hours.	The weather conditions were considered average for spring, with partly sunny skies and warm temperatures. There was no flowing water in ditches and slopes were generally dry.
July 24 - 25, 2018	Sunny, ~18°C to 25°C, dry ground, 24 hr. precipitation: 0 mm, 7-day trailing precipitation: 58.75 mm (North Camp_B_Met60)	The weather conditions experienced during the site visit were considered warm for late July conditions, as it was sunny with an average temperature of 17 degrees. There was minimal flowing water or seepages noted within ditches and slopes due the persistent warm and dry conditions, with a 7-day total of 58.75 mm prior to July 25th, 2018.

Site Audit Date	Weather	Observations
September 26, 2018	Partly Cloudy with light drizzle, 9°C to 13°C, dry ground, 24 hr. precipitation: 0 mm, 7-day trailing precipitation: 0 mm (North Camp_B_Met60)	The weather conditions experienced during the site visit were considered cool and typical for early Autumn with overcast skies, occasional slight drizzle and temperatures ranging between 9 and 13 degrees Celsius; overnight temperatures remained above the freezing point. Both dry and low flowing water conditions were observed on-site. No precipitation was recorded within the preceding 7-day period.

2.2 Locations Visited

For the site audits, known PAG exposures are listed according to their RSEM or catchment area (Table 2), and are shown in Figure 1.

Table 2: List of Locations Visited During Site Audits

Locations Visited			Site Audit Date			
			March 26-27	July 24-25	May 29-31	September 26
Left Bank Construction Areas	RSEM L6	Sediment Ponds and Drainage Channels		✓		
		Diversion Inlet Portal				
		Diversion Outlet Portal				
		Cofferdam Excavation				
		PAG in RSEM				✓
		LBEx Catchment Pond		✓		
		Diversion for natural drainage around LBEx Sed pond		✓		
	RSEM L5	Garbage Creek (water conveyance to L5)	✓	✓	✓	✓
		Permanent Sediment Ponds		✓	✓	✓
		PAG in RSEM	✓	✓		✓
		LBEx		✓		✓
		Temporary PAG Contact Pond		✓		✓
		LB Diversion Tunnel	✓	✓		✓
	Howe Pit		✓	✓		✓
	Historical Adit 4			✓		
	River Road		✓	✓		✓
	L3 Creek (Natural)		✓			
Right Bank Construction Areas	Water Treatment Plant			✓		
	RSEM R5a	PAG in RSEM	✓	✓	✓	✓
		Up-gradient Cut-off Ditch	✓	✓	✓	
		R5a Sediment Ponds	✓	✓	✓	✓
	RSEM R5b	PAG in RSEM		✓		✓
		Spillway Approach Channel	✓	✓	✓	✓
		Sediment Ponds	✓	✓	✓	✓
	R6	RCC Cofferdam	✓	✓		✓
		SBIAR (east and west cut-slope: ECS, WCS)	✓	✓	✓	✓
		RB Abutment Foundation				✓
		PAG in RSEM	✓	✓		✓

Table 2: List of Locations Visited During Site Audits

Locations Visited			Site Audit Date			
			March 26-27	July 24-25	May 29-31	September 26
	RBDT					✓
	Area 30 / Septimus Rail Siding					✓
	Phase II Crusher		✓			
	Area A					✓
	Area 21			✓		
Off MCW	Portage Mountain Quarry				✓	
Off MCW	Transmission Line Upper FSR					

RSEM: Relocated Surplus Excavation Material
RBDT: Right Bank Drainage Tunnel

3.0 FIELD DATA

3.1 Rock Sample Analyses

Eight rock samples were collected during the May 2018 site visit from the Portage Mountain Quarry access road. Four composite rock samples (combining various rock types into one representative sample) were collected along a cross-section of the access road between 0+640 and 0+880, three additional composite samples were collected from the access road between approximately 1+600 and 1+385, and one composite sample of the cover material in the stockpile area near to where the water is ponding. The samples were submitted to the laboratory for acid-base accounting and trace element analysis. Six of the eight samples were classified as non-PAG (not potentially acid generating) and two of the eight samples were classified as PAG (potentially acid generating). The proportional volume represented in outcrop of PAG material compared to non-PAG material was considered minor. Sufficient buffering capacity should be provided from non-PAG rocks so that the risk of net acid generation from these combined rocks can be considered low when well blended.

The ABA results are summarized in the following table:

Table 3: Results of Acid-Base Accounting Analyses from Portage Mountain Quarry Access Road

Sample Number	S%	S%	CO2	Sobek NP [1]	MPA[2]	NNP [3]	NPR [4]	NPR [4]	Classification
	(Sulphide)	(Sulphate)	(%)	tCaCO3/1Kt			(Sobek)	(CO3)	
PQ-019	0.02	<0.01	4.2	99.0	0.9	98.0	105.60	106.13	Non-PAG
PQ-021	0.11	<0.01	<0.2	8.0	4.4	4.0	1.83	0.52	PAG
PQ-023	0.19	<0.01	<0.2	-2.0	9.1	-11.0	-0.22	0.25	PAG
PQ-027	0.03	<0.01	2.4	64.0	1.9	62.0	34.13	28.73	Non-PAG
PQ-030	0.03	0.01	2.6	65.0	1.6	63.0	41.60	36.96	Non-PAG
PQ-031	0.19	<0.01	1.2	40.0	7.2	33.0	5.57	3.79	Non-PAG
PQ-032	0.07	<0.01	3.0	75.0	3.1	72.0	24.00	22.01	Non-PAG
PQ-033	0.10	<0.01	2.0	62.0	5.3	57.0	11.67	8.58	Non-PAG

[1] Neutralization Potential (NP)
[2] Maximum Potential Acidity (MPA)
[3] Net Neutralization Potential (NNP)
[4] Neutralization Potential Ratio (NPR)

The results of trace element analysis were compared against both the average crustal abundance values for Earth's crust (Appendix Table A2) and 'sedimentary rocks – shales' (Price, 2009; Appendix Table A3), which may provide identification of anomalous elemental concentrations. The elemental concentrations of the eight samples are either similar to or slightly elevated above or below the average crustal abundance values and shale specific values. There were no concerns related to elevated trace elements and their relation to potential ARD-ML.

3.2 Material Testing

Two samples of sludge were collected during the July site audit from River Road from within the ditch sediment. One sample was located up-gradient of the diversion pipe and the lower chimney ditch (STC-060), and the second was located at the end of the diversion pipe (STC-059). Both samples were saturated during the time of sampling and were sent to a laboratory for ABA and trace element (metals) analysis. The samples were described during the time of collection as being "sand, silt and minor clay, brown to orange colour". The results from these tests have been included in Appendix A. The samples were classified as non-PAG. Their composition was similar, with Sulphur primarily contained as sulphate, and elements noted to be anomalous at less than one order of magnitude relative to average crustal abundance being arsenic and zinc.

Table 4: Results of Acid-Base Accounting Analyses from River Road Ditch Sediments

Sample	Location	Paste pH	Inorganic Carbon, C %	Inorganic Carbon, CO2 %	Total Sulphur, S%	Sulphide Sulphur, S%	Sulphate Sulphur (HCl leachable)	Maximum Potential Acidity (kg CaCO3/tonne)	Sobek NP [1] (kg CaCO3/tonne)	Sobek NNP [2] (kg CaCO3/tonne)	Sobek NPR [3] (NP:MPA)	Carbonate NP [1] (kg CaCO3/tonne)	Carbonate NPR [3] (Carbonate NP:MPA)	Classification
STC-060	LBRR-12+700	7.50	0.99	3.60	0.16	0.03	0.15	5.00	99.00	94.00	19.80	81.87	16.37	Non-PAG
STC-059	LBRR-12+270	7.60	0.56	2.10	0.26	0.04	0.22	8.10	54.00	46.00	6.65	47.76	5.90	Non-PAG

[1] Neutralization Potential (NP)
[2] Net Neutralization Potential (NNP)
[3] Neutralization Potential Ratio (NPR)

3.3 In Situ Water Testing

Frozen site conditions prevented any in situ water pH and alkalinity measurements during the March 2018 site audit. Data collected during the May, July and September 2018 site audits are shown in the table below; they reflect in situ water pH, alkalinity and estimated flow rates.

Table 5: List of In Situ Water Quality Measurements by Visit

Location	Estimated Flow (L/s)	pH	Total Alkalinity (ppm)	May 29-31	July 24-25	September 26
LBRR- Upper Chimney Ditch	<0.5	7.8	180		✓	
LBRR-12+800	<0.3	8.2	180		✓	
LBRR-EDP	<0.2	8.0	180		✓	
		8.4	240			✓
Howe Pit: IDL ditch	Standing	6.8	40		✓	
		6.5	200			✓
RSEM L5 – East Pond	Standing	7.2	100		✓	
		7.2	100			✓
LBEx Containment Pond	Standing	<6.2	0		✓	
LBL3C-1.65	4	7.8	180		✓	
RSEM-R5a, Cell C	Standing	7.8	180		✓	
RBSBIAR-US	1.5	8	240		✓	
RBSBIAR-DS	2	8.08	240		✓	
RBSBIAR-EUS	1.5	7.6	240		✓	
RBSBIAR-EDS	1.5	8.36	240		✓	
Treatment Plant Outflow	0.5	8	200		✓	
RBSBIAR (mid-stream)	1.5	6.8	180			✓
Portage Mountain	No flow	8.56	199	✓		

4.0 SUMMARY OF RECOMMENDATIONS AND MITIGATION MEASURES

The following section lists updates observed by Mr. Barr or Ms. Reggin following their site audits completed in 2018.

Observations made by Tetra Tech during site visits were documented in Technical Memos provided to BC Hydro. Where applicable, BC Hydro communicated non-compliance to relevant contractors which were tracked by BC Hydro site personnel using the Active Compliance Management Tool (ACMT).

4.1 Left Bank

4.1.1 RSEM L5

4.1.1.1 Garbage Creek

The Garbage Creek area was inspected during the March, July and September audits. During the March inspection, the Garbage Creek area was inspected including the water conveyance down to L5. The former access to Garbage Creek lined ditch was closed off to vehicles. During the May visit, the upper head pond area was viewed. Construction activities were underway to clear the area following a high precipitation overflow event due to an upstream debris slide which clogged the culvert to the diversion channel. During the July inspection, the diversion channel was not operational, and water was being pumped from the head pond to the temporary effluent channel using two pumps and six inch lay-flat hoses. During the September inspection, the active construction of the diversion ditch resulted in freshly exposed PAG materials adjacent to the ditch, which may potentially generate PAG contact water being introduced into the ditch. The fill material being placed on the TPSA has potential to obstruct

overflow from the Head Pond which may be mitigated by contouring and armoured to avoid erosion or scouring of the fill. A small volume of PAG material was observed in the fill.

4.1.1.2 RSEM Sediment Ponds

The RSEM Sediment Ponds were inspected during the July and September audits.

During both inspections, the RSEM L5 sediment ponds were in active construction. The facility is divided into the eastern and western sections. These ponds collect water from the LBEx, Diversion Inlet Portal, Garbage Creek temporary PAG storage area (TPSA) and RSEM L5 areas. The culvert in the eastern pond is galvanized and the culvert in the western pond is lined with high density polyethylene (HDPE). Both ponds are lined with compacted gravel and were holding water at the time of the July inspection; a tan colored biofilm was observed in the eastern end of the west pond. During the September audit, it was observed that no water was being conveyed to the ponds for management, but rather it was being conveyed to the temporary pond. When the river is diverted through the diversion tunnel (Stage 2), these lower ponds will be decommissioned, and water management will be replaced by future sediment ponds located on an upper bench of the RSEM fill.

4.1.1.3 PAG in RSEM

The PAG in the RSEM L5 was inspected in detail during the March and July site audits.

PAG material continued to be placed mainly in the eastern extent or RSEM L5 and NAG materials were being placed in the western extent of RSEM L5 during both site audits. The area was snow covered during the time of inspection in March. The starter dyke was observed to surround the perimeter of the RSEM at an elevation above the river level of greater than 3 m to 5 m. Some ponded water was observed in the ditch between the starter dyke and the RSEM PAG fill, which was not being conveyed to a pond.

During the July site audit, the toe and outboard side of the RSEM fill was partially capped with compacted gravel; areas of exposed PAG were observed on the south eastern portion of the RSEM fill above the eastern end of the east pond.

4.1.1.4 RSEM L5, Temporary PAG Contact Pond (L5-TPSP)

On March 18, water contained within the temporary pond being used to manage PAG contact water (L5-TPSP) PAG Pond was lost reportedly due to underground drainage. In communications with PHRP representatives, it was suggested that the plausible reason for failure was due to the freezing of material below base of the pond and formation of a cavity during early spring melt causing a sink-hole. At the time of the March site visit, water was ponded and holding. There was potential for undercutting due to low flow in the old Peace River side channel however it was considered unlikely as the pond is bordered by compacted engineered fill, RSEM fill and the LBDT. This was never confirmed, and the pond was infilled in late 2018.

During the July audit, the pond water was being held. The pond did not have direct discharge to the Peace River. During the September audit, this temporary Pond was being reduced in size by infilling, some instability was observed on slopes and infiltration was apparent since the pond was not being discharged but remained at an operating level.

4.1.2 LBEx

The LBEx area was inspected during the July and September audits. During the July audit, PAG remained exposed on lower benches at the southwest corner of the Left Bank Excavation (LBEx). PAG contact water collected within the sump was being piped to the temporary containment pond in RSEM L5. During the July audit, active hauling was observed which was noted to be 95% complete at the time of visit.

4.1.2.1 LBEx Shale Exposure

Bedrock was exposed in the LBEx in 2017 and remained uncovered when inspected during the July site visit from between Bench 4 and 5 down to Bench 1. PAG contact water is being collected within a sump at the base of the bedrock exposure before being conveyed to the Diversion Tunnel Inlet Portal area, where it collects with PAG contact water from bedrock exposed at the portal which is then conveyed L5-TPSP.

4.1.3 RSEM L6

4.1.3.1 PAG in RSEM

During the September audit, low river levels allowed for construction of the starter berms in the River to commence for RSEM L6. No new material was observed being placed into the area on September 25 or 26.

4.1.3.2 LBEx Sediment Pond

The LBEx Sediment Pond was observed to be plugged during the July site audit, and thereafter. Seepage and runoff water from the shale-exposed left bank slopes was being captured and diverted to this pond. The pond perimeter was observed to have been vegetated with cattails. The pH of the water was observed to be below 6 (lower limit of pH strips, meter was not used).

During the September visit, a new up-gradient culvert had been installed to capture and convey water from an erosional gully in the northern slope to the pond. Water from this pond was actively being pumped and transported by hydrovac to the Mobile Water Treatment Facility (MWTF).

4.1.4 River Road

The River Road region was inspected during the March, July and September site audits. During the March inspection, ditches and slopes were snow covered.

During the July site visit, minor amounts of flowing or standing water was observed within the River Road ditch, and minor to trace amounts of seepage was observed on the slopes of the Blind Corner PAG slope. Minor rills and erosion into the ditch were also observed in July from within the north bank slope which is comprised of shale and overburden materials. During the September audit, it was observed that a new limestone buttress had been built along the lower portion of Blind Corner and that new erosion and sediment controls (ESC's)were built into the buttress.

4.1.4.1 Hydroseeding Application

The PAG slope at Blind Corner was hydroseeded on March 19, 2018 using standard site ESC seed mix and a suitable tackifier. The hydroseed application was in hope to promote additional vegetation and reduce erosion and mitigate against active ARD-ML processing. During the September audit, the slope had not sprouted but appeared

to be holding onto the ground surface. A slow progression of natural vegetation that was also observed during the July site visit continued to progress on bedrock adjacent to the Upper Chimney Ditch.

4.1.4.2 Blind Corner Diversion

An approximately 0.5 m inner diameter pipe was installed on March 19 to convey PAG contact water collected in the River Road ditch down-gradient of Blind Corner to the Peace River and assist with managing sediment loading of ditch waters. The lower ditch drains from culverts RR-9 and RR-8 when there is sufficient volume.

Following the March site audit, it was suggested that this pipe be moved down the ditch by ~10 m to allow for the neutralization of PAG water and to allow for the RR-11 culvert to be used as “overflow” during heavy precipitation events.

At the time of the July site visit, culvert RR-9 was perched with approximately 15 cm of freeboard to the inlet of the culvert and was overall 0.8 to 1 meter of freeboard to the top of the road surface. Evidence of water accumulation was observed between the diversion pipe and RR-9.

In the September inspection, some white liquid was observed at both the inlet and outlet of the diversion pipe. This water was sampled as part of the monthly water quality sampling program.

4.1.4.3 Upper Chimney Drain

During the July audit, the upper chimney drain was inspected. Trace amounts of water was observed to be flowing within the limestone rip-rap material. The limestone rip-rap was intact with very little trace of mineral precipitate or sludge accumulations. Some minor undercutting and/or erosion of the native materials around the rip-rap was observed.

4.1.5 Left Bank Diversion Tunnel Area

The site of the Left Bank Diversion Tunnel (LBDT) area was visited during the March inspection to better understand the pre-existing site conditions and the water management structures that would be required in the future Construction of the left bank cofferdams was complete which permitted collection of water behind the slurry walls in areas which were hydraulically isolated from the Peace River, and from which water could be conveyed to water storage facilities in the RSEM L5 area.

4.1.5.1 Left Bank Diversion Tunnel

During the March inspection, work on the Left Bank Diversion Tunnel (LBDT) had not yet commenced however road headers were on-site and covered with tarps. Tunneling remained on hold during the July inspection as well. In September, tunneling by Road Header was in progress. The excavated materials were being relocated to RSEM L5.

4.1.5.2 Left Bank Diversion Inlet Portal

During the March site visit, though inactive at the time of the site audit, the excavation of the Left Bank Diversion Inlet Portal (LBDTIP) was ongoing and had progressed 15 m vertical down in shale bedrock. By July, it was observed that construction of the LBDTIP was advancing downwards into the floodplain soils. The shale exposure had been fully shotcreted; abundant iron oxide staining was visible on the shotcrete where depressurization/drainage pipes had been installed. PAG contact was being collected within a sump and being pumped to the RSEM L5 temporary containment pond and being allowed to infiltrate.

4.1.5.3 Left Bank Diversion Outlet Portal

Development of the Left Bank Diversion Outlet Portal (LBDOP) had commenced during the time of visit in July. The LBDOP was being excavated directly with an excavator sloping the bedrock exposure instead of by benching. During the September audit, excavation and application of shotcrete on the portal was noted to have been completed with tunneling by the Road Header in progress.

In September, it was observed that the excavation and application of shotcrete on the inlet poral was complete and the steel structure had been installed at the entrance to the tunnels. Ground preparation and slope of bedrock at the portal face was complete and the installation of rock mesh and bolts was underway. As of the September visit, further excavation through colluvium and some bedrock was still required to meet elevation of the tunnel outlet.

Low water was observed at the tunnels and base of excavation behind the slurry wall; this water was assumed to be pumped to RSEM L5 temporary pond.

4.1.5.4 Adit #4

Historical Adit # 4 had been exposed at the east side of the LBDIP as observed during the July site audit. When first exposed, it was noted by PRHP to BC Hydro that high water flow occurred from the adit. Effluent flow had subsided at the time of the July visit, effluent was currently being collected by the LBDIP sump.

Although the adit was not visited during the September audit, it was verbally communicated that the adit located within LBEx was being filled with grout from the LBEx bench. PRHP assessment determined that open adit had potential to store approximately 5,000 cubic meters of residual water. As the adit was filled with grout, this water would be displaced and would be managed using the LBEx sediment pond.

4.1.5.5 Adit #2

Historical Adit #2 is located and exposed on the eastern site of the LBDIP. It is upsloping and was initially drained when exposed. During the September site visit, little to no flow was observed from the adit. Water flow from this adit is collected and conveyed from the LBDIP excavation to the RSEM L5 temporary pond (L5-TPSP).

4.1.6 L3 Creek

The L3 Creek Stilling Basin at the base of the RSEM L3 spillway was observed to be under construction during the July visit. Water quality measurements were collected downstream in the L3 Creek during the routine monthly water quality sampling in March and April 2018, which indicated a weak PAG contact geochemical signature which had not previously been observed in the monthly water quality record. The geochemical signature was not observed during the May and subsequent monthly water quality sampling events, following the Stilling Basin's discontinued use. The inspection aimed to identify any PAG material which may have been used to construct the Stilling Basin or areas where under cutting to bedrock may have occurred. PAG materials were not observed at this location.

4.1.7 Howe Pit Area

The Howe Pit Area was inspected as part of the March site audit and was noted as being snow covered and frozen. Water that flows through this area was noted to historically flow through exposed bedrock prior to draining into a small natural pond located on the bench below Howe Pit, prior to infiltrating down to L3 Creek. In March, a design concept was proposed for a blanket subdrain system at the base of a new RSEM in Howe Pit to collect groundwater seepage in the Howe Pit Area and to divert this water to a single pipe prior to draining. This design was not completed, and the facility was not built.

4.1.7.1 IDL Warehouse Laydown

The IDL warehouse laydown area was inspected during the July and September audits.

During the July site audit, recent work on the gravel foundation was inspected. It was noted that ditch excavation on the western perimeter of the fill foundation had exposed PAG material. A moderate to strong iron oxide precipitation was observed in the water that was present in this ditch. Additional excavation of overburden material during construction of the laydown area exposed PAG to the west of the ditch. PAG material was exposed at surface during the site inspection in an area that was water saturated. This PAG remained exposed during the September audit and water was pooling. Consequently, water testing showed that the accumulation of limonite and orange algal growth was not indicative of net acid generation from ARD-ML processes and that the water was neutralized by residual alkalinity.

A stockpile of PAG from the IDL work was observed along the southern perimeter of Howe Pit during the July and September audits. The EPP for this construction area states that exposed PAG will be covered with non-PAG overburden, and materials will be disposed of in an approved disposal site.

4.1.7.2 Howe Pit, Historical Shale Quarry

During the September audit, the Pond located at the quarry drainage was holding water which was moderately turbid and coloured orange and green. Water quality testing was not conducted at this site. Ponded water with strong iron oxide precipitation was observed adjacent the pond, on the same bench. This water level fluctuates, with some loss to evaporation and some infiltration to L3 Creek.

4.1.7.3 Tracker Laydown Area

A small pond was observed in the Tracker laydown area which drains water collected from the Gully Road crossing during the July audit. The ponded water is not believed to be PAG contact water, however, weak iron oxide staining was observed. No water quality measurements were collected.

4.1.8 Area 25

A brief inspection was conducted at the Area 25 Stockpile area during the July site audit, following verbal report by site personnel of a possible shale exposure at this facility. No shale was observed.

4.2 Right Bank

4.2.1 RSEM R6

During the March audit, an overview of RSEM R6 was observed from the vantage point of Area 21. RSEM R6 area was covered in snow and it was snowing heavily at the time of the visit. Both the east and west ponds were covered with snow and there was no observed flowing or open water at the time of the audit. During the July audit, the R6 area was visited and, both the east and west cells contained water, and were not discharging. During the September inspection, no significant observations were made. A catchment pond managed by AFDE located at the southwest corner of the RSEM R6 area was observed to be holding some water and seemed underutilized.

4.2.2 RSEM R5b

RSEM R5b was not active at the time of the March site visit and was covered in snow. Site communication with Molly Brewis and Brian Hawes informed that RSEM R5b was actively discharging March 17-20 during early spring melt. The facility was visited again in May and July.

4.2.2.1 RSEM R5b Pond

The pond was frozen at the time of the March audit, however the datalogger in the pond for the real-time collection of pH, EC, and turbidity is contained in an insulated box and was ice free for daily sampling. A flocculant shack is located upstream of pond spanning the inflow ditch, intended for flocculent addition during freshet flows. A shack has also been built over the pond outlet pipe to monitor flow and facilitate collection of samples from discharge from the R5b pond, at the time of the March site audit, was passively discharging, with very low flow <200 mL/s. The flow gauge was not working properly, and the outlet pipe was almost completely frozen. Brief inspection of the toe of RSEM pond was undertaken to check for seeps during the March site visit, however, the area was snow covered and presence of seeps could not be verified. No discolouration of snow was observed.

During the July site visit, the RSEM R5b pond was discharging at a rate of 13 L/s. The main input to the RSEM R5b pond was treated water from the Mobile Water Treatment Facility (MWTF). Ponding of water was observed at the collar location for groundwater hole GW-6. The water is interpreted to have accumulated from recent high precipitation in a ground depression surrounding the collar. Water was again observed to be pooling in this location during the September audit.

4.2.3 RSEM R5a

The RSEM R5a area was not active or receiving PAG material during the time of the March site inspection, hhowever, a hydro vac truck was observed disposing waste materials (unconfirmed material and source, believed to be excess slurry from the roller compacted concrete (RCC) Buttress works) in a small sump located in the upper benches near the southwest end of the RSEM. It is understood that this area was previously receiving RCC/slurry waste. The RSEM was snow covered with no observed flowing water. During the September audit, no active hauling was observed, but recently deposited material prior to the visit were noted in the RSEM along the upper benches. This material appeared to be capped with compacted gravel and fines but was not inspected for impermeability.

A walk around inspection was completed at the eastern end of the RSEM, near the proposed up-gradient cut-off ditch prior to the March visit. Several pickets (assumed to be identifying the line of the ditch) were observed. No equipment was observed in the site and the area has been reportedly cleared of snow previously in preparation for construction, however was covered by significant snow at the time of the site visit during the March audit. In September, the eastern end of the non-contact diversion ditch was observed to be in construction. During this time, it was also observed that PAG had been cut and exposed in this area. This PAG exposure will require cover prior to completion of the ditch.

In this area two drainage gulley's intersect and flow into the RSEM. It is understood that the up-gradient non-construction-contact water from the eastern portion of the RSEM will be diverted to a catchment pond east of RSEM R5a and adjacent to the Moberly River. The cut-off ditch for the western portion of the RSEM has been completed and conveys non-construction-contact water around the RSEM to an outlet up-gradient of the RSEM.

During the September audit, the dumping of slurry into a pond was observed near the western end of the RSEM; the slurry was brown and opaque; the source of the material could not be confirmed. The upper non-contact cut-off ditch had been nearly completed except for the spillway on the eastern side of the ditch.

4.2.3.1 RSEM R5a Sediment Pond

The R5a settlement pond is located along the north side of the RSEM and is divided into four cells, Eastern, East Central, West Central and Western. All four cells of the R5a pond were observed and staff gauges are installed in each pond. When required, water levels within the pond are managed through pumping between ponds and conveying water to RSEM R5b to reduce the chance of discharge occurring from this pond. In September, it was suggested that a redundant backup plan should be in place in the event of failure of the active management system.

During the March site visit, in the eastern ponds, the staff gauge was visible and top of snow was at 30 cm mark. The west and west central pond snow was less than 10 cm on the staff gauge. Four outlet pipes were observed near the staff gauges and appeared to be at approximately the 80 to 90 cm mark of the staff gauge. All four sediment ponds contained low volumes of water during the July and September. The depth gauge in cell A indicated the water was at the 10-gradient marker during the July audit, and indicated depth at gradient 40 in cell B. Pond depth records show elevated levels with near discharge during high precipitation event September 8-10, 2018.

No evidence of pond discharge was observed during the July audit.

During the July audit, some local rilling and erosion through the compacted gravel cover down to shale was observed within the RSEM Pond berms. This local erosion and PAG exposure were observed again in September and visible salts from ARD-ML processes could also be seen. Material replacement and recompaction would reduce potential for ARD-ML processes.

4.2.3.2 PAG Material Stockpile

During the July site audit, it was observed that large tracts of PAG was exposed within RSEM and moderate amounts of white colored mineral precipitation was locally observed. Evidence of active dumping could be seen, and it was understood that PRHP was prioritizing areas for placement of PAG based on Rinse pH sampling, which is conducted and reported by Lorax on a quarterly basis.

4.2.3.3 Non-Contact Cut-off Ditch

A brief inspection was conducted at the non-contact cut-off ditch where construction of the eastern extent of the ditch was underway during the July audit. Lining of the ditch has been completed along the upper elevation, however, construction of the spillway was not complete; the spillway will direct the water to the Moberly River via a cascading and contoured channel.

During the September audit, water was observed in all four ponds with some evidence of water level lowering which may be indicative of infiltration. Some erosion and exposure of PAG along the starter dyke slope was observed with evidence of ARD processes. No active hauling was occurring during time of inspection, however recent material deposition seemed to have occurred. Dumping of slurry into a pond was observed near the western end of the RSEM. The eastern end of the upper non-contact ditch diversion was observed to be constructed.

4.2.4 Right Bank Drainage Tunnel

During the September audit, it was noted that the Right Bank Drainage Tunnel (RBDT) had been advanced laterally to 740 m to the main drainage chamber with a total planned length of approximately 1 km. The temporary stockpile in front of the tunnel portals was full and the perimeter berm was in disrepair.

4.2.5 RCC Cofferdam Excavation

The RCC Cofferdam area was observed during the March, July and September audits. Due to heavy traffic and access restrictions, the excavation was not entered. During the March audit, the RCC Cofferdam area was observed from the vantage points of the South Bank River Road and from the Right Bank Approach Channel. The area was active at the time of the site audit with ongoing construction at the base of the excavation. Shotcrete had been applied to the cut-slope surrounding the excavation. Effluent water from the RCC Cofferdam area was being pumped to RSEM R6. During the July audit, the benched southern cut-slope appeared to be partially covered with shotcrete, or some type of cover, however, much of the slope was uncovered. Some minor seeps were observed in the rock face. Iron staining was visible on shotcrete cover material. In September, there were numerous bedrock exposures that were subject to minor seeping.

4.2.6 Approach Channel

The Approach Channel was inspected during the March, July and September audits.

On March 26, no ongoing excavation activity was observed in the Approach Channel, however exposed PAG prior to the March audit was noted within the excavation benches. Water was being collected at the base of the excavation cut and was partially frozen. It was understood that water from this area was being diverted through a culvert towards RSEM R5b. Pumping of water was not observed during the time of site visit. In July, this pooled water was observed to have moderate to strong iron oxide precipitation and was actively being pumped to the containment pond up-gradient of the MWTF. This water was observed to also be collected and conveyed to the water treatment plant during the September site visit.

During the July audit, no active excavation was underway within the Spillway Approach Channel. Excavation activities are planned but were not underway within the Spillway Approach Channel. Water collecting within ditches was observed to have moderate to strong iron oxide precipitation and was actively being pumped to the MWTF.

4.2.6.1 Mobile Water Treatment Facility

At the time of the March site audit, a mobile water treatment facility (MWTF) was in its final stages of approval to treat water from the Spillway Approach Channel and the LBEx Sediment Pond on the right bank. The pad for the MWTF is located within the Right Bank Approach Channel.

During the July site visit, the MWTF was operating at the time of the visit, and processing approximately 6-7 L/s of PAG contact water collected from the Spillway Approach Channel. Water was pumped from the Approach Channel to a lined containment pond prior to being treated in the plant. This water was observed to have moderate to strong iron oxide precipitations. A polishing pond facility, consisting of three cells, had been built but was not operational due to concerns with potential metal loading from the pond separation berms. The treated water was being pumped into a Baker tank to promote settlement of flocculant and solids prior to being discharge into ditches which convey the water to the RSEM R5b pond.

During the September audit, water was observed being pumped an increased rate of 10L/s from the Spillway Approach Channel, RCC Trial Batch Pond and LBEx sediment ponds. Water continued to be treated through settlement and flocculation before being discharged and was noted to successfully discharge water with depressed metal concentrations.

Following the September audit, a pipe was proposed to divert up-gradient non-PAG water around the PAG exposure to help dilute low pH water before draining into RSEM R5b. Furthermore, a redundant system should be considered for implantation at the facility to manage high flow events or in the situation of mechanical pumping failure. It should

be considered that the volume of water being fed to the plant can be reduced by reducing the volume of PAG contact water, such as by diverting up-gradient water around the Spillway Approach Channel and by building berms around the WTP containment pond. Additionally, a redundant backup system could include additional pumping and storage capacity.

4.2.7 South Bank Initial Access Road

The South Bank Initial Access Road (SBIAR) was inspected during all four audits. During the March audit, the western side of SBIAR was inspected. Both the ditch and slope were covered in snow, and no flowing water was observed. Although not observed directly at the time of the site audit due to snow cover, discussion with Anthony Schaefer (Tetra Tech) indicated that significant ice lenses had formed frequently throughout this winter on the SBIAR slope, particularly on the western (east facing) slope. During the May audit, water was flowing in both ditches and in situ water quality tests measured pH of 8.2 and total alkalinity of 180 mg/L. During the July audit, it was observed that minor seeps were occurring on the western and eastern cut-slopes. These seeps were observed to be orange and white colour mineral precipitates indicating progression of active ARD-ML processes. Seepage continued to be observed on both slopes during the September audit, but was more prominent on the eastern cut-slope. Vegetation growth along the contact of bedrock and overburden could also be seen at the time of the September site audit.

4.2.8 Area 21

During the July site audit, it was observed that water from the Area 21 pond HDPE pipe did not appear to be draining into SBIAR and was being piped directly to RSEM R6. A new pipe was observed in the eastern ditch which was understood to be a water supply line going to Area A screening operations. During the September inspection, ponded water was observed at the eastern edge of Area 21. A sump was also noted to be located immediately west of the pond which appeared to be used for dumping of concrete slurry and wash from concrete trucks.

4.2.9 Area 30/Septimius Rail Siding

During the September audit, an erosion and sediment control water infrastructure facility was in construction and a new drainage system was being implemented at the northwest corner of the siding area. There was also active unloading of limestone from West Pine Quarry on September 26.

4.2.10 Area A/Phase II Crusher Operations

The Phase II Crusher Operations area, with Area A, was inspected during the March Audit. The audit team was escorted into the active pit area by a site supervisor (Gerome). Excavation of the materials was observed from a distance as active excavation and truck hauling was ongoing. The materials were being dug out of the slope by excavators and transported to the sorting and crusher area. Although detailed inspection of the material was not possible it was obviously overburden materials and there was no shale or weathered bedrock horizon materials observed. Materials excavated from this area are sorted and crushed with an impact crusher and used in the RCC mix.

During the September audit, it was observed that the excavation was ongoing and there was no visual evidence of bedrock or weathered bedrock material in the pit or stockpiles.

4.3 Locations Off-Site of Main Civil Works

4.3.1 Portage Mountain Quarry

The Portage Mountain Quarry was audited during the May site visit. It was observed that the access road was being widened to accommodate haulage of material from site to highway construction site. The road surfacing on top of the road subbase was planned to be 0.3 m, and the cut-slopes were observed to be meeting their 3:1 specified ratio in both soil and rock.

During the time of the site visit, exposed rock slopes showing iron oxide staining were identified by site personnel to have potential for acid generation and metal leaching. Discussions with the on-site contractor (Duz Cho) at the time of the site visit included methods of monitoring and reducing environmental impact following exposure of these rock slopes. ARD-ML mitigation strategies discussed included methods to identify PAG material, blending, ground cover and bedrock isolation, and water quality monitoring protocols to detect potential onset of acid generating processes. Samples were collected from the road and analyzed for acid-base accounting and trace element concentrations to help characterize the potential for ARD-ML. The results of this work are shown in Table 3 above. It was concluded that the combined risk for net acid generation from the rocks was low and that methods should be considered to mitigate this low risk.

5.0 LIMITATIONS OF REPORT

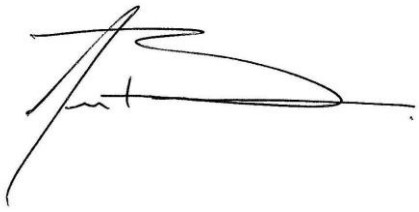
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6.0 CLOSURE

We trust this report meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.





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Attachments:

	Figure 1	2018 ARD-ML Site Audit Locations
	Appendix A	Laboratory Analytical Certificates, River Roads Ditch Sediment
	Appendix B	Laboratory Analytical Certificates, Portage Mountain Quarry Access Road Outcrop
	Appendix C	Tetra Tech's Limitations on The Use of This Document

FIGURES

Figure 1 2018 ARD-ML Site Audit Locations

626000 627000 628000 629000 630000 631000 632000 633000 634000 635000

6232000 6231000 6230000 6229000 6228000 6227000 6226000

240 Rd

265 Rd

Old Fort Rd

Peace River

Moberly River

RSEM R5a

RSEM L5

Left Bank Diversion Tunnel

L3 Creek

LBEX

Area 25

Howe Pit Area

River Road

RSEM L6

RSEM R5b

RSEM R6

RCC Cofferdam Excavation

Approach Channel

Right Bank Drainage Tunnel

South Bank Initial Access Road

Area 21

Area A / Phase II Crusher

Area 30 / Septimus Rail Siding

Off-Site Location:

Alaska Hwy

Main Civil Works
(Dam Construction Site)

Fort St. John

Taylor

Hwy 29

Hudson's Hope

Portage Mountain Quarry

Dawson Creek

Chetwynd

Hwy 97

LEGEND

- Site C Project Boundary

Site Audit GPS Tracks

- March 26-28, 2018
- May 29-31, 2018
- July 24-25, 2018
- September 25-26, 2018

NOTES
Base data source:
Imagery from Google Earth; DigitalGlobe (2018).

STATUS
ISSUED FOR USE

SITE C CLEAN ENERGY PROJECT

2018 ARD-ML Site Audit Locations

PROJECTION	DATUM	CLIENT
UTM Zone 10	NAD83	BC hydro

Scale: 1:30,000

500 250 0 500

Metres

TETRA TECH

FILE NO.
VMIN03021-01_Figure01_SiteAudit.mxd

OFFICE	DWN	CKD	APVD	REV
Tt-VANC	SL	YL	JB	0

DATE	PROJECT NO.
March 21, 2019	ENG.VMIN03021-01

Figure 1

Q:\Vancouver\GIS\ENGINEERING\VMIN\VMIN03021-01\Maps\ARDML_SiteAudit\VMIN03021-01_Figure01_SiteAudit.mxd modified 3/21/2019 by stephanie.leusink

APPENDIX A

LABORATORY ANALYTICAL CERTIFICATES, RIVER ROADS DITCH SEDIMENT

ALS Canada Ltd.
2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: **TETRA TECH CANADA INC.**
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 22-SEP-2018
Account: TGM

CERTIFICATE VA18219634

P.O. No.: 704-ENG.VMIN03021-01 Task B

This report is for 2 Soil samples submitted to our lab in Vancouver, BC, Canada on 4-SEP-2018.

The following have access to data associated with this certificate:

J. BARR	ERICA MASSEY	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	
C-GAS05	Inorganic Carbon (CO2)	
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ
ME-ICP61	33 element four acid ICP-AES	ICP-AES
Hg-MS42	Trace Hg by ICPMS	ICP-MS
OA-VOL08	Basic Acid Base Accounting	
S-IR08	Total Sulphur (Leco)	LECO
OA-ELE07	Paste pH	
S-GRA06	Sulfate Sulfur-carbonate leach	WST-SEQ
S-IR07	Sulphide Sulphur (Leco)	LECO

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature: <Original signed by>

Colin Ramshaw, Vancouver Laboratory Manager

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To: **TETRA TECH CANADA INC.**
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 22-SEP-2018
Account: TGM

CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	OA-VOL08 FIZZ RAT Unity 1	OA-VOL08 MPA tCaCO3/1Kt 0.3	OA-VOL08 NNP tCaCO3/1Kt 1	OA-VOL08 NP tCaCO3/1Kt 1	OA-ELE07 pH Unity 0.1	OA-VOL08 Ratio (N Unity 0.01	S-IR08 S % 0.01	S-GRA06 S % 0.01	S-GRA06a S % 0.01	S-IR07 Sulphide % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	ME-ICP61 Ag ppm 0.5	ME-ICP61 Al % 0.01
SC-059		1.00	3	5.0	94	99	7.5	19.80	0.16	0.13	0.15	0.03	0.99	3.6	<0.5	3.72
SC-060		0.72	2	8.1	46	54	7.6	6.65	0.26	0.21	0.22	0.04	0.56	2.1	<0.5	4.23

***** See Appendix Page for comments regarding this certificate *****

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CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	Hg-MS42	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	As	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg
	Units	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	%
	LOD	5	10	0.5	2	0.01	0.5	1	1	1	0.01	10	0.005	0.01	10	0.01
SC-059		10	600	0.9	<2	3.36	<0.5	8	57	17	2.57	10	0.038	0.98	20	1.00
SC-060		28	720	1.2	<2	1.86	0.9	9	59	34	4.02	10	0.046	1.16	20	0.75

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CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Tl	U	V
	Units	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	LOD	5	1	0.01	1	10	2	0.01	5	1	1	20	0.01	10	10	1
SC-059		450	3	0.53	34	780	11	0.16	<5	8	179	<20	0.29	<10	<10	101
SC-060		296	5	0.47	38	1820	9	0.29	<5	10	158	<20	0.20	<10	<10	108

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CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	ME-ICP61	ME-ICP61
	Analyte	W	Zn
	Units	ppm	ppm
	LOD	10	2
SC-059		<10	82
SC-060		<10	157

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Finalized Date: 22-SEP-2018
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CERTIFICATE OF ANALYSIS VA18219634

CERTIFICATE COMMENTS

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:			
C-GAS05	Hg-MS42	LOG-22	ME-ICP61
OA-ELE07	OA-VOL08	SCR-41	S-GRA06
S-GRA06a	S-IR07	S-IR08	WEI-21

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QC CERTIFICATE VA18219634

P.O. No.: 704-ENG.VMIN03021-01 Task B

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Hg-MS42	Trace Hg by ICPMS	ICP-MS
OA-VOL08	Basic Acid Base Accounting	
S-IR08	Total Sulphur (Leco)	LECO
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

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Signature:

Colin Ramshaw, Vancouver Laboratory Manager

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Finalized Date: 22-SEP-2018
Account: TGM

QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method Analyte Units LOD	OA-VOL08 FIZZ RAT Unity 1	OA-VOL08 MPA tCaCO3/1Kt 0.3	OA-VOL08 NNP tCaCO3/1Kt 1	OA-VOL08 NP tCaCO3/1Kt 1	OA-ELE07 pH Unity 0.1	OA-VOL08 Ratio (N Unity 0.01	S-IR08 S % 0.01	S-GRA06 S % 0.01	S-GRA06a S % 0.01	S-IR07 Sulphide % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	ME-ICP61 Ag ppm 0.5	ME-ICP61 Al % 0.01	ME-ICP61 As ppm 5
STANDARDS																
Buffer pH6						6.0										
Buffer pH6						6.0										
Target Range - Lower Bound						5.3										
Upper Bound						6.7										
CDN-CM-34														3.7	6.45	102
Target Range - Lower Bound														2.5	5.88	90
Upper Bound														4.9	7.21	122
CO-ASSAY												0.50	1.8			
Target Range - Lower Bound												0.42	1.5			
Upper Bound												0.64	2.4			
EMOG-17																
Target Range - Lower Bound																
Upper Bound																
EMOG-17														65.7	4.48	571
Target Range - Lower Bound														59.0	4.18	510
Upper Bound														73.2	5.13	634
GS310-10								0.26								
Target Range - Lower Bound								0.25								
Upper Bound								0.29								
KZK-1		2	25.0	34	59		2.36									
Target Range - Lower Bound			22.9	30	54		2.18									
Upper Bound			27.1	38	64		2.54									
MA-1b								1.18								
Target Range - Lower Bound								1.12								
Upper Bound								1.22								
MA-2c												1.56	5.7			
Target Range - Lower Bound												1.50	5.5			
Upper Bound												1.84	6.8			
NBM-1		2	8.8	41	50		5.71									
Target Range - Lower Bound			7.8	37	45		5.26									
Upper Bound			9.7	47	54		6.08									
OREAS 602																
Target Range - Lower Bound																
Upper Bound																
OREAS-75a											11.65					
Target Range - Lower Bound											10.85					
Upper Bound											12.00					
UTS-1									0.89							

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To: **TETRA TECH CANADA INC.**
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 22-SEP-2018
Account: TGM

QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	Hg-MS42	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn
	Units	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	%	ppm
	LOD	10	0.5	2	0.01	0.5	1	1	1	0.01	10	0.005	0.01	10	0.01	5
STANDARDS																
Buffer pH6																
Buffer pH6																
Target Range - Lower Bound																
Upper Bound																
CDN-CM-34		490	1.0	2	2.01	1.0	42	241	5760	4.66	20		2.74	10	3.57	437
Target Range - Lower Bound		430	<0.5	<2	1.83	<0.5	37	217	5370	4.26	<10		2.51	<10	3.29	399
Upper Bound		610	2.1	8	2.25	2.0	47	267	6190	5.23	40		3.09	40	4.05	499
CO-ASSAY																
Target Range - Lower Bound																
Upper Bound																
EMOG-17												0.537				
Target Range - Lower Bound												0.490				
Upper Bound												0.610				
EMOG-17		280	1.7	7	1.79	19.5	723	55	8060	4.62	10		1.58	20	0.91	709
Target Range - Lower Bound		<10	0.7	<2	1.72	17.7	685	49	7740	4.42	<10		1.49	<10	0.86	670
Upper Bound		20	2.9	10	2.12	22.7	839	62	8910	5.42	30		1.85	40	1.08	830
GS310-10																
Target Range - Lower Bound																
Upper Bound																
KZK-1																
Target Range - Lower Bound																
Upper Bound																
MA-1b																
Target Range - Lower Bound																
Upper Bound																
MA-2c																
Target Range - Lower Bound																
Upper Bound																
NBM-1																
Target Range - Lower Bound																
Upper Bound																
OREAS 602												0.801				
Target Range - Lower Bound												0.706				
Upper Bound												0.874				
OREAS-75a																
Target Range - Lower Bound																
Upper Bound																
UTS-1																

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885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 22-SEP-2018
Account: TGM

QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Tl	U	V	W
	Units	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOD	1	0.01	1	10	2	0.01	5	1	1	20	0.01	10	10	1	10
STANDARDS																
Buffer pH6																
Buffer pH6																
Target Range - Lower Bound																
Upper Bound																
CDN-CM-34		290	0.72	243	1240	23	3.05	6	16	223	<20	0.48	<10	<10	163	30
Target Range - Lower Bound		269	0.66	220	1110	19	2.70	<5	14	204	<20	0.43	<10	<10	149	<10
Upper Bound		331	0.83	271	1370	29	3.32	17	19	251	40	0.55	20	20	184	50
CO-ASSAY																
Target Range - Lower Bound																
Upper Bound																
EMOG-17																
Target Range - Lower Bound																
Upper Bound																
EMOG-17		1040	1.04	7250	800	6990	3.14	764	8	201	<20	0.30	<10	<10	71	<10
Target Range - Lower Bound		996	0.99	6820	700	6570	2.91	638	6	184	<20	0.28	<10	<10	67	<10
Upper Bound		1220	1.23	8330	880	8030	3.57	874	10	227	50	0.36	20	20	84	20
GS310-10																
Target Range - Lower Bound																
Upper Bound																
KZK-1																
Target Range - Lower Bound																
Upper Bound																
MA-1b																
Target Range - Lower Bound																
Upper Bound																
MA-2c																
Target Range - Lower Bound																
Upper Bound																
NBM-1																
Target Range - Lower Bound																
Upper Bound																
OREAS 602																
Target Range - Lower Bound																
Upper Bound																
OREAS-75a																
Target Range - Lower Bound																
Upper Bound																
UTS-1																

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Finalized Date: 22-SEP-2018
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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method Analyte Units LOD	ME-ICP61 Zn ppm 2
		STANDARDS
Buffer pH6		
Buffer pH6		
Target Range - Lower Bound		
Upper Bound		
CDN-CM-34		192
Target Range - Lower Bound		176
Upper Bound		219
CO-ASSAY		
Target Range - Lower Bound		
Upper Bound		
EMOG-17		
Target Range - Lower Bound		
Upper Bound		
EMOG-17		7050
Target Range - Lower Bound		6800
Upper Bound		8320
GS310-10		
Target Range - Lower Bound		
Upper Bound		
KZK-1		
Target Range - Lower Bound		
Upper Bound		
MA-1b		
Target Range - Lower Bound		
Upper Bound		
MA-2c		
Target Range - Lower Bound		
Upper Bound		
NBM-1		
Target Range - Lower Bound		
Upper Bound		
OREAS 602		
Target Range - Lower Bound		
Upper Bound		
OREAS-75a		
Target Range - Lower Bound		
Upper Bound		
UTS-1		

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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	OA-VOL08	OA-VOL08	OA-VOL08	OA-VOL08	OA-ELE07	OA-VOL08	S-IR08	S-GRA06	S-GRA06a	S-IR07	C-GAS05	C-GAS05	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	FIZZ RAT	MPA	NNP	NP	pH	Ratio (N	S	S	S	Sulphide	C	CO2	Ag	Al	As
	Units	Unity	tCaCO3/1Kt	tCaCO3/1Kt	tCaCO3/1Kt	Unity	Unity	%	%	%	%	%	%	ppm	%	ppm
	LOD	1	0.3	1	1	0.1	0.01	0.01	0.01	0.01	0.01	0.05	0.2	0.5	0.01	5
STANDARDS																
Target Range - Lower Bound									0.83							
Upper Bound									0.93							
UTS-1										0.90						
Target Range - Lower Bound										0.81						
Upper Bound										0.95						
UTS-1											0.12					
Target Range - Lower Bound											0.10					
Upper Bound											0.14					
UTS-4									1.70							
Target Range - Lower Bound									1.64							
Upper Bound									1.84							
UTS-4										1.66						
Target Range - Lower Bound										1.61						
Upper Bound										1.87						
BLANKS																
BLANK												<0.05	<0.2			
Target Range - Lower Bound												<0.05	<0.2			
Upper Bound												0.10	0.4			
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK														<0.5	<0.01	<5
Target Range - Lower Bound														<0.5	<0.01	<5
Upper Bound														1.0	0.02	10
BLANK						6.0										
Target Range - Lower Bound						5.5										
Upper Bound						6.9										
BLANK									<0.01							
Target Range - Lower Bound									<0.01							
Upper Bound									0.02							
BLANK										<0.01						
Target Range - Lower Bound										<0.01						
Upper Bound										0.02						
BLANK											0.02					
Target Range - Lower Bound											<0.01					
Upper Bound											0.02					
BLANK								0.01								
Target Range - Lower Bound								<0.01								
Upper Bound								0.02								

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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method Analyte Units LOD	

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Sample Description	Method	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	Hg-MS42	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	Ba	Be	Bi	Ca	Cd	Co	Cr	Cu	Fe	Ga	Hg	K	La	Mg	Mn
	Units	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	%	ppm
	LOD	10	0.5	2	0.01	0.5	1	1	1	0.01	10	0.005	0.01	10	0.01	5
STANDARDS																
Target Range - Lower Bound																
Upper Bound																
UTS-1																
Target Range - Lower Bound																
Upper Bound																
UTS-1																
Target Range - Lower Bound																
Upper Bound																
UTS-4																
Target Range - Lower Bound																
Upper Bound																
UTS-4																
Target Range - Lower Bound																
Upper Bound																
BLANKS																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK												<0.005				
Target Range - Lower Bound												<0.005				
Upper Bound												0.010				
BLANK		<10	<0.5	<2	<0.01	<0.5	<1	<1	<1	<0.01	<10		<0.01	<10	<0.01	<5
Target Range - Lower Bound		<10	<0.5	<2	<0.01	<0.5	<1	<1	<1	<0.01	<10		<0.01	<10	<0.01	<5
Upper Bound		20	1.0	4	0.02	1.0	2	2	2	0.02	20		0.02	20	0.02	10
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																

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Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: **TETRA TECH CANADA INC.**
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 22-SEP-2018
Account: TGM

QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method Analyte Units LOD	

***** See Appendix Page for comments regarding this certificate *****

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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Tl	U	V	W
	Units	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOD	1	0.01	1	10	2	0.01	5	1	1	20	0.01	10	10	1	10
STANDARDS																
Target Range - Lower Bound																
Upper Bound																
UTS-1																
Target Range - Lower Bound																
Upper Bound																
UTS-1																
Target Range - Lower Bound																
Upper Bound																
UTS-4																
Target Range - Lower Bound																
Upper Bound																
UTS-4																
Target Range - Lower Bound																
Upper Bound																
BLANKS																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK		<1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	<10	<10	<1	<10
Target Range - Lower Bound		<1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	<10	<10	<1	<10
Upper Bound		2	0.02	2	20	4	0.02	10	2	2	40	0.02	20	20	2	20
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																

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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method Analyte Units LOD	

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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	ME-ICP61
	Analyte	Zn
	Units	ppm
	LOD	2
STANDARDS		
Target Range - Lower Bound		
Upper Bound		
UTS-1		
Target Range - Lower Bound		
Upper Bound		
UTS-1		
Target Range - Lower Bound		
Upper Bound		
UTS-4		
Target Range - Lower Bound		
Upper Bound		
UTS-4		
Target Range - Lower Bound		
Upper Bound		
BLANKS		
BLANK		
Target Range - Lower Bound		
Upper Bound		
BLANK		
Target Range - Lower Bound		
Upper Bound		
BLANK		<2
Target Range - Lower Bound		<2
Upper Bound		4
BLANK		
Target Range - Lower Bound		
Upper Bound		
BLANK		
Target Range - Lower Bound		
Upper Bound		
BLANK		
Target Range - Lower Bound		
Upper Bound		
BLANK		
Target Range - Lower Bound		
Upper Bound		
BLANK		
Target Range - Lower Bound		
Upper Bound		

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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method Analyte Units LOD	

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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	OA-VOL08	OA-VOL08	OA-VOL08	OA-VOL08	OA-ELE07	OA-VOL08	S-IR08	S-GRA06	S-GRA06a	S-IR07	C-GAS05	C-GAS05	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	FIZZ RAT	MPA	NNP	NP	pH	Ratio (N	S	S	S	Sulphide	C	CO2	Ag	Al	As
	Units	Unity	tCaCO3/1Kt	tCaCO3/1Kt	tCaCO3/1Kt	Unity	Unity	%	%	%	%	%	%	ppm	%	ppm
	LOD	1	0.3	1	1	0.1	0.01	0.01	0.01	0.01	0.01	0.05	0.2	0.5	0.01	5
DUPLICATES																
ORIGINAL														<0.5	4.24	50
DUP														<0.5	4.41	53
Target Range - Lower Bound														<0.5	4.10	44
Upper Bound														1.0	4.55	59
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																
ORIGINAL								0.24								
DUP								0.25								
Target Range - Lower Bound								0.23								
Upper Bound								0.26								
SC-060											0.04					
DUP											0.05					
Target Range - Lower Bound											0.03					
Upper Bound											0.06					
ORIGINAL									<0.01	<0.01						
DUP									0.01	0.02						
Target Range - Lower Bound									<0.01	<0.01						
Upper Bound									0.02	0.02						
ORIGINAL												<0.05	<0.2			
DUP												<0.05	<0.2			
Target Range - Lower Bound												<0.05	<0.2			
Upper Bound												0.10	0.4			
ORIGINAL		1	0.9	16	17	9.4	18.13									
DUP		1	0.9	15	16	9.4	17.07									
Target Range - Lower Bound		<1	0.6	14	15	8.8	16.71									
Upper Bound		2	1.2	17	18	10.0	18.49									

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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description / Method / Analyte / Units / LOD	ME-ICP61 Ba ppm 10	ME-ICP61 Be ppm 0.5	ME-ICP61 Bi ppm 2	ME-ICP61 Ca % 0.01	ME-ICP61 Cd ppm 0.5	ME-ICP61 Co ppm 1	ME-ICP61 Cr ppm 1	ME-ICP61 Cu ppm 1	ME-ICP61 Fe % 0.01	ME-ICP61 Ga ppm 10	Hg-MS42 Hg ppm 0.005	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10	ME-ICP61 Mg % 0.01	ME-ICP61 Mn ppm 5
DUPLICATES															
ORIGINAL	1900	2.4	<2	0.46	4.5	1	3	30	1.30	20		2.08	50	0.41	115
DUP	1790	2.5	<2	0.49	4.7	1	3	31	1.35	20		2.15	50	0.42	121
Target Range - Lower Bound	1700	1.8	<2	0.44	3.9	<1	2	28	1.25	<10		2.00	40	0.38	107
Upper Bound	1990	3.1	4	0.51	5.3	2	4	33	1.40	30		2.23	60	0.45	129
ORIGINAL											<0.005				
DUP											0.005				
Target Range - Lower Bound											<0.005				
Upper Bound											0.010				
ORIGINAL															
DUP															
Target Range - Lower Bound															
Upper Bound															
SC-060															
DUP															
Target Range - Lower Bound															
Upper Bound															
ORIGINAL															
DUP															
Target Range - Lower Bound															
Upper Bound															
ORIGINAL															
DUP															
Target Range - Lower Bound															
Upper Bound															
ORIGINAL															
DUP															
Target Range - Lower Bound															
Upper Bound															

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Finalized Date: 22-SEP-2018
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QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description	Method	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61	ME-ICP61
	Analyte	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Tl	U	V	W
	Units	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOD	1	0.01	1	10	2	0.01	5	1	1	20	0.01	10	10	1	10
DUPLICATES																
ORIGINAL		7	0.08	1	20	119	0.92	<5	<1	46	<20	0.04	<10	<10	3	<10
DUP		7	0.09	1	20	123	0.95	<5	<1	48	<20	0.04	10	<10	3	<10
Target Range - Lower Bound		6	0.07	<1	<10	113	0.88	<5	<1	44	<20	0.03	<10	<10	2	<10
Upper Bound		8	0.10	2	30	129	0.99	10	2	50	40	0.05	20	20	4	20
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																
SC-060																
DUP																
Target Range - Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																
ORIGINAL																
DUP																
Target Range - Lower Bound																
Upper Bound																

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VANCOUVER BC V6C 1N5

QC CERTIFICATE OF ANALYSIS VA18219634

Sample Description / Method / Analyte / Units / LOD	ME-ICP61 Zn ppm 2
	DUPLICATES
ORIGINAL	1005
DUP	1050
Target Range - Lower Bound	974
Upper Bound	1080
ORIGINAL	
DUP	
Target Range - Lower Bound	
Upper Bound	
ORIGINAL	
DUP	
Target Range - Lower Bound	
Upper Bound	
SC-060	
DUP	
Target Range - Lower Bound	
Upper Bound	
ORIGINAL	
DUP	
Target Range - Lower Bound	
Upper Bound	
ORIGINAL	
DUP	
Target Range - Lower Bound	
Upper Bound	
ORIGINAL	
DUP	
Target Range - Lower Bound	
Upper Bound	

***** See Appendix Page for comments regarding this certificate *****

ALS Canada Ltd.

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To: **TETRA TECH CANADA INC.**
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 22-SEP-2018
Account: TGM

QC CERTIFICATE OF ANALYSIS VA18219634

CERTIFICATE COMMENTS

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:			
C-GAS05	Hg-MS42	LOG-22	ME-ICP61
OA-ELE07	OA-VOL08	SCR-41	S-GRA06
S-GRA06a	S-IR07	S-IR08	WEI-21

APPENDIX B

LABORATORY ANALYTICAL CERTIFICATES, PORTAGE MOUNTAIN QUARRY ACCESS ROAD OUTCROP

ALS Canada Ltd.
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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13-JUN-2018
Account: TGM

CERTIFICATE VA18132683

Project: 704-ENG.VMIN03021-01

This report is for 12 Rock samples submitted to our lab in Vancouver, BC, Canada on 1-JUN-2018.

The following have access to data associated with this certificate:

J. BARR		

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
CRU-QC	Crushing QC Test
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize split to 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
S-IR07	Sulphide Sulphur (Leco)	LECO
C-GAS05	Inorganic Carbon (CO2)	
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ
ME-MS61	48 element four acid ICP-MS	
pXRF-30	Semi-Quantitative pXRF Scan	PXRF
OA-VOL08	Basic Acid Base Accounting	
S-IR08	Total Sulphur (Leco)	LECO
OA-ELE07	Paste pH	
S-GRA06	Sulfate Sulfur-carbonate leach	WST-SEQ

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:
Colin Ramshaw, Vancouver Laboratory Manager

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Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	WEI- 21 Recvd Wt. kg 0.02	OA- VOL08 FIZZ RAT Unity 1	OA- VOL08 MPA tCaCO3/1Kt 0.3	OA- VOL08 NNP tCaCO3/1Kt 1	OA- VOL08 NP tCaCO3/1Kt 1	OA- ELE07 pH Unity 0.1	OA- VOL08 Ratio (N Unity 0.01	S- IR08 S % 0.01	S- GRA06 S % 0.01	S- GRA06a S % 0.01	S- IR07 Sulphide % 0.01	C- GAS05 C % 0.05	C- GAS05 CO2 % 0.2	ME- MS61 Ag ppm 0.01	ME- MS61 Al % 0.01
PQ- 019		1.80	3	0.9	98	99	8.2	105.60	0.03	<0.01	<0.01	0.02	1.14	4.2	0.32	3.63
PQ- 021		0.92	1	4.4	4	8	7.1	1.83	0.14	<0.01	<0.01	0.11	<0.05	<0.2	0.35	4.88
PQ- 023		0.78	1	9.1	-11	-2	4.8	-0.22	0.29	<0.01	<0.01	0.19	<0.05	<0.2	0.25	4.20
PQ- 027		2.70	2	1.9	62	64	7.7	34.13	0.06	<0.01	<0.01	0.03	0.66	2.4	0.29	4.60
PQ- 030		1.06	2	1.6	63	65	7.7	41.60	0.05	<0.01	0.01	0.03	0.71	2.6	0.30	4.51
PQ- 031		0.68	2	7.2	33	40	6.6	5.57	0.23	<0.01	<0.01	0.19	0.32	1.2	0.25	3.37
PQ- 032		1.22	2	3.1	72	75	6.7	24.00	0.10	<0.01	<0.01	0.07	0.81	3.0	0.30	5.11
PQ- 033		1.10	2	5.3	57	62	7.2	11.67	0.17	<0.01	<0.01	0.10	0.54	2.0	0.31	5.09
SC- 001		0.42	1	13.4	-3	10	5.1	0.74	0.43	0.22	0.24	0.09	0.29	1.1	0.29	8.36
SC- 002		0.18	1	126.6	-115	12	7.4	0.09	4.05	3.12	3.12	0.67	0.07	0.2	0.36	7.12
SC- 003		0.52	1	43.1	-39	4	5.4	0.09	1.38	0.21	0.18	0.90	<0.05	<0.2	0.42	8.21
SC- 004		0.46	1	45.3	-40	5	4.5	0.11	1.45	0.12	0.16	0.98	0.05	0.2	0.45	8.37

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Finalized Date: 13-JUN-2018
Account: TGM

Project: 704-ENG.VMIN03021-01

CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	As	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf
	Units	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm
	LOD	0.2	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1
PQ-019		4.4	1560	0.57	0.07	2.63	1.07	47.5	4.2	58	1.89	10.0	1.35	8.19	0.20	2.7
PQ-021		6.1	1230	1.04	0.09	0.35	1.46	56.0	6.6	88	3.50	13.4	1.07	11.70	0.19	2.6
PQ-023		8.2	880	1.09	0.10	0.38	0.15	44.2	4.0	70	3.69	10.4	0.78	10.00	0.07	1.9
PQ-027		6.7	990	0.95	0.12	1.63	0.98	51.1	8.8	83	3.20	18.8	2.27	11.15	0.22	2.1
PQ-030		7.8	900	1.02	0.13	2.27	1.08	57.8	8.8	77	3.14	17.2	2.22	10.70	0.24	2.4
PQ-031		4.5	870	1.38	0.09	2.22	0.90	38.3	6.7	51	2.67	12.8	1.97	8.03	0.05	2.1
PQ-032		5.6	710	1.19	0.14	2.87	1.31	50.8	5.5	77	3.41	13.0	2.08	11.85	0.23	2.3
PQ-033		3.0	790	1.21	0.14	2.63	0.83	59.3	5.9	69	3.42	20.3	1.40	12.65	0.06	2.1
SC-001		10.9	1010	2.73	0.27	0.23	5.77	79.1	4.4	100	9.50	70.4	6.66	20.0	0.22	3.3
SC-002		14.4	120	1.72	0.24	1.07	0.77	72.3	10.3	94	8.48	33.6	2.83	18.80	0.28	3.0
SC-003		16.2	1140	1.95	0.29	0.41	0.60	82.0	10.3	108	9.57	36.3	3.09	21.4	0.21	3.4
SC-004		17.2	1180	1.93	0.29	0.36	0.65	85.1	9.6	110	10.25	36.1	3.25	22.3	0.26	3.5

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885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61
	Analyte	In	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S
	Units	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%
	LOD	0.005	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01
PQ- 019		0.025	1.25	24.7	10.9	1.08	296	0.58	0.12	9.0	17.0	1410	7.0	49.7	<0.002	0.03
PQ- 021		0.036	1.63	31.0	29.7	0.27	207	1.14	0.06	11.4	28.8	1090	9.7	73.0	<0.002	0.12
PQ- 023		0.024	1.24	23.9	39.7	0.29	38	2.27	0.08	7.7	24.3	620	12.1	65.4	0.006	0.22
PQ- 027		0.032	1.61	28.3	18.9	0.87	442	1.79	0.13	9.6	44.0	1010	11.5	68.6	0.003	0.05
PQ- 030		0.035	1.33	32.3	28.0	0.81	350	1.77	0.26	9.9	35.2	1180	11.9	64.2	0.002	0.05
PQ- 031		0.022	0.77	20.5	30.2	0.37	268	2.30	0.12	6.5	32.5	800	10.9	46.9	0.002	0.17
PQ- 032		0.029	1.28	28.3	33.6	0.58	246	1.71	0.14	9.4	30.5	740	12.4	59.9	0.002	0.09
PQ- 033		0.038	1.33	30.7	37.4	0.80	271	1.47	0.08	9.4	31.0	600	13.3	71.3	<0.002	0.14
SC- 001		0.064	2.16	43.0	115.5	0.75	227	5.06	0.17	18.0	44.4	640	17.2	129.0	0.009	0.48
SC- 002		0.071	2.01	37.3	65.8	1.63	118	4.08	2.69	16.6	40.1	820	16.3	125.0	0.010	4.44
SC- 003		0.070	2.28	43.4	55.5	0.78	85	4.25	0.27	18.6	41.2	900	20.0	139.0	0.008	1.45
SC- 004		0.081	2.35	44.8	56.8	0.78	88	5.28	0.29	19.6	38.7	940	19.6	146.0	0.007	1.57

***** See Appendix Page for comments regarding this certificate *****

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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61
	Analyte	Sb	Sc	Se	Sn	Sr	Ta	Te	Th	Ti	Tl	U	V	W	Y	Zn
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
	LOD	0.05	0.1	1	0.2	0.2	0.05	0.05	0.01	0.005	0.02	0.1	1	0.1	0.1	2
PQ- 019		0.62	4.8	1	0.9	96.9	0.57	<0.05	6.89	0.266	0.43	2.7	82	0.8	17.3	90
PQ- 021		0.73	7.3	3	1.3	115.0	0.73	<0.05	8.05	0.331	0.59	3.3	123	1.1	19.0	102
PQ- 023		0.74	6.8	2	1.1	127.0	0.48	0.05	5.95	0.193	0.78	2.0	115	0.7	11.3	58
PQ- 027		0.95	7.2	2	1.1	95.2	0.62	<0.05	7.36	0.267	0.56	2.6	126	0.9	18.0	128
PQ- 030		1.16	7.2	2	1.2	183.0	0.60	<0.05	8.16	0.273	0.63	2.7	133	0.8	19.9	108
PQ- 031		1.34	8.0	2	0.8	133.5	0.40	<0.05	5.22	0.159	0.53	2.9	101	0.7	16.4	91
PQ- 032		1.00	6.5	2	1.4	142.0	0.66	<0.05	7.89	0.282	0.58	3.1	141	0.9	18.1	99
PQ- 033		0.82	7.8	2	1.4	106.0	0.70	0.06	8.14	0.274	0.60	3.5	120	0.9	17.5	98
SC- 001		0.96	14.7	3	2.3	140.5	1.05	0.09	9.37	0.400	0.88	6.9	222	1.5	18.8	122
SC- 002		0.93	13.0	9	2.0	245	0.97	0.09	10.05	0.362	0.89	3.4	200	1.3	23.8	155
SC- 003		0.92	14.1	1	2.4	160.0	1.09	0.14	12.10	0.422	1.08	3.8	231	1.6	24.2	134
SC- 004		0.95	15.1	4	2.6	175.5	1.17	0.14	12.25	0.430	1.07	3.8	236	1.6	25.8	174

***** See Appendix Page for comments regarding this certificate *****

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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	ME- MS61 Zr ppm 0.5	pXRF- 30 As ppm 50	pXRF- 30 Ca % 0.5	pXRF- 30 Cr ppm 100	pXRF- 30 Cu ppm 50	pXRF- 30 Fe % 0.5	pXRF- 30 Mn ppm 100	pXRF- 30 Ni ppm 50	pXRF- 30 Pb ppm 50	pXRF- 30 S % 0.1	pXRF- 30 Zn ppm 50	pXRF- 30 Ag ppm 100	pXRF- 30 Mo ppm 50	pXRF- 30 Sn ppm 100	pXRF- 30 U ppm 50
PQ- 019		98.6	<50	3.1	100	<50	1.8	400	<50	<50	<0.1	100	<100	<50	<100	<50
PQ- 021		100.0	<50	<0.5	100	<50	1.4	300	<50	<50	0.2	110	<100	<50	<100	<50
PQ- 023		74.5	<50	0.5	100	<50	1.2	100	<50	<50	0.7	60	<100	<50	<100	<50
PQ- 027		82.1	<50	1.8	<100	<50	3.1	500	70	<50	<0.1	160	<100	<50	<100	<50
PQ- 030		87.8	<50	2.5	<100	<50	2.8	400	<50	<50	<0.1	120	<100	<50	<100	<50
PQ- 031		94.8	<50	2.6	<100	<50	2.8	300	<50	<50	0.5	110	<100	<50	<100	<50
PQ- 032		87.5	<50	3.1	<100	<50	2.7	300	<50	<50	0.2	110	<100	<50	<100	<50
PQ- 033		77.1	<50	2.9	<100	<50	1.9	300	<50	<50	0.3	120	<100	<50	<100	<50
SC- 001		123.0	<50	<0.5	100	60	7.6	200	50	<50	0.5	130	<100	<50	<100	<50
SC- 002		111.5	<50	0.8	100	<50	3.2	100	50	<50	5.0	150	<100	<50	<100	<50
SC- 003		123.5	<50	<0.5	100	<50	3.7	100	60	<50	1.3	150	<100	<50	<100	<50
SC- 004		129.0	<50	<0.5	100	<50	3.8	100	<50	<50	1.4	180	<100	<50	<100	<50

***** See Appendix Page for comments regarding this certificate *****

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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

CERTIFICATE OF ANALYSIS VA18132683

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

	REE's may not be totally soluble in this method.
Applies to Method:	ME- MS61
	pXRF- 30 is a semi- quantitative scan with precision and accuracy in the order of 20% depending of sample type.
Applies to Method:	pXRF- 30

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

C- GAS05	CRU- 31	CRU- QC	LOG- 22
ME- MS61	OA- ELE07	OA- VOL08	PUL- 31
pXRF- 30	S- GRA06	S- GRA06a	S- IR07
S- IR08	SPL- 21	WEI- 21	

Tetra Tech Canada Inc.
ATTN: James Barr
150 - 1715 Dickson Avenue
KELOWNA BC V1Y 9G6

Date Received: 31- MAY- 18
Report Date: 13- JUN- 18 11:30 (MT)
Version: FINAL

Client Phone: 250- 862- 4832

Certificate of Analysis

Lab Work Order #: L2104218

Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers: 17- 682632
Legal Site Desc:

<Original signed by>

Brent Mack, B.Sc.
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2104218-1
	Description	WATER
	Sampled Date	31-MAY-18
	Sampled Time	12:30
	Client ID	PQ-WQ-001
Grouping	**Analyte**	
WATER		
Physical Tests	Conductivity (uS/cm)	336
	Hardness (as CaCO3) (mg/L)	201
	pH (pH)	8.56
	Total Suspended Solids (mg/L)	15.7
	Total Dissolved Solids (mg/L)	265
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	183
	Alkalinity, Carbonate (as CaCO3) (mg/L)	15.6
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	199
	Ammonia, Total (as N) (mg/L)	0.0110
	Chloride (Cl) (mg/L)	<0.50
	Nitrate (as N) (mg/L)	0.0514
	Nitrite (as N) (mg/L)	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.770
	Total Nitrogen (mg/L)	0.823
	Sulfate (SO4) (mg/L)	3.06
Total Metals	Aluminum (Al)-Total (mg/L)	1.27
	Antimony (Sb)-Total (mg/L)	0.00028
	Arsenic (As)-Total (mg/L)	0.00128
	Barium (Ba)-Total (mg/L)	0.176
	Beryllium (Be)-Total (mg/L)	<0.00010
	Bismuth (Bi)-Total (mg/L)	<0.000050
	Boron (B)-Total (mg/L)	<0.010
	Cadmium (Cd)-Total (mg/L)	0.000111
	Calcium (Ca)-Total (mg/L)	55.3
	Cesium (Cs)-Total (mg/L)	0.000295
	Chromium (Cr)-Total (mg/L)	0.00321
	Cobalt (Co)-Total (mg/L)	0.00107
	Copper (Cu)-Total (mg/L)	0.00391
	Iron (Fe)-Total (mg/L)	2.03
	Lead (Pb)-Total (mg/L)	0.000998
	Lithium (Li)-Total (mg/L)	0.0015
	Magnesium (Mg)-Total (mg/L)	14.9
	Manganese (Mn)-Total (mg/L)	0.0428
	Mercury (Hg)-Total (mg/L)	<0.000050 DLM
	Molybdenum (Mo)-Total (mg/L)	0.00144
	Nickel (Ni)-Total (mg/L)	0.00656

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2104218-1
	Description	WATER
	Sampled Date	31-MAY-18
	Sampled Time	12:30
	Client ID	PQ-WQ-001
Grouping	**Analyte**	
WATER		
Total Metals	Phosphorus (P)-Total (mg/L)	0.100
	Potassium (K)-Total (mg/L)	2.13
	Rubidium (Rb)-Total (mg/L)	0.00334
	Selenium (Se)-Total (mg/L)	0.000440
	Silicon (Si)-Total (mg/L)	3.41
	Silver (Ag)-Total (mg/L)	0.000065
	Sodium (Na)-Total (mg/L)	0.994
	Strontium (Sr)-Total (mg/L)	0.0729
	Sulfur (S)-Total (mg/L)	1.26
	Tellurium (Te)-Total (mg/L)	<0.00020
	Thallium (Tl)-Total (mg/L)	0.000049
	Thorium (Th)-Total (mg/L)	0.00028
	Tin (Sn)-Total (mg/L)	<0.00010
	Titanium (Ti)-Total (mg/L)	0.0184
	Tungsten (W)-Total (mg/L)	<0.00010
	Uranium (U)-Total (mg/L)	0.00139
	Vanadium (V)-Total (mg/L)	0.00570
	Zinc (Zn)-Total (mg/L)	0.0112
	Zirconium (Zr)-Total (mg/L)	0.000431
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD
	Dissolved Metals Filtration Location	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0194
	Antimony (Sb)-Dissolved (mg/L)	0.00016
	Arsenic (As)-Dissolved (mg/L)	0.00037
	Barium (Ba)-Dissolved (mg/L)	0.138
	Beryllium (Be)-Dissolved (mg/L)	<0.00010
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050
	Boron (B)-Dissolved (mg/L)	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.0000181
	Calcium (Ca)-Dissolved (mg/L)	55.7
	Cesium (Cs)-Dissolved (mg/L)	<0.000010
	Chromium (Cr)-Dissolved (mg/L)	0.00087
	Cobalt (Co)-Dissolved (mg/L)	0.00030
	Copper (Cu)-Dissolved (mg/L)	0.00156
	Iron (Fe)-Dissolved (mg/L)	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050
	Lithium (Li)-Dissolved (mg/L)	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2104218-1
	Description	WATER
	Sampled Date	31-MAY-18
	Sampled Time	12:30
	Client ID	PQ-WQ-001
Grouping	**Analyte**	
WATER		
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	15.0
	Manganese (Mn)-Dissolved (mg/L)	0.00332
	Mercury (Hg)-Dissolved (mg/L)	0.0000070
	Molybdenum (Mo)-Dissolved (mg/L)	0.00130
	Nickel (Ni)-Dissolved (mg/L)	0.00285
	Phosphorus (P)-Dissolved (mg/L)	<0.050
	Potassium (K)-Dissolved (mg/L)	1.84
	Rubidium (Rb)-Dissolved (mg/L)	0.00027
	Selenium (Se)-Dissolved (mg/L)	0.000405
	Silicon (Si)-Dissolved (mg/L)	1.56
	Silver (Ag)-Dissolved (mg/L)	0.000019
	Sodium (Na)-Dissolved (mg/L)	1.01
	Strontium (Sr)-Dissolved (mg/L)	0.0704
	Sulfur (S)-Dissolved (mg/L)	1.20
	Tellurium (Te)-Dissolved (mg/L)	<0.00020
	Thallium (Tl)-Dissolved (mg/L)	<0.000010
	Thorium (Th)-Dissolved (mg/L)	<0.00010
	Tin (Sn)-Dissolved (mg/L)	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030
	Tungsten (W)-Dissolved (mg/L)	<0.00010
	Uranium (U)-Dissolved (mg/L)	0.00134
	Vanadium (V)-Dissolved (mg/L)	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	<0.0010
	Zirconium (Zr)-Dissolved (mg/L)	0.000261

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
WSMT	Water sample(s) for total mercury analysis was not submitted in glass or PTFE container with HCl preservative. Results may be biased low.

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2104218-1
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2104218-1
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2104218-1
Matrix Spike	Calcium (Ca)-Total	MS-B	L2104218-1
Matrix Spike	Magnesium (Mg)-Total	MS-B	L2104218-1
Matrix Spike	Manganese (Mn)-Total	MS-B	L2104218-1
Matrix Spike	Molybdenum (Mo)-Total	MS-B	L2104218-1
Matrix Spike	Potassium (K)-Total	MS-B	L2104218-1
Matrix Spike	Rubidium (Rb)-Total	MS-B	L2104218-1
Matrix Spike	Sodium (Na)-Total	MS-B	L2104218-1
Matrix Spike	Strontium (Sr)-Total	MS-B	L2104218-1
Matrix Spike	Sulfur (S)-Total	MS-B	L2104218-1
Matrix Spike	Total Nitrogen	MS-B	L2104218-1
Matrix Spike	Total Nitrogen	MS-B	L2104218-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

CL-IC-N-VA	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

EC-SCREEN-VA	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Reference Information

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N-T-COL-VA	Water	Total Nitrogen in water by Colour	APHA4500-P(J)/NEMI9171/USGS03-4174

This analysis is carried out using procedures adapted from APHA Method 4500-P (J) "Persulphate Method for Simultaneous Determination of Total Nitrogen and Total Phosphorus" and National Environmental Methods Index - Nemi method 5735.

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-VA	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-VA	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

SO4-IC-N-VA	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-VA	Water	Total Dissolved Solids by Gravimetric	APHA 2540 C - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius.

TKN-F-VA	Water	TKN in Water by Fluorescence	APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-682632

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2104218-COFC

COC Number: 17 - 682632

Page of

Report To	Contact and company name below will appear on the final report
Company:	TETRA TECH.
Contact:	JAMES BARR
Phone:	778-940-1233
	Company address below will appear on the final report
Street:	150-1715 DICKSON AV
City/Province:	KELOWNA ; BC
Postal Code:	V1Y 9G6
Invoice To	Same as Report To [x] YES [ ] NO
	Copy of Invoice with Report [x] YES [ ] NO
Company:	
Contact:	

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Regular [R]: [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [x] ; 3 day [P3-25%] [ ] ; 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] ; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:
Job #:
PO / AFE:
LSD:
AFE/Cost Center: PO#:
Major/Minor Code: Routing Code:
Requisitioner:
Location:
ALS Lab Work Order # (lab use only): L2104218
ALS Contact: Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Alkalinity / Species	Chloride	Conductivity	Hardness	Diss. Metals	Tot. Metals	N species	pH	Sulphate	TDS	TSS	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	PQ-WQ-001	31-05-18	12:30pm	H2O	1	1	1	1	1	1	1	1	1	1	1			
	Total 1 sample.																	

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO
Are samples for human consumption/ use? [ ] YES [x] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

compare to BC-AWQG. (Short Term Max)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations: Yes [ ] No [ ]
Ice Packs [ ] Ice Cubes [x] Custody seal intact: Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
10°C							

RELEASE (client use)

Date: May 31/18 Time: 4:30

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: Shuntes Date: May 31/18 Time: 4:30

FINAL SHIPMENT RECEPTION (lab use only)

Received by: Date: Time:

<Original signed by>

LOCATIONS AND SAMPLING INFORMATION

TE ORATORY NT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees to the terms and conditions specified

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Canada Ltd.
2103 Dollarton Hwy
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Phone: +1 (604) 984 0221 Fax: +1 (604) 984 0218
www.alsglobal.com/geochemistry

To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

QC CERTIFICATE VA18132683

Project: 704- ENG.VMIN03021- 01

This report is for 12 Rock samples submitted to our lab in Vancouver, BC, Canada on 1- JUN- 2018.

The following have access to data associated with this certificate:

J. BARR

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI- 21	Received Sample Weight
LOG- 22	Sample login - Rcd w/o BarCode
CRU- 31	Fine crushing - 70% <2mm
CRU- QC	Crushing QC Test
SPL- 21	Split sample - riffle splitter
PUL- 31	Pulverize split to 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
S- IR07	Sulphide Sulphur (Leco)	LECO
C- GAS05	Inorganic Carbon (CO2)	
S- GRA06a	Sulfate Sulfur (HCl leachable)	WST- SEQ
ME- MS61	48 element four acid ICP- MS	
pXRF- 30	Semi- Quantitative pXRF Scan	PXRF
OA- VOL08	Basic Acid Base Accounting	
S- IR08	Total Sulphur (Leco)	LECO
OA- ELE07	Paste pH	
S- GRA06	Sulfate Sulfur- carbonate leach	WST- SEQ

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signatu..

Colin Ramshaw, Vancouver Laboratory Manager

<Original signed by>

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Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	OA- VOL08 FIZZ RAT Unity 1	OA- VOL08 MPA tCaCO3/1Kt 0.3	OA- VOL08 NNP tCaCO3/1Kt 1	OA- VOL08 NP tCaCO3/1Kt 1	OA- ELE07 pH Unity 0.1	OA- VOL08 Ratio (N Unity 0.01	S- IR08 S % 0.01	S- GRA06 S % 0.01	S- GRA06a S % 0.01	S- IR07 Sulphide % 0.01	C- GAS05 C % 0.05	C- GAS05 CO2 % 0.2	ME- MS61 Ag ppm 0.01	ME- MS61 Al % 0.01	ME- MS61 As ppm 0.2
STANDARDS																
Buffer pH6						6.1										
Buffer pH6						6.0										
Target Range - Lower Bound						5.3										
Upper Bound						6.7										
CALSTD																
Target Range - Lower Bound																
Upper Bound																
CO- ASSAY												0.49	1.8			
Target Range - Lower Bound												0.42	1.5			
Upper Bound												0.64	2.4			
GS310- 10								0.27								
Target Range - Lower Bound								0.25								
Upper Bound								0.29								
KZK- 1		2	25.0	31	56		2.24									
Target Range - Lower Bound			22.9	30	54		2.18									
Upper Bound			27.1	38	64		2.54									
MA- 1b								1.18								
Target Range - Lower Bound								1.12								
Upper Bound								1.22								
MA- 2c												1.53	5.6			
Target Range - Lower Bound												1.50	5.5			
Upper Bound												1.84	6.8			
MRGeo08														4.13	7.29	33.4
Target Range - Lower Bound														4.00	6.64	29.5
Upper Bound														4.92	8.14	36.5
NBM- 1		2	8.8	40	49		5.60									
Target Range - Lower Bound			7.8	37	45		5.26									
Upper Bound			9.7	47	54		6.08									
OGGeo08														20.3	6.74	128.0
Target Range - Lower Bound														18.15	6.07	106.0
Upper Bound														22.2	7.44	130.0
OREAS 36																
Target Range - Lower Bound																
Upper Bound																

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Project: 704-ENG.VMIN03021-01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61	ME-MS61
	Analyte	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Fe	Ga	Ge	Hf	In
	Units	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOD	10	0.05	0.01	0.01	0.02	0.01	0.1	1	0.05	0.2	0.01	0.05	0.05	0.1	0.005
STANDARDS																
Buffer pH6																
Buffer pH6																
Target Range - Lower Bound																
Upper Bound																
CALSTD																
Target Range - Lower Bound																
Upper Bound																
CO-ASSAY																
Target Range - Lower Bound																
Upper Bound																
GS310-10																
Target Range - Lower Bound																
Upper Bound																
KZK-1																
Target Range - Lower Bound																
Upper Bound																
MA-1b																
Target Range - Lower Bound																
Upper Bound																
MA-2c																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		1120	2.99	0.61	2.66	2.35	67.0	21.2	95	11.65	637	4.00	20.4	0.26	3.3	0.189
Target Range - Lower Bound		920	2.98	0.60	2.35	2.00	66.2	17.7	81	11.20	587	3.55	17.50	<0.05	2.8	0.155
Upper Bound		1270	3.76	0.76	2.90	2.48	81.0	21.9	102	13.80	675	4.37	21.5	0.27	3.6	0.201
NBM-1																
Target Range - Lower Bound																
Upper Bound																
OGGeo08		920	3.13	9.70	2.28	20.7	63.6	104.0	92	11.15	8540	5.51	19.40	0.12	3.2	1.595
Target Range - Lower Bound		700	2.59	9.44	1.98	16.70	64.8	87.2	78	9.85	7800	4.81	16.05	0.25	2.5	1.320
Upper Bound		980	3.27	11.55	2.44	20.5	79.2	107.0	98	12.15	8980	5.91	19.75	0.49	3.3	1.620
OREAS 36																
Target Range - Lower Bound																
Upper Bound																

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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method / Analyte / Units / LOD	ME- MS61 K % 0.01	ME- MS61 La ppm 0.5	ME- MS61 Li ppm 0.2	ME- MS61 Mg % 0.01	ME- MS61 Mn ppm 5	ME- MS61 Mo ppm 0.05	ME- MS61 Na % 0.01	ME- MS61 Nb ppm 0.1	ME- MS61 Ni ppm 0.2	ME- MS61 P ppm 10	ME- MS61 Pb ppm 0.5	ME- MS61 Rb ppm 0.1	ME- MS61 Re ppm 0.002	ME- MS61 S % 0.01	ME- MS61 Sb ppm 0.05
STANDARDS																
Buffer pH6																
Buffer pH6																
Target Range - Lower Bound																
Upper Bound																
CALSTD																
Target Range - Lower Bound																
Upper Bound																
CO- ASSAY																
Target Range - Lower Bound																
Upper Bound																
GS310- 10																
Target Range - Lower Bound																
Upper Bound																
KZK- 1																
Target Range - Lower Bound																
Upper Bound																
MA- 1b																
Target Range - Lower Bound																
Upper Bound																
MA- 2c																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		3.18	32.3	30.1	1.32	573	15.85	2.03	21.4	719	1090	1120	173.0	0.006	0.32	4.73
Target Range - Lower Bound		2.79	31.1	29.5	1.17	497	13.65	1.76	19.0	622	930	971	173.5	0.005	0.27	3.89
Upper Bound		3.43	39.1	36.5	1.45	619	16.75	2.18	23.4	760	1160	1185	212	0.013	0.35	5.39
NBM- 1																
Target Range - Lower Bound																
Upper Bound																
OGGeo08		3.01	29.0	36.0	1.27	530	934	1.91	18.2	9030	870	7560	171.0	1.480	2.93	28.9
Target Range - Lower Bound		2.59	31.0	29.7	1.11	447	841	1.62	15.4	8000	760	6520	164.5	1.285	2.51	22.8
Upper Bound		3.19	39.0	36.7	1.38	557	1030	2.00	19.0	9770	950	7970	201	1.575	3.09	31.0
OREAS 36																
Target Range - Lower Bound																
Upper Bound																

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Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	ME- MS61 Sc ppm 0.1	ME- MS61 Se ppm 1	ME- MS61 Sn ppm 0.2	ME- MS61 Sr ppm 0.2	ME- MS61 Ta ppm 0.05	ME- MS61 Te ppm 0.05	ME- MS61 Th ppm 0.01	ME- MS61 Ti % 0.005	ME- MS61 Tl ppm 0.02	ME- MS61 U ppm 0.1	ME- MS61 V ppm 1	ME- MS61 W ppm 0.1	ME- MS61 Y ppm 0.1	ME- MS61 Zn ppm 2	ME- MS61 Zr ppm 0.5
STANDARDS																
Buffer pH6																
Buffer pH6																
Target Range - Lower Bound																
Upper Bound																
CALSTD																
Target Range - Lower Bound																
Upper Bound																
CO- ASSAY																
Target Range - Lower Bound																
Upper Bound																
GS310- 10																
Target Range - Lower Bound																
Upper Bound																
KZK- 1																
Target Range - Lower Bound																
Upper Bound																
MA- 1b																
Target Range - Lower Bound																
Upper Bound																
MA- 2c																
Target Range - Lower Bound																
Upper Bound																
MRGeo08		10.8	1	4.1	314	1.54	<0.05	16.80	0.513	1.09	4.9	113	5.0	24.1	830	116.0
Target Range - Lower Bound		11.1	<1	3.5	277	1.39	<0.05	17.90	0.443	0.89	4.9	97	4.1	23.8	722	92.2
Upper Bound		13.7	4	4.7	339	1.81	0.14	21.9	0.553	1.25	6.2	121	5.8	29.3	886	126.0
NBM- 1																
Target Range - Lower Bound																
Upper Bound																
OGGeo08		10.2	12	15.5	264	1.42	0.18	14.90	0.414	1.86	4.8	91	5.1	23.2	7390	103.0
Target Range - Lower Bound		9.2	8	12.5	224	1.19	0.09	16.90	0.353	1.43	4.5	77	3.9	21.1	6500	78.6
Upper Bound		11.4	14	15.7	274	1.57	0.31	20.7	0.443	1.98	5.8	97	5.4	26.0	7950	107.5
OREAS 36																
Target Range - Lower Bound																
Upper Bound																

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Finalized Date: 13-JUN-2018
Account: TGM

Project: 704-ENG.VMIN03021-01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	pXRF-30 As ppm 50	pXRF-30 Ca % 0.5	pXRF-30 Cr ppm 100	pXRF-30 Cu ppm 50	pXRF-30 Fe % 0.5	pXRF-30 Mn ppm 100	pXRF-30 Ni ppm 50	pXRF-30 Pb ppm 50	pXRF-30 S % 0.1	pXRF-30 Zn ppm 50	pXRF-30 Ag ppm 100	pXRF-30 Mo ppm 50	pXRF-30 Sn ppm 100	pXRF-30 U ppm 50
							STANDARDS								
Buffer pH6															
Buffer pH6															
Target Range -	Lower Bound														
	Upper Bound														
CALSTD		<50	<0.5	137000	4220	58.4	17500	69300	440	1.7	<50	<100	>10000	100	100
Target Range -	Lower Bound	<50	<0.5	109000	3540	50.2	15400	61500	440	1.4	<50	<100	7950	<100	<50
	Upper Bound	100	1.2	>150000	5430	70.0	23300	92400	830	2.4	100	200	>10000	200	100
CO-ASSAY															
Target Range -	Lower Bound														
	Upper Bound														
GS310-10															
Target Range -	Lower Bound														
	Upper Bound														
KZK-1															
Target Range -	Lower Bound														
	Upper Bound														
MA-1b															
Target Range -	Lower Bound														
	Upper Bound														
MA-2c															
Target Range -	Lower Bound														
	Upper Bound														
MRGeo08															
Target Range -	Lower Bound														
	Upper Bound														
NBM-1															
Target Range -	Lower Bound														
	Upper Bound														
OGGeo08															
Target Range -	Lower Bound														
	Upper Bound														
OREAS 36		580	<0.5	<100	120	18.2	9900	<50	5080	17.1	36300	<100	<50	<100	<50
Target Range -	Lower Bound	510	<0.5	<100	<50	16.0	8500	<50	4580	14.9	33800	<100	<50	<100	<50
	Upper Bound	930	1.0	200	270	25.3	13100	100	7000	22.7	50800	200	100	200	100

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Project: 704-ENG.VMIN03021-01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	OA-VOL08 FIZZ RAT Unity 1	OA-VOL08 MPA tCaCO3/1Kt 0.3	OA-VOL08 NNP tCaCO3/1Kt 1	OA-VOL08 NP tCaCO3/1Kt 1	OA-ELE07 pH Unity 0.1	OA-VOL08 Ratio (N Unity 0.01	S-IR08 S % 0.01	S-GRA06 S % 0.01	S-GRA06a S % 0.01	S-IR07 Sulphide % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2
STANDARDS																
OREAS 905														0.56	7.56	35.3
Target Range - Lower Bound														0.46	6.67	31.0
Upper Bound														0.58	8.17	38.4
OREAS 920														0.11	7.70	5.1
Target Range - Lower Bound														0.08	6.91	4.4
Upper Bound														0.13	8.47	5.8
OREAS-96																
Target Range - Lower Bound																
Upper Bound																
UTS-1									0.83							
Target Range - Lower Bound									0.83							
Upper Bound									0.93							
UTS-1										0.86						
Target Range - Lower Bound										0.81						
Upper Bound										0.95						
UTS-1											0.11					
Target Range - Lower Bound											0.10					
Upper Bound											0.14					
UTS-2											2.98					
Target Range - Lower Bound											2.78					
Upper Bound											3.10					
UTS-4									1.69							
Target Range - Lower Bound									1.64							
Upper Bound									1.84							
UTS-4										1.69						
Target Range - Lower Bound										1.61						
Upper Bound										1.87						
BLANKS																
BLANK												<0.05	<0.2			
Target Range - Lower Bound												<0.05	<0.2			
Upper Bound												0.10	0.4			

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Finalized Date: 13-JUN-2018
Account: TGM

Project: 704-ENG.VMIN03021-01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method / Analyte / Units / LOD	ME-MS61 Ba ppm 10	ME-MS61 Be ppm 0.05	ME-MS61 Bi ppm 0.01	ME-MS61 Ca % 0.01	ME-MS61 Cd ppm 0.02	ME-MS61 Ce ppm 0.01	ME-MS61 Co ppm 0.1	ME-MS61 Cr ppm 1	ME-MS61 Cs ppm 0.05	ME-MS61 Cu ppm 0.2	ME-MS61 Fe % 0.01	ME-MS61 Ga ppm 0.05	ME-MS61 Ge ppm 0.05	ME-MS61 Hf ppm 0.1	ME-MS61 In ppm 0.005
STANDARDS																
OREAS 905		2830	2.86	5.46	0.61	0.33	102.0	15.9	20	6.81	1535	4.10	26.5	0.33	7.2	0.650
Target Range -	Lower Bound	2280	2.69	5.14	0.52	0.30	82.8	13.2	16	6.05	1425	3.66	22.5	<0.05	6.1	0.571
	Upper Bound	3110	3.39	6.30	0.66	0.42	101.0	16.4	22	7.51	1640	4.50	27.7	0.27	7.6	0.709
OREAS 920		550	2.97	0.78	0.49	0.02	99.2	16.1	87	8.72	105.5	4.06	21.6	0.07	4.8	0.087
Target Range -	Lower Bound	450	2.54	0.61	0.44	0.04	84.6	13.9	70	7.72	104.0	3.72	18.65	0.06	4.0	0.070
	Upper Bound	640	3.22	0.77	0.56	0.12	103.5	17.3	88	9.54	120.0	4.56	22.9	0.28	5.2	0.098
OREAS-96																
Target Range -	Lower Bound															
	Upper Bound															
UTS-1																
Target Range -	Lower Bound															
	Upper Bound															
UTS-1																
Target Range -	Lower Bound															
	Upper Bound															
UTS-1																
Target Range -	Lower Bound															
	Upper Bound															
UTS-2																
Target Range -	Lower Bound															
	Upper Bound															
UTS-4																
Target Range -	Lower Bound															
	Upper Bound															
UTS-4																
Target Range -	Lower Bound															
	Upper Bound															
BLANKS																
BLANK																
Target Range -	Lower Bound															
	Upper Bound															

***** See Appendix Page for comments regarding this certificate *****

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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method / Analyte / Units / LOD	ME- MS61 K % 0.01	ME- MS61 La ppm 0.5	ME- MS61 Li ppm 0.2	ME- MS61 Mg % 0.01	ME- MS61 Mn ppm 5	ME- MS61 Mo ppm 0.05	ME- MS61 Na % 0.01	ME- MS61 Nb ppm 0.1	ME- MS61 Ni ppm 0.2	ME- MS61 P ppm 10	ME- MS61 Pb ppm 0.5	ME- MS61 Rb ppm 0.1	ME- MS61 Re ppm 0.002	ME- MS61 S % 0.01	ME- MS61 Sb ppm 0.05
STANDARDS																
OREAS 905		2.98	51.6	18.9	0.27	381	3.48	2.46	18.4	9.8	280	28.9	144.5	<0.002	0.07	1.96
Target Range -	Lower Bound	2.58	40.9	17.8	0.24	333	2.89	2.15	16.2	8.4		26.9	124.0	<0.002	0.04	1.61
	Upper Bound	3.18	51.1	22.2	0.31	418	3.65	2.65	20.0	10.7		33.9	152.0	0.004	0.09	2.29
OREAS 920		2.83	47.3	31.9	1.33	592	0.46	0.64	17.3	42.4	760	23.4	180.0	<0.002	0.03	1.59
Target Range -	Lower Bound	2.59	41.0	26.0	1.23	535	0.34	0.56	15.6	37.4		20.7	158.5	<0.002	<0.01	1.22
	Upper Bound	3.19	51.2	32.2	1.53	665	0.58	0.71	19.2	46.2		26.4	193.5	0.004	0.05	1.76
OREAS- 96																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 1																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 1																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 1																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 2																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 4																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 4																
Target Range -	Lower Bound															
	Upper Bound															
BLANKS																
BLANK																
Target Range -	Lower Bound															
	Upper Bound															

***** See Appendix Page for comments regarding this certificate *****

ALS Canada Ltd.
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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	ME- MS61 Sc ppm 0.1	ME- MS61 Se ppm 1	ME- MS61 Sn ppm 0.2	ME- MS61 Sr ppm 0.2	ME- MS61 Ta ppm 0.05	ME- MS61 Te ppm 0.05	ME- MS61 Th ppm 0.01	ME- MS61 Ti % 0.005	ME- MS61 Tl ppm 0.02	ME- MS61 U ppm 0.1	ME- MS61 V ppm 1	ME- MS61 W ppm 0.1	ME- MS61 Y ppm 0.1	ME- MS61 Zn ppm 2	ME- MS61 Zr ppm 0.5
STANDARDS																
OREAS 905		5.0	3	4.0	163.0	1.34	0.08	15.00	0.127	0.75	4.8	10	3.0	16.2	143	273
Target Range -	Lower Bound	4.3	<1	3.4	141.0	1.16	<0.05	13.15	0.105	0.59	4.4	8	2.3	14.0	122	214
	Upper Bound	5.5	5	4.6	173.0	1.52	0.19	16.05	0.139	0.85	5.6	13	3.3	17.4	154	290
OREAS 920		14.5	1	5.3	82.9	1.42	<0.05	17.75	0.474	0.94	3.8	98	3.5	34.8	116	159.5
Target Range -	Lower Bound	12.8	<1	4.3	73.6	1.08	<0.05	17.35	0.434	0.76	3.3	86	2.5	29.8	102	128.0
	Upper Bound	15.8	2	5.7	90.4	1.43	0.10	21.2	0.542	1.08	4.2	108	3.7	36.6	130	174.0
OREAS- 96																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 1																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 1																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 1																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 2																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 4																
Target Range -	Lower Bound															
	Upper Bound															
UTS- 4																
Target Range -	Lower Bound															
	Upper Bound															
BLANKS																
BLANK																
Target Range -	Lower Bound															
	Upper Bound															

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VANCOUVER BC V6C 1N5

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	pXRF- 30 As ppm 50	pXRF- 30 Ca % 0.5	pXRF- 30 Cr ppm 100	pXRF- 30 Cu ppm 50	pXRF- 30 Fe % 0.5	pXRF- 30 Mn ppm 100	pXRF- 30 Ni ppm 50	pXRF- 30 Pb ppm 50	pXRF- 30 S % 0.1	pXRF- 30 Zn ppm 50	pXRF- 30 Ag ppm 100	pXRF- 30 Mo ppm 50	pXRF- 30 Sn ppm 100	pXRF- 30 U ppm 50
STANDARDS															
OREAS 905															
Target Range - Lower Bound															
Upper Bound															
OREAS 920															
Target Range - Lower Bound															
Upper Bound															
OREAS- 96		<50	<0.5	100	43900	10.5	900	<50	120	5.1	580	<100	<50	100	<50
Target Range - Lower Bound		<50	<0.5	<100	31400	7.6	500	<50	<50	3.4	290	<100	<50	<100	<50
Upper Bound		100	1.0	300	47200	12.7	1100	100	220	5.3	630	200	100	200	100
UTS- 1															
Target Range - Lower Bound															
Upper Bound															
UTS- 1															
Target Range - Lower Bound															
Upper Bound															
UTS- 1															
Target Range - Lower Bound															
Upper Bound															
UTS- 2															
Target Range - Lower Bound															
Upper Bound															
UTS- 4															
Target Range - Lower Bound															
Upper Bound															
UTS- 4															
Target Range - Lower Bound															
Upper Bound															
BLANKS															
BLANK															
Target Range - Lower Bound															
Upper Bound															

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Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	OA- VOL08 FIZZ RAT Unity 1	OA- VOL08 MPA tCaCO3/1Kt 0.3	OA- VOL08 NNP tCaCO3/1Kt 1	OA- VOL08 NP tCaCO3/1Kt 1	OA- ELE07 pH Unity 0.1	OA- VOL08 Ratio (N Unity 0.01	S- IR08 S % 0.01	S- GRA06 S % 0.01	S- GRA06a S % 0.01	S- IR07 Sulphide % 0.01	C- GAS05 C % 0.05	C- GAS05 CO2 % 0.2	ME- MS61 Ag ppm 0.01	ME- MS61 Al % 0.01	ME- MS61 As ppm 0.2
BLANKS																
BLANK														<0.01	<0.01	0.4
BLANK														<0.01	<0.01	<0.2
Target Range - Lower Bound														<0.01	<0.01	<0.2
Upper Bound														0.02	0.02	0.4
BLANK						6.1										
Target Range - Lower Bound						5.5										
Upper Bound						6.9										
BLANK									<0.01							
Target Range - Lower Bound									<0.01							
Upper Bound									0.02							
BLANK										<0.01						
Target Range - Lower Bound										<0.01						
Upper Bound										0.02						
BLANK											<0.01					
Target Range - Lower Bound											<0.01					
Upper Bound											0.02					
BLANK								0.01								
Target Range - Lower Bound								<0.01								
Upper Bound								0.02								
DUPLICATES																
ORIGINAL														0.01	0.15	0.8
DUP														0.01	0.14	0.6
Target Range - Lower Bound														<0.01	0.13	0.5
Upper Bound														0.02	0.16	0.9
ORIGINAL														<0.01	0.17	<0.2
DUP														<0.01	0.18	0.6
Target Range - Lower Bound														<0.01	0.16	<0.2
Upper Bound														0.02	0.19	0.6
SC- 002		1	126.6	-115	12	7.4	0.09	4.05	3.12	3.12	0.67	0.07	0.2			
DUP		1	125.6	-114	12	7.3	0.10	4.02	3.19	3.17	0.69	0.07	0.2			
Target Range - Lower Bound		<1	119.5	-121	10	6.9	0.08	3.92	3.03	2.98	0.65	<0.05	<0.2			
Upper Bound		2	132.7	-108	14	7.8	0.11	4.15	3.28	3.31	0.71	0.10	0.4			

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885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	ME- MS61 Ba ppm 10	ME- MS61 Be ppm 0.05	ME- MS61 Bi ppm 0.01	ME- MS61 Ca % 0.01	ME- MS61 Cd ppm 0.02	ME- MS61 Ce ppm 0.01	ME- MS61 Co ppm 0.1	ME- MS61 Cr ppm 1	ME- MS61 Cs ppm 0.05	ME- MS61 Cu ppm 0.2	ME- MS61 Fe % 0.01	ME- MS61 Ga ppm 0.05	ME- MS61 Ge ppm 0.05	ME- MS61 Hf ppm 0.1	ME- MS61 In ppm 0.005
BLANKS																
BLANK		<10	<0.05	0.01	<0.01	<0.02	0.01	<0.1	<1	<0.05	<0.2	<0.01	0.07	<0.05	<0.1	<0.005
BLANK		<10	<0.05	<0.01	<0.01	<0.02	<0.01	<0.1	<1	<0.05	0.4	<0.01	<0.05	<0.05	<0.1	<0.005
Target Range - Lower Bound		<10	<0.05	<0.01	<0.01	<0.02	<0.01	<0.1	<1	<0.05	<0.2	<0.01	<0.05	<0.05	<0.1	<0.005
Upper Bound		20	0.10	0.02	0.02	0.04	0.02	0.2	2	0.10	0.4	0.02	0.10	0.10	0.2	0.010
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
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Target Range - Lower Bound																
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Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
DUPLICATES																
ORIGINAL		<10	<0.05	0.02	<0.01	<0.02	0.70	0.8	38	<0.05	3.5	0.79	0.52	<0.05	<0.1	<0.005
DUP		<10	<0.05	0.02	<0.01	<0.02	0.63	0.9	37	<0.05	3.3	0.78	0.53	<0.05	<0.1	<0.005
Target Range - Lower Bound		<10	<0.05	<0.01	<0.01	<0.02	0.62	0.7	35	<0.05	3.1	0.74	0.45	<0.05	<0.1	<0.005
Upper Bound		20	0.10	0.03	0.02	0.04	0.71	1.0	40	0.10	3.7	0.83	0.60	0.10	0.2	0.010
ORIGINAL		<10	0.07	0.01	<0.01	<0.02	37.4	0.2	24	<0.05	0.8	0.33	0.59	0.08	0.4	<0.005
DUP		10	0.08	0.01	<0.01	<0.02	39.3	0.2	18	<0.05	0.9	0.30	0.70	0.08	0.5	<0.005
Target Range - Lower Bound		<10	<0.05	<0.01	<0.01	<0.02	36.4	<0.1	19	<0.05	0.6	0.29	0.56	<0.05	0.3	<0.005
Upper Bound		20	0.10	0.02	0.02	0.04	40.3	0.3	23	0.10	1.1	0.34	0.73	0.10	0.6	0.010
SC- 002																
DUP																
Target Range - Lower Bound																
Upper Bound																

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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61
	Analyte	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb
	Units	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm
	LOD	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05
BLANKS																
BLANK		<0.01	<0.5	0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	0.05
BLANK		<0.01	<0.5	0.3	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	0.05
Target Range - Lower Bound		<0.01	<0.5	<0.2	<0.01	<5	<0.05	<0.01	<0.1	<0.2	<10	<0.5	<0.1	<0.002	<0.01	<0.05
Upper Bound		0.02	1.0	0.4	0.02	10	0.10	0.02	0.2	0.4	20	1.0	0.2	0.004	0.02	0.10
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
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Target Range - Lower Bound																
Upper Bound																
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Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
DUPLICATES																
ORIGINAL		0.01	<0.5	<0.2	<0.01	93	4.66	0.09	0.8	9.6	10	<0.5	0.3	<0.002	<0.01	0.14
DUP		<0.01	<0.5	0.9	<0.01	92	4.65	0.09	0.7	9.7	10	<0.5	0.2	<0.002	<0.01	0.15
Target Range - Lower Bound		<0.01	<0.5	0.3	<0.01	83	4.37	0.08	0.6	9.0	<10	<0.5	<0.1	<0.002	<0.01	0.08
Upper Bound		0.02	1.0	0.8	0.02	102	4.94	0.10	0.9	10.3	20	1.0	0.4	0.004	0.02	0.21
ORIGINAL		0.02	16.5	7.5	<0.01	35	0.15	<0.01	0.3	1.1	20	<0.5	0.8	<0.002	<0.01	0.06
DUP		0.02	17.5	7.9	<0.01	32	0.12	0.01	0.3	1.0	30	0.5	1.0	<0.002	<0.01	0.05
Target Range - Lower Bound		<0.01	15.7	7.1	<0.01	27	0.08	<0.01	0.2	0.8	<10	<0.5	0.8	<0.002	<0.01	<0.05
Upper Bound		0.03	18.4	8.3	0.02	40	0.19	0.02	0.4	1.3	40	1.0	1.0	0.004	0.02	0.10
SC- 002																
DUP																
Target Range - Lower Bound																
Upper Bound																

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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method Analyte Units LOD	ME- MS61 Sc ppm 0.1	ME- MS61 Se ppm 1	ME- MS61 Sn ppm 0.2	ME- MS61 Sr ppm 0.2	ME- MS61 Ta ppm 0.05	ME- MS61 Te ppm 0.05	ME- MS61 Th ppm 0.01	ME- MS61 Ti % 0.005	ME- MS61 Tl ppm 0.02	ME- MS61 U ppm 0.1	ME- MS61 V ppm 1	ME- MS61 W ppm 0.1	ME- MS61 Y ppm 0.1	ME- MS61 Zn ppm 2	ME- MS61 Zr ppm 0.5
BLANKS																
BLANK		<0.1	1	<0.2	<0.2	<0.05	<0.05	<0.01	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
BLANK		<0.1	1	<0.2	<0.2	<0.05	<0.05	<0.01	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
Target Range - Lower Bound		<0.1	<1	<0.2	<0.2	<0.05	<0.05	<0.01	<0.005	<0.02	<0.1	<1	<0.1	<0.1	<2	<0.5
Upper Bound		0.2	2	0.4	0.4	0.10	0.10	0.02	0.010	0.04	0.2	2	0.2	0.2	4	1.0
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
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Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																
DUPLICATES																
ORIGINAL		0.1	1	0.2	3.5	<0.05	0.14	0.03	<0.005	<0.02	<0.1	3	0.1	0.2	<2	1.3
DUP		0.1	1	0.2	3.3	<0.05	0.13	0.03	<0.005	<0.02	<0.1	3	0.1	0.2	<2	1.3
Target Range - Lower Bound		<0.1	<1	<0.2	3.0	<0.05	0.08	0.02	<0.005	<0.02	<0.1	2	<0.1	<0.1	<2	0.7
Upper Bound		0.2	2	0.4	3.8	0.10	0.19	0.04	0.010	0.04	0.2	4	0.2	0.3	4	1.9
ORIGINAL		0.1	1	<0.2	0.8	<0.05	<0.05	2.39	0.021	<0.02	0.2	2	0.6	4.1	<2	15.8
DUP		0.2	1	<0.2	1.1	<0.05	<0.05	2.53	0.022	<0.02	0.2	2	0.6	4.4	<2	18.0
Target Range - Lower Bound		<0.1	<1	<0.2	0.7	<0.05	<0.05	2.33	0.015	<0.02	<0.1	<1	0.5	3.9	<2	15.1
Upper Bound		0.2	2	0.4	1.2	0.10	0.10	2.59	0.028	0.04	0.3	3	0.7	4.6	4	18.7
SC- 002																
DUP																
Target Range - Lower Bound																
Upper Bound																

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Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method / Analyte / Units / LOD	pXRF- 30 As ppm 50	pXRF- 30 Ca % 0.5	pXRF- 30 Cr ppm 100	pXRF- 30 Cu ppm 50	pXRF- 30 Fe % 0.5	pXRF- 30 Mn ppm 100	pXRF- 30 Ni ppm 50	pXRF- 30 Pb ppm 50	pXRF- 30 S % 0.1	pXRF- 30 Zn ppm 50	pXRF- 30 Ag ppm 100	pXRF- 30 Mo ppm 50	pXRF- 30 Sn ppm 100	pXRF- 30 U ppm 50
		BLANKS													
BLANK															
BLANK															
Target Range - Lower Bound															
Upper Bound															
BLANK															
Target Range - Lower Bound															
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Upper Bound															
BLANK															
Target Range - Lower Bound															
Upper Bound															
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Target Range - Lower Bound															
Upper Bound															
		DUPLICATES													
ORIGINAL															
DUP															
Target Range - Lower Bound															
Upper Bound															
ORIGINAL															
DUP															
Target Range - Lower Bound															
Upper Bound															
SC- 002															
DUP															
Target Range - Lower Bound															
Upper Bound															

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Finalized Date: 13-JUN-2018
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Project: 704-ENG.VMIN03021-01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method / Analyte / Units / LOD	OA-VOL08 FIZZ RAT Unity 1	OA-VOL08 MPA tCaCO3/1Kt 0.3	OA-VOL08 NNP tCaCO3/1Kt 1	OA-VOL08 NP tCaCO3/1Kt 1	OA-ELE07 pH Unity 0.1	OA-VOL08 Ratio (N Unity 0.01	S-IR08 S % 0.01	S-GRA06 S % 0.01	S-GRA06a S % 0.01	S-IR07 Sulphide % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	ME-MS61 Ag ppm 0.01	ME-MS61 Al % 0.01	ME-MS61 As ppm 0.2
		DUPLICATES														
SC-003																
DUP																
Target Range - Lower Bound																
Upper Bound																

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Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method / Analyte / Units / LOD	ME- MS61 Ba ppm 10	ME- MS61 Be ppm 0.05	ME- MS61 Bi ppm 0.01	ME- MS61 Ca % 0.01	ME- MS61 Cd ppm 0.02	ME- MS61 Ce ppm 0.01	ME- MS61 Co ppm 0.1	ME- MS61 Cr ppm 1	ME- MS61 Cs ppm 0.05	ME- MS61 Cu ppm 0.2	ME- MS61 Fe % 0.01	ME- MS61 Ga ppm 0.05	ME- MS61 Ge ppm 0.05	ME- MS61 Hf ppm 0.1	ME- MS61 In ppm 0.005
DUPLICATES																
SC- 003																
DUP																
Target Range - Lower Bound																
Upper Bound																

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To: TETRA TECH CANADA INC.
885 DUNSMUIR STREET
VANCOUVER BC V6C 1N5

Finalized Date: 13- JUN- 2018
Account: TGM

Project: 704- ENG.VMIN03021- 01

QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61	ME- MS61
	Analyte	K	La	Li	Mg	Mn	Mo	Na	Nb	Ni	P	Pb	Rb	Re	S	Sb
	Units	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm
	LOD	0.01	0.5	0.2	0.01	5	0.05	0.01	0.1	0.2	10	0.5	0.1	0.002	0.01	0.05
		DUPLICATES														
SC- 003																
DUP																
Target Range - Lower Bound																
Upper Bound																

***** See Appendix Page for comments regarding this certificate *****

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Sample Description	Method / Analyte / Units / LOD	ME- MS61 Sc ppm 0.1	ME- MS61 Se ppm 1	ME- MS61 Sn ppm 0.2	ME- MS61 Sr ppm 0.2	ME- MS61 Ta ppm 0.05	ME- MS61 Te ppm 0.05	ME- MS61 Th ppm 0.01	ME- MS61 Ti % 0.005	ME- MS61 Tl ppm 0.02	ME- MS61 U ppm 0.1	ME- MS61 V ppm 1	ME- MS61 W ppm 0.1	ME- MS61 Y ppm 0.1	ME- MS61 Zn ppm 2	ME- MS61 Zr ppm 0.5
		DUPLICATES														
SC- 003																
DUP																
Target Range -	Lower Bound															
	Upper Bound															

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QC CERTIFICATE OF ANALYSIS VA18132683

Sample Description	Method	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30	pXRF- 30
	Analyte	As	Ca	Cr	Cu	Fe	Mn	Ni	Pb	S	Zn	Ag	Mo	Sn	U
	Units	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
	LOD	50	0.5	100	50	0.5	100	50	50	0.1	50	100	50	100	50
DUPLICATES															
SC- 003		<50	<0.5	100	<50	3.7	100	60	<50	1.3	150	<100	<50	<100	<50
DUP		<50	<0.5	100	<50	3.8	100	50	<50	1.3	150	<100	<50	<100	<50
Target Range -	Lower Bound	<50	<0.5	<100	<50	2.9	<100	<50	<50	1.1	90	<100	<50	<100	<50
	Upper Bound	100	1.0	200	100	4.6	200	100	100	1.5	220	200	100	200	100

***** See Appendix Page for comments regarding this certificate *****

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QC CERTIFICATE OF ANALYSIS VA18132683

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

REE's may not be totally soluble in this method.
Applies to Method: ME- MS61

pXRF- 30 is a semi- quantitative scan with precision and accuracy in the order of 20% depending of sample type.
Applies to Method: pXRF- 30

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:				
	C- GAS05	CRU- 31	CRU- QC	LOG- 22
	ME- MS61	OA- ELE07	OA- VOL08	PUL- 31
	pXRF- 30	S- GRA06	S- GRA06a	S- IR07
	S- IR08	SPL- 21	WEI- 21	

APPENDIX C

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

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Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

Electronic files submitted by TETRA TECH have been prepared and submitted using specific software and hardware systems. TETRA TECH makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

1.3 STANDARD OF CARE

Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Professional Document. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of the Professional Document.

If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by persons other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary investigation and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

Appendix D

Site C Clean Energy Project
Water Quality Monitoring for
River Road, South Bank Initial Access Road and L3 Creek
2018 Annual Report





PRESENTED TO
BC Hydro

MARCH 15, 2019
ISSUED FOR USE
FILE: 704-ENG.VMIN03021-01

Tetra Tech Canada Inc.
150, 1715 Dickson Avenue
Kelowna, BC V1Y 9G6 CANADA
Tel 250.862.4832 Fax 250.862.2941

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EXECUTIVE SUMMARY

Tetra Tech Canada Inc. (Tetra Tech) was retained by BC Hydro (the client) to develop and implement a surface water quality monitoring program for discharge locations along River Road ditch near Blind Corner and below Howe Pit, in proximity to the South Bank Initial Access Road (SBIAR), and along the L3 Creek catchment. Monitoring locations were also established upstream from the discharge to characterize variation to water chemistry within the catchment due to mixing and inflow of water from multiple sources. Water sampling locations are shown in the attached maps in Figures 1 through 3.

Requirements for the development and implementation of the water quality monitoring programs are mandated under the Environmental Assessment Certificate – Condition 3, and the Federal Decision Statement – Condition 7. Reporting of the program results are required on an annual basis. The requirements described in the BC Hydro Site C Clean Energy Project Construction Environmental Management Plan (CEMP), Revision 4, Appendix E Acid Rock Drainage and Metal Leachate Management Plan, Revision 5.2 (App E) are consistent with the requirements listed.

In accordance with the CEMP App E Section 5.2.1.7, results for the River Road and SBIAR locations were evaluated against the British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife and Agriculture (March 2018) (BCAWQG) freshwater short term maximum (FSTM) values. Water quality measurements recorded at the discharge, or downstream, locations which were in exceedance to the BCAWQG-FSTM were reported to BC Hydro. Results were also evaluated against the British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife and Agriculture (March 2018) (BCAWQG) freshwater long term average (LTA) values, due to acquiring two years of monthly data.

The water conveyance facilities at River Road ditch near Blind Corner and SBIAR are identified as having potential for direct ARD-ML impacts due to exposure of shale bedrock during construction related activities. The catchment for L3 Creek includes RSEM L3 which is currently not considered, nor permitted, for placement of construction related PAG material. Due to potential influence on discharge water quality from the Howe Pit area and inflow from L4 Creek, the water quality within the L3 Creek catchment is being monitored in context of ARD-ML management.

Monitoring Locations

Monitoring locations were established by Tetra Tech in conjunction with BC Hydro personnel. Where possible, they are coincident with the locations and station names used in 2016 by Lorax Environmental Services Ltd. (Lorax) on behalf of Peace River Hydro Partners (PRHP). The monitoring locations are shown in the maps shown in Figures 1 through 3 and photos of the water sampling locations are included in Photographs (1 through 20) section of the Appendix.

River Road

A total of twelve (12) monitoring locations have been established in the River Road catchment near Blind Corner to monitor the effectiveness of the limestone rip-rap, and to observe longer term influences from the PAG outcrop at Blind Corner and run-off/seepage from Howe Pit on the water collected in the River Road ditch. In 2017, nine monitoring locations were established along the River Road ditch between road stations 12+400 and 12+920 and within the lower chimney ditch draining surface water from a cut-off ditch on the Howe Pit bench. On April 19, 2018, three additional monitoring locations were added to this catchment, these were: LBRR-EDP, -RR8, and -RR9. LBRR-EDP is located at the end of a diversion pipe installed on March 19, 2018, that connects up-gradient within the River Road ditch at station 12+430 to divert water down-gradient into the River Road ditch below L3 Creek and up-gradient from culverts RR-9 and RR-8. The pipe bypasses the lower chimney drain (LBRR-LC), which continues to discharge from culvert RR-11, and bypasses L3 Creek, which continues to discharge from culvert RR-10. The

purpose of the diversion pipe is to address erosion and sediment control by transport of run-off water into an elongated ditchline for reducing flow velocities and to promote settlement of suspended sediment. Inlets to culverts RR-9 and RR-8 are slightly elevated from the ditch base which will allow water to pond within the ditch and infiltrate and will permit discharge via the culverts only if water levels reach sufficient height. Both culverts are made of HDPE materials. The monitoring program includes collection of discharge from these LBRR-RR8 and -RR9 culverts, however, no discharge was observed to be coincident with the scheduled 2018 sampling events.

Sampling was attempted on a routine monthly basis from four of the River Road catchment locations, and laboratory analyses were conducted on samples collected when flowing water was observed. The analyses results were used to understand water quality prior to mixing and discharging into the Peace River. These four locations are located: in the lower chimney drain (LBRR-LC), upstream of the lower chimney drain within the River Road ditch (LBRR-12+500), at the end of the diversion pipe (LBRR-EDP), and at the discharge of culvert RR-11 (LBRR-DD). Due to seasonally dry conditions with low to non-flowing water observed in the ditch, water sampling was only conducted in two (2) months (LBRR-DD, -LC, -12+500) or four (4) months (LBRR-EDP) of ten (10) available months in 2018.

In situ measurements were routinely collected at all eleven locations within the River Road ditch when flowing water was observed. Due to seasonally dry or frozen conditions and having a relatively dry year, low to non-flowing water was observed in the ditch, thus in situ testing was only conducted in, at the most, seven (7) months of ten (10) available months in 2018.

SBIAR

A total of five (5) monitoring locations have been established in and with proximity to the SBIAR road cut. In 2017, two monitoring locations were established to monitor water quality flowing within the western ditch of the SBIAR road cut (RBSBIAR-DS and -US), and in 2018, two additional monitoring locations were added within the eastern ditch of the SBIAR road cut (RBSBIAR-EDS and -EUS). These locations allow for monitoring of water quality and potential impacts of the exposed PAG cut-slope by comparison of the downstream locations (RBSBIAR-DS and -EDS) to the upstream locations (RBSBIAR-US and -EUS). A fifth monitoring location established in 2017 continued to be sampled in 2018 within a preserved portion of the Peace River side channel down-gradient of the SBIAR facility (RBSC-DS), to monitor for potential long term influence of the side channel water quality from construction of the SBIAR facility. The side channel remains hydraulically connected to the Peace River. Effluent water from SBIAR is conveyed to RSEM R6 for management prior to being discharged to the Peace River.

Sampling was attempted on a routine quarterly basis from the SBIAR catchment locations, with samples collected during four (4) sampling events of four possible quarterly events. Sufficient water was available for lab testing in four (4) months at RBSBIAR-US and RBSC-DS, three (3) months at RBSBIAR-DS and -EUS, and two (2) months at RBSBIAR-EDS of four (4) available quarterly sampling months in 2018. In situ testing was attempted on a monthly basis, with sufficient water available for, at the most, seven (7) months of ten (10) available months in 2018.

L3 Creek

The catchment for L3 Creek includes RSEM L3 which is currently not considered, nor permitted, for placement of construction related PAG material. Due to the potential influence on L3 Creek discharge water quality from impacted water originating in the Howe Pit area and inflow from L4 Creek, the water quality within the L3 Creek catchment is being monitored in context of ARD-ML management.

A total of five (5) monitoring locations have been established in the L3 Creek catchment. In April 2017, three monitoring locations were re-established by Tetra Tech personnel within the L3 Creek catchment to be coincident with locations monitored by Lorax in 2016, that were selected to characterize water quality along the creek and at

the discharge location. A baseline location up-gradient of RSEM L3 (LBL3C-3.32) and a midstream location below the confluence of L4 Creek and below the Gulley Road box culvert (LBL3C-1.43), were monitored to characterize water quality at the downstream discharge location at culvert RR-10 (LBL3C-0.02). In 2018, monitoring in L3 Creek expanded to include a location slightly upstream from the L4 Creek confluence, LBL3C-1.65, and sampling commenced along L4 Creek, LBL4C-0.18.

Sampling was attempted on a routine monthly basis from the L3 Creek catchment locations, with lab samples collected during ten (10) months of ten (10) available months in 2018. Due to low to non-flowing conditions or inaccessibility during construction related activities, sufficient water was available for lab testing in ten (10) months at LBL3C-1.43, nine (9) months at LBL3C-0.02, six (6) months at LBL4C-0.18, four (4) months at LBL3C-3.32, and three (3) months at LBL3C-1.65 of ten (10) sampling months in 2018. In situ testing was attempted on a monthly basis, with sufficient water available for, at the most, ten (10) months of ten (10) available months in 2018.

Sample Event Records and Analysis

Field notes documented at each monitoring location included date and time of field observations including estimate flow rate and water clarity, and a list of in situ tests completed with record of measurements for water temperature, hardness, alkalinity, pH, and electrical conductivity collected using a hand-held meter.

An off-site laboratory analytical program was designed to measure a suite of parameters suitable for screening the water quality against the BCAWQG-FSTM for surface water. The sampling and analytical procedures were implemented to be commensurate with Tetra Tech's 2017 monitoring period and the program previously implemented in 2016 by Lorax, in regards to parameters, analytical methods and detection limits. Lab analysis was conducted for total and dissolved elements (metals), hardness, pH, alkalinity, acidity, total suspended and total dissolved solids, and anions including sulphate, nitrogen species and chloride. Samples were collected in a set of clean bottles provided by the lab and were submitted for analysis.

Quality Assurance and Quality Control

The Quality Control (QC) program included sample collection by experienced field staff who were familiar with the water quality monitoring program. Samples were collected using a method consistent with the British Columbia Field Sampling Manual, Part E: Water and Wastewater Sampling (Clark, 2003).

The Quality Assurance (QA) program incorporated the use of a Travel Blank, Field Blank, and a replicate sample to test for potential contamination during sample collection, handling or laboratory preparation, and to evaluate the precision of laboratory analysis. Tetra Tech also reviewed the data for more general anomalies and inconsistencies, assessed on a case by case basis. Travel Blanks were prepared by the laboratory and field blanks were prepared in the field at sample collection sites by field staff using the same source water as was used for the travel blank.

The analytical results of these samples were reviewed by Tetra Tech, and if potential contamination or concerns with analytical results were identified, they were discussed with the laboratory and the samples were reanalyzed for verification. Blank samples were considered to 'fail' where any measured value was in concentrations above the reported detection limits for that parameter.

ALS Laboratories was used as the principle laboratory for sample analysis. The lab implements a detailed QC program into the sample analysis which includes a series of checks and evaluations for consistency in the sample analysis. The QC program includes method blanks, certified reference materials, laboratory control samples and duplicates. Tetra Tech reviewed the results of each QC Lot reported on Assay Certificates to verify that the program consistently met internal ALS Data Quality Objectives.

Any concerns were identified, communicated to ALS Laboratories. The data used for reporting is believed to be representative and reliable.

Monitoring Program

River Road

Sufficient flowing water permitted samples to be collected in March and April 2018 at the LBRR-DD, LBRR-LC, and LBRR-12+500 locations, and in April, May, June, and July at the LBRR-EDP location, thus sampling was limited in the River Road catchment during the 2018 monitoring period. Dry conditions prevailed in August at all locations, and low flow to dry or frozen conditions prevented reliable sampling at all locations in September, October, November, and December 2018. Field observations were documented each month.

At the discharge location (LBRR-DD), exceedances were reported at least once during the 2018 sampling period for total and dissolved iron, dissolved aluminum, and total arsenic and zinc. Throughout the River Road catchment in 2018, concentrations of total and dissolved iron, dissolved aluminum, cadmium, arsenic, cobalt, copper, and zinc were measured above the BCAWQG-FSTM at least once. A summary of water quality exceedances relative to BCAWQG-FSTM listed by monitoring location and month are listed in Table 7, and the screening results based on the laboratory data are tabulated in Appendix B2.

Results for each monthly sampling event were plotted on time series charts for trend and qualitative correlation analysis, noting minimal sampling for interpretive purposes. Throughout the monitoring period, water quality at the discharge location was variable with pH both below and within the BCAWQG-FSTM guideline and dissolved elements both above and within the BCAWQG-FSTM guidelines. TSS concentrations were elevated during high flow events, and TDS measurements were generally negatively correlated having concentrations proportionally higher during periods of low flow. Variable concentrations of dissolved sulphate was observed. BCAWQG-FSTM exceedances of total aluminum and total iron suggest that active ARD-ML processes on exposed PAG at Blind Corner and within Howe Pit are influencing water quality.

Elevated concentrations of dissolved aluminum were measured from the LBRR-DD location in March, LBRR-EDP in May, June, and July, and LBRR-12+500 in March and April 2018. Investigation into the potential cause concluded the likely source as clay size aluminum hydroxide particles in suspension were passing the field filters and reporting to the dissolved fraction rather than the total aluminum fraction. Presence of fine grained white and orange minerals (interpreted as gibbsite and limonite) on shale exposed in the upper cut-off ditch, on the Howe Pit bench as well as seepage from shallow or exposed bedrock along the River Road cut-bank may be a potential source as water from the upper cut-off ditch drains into midstream, LBRR-12+500, and downstream, LBRR-EDP and -DD, locations.

Limestone rip-rap lines the River Road ditch between monitoring locations LBRR-12+920 and LBRR-DD and is effective at mitigating the pH of the baseline drainage water. The limestone material used as rip-rap along this road section has become progressively coated with a mineral precipitate (visually estimated as hydroxides containing iron, calcium and aluminum) due to chemical neutralization reactions and has become encased by sludge due to settlement of suspended solids within the water and encroachment of sand and gravel sediment from grading activities on River Road. The effectiveness of the limestone to provide the neutralizing potential is considered to be negatively compromised by these coatings.

SBIAR

Sufficient flowing water permitted quarterly samples to be collected in March, June, and September, from two monitoring locations RBSBIAR-US and RBSBIAR-DS, and March, June, and November for RBSC-DS. The new east ditch locations, RBSBIAR-EUS and -EDS monitoring locations were sampled in June and September 2018.

Due to prevailing frozen conditions, sampling in December 2018 was limited to the RBSC-DS, RBSBIAR-US and RBSBIAR-EUS locations.

Concentrations of total and dissolved iron, dissolved aluminum, and total arsenic, copper, and zinc were measured on occasion above the BCAWQG-FSTM guidelines within the catchment during 2018 sampling events. At the downstream locations (RBSBIAR-DS and -EDS), exceedances were reported for total iron and dissolved aluminum. The water flowing from RBSBIAR-DS and -EDS do not have a direct downstream receptor. The exceedance in metals, total arsenic, copper, and zinc occurred solely at the upstream west ditch location, RBSBIAR-US, in March 2018.

Prior to July 2017, water passing the downstream monitoring location (RBSBIAR-DS) flowed directly into a temporary polyethylene lined pond via a limestone rip-rap spillway prior to being transported to the RSEM R6 pond by hydrovac truck for management prior to discharge. From September 2017, water passing the RBSBIAR-DS location was channeled into a ditch at the base of the limestone spillway and conveyed directly to the RSEM pond for management prior to discharge. In a July 24-25, 2018 site visit, it was observed that water from the Area 21 pond HDPE pipe did not appear to be draining into SBIAR and was being piped directly to RSEM R6. A new pipe was observed in the eastern ditch which is understood to be a water supply line going to Area A screening operations. Additionally, the ponded water in Area 21 is an unlined facility permitting infiltration though the shale resulting in seeps through the western cut-slope. This moist and oxygenated seepage is likely to accelerate ARD processes.

Results for each monthly sampling event were plotted on time series charts for trend and qualitative correlation analysis. Throughout the 2018 monitoring period, water quality at the downstream monitoring locations (RBSBIAR-DS and -EDS) showed exceedances to the BCAWQG-FSTM guidelines for total iron and dissolved aluminum, whereas the upstream monitoring locations (RBSBIAR-US and -EUS) showed exceedances for total iron, arsenic, copper, and zinc. Measurements for pH remained consistent throughout 2018. The water samples measured slight alkalinity, although total alkalinity (as bicarbonate) values show a variable and general increasing trend, suggesting increased acidity loading within the SBIAR ditch due to ARD-ML processes on the exposed PAG cut-slopes within the facility.

Total and dissolved iron were in exceedance of BCAWQG-FSTM guidelines in March, November, and December 2018, at RBSC-DS which is in the Peace River side channel at the base of SBIAR. This location was sampled in March, June, November, and December as a verification point to check for potential leakage from, or direct connectivity with, the SBIAR PAG contact water with the side channel. There does not appear to be hydraulic connectivity between SBIAR and the side channel, and this exceedance is not considered to be influenced by construction related PAG contact water but rather related to natural turbidity.

A summary of water quality exceedances at SBIAR relative to BCAWQG-FSTM listed by monitoring location and month are listed in Table 9, and the screening results based on the laboratory data are tabulated in Appendix B3.

L3 Creek

Sufficient flowing water permitted a total of ten samples to be collected during monthly events from March through December at monitoring location LBL3C-1.43; nine samples March through November at LBL3C-0.02; three samples (April, July, and December) from location LBL3C-1.65; and four samples in April, May, June and July from location LBL3C-3.32. Field observations were documented each month.

At the discharge location (LBL3C-0.02) and on various occasions throughout the L3 catchment, exceedances were reported for total iron and dissolved aluminum during the 2018 monitoring period. The December 2018 sampling event showed an exceedance to the BCAWQG-FSTM for concentrations of total cobalt, zinc, manganese, and pH

measured below the guideline at the LBL3C-1.65 location. A summary of water quality exceedances relative to BCAWQG-FSTM listed by monitoring location and month are listed in Table 12, and the screening results based on the laboratory data are tabulated in Appendix B4.

Results for each monthly sampling event were plotted on time series charts for trend and qualitative correlation analysis. Throughout the monitoring period, water quality at the discharge location a consistent pH and, with an exception to dissolved aluminum, dissolved metals remained low.

Influence of ARD-ML processes on water within the catchment are limited to natural occurrences within L4 Creek and previous disturbance within Howe Pit. Input volume from L4 Creek is low and is generally diluted by L3 Creek water. Influent water volume from the Howe Pit area is uncertain, however, water quality between monitoring locations LBL3C-1.43 and LBL3C-0.02 is believed to be influenced by groundwater that has been impacted from Howe Pit.

L4 Creek

Sufficient flowing water permitted a total of six samples to be collected in March, April, May, June, July, and October from the L4 Creek monitoring location, LBL4C-0.18. Concentrations of total and dissolved iron, dissolved aluminum and cadmium, and total cobalt, zinc, copper, and arsenic were measured above BCAWQG-FSTM guidelines, and pH measured below BCAWQG-FSTM guidelines at the LBL4C-0.18 sampling location in L4 Creek.

Reconnaissance investigation of L4 Creek conducted prior to 2018, in September 2017, revealed naturally exposed shale bedrock at the base of the incised creek valley in contact with flowing creek water. In 2018, pH values measured between 4.39 and 4.46 in the months of May, June, and October 2018, and between 7.88 and 8.06 in the months of March, April, and July 2018. No pH value measured outside of the BCAWQG-FSTM guideline at L3 Creek sampling locations below or above the L4 Creek confluence, and only at the LBL4C-0.18 sampling location in L4 Creek.

Investigations aim to explain the occurrence of dissolved aluminum and total iron measured above detectible concentrations in the downstream location LBL3C-0.02 but not at comparable concentrations in the upstream L3 Creek locations, LBL3C-1.43 or -3.32. Evidence of PAG outcrop in L4 Creek, reduced pH levels, and the occurrence of anomalous metal concentrations at the LBL4C-0.018 location, exemplify background water quality of local naturally occurring PAG contact waterways. L4 Creek waters are eventually diluted, or attenuated, by L3 Creek waters and PAG related metal concentrations are significantly reduced by the monitoring location LBL3C-0.02.

General Conclusions

Across all sampling events in 2018, moderate to high hardness values (258 to 1310 mg/L) were observed in all waters sampled, although more consistently high in the L3 catchment and moderate in the RR and SBIAR catchments. The River Road ditch and SBIAR catchments are generally ephemeral. Monthly water quality monitoring measures instantaneous water quality and may not be reflective of longer term baseline conditions. Flow volumes are highly susceptible to precipitation, and water quality is influenced by whether flow is derived from precipitation, run-off, shallow groundwater or regional groundwater flow. PAG signatures that are influencing water quality indicative of active ARD-ML processes are observed at River Road on exposed PAG at Blind Corner and within Howe Pit, exposed bedrock related to construction activities within the L3 Creek drainage at LBL3C-1.65, at L4 Creek (LBL4C-0.18) from local naturally occurring PAG contact waterways, and in the shale exposed in the east and west ditch within SBIAR (although significant impacts on water quality are not apparent at SBIAR).

Recommendations for River Road

The sediment source for elevated TSS measured at LBRR-DD is mainly attributed to scouring of accumulated sediment within the ditch from road grading and run-off from previous events, which includes washing, or flushing, of the exposed shale, colluvium and overburden cut-banks. Continued management of the drainage system is required to reduce the amount of sediment infilling to the ditch from road grading operations as this sediment encases the limestone which reduces chemical efficiency for ARD mitigation and prematurely fills the cistern, which limits its performance to capture TSS which may be present from erosion of cut-banks.

Additionally, it was also noted from in situ pH measurements within the ditch that acidic waters are collected in the upper portions of the ditch underlying the exposed shale cut-bank. The pH values progressively return to circumneutral levels at the discharge location in part due to contact with limestone rip-rap in the ditch, and potential alkalinity input from groundwater or outflow from the upper cut-off ditch. Orange coating, or mineral precipitate, continued to be observed in the visible limestone. Chemical efficiency of the limestone to buffer acidic water is decreased when coated in precipitate. The formation of mineral scale can concentrate metals from solution as a result of the aqueous acid-base reactions. The mineral scale and sludge is susceptible to scouring and being washed during heavier rain events which has potential to reduce overall water quality being discharged into the Peace River.

The limestone must be regularly maintained through cleaning and descaling. Interim mitigation includes cleaning the limestone rip-rap material within the River Road ditch in a controlled facility where the sludge can be recovered and relocated to an approved RSEM area, and placement of the refreshed limestone in the ditch. Sludge should also be removed from the cistern and transported to an approved RSEM area.

Identification of the source of dissolved aluminum in previous sampling events is hypothesized to be related to fine mineral particulate (<45 µm) that is passing through the field filter as colloid or fine microcrystalline form. Aluminum hydroxide mineral species (e.g., polymorphs of gibbsite or hydrargillite) can form on rock surfaces and can be indicators of acid generating processes under base flow conditions. Locally impacted groundwater may also be seeping into the lower chimney ditch and may contribute to the measured dissolved aluminum concentrations. Similar water quality characteristics are observed in the lower L3 Creek catchment which may indicate that locally impacted groundwater from the exposed shale in the legacy Howe Pit area may be a common contributing factor. BC Hydro is considering options for remediation of this facility.

Continued management of the limestone rip-rap and mitigation of the active ARD-ML processes from the shale exposure at Blind Corner along River Road are recommended, such as implementing hydroseeding on the shale slope for erosion control, in addition to monitoring the effectiveness of controlling sedimentation into the River Road drainage system by the end-of-diversion pipe (LBRR-EDP).

Water quality measurements along River Road indicate that run-off water quality is influenced by active ARD-ML processes within the ditch catchment. Although flows are generally low and ephemeral, there is some potential for run-off to impact downstream water quality. As per CEMP Appendix E Section 5.2.1.7, it is recommended that water quality monitoring is continued on a monthly basis at the established locations within the River Road catchment. Continuous monitoring will enable the effectiveness of mitigation strategies that are implemented on the shale at Blind Corner.

Recommendations for SBIAR Water Quality Monitoring

Recommendations for future sampling include collection of water samples from the pooled water in Area 21. The collection of one up-gradient and one down-gradient water sample from both the western and eastern SBIAR ditch is suggested to continue through 2019 for comparative purposes.

In December 2017, BC Hydro had completed an options study and design for the installation of a cover system over the exposed shale at SBIAR which was installed in 2018.

Evidence of active ARD-ML processes were observed in the shale exposed in the east and west ditch within SBIAR, however, the water quality measured throughout 2018 did not indicate significant impacts due to these processes. Downstream water is collected within the RSEM R6 pond for management prior to discharge into the Peace River. As per CEMP Section 5.2.1.7, since there is low risk of negative downstream effects on water quality, monitoring of water quality within SBIAR may be continued on a quarterly frequency although to acquire for more thorough data trends, BC Hydro may choose to continue monitoring water quality in 2019 on a monthly frequency.

Recommendations for L3 Creek Water Quality Monitoring

The L3 Creek is not identified as a PAG management area in the CEMP. No PAG materials have been authorized for storage and bedrock is not being exposed or excavated within the catchment as part of the planned construction activities. Monthly water quality monitoring within the L3 Creek catchment was conducted by BC Hydro to maintain a continuous record of water quality within the catchment. Naturally occurring PAG was identified in L4 Creek upstream from construction activities in L3 Creek. Additionally, influence from ARD-ML processes at Howe Pit are observed in the lower portions of L3 Creek between locations LBL3C-1.43 and LBL3C-0.02. Water quality at the creek discharge remained below the BCAWQG-FSTM guidelines.

In December 2017, design was in progress to construct a RSEM facility at Howe Pit to provide additional storage capacity for NAG fill and to cover the exposed shale in Howe Pit. The design received input from Tetra Tech in regards to ARD-ML considerations and for long term monitoring options following placement of fill material.

Based on the 2017 and 2018 water quality monitoring program there is low risk of significant negative downstream effects on water quality due to ARD-ML processes. As per CEMP Appendix E Section 5.2.1.7, monitoring of water quality for ARD-ML parameters within the L3 Creek catchment may be continued on a monthly or quarterly basis. BC Hydro may choose to continue monitoring water quality on a monthly frequency in order to measure the influence of the RSEM construction and filling of Howe Pit. An additional monitoring location should be added to any subdrain outlet of the Howe Pit RSEM. Sampling at location LBL3C-1.65 may need continued adjustment to monitor possible ARD-ML processes related to disturbance from construction activities in the area.

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ACRONYMS & ABBREVIATIONS

Acronyms/Abbreviations	Definition
ARD	Acid Rock Drainage
ARD-ML	Acid Rock Drainage and Metal Leaching
BCAWQG	British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife and Agriculture
FSTM	Freshwater Short Term Maximum
LTA	Long Term Maximum
ML	Metal Leaching
NAG	Not Potentially Acid Generating
PAG	Potentially Acid Generating
RPD	Relative Percent Difference
RSEM	Relocated Surplus Excavation Material
WQG	Water Quality Guideline

LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of BC Hydro and their agents. Tetra Tech Canada Inc. (Tetra Tech) does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than BC Hydro, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by BC Hydro (the client) to develop and implement a surface water quality monitoring program at midstream and discharge locations along River Road ditch near Blind Corner and below Howe Pit, in proximity to the South Bank Initial Access Road (SBIAR), and along the L3 Creek catchment. Water sampling locations are shown in the attached maps in Figures 1 through 3 and summarized with UTM coordinates in Table 1.

This report documents the establishment of the water sampling locations and summarizes the sampling events conducted monthly between March and December of 2018. Results of the monitoring program are discussed in the context of acid rock drainage and metal leaching (ARD-ML) management and mitigation.

Requirements for the development and implementation of the water quality monitoring programs are mandated under the Environmental Assessment Certificate – Condition 3, and the Federal Decision Statement – Condition 7. Reporting of the program results are required on an annual basis. The requirements described in the BC Hydro Site C Clean Energy Project Construction Environmental Management Plan (CEMP), Revision 4, Appendix E Acid Rock Drainage and Metal Leachate Management Plan, Revision 5.2 (App E) is consistent with the requirements listed,

In accordance with the CEMP App E Section 5.2.1.7, results for the River Road and SBIAR locations were evaluated against the British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife and Agriculture (March 2018) (BCAWQG) freshwater short term maximum (FSTM) values. Water quality measurements recorded at the discharge, or downstream, locations which were in exceedance to the BCAWQG-FSTM were reported to BC Hydro. The water conveyance facilities at River Road ditch near Blind Corner and SBIAR are identified as having potential for direct ARD-ML impacts due to exposure of shale bedrock during construction related activities.

The L3 Creek catchment is not identified as a waterway with potential for ARD-ML impacts arising from construction related activities. Water quality monitoring has been conducted within this catchment to monitor discharge water quality and to maintain a record for potential future use. The BCAWQG-FSTM values were also used as a benchmark for monitoring the water quality at the discharge location (LBL3C-0.02) from L3 Creek.

2.0 BACKGROUND

Sampling locations were first established in April 2017 by Tetra Tech in conjunction with BC Hydro personnel. Where possible, they are coincident with the locations and nomenclature used in 2016 by Lorax Environmental Services Ltd. (Lorax) on behalf of Peace River Hydro Partners (PRHP). Nomenclature for sampling locations begins with the applicable bank of the Peace River, e.g. Right Bank (RB) and Left Bank (LB).

Water quality sampling was conducted during the third week of each month through 2017 and 2018 to support a continuous monitoring record for reportable water quality compliance. The 2018 program was initiated on March 21, 2018, by Tetra Tech and BC Hydro personnel following seasonal frozen conditions to be consistent with the 2016 and 2017 sampling timing and was completed on December 17, 2018. Each sampling event was documented by field notes and photographs, including during dry and frozen conditions.

Field notes documented at each monitoring location included date and time of field observations including estimate flow rate and water clarity, and a list of in situ tests completed with record of measurements for water temperature, hardness, alkalinity, pH, and electrical conductivity collected using a hand-held meter. (Tables 6, 8, and 11).

The off-site laboratory analytical program was designed to screen water quality against the BCAWQG-FSTM for surface water and to be commensurate with the Lorax 2016 and Tetra Tech 2017 program with regards to the analytical methods and detection limits. Analysis was conducted for the following parameters:

- Total Metals, Low Level (including Hg);
- Dissolved Metals, Low Level (including Hg);
- Hardness;
- pH;
- Alkalinity: Total/Species (CO_3^{2-} , HCO_3^-, OH^-);
- Acidity;
- Solids: Total Suspended (TSS) and Total Dissolved (TDS); and
- Anions: Nitrogen species (nitrite, nitrate, ammonia), Sulphate, Chloride.

2.1 Summary of Parameters of Interest

Some of the key indicators that were monitored during this program are described below. Although these parameters do not have BCAWQG-FSTM guidelines, they can be useful indicators to potential changes in water chemistry related to ARD-ML processes.

Alkalinity and pH are important water quality parameters to indicate the ratio between residual alkalinity and acidity in solution and are key indicators for onset of acidic conditions within neutral to alkaline waters when monitored over time. Neutralization of acidity by carbonate minerals can temporarily increase alkalinity through release of the bicarbonate ion into solution. Bicarbonate will continue to react, and deplete, with any residual acidity. Once all carbonate and bicarbonate sources are depleted, alkalinity no longer is available to neutralize acidity and pH will drop. An indicator for accelerating acid generating processes is when increasing alkalinity is observed without proportional change to pH. The BCAWQG-FSTM guideline for pH ranges from 6.5-9.0. There is no guideline for alkalinity or acidity.

Water clarity is measured as turbidity (nephelometric turbidity units, NTU) or as total suspended solids (TSS), which is an indicator of the amount of sediment (generally accepted as silt sized particles and coarser, or >0.45 µm in diameter), contained within the water column. TSS can increase if sediment loading occurs due to erosion, or due to rapid precipitation of secondary minerals from chemical reactions such as neutralization of acidic water. The bulk chemistry of water with high TSS tends to mimic the chemical composition of the source sediment being eroded, or in the case of mineral precipitation tends to be high in iron as iron-oxide minerals are the most common secondary mineral to form. Rapid temporal changes to TSS measurements within a catchment due to formation of secondary minerals can indicate presence of active ARD-ML reactions. The BCAWQG-FSTM guideline is based on deviations to background TSS.

Measurements such as total dissolved solids (TDS), electrical conductivity (EC) and salinity are indicators for the concentration of dissolved components and/or ions in solution. Sudden or gradual increases in these parameters can indicate changes in water chemistry such as an increase in reactive ions or dissolved metals as a result of potential metal leaching processes. Changes to these parameters in association with changes to pH or alkalinity may also indicate active metal leaching processes. BCAWQG-FSTM guidelines are not specifically stated for these parameters.

Sulphate concentration can originate from anthropogenic sources, microbial processes and through chemical processes related to degradation of rock forming minerals in environments with potential for acid generation through the oxidation of primary sulphide (e.g., pyrite) or dissolution of sulphate minerals (e.g., gypsum). Elevated sulphate concentrations may indicate oxidation, or weathering, of potentially acid generating (PAG) materials in proximity to sample collection locations. Elevated sulphate with pH > 7.0 may indicate ARD-ML processes with sufficient acid neutralizing materials, whereas sulphate with decreasing pH may indicate a shortage of acid neutralizing materials.

Marine shales such as the local Shaftsbury Formation commonly contain sulphide minerals (mainly pyrite, FeS_2) and may also have primary sulphate minerals such as anhydrite ($CaSO_4$), gypsum ($CaSO_4 \cdot 2H_2O$), or barite ($BaSO_4$), and/or other sulphate minerals. Preliminary characterization determined that the primary sulphur species in the shale was sulphide with some detectable sulphate (Klohn Crippen Berger, 2015). Based on this mineral association and site observations, it is possible that groundwater contacting fractured bedrock would contain naturally elevated sulphate concentrations. Baseline groundwater sampling conducted as part of the project's Environmental Impact Statement (Hemmera Envirochem Inc. and BGC Engineering Inc., 2012) did not indicate groundwater within bedrock at these project locations contained elevated sulphate, however, samples from bedrock within the Main Civil Works area was limited. The Site C Clean Energy Project's 2018 Q4 Groundwater Quality monitoring report for RSEM Areas R5a and R5b indicate elevated results for sulphate that exceed the Trigger 2 Compliance Target at some locations (Lorax Environmental Services, 2019). The guideline value for sulphate is not stated in the BCAWQG-FSTM, however, a long term average guideline value is stated (variable with hardness) and is referenced in this report.

Water hardness (the concentration of calcium and magnesium ions in solution) is known to mitigate the effect of certain metals on aquatic organisms, and the guidelines are presented with equations derived from experimental data for sulphate and numerous metals (cadmium, copper, fluoride, lead, manganese, silver and zinc that tests a range of hardness specific to each metal or sulphate). Water hardness classification on-site is Hard to Very Hard and is often measured above the guideline threshold used to calculate BCAWQG-FSTM guideline values. Where the ambient hardness values exceed the guideline limited listed for BCAWQG, the exceedance criteria has been calculated using the upper limit value instead of the measured ambient hardness. The BC Approved WQG Summary Report (2018) states that a site-specific assessment may be necessary when ambient hardness values are outside the range tested in BC's Approved WQGs.

Water quality screening efforts have focused on elements with BCAWQG-FSTM guidelines, which include total concentrations of arsenic, boron, cobalt, copper, iron, lead, manganese, molybdenum, selenium, silver, and zinc, and dissolved concentrations of aluminum, cadmium, and iron.

Changes in concentrations of some elements or metals, reported as both total and dissolved, can have various implications for water quality under ARD-ML conditions. The solubility of individual elements can vary with pH. Geochemical modelling completed by Klohn Crippen Berger (2015) identified copper, cobalt, cadmium and zinc as having high probability of leaching into solution of site water during oxidation of the local shale bedrock under oxic acid rock generating and metal leaching conditions.

Formation of iron-oxide precipitate is the most widely recognized indicator of active ARD-ML processes. Total iron concentrations are associated with ARD-ML due to liberation of ferric iron from the oxidation of primary iron bearing sulphides. Subsequent formation of iron-oxide or iron hydroxide minerals can precipitate when acidic waters are neutralized and may be present as suspended solids or can form scaling on reactive surfaces such as limestone.

Aluminum concentration is abundant in rock forming minerals and can be released as part of oxidation and degradation of rocks during ARD-ML processes. Aluminum is soluble in acidic water and is typically not soluble in neutral and alkaline waters. Aluminum, as Al^{3+} can also contribute to the acidity along with H^+. When concentrations of aluminum are measured in detectible concentrations in neutral or alkaline water, it is possible that the formation

of very fine aluminum hydroxide clays may occur in previously acidic waters that have been neutralized. Aluminum hydroxide mineral species (e.g., polymorphs of gibbsite or hydrargillite) can form on rock surfaces and are indicators of acid generating conditions.

Concentrations of aluminum, iron and copper are typically low in neutral pH drainage, however, elements such as antimony, arsenic, cadmium, molybdenum, selenium, and zinc can be present in neutral pH drainage.

Under BC's Approved WQG's, the intention of long term average (LTA; i.e., "chronic") WQG's are for the protection of the most sensitive species and life stage against sub-lethal and lethal effects for indefinite explores, and uses an averaging period, whereas the short term maximum (STM; i.e., "acute") WQG's are intended to protect against severe effects, e.g., lethality, to the most sensitive species and life stage over a defined short term exposure period approach (BC Approved WQG Summary Report, 2018). Working water quality guidelines (WWQG) have not been assessed as part of this monitoring program.

The sampling program in each area is briefly described in the following sections.

2.2 Description of River Road Sample Locations

A total of twelve (12) monitoring locations have been established in the River Road catchment near Blind Corner.

Sample locations have been established along the River Road ditch for in situ testing, primarily as a means of monitoring the effectiveness of the limestone rip-rap and to observe longer term trends related to the PAG outcrop at Blind Corner and run-off/seepage from Howe Pit. Laboratory and in situ testing are conducted at three main locations, including 1) the lower chimney drain (LBRR-LC), 2) upstream of the lower chimney drain within the River Road ditch (LBRR-12+500), and 2) at the discharge of culvert RR-11 (LBRR-DD). In situ samples are only conducted at locations LBRR-12+430, LBRR-12+600, LBRR-12+700, LBRR-12+810 and LBRR-12+920.

The April 19, 2018, water sampling event included establishment of three additional locations: LBRR-EDP, LBRR RR9 and LBRR-RR8. LBRR-EDP is located at the end of a diversion pipe installed on March 19, 2018, with inlet within the River Road ditch at station 12+430 to divert water down-gradient into the River Road ditch between culverts RR-9 and RR-8. The pipe bypasses the lower chimney drain (LBRR-LC), which continues to discharge from culvert RR-11, and bypasses L3 Creek, which continues to discharge from culvert RR-10. The purpose of the diversion pipe is to address erosion and sediment control by transport of run-off water into an elongated ditchline to reduce flow velocities and to promote settlement of suspended sediment. Inlets to culverts RR-9 and RR-8 are slightly elevated from the ditch base which will allow water to pond within the ditch and infiltrate or discharge via the culverts only if water levels reach sufficient height. Both culverts are made of HDPE materials. The monitoring program includes collection of discharge from these LBRR-RR8 and -RR9 culverts, however, no discharge was observed to be coincident with the scheduled 2018 sampling events. Sampling was attempted on a routine monthly basis from four of the River Road catchment locations, and laboratory analyses were conducted on samples collected when flowing water was observed. The analyses results were used to understand water quality prior to mixing and discharging into the Peace River. These four locations are located: in the lower chimney drain (LBRR-LC), upstream of the lower chimney drain within the River Road ditch (LBRR-12+500), at the end of the diversion pipe (LBRR-EDP), and at the discharge of culvert RR-11 (LBRR-DD).

In situ observations and measurements were routinely collected at all eleven locations within the River Road ditch when flowing water was observed.

The established River Road monitoring locations are shown in Figure 1 and photos of the locations are included in the Photographs (Photos 1 to 6) section of the Appendix.

2.3 Description of South Bank Initial Access Road Locations

A total of five (5) monitoring locations have been established in and with proximity to the SBIAR catchment. The sample locations have been established to monitor water quality flowing through the SBIAR road cut. The sample locations will also monitor the potential changes to water quality in the side channel down-gradient of the SBIAR construction (RBSC-DS). Sample locations allow for data collection of long term characterization of SBIAR water management from the upstream location in the west ditch (RBSBIAR-US) and the downstream location in the west ditch (RBSBIAR-DS). Upstream and downstream sampling locations (RBSBIAR-EUS and RBSBIAR-EDS, respectively) were added during the June 2018, sampling event. In situ and laboratory analysis are conducted at all five locations.

It is noted that the water flowing from RBSBIAR-DS does not have a direct downstream receptor; the water flows from SBIAR into a limestone armoured spillway into a ditch which conveys to the RSEM R6 pond. Water quality monitoring is not conducted from within the spillway or ditch.

The RBSC-DS location is sampled as a verification point to check for potential influence from, or direct connectivity with, the PAG contact water that is collected within the SBIAR facility and diverted to the RSEM R6 pond. Groundwater and local surface run-off contribute to the local water quality; however, this location remains hydraulically connected to the Peace River which is interpreted as the primary influence of local water quality, particularly TSS measurements.

The SBIAR sampling locations are being monitored on a quarterly basis and have occurred on March 21, 2018, June 19, 2018, September 27, 2018, and December 17, 2018. One sample was collected on November 19, 2018 at the RBSC-DS location in lieu of sampling here in September.

The established monitoring locations are shown in Figure 2 and photos of the locations are included in the Photographs (Photos 7 to 11) section of the Appendix.

2.4 Description of L3 Catchment Sample Locations

The catchment for L3 Creek includes RSEM L3 which is currently not considered, nor permitted, for placement of construction related PAG material. Due to potential influence on discharge water quality from the Howe Pit area and inflow from L4 Creek, the water quality within the L3 Creek catchment is being monitored in context of ARD-ML management.

Five monitoring locations are established within the L3 and L4 Creek catchment to characterize water quality along the creeks and at the discharge location. A baseline location up-gradient of RSEM L3 (LBL3C-3.32) is 3.32 km from the L3 Creek discharge location. One midstream location, LBL3C-1.65, is above and one midstream location, LBL3C-1.43, is below the confluence of L4 Creek and Gulley Road box culvert. The LBL3C-1.65 and -1.43 locations are 1.65 km and 1.43 km, respectively, from the L3 Creek discharge location, and are monitored to characterize water quality at the downstream discharge location at culvert RR-10 (LBL3C-0.02), located 20 metres from the L3 Creek discharge location, which is used as a proxy for discharge water quality. Due to construction at LBL3C-1.65, minimal sampling was done at this location in 2018.

L4 Creek is a naturally incised gully which is located at the downstream extremity of the catchment where the future 85th Avenue Industrial Lands gravel quarry will be constructed for the project. The one monitoring location established in L4 Creek, LBL4C-0.18, is 180 metres upstream from the confluence with L3 Creek. Comparison of the measurements from the L3 and L4 Creek monitoring locations are used to characterize the mixed waters monitored at the L3 Creek midstream location, LBL3C-1.43.

The L3 Catchment monitoring locations are shown in Figure 3 and a representative photo is included in the Photographs (Photos 12-19) section of the Appendix.

2.5 Description of Additional Sampling Locations

Periodically, water samples are collected from new locations to evaluate water quality on a single event or recurring event basis.

2.5.1 Gully Road Ditch

On April 27, 2018, site observations were made of a small shale exposure in the northern cut-bank of the River Road ditch and the presence of iron-oxide staining on the sandstone rip-rap lining the ditch near road station 72+900. Water in the ditch flows to the east under Upper River Road into an overburden pit located approximately 150 m southeast of security Gate B. The Gully Road ditch was established as a temporary monitoring location along the ditch just west of Gate B with UTM coordinate 630,286 E and 6,230,555 N (map in Figure 1). In situ measurements and lab samples were collected from the ditch flow during the May 24, June 19, July 26, August 21, September 27, and October 22, 2018 sampling events. A representative photo of Gully Road ditch is included in the Photographs (Photo 20) section of the Appendix. Water quality lab data results are provided in Appendix B, Table B5 and discussed in Section 4.5.1.

2.5.2 Wiley C.

On the September 27, 2018 sampling event, pooled water with a white milky colour was observed next to the River Road diversion pipe, LBRR-EDP (map in Figure 1). Although the water was not flowing, an in situ field sample and lab sample was collected and labelled as “Wiley C.” The results of these samples are discussed in Section 4.5.2, and lab results provided in Appendix B, Table B5. The water originates up-gradient where a known PAG exposure exists in the River Road ditch approximately between road stations 12+725 and 12+875. The water collected within the ditch is channeled into the diversion pipe from LBRR-12+430, then drains into the lower River Road ditch where it infiltrates or discharges to the Peace River through culvert RR-9 and or RR-8, although both culverts remained dry or frozen throughout the 2018 monitoring period.

3.0 LOCAL CONDITIONS

3.1 Weather Conditions – Temperature and Precipitation

The minimum, maximum, and average daily and preceding seven-day temperature range, and the mean precipitation measured for the preceding seven days, day prior to, and day of each sampling event between March and December 2018, was collected from BC Hydro’s Site C Meteorological and Air Quality Station (Figure 4; BC Hydro, 2018), Station 7C Site C North Camp, with results summarized in Table 2. Mean temperatures on sampling events ranged from -8.4 °C (December 17) to +24.6 °C (June 19). The range of minimum temperatures on sampling events ranged from -9.4 °C (December 17) to +15.6 °C (June 19), whereas range of maximum temperatures on sampling events ranged from -7.5 °C (December 17) to +32.4 °C (June 19). Sampling events in March, July, September, and December 2018 coincident with minimal precipitation between 0.39 mm, 0.14 mm, 0.27 mm, and 0.26 mm, respectively. The March and October 2018 sampling events followed no precipitation in the preceding seven days to sampling, whereas the July 2018 sampling event had the highest precipitation of 55.29 mm in the preceding seven days to sampling.

Residence time for water is low in the SBIAR and River Road ditches due to their small catchment size. The climate data was used to evaluate water availability and potential water source for flows that were observed in the ditches.

3.1.1 Classification of Seasonal Flows in Ditch

The flows in ditches at SBIAR and River Road are susceptible to seasonal change and flow rate is highly influenced by local precipitation events, thus the classification of flow in ditches can assist to interpret the source and subsequent chemical fluctuations in water sampled (Table 3). For example, seasonal flows in ditches can be attributed to shallow or regional groundwater, spring freshet or surface run-off, dependant on the season and amount of precipitation recorded in the previous 24-hours and 7-days to the sampling event. This association may be less apparent in L3 Creek due to a larger catchment size and residence time for water within the drainage, however, it is interpreted that similar trends may be observed.

Regional bedrock groundwater in locations sampled are suspected to have elevated concentrations of dissolved sulphates due to groundwater interaction with local pyritic-shale bedrock, and may, to some degree, be responsible for the high sulphate-content pervasive in water sampled following minimal precipitation during the previous 7-day and 24-hours to the sampling event (e.g., May 24, August 21, and September 27, 2018). When significant precipitation has occurred in the previous 7-days, but minimal precipitation within the prior 24-hour period to the sampling event, the flows in ditches can result from shallow groundwater flow, mainly through unconsolidated overburden (e.g., July 26, 2018). During spring freshet and snow melt, sampling events (e.g., March 21 and April 19, 2018) can be classified as such to have a ‘dilution’ effect to the water chemistry sampled in this season. To the contrary, during more arid seasons with little to no precipitation occurring in the previous 7-days and 24-hours (e.g., August 21, September 27, October 22, 2018), flows in ditches can be attributed to surface run-off. In this event, when precipitation and sampling occur following dry periods, the surface chemistry of the rocks will be washed into the ditches and be concentrated. Heavy rainfall events coincident to sampling events did not occur in 2018, although its occurrence would produce increased turbidity and flow in the ditches, having short term effects on measurements such as TDS, TSS and potentially total metal concentrations from flushing of exposed slopes and ditch fill material.

The classification of seasonal flows in ditches (Table 3), therefore, are important to consider when interpreting fluctuations and exceedances in parameters measured in water quality guidelines over the period of one year.

3.2 Peace River Turbidity and TSS (Total Suspended Sediment)

Turbidity of the Peace River is monitored by BC Hydro through a series of data loggers situated both upstream and downstream of the Main Civil Works (MCW) construction area. Time series data collected on the left and right banks of the Peace River up-gradient of the Moberly River (stations PAM-LB and PAM-RB, respectively) were provided to Tetra Tech by Ecofish Research Ltd. (Ecofish) to provide general understanding of influence by precipitation on natural sediment concentration within the Peace River upflow from the construction area during and following water quality monitoring events.

The data include turbidity measurements for the day prior, during, and day following the March through December sampling events in 2018 (Table 4). The turbidity data is converted to a value representing total suspended solids (TSS) using a preliminary factor developed by Ecofish using calibration of field measurements with laboratory data. Although the data have undergone initial verification and review for quality assurance, measurements may still have drift corrections applied, therefore, the TSS-turbidity relationship will continue to be updated following sample collection over time and all ranges of river conditions. Subsequent quality assurance and verification procedures may result in differences between what is currently provided and what will become the official record.

4.0 WATER QUALITY MONITORING PROGRAM

A summary of each water quality sampling event and corresponding analytical results were reported monthly to BC Hydro in a routine memo for ten sampling events in 2018: March 21, April 19, May 24, June 19, July 26, August 21, September 27, October 22, November 19, 2018, and December 17, 2018. Water quality sampling and development of a routine memo were not completed for January or February 2018, due to frozen conditions on-site. Laboratory results reported from the discharge or final downstream monitoring location in each catchment were evaluated against the BCAWQG-FSTM guidelines (Appendix B, Table B1) on a monthly basis for River Road and L3 Creek, and on a quarterly basis for SBIAR. Laboratory results for each upstream and midstream locations were used to evaluate ambient conditions and to characterize the results at the discharge or downstream locations; laboratory results for each location (River Road, South Bank Initial Access Road, and L3 Creek) are provided in Appendix B (Tables B2 to B4).

4.1 Quality Control and Quality Assurance Program

4.1.1 Tetra Tech QA/QC

The Quality Control (QC) program included experienced field staff familiar with the water quality monitoring program adhering to the British Columbia Field Sampling Manual, Part E: Water and Wastewater Sampling (Clark, 2003). New sample containers were acquired from the laboratory the day preceding the sampling event and all handling of the containers, sampling devices and equipment during sample collection was completed wearing new nitrile gloves to minimize potential for contamination of the samples. A new disposable syringe and 0.45 µm filter were used for each sample being submitted for dissolved metals, except when the concentration of TSS was observed as being high and field filtration was not possible. Samples not filtered and preserved in the field were identified and filtered at the laboratory. All samples were stored in a cooler filled with ice packs at a temperature between approximately 4°C and 8°C.

Analytical results were received monthly from ALS labs. No external lab was contracted during the 2018 monitoring period.

The Quality Assurance (QA) program incorporated use of a Travel Blank (TB), Field Blank (FB) and replicate sample to test for potential contamination during sample collection, handling or laboratory preparation, and to evaluate the precision of laboratory analysis. Table 5 lists the results of the QA program.

The analytical results of these samples were reviewed by Tetra Tech, and if potential contamination or concerns with analytical results were identified, they were discussed with the laboratory and the samples were reanalyzed for verification. Blank samples were considered to ‘fail’ where any measured value was in concentrations above the reported detection limits for that parameter.

Replicate samples were evaluated using relative percent difference (RPD), where an RPD value of less than 30% is considered an acceptable threshold for variation of surface waters.

Tetra Tech also reviewed the data for more general anomalies and inconsistencies. The total and dissolved concentrations for the full suite of elements were compared and it was noted that there were frequent occurrences where the dissolved concentrations exceeded the total concentration. The results were screened for analytical error, then assessed for expected natural variability of surface waters. Most instances were due to measurements at or near the low detection limit and could be explained by being within an acceptable range of error up to five times the

lower detection limit for the respective element. Here, the total concentrations are considered equal to the dissolved concentrations.

Elemental concentrations measured at or slightly above the analytical detection limits in travel and field blanks occurred at times during the 2018 monitoring period, specifically for total chromium (April and May FB), ammonia (June FB), alkalinity (June TB), and dissolved chromium (April TB and September FB), aluminum (October FB), barium (October FB), magnesium (October FB), and mercury (December FB), summarized in Table 5. Consistently, an average low pH of 5.50 is measured across travel and field blanks collected in 2018; this low pH result is typical for distilled water and is not identified to be an issue. The elemental concentrations measured above detection limit could be attributable to field contamination or calibration of analytical instrumentation. The majority of blank samples with elevated concentrations occurred with field blanks, and similar anomalous elemental concentrations were not observed in their corresponding travel blank. Travel blanks were prepared by the laboratory and field blanks were prepared in the field at sample collection sites by field staff using the same source water as was used for the travel blank. If the source distilled water was contaminated, similar elemental anomalies would be expected in both the TB and the FB. The issues have been communicated with both the analytical laboratories and field personnel. Due to anomalous values being so close to detection limits and that particular elements were not recurring throughout the year, the accumulated error was not interpreted as a concern for this monitoring program.

Replicate samples with differences of elemental concentrations above the acceptable threshold of RPD > 30% were noticeable for a variable number of parameters measured in March (2), April (2), May (3), June (5), July (13), August (2), September (4), October (0), November (26), and December (5). Discrepancies are attributed to sediment disturbance during the collection of the first sample.

In the July 26, 2018 sampling event's QAQC program, it was found that the analytical results for dissolved and total element concentrations were inversed, or improperly labelled, at five sampling locations, including Gully Road Ditch, LBL3C-0.02, LBL3C-1.43, LBL3C-1.65, and LBL4C-0.18. A request was submitted to ALS Laboratories to switch the dissolved and total values for these locations, resulting in the revised data set and QAQC results presented in this report.

The November 19, 2018, sampling event QAQC check found that the replicate samples (RBSC-DS and RBSC-DS-REPLICATE) had significant occurrences of RPD > 30%, calculated for twenty-six (26) parameters including TSS (RPD = 79.75%), Ammonia (RPD = 120.6%), seven total metals (As, Ba, Cd, Mn, Ni, Rb, S), and seventeen dissolved metals (Al, As, Ba, B, Cd, Fe, Mg, Mn, Hg, Ni, K, Rb, Na, S, U, Zn). Following communication with the field sampling personnel and ALS Laboratories, this discrepancy was attributed to the replicate sample containing sediment from disturbance during collection of the first sample. The replicate sample was therefore not considered a reliable comparison of the in situ conditions and laboratory analysis.

The occurrence of dissolved concentrations exceeding total concentrations in samples was calculated below the acceptable threshold of an RPD<30%, although measurements above the acceptable threshold occurred in the following sampling events: June 19, 2018 (chromium, lead, thorium, and titanium), July 26, 2018 (mercury and titanium), and November 19, 2018 (total iron).

4.1.2 Laboratory QA/QC

ALS Laboratories was used as the principle laboratory for sample analysis. Certificates of Analysis from ALS Laboratories are provided in each monthly, routine memo, during 2018.

The lab implements a detailed QC program into the sample analysis which includes a series of checks and evaluations for consistency in the sample analysis. The QC program includes method blanks, certified reference

materials, laboratory control samples and duplicates. The QC Lot reported on Assay Certificates consistently met internal ALS Data Quality Objectives.

4.2 River Road Water Sampling

There was sufficient flowing water for samples to be collected in March and April 2018, at the LBRR-DD, LBRR-LC, and LBRR-12+500 locations, and in April, May, June, and July at the LBRR-EDP location. Dry, freezing and/or low or no flow conditions prevailed from May through December at all locations, preventing reliable sampling at the River Road monitoring locations for much of 2018. In situ measurements were not collected from each station consistently every month due to dry (e.g., July, August) or frozen (e.g., October, November, December) conditions. Field observations were documented each month. A total of seventeen monthly sampling events have been conducted at the River Road catchment locations, ten in 2018 (March to December) and seven in 2017 (April to October) by Tetra Tech; two prior sampling events occurred in 2016 (October and November) by Lorax and are included in the attached time series charts (Figures 5 to 14) for continuity but are not discussed in this report.

4.2.1 In Situ Measurements and Field Observations

Values for water temperature, pH, total alkalinity and electrical conductivity measured at the River Road monitoring locations are included in Table 6. The range in water temperatures at LBRR-DD (0.0 °C), LBRR-LC (0.4 °C), LBRR-UC (0.1 - 20.1 °C), LBRR-12+500 (0.0 °C), and LBRR-EDP (0.0 – 20.3 °C) were recorded during 2018, in addition to 0.0 – 20.9 °C between LBRR-12+600 to +920. The range in pH measured at LBRR-DD was 8.08 to 8.60, at LBRR-LC was 8.15 to 8.20, at LB-12+500 was 3.77 to 6.05, and at LBRR-EDP was 8.13 to 8.74. The range in alkalinity at LBRR-DD was 0 to 80 ppm, at LBRR-LC was 0 to 40 ppm, at LBRR-12+500 was 0.0 ppm, and at LBRR-EDP was 80 to 240 ppm.

The collection ditch on the cut-bank (north) side of River Road between approximately 12+340 and 12+960 (Blind Corner) was lined with limestone rip-rap in 2017 to assist with mitigating the potential effects of acid rock drainage (ARD) and metal leaching (ML) from potentially acid generating (PAG) bedrock that was exposed during the initial road construction in 2015 and early 2016. Potentially acidic leachate generated from the rock cut-slopes reacts with the alkaline limestone to help neutralize water as it passes through the rip-rap lined ditch. The ditch also serves to convey run-off water and fine sediment shed from River Road through the end-of-diversion pipe between 12+430 and LBRR-EDP prior to discharging through culvert RR-8 and RR-9 into the Peace River. Water from the lower chimney ditch, LBRR-LC, is conveyed through culvert RR-11 to the discharge location, LBRR-DD, and Peace River.

Location LBRR-12+920 is located immediately up-gradient of the upper cut-off chimney and PAG exposure, whereas LBRR-12+810 is located immediately down-gradient the upper cut-off chimney and sits below the PAG exposure at Blind Corner. Notable decrease in water pH and alkalinity generally occurs between these stations with a gradual recovery from acidic to circumneutral pH and available alkalinity towards location 12+500. This trend is interpreted to be related to PAG contact waters draining into the ditch from location 12+810 and 12+700, and the increasing trending related to effects of limestone rip-rap within the ditch in additional to influence from alkaline run-off from the lower cut-off chimney near location 12+500.

The limestone is effective at mitigating the pH of the drainage when there are fresh surfaces of limestone available for chemical reactions. The limestone material used as rip-rap along this road section has become progressively coated with a mineral precipitate (visually estimated as hydroxides containing calcium, iron and aluminum) due to chemical neutralization reactions and encased by sludge due to settlement of suspended solids within the water. Additionally, the roadside portion of the ditch, particularly from LBRR-12+600 downstream to the discharge at LBRR-DD, is being encroached with sand and gravel sediment from grading activities on River Road which covers

the limestone, further reducing its exposure. The effectiveness of the limestone to provide the neutralizing potential is considered to be negatively compromised by these coatings.

Limestone rip-rap within the ditch between road stations 12+600 and 12+900 continued to be maintained in 2018, including completion of a hydroseeding program on the shale slope at blind corner to support long term erosion control and slope stability in March 2018. The hydroseed appeared to remain in place on the slope, however, germination was not successful at year's end.

Flows within the River Road ditch are ephemeral and baseline flow observed at the discharge is generally contributed by outflow from LBRR-LC. At the discharge location, LBRR-DD, flows ranged between 0.4 L/s (March 21) to 5.0 L/s (April 18), with dry or frozen conditions prevailing for the remainder of the 2018 monitoring period. Flow in the discharge (LBRR-DD) and lower chimney (-LC) are exceptionally low. At the end-of-diversion pipe location LBRR-EDP, flows ranged between none (September 27) to 0.5 L/s (April 19) that originate from LBRR-12+430 and further up the River Road ditch, e.g., LBRR-12+500. In the River Road catchment, water temperatures ranged between 0.0°C (April 18) to 20.9°C (June 19). At the LBRR-DD location, water was cloudy on the April 18, 2018 sampling event with total suspended sediment (TSS) measurements ranging between 50.7 to 97.6 mg/L between March and April 2018. The source of TSS is primarily from River Road run-off, scouring of sediment deposited within the River Road ditch and washing from the cut-slopes. Elevated total metal concentrations were measured from the March and April 2018, sampling events are interpreted to be directly related to washing, or flushing, of sediment and secondary mineral precipitant during freshet as water contacted accumulated sediment within the ditch in addition to the exposed shale, colluvium and overburden cut-banks. These conditions are interpreted to have been temporary in the early season of 2018. During March and April 2018 sampling events, neutral pH values were measured at the LBRR-DD discharge as slightly alkaline with an in situ pH of 8.08 and 8.60 (laboratory pH 6.51 to 7.78, respectively, with an average pH of 7.15).

4.2.2 Short Term Maximum Exceedances

Concentrations of total iron, arsenic, cobalt, copper, zinc, and dissolved iron, aluminum, and cadmium, and pH were measured on occasion to be above the BCAWQG-FSTM within the catchment. At the discharge location (LBRR-DD) sampled in March and April 2018, exceedances were reported at least once for total iron, arsenic, copper, zinc, and dissolved iron, cadmium, and aluminum. A summary of water quality exceedances relative to BCAWQG-FSTM listed by monitoring location and month are listed in Table 7, and the screening results based on the laboratory data are tabulated in Appendix B2.

4.2.3 Trend Monitoring

Monthly water quality monitoring measures instantaneous ambient conditions at the time of sampling and as discussed in Section 3.1 the measurements are highly susceptible to temporal climate conditions due to the small catchment and short residence time of water within the River Road ditch. In addition to BCAWQG-FSTM (short term maximum) screening, commencing for the 2018 annual report, the 2017-18 laboratory results have been screened against the BCAWQG-LTA (long term average) guideline values, shown in Appendices A1 to A5, although it references preliminary results of a minimal two annual monitoring periods. Event data characterizes the influences of seasonal conditions at the site. Recurring trends at River Road over the 2017 and 2018 monitoring period may be indicative of long term trends, and are discussed below for alkalinity and pH (Figure 5), TSS and TDS (Figure 6), sulphate (Figure 7), aluminum (Figure 8), and iron (Figure 9), in addition to trends in specific metals such as arsenic (Figure 10), cadmium (Figure 11), cobalt, (Figure 12), copper (Figure 13), and zinc (Figure 14).

4.2.3.1 Alkalinity and pH

Alkalinity and pH values indicated relatively consistent values of slightly alkaline water during 2018 sampling events at three River Road locations (LBRR-DD, LBRR-EDP, LBRR-LC) and acidic water during freshet in March and April 2018, at the LBRR-12+500 location (Figure 5). At the discharge location, LBRR-DD, pH measurements ranged between 6.51 and 7.78 with a mean pH of 7.15, and total alkalinity ranged between 5.0 and 91.4 mg/L $CaCO_3$ equivalent with a mean value of 48.2 mg/L $CaCO_3$ equivalent. Including the four River Road catchment sampling locations, pH measurements ranged between 2.90 (LBRR-12+500) and 8.20 (LBRR-EDP) with a mean pH of 7.01, whereas total alkalinity in 2018 ranged between below detection limit, <1.0, and 220 mg/L $CaCO_3$ equivalent with a mean value of 90 mg/L $CaCO_3$ equivalent.

Limited measurements collected at the midstream LBRR-12+500 station indicate pH measurements below the BCAWQG-FSTM guideline, whereas the upstream (LBRR-LC) and downstream (LBRR-DD and -EDP) locations show a neutral pH and alkalinity, although the LBRR-LC and -DD locations show low alkalinity. These trends indicate increased acidity midstream (LBRR-12+500), low alkalinity at upstream, midstream, and the discharge location, and within normal range of pH and alkalinity primarily measured at the LBRR-EDP location over the 2018 monitoring period.

Both the alkalinity and pH at LBRR-LC and LBRR-DD measure an increase in pH and alkalinity from March to April 2018. Due to no correlating months of data collection between 2017 and 2018, and limited sampling during 2018, seasonal trends are not clearly apparent, although a noticeable slightly lower pH in spring and fall (freshet/wetter seasons) compares to more neutral, increased pH/alkalinity during summer (dry season) (Figure 5). The new sampling location, LBRR-EDP, measures neutral pH and within range alkalinity relative to other LBRR sampling locations and events over the four sampling events (April to July 2018).

Following relatively consistent trends in 2017 (with exception of alkalinity measured in October 2017) at the LBRR-DD location, pH either decreased or remained relatively consistent and alkalinity decreased in 2018. This resulted from less alkalinity being provided from LBRR-12+500 and LBRR-LC and increased acidity from LBRR-12+500 relative to previous sampling events.

4.2.3.2 Hardness

Water hardness measured at LBRR-DD was often above the upper threshold used by the BCAWQG-FSTM (250 mg/L) to guide criteria for numerous specific metal or element concentrations (e.g., total sulphate, copper, lead, manganese, silver, zinc; dissolved cadmium) with values ranging between 258 and 821 mg/L with mean value of 540 mg/L (Appendix B, Table B2). This value is based on toxicity tests and adapted by the Canadian Council of Ministers of the Environment (BCAWQG Summary Report, 2018). When the maximum hardness value is reached for elements that are hardness-dependent for BCAWQG-FSTM guideline calculations, the respective maximum hardness values for zinc, copper, and cadmium were used as capped hardness values in guideline calculations, rather than the measured ambient hardness. A site-specific assessment may be required since the water hardness exceeds the highest hardness tested for Cu, Cd, and Zn in BC (BCAWQG Summary Report, 2018, pg. 32).

4.2.3.3 Total Suspended Sediment and Total Dissolved Sediment

The annual trend for TSS values at LBRR-DD indicate a variable trend through 2017 and 2018, with a slight increase occurring between March and April 2018. TSS measured at LBRR-DD ranged between 50.7 to 97.5 mg/L with a mean value of 74.1 mg/L.

TDS values at LBRR-DD shows a sharp decrease between March and April 2018, and a decreasing trend in 2018 relative to 2017. TDS measured at LBRR-12+500 and LBRR-LC also followed a decreasing trend in 2018, with

LBRR-DD and -LC having similar TDS concentrations that are lower to TDS measured at LBRR-12+500 and LBRR-EDP. TDS measurements at LBRR-DD ranged between 1,190 to 362 mg/L with mean value of 776 mg/L.

TSS and TDS values measure higher in 2018 overall than in 2017 (Figure 6). Measurements of elevated TSS and TDS within the River Road ditch, as observed at the LBRR-12+500 location, are attributed primarily to surface run-off from River Road, scouring of sediment deposited within the River Road ditch, and washing from the cut-slopes.

4.2.3.4 Sulphate

Sulphate concentration data collected in 2018 was variable within the River Road catchment, showing similar concentrations of sulphate at LBRR-DD and -LC in March and April 2018. Sulphate concentrations measure higher at LBRR-12+500 and LBRR-EDP, relative to LBRR-DD and -LC, although a decreasing trend occurred at LBRR12+500, -DD, and -LC between March and April 2018. Sulphate concentrations generally measure above the BCAWQG-LTA guideline value during 2018, but minimal sampling in the River Road catchment does not provide sufficient seasonal trend observations (Figure 7). Sulphate concentrations measured at the LBRR-DD location during 2018 ranged from 161 to 751 mg/L with mean value of 456 mg/L.

The correlation of a similar, lower concentration of sulphate at LBRR-LC and -DD relative to a higher concentration of sulphate measured at LBRR-12+500 and -EDP, confirm the similarity between locations connected either on each end of the end-of-diversion pipe (LBRR-12+500 and -EDP) or the culvert RR-11 (LBRR-LC and -DD). Thus, the constructing of the end-of-diversion pipe from LBRR-12+500 for sediment control is illustrated in the trend charts. The origin of sulphate is not confirmed but is interpreted to originate from influent seepage water with high background levels of sulphate in the groundwater and/or local oxidation of sulphide minerals in exposed shale.

4.2.3.5 Total and Dissolved Aluminum

Total and dissolved aluminum concentrations show monthly variability during the 2018 sampling events, however, total aluminum concentrations measure higher during freshet, March and April, in 2018 than in 2017 (Figure 8). Between March and April 2018, the LBRR-DD and -12+500 locations decreased in measurements of total and dissolved aluminum, whereas the LBRR-LC location showed a slight increase in total aluminum and decrease in dissolved aluminum. Total aluminum concentrations measured at LBRR-DD ranged from 2,980 to 3,670 µg/L with mean value of 3,325 µg/L and dissolved aluminum ranged from 28 to 392 µg/L with mean value of 210 µg/L.

Dissolved aluminum concentrations at LBRR-DD showed an exceedance above the BCAWQ-FSTM guideline (100 µg/L) in March 2018, prior to decreasing to below the BCAWQG-FSTM guideline in April 2018. At LBRR-LC, dissolved aluminum concentrations remained below the BCAWQG-FSTM guideline, yet remained above the BCAWQG-FSTM guideline at LBRR-12+500 in March and April 2018, and at LBRR-EDP between May, June, July, and September 2018 sampling events.

During dry conditions from June to September 2018, groundwater seepage and run-off into the River Road ditch upstream from the LBRR-12+500 midstream location may be contributing to the dissolved aluminum concentrations. Similar water quality characteristics are observed in the lower L3 Creek catchment which may indicate that locally impacted groundwater from the exposed shale in the legacy Howe Pit area may be a common contributing factor to the downstream water quality.

4.2.3.6 Total and Dissolved Iron

Total iron concentrations at LBRR-DD and -LC measured above the BCAWQG-FSTM guideline (1.0 mg/L) and increased between March and April 2018 (Figure 9), with concentrations at the LBRR-DD location measuring 7.2 and 22.8 mg/L, respectively, with mean value 15.0 mg/L. Total iron concentrations measured highest at

LBRR-12+500 location in 2018, although decreased between March and April 2018. A decreasing trend in total iron concentrations were measured between May and July 2018, at LBRR-EDP.

Dissolved iron concentrations measured at LBRR-DD decreased between March and April 2018, transitioning from exceeding the BCAWQG-FSTM guideline (350 µg/L) in March 2018 to decreasing below the BCAWQG-FSTM in April 2018. Dissolved iron concentrations at the LBRR-EDP location transitioned from exceeding the BCAWQG-FSTM guideline in April 2018, to remaining below detection limit of 20 µg/L between May, June, and July 2018. In 2018, elevated concentrations of dissolved iron were most prominent at the LBRR-12+500 location.

4.2.3.7 Metals: Arsenic, Cadmium, Cobalt, Copper, and Zinc

Metals such as arsenic, cadmium, cobalt, copper, and zinc have been identified to have potential for released in elevated concentrations from minerals during oxidation and weathering processes and are therefore important indicators of ARD-ML processes and environmental changes in the water supply. The concentrations of these elements were assessed from limited sampling during 2018.

Total arsenic concentrations during 2018 measured at LBRR-DD ranged from 6.2 to 16.3 µg/L with mean value of 11.3 µg/L, whereas dissolved arsenic ranged from 0.14 to 0.22 µg/L with mean value of 0.18 µg/L. Total arsenic during March and April 2018 (the only two months sampled at LBRR-DD in 2018) exceeded the BCAWQG-FSTM guideline (5.0 µg/L) but measured lower than in September to October 2017 and higher than from October 2016 to July 2017 (Figure 10).

Total cadmium concentrations during 2018 measured at LBRR-DD ranged from 17.6 to 90.6 µg/L with mean value of 54.1 µg/L, whereas dissolved cadmium ranged from 0.44 to 4.49 µg/L with mean value of 2.46 µg/L. Total and dissolved cadmium show similar, slightly lower concentrations in April 2018 relative to April 2017 (Figure 11), during freshet. Dissolved cadmium measured above the calculated BCAWQG-FSTM guideline in March 2018 and below the calculated guideline in April 2018, when capping the hardness value at 455 mg/L, at LBRR-DD.

Total cobalt concentrations during 2018 measured at LBRR-DD ranged from 6.2 to 16.3 µg/L with mean value of 11.3 µg/L, whereas dissolved cobalt ranged from 13.6 to 88.4 µg/L with mean value of 51.0 µg/L. Total and dissolved cobalt show similar, slightly higher concentrations in April 2018 relative to April 2017 (Figure 12), during freshet. Total cobalt remained below the BCAWQG-FSTM guideline at LBRR-DD in March and April 2018.

Total copper concentrations during 2018 measured at LBRR-DD ranged from 26.3 to 26.7 µg/L with mean value of 26.5 µg/L, whereas dissolved copper ranged from 1.41 to 13.1 µg/L with mean value of 7.26 µg/L. Total copper measures higher in April 2018 than April 2017, whereas dissolved copper measures similar, slightly lower concentrations in April 2018 than April 2017 (Figure 13), during freshet. Total copper in April 2018 (26.30 µg/L) reaches the BCAWQG-FSTM exceedance guideline (26.25 µg/L), when capping the hardness value at 400 mg/L.

Total zinc concentrations during 2018 measured at LBRR-DD ranged from 210 to 585 µg/L with mean value of 397.5 µg/L, whereas dissolved zinc ranged from 35.8 to 546 µg/L with mean value of 290.9 µg/L. Total zinc measures slightly higher in April 2018 than April 2017, and dissolved zinc measures lower in April 2018 than April 2017 (Figure 14). When capping the hardness value at 500 mg/L in March (585 µg/L) and April (210 µg/L), 2018, total zinc slightly exceeds the BCAWQG-FSTM guideline values, 581 and 159 µg/L, respectively.

Minimal sampling along the River Road ditch occurred during the 2018 monitoring period, impeding the ability to observe long term trends between 2017 and 2018. It is notable that although the new LBRR-EDP location measures exceedances to the BCAWQG-FSTM at least once for total zinc, copper, cobalt, arsenic, and dissolved cadmium, that at LBRR-ECP, measurements have generally lower concentrations of copper, zinc, cobalt, cadmium, and arsenic than at LBRR-12+500 (the source of the end-of-diversion pipe). Conversely, the LBRR-DD and -US

locations are correlated to measure very similar concentrations of the same five metals and throughout all sampling parameters (e.g., aluminum, iron, TDS, sulphate).

4.2.4 Long Term Average Exceedances

At the discharge location, LBRR-DD, minimal occurrences of measured concentrations during 2018 exceed the BCAWQG-LTA guidelines. Total cobalt in March (90.6 µg/L) and April 2018 (17.6 µg/L) exceed the BCAWQG-LTA (4.0 µg/L) and not the BCAWQG-FSTM (110 µg/L). Dissolved cadmium in April 2018 (0.439 µg/L) slightly exceeds the calculated BCAWQG-LTA (0.425 µg/L) but not the BCAWQG-FSTM (1.561 µg/L). Similarly, total copper measured in March 2018 (26.7 µg/L) slightly exceeds the BCAWQG-LTA (10 µg/L) and total selenium measured in March 2018 (2.86 µg/L) slightly exceeds the BCAWQG-LTA (2.0 µg/L), but both do not exceed the BCAWQG-FSTM.

4.3 SBIAR Water Sampling

Sufficient flowing water permitted samples to be collected quarterly on March 21, June 19, September 27, and December 17, 2018 throughout the SBIAR monitoring locations, specifically RBSBIAR-US, RBSBIAR-DS (except December), and RBSC-DS (March, June, November, December). The new monitoring locations in the east ditch, RBSBIAR-EUS and -EDS, were sampled in June and September 2018 (RBSBIAR-EUS/-EDS) and also December 2018 (-EDS). Field observations were documented each month.

4.3.1 In Situ Measurements and Field Observations

Values for water temperature, pH, total alkalinity and electrical conductivity measured at the SBIAR monitoring locations are included in Table 8. Flows in the SBIAR ditch system can vary between upstream (-US and -EUS) and downstream (-DS and -EDS) locations, with flows of approximately 0.10 L/s to 3.0 L/s, respectively (Table 8). Seepage in the western cut-slope ditch is received partly from ponded water from Area 21 RBSC-DS is located in the side channel with connectivity to the Peace River where stagnant to minimal “flow” is usually observed. Water levels at RBSC-DS are coincident with the actual levels of the Peace River. Table 4 shows the measured upstream turbidity, and converted TSS concentrations, within the Peace River. Increased turbidity measured in the Peace River results from precipitation events which can be correlated with TSS measurements collected from RBSC-DS. Thus, TSS measured at the RBSC-DS location (Figure 10) are interpreted to be attributable to, or directly influenced by, the in-river turbidity measurements (Table 4). Algae was occasionally observed in the water during 2018 at RBSC-DS (June), RBSBIAR-US (August and December), RBSBIAR-EUS (December 2018). The range in water temperatures at RBSBIAR-US (1.1–14.4 °C), RBSBIAR-EUS (1.0–15.4 °C), RBSBIAR-DS (1.1–17.7 °C), RBSBIAR-EDS (0.6-16.8 °C), and RBSC-DS (0.3–18.0 °C), were recorded in 2018.

4.3.2 Short Term Maximum Exceedances

At the downstream locations, (RBSBIAR-DS and -EDS), exceedances were reported for total iron and dissolved aluminum. At the upstream locations, (RBSBIAR-US- and -EUS), exceedances were reported for total iron, arsenic, copper, and zinc (RBSBIAR-US) on March 21, 2018, and total iron (RBSBIAR-EUS) in the September and December 2018 sampling events.

Total and dissolved iron were in exceedance of BCAWQG-FSTM guidelines in March, November, and December 2018, at RBSC-DS which is in the Peace River side channel at the base of SBIAR. This location is sampled as a verification point to check for potential leakage from, or direct connectivity with, the SBIAR PAG contact water with the side channel. This exceedance is not considered to be influenced by construction related PAG contact water.

A summary of water quality exceedances relative to BCAWQG-FSTM listed by monitoring location and month are listed in Table 9, and the screening results based on the laboratory data are tabulated in Appendix B, Table B3.

4.3.3 Trend Monitoring

Monthly water quality monitoring measures instantaneous ambient conditions at the time of sampling and, as discussed in Section 3.1, the measurements are highly susceptible to temporal climate conditions due to the small catchment and short residence time of water with the SBIAR ditch. Recurring trends at SBIAR over the 2017 and 2018 monitoring period may be indicative of long term trends, and are discussed below for alkalinity and pH (Figure 15), TSS and TDS (Figure 16), sulphate (Figure 17), aluminum (Figure 18), and iron (Figure 19), in addition to trends in specific metals such as arsenic (Figure 20), cadmium (Figure 21), cobalt, (Figure 22), copper (Figure 23), and zinc (Figure 24).

4.3.3.1 Alkalinity and pH

Alkalinity and pH values indicate that waters have remained alkaline during 2017 and 2018 (Figure 15). In 2018, values for pH measured at RBSBIAR-DS range closely between 8.23 and 8.31 with a mean pH value of 8.26 (Table 10). Alkalinity trends between the upstream and downstream monitoring location are variable yet show a positive correlation at between upstream (RBSBIAR-US/-EUS) and downstream (RBSBIAR-DS/-EDS), and east (-EUS/-EDS) and west (-US/-DS) ditches. There is an increasing trend in alkalinity in both upstream and downstream (east and west) ditches between June and September 2018. Values for alkalinity at RBSBIAR-DS range between 188 mg/L and 233 mg/L $CaCO_3$ equivalent with mean value of 213 mg/L $CaCO_3$ equivalent (Table 10).

Measured pH at the side channel location RBSC-DS range between 7.74 and 8.26 with mean value of 8.04, and alkalinity range between 234 and 404 mg/L $CaCO_3$ equivalent with mean value of 334 mg/L $CaCO_3$ equivalent. The RBSC-DS location generally measures higher alkalinity values and similar to slightly lower pH values relative to the other SBIAR sampled locations, and there is low to negligible correlation observed between pH and alkalinity between the side channel and the SBIAR waters.

4.3.3.2 Hardness

Water hardness measured at RBSBIAR-DS was generally slightly above the upper threshold used by the BCAWQG-FSTM (250 mg/L) to guide criteria for various metal or element concentrations (e.g., total sulphate, copper, lead, manganese, silver, zinc; dissolved cadmium) with values ranging between 275 and 298 mg/L, and a mean value of 285 mg/L. When the maximum hardness value is reached for elements that are hardness-dependent for BCAWQG-FSTM guideline calculations, the respective maximum hardness values for zinc, copper, and cadmium were used as capped hardness values in guideline calculations. Ambient water hardness values are consistent with measurements collected from other catchments on-site and are likely characteristic of background conditions.

4.3.3.3 Total Suspended Sediment (TSS) and Total Dissolved Sediment (TDS)

TSS measurements at the downstream RBSBIAR-DS/-EDS and upstream RBSBIAR–US/-EUS locations are variable both between upstream and downstream, and between west and east ditches, thus lacking correlation over the 2018 sampling period (Figure 16). The overall variability in TSS is attributable to the relative small catchment and short residence time of waters within both the west and east SBIAR ditches and sensitivity to flux in surface water inputs from precipitation or seepage inputs from Area 21. TSS concentrations measured at RBSBIAR-DS range between <3.0 and 75.5 mg/L with mean value of 36.8 mg/L, and measured TDS concentrations ranged between 344 and 502 mg/L with mean value of 428 mg/L. In the March 2018 sampling event, the upstream

RBSBIAR-US location shows the highest TSS values measured during 2017 and 2018 at all locations, then decreases consistently over the remainder of 2018, which differs significantly from the 2017 trend. Conversely, at the downstream RBSBIAR-DS location, TSS measured in March and September 2018, were elevated relative to June 2018, showing a similar trend between April, June, and August 2017.

Measured TSS values within the RBSC-DS ranged between 6.7 and 32.7 mg/L with mean value of 18.4 mg/L, peaking in the June 19, 2018 sampling event, which is somewhat comparable to the 2017 seasonal timing of a TSS peak (May 2017). TSS does not appear to have a direct correlation with the SBIAR monitoring and follows a much more subdued range of variability. Measured TDS values within the RBSC-DS ranged between 539 and 2,500 mg/L with mean value of 1,185 mg/L showing a wide variability with peak values observed in the June 19, 2018 sampling event. Notably, TDS values peaked in July of 2017, therefore may occur seasonally yet there is insufficient data to determine the trend. TDS does not appear to have a direct correlation with the SBIAR monitoring.

4.3.3.4 Sulphate

Sulphate values measured at RBSBIAR-DS and –US locations remained consistently low (Figure 17). Sulphate concentrations measured at RBSBIAR-DS ranged between 51.1 and 111 mg/L with mean value of 79.5 mg/L. It can be observed that sulphate concentrations at the downstream (–DS/-EDS) locations are slightly higher relative to the upstream (–US/-EUS) locations for each 2018 sampling event, indicating a net increase in sulphate from groundwater seepage, and local shale run-off. The downstream RBSBIAR-DS location appears to have a seasonal trend, with sulphate concentration peaking in June of both 2017 and 2018 followed by a decrease in sulphate to August (2017) and September (2018). The upstream RBSBIAR-US location show more consistent sulphate concentrations over 2017 and 2018, although a moderate peak occurs also in June of 2018 relative to early and late seasons.

Measured sulphate concentrations at the RBSC-DS location varied widely within range between 182 and 1,460 mg/L with mean value of 568 mg/L. A seasonal trend may be evident whereby concentration peaked in June 2018 relative to early spring (March 2018) and autumn/winter (September, November, and December 2018). This seasonal trend is also apparent at the RBSC-DS location with sulphate concentration peaking in July 2017. Sulphate concentrations at RBSC-DS appear to have a moderate correlation with the SBIAR monitoring with a peak measured in June.

The BCAWQG-LTA guideline for sulphate is variable with ambient hardness for each sample location. The RBSC-DS location is the only sampling location that measures sulphate above the BCAWQG-LTA guideline in both 2017 and 2018. The LTA is plotted on Figure 17 for the RBSBIAR-DS location, for reference.

4.3.3.5 Total and Dissolved Aluminum

Total aluminum concentrations at RBSBIAR-DS peak in early (March 2018) and late (September 2018) seasons, relative to mid-season, June 2018), of the 2018 monitoring period (Figure 18). Total aluminum concentrations measured at RBSBIAR-DS ranged from 0.0459 to 1.12 mg/L with mean value of 0.578 mg/L. At RBSBIAR-DS, dissolved aluminum concentrations remained below the BCAWQ-FSTM guideline value (0.10 mg/L) in March (0.0515 mg/L) and June (0.0157 mg/L) 2018, and slightly above the guideline value in September (0.106 mg/L) 2018, thus measurements ranged from 0.0157 to 0.106 mg/L with a mean value of 0.0577 mg/L. A decreasing trend or ‘dip’ in both total and dissolved aluminum measured at RBSBIAR-DS is apparent in both June of 2017 and 2018, preceded and followed by an increase in total and dissolved aluminum during March/April and August/September.

The downstream RBSBIAR-DS and -EDS locations show correlating trends between June and September for both total and dissolved aluminum concentrations, whereas the RBSBIAR-US and -EUS locations show correlating trends between June, September, and December only for total aluminum and not dissolved aluminum.

An overall decrease of total aluminum at RBSBIAR-US is observed throughout the monitoring period of 2018 (March to December), which is a similar observation in 2017. Dissolved aluminum concentrations at RBSBIAR-US varied between below detection limit, <1.0 µg/L, to 10.6 µg/L during the 2018 monitoring period, whereas during 2017, dissolved aluminum remained consistently below detection limit of 5.0 µg/L. During 2017 and 2018, dissolved aluminum concentrations measure significantly below the BCAWQ-FSTM guideline value of 100 µg/L for the RBSBIAR-US location and between June and December 2018 for the new east RBSBIAR-EUS ditch location.

A slight overall increase in total aluminum is measured at the RBSC-DS location during the monitoring period of 2018, a similar trend to 2017. Dissolved aluminum concentrations at RBSC-DS remained significantly below the BCAWQ-FSTM guideline value of 100.0 µg/L for the duration of sampling events in 2017 and 2018.

It was noted that dissolved aluminum was the most variable at RBSBIAR-DS in 2017, but all RBSBIAR sample locations were variable during 2018.

4.3.3.6 Total and Dissolved Iron

Total iron concentrations are variable during the monitoring period (Figure 19), with concentrations at the RBSBIAR-DS location ranging between 0.091 to 2.77 mg/L with mean value 1.21 mg/L. Exceedances to the BCAWQG-FSTM guideline (1.0 mg/L) for total iron concentration occurred at RBSBIAR-DS in March 2018 (2.77 mg/L), then significantly decreased to below guideline levels in June and September 2018. In the SBIAR catchment, exceedances to the BCAWQG-FSTM guideline for total iron concentration also occurred at RBSBIAR-US (March 2018), RBSBIAR-EDS (September 2018), and -EUS (September and December 2018).

Dissolved iron concentrations measured well below the BCAWQG-FSTM guideline at RBSBIAR-DS/-EDS and RBSBIAR-US/-EUS, and at RBSBIAR-DS dissolved iron concentrations remained below detection limit of 10 µg/L (June and September 2018), except for slightly above detection limit in March 2018 (12.0 µg/L).

In 2018, at the RBSC-DS location, elevated concentrations of dissolved iron above the BCAWQG-FSTM guideline (0.35 mg/L) were measured in March (0.474 mg/L), November (2.15 mg/L), and December (0.725 mg/L), with a significant decrease to below the guideline value (0.101 mg/L) occurring in June 2018. Measured dissolved iron concentrations at the RBSC-DS location ranged between 0.101 and 2.15 mg/L with mean value of 0.863 mg/L.

4.3.3.7 Metals: Arsenic, Cadmium, Cobalt, Copper, and Zinc

Metals such as arsenic, cadmium, cobalt, copper, and zinc are important indicators of ARD-ML processes and environmental changes in the water supply. Three sampling events (March, June, and September 2018) occurred during the quarterly sampling at the downstream location, RBSBIAR-DS, discussed below.

Total arsenic concentrations during 2018 measured at RBSBIAR-DS ranged from 0.50 to 1.93 µg/L with mean value of 0.99 µg/L, whereas dissolved arsenic ranged from 0.17 to 0.45 µg/L with mean value of 0.29 µg/L. No BCAWQG-FSTM guideline exceedances in total arsenic occurred at RBSBIAR-DS during 2018, and values remained within the same general range of concentrations measured during 2017 (Figure 20).

Total cadmium concentrations during 2018 measured at RBSBIAR-DS ranged from 0.02 and 0.21 µg/L with mean value of 0.12 µg/L, whereas dissolved cadmium ranged from 0.02 and 0.11 µg/L with mean value of 0.06 µg/L. No BCAWQG-FSTM guideline exceedances in dissolved cadmium occurred at RBSBIAR-DS during 2018, and values remained within the same general range of concentrations measured during 2017 (Figure 21).

Total cobalt concentrations during 2018 measured at RBSBIAR-DS ranged from 0.39 and 4.3 µg/L with mean value of 2.9 µg/L, whereas dissolved cobalt ranged from 0.32 and 4.6 µg/L with mean value of 2.6 µg/L. No BCAWQG-

FSTM guideline exceedances in total cobalt occurred at RBSBIAR-DS during 2018, and values remained within the same general range of concentrations measured during 2017 (Figure 22).

Total copper concentrations during 2018 measured at RBSBIAR-DS ranged from 1.00 to 4.99 µg/L with mean value of 3.25 µg/L, whereas dissolved copper ranged from 0.75 and 1.57 µg/L with mean value of 1.04 µg/L. No BCAWQG-FSTM guideline exceedances in total copper occurred at RBSBIAR-DS during 2018, and values remained within the same general range of concentrations measured during 2017 (Figure 23), although an increase in total copper shows in both March and September 2018 relative to June 2018 and all of 2017.

Total zinc concentrations during 2018 measured at RBSBIAR-DS ranged from 3.1 to 50.7 µg/L with mean value of 32.2 µg/L, whereas dissolved zinc ranged from 2.0 to 26.1 µg/L with mean value of 15.1 µg/L. No BCAWQG-FSTM guideline exceedances in total zinc occurred at RBSBIAR-DS during 2018 (based on calculations that include hardness values at RBSC-DS), shown in Figure 24). Total and dissolved zinc concentrations follow a different trend in 2018 than in 2017, reaching slightly higher concentrations in March and September, and slightly lower concentration in June 2018.

Notably, the quarterly sampling in 2018 results in a similar trend showing for zinc, cobalt, copper, cadmium, iron, aluminum, and TSS, with an inverse trend for sulphate.

Quarterly sampling in the SBIAR catchment occurred during the 2018 monitoring period, somewhat preventing as clear a trend that shows for the 2017 monthly monitoring system.

4.3.4 Long Term Average Exceedances

At the discharge location, RBSBIAR-DS, minimal occurrences of measured concentrations during 2018 exceed the BCAWQG-LTA guidelines. Measured nitrite concentrations on September 27, 2018 (27.4 µg/L) slightly exceeds the BCAWQG-LTA (20 µg/L) and not the BCAWQG-FSTM (60 µg/L). Similarly, total cobalt measured on March 21, 2018 (4.01 µg/L) and September 27, 2018 (4.3 µg/L) slightly exceeds the BCAWQG-LTA (4.0 µg/L) and dissolved aluminum measured on March 21, 2018 (51.5 µg/L) slightly exceeds the BCAWQG-LTA (50 µg/L), but both do not exceed the BCAWQG-FSTM.

4.4 L3 Creek Catchment Water Sampling

Sufficient flowing water permitted samples to be collected each month from March through to November 2018 at the downstream monitoring location LBL3C-0.02; March through to December for LBL3C-1.43; April, July, and December for LBL3C-1.65; April through to July for LBL3C-3.32; and March through to October for LBL4C-0.18. Frozen conditions prevailed in January and February 2018. During 2018, minimal samples were collected at LBL3C-1.65 due to ongoing construction at this location. Field observations were documented each month.

The L3 Creek catchment is not being monitored as a construction related PAG waterway. Water quality monitoring has been conducted within this catchment to monitor discharge water quality and to maintain a record for potential future use. The BCAWQG-FSTM values were also used as benchmark for monitoring water quality at the discharge location (LBL3C-0.02) from L3 Creek.

4.4.1 In Situ Measurements and Field Observations

Water flow estimated during water sampling events in 2018 range between 1.0 L/s (September 27) and 50.0 L/s (April 19) from the LBL3C-0.02 location into the RR-10 culvert. Upstream water flow was estimated to range between 0.10 and 5.0 L/s at the LBL3C-1.43 site (Table 11). The range in water temperatures at LBL3C-0.02

(0.0-15.4 °C), LBL3C-1.43 (0.5-18.0 °C), LBL3C-1.65 (0.3-30.8 °C), LBL3C-3.32 (0.0-23.7 °C), and LBL4C-0.18 (0.0-14.9 °C), were recorded during 2018 (Table 11).

Turbidity was found to be clear within the LBL3C locations throughout the 2018 monitoring program, although the water was observed to be milky at the LBL4C location in the April 19 and June 19, 2018 sampling events. During the December 17, 2018, sampling event, orange staining was noted in the field observations at LBL3C-1.65, and algae was noted at the LBL3C-1.43 location.

A field observation during the November 19, 2018 sampling event noted a dark orange-ish seep coming from under the Stilling Basin in L3 Creek, near to the LBL3C-1.65 sampling location (Photo 19). In situ measurements were collected for hardness (120 ppm), alkalinity (120 ppm), pH (6.5), conductivity (3730 µS), and temperature (4 °C), at a location in the L3 Creek a few metres upstream of the confluence with the L4 Creek. November 2018 was the first month since construction began in the Stilling Basin that flow was observed in the L3 Creek upstream from the confluence with L4 Creek. The observations may help to explain the PAG-type signature measured in L3 Creek above L4 Creek in the early part of the year prior to re-arrangement of the stilling basin facility. No evidence of exposed shale was found during a site visit in July 2018. The deep red colour observed in the seepage may be related to tannins in the water due to the pH range (6.0-6.5) of tannic acid. Further monitoring was recommended including checking if there was bark mulch on the ground and how water is conveyed from the stilling basin to the lower L3 Creek channel, such as flowing under pallets for a short section.

4.4.1.1 Reconnaissance Investigation of L4 Creek

Reconnaissance investigation and sampling of L3 Creek reveals naturally occurring ARD-ML processes such as elevated metals, and that dilution occurs in L3 Creek. In June 2018, a dilution factor was estimated to be 7:1 using the following method:

- Data collected from instream flow gauges was reviewed to estimate a dilution factor for L4 Creek within the L3 Creek flow using a dataset for the previous May 24, 2018, sampling event. The data was provided by Ecofish Research Ltd. and is an estimate unless verified by actual discharge measurements. Discharge measurements were not completed on May 24, 2018. Flow gauges were installed at locations Upper L3 (coincident with LBL3C-3.32), L3 Above the Drainage Ditch (L3 ADD) (coincident with LBL3C-1.65), L3 Below Box Culvert (L3 BBC) (coincident with LBL3C-1.43), and L4 (coincident with LBL4C-0.18).
- Flow at these locations were reported as 0.002 m^3/s (2 L/s) at Upper L3, 0.001 m^3/s (1 L/s) at L3 ADD, 0.006 m^3/s (6L/s) at L3 BC and 0.001 m^3/s (1 L/s) at L4. Based on the estimated flows, L4 Creek was diluted at a factor of 6:1 in the upper portion of L3 Creek during the May 2018 sampling event. As flow data was not available at LBL3C-0.02, the dilution factor cannot be calculated. However, using mass balance of conservative elements (Cl, or Li), the data suggests that additional water is received into L3 Creek between LBL3C-1.43 and LBL3C-0.02, and is comprised mainly of groundwater, based on Cl- concentrations.

Limitations to the assessment include:

- Estimated flows were very low on May 24, 2018 and margin of measurement error is proportionally higher than for periods when there is higher flow.
- Flow data was not provided for the mouth of L3 Creek (location LBL3C-0.02).
- A sample for water chemistry was not collected at LBL3C-1.43 in May (approximate flow gauge location L3 ADD).
- A mass balance using conservative elements (Cl, or Li) could not be used to verify the dilution factor without chemistry at L3 ADD, or flow at LBL3C-0.02.

- Flow and estimated dilution is expected to change monthly and no further checks could be made during other months due to unreliable flow data.
- L4 Creek waters are eventually diluted by L3 Creek waters and PAG related metal concentrations are significantly reduced at monitoring location LBL3C-0.02.

4.4.2 Short Term Maximum Exceedances

At the discharge location of L3 Creek, LBL3C-0.02, exceedances were reported for total iron and dissolved aluminum. Within the entire L3 Creek catchment, total iron, cobalt, zinc, copper, arsenic, and manganese, and dissolved iron, aluminum, and cadmium, were measured on occasion above BCAWQG-FSTM guidelines, and pH below BCAWQG-FSTM guidelines during 2018. A summary of water quality exceedances relative to BCAWQG-FSTM listed by monitoring location and month are provided in Table 12, and the screening results based on the laboratory data are tabulated in Appendix B, Table B4.

The total iron exceedances in the samples collected from the LBL3C-0.02 and LBL3C-1.43 locations in March, April, and August 2018, are interpreted to be directly related to TSS concentrations within the creek. Management of TSS originating from RSEM L3 was under active monitoring, management and mitigation through 2017 and 2018. Minimal iron was measured in the dissolved phase at LBL3C-0.02 between March and September 2018 (<20 to 78 µg/L), followed by a significant increase in dissolved iron measured in October (168 µg/L) and November (162 µg/L) 2018, which remained below BCAWQG-FSTM guidelines, yet the increase is noted and may be the result of ARD-ML related processes.

The dissolved aluminum exceedances in the samples from May through October 2018 (not occurring in March, April, or November 2018) from LBL3C-0.02 are interpreted to be related to water inputs to L3 Creek between sample location LBL3C-1.43 and LBL3C-0.02. Dissolved aluminum is potentially measurable as concentrations of aluminum hydroxide complexes in solution. Groundwater seepage from the Howe Pit area is interpreted as the main input to this portion of the L3 Creek, with secondary inputs as surface run-off from the Howe Pit area.

4.4.3 Trend Monitoring

Recurring trends within the L3 catchment over the 2017 and 2018 monitoring period may be indicative of long term trends, and are discussed below for alkalinity and pH (Figure 25), TSS and TDS (Figure 26), sulphate (Figure 27), aluminum (Figure 28), and iron (Figure 29), in addition to trends in specific metals such as arsenic (Figure 30), cadmium (Figure 31), cobalt, (Figure 32), copper (Figure 33), and zinc (Figure 34).

4.4.3.1 Alkalinity and pH

Alkalinity and pH values measured in L3 Creek indicate that the waters have remained alkaline between March and December, 2018, with exception to 1) low pH (below the BCAWQG-FSTM guideline) and alkalinity levels measured in LBL4C-0.18 (May, June, and October 2018), and 2) low pH (below BCAWQG-FSTM guideline) coupled with elevated alkalinity measured at LBL3C-1.65 in December 2018, that indicate variable acidic waters within the L3 catchment (Figure 25). Measured pH at location LBL3C-0.02 ranged between 8.1 and 8.2 with mean value of 8.1, and alkalinity ranging between 121 and 301 mg/L $CaCO_3$ equivalent with mean value of 210.6 mg/L $CaCO_3$ equivalent. Generally, pH remained consistently neutral (with exception to the above-mentioned occurrences at LBL4C-0.18 and LBL3C-1.65), while alkalinity gradually increased between March and December 2018, at all L3 Creek sampling locations, not LBL4C-0.18, indicating lack of correlation between the L3 Creek monitoring locations and the L4 Creek.

The trends in pH for 2017 and 2018 similarly show more variability at LBL3C-1.65 and LBL4C-0.18 locations and more consistency of neutral pH at LBL3C-0.02, -1.43, and 3.32 locations. There are no similar trends in alkalinity values between 2017 and 2018, since 2017 shows more variability in contrast to generally a gradual increase in alkalinity values at L3 Creek locations (excluding LBL4C-0.18) over the monitoring period of 2018.

4.4.3.2 Hardness

Water hardness measured at LBL3C-0.02 was consistently above the upper bound (250 mg/L) used by the BCAWQG-FSTM to guide criteria for metal concentrations, with values ranging between 279 and 1,310 mg/L with mean value of 984 mg/L (Table 10). This value is based on toxicity tests and adapted by the Canadian Council of Ministers of the Environment (BCAWQG Summary Report, 2018). When the maximum hardness value is reached for elements that are hardness-dependent for BCAWQG-FSTM guideline calculations, the respective maximum hardness values for zinc, copper, and cadmium were used as capped hardness values in guideline calculations, instead of the measured ambient hardness. A site-specific assessment may be required since the water hardness continues to exceed the highest hardness tested (250 mg/L) in BC (BCAWQG Summary Report, 2018, pg. 32).

4.4.3.3 Total Suspended Sediment (TSS) and Total Dissolved Sediment (TDS)

TSS concentrations measured within L3 Creek varied on a monthly basis between monitoring locations (Figure 26). Concentrations were generally observed to be either similar or reduced at the discharge location (LBL3C-0.02) relative to the immediate upstream location (LBL3C-1.43) due to settlement, except for measurements in August and November 2018. TSS concentrations measured at LBL3C-0.02 ranged between 7.5 and 173 mg/L with a mean value of 33.3 mg/L.

TDS concentrations show moderate to high correlation between monitoring locations with overall variability on a monthly basis. TDS concentrations measured at the LBL3C-0.02 location ranged between 454 and 2,100 mg/L with a mean value of 1,546 mg/L.

The increasing trend observed for TDS appears to be inverse to the decreasing trend for TSS only for the 2018 monitoring period (Figure 26). As discussed in Section 3.1, the role of dominant input waters to flow conditions in L3 Creek strongly influences the measured water quality. Events resulting in high TSS measurements may be related to precipitation or recent precipitation in the form of shallow groundwater flow, whereas events resulting with high TDS and low TSS measurements may be related to low precipitation and high groundwater inflow. As spring freshet wanes and the dominant influent water transitions to regional groundwater, trends in TDS and TSS are influenced. In 2018, it is observed that freshet is related to low concentrations of TDS.

4.4.3.4 Sulphate

Sulphate measurements have remained highly variable between March and December 2018, for the LBL3C-0.02 and LBL3C-1.43 locations, spiking in June, August and October 2018, which also occurred in 2017 although more prominently at both locations in 2017 (Figure 27). Sulphate concentrations measured at LBL3C-0.02 ranged between 187 and 1,320 mg/L with mean value of 871 mg/L.

Monthly variability in measured sulphate generally correlates with a similar trend observed for TDS including the overall increase in both sulphate and TDS over the monitoring period of 2018, notably more gradual for TDS and more variable for sulphate. A correlation between TDS and sulphate was also recognized from the 2017 monitoring period. The correlation between TDS and sulphate suggests that possibly during 2018, elevated sulphate concentrations represent months where groundwater inputs dominate flow in L3 Creek and relate to the transition from freshet early in the season to regional groundwater input throughout the remainder of the year, especially during the dry summer and autumn months as was the case in the region for 2018.

The BCAWQG-LTA guideline for sulphate is variable with ambient hardness for each sample. The LTA is plotted on Figure 27 at the LBL3C-0.02 location, for reference.

4.4.3.5 Total and Dissolved Aluminum

Total aluminum concentrations measured at the LBL3C-0.02 location ranged between 558 and 4,340 µg/L with mean value of 1,304 µg/L and shows variability (Figure 28a).

Dissolved aluminum also shows variability throughout 2018 (Figure 28b), with six (May through October 2018) of nine measurements at LBL3C-0.02 exceeding the BCAWQG-FSTM guideline (100 µg/L). Concentrations of dissolved aluminum measured at the LBL3C-0.02 location ranged between 37.3 and 199 µg/L with mean value of 121 µg/L. It is observed that dissolved aluminum concentrations are generally higher at the discharge location LBL3C-0.02 relative to the LBL3C-1.43 location, likely due to input from impacted waters in the Howe Pit area. In December 2018, an anomalous dissolved aluminum concentration was measured at the midstream LBL3C-1.65 location, that exceeds the BCAWQG-FSTM guideline and measures higher than the downstream LBL3C-1.43 location.

The LBL3C-0.02 and -1.43 locations generally have similar trends for dissolved aluminum in 2017 and 2018, with the discharge location, LBL3C-0.02, measuring higher values than the upstream LBL3C-1.43 location, and LBL3C-0.02 exceeding the BCAWQG-FSTM guideline for dissolved aluminum in the majority of sampling events. The LBL4C-0.18 location consistently measures the highest dissolved and total aluminum concentrations in the L3 catchment throughout the 2017 and 2018 monitoring periods, whereas the most upstream location LBL3C-3.32, generally measures the lowest dissolved and total aluminum concentrations.

4.4.3.6 Total and Dissolved Iron

Total iron values were measured at elevated concentrations throughout 2018, as was the case in 2017 (Figure 29a), with concentrations in 2018 measured at LBL3C-0.02 ranging between 0.539 and 7.95 mg/L with mean value 1.93 mg/L, resulting in three (March, April, and August 2018) of nine sampling events measuring above the BCAWQG-FSTM guideline (Table 12). Locations within the L3 catchment that had total iron concentrations measured above the BCAWQG-FSTM guideline during 2018 were the downstream LBL3C-0.02 and -1.43 locations (generally early season of March and April 2018), and midstream and above the L4 Creek confluence, LBL3C-1.65 and LBL4C-0.18 (all months sampled between March and October/December, 2018), whereas the upstream LBL3C-3.32 location did not exceed the BCAWQG-FSTM guideline for total iron in 2018.

For all sampling events in 2018 at LBL3C-0.02 and LBL3C-1.43, minimal iron was measured in the dissolved phase except for during September and December 2018 at LBL3C-0.02 (Figure 19b). At the LBL3C-0.02 location, dissolved iron was measured in low concentrations with values ranging from below the detection limit of <20 to 78 µg/L between March and September 2018, and elevated concentrations in October (168 µg/L) and November (162 µg/L), 2018. Dissolved iron concentrations were measured above the BCAWQG-FSTM guideline (350 µg/L) at the LBL4C-0.18 (May, June, September 2018) and LBL3C-1.65 (December 2018) locations, however, no exceedance to the BCAWQG-FSTM guideline was measured for dissolved iron concentrations at LBL3C-0.02. Notably, during 2017 and 2018, the same two LBL3C-1.65 and LBL4C-0.18 locations measured dissolved iron concentrations above the BCAWQG-FSTM guideline, although there was only one occurrence in 2017 (May), and four occurrences in 2018 (May, June, September, and December).

4.4.3.7 Metals: Arsenic, Cadmium, Cobalt, Copper, and Zinc

Metals such as arsenic, cadmium, cobalt, copper, and zinc are important indicators of ARD-ML processes and environmental changes in the water supply. Nine sampling events (March through to November 2018) occurred during the monthly sampling at the downstream location, LBL3C-0.02, discussed below.

Total arsenic concentrations during 2018 measured at LBL3C-0.02 ranged from 0.36 to 4.03 µg/L with mean value of 1.05 µg/L, whereas dissolved arsenic ranged from 0.10 to 0.39 µg/L with mean value of 0.22 µg/L. No BCAWQG-FSTM guideline exceedances in total arsenic occurred at LBL3C-0.02 during 2018, an overall decreasing trend occurs through the 2018 monitoring period, and values remained within the same general range of concentrations measured during 2017 (Figure 30a).

Total cadmium concentrations during 2018 measured at LBL3C-0.02 ranged from 0.21 to 0.58 µg/L with mean value of 0.46 µg/L, whereas dissolved cadmium ranged from 0.10 to 0.49 µg/L with mean value of 0.32 µg/L. No BCAWQG-FSTM guideline exceedances in dissolved cadmium occurred at LBL3C-0.02 during 2018, and an overall very slight increasing trend shows through the 2018 monitoring period although values remained within the same general range of concentrations measured during 2017 (Figure 31b).

Total cobalt concentrations during 2018 measured at LBL3C-0.02 ranged from 1.98 to 9.57 µg/L with mean value of 7.14 µg/L, whereas dissolved cobalt ranged from 0.76 to 8.83 with mean value of 6.19 µg/L. No BCAWQG-FSTM guideline exceedances in total cobalt occurred at LBL3C-0.02 during 2018, an overall slight increasing trend shows through the 2018 monitoring period and values remained within the same general range of concentrations measured during 2017 (Figure 32a).

Total copper concentrations during 2018 measured at LBL3C-0.02 ranged from 1.5 to 11.1 µg/L with mean value of 3.37 µg/L, whereas dissolved copper ranged from 0.80 to 1.81 µg/L with mean value of 1.15 µg/L. No BCAWQG-FSTM guideline exceedances in total copper occurred at LBL3C-0.02 during 2018, an overall decreasing trend occurs through the 2018 monitoring period, and values remained within the same general range of concentrations measured during 2017 (Figure 33a).

Total zinc concentrations during 2018 measured at LBL3C-0.02 ranged from 28.1 to 89.3 µg/L with mean value of 67.3 µg/L, whereas dissolved zinc ranged from 9.1 to 54 µg/L with mean value of 39.1 µg/L. No BCAWQG-FSTM guideline exceedances in total zinc occurred at LBL3C-0.02 during 2018 and values remained within the same general range of concentrations measured during 2017, shown in Figure 34a).

The continuation of monthly sampling in the L3 catchment occurred during the 2018 monitoring period, providing a useful reference for observing clearer seasonal trends.

4.4.4 Long Term Average Exceedances

At the discharge location, LBL3C-0.02, minimal occurrences of measured concentrations during 2018 exceed the BCAWQG-LTA guidelines. Total cobalt concentrations slightly exceeded the BCAWQG-LTA (4.0 µg/L) on a monthly basis between April and November 2018 (eight events) with measured values between 5.92 to 9.18 µg/L, but do not exceed the BCAWQG-STM (100 µg/L). Similarly, slight exceedances to the BCAWQG-LTA occur for a) total copper measured on April 19, 2018 (11.1 µg/L), b) total and dissolved selenium concentrations in September, October, and November, 2018 (2.05 to 3.10 µg/L), c) total zinc measured on March 21, 2018 (49.5 µg/L), d) dissolved cadmium concentration on May 24, 2018 (0.489 µg/L), and 3) dissolved aluminum measured on April 19, 2018 (62.8µg/L) and November 19, 2018 (88.8 µg/L), but do not exceed the BCAWQG-STM.

4.5 Other Locations

Due to on-site field observations, two additional locations were sampled for temporary monitoring at 1) Gully Road ditch through six sampling events from May through October 2018, and 2) the Wiley C. sample collected next to the LBRR-EDP location on September 27, 2018. The screening results based on the laboratory data are tabulated in Appendix B, Table B5.

4.5.1 Gully Road Ditch

During the June 19, 2018, sampling event, a sample location was established as a temporary monitoring location along the Gully Road ditch, just west of Gate B and UTM coordinate 630,286 E and 6,230,555 N (map in Figure 1), following site observation of a small shale exposure in the northern cut-bank of the ditch and presence of iron-oxide staining on the rip-rap lining the ditch (Photo 20). In situ and laboratory results were collected from Gully Road Ditch during six sampling events including May 24, June 19, July 26, August 21, September 27, and October 22, 2018.

At Gully Road ditch, exceedances to the BCAWQG-FSTM for total iron (1.0 mg/L) were measured in three of the six sampling events, July 26 (17.2 mg/L), September 27 (1.47 mg/L), and October 22 (1.65 mg/L), 2018. Dissolved aluminum concentrations (0.259 mg/L) measured above the BCAWQG-FSTM (0.100 mg/L) on July 26, 2018. Total zinc concentration (0.414 mg/L) measured above the BCAWQG-FSTM (0.3405 mg/L) on July 26, 2018. Although chloride was not measured to exceed the BCAWQG-FSTM (600 mg/L) at Gully Road ditch, elevated concentrations were noted to exceed the BCAWQG-LTA (150 mg/L) in each of the six sampling events (May through October 2018), with chloride concentrations ranging between 115 and 320 mg/L, with a mean value of 244 mg/L.

4.5.2 Wiley C.

During the September 27, 2018 sampling event an additional sampling location, Wiley C., was added near LBRR-EDP (map in Figure 1), to assess the observed presence of a white milky substance in pooled water within the ditch.

In situ standing water temperature measured 7.7 ºC with a pH of 8.13. Lab results measured a pH of 7.83 with four BCAWQG-FSTM exceedances in the Wiley C. sample, including total cobalt (179 µg/L), total zinc (1190 µg/L), dissolved cadmium (5.94 µg/L), and dissolved aluminum (181 µg/L) concentrations above the BCAWQG-FSTM guideline values of 110 µg/L, 340.50 µg/L, 2.80 µg/L, and 100 µg/L, respectively.

An investigation included review of in situ and lab water quality samples collected on September 27, 2018, from both the Wiley C. and nearby LBRR-EDP location, and the geochemistry of a nearby soil sample, SC-059, collected during the July 2018 site visit. No exceedances were measurable in the soil sample against the Contaminated Sites Regulations (CSR) guidelines. The white milky substance sampled at Wiley C. on September 27, 2018, is the only observation recorded in the catchment, although during the October 22, 2018 sampling event it is noted that a white milky substance is found along the L4 channel including the LBL4C-0.18 sampling location.

Seepage water from groundwater is known to be enriched in sulphate (SO_4^{2-}) and hardness (as $CaCO_3$), based on the consistent high background levels of sulphate concentration and hardness values measured in water quality samples over the 2017 and 2018 monitoring periods. It is notable that sulphate and specific metal concentrations (total copper, lead, manganese, silver, zinc, and dissolved cadmium) are dependent on hardness values for their respective BCAWQG-FSTM and -LTA guideline values. Cooling temperatures decreases the solubility of sulphate, resulting in sulphate reaching supersaturation as $CaSO_4$ (s). It is thought that the temperature of the groundwater containing high concentrations of sulphate dropped once exposed to the cooler air temperatures thereby rapidly reducing the solubility of sulphate. Gypsum ($CaSO_4 \cdot 2H_2O$) and/or anhydrite ($CaSO_4$), are soluble in water and can produce a white turbid milky substance. Within the shale outcrop further up the River Road bend, sulphur (S^{2-}) in

the weathering of pyrite (FeS_2) oxidizes to sulphate (SO_4^{2-}) and ferrous (Fe^{2+}) iron is released. If groundwater seepage occurs, especially in cooler seasonal temperatures, supersaturation of SO_4^{2-} shifts the reaction ($CaSO_4$ (s) → $Ca^{2+} + SO_4^{2}$) to the left to form calcium sulphate and a colloidal $CaSO_4$ forms. Continued observations will check for seasonal trends.

5.0 CONCLUSIONS AND RECOMMENDATIONS

A water quality monitoring program was implemented on behalf of BC Hydro to monitor the water quality at discharge locations from River Road at Blind Corner, SBIAR, and L3 Creek. Upstream and midstream monitoring locations were established to characterize water quality at the discharge location and to maintain a continuous monitoring record commensurate with previous sampling completed in 2016 by Lorax on behalf of PRHP.

The program has incorporated monthly in situ water quality measurements and observations with laboratory analysis throughout 2017 and 2018. Field observations were recorded monthly regardless of weather conditions or ability to collect measurements.

5.1 River Road Water Quality Monitoring

Water quality data was collected from four locations and in situ measurements were collected at an additional six locations along the River Road catchment from March to December 2018, in continuation of the 2017 monitoring period.

Water quality monitoring continues to show that active ARD-ML process are progressing on shale slopes shown in observed trends, such as elevated and increasing trends for copper and zinc. Minor seepage observed at the base of the LBRR-LC above the main ditch channel suggests groundwater with high sulphate concentrations is providing additional input to River Road ditch.

Screening of analytical data for the River Road catchment resulted in the identification of eight parameters (total iron, arsenic, cobalt, copper, and zinc, and dissolved iron, aluminum, cadmium) that exceeded the BCAWQG-FSTM guidelines and a pH that measured below the BCAWQG-FSTM guideline at LBRR-12+500 twice during 2018.

Sampling at the LBRR-DD locations in March and April 2018 coincided with minimal precipitation (0.39 mm) the morning of, and no precipitation the preceding seven days of the March 21, 2018 sampling event, and no precipitation the previous 24-hours and minimal precipitation (6.49 mm) the preceding seven days to the April 19, 2018 event. The minimal (0.4 L/s; March 21, 2018) and moderate (5.0 L/s; April 19, 2018) estimated water flow at LBRR-DD coinciding with the increasing onset of freshet, resulted in more exceedances to the BCAWQG-FSTM during the lower flow on March 21, 2018 (five, including total iron, arsenic, zinc, and dissolved iron and aluminum) than during the increased flow and dilution of water on April 19, 2018 (three, including total iron, arsenic, and zinc). Although the two data results are real and suggest active ARD-ML processes, it is believed to represent water quality from either near-frozen minimal flow in March 2018 (more concentration of surface materials) to increased flow with dilution, thus decreased concentrations of parameters measured in April 2018, as opposed to being representative of longer term steady flow conditions. The concentration of TSS measured along River Road ditch and at the discharge location was variable and generally high (Figure 6) and considered to be the main contributing factor to the elemental exceedances observed.

The chemical correlation between the LBRR-12+500 and LBRR-EDP location vs. the LBRR-LC and LBRR-DD are very apparent, e.g., sulphate, aluminum, iron, arsenic, cadmium, cobalt, and zinc.

The sediment source is mainly attributed to scouring of accumulated sediment within the ditch from road grading and run-off from previous events, in addition to washing, or flushing, of the exposed shale, colluvium and overburden cut-banks. Continued management of the effectiveness of the end-of-diversion pipe installed between LBRR-12+430 and LBRR-EDP, and plant germination with survival from hydroseeding efforts on the shale slope above the ditch is required to monitor erosion control and the amount of sediment infilling to the ditch from road grading operations.

Additionally, it was also noted from in situ pH measurements within the ditch that acidic waters are collected in the upper portions of the ditch underlying the exposed shale cut-bank. The pH values progressively return to circumneutral levels at the discharge and end-of-diversion pipe locations in part due to contact with limestone rip-rap in the ditch, settling of sediment/solids and potential alkalinity input from groundwater or outflow from the upper cut-off ditch. Orange coating, or mineral precipitate, continued to be observed on the visible limestone. Chemical efficiency of the limestone to buffer acidic water is decreased when coated in precipitate or sediment. The formation of mineral scale can concentrate metals from solution as a result of the aqueous acid-base reactions. The mineral scale and sludge is susceptible to scouring and being washed during heavier rain events which has potential to reduce overall water quality being discharged into the Peace River.

The diversion pipe has successfully reduced the amount of direct high TSS discharge into the Peace River by allowing the water to be collected and slowly infiltrate into the River Road ditch. It is anticipated that sediment in the ditch may now also be accumulating a small amount of secondary mineral formed by ARD-ML processes up-gradient. These minerals commonly contain an elevated concentration of metals related to ML and acid-neutralizing reactions. The sediment should be monitored on a quarterly basis for metal accumulation. Additionally, the monitoring program includes collection of discharge from the LBRR-RR8 and -RR9 culverts, however, since no discharge was observed to be coincident with the scheduled 2018 sampling events, it is recommended that in situ water quality measurements are collected from any discharge observed from culvert RR-8 and/or RR-9 during high flow events.

The limestone contained in the ditch must continue to be regularly maintained through cleaning and descaling. This procedure would include cleaning the limestone rip-rap material within the River Road ditch in a controlled facility where the sludge can be recovered and relocated to an approved RSEM area, and placement of the refreshed limestone in the ditch. Sludge should also be removed from the cistern and transported to an approved RSEM area. Control of sediment erosion was responded to by BC Hydro during 2018, in efforts to reduce sedimentation into the River Road drainage system from shale slopes and road grading operations. A limestone buttress was added at the base of the shale slope at Blind Corner in approximately June of 2018. Continued regular monitoring of the limestone is recommended as an ongoing effort on all sections of the road down to the discharge location LBRR-DD.

Identification of the source of dissolved aluminum in previous sampling events is hypothesized to be related to fine mineral particulate (<45um) that is passing through the field filter as colloid or fine microcrystalline form. Aluminum hydroxide mineral species (e.g., polymorphs of gibbsite or hydrargillite) can form on rock surfaces and can be indicators of acid generating processes under base flow conditions. Locally impacted groundwater may also be seeping into the lower chimney ditch and may contribute to the measured dissolved aluminum concentrations. Similar water quality characteristics are observed in the lower L3 Creek catchment which may indicate that locally impacted groundwater from the exposed shale in the legacy Howe Pit area may be a common contributing factor. BC Hydro should consider options for remediation of this facility.

Water quality measurements along River Road indicate that run-off water quality is influenced by active ARD-ML processes within the ditch catchment. Although flows are generally low and ephemeral, there is some potential for run-off to impact downstream water quality. As per CEMP Appendix E Section 5.2.1.7, it is recommended that water quality monitoring is continued on a monthly basis at the established locations within the River Road catchment.

Continuous monitoring will enable the effectiveness of mitigation strategies that are implemented on the shale at Blind Corner.

5.2 SBIAR Water Quality Monitoring

Water quality data was collected from five established sampling locations, four of which measure water directly from within the SBIAR facility and one which measures water outside of the SBIAR facility at the closet water receptor as a verification check for potential influence from, or direct connectivity with, the PAG contact water that is collected and diverted within the SBIAR facility.

Water flowing through the SBIAR ditch has no direct downstream receptor, and all water in the east and west ditches is currently conveyed directly to the RSEM R6 pond which is an approved PAG contact water management facility.

Based on water quality monitoring results collected within SBIAR and the downstream side channel, there does not appear to be correlation in trends and it is concluded that there is currently no hydraulic connectivity between SBIAR and the side channel.

Alkalinity and pH indicate that the waters in SBIAR have consistently remained alkaline during the 2017 and 2018 monitoring period. Screening of analytical data for the RBSBIAR-DS location resulted in identification of six parameters (total iron, arsenic, copper, and zinc, and dissolved iron and aluminum) that exceeded BCAWQG-FSTM guidelines during 2018.

Evidence of active ARD-ML process are observed on the shale slopes in SBIAR through rinse pH and observation of secondary iron hydroxide mineral formation. Although water quality measurements remain below the BCAWQG-FSTM guidelines, some upward trends are observed for various metal concentrations (i.e., dissolved arsenic, total copper and zinc) over time in the ditches. BC Hydro should consider increasing the sampling frequency to monthly and implementing a shale slope monitoring program to assess the weathering profile and rate of acid production to help predict changes to run-off quality and assess whether the slopes have potential to self-exhaust the active ARD-ML processes. This program will be used to provide recommendation for long term mitigation of this facility.

The RBSBIAR-DS discharge location shows minimal occurrences of parameters (nitrite, total cobalt, and dissolved aluminum) that slightly exceed the BCAWQG-LTA guidelines during 2018, but do not exceed the BCAWQG-STM.

Evidence of active ARD-ML processes were observed in the shale exposed in the east and west ditch within SBIAR, however, the water quality measured throughout 2018 did not indicate significant impacts due to these processes. Downstream water is collected within the RSEM R6 pond for management prior to discharge into the Peace River.

5.3 L3 Creek Water Quality Monitoring

Water quality data was collected from five established sampling locations within the L3 Creek catchment to maintain a continuous record of water quality within the catchment and to monitor potential changes to water chemistry related to construction related activities within the catchment.

Screening of analytical data for the LBL3C-0.02 location resulted in identification of two parameters (total iron and dissolved aluminum) that exceeded BCAWQG-FSTM guidelines at variable times during the 2018 monitoring period.

Alkalinity and pH values measured in L3 Creek indicate that the waters have remained alkaline, with exception to the LBL3C-1.65 location on December 17, 2018, and highly variable pH above and below the BCAWQG-FSTM guideline range in L4 Creek at LBL4C-0.18. There is more variability in alkalinity than pH during 2017 and 2018.

Sulphate, TDS, dissolved iron and aluminum concentrations were observed to increase slightly from the up-gradient LBL3C-1.43 location to the discharge LBL3C-0.02 location. Conversely, total and dissolved cobalt decreased at the discharge LBL3C-0.02 location relative to the upstream LBL3C-1.43 location, although most other parameters show variability between the location of increased concentrations between LBL3C-1.43 and -0.02.

PAG indicator elements have been observed in water quality from the LBL3C-1.65 sampling location in 2018 which were not previously present in 2017. Construction activities within the L3 Creek drainage may have exposed bedrock material. Investigation into the source should be conducted, and mitigation efforts implemented if necessary.

Water quality in L3 Creek between LBL3C-1.43 and the discharge LBL3C-0.02 is influenced by influent waters originating in the Howe Pit areas. This is more evident from sulphate, dissolved aluminum, and total and dissolved iron, which increase throughout this portion of the creek bed. Concentrations of cobalt, cadmium and dissolved zinc and iron, appear to have increased in the catchment in 2018, most prominently at LBL3C-1.43 driven by effluent from L4 Creek, and one sample at the LBL3C-1.65 location, which collectively have increased overall concentrations at the LBL3C-0.02 discharge. Monthly assessment for these metals should be conducted as part of the regular monitoring program in 2019.

L3 Creek is not being managed as a PAG contact water facility, however, the occurrence of a naturally occurring PAG outcrop identified in L4 Creek is monitored by sampling at the LBL4C-0.18 location. At LBL4C-0.18, signatures of ARD-ML processes are prevalent, such as elevated metal concentrations (total iron, cobalt, zinc, copper, arsenic, manganese, and dissolved iron, aluminum, and cadmium) and low pH measured in three of the six samples collected during monthly monitoring in 2018. Water mixing from L4 Creek with L3 Creek is generally diluted.

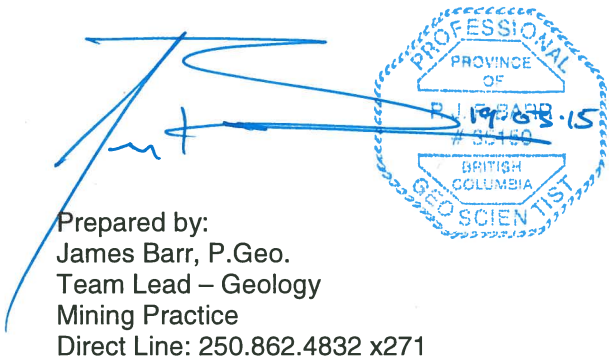
As discussed for River Road, the source of elevated dissolved aluminum concentration is believed to be related to fine mineral particulate (<45um) that is passing through the field filter as colloid or fine microcrystalline form (i.e., gibbsite, or equivalent polymorph) from secondary mineral precipitation within Howe Pit area, or locally impacted groundwater. Trend observations from sulphate, TDS, and dissolved iron and aluminum data also support interpretation of additional water input to L3 Creek between the up-gradient LBL3C-1.43 and LBL3C-0.02 discharge location. These inputs may be related to Howe Pit surface run-off, and or local impacted shallow groundwater seepage.

Based on the 2018 water quality monitoring program there is risk of negative downstream effects on water quality due to ARD-ML processes. As per CEMP Appendix E Section 5.2.1.7, monitoring of water quality for ARD-ML parameters within the L3 Creek catchment should continue. BC Hydro may choose to continue monitoring water quality on a monthly frequency in order to measure the influence of the construction at LBL3C-1.65 and filling of Howe Pit. An additional monitoring location should be added to any subdrain outlet of the Howe Pit RSEM. Monitoring at location LBL3C-1.65 may need adjustment to accommodate construction activities in the area.

6.0 CLOSURE

We trust this document meets your present requirements. If you have any questions or comments, please contact the undersigned.

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Table 1: Water Sampling Locations and Events with UTM Coordinates

Catchment	Sample Site	UTM Coordinates (WGS 84)		Elevation	21-Mar-18		19-Apr-18		24-May-18		19-Jun-18		26-Jul-18		21-Aug-18		27-Sep-18		22-Oct-18		19-Nov-18		17-Dec-18	
		Easting	Northing		In-Situ	Lab	In-Situ	Lab	In-Situ	Lab	In-Situ	Lab	In-Situ	Lab	In-Situ	Lab	In-Situ	Lab	In-Situ	Lab	In-Situ	Lab	In-Situ	Lab
Right Bank - South Bank Initial Access Road [1]	RBSBIAR_US	630,327	6,228,397	468.0	✓	✓					✓	✓			✓		✓	✓	✓		✓		✓	✓
	RBSBIAR_DS	630,320	6,228,645	445.2	✓	✓					✓	✓			✓		✓	✓	✓		✓			
	RBSBIAR_EUS	630,376	6,228,399	-							✓	✓			✓		✓	✓	✓		✓		✓	✓
	RBSBIAR_EDS	630,370	6,228,635	-							✓	✓			✓		✓	✓	✓		✓			
	RBSC_DS	630,475	6,228,672	418.6	✓	✓					✓	✓									✓	✓	✓	✓
Left Bank River Road [2]	LBRR_DD	632,853	6,229,862	422.0	✓	✓	✓	✓																
	LBRR_EDP	632,715	6,229,832	-			✓	✓	✓	✓	✓	✓	✓	✓			✓	✓						
	LBRR_LC	632,856	6,229,899	427.2	✓	✓	✓	✓																
	LBRR_UC	633,018	6,230,253	463.2					✓		✓		✓		✓		✓		✓		✓			
	LBRR_12+430	632,857	6,229,885	426.0																				
	LBRR_12+500	632,914	6,229,921	432.0	✓	✓	✓	✓																
	LBRR_12+600	632,948	6,229,983	436.0	✓		✓						✓											
	LBRR_12+700	632,992	6,230,078	442.8	✓		✓						✓											
	LBRR_12+810	633,039	6,230,195	454.0			✓		✓		✓		✓		✓				✓					
	LBRR_12+920	633,000	6,230,282	463.0					✓		✓		✓		✓		✓		✓		✓			
L3 Creek [2]	LBL3C_0.02	632,767	6,229,860	418.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	LBL3C_1.43	631,728	6,230,210	486.6	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LBL3C_1.65	631,504	6,230,417	493.0			✓	✓					✓	✓									✓	✓
	LBL3C_3.32	630,248	6,231,262	579.0			✓	✓	✓	✓	✓	✓	✓	✓										
L4 Creek [2]	LBL4C-0.18	631,524	6,230,578	507.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓				
Additional Location	Gully Road Ditch	630,286	6,230,555						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				

[1] Quarterly Sampling.

[2] Monthly Sampling.

Note: In any months of the calendar year not listed (e.g. January, February, and December), frozen/dry conditions persisted at all sampling locations (verified by field staff).

Table 2: Daily and 7-Day Mean Temperature and Precipitation

Date	Time	Precipitation[1]		Temperature[1]			Summary
Sample Event Date Bolded	**Time Period**	**Precipitation Event**	**Total (mm)**	**Mean (°C)**	**Minimum (°C)**	**Maximum (°C)**	**24 Hr and 7 Day Precipitation**
March 14-20, 2018	7 days	none	0	2.3	-4.6	9.7	No precipitation in preceding 7 days
March 20, 2018	24 hrs.	none	0	2	-1.3	5	No precipitation
March 21, 2018	24 hrs.	4:00 - 9:00 am	0.39	0.8	-0.7	1.7	Minimal precipitation (0.39 mm)
April 12-18, 2018	7 days	April 12, 16-17	6.49	1.9	-4.5	10.4	Minimal (6.49 mm) precipitation in preceding 7 days
April 18, 2018	24 hrs.	none	0	4.5	-3.3	9.9	No precipitation
April 19, 2018	24 hrs.	none	0	6.6	3.8	10	No precipitation
May 17-23, 2018	7 days	23-May	1.47	18.3	7.4	29.7	Minimal (1.47 mm) precipitation in preceding 7 days
May 23, 2018	24 hrs.	22:00	1.47	22	13.5	29.7	Minimal (1.47 mm) precipitation in previous 24 hrs.
May 24, 2018	24 hrs.	none	0	19.4	14.1	25.4	No precipitation
June 12-18, 2018	7 days	June 12, 13, 14	10.8	16.1	6.8	30.7	Moderate (10.8 mm) precipitation in preceding 7 days
June 18, 2018	24 hrs.	none	0	23.4	14	30.7	No precipitation
June 19, 2018	24 hrs.	none	0	24.6	15.6	32.4	No precipitation
July 19-25, 2018	7 days	July 19-20, 22	55.29	15.7	9.5	25.5	Significant (55.3 mm) precipitation in preceding 7 days
July 25, 2018	24 hrs.	none	0	17.8	10.4	25.5	No precipitation
July 26, 2018	24 hrs.	8:00 AM	0.14	20	14	28	Minimal (0.14 mm) precipitation morning of day of sampling event
August 14-20, 2018	7 days	18-Aug	0.48	17.8	6.5	27.3	Minimal (0.48 mm) precipitation in preceding 7 days
August 20, 2018	24 hrs.	none	0	15.4	6.5	25	No precipitation
August 21, 2018	24 hrs.	none	0	18.7	9.1	28.7	No precipitation
September 20-26, 2018	7 days	26-Sep	0.09	6.6	-3.2	17.5	Minimal (0.09 mm) precipitation in preceding 7 days
September 26, 2018	24 hrs.	13:00	0.09	9.9	6.4	13.6	Minimal (0.09 mm) precipitation in previous 24 hrs.
September 27, 2018	24 hrs.	8:00 AM	0.27	5.9	2.9	11.4	Minimal precipitation (0.27 mm) morning of sampling event
October 15-21, 2018	7 days	none	0	10.8	-0.2	19.4	No precipitation in preceding 7 days
October 21, 2018	24 hrs.	none	0	5.8	2	10.6	No precipitation
October 22, 2018	24 hrs.	none	0	3.5	-2.4	10.2	No precipitation
November 12-18, 2018	7 days	Nov. 15, 17	3.97	-3.1	-16.9	8.2	Minimal (3.97 mm) precipitation in preceding 7 days
November 18, 2018	24 hrs.	none	0	4.4	1.5	5.7	No precipitation
November 19, 2018	24 hrs.	none	0	5.1	1.4	9.8	No precipitation
December 10-16, 2018	7 days	Dec. 14, 15	8.81	-2.2	-12.4	5.3	Moderate (8.81 mm) precipitation in preceding 7 days
December 16, 2018	24 hrs.	none	0	-9.6	-11.4	-8.1	No precipitation
December 17, 2018	24 hrs.	4:00 AM	0.26	-8.4	-9.4	-7.5	Minimal (0.26 mm) precipitation on morning of sampling event

[1] BC Ministry of Environment, BC Air quality data: Fort St John North Camp C_Met_60 weather station. https://envistaweb.env.gov.bc.ca/.

Table 3: Classification of Flows in Ditch

Date	Time	Precipitation		Summary	Classification
Sample Event Date Bolded	Time Period	Precipitation Event	Precipitation (mm)	24 hr. & 7 day Precipitation	Flows in Ditch
March 14-20, 2018	7 days	none	0	No precipitation in preceding 7 days	
March 20, 2018	24 hrs.	none	0	No precipitation in prior 24 hrs.	Spring freshet.
March 21, 2018	24 hrs.	4:00-9:00 am	0.39	Minimal precipitation (0.39mm) early morning of sampling event.	Regional groundwater flow; near frozen conditions.
April 12-18, 2018	7 days	April 12, 16-17	6.49	Minimal precipitation (6.49mm) in preceding 7 days	
April 18, 2018	24 hrs.	none	0	No precipitation in prior 24 hrs.	
April 19, 2018	24 hrs.	none	0	No precipitation on day of sampling	Spring freshet; regional groundwater flow.
May 17-23, 2018	7 days	May 23rd	1.47	Minimal precipitation (1.47mm) in preceding 7 days	
May 23, 2018	24 hrs.	22:00	1.47	Minimal precipitation (1.47mm) in prior 24 hrs. to sampling	
May 24, 2018	24 hrs.	none	0	No precipitation on day of sampling	Regional groundwater flow and/or surface runoff.
June 12-18, 2018	7 days	June 12, 13, 14	10.8	Moderate precipitation (10.8mm) in preceding 7 days.	
June 18, 2018	24 hrs.	none	0	No precipitation in prior 24 hrs.	
June 19, 2018	24 hrs.	none	0	No precipitation on day of sampling	Regional groundwater flow.
July 19-25, 2018	7 days	July 19-20, 22	55.29	Significant (55.29mm) precipitation in preceding 7 days	
7/25/2018	24 hrs.	none	0	No precipitation in prior 24 hrs.	
7/26/2018	24 hrs.	8:00 AM	0.14	Minimal precipitation (0.14mm) on the morning of sampling	Shallow groundwater flow.
August 14-20, 2018	7 days	August 18th	0.48	Minimal (0.48mm) precipitation in preceding 7 days	
8/20/2018	24 hrs.	none	0	No precipitation in prior 24 hrs.	
8/21/2018	24 hrs.	none	0	No precipitation on day of sampling	Regional groundwater flow; surface runoff.
September 20-26, 2018	7 days	September 26th	0.09	Minimal (0.09mm) precipitation in preceding 7 days	
September 26, 2018	24 hrs.	13:00	0.09	Minimal (0.09mm) precipitation in prior 24 hrs.	Near frozen conditions.
September 27, 2018	24 hrs.	8:00 AM	0.27	Minimal precipitation (0.27 mm) on morning of sampling	Regional groundwater flow; surface runoff
October 15-21, 2018	7 days	none	0	No precipitation in preceding 7 days	
October 21, 2018	24 hrs.	none	0	No precipitation in prior 24 hrs.	
October 22, 2018	24 hrs.	none	0	No precipitation on day of sampling	Regional groundwater flow; near frozen conditions.
November 12-18, 2018	7 days	Nov. 15, 17	3.97	Minimal precipitation (3.97 mm) in preceding 7 days	
November 18, 2018	24 hrs.	none	0	No precipitation in prior 24 hrs.	
November 19, 2018	24 hrs.	none	0	No precipitation on day of sampling	Regional groundwater flow; near frozen conditions.
December 10-16, 2018	7 days	Dec. 14, 15	8.81	Moderate (8.81 mm) precipitation in preceding 7 days	
December 16, 2018	24 hrs.	none	0	No precipitation in prior 24 hrs.	
December 17, 2018	24 hrs.	4:00 AM	0.26	Minimal precipitation (0.26 mm) on morning of sampling.	Regional groundwater flow; frozen to near frozen conditions.

Table 4: Daily Mean Turbidity and TSS Measurements with the Peace River 2018

Date	Turbidity (Daily Mean) and TSS Measurements and Calculations Peace River above Moberly River			
Sampling Event Date Bolded	Left Bank		Right Bank	
	NTU [1]	TSS [1] (mg/L)	NTU [1]	TSS [1] (mg/L)
March 15-20, 2018	4.8	3.5	9.1	6.6
March 20, 2018	5.0	3.6	9.2	6.8
March 21, 2018	5.5	4.0	10.9	7.9
March 22, 2018	4.7	3.4	9.5	7.0
April 12-18, 2018	12.1	8.8	11.0	8.0
April 18, 2018	12.0	8.7	10.5	7.6
April 19, 2018	25.9	18.9	10.5	7.7
April 20, 2018	210.7	153.8	9.8	7.2
May 17-23, 2018	91.7	66.9	75.8	55.3
May 23, 2018	91.2	66.6	63.2	46.1
May 24, 2018	90.9	66.4	62.1	45.3
May 25, 2018	78.2	57.1	47.0	34.3
June 12-18, 2018	41.4	30.2	34.8	25.4
June 18, 2018	34.0	24.8	28.2	20.6
June 19, 2018	31.7	23.1	25.3	18.5
June 20, 2018	53.0	38.7	46.2	33.7
July 19-25, 2018	208.2	152.0	274.6	200.4
July 25, 2018	168.8	123.2	213.9	156.2
July 26, 2018	105.3	76.9	138.3	100.9
July 27, 2018	69.1	50.4	91.4	66.7
August 14-20, 2018	9.1	6.6	9.0	6.5
August 20, 2018	5.1	3.7	7.6	5.6
August 21, 2018	4.1	3.0	5.4	3.9
August 22, 2018	2.7	2.0	4.6	3.4
September 20-26, 2018	5.4	4.0	4.6	3.4
September 26, 2018	4.2	3.1	3.6	2.7
September 27, 2018	4.1	3.0	3.4	2.5
September 28, 2018	4.0	2.9	3.3	2.4
October 15-21, 2018	9.8	7.1	6.9	5.1
October 21, 2018	8.7	6.4	6.5	4.7
October 22, 2018	7.1	5.2	5.3	3.9
October 23, 2018	5.7	4.2	4.4	3.2
November 12-18, 2018	6.9	5.1	6.2	4.5
November 18, 2018	7.6	5.5	7.4	5.4
November 19, 2018	10.8	7.9	10.0	7.3
November 20, 2018	12.4	9.1	10.5	7.7
December 10-16, 2018	6.8	4.9	6.7	4.9
December 16, 2018	5.4	3.9	5.7	4.1
December 17, 2018	4.4	3.2	4.5	3.3
December 18, 2018	5.5	4.0	6.0	4.4

[1] NTU (Nephelometric Turbidity Unit) and TSS (total suspended sediment) data provided by Ecofish Ltd., January 8, 2019.

NTU: to some extent, measures (scattered light at 90 degrees from the incident light beam) how much light reflects for a given amount of particulates dependent upon properties of the particles, e.g. their shape, color, and reflectivity.

Note: 7-day average turbidity values are calculated as the average turbidity measured during the prior seven days to the sampling event.

Table 5: Surface Water Quality Assurance/Quality Control Sample Results

Parameter	Unit	RDL	Field Blank	Travel Blank	Travel Blank	Field Blank	Travel Blank	Field Blank	Field Blank	Travel Blank	Field Blank	Travel Blank
			21-Mar-18	21-Mar-18	19-Apr-18	19-Apr-18	24-May-18	24-May-18	19-Jun-18	19-Jun-18	26-Jul-18	26-Jul-18
Physical Parameters												
Electrical Conductivity (EC)	µS/cm	2.0	<2	<2	<2	<2	<2	<2	<2	no value	<2	<2
Hardness as $CaCO_3$	µg/L	500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
pH	pH Units	0.1	5.33	5.33	5.27	5.41	5.5	5.47	5.41	6.12	5.24	5.38
Total Dissolved Solids (TDS)	µg/L	10000	<10000	<10,000	<10000	<10000	<10,000	<10,000	<10000	<10000	<10000	<10000
Total Suspended Solids (TSS)	µg/L	3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000
Anions and Nutrients												
Acidity (as $CaCO_3$)	µg/L	1000	-	-	-	-	-	-	-	-	-	-
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1000	<1000	<1000
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Hydroxide as $CaCO_3$)	µg/L	1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	<1	<1	<1	<1	<1	<1	<1.0	**1.0**	<1	<1
Ammonia (NH_4 as N)	µg/L	5.0	<5	<5	<5	<5	<5	<5	**16.6**	<5	<5	<5
Chloride (Cl^-)	µg/L	500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Nitrate (NO_3^- as N)	µg/L	5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nitrite (NO_2^- as N)	µg/L	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate (SO_4)	µg/L	300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Metals, Total												
Aluminum	µg/L	3.0	<3	<3	<3	<3	<3	<3	An	<3	<3	<3
Antimony	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Barium	µg/L	0.10	0.073	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beryllium	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bismuth	µg/L	0.05	-	-	-	-	-	-	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cesium	µg/L	0.01							<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.10	<0.1	<0.1	<0.1	**0.16**	<0.1	**0.26**	<0.1	<0.1	<0.1	<0.1
Cobalt	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Iron	µg/L	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Lead	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	µg/L	5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Manganese	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mercury	µg/L	0.005	0.0099	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Molybdenum	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus	µg/L	50.0							<50	<50	<50	<50
Potassium	µg/L	50.0	<50	<50	<0.05	<0.05	<50	<50	<50	<50	<50	<50
Rubidium	µg/L	0.2							<0.2	<0.2	<0.2	<0.2
Selenium	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	100							<100	<100	<100	<100
Silver	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	µg/L	50.0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Strontium	µg/L	0.2							<0.2	<0.2	<0.2	<0.2
Sulfur	µg/L	500							<500	<500	<500	<500
Tellurium	µg/L	0.2							<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	0.10							<0.1	<0.1	<0.1	<0.1
Tin	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium	µg/L	0.30	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Tungsten	µg/L	0.10							<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	3.0	<3	<3	<3	<3	<3	<3	<3.0	<3.0	<3	<3
Zirconium	µg/L	0.06							<0.06	<0.06	<0.06	<0.06
Metals, Dissolved												
Aluminum	µg/L	1.0	-	-	<1.0	-	-	-	-	-	<1.0	-
Antimony	µg/L	0.10	-	-	<0.1	-	-	-	-	-	<0.1	-
Arsenic	µg/L	0.10	-	-	<0.1	-	-	-	-	-	<0.1	-
Barium	µg/L	0.10	-	-	<0.1	-	-	-	-	-	<0.1	-
Beryllium	µg/L	0.10	-	-	<0.1	-	-	-	-	-	<0.1	-
Bismuth	µg/L	0.05			<0.05				-	-	<0.05	-
Boron	µg/L	10.0	-	-	<10	-	-	-	-	-	<10	-
Cadmium	µg/L	0.005	-	-	<0.005	-	-	-	-	-	<0.005	-
Calcium	µg/L	50.0	-	-	<50	-	-	-	-	-	<50	-
Cesium	µg/L	0.01			<0.01				-	-	<0.01	-
Chromium	µg/L	0.10	-	-	**0.24**	-	-	-	-	-	<0.1	-
Cobalt	µg/L	0.10	-	-	<0.1	-	-	-	-	-	<0.1	-
Copper	µg/L	0.20	-	-	<0.2	-	-	-	-	-	<0.2	-
Iron	µg/L	10.0	-	-	<10	-	-	-	-	-	<10	-
Lead	µg/L	0.05	-	-	<0.05	-	-	-	-	-	<0.05	-
Lithium	µg/L	1.0	-	-	<1	-	-	-	-	-	<1	-
Magnesium	µg/L	5.0	-	-	<5	-	-	-	-	-	<5	-
Manganese	µg/L	0.10	-	-	<0.1	-	-	-	-	-	<0.1	-
Mercury	µg/L	0.005	-	-	<0.005	-	-	-	-	-	<0.005	-
Molybdenum	µg/L	0.05	-	-	<0.05	-	-	-	-	-	<0.05	-
Nickel	µg/L	0.50	-	-	<0.5	-	-	-	-	-	<0.5	-
Phosphorus	µg/L	50.0			<50				-	-	<50	-
Potassium	µg/L	50.0	-	-	<50	-	-	-	-	-	<50	-
Rubidium	µg/L	0.20			<0.2				-	-	<0.2	-
Selenium	µg/L	0.05	-	-	<0.05	-	-	-	-	-	<0.05	-
Silicon	µg/L	50.0			<50				-	-	<50	-
Silver	µg/L	0.01	-	-	<0.01	-	-	-	-	-	<0.01	-
Sodium	µg/L	50.0	-	-	<50	-	-	-	-	-	<50	-
Strontium	µg/L	0.2			<0.2				-	-	<0.2	-
Sulfur	µg/L	500			<500				-	-	<500	-
Tellurium	µg/L	0.20			<0.2				-	-	<0.2	-
Thallium	µg/L	0.01	-	-	<0.01	-	-	-	-	-	<0.01	-
Thorium	µg/L	0.10			<0.1				-	-	<0.1	-
Tin	µg/L	0.10	-	-	<0.1	-	-	-	-	-	<0.1	-
Titanium	µg/L	0.30	-	-	<0.3	-	-	-	-	-	<0.3	-
Tungsten	µg/L	0.10			<0.1				-	-	<0.1	-
Uranium	µg/L	0.01	-	-	<0.01	-	-	-	-	-	<0.01	-
Vanadium	µg/L	0.50	-	-	<0.5	-	-	-	-	-	<0.5	-
Zinc	µg/L	1.0	-	-	<1	-	-	-	-	-	<1	-
Zirconium	µg/L	0.06			<0.06				-	-	<0.06	-
Laboratory Work Order Number			L2071158	L2071158	L2082450	L2082450	L2100153	L2100153	L2115118	L2115119	L2136868	L2136818
Laboratory Identification Number			L2071158-11	L2071158-10	L2082450-10	L2082450-11	L2100153-6	L2100153-7	L2115118-1	L2115119-8	L2136868-9	L2136818-8

Notes:

RDL - Reportable detection limit

RPD - Relative percent difference calculated as (ABS[(difference between two values)]/((sum of two values/2))*100

"-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results is less than detection limits or within 5 times the RDL.

BOLD - RPD greater than 30%

Shaded gray only - exceeds BCAWQG-FSTM guideline.

Blank - not analyzed.

Note: When one value is below detection limit and the other has a measured value, RPD is calculated on the DL and measured value.

Table 5: Surface Water Quality Assurance/Quality Contro

Parameter	Unit	RDL	Field Blank	Travel Blank	Field Blank	Travel Blank	Field Blank	Travel Blank	Field Blank	Travel Blank	Field Blank	Travel Blank
			21-Aug-18	21-Aug-18	27-Sep-18	27-Sep-18	22-Oct-18	22-Oct-18	19-Nov-18	19-Nov-18	17-Dec-18	17-Dec-18
Physical Parameters												
Electrical Conductivity (EC)	µS/cm	2.0	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Hardness as $CaCO_3$	µg/L	500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
pH	pH Units	0.1	5.59	5.54	5.6	5.71	5.3	5.51	5.75	5.72	5.48	5.43
Total Dissolved Solids (TDS)	µg/L	10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000
Total Suspended Solids (TSS)	µg/L	3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000
Anions and Nutrients												
Acidity (as $CaCO_3$)	µg/L	1000	-	-	1900	2000	-	-	2200	2200	2300	2300
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Hydroxide as $CaCO_3$)	µg/L	1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	<1000	<1000	<1	<1	<1	<1	<1	<1	<1	<1
Ammonia (NH_4 as N)	µg/L	5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride (Cl^-)	µg/L	500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Nitrate (NO_3^- as N)	µg/L	5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nitrite (NO_2^- as N)	µg/L	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate (SO_4)	µg/L	300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Metals, Total												
Aluminum	µg/L	3.0	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Antimony	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Barium	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Beryllium	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bismuth	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cadmium	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Calcium	µg/L	50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Cesium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Copper	µg/L	0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Iron	µg/L	10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Lead	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	1.0	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	µg/L	5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Manganese	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Mercury	µg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Molybdenum	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Phosphorus	µg/L	50.0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Potassium	µg/L	50.0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Rubidium	µg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Selenium	µg/L	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silicon	µg/L	100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Silver	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	µg/L	50.0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Strontium	µg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sulfur	µg/L	500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
Tellurium	µg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Thorium	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium	µg/L	0.30	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Tungsten	µg/L	0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	3.0	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Zirconium	µg/L	0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Metals, Dissolved												
Aluminum	µg/L	1.0	-	-	<1.0	-	**2.3**		<1.0		<1.0	
Antimony	µg/L	0.10	-	-	<0.1	-	<0.1		<0.1		<0.1	
Arsenic	µg/L	0.10	-	-	<0.1	-	<0.1		<0.1		<0.1	
Barium	µg/L	0.10	-	-	<0.1	-	**0.39**		<0.1		<0.1	
Beryllium	µg/L	0.10	-	-	<0.1	-	<0.1		<0.1		<0.1	
Bismuth	µg/L	0.05	-	-	<0.05	-	<0.05		<0.05		<0.05	
Boron	µg/L	10.0	-	-	<10	-	<10		<10		<10	
Cadmium	µg/L	0.005	-	-	<0.005	-	<0.005		<0.005		<0.005	
Calcium	µg/L	50.0	-	-	<50	-	<50		<50		<50	
Cesium	µg/L	0.01	-	-	<0.01	-	<0.01		<0.01		<0.01	
Chromium	µg/L	0.10	-	-	**0.12**	-	<0.1		<0.1		<0.1	
Cobalt	µg/L	0.10	-	-	<0.1	-	<0.1		<0.1		<0.1	
Copper	µg/L	0.20	-	-	<0.2	-	<0.2		<0.2		<0.2	
Iron	µg/L	10.0	-	-	<10	-	<10		<10		<10	
Lead	µg/L	0.05	-	-	<0.05	-	<0.05		<0.05		<0.05	
Lithium	µg/L	1.0	-	-	<1	-	<1		<1		<1	
Magnesium	µg/L	5.0	-	-	<5	-	**6.4**		<5		<5	
Manganese	µg/L	0.10	-	-	<0.1	-	<0.1		<0.1		<0.1	
Mercury	µg/L	0.005	-	-	<0.005	-	<0.005		<0.005		**0.0055**	
Molybdenum	µg/L	0.05	-	-	<0.05	-	<0.05		<0.05		<0.05	
Nickel	µg/L	0.50	-	-	<0.5	-	<0.5		<0.5		<0.5	
Phosphorus	µg/L	50.0	-	-	<50	-	<50		<50		<50	
Potassium	µg/L	50.0	-	-	<50	-	<50		<50		<50	
Rubidium	µg/L	0.20	-	-	<0.2	-	<0.2		<0.2		<0.2	
Selenium	µg/L	0.05	-	-	<0.05	-	<0.05		<0.05		<0.05	
Silicon	µg/L	50.0	-	-	<50	-	<50		<50		<50	
Silver	µg/L	0.01	-	-	<0.01	-	<0.01		<0.01		<0.01	
Sodium	µg/L	50.0	-	-	<50	-	<50		<50		<50	
Strontium	µg/L	0.2	-	-	<0.2	-	<0.2		<0.2		<0.2	
Sulfur	µg/L	500	-	-	<500	-	<500		<500		<500	
Tellurium	µg/L	0.20	-	-	<0.2	-	<0.2		<0.2		<0.2	
Thallium	µg/L	0.01	-	-	<0.01	-	<0.01		<0.01		<0.01	
Thorium	µg/L	0.10	-	-	<0.1	-	<0.1		<0.1		<0.1	
Tin	µg/L	0.10	-	-	<0.1	-	<0.1		<0.1		<0.1	
Titanium	µg/L	0.30	-	-	<0.3	-	<0.3		<0.3		<0.3	
Tungsten	µg/L	0.10	-	-	<0.1	-	<0.1		<0.1		<0.1	
Uranium	µg/L	0.01	-	-	<0.01	-	<0.01		<0.01		<0.01	
Vanadium	µg/L	0.50	-	-	<0.5	-	<0.5		<0.5		<0.5	
Zinc	µg/L	1.0	-	-	<1	-	<1		<1		<1	
Zirconium	µg/L	0.06	-	-	<0.06	-	<0.06		<0.06		<0.06	
Laboratory Work Order Number			L2150694	L2150694	L2172306	L2172306	L2185138	L2185138	L2198555	L2198555	L2211507	L211507
Laboratory Identification Number			L2150694-4	L2150694-5	L2172306-5	L2172306-4	L2185138-6	L2185138-5	L2198555-3	L2198555-4	L2211507-3	L211507-4

Notes:

RDL - Reportable detection limit

RPD - Relative percent difference calculated as (ABS[(difference between two values)]/((sum of two values/2))*100

"-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results is less than detection limits or within 5 times the RDL.

BOLD - RPD greater than 30%

Shaded gray only - exceeds BCAWQG-FSTM guideline.

Blank - not analyzed.

Note: When one value is below detection limit and the other has a measured value, RPD is calculated on the DL and measured value.

Table 5: Surface Water Quality Assurance/Quality Contro

Parameter	Unit	RDL	LBL3C- 1.43	Field Duplicate	Relative % Difference (RPD)	LBL3C-1.43	Field Duplicate	Relative % Difference (RPD)	LBL4C-0.18	Field Duplicate	Relative % Difference (RPD)
			21-Mar-18			19-Apr-18			24-May-18		
Physical Parameters											
Electrical Conductivity (EC)	µS/cm	2.0	478	487	1.9	348	426	20.2	2160	2190	1.38
Hardness as $CaCO_3$	µg/L	500	138000	142000	2.9	159000	159000	0.0	1010000	1010000	0.00
pH	pH Units	0.1	7.98	8.03	0.6	7.68	7.62	0.8	4.45	4.47	0.45
Total Dissolved Solids (TDS)	µg/L	10000	362000	348000	3.9	303000	305000	0.7	2070000	2100000	1.44
Total Suspended Solids (TSS)	µg/L	3000	383000	545000	34.9	129000	136000	5.3	11,500	230,000	**180.95**
Anions and Nutrients											
Acidity (as $CaCO_3$)	µg/L	1000									
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	74400	88400	17.2	74300	75500	1.6	<1000	<1000	-
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	<1000	<1000	-	<1000	<1000	-	<1000	<1000	-
Alkalinity (Hydroxide as $CaCO_3$)	µg/L	1000	<1000	<1000	-	<1000	<1000	-	<1000	<1000	-
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	74.4	88.4	17.2	74.3	75.5	1.6	<1	<1	-
Ammonia (NH_4 as N)	µg/L	5.0	79.5	81.1	2.0	76.9	70	9.4	171	172	0.58
Chloride (Cl^-)	µg/L	500	60700	61300	1.0	25600	27300	6.4	28,900	28,600	1.04
Nitrate (NO_3^- as N)	µg/L	5.0	887	738	18.3	595	595	0.0	75	51	**38.10**
Nitrite (NO_2^- as N)	µg/L	1.0	18.8	18.3	2.7	11.7	11.5	1.7	<10	<10	-
Sulphate (SO_4)	µg/L	300	66500	66000	0.8	85000	87200	2.6	1380000	1390000	0.72
Metals, Total											
Aluminum	µg/L	3.0	4610	5680	20.8	5120	5140	0.4	34,300	33,200	3.26
Antimony	µg/L	0.10	0.64	0.71	10.4	0.52	0.5	3.9	<0.2	<0.2	-
Arsenic	µg/L	0.10	4.61	5.73	21.7	4.3	4.15	3.6	2.05	2.03	0.98
Barium	µg/L	0.10	281	324	14.2	237	159	**39.4**	47.2	43.7	7.70
Beryllium	µg/L	0.10	0.28	0.36	25.0	0.28	0.28	0.0	4.54	4.55	0.22
Bismuth	µg/L	0.05									
Boron	µg/L	10	20	20	0.0	21	21	0.0	118	117	0.85
Cadmium	µg/L	0.005	0.394	0.559	34.6	0.453	0.419	7.8	8.04	8.11	0.87
Calcium	µg/L	50	51,000	64,400	23.2	48900	47500	2.9	257,000	257,000	0.00
Cesium	µg/L	0.01									
Chromium	µg/L	0.10	9.96	12.1	19.4	9.36	9.63	2.8	5.2	5.05	2.93
Cobalt	µg/L	0.10	4.39	5.78	27.3	6.63	6.3	5.1	138	137	0.73
Copper	µg/L	0.50	13.8	17.5	23.6	13.6	13.1	3.7	32.3	32	0.93
Iron	µg/L	10	9570	12,200	24.2	9320	9040	3.1	5650	5380	4.90
Lead	µg/L	0.05	5.82	7.07	19.4	5.05	4.76	5.9	0.31	0.23	29.63
Lithium	µg/L	1.0	8.7	10.5	18.8	9.9	10	1.0	206	206	0.00
Magnesium	µg/L	5.0	14,100	15,400	8.8	16200	14900	8.4	106,000	103,000	2.87
Manganese	µg/L	0.10	323	387	18.0	376	349	7.4	4810	4710	2.10
Mercury	µg/L	0.005	<0.05	0.068	**30.5**	<0.005	<0.005	-	<0.005	<0.005	-
Molybdenum	µg/L	0.05	3.13	3.38	7.7	2.82	2.78	1.4	0.29	0.25	14.81
Nickel	µg/L	0.5	17.1	21.4	22.3	22.1	21.5	2.8	469	462	1.50
Phosphorus	µg/L	50.0									
Potassium	µg/L	50.0	3380	3510	3.8	3.84	3.88	1.0	6880	6730	2.20
Rubidium	µg/L	0.2									
Selenium	µg/L	0.05	1.58	1.62	2.5	1.74	1.68	3.5	1.2	1.23	2.47
Silicon	µg/L	100									
Silver	µg/L	0.01	0.103	0.122	16.9	0.086	0.085	1.2	<0.02	<0.02	-
Sodium	µg/L	50.0	36,900	35,900	2.7	19100	18700	2.1	102,000	98,500	3.49
Strontium	µg/L	0.2									
Sulfur	µg/L	500									
Tellurium	µg/L	0.2									
Thallium	µg/L	0.01	0.125	0.144	14.1	0.102	0.104	1.9	0.057	0.059	3.45
Thorium	µg/L	0.10									
Tin	µg/L	0.10	0.12	0.12	0.0	<0.1	<0.1	-	<0.2	<0.2	-
Titanium	µg/L	0.30	76.7	94.8	21.1	68.5	66.3	3.3	3.27	1.8	**57.99**
Tungsten	µg/L	0.10									
Uranium	µg/L	0.01	1.87	1.99	6.2	1.61	1.59	1.3	5.09	4.97	2.39
Vanadium	µg/L	0.50	17.7	22.4	23.4	17.8	17.9	0.6	<1	<1	-
Zinc	µg/L	3.0	49.5	60.7	20.3	53.4	52.1	2.5	945	951	0.63
Zirconium	µg/L	0.06									
Metals, Dissolved											
Aluminum	µg/L	1.0	15.2	7	73.9	40.7	41.1	1.0	25,300	24,900	1.59
Antimony	µg/L	0.10	0.21	0.21	0.0	0.19	0.18	5.4	<0.2	<0.2	-
Arsenic	µg/L	0.10	0.27	0.22	20.4	0.22	0.22	0.0	1.72	1.8	4.55
Barium	µg/L	0.10	53.9	42.5	23.7	43.7	43.9	0.5	41.4	42	1.44
Beryllium	µg/L	0.10	<0.1	<0.1	-	<0.1	<0.1	-	3.84	3.72	3.17
Bismuth	µg/L	0.05									
Boron	µg/L	10.0	13	14	7.4	16	17	6.1	122	122	0.00
Cadmium	µg/L	0.005	0.0599	0.0413	36.8	0.1	0.101	1.0	7.81	8.04	2.90
Calcium	µg/L	50.0	38,800	41,300	6.2	42300	42400	0.2	235,000	237,000	0.85
Cesium	µg/L	0.01									
Chromium	µg/L	0.10	0.34	0.54	45.5	0.24	0.2	18.2	2.61	2.44	6.73
Cobalt	µg/L	0.10	0.42	0.34	21.1	1.96	2.01	2.5	137	138	0.73
Copper	µg/L	0.20	1.61	1.39	14.7	1.66	1.64	1.2	29.5	29.2	1.02
Iron	µg/L	10.0	33	20	49.1	26	23	12.2	3800	3730	1.86
Lead	µg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	0.16	0.15	6.45
Lithium	µg/L	1.0	2.4	2.9	18.9	4.9	5	2.0	198	192	3.08
Magnesium	µg/L	5.0	10,100	9360	7.6	13000	12900	0.8	103,000	103,000	0.00
Manganese	µg/L	0.10	154	135	13.1	217	215	0.9	4620	4560	1.31
Mercury	µg/L	0.005	0.0088	0.0115	26.6	<0.005	<0.005	-	<0.005	<0.005	-
Molybdenum	µg/L	0.05	2.39	2.49	4.1	2.47	2.52	2.0	0.11	0.11	0.00
Nickel	µg/L	0.50	2.89	2.39	18.9	7.11	7.22	1.5	460	455	1.09
Phosphorus	µg/L	50.0									
Potassium	µg/L	50.0	2360	2040	14.5	2.87	2.84	1.1	6680	6760	1.19
Rubidium	µg/L	0.20									
Selenium	µg/L	0.05	1.25	1.31	4.7	1.27	1.32	3.9	1.23	1.3	5.53
Silicon	µg/L	50.0									
Silver	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.02	<0.02	-
Sodium	µg/L	50.0	34,800	30,600	12.8	17400	17300	0.6	97,900	98,200	0.31
Strontium	µg/L	0.2									
Sulfur	µg/L	500									
Tellurium	µg/L	0.20									
Thallium	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	0.054	0.058	7.14
Thorium	µg/L	0.10									
Tin	µg/L	0.10	<0.1	<0.1	-	<0.1	<0.1	-	<0.2	<0.2	-
Titanium	µg/L	0.30	0.64	0.55	15.1	0.89	0.59	**40.5**	<0.6	<0.6	-
Tungsten	µg/L	0.10									
Uranium	µg/L	0.01	1.19	1.15	3.4	1.34	1.33	0.7	4.46	4.43	0.67
Vanadium	µg/L	0.50	<0.5	<0.5	-	<0.5	<0.5	-	<1	<1	-
Zinc	µg/L	1.0	2.2	1.4	44.4	3.7	3.8	2.7	923	917	0.65
Zirconium	µg/L	0.06									
Laboratory Work Order Number			L2071158	L2071158		L2082450	L2082450		L2100153	L2100153	
Laboratory Identification Number			L2071158-1	L2071158-12		L2082450-3	L2082450-12		L2100153-4	L2100153-8	

Notes:

RDL - Reportable detection limit

RPD - Relative percent difference calculated as (ABS[(difference between two values)]/((sum of two values/2))*100

"-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results is less than detection limits or within 5 times the RDL.

BOLD - RPD greater than 30%

Shaded gray only - exceeds BCAWQG-FSTM guideline.

Blank - not analyzed.

Note: When one value is below detection limit and the other has a measured value, RPD is calculated on the DL and measured value.

Table 5: Surface Water Quality Assurance/Quality Contro

Parameter	Unit	RDL	LBL3C-3.32	Field Duplicate	Relative % Difference (RPD)	LBL3C-1.43	Field Duplicate	Relative % Difference (RPD)	LBL3C-0.02	Field Duplicate	Relative % Difference (RPD)
			19-Jun-18			26-Jul-18			21-Aug-18		
Physical Parameters											
Electrical Conductivity (EC)	µS/cm	2.0	1300	1180	9.68	1240	1240	0.00	2200	2190	0.46
Hardness as $CaCO_3$	µg/L	500	683000	676000	1.03	616000	540000	13.15	1,310,000	1,330,000	1.52
pH	pH Units	0.1	8.2	8.21	0.12	8.29	8.25	0.48	8.18	8.17	0.12
Total Dissolved Solids (TDS)	µg/L	10000	1050000	999000	4.98	1020000	968000	5.23	2,020,000	2,080,000	2.93
Total Suspended Solids (TSS)	µg/L	3000	7500	21100	**95.10**	31000	44400	**35.54**	16,300	18,700	13.71
Anions and Nutrients											
Acidity (as $CaCO_3$)	µg/L	1000									
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	314000	316000	0.63	198000	204000	2.99	245,000	246,000	0.41
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	<1000	<1000	-	<1000	<1000	-	<1000	<1000	-
Alkalinity (Hydroxide as $CaCO_3$)	µg/L	1000	<1000	<1000	-	<1000	<1000	-	<1000	<1000	-
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	314000	316000	0.63	198	204	2.99	245000	246000	0.41
Ammonia (NH_4 as N)	µg/L	5.0	14.2	12.3	14.34	25.7	35.0	**30.64**	38.2	34.1	11.34
Chloride (Cl^-)	µg/L	500	53300	54300	1.86	42600	41900	1.66	55,000	48,000	13.59
Nitrate (NO_3^- as N)	µg/L	5.0	<25	54	**199.14**	546.0	554.0	1.45	200	180	10.53
Nitrite (NO_2^- as N)	µg/L	1.0	<5	<5	-	<5	<5	-	<20	<20	-
Sulphate (SO_4)	µg/L	300	404000	410000	1.47	454000	449000	1.11	1,320,000	1,150,000	13.77
Metals, Total											
Aluminum	µg/L	3.0	57.8	46.8	21.03	1650	1960	17.17	1300	1160	11.38
Antimony	µg/L	0.10	0.3	0.3	0.00	0.30	0.35	15.38	0.21	0.2	4.88
Arsenic	µg/L	0.10	0.63	0.62	1.60	0.85	1.14	29.15	0.92	0.68	**30.0**
Barium	µg/L	0.10	137	136	0.73	109	114	4.48	54.7	54.6	0.18
Beryllium	µg/L	0.10	<0.1	<0.1	-	0.24	0.26	8.00	0.22	0.20	9.52
Bismuth	µg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.1	<0.1	-
Boron	µg/L	10	83	83	0.00	92	98	6.32	154	158	2.56
Cadmium	µg/L	0.005	0.051	0.0517	1.36	0.489	0.500	2.22	0.514	0.552	7.13
Calcium	µg/L	50	176000	173000	1.72	141000	159000	12.00	358,000	356,000	0.56
Cesium	µg/L	0.01	0.012	<0.01	18.18	0.031	0.112	**113.29**	0.090	0.068	27.85
Chromium	µg/L	0.10	<0.3	<0.2	-	0.72	1.36	**61.54**	0.64	0.54	16.95
Cobalt	µg/L	0.10	0.23	0.22	4.44	22.2	22.0	0.90	9.57	9.12	4.82
Copper	µg/L	0.50	2.27	2.23	1.78	3.59	4.33	18.69	2.7	2.3	16.00
Iron	µg/L	10	145.00	124.00	15.61	770	1520	**65.50**	1740	1500	14.81
Lead	µg/L	0.05	0.074	0.067	9.93	0.286	0.576	**67.29**	0.33	0.32	3.08
Lithium	µg/L	1.0	18.70	18.80	0.53	29.30	32.10	9.12	70.8	71.6	1.12
Magnesium	µg/L	5.0	58000.00	58100.00	0.17	51000.00	53600.00	4.97	101,000	98,000	3.02
Manganese	µg/L	0.10	42.70	42.70	0.00	2200.00	2230.00	1.35	417	395	5.42
Mercury	µg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Molybdenum	µg/L	0.05	1.72	1.74	1.16	1.85	1.98	6.79	2.48	2.37	4.54
Nickel	µg/L	0.5	4.26	4.15	2.62	61.8	62.3	0.81	48.2	45.4	5.98
Phosphorus	µg/L	50.0	<50	<50	-	<50	58.0	14.81	<100	<100	-
Potassium	µg/L	50.0	13500.00	13400.00	0.74	8810	8310	5.84	6630	6400	3.53
Rubidium	µg/L	0.2	1.27	1.19	6.50	1.43	1.92	29.25	2.98	2.62	12.86
Selenium	µg/L	0.05	0.62	0.60	3.59	3.12	2.71	14.07	1.33	1.34	0.75
Silicon	µg/L	100	4030.00	4140.00	2.69	4820.00	5370.00	10.79	5350	5310	0.75
Silver	µg/L	0.01	<0.01	<0.01	-	0.011	0.016	**37.04**	<0.02	<0.02	-
Sodium	µg/L	50.0	46700.00	46500.00	0.43	44000	42400	3.70	79,600	77,400	2.80
Strontium	µg/L	0.2	662.00	659.00	0.45	496	514	3.56	1,020	1,010	0.99
Sulfur	µg/L	500	145000.00	147000.00	1.37	165000	163000	1.22	408,000	408,000	0.00
Tellurium	µg/L	0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.4	<0.4	-
Thallium	µg/L	0.01	<0.01	<0.01	-	0.021	0.029	**32.00**	0.042	0.044	4.65
Thorium	µg/L	0.10	<0.1	<0.1	-	0.120	0.220	**58.82**	<0.2	<0.2	-
Tin	µg/L	0.10	<0.1	<0.1	-	<0.1	<0.1	-	<0.2	<0.2	-
Titanium	µg/L	0.30	0.96	0.77	21.97	6.06	11.10	**58.74**	<6.3	4.85	26.01
Tungsten	µg/L	0.10	<0.1	<0.1	-	<0.1	<0.1	-	<0.2	<0.2	-
Uranium	µg/L	0.01	8.23	8.33	1.21	4.11	3.96	3.72	6.83	7.01	2.60
Vanadium	µg/L	0.50	0.60	0.57	5.13	1.00	2.62	**89.50**	1.4	1.1	24.00
Zinc	µg/L	3.0	3.30	<3.0	9.52	68.60	66.90	2.51	89.3	85.9	3.88
Zirconium	µg/L	0.06	0.258	0.285	9.94	0.320	0.375	15.83	0.15	<0.12	22.22
Metals, Dissolved											
Aluminum	µg/L	1.0	4.00	5.90	**38.38**	180.00	175.00	2.82	142	141	0.71
Antimony	µg/L	0.10	0.27	0.27	0.00	0.31	0.29	6.67	0.19	0.18	5.41
Arsenic	µg/L	0.10	0.55	0.56	1.80	0.49	0.51	4.00	0.23	0.23	0.00
Barium	µg/L	0.10	144.00	141.00	2.11	94.80	95.80	1.05	45.1	45.9	1.76
Beryllium	µg/L	0.10	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Bismuth	µg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Boron	µg/L	10.0	73.00	74.00	1.36	99.00	89.00	10.64	135	133	1.49
Cadmium	µg/L	0.005	0.0335	0.0442	27.54	0.360	0.338	6.30	0.216	0.222	2.74
Calcium	µg/L	50.0	175000.00	177000.00	1.14	155000.00	135000.00	13.79	362,000	367,000	1.37
Cesium	µg/L	0.01	<0.01	<0.01	-	<0.010	0.017	**51.85**	0.017	0.018	5.71
Chromium	µg/L	0.10	<0.1	<0.1	-	0.26	0.22	16.67	<0.1	<0.1	-
Cobalt	µg/L	0.10	0.18	0.19	5.41	20.70	19.10	8.04	8.18	8.37	2.30
Copper	µg/L	0.20	2.25	2.09	7.37	2.39	2.06	14.83	0.91	0.9	1.10
Iron	µg/L	10.0	28.00	40.00	**35.29**	11.00	11.00	0.00	14	14	0.00
Lead	µg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Lithium	µg/L	1.0	16.20	18.20	11.63	30.70	27.20	12.09	62.3	62.3	0.00
Magnesium	µg/L	5.0	60000.00	57000.00	5.13	55500	49500	11.43	99,000	99,700	0.70
Manganese	µg/L	0.10	43.40	44.40	2.28	2240	2010	10.82	387	389	0.52
Mercury	µg/L	0.005	<0.005	<0.005	-	0.0067	<0.005	29.06	<0.005	<0.005	-
Molybdenum	µg/L	0.05	1.74	1.78	2.27	1.98	1.85	6.79	2.35	2.35	0.00
Nickel	µg/L	0.50	4.10	4.14	0.00	58.0	54.2	6.77	41	42	2.41
Phosphorus	µg/L	50.0	<50	<50	-	<50	<50	-	<50	<50	-
Potassium	µg/L	50.0	14200.00	13500.00	5.05	8550	8220	3.94	6580	6750	2.55
Rubidium	µg/L	0.20	1.29	1.24	3.95	1.20	1.24	3.28	2.35	2.52	6.98
Selenium	µg/L	0.05	0.602	0.696	14.48	2.830	2.960	4.49	1.31	1.35	3.01
Silicon	µg/L	50.0	4100.00	4240.00	3.36	4370	4280	2.08	4400	4450	1.13
Silver	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Sodium	µg/L	50.0	47100.00	44400.00	5.90	45300	42800	5.68	75,800	77,100	1.70
Strontium	µg/L	0.2	703.00	694.00	1.29	508	489	3.81	1,020	1,050	2.90
Sulfur	µg/L	500	134000.00	149000.00	10.60	169000	165000	2.40	370,000	362,000	2.19
Tellurium	µg/L	0.20	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	-
Thallium	µg/L	0.01	<0.01	<0.01	-	0.018	0.019	5.41	0.033	0.033	0.00
Thorium	µg/L	0.10	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Tin	µg/L	0.10	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Titanium	µg/L	0.30	<0.3	<0.6	-	<0.3	<0.3	-	0.76	<0.3	**86.79**
Tungsten	µg/L	0.10	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Uranium	µg/L	0.01	7.96	8.44	5.85	3.80	3.91	2.85	6.55	6.56	0.15
Vanadium	µg/L	0.50	<0.5	<0.5	-	0.53	<0.50	5.83	<0.5	<0.5	-
Zinc	µg/L	1.0	2.10	3.40	**47.27**	19.70	16.20	19.50	41.4	40.7	1.71
Zirconium	µg/L	0.06	0.221	0.237	6.99	0.096	0.142	**38.66**	<0.06	<0.06	-
Laboratory Work Order Number			L2115119	L2115118		L2136818	L2136818		L2150694	L2150694	
Laboratory Identification Number			L2115119-1	L2115118-6		L2136818-3	L2136818-10		L2150694-2	L2150694-6	

Notes:

RDL - Reportable detection limit

RPD - Relative percent difference calculated as (ABS[(difference between two values)]/((sum of two values/2))*100

"-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results is less than detection limits or within 5 times the RDL.

BOLD - RPD greater than 30%

Shaded gray only - exceeds BCAWQG-FSTM guideline.

Blank - not analyzed.

Note: When one value is below detection limit and the other has a measured value, RPD is calculated on the DL and measured value.

Table 5: Surface Water Quality Assurance/Quality Contro

Parameter	Unit	RDL	LBL3C-0.02	Field Duplicate	Relative % Difference (RPD)	LBL3C-0.02	Field Duplicate	Relative % Difference (RPD)	RBSC-DS	Field Duplicate	Relative % Difference (RPD)
			27-Sep-18			22-Oct-18			19-Nov-18		
Physical Parameters											
Electrical Conductivity (EC)	µS/cm	2.0	2150	2150	0.00	2110	2140	1.41	1330	1490	11.35
Hardness as $CaCO_3$	µg/L	500	1,190,000	1,190,000	0.00	1,180,000	1,220,000	3.33	606,000	786,000	25.86
pH	pH Units	0.1	8.23	8.21	0.24	8.26	8.26	0.00	8.04	8.00	0.50
Total Dissolved Solids (TDS)	µg/L	10000	1,880,000	1,900,000	1.06	1,890,000	1,940,000	2.61	989,000	1,110,000	11.53
Total Suspended Solids (TSS)	µg/L	3000	9000	12200	**30.19**	7500	7700	2.63	9800	22800	**79.75**
Anions and Nutrients											
Acidity (as $CaCO_3$)	µg/L	1000	2400	3700	**42.62**				8500	10600	21.99
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	249,000	255,000	2.38	254,000	253,000	0.39	369,000	378,000	2.41
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	<1000	<1000	-	<1000	<1000	-	<1000	<1000	-
Alkalinity (Hydroxide as $CaCO_3$)	µg/L	1000	<1000	<1000	-	<1000	<1000	-	<1000	<1000	-
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	249	255	2.38	254	253	0.39	369000	378000	2.41
Ammonia (NH_4 as N)	µg/L	5.0	25.9	51.7	**66.49**	24.4	24.2	0.82	13.7	55.3	**120.58**
Chloride (Cl^-)	µg/L	500	45,300	42,200	7.09	44,300	43,500	1.82	15,400	17,000	9.88
Nitrate (NO_3^- as N)	µg/L	5.0	301	278	7.94	348	341	2.03	<25	<25	-
Nitrite (NO_2^- as N)	µg/L	1.0	<10	<10	-	<10	<10	-	<5	<5	-
Sulphate (SO_4)	µg/L	300	1,080,000	1,000,000	7.69	1,050,000	1,030,000	1.92	368,000	497,000	29.83
Metals, Total											
Aluminum	µg/L	3.0	789	767	2.83	701	647	8.01	16.6	19.3	15.04
Antimony	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.1	-
Arsenic	µg/L	0.10	0.47	<0.4	16.09	0.36	0.36	0.00	1.75	0.78	**76.68**
Barium	µg/L	0.10	54.3	55.5	2.19	46.2	44.6	3.52	36.5	26.4	**32.11**
Beryllium	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.1	-
Bismuth	µg/L	0.05	<0.1	<0.1	-	<0.1	<0.1	-	<0.05	<0.05	-
Boron	µg/L	10	124	120	3.28	113	109	3.60	86	103	17.99
Cadmium	µg/L	0.005	0.555	0.544	2.00	0.458	0.434	5.38	0.0053	0.0447	**157.60**
Calcium	µg/L	50	337,000	321,000	4.86	325,000	320,000	1.55	179,000	211,000	16.41
Cesium	µg/L	0.01	<0.02	<0.02	-	<0.02	<0.02	-	<0.01	<0.01	-
Chromium	µg/L	0.10	0.39	<0.5	24.72	<0.2	<0.2	-	<0.1	<0.1	-
Cobalt	µg/L	0.10	8.27	8.30	0.36	8.25	8.02	2.83	2.00	1.63	20.39
Copper	µg/L	0.50	1.9	1.7	11.11	1.5	1.5	0.00	<0.5	<0.5	-
Iron	µg/L	10	939	916	2.48	957	874	9.07	1550	1260	20.64
Lead	µg/L	0.05	<0.1	<0.1	-	<0.1	<0.1	-	<0.05	<0.05	-
Lithium	µg/L	1.0	56.5	50.1	12.01	51.7	49.8	3.74	49.4	58.6	17.04
Magnesium	µg/L	5.0	99,700	97,300	2.44	102,000	100,000	1.98	50,800	62,900	21.28
Manganese	µg/L	0.10	428	425	0.70	401	396	1.25	606	1350	76.07
Mercury	µg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	0.0151	0.0122	21.25
Molybdenum	µg/L	0.05	1.61	1.72	6.61	1.59	1.61	1.25	0.846	0.832	1.67
Nickel	µg/L	0.5	41.2	41.2	0.00	40.6	40.6	0.00	6.02	9.32	**43.02**
Phosphorus	µg/L	50.0	<100	<100	-	<100	<100	-	54	<50	7.69
Potassium	µg/L	50.0	5580	5740	2.83	5700	5570	2.31	1540	2060	28.89
Rubidium	µg/L	0.2	1.89	1.92	1.57	1.74	1.79	2.83	0.78	1.52	**64.35**
Selenium	µg/L	0.05	2.05	1.98	3.47	2.75	2.52	8.73	<0.05	0.05	0.00
Silicon	µg/L	100	4510	4470	0.89	4490	4320	3.86	4590	4480	2.43
Silver	µg/L	0.01	<0.02	<0.02	-	<0.02	<0.02	-	<0.01	<0.01	-
Sodium	µg/L	50.0	68,900	66,600	3.39	76,800	73,600	4.26	59,400	80,200	29.80
Strontium	µg/L	0.2	862	917	6.18	918	920	0.22	441	487	9.91
Sulfur	µg/L	500	380,000	384,000	1.05	411,000	395,000	3.97	150,000	206,000	**31.46**
Tellurium	µg/L	0.2	<0.4	<0.4	-	<0.4	<0.4	-	<0.2	<0.2	-
Thallium	µg/L	0.01	0.027	0.025	7.69	0.025	0.024	4.08	<0.01	0.012	18.18
Thorium	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.1	-
Tin	µg/L	0.10	<0/2	<0.2	-	<0.2	<0.2	-	<0.1	<0.1	-
Titanium	µg/L	0.30	1.25	0.83	**40.38**	<0.6	0.78	26.09	<0.6	<0.6	-
Tungsten	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.1	-
Uranium	µg/L	0.01	6.14	5.99	2.47	6.33	6.20	2.08	2.26	2.67	16.63
Vanadium	µg/L	0.50	<1.0	<1.0	-	<1	<1	-	<0.5	<0.5	-
Zinc	µg/L	3.0	80.1	77.1	3.82	71.6	68.3	4.72	<3	<3	-
Zirconium	µg/L	0.06	<0.12	<0.12	-	<0.12	<0.12	-	<0.06	<0.06	-
Metals, Dissolved											
Aluminum	µg/L	1.0	132	137	3.72	102	104	1.94	1.2	2.3	**62.86**
Antimony	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.2	-
Arsenic	µg/L	0.10	0.24	0.21	13.33	<0.2	<0.2	-	1.58	0.55	**96.71**
Barium	µg/L	0.10	49.9	49.8	0.20	41.4	41.6	0.48	35	24.1	**36.89**
Beryllium	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.2	-
Bismuth	µg/L	0.05	<0.1	<0.1	-	<0.1	<0.1	-	<0.05	<0.1	-
Boron	µg/L	10.0	129	132	2.30	124	119	4.12	76	113	**39.15**
Cadmium	µg/L	0.005	0.429	0.418	2.60	0.387	0.404	4.30	<0.005	0.029	**141.18**
Calcium	µg/L	50.0	324,000	328,000	1.23	312,000	322,000	3.15	167,000	204,000	19.95
Cesium	µg/L	0.01	<0.02	<0.02	-	<0.02	<0.02	-	<0.01	<0.02	-
Chromium	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.2	-
Cobalt	µg/L	0.10	7.99	7.64	4.48	8.03	7.95	1.00	1.82	1.58	14.12
Copper	µg/L	0.20	0.87	0.94	7.73	0.91	0.95	4.30	<0.2	<0.4	-
Iron	µg/L	10.0	68	65	4.51	168	150	11.32	2150	1190	**57.49**
Lead	µg/L	0.05	<0.1	<0.1	-	<0.1	<0.1	-	<0.05	<0.1	-
Lithium	µg/L	1.0	57.9	58.4	0.86	54.3	54.0	0.55	42.6	56.2	**27.53**
Magnesium	µg/L	5.0	93,100	90,400	2.94	97,900	102,000	4.10	45,700	67,400	**38.37**
Manganese	µg/L	0.10	434	434	0.00	397	391	1.52	657	1300	**65.71**
Mercury	µg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	0.0098	**64.86**
Molybdenum	µg/L	0.05	1.7	1.77	4.03	1.65	1.63	1.22	0.614	0.77	22.54
Nickel	µg/L	0.50	39.8	38.2	4.10	38.2	39.0	2.07	5.12	10.1	**65.44**
Phosphorus	µg/L	50.0	<100	<100	-	<100	<100	-	<50	<100	-
Potassium	µg/L	50.0	5350	5520	3.13	5760	5400	6.45	1580	2750	**54.04**
Rubidium	µg/L	0.20	1.63	1.72	5.37	1.55	1.71	9.82	0.76	1.71	**76.92**
Selenium	µg/L	0.05	2.15	2.27	5.43	2.41	2.85	16.73	0.063	<0.1	**45.40**
Silicon	µg/L	50.0	4210	4180	0.72	4010	4300	6.98	4200	4560	8.22
Silver	µg/L	0.01	<0.02	<0.02	-	<0.02	<0.02	-	<0.01	<0.02	-
Sodium	µg/L	50.0	68,900	68,900	0.00	72,400	73,900	2.05	52,600	84,700	**46.76**
Strontium	µg/L	0.2	930	947	1.81	920	928	0.87	434	543	22.31
Sulfur	µg/L	500	381,000	378,000	0.79	391,000	420,000	7.15	112,000	213,000	**62.15**
Tellurium	µg/L	0.20	<0.4	<0.4	-	<0.4	<0.4	-	<0.2	<0.4	-
Thallium	µg/L	0.01	0.027	0.028	3.64	0.024	0.026	8.00	<0.01	<0.02	-
Thorium	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.2	-
Tin	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.2	-
Titanium	µg/L	0.30	<0.6	<0.6	-	<0.6	<0.6	-	<0.3	<0.6	-
Tungsten	µg/L	0.10	<0.2	<0.2	-	<0.2	<0.2	-	<0.1	<0.2	-
Uranium	µg/L	0.01	5.89	6.00	1.85	6.52	6.72	3.02	1.97	2.94	**39.51**
Vanadium	µg/L	0.50	<1.0	<1.0	-	<1.0	<1.0	-	<0.5	<1.0	-
Zinc	µg/L	1.0	50.6	45.6	10.40	54.0	54.7	1.29	1.1	2.1	**62.50**
Zirconium	µg/L	0.06	<0.12	<0.12	-	<0.12	<0.12	-	<0.06	<0.12	-
Laboratory Work Order Number			L2172306	L2172306		L2185138	L2185138		L2198555	L2198555	
Laboratory Identification Number			L2172306-2	L2172306-6		L2185138-2	L2185138-7		L2198555-6	L2198555-5	

Notes:

RDL - Reportable detection limit

RPD - Relative percent difference calculated as (ABS[(difference between two values)]/((sum of two values/2))*100

"-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results is less than detection limits or within 5 times the RDL.

BOLD - RPD greater than 30%

Shaded gray only - exceeds BCAWQG-FSTM guideline.

Blank - not analyzed.

Note: When one value is below detection limit and the other has a measured value, RPD is calculated on the DL and measured value.

Table 5: Surface Water Quality Assurance/Quality Contro

Parameter	Unit	RDL	RBSBIAR-US	Field Duplicate	Relative % Difference (RPD)
			17-Dec-18		
Physical Parameters					
Electrical Conductivity (EC)	µS/cm	2.0	639	641	0.31
Hardness as $CaCO_3$	µg/L	500	338,000	332,000	1.79
pH	pH Units	0.1	8.06	8.06	0.00
Total Dissolved Solids (TDS)	µg/L	10000	357,000	350,000	1.98
Total Suspended Solids (TSS)	µg/L	3000	4200	7200	**52.63**
Anions and Nutrients					
Acidity (as $CaCO_3$)	µg/L	1000	4300	4500	4.55
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	243,000	245,000	0.82
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	<1000	<1000	-
Alkalinity (Hydroxide as $CaCO_3$)	µg/L	1000	<1000	<1000	-
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	243	245	0.82
Ammonia (NH_4 as N)	µg/L	5.0	6.6	<5	27.59
Chloride (Cl^-)	µg/L	500	39,800	40,100	0.75
Nitrate (NO_3^- as N)	µg/L	5.0	1240	1240	0.00
Nitrite (NO_2^- as N)	µg/L	1.0	<1	<1	-
Sulphate (SO_4)	µg/L	300	25,400	25,400	0.00
Metals, Total					
Aluminum	µg/L	3.0	6.3	8.4	28.57
Antimony	µg/L	0.10	<0.1	0.11	9.52
Arsenic	µg/L	0.10	<0.1	0.11	9.52
Barium	µg/L	0.10	192	194	1.04
Beryllium	µg/L	0.10	<0.1	<0.1	-
Bismuth	µg/L	0.05	<0.05	<0.05	-
Boron	µg/L	10	14	15	6.90
Cadmium	µg/L	0.005	0.0143	0.0159	10.60
Calcium	µg/L	50	85,000	89,700	5.38
Cesium	µg/L	0.01	<0.01	<0.01	-
Chromium	µg/L	0.10	0.14	0.15	6.90
Cobalt	µg/L	0.10	<0.1	<0.1	-
Copper	µg/L	0.50	<0.5	<0.5	-
Iron	µg/L	10	14	18	25.00
Lead	µg/L	0.05	<0.05	<0.05	-
Lithium	µg/L	1.0	6.4	6.5	1.55
Magnesium	µg/L	5.0	19,400	19,500	0.51
Manganese	µg/L	0.10	0.70	1.04	**39.08**
Mercury	µg/L	0.005	<0.005	<0.005	-
Molybdenum	µg/L	0.05	0.992	1.09	9.41
Nickel	µg/L	0.5	<0.5	<0.5	-
Phosphorus	µg/L	50.0	<50	<50	-
Potassium	µg/L	50.0	3220	3110	3.48
Rubidium	µg/L	0.2	0.34	0.41	18.67
Selenium	µg/L	0.05	1.02	1.01	0.99
Silicon	µg/L	100	4100	4060	0.98
Silver	µg/L	0.01	<0.01	<0.01	-
Sodium	µg/L	50.0	7,740	7,660	1.04
Strontium	µg/L	0.2	263	274	4.10
Sulfur	µg/L	500	8,860	9,450	6.44
Tellurium	µg/L	0.2	<0.2	<0.2	-
Thallium	µg/L	0.01	<0.01	<0.01	-
Thorium	µg/L	0.10	<0.1	<0.1	-
Tin	µg/L	0.10	<0.1	<0.1	-
Titanium	µg/L	0.30	<0.3	<0.3	-
Tungsten	µg/L	0.10	<0.1	<0.1	-
Uranium	µg/L	0.01	1.18	1.21	2.51
Vanadium	µg/L	0.50	<0.5	<0.5	-
Zinc	µg/L	3.0	<3	<3	-
Zirconium	µg/L	0.06	<0.06	<0.06	-
Metals, Dissolved					
Aluminum	µg/L	1.0	<1	1	0.00
Antimony	µg/L	0.10	<0.1	<0.1	-
Arsenic	µg/L	0.10	<0.1	<0.1	-
Barium	µg/L	0.10	222	230	3.54
Beryllium	µg/L	0.10	<0.1	<0.1	-
Bismuth	µg/L	0.05	<0.05	<0.05	-
Boron	µg/L	10.0	15	15	0.00
Cadmium	µg/L	0.005	0.0081	0.0113	**32.99**
Calcium	µg/L	50.0	99,400	96,900	2.55
Cesium	µg/L	0.01	<0.01	<0.01	-
Chromium	µg/L	0.10	0.17	0.19	11.11
Cobalt	µg/L	0.10	<0.1	<0.1	-
Copper	µg/L	0.20	0.23	0.28	19.61
Iron	µg/L	10.0	<10	<10	-
Lead	µg/L	0.05	<0.05	<0.05	-
Lithium	µg/L	1.0	7.3	7.2	1.38
Magnesium	µg/L	5.0	21,700	22,000	1.37
Manganese	µg/L	0.10	0.32	0.51	**45.78**
Mercury	µg/L	0.005	<0.005	0.0085	**51.85**
Molybdenum	µg/L	0.05	1.06	1.07	0.94
Nickel	µg/L	0.50	<0.5	<0.5	-
Phosphorus	µg/L	50.0	<50	<50	-
Potassium	µg/L	50.0	3300	3230	2.14
Rubidium	µg/L	0.20	0.43	0.39	9.76
Selenium	µg/L	0.05	0.938	1.02	8.38
Silicon	µg/L	50.0	4160	4110	1.21
Silver	µg/L	0.01	<0.01	<0.01	-
Sodium	µg/L	50.0	7,970	7,980	0.13
Strontium	µg/L	0.2	295	291	1.37
Sulfur	µg/L	500	8,380	8,580	2.36
Tellurium	µg/L	0.20	<0.2	<0.2	-
Thallium	µg/L	0.01	<0.01	<0.01	-
Thorium	µg/L	0.10	<0.1	<0.1	-
Tin	µg/L	0.10	<0.1	<0.1	-
Titanium	µg/L	0.30	<0.3	<0.3	-
Tungsten	µg/L	0.10	<0.1	<0.1	-
Uranium	µg/L	0.01	1.15	1.15	0.00
Vanadium	µg/L	0.50	<0.5	<0.5	-
Zinc	µg/L	1.0	<1	<1	-
Zirconium	µg/L	0.06	<0.06	<0.06	-
Laboratory Work Order Number			L2211507	L2211507	
Laboratory Identification Number			L2211507-6	L2211507-5	

Notes:

RDL - Reportable detection limit

RPD - Relative percent difference calculated as (ABS[(difference between two values)]/((sum of two values/2))*100

"-" Indicates RPD not calculated. RPD cannot be calculated if one or more of the analytical results is less than detection limits or within 5 times the RDL.

BOLD - RPD greater than 30%

Shaded gray only - exceeds BCAWQG-FSTM guideline.

Blank - not analyzed.

Note: When one value is below detection limit and the other has a measured value, RPD is calculated on the DL and measured value.

Table 6: In Situ Water Quality Sampling Along the River Road Ditch

Sample Site	Date	Time	In-Situ Tests - 2018						
			Water Temp (°C)	Hardness (ppm)	pH	EC (µS)	Alkalinity (ppm)	Turbidity	Flow (L/sec)
LBRR-DD (Discharge)	March 21, 2018		No reading	425	8.08	1340	0		0.40
	April 18, 2018	9:50	0.0	425	8.60	560	80	cloudy	5.00
LBRR-LC (Mid-stream)	March 21, 2018		No reading	425	8.15	1155	0		0.20
	April 19, 2018	10:05	0.4	425	8.20	512	40	cloudy	5.00
LBRR-UC	May 24, 2018	10:56	16.4	425	8.42	1003	240	clear	0.20
	June 19, 2018	11:10	20.1	425	8.24	840	240	clear	0.10
	July 26, 2018	11:56	18.0	425	8.49	838	240	clear	0.05
	August 21, 2018	11:19	14.2	425	8.30	901	240	clear	0.10
	September 27, 2018	11:40	7.7	425	8.23	870	180	standing	none
	October 22, 2018	12:35	0.8	425	8.43	865	120	clear	0.10
	November 19, 2018	12:55	0.1	425	8.51	1113	120	clear	0.20
LBRR-EDP	April 19, 2018	9:05	0.0	425	8.50	1850	80	cloudy	0.50
	May 24, 2018	9:06	15.8	425	8.47	3390	120	clear	0.10
	June 19, 2018	10:23	20.3	425	8.31	255	180	clear	0.10
	July 26, 2018	10:02	17.1	425	8.74	2180	240	clear	0.25
	September 27, 2018	10:55	7.7	425	8.13	2760	180	water	none
LBRR-12+500	March 21, 2018		No reading	425	3.77	3460	0		0.30
	April 19, 2018	10:25	0.0	425	6.05	2050	0	cloudy	0.50
LBRR-12+600	March 21, 2018		No reading	425	3.71	3180	0		0.20
	April 19, 2018	11:02	0.0	425	6.08	1850	0	cloudy	0.50
	July 26, 2018	11:18	18.7	425	8.82	950	240	clear	0.05
LBRR-12+700	March 21, 2018		No reading	425	3.56	4560	0		0.20
	April 19, 2018	11:07	0.0	425	6.68	1700	40	cloudy	0.50
	July 26, 2018	11:26	19.4	425	8.83	220	240	clear	0.10
LBRR-12+810	April 19, 2018	11:13	0.0	425	4.70	1410	0	cloudy	0.20
	May 24, 2018	10:50	17.7	425	8.70	1240	240	clear	0.01
	June 19, 2018	11:00	20.9	425	8.41	885	240	clear	0.10
	July 26, 2018	11:38	20.5	425	8.51	950	240	clear	0.10
	August 21, 2018	10:58	16.5	425	8.60	918	180	clear	0.10
	October 22, 2018	12:18	2.8	425	8.80	856	120	clear	0.10
LBRR-12+920	May 24, 2018	11:00	10.3	425	8.15	1046	240	clear	0.50
	June 19, 2018	11:12	15.2	425	8.24	968	240	clear	0.10
	July 26, 2018	11:50	16.2	425	8.40	1067	240	clear	0.05
	August 21, 2018	11:13	15.3	425	8.16	1349	240	clear	0.20
	September 27, 2018	11:48	8.7	425	8.31	1435	180	clear	0.50
	October 22, 2018	12:29	3.6	425	8.53	1360	240	clear	0.20
	November 19, 2018	13:00	0.5	425	8.46	1600	120	clear	0.25

Table 7: Summary of Water Quality Exceedances (BCAWQG-FSTM) Along River Road from Water Sampling Events in 2018

	Sampling Dates	Total Iron (Fe)	Dissolved Iron (Fe)	Dissolved Aluminum (Al)	Dissolved Cadmium	Total Arsenic (As)	Total Cobalt (Co)	Total Copper (Cu)	Total Zinc (Zn)	pH
LBRR-DD (discharge)	March 21, 2018	✓	✓	✓	✓	✓			✓	
	April 19, 2018	✓				✓		✓	✓	
LBRR-EDP	April 19, 2018	✓	✓		✓	✓	✓	✓	✓	
	May 24, 2018			✓	✓				✓	
	June 19, 2018			✓	✓				✓	
	July 26, 2018			✓	✓				✓	
LBRR-LC (midstream)	March 21, 2018	✓	✓						✓	
	April 19, 2018	✓	✓			✓			✓	
LBRR 12+500 (midstream)	March 21, 2018	✓	✓	✓	✓	✓	✓	✓	✓	✓
	April 19, 2018	✓	✓	✓	✓	✓	✓	✓	✓	✓

[1] British Columbia Ministry of Environment, Water Protection & Sustainability Branch. 2018. British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. Referenced Guidelines are for Freshwater Aquatic Life (FWAL) water use and Short Term Maximum (STM) WQG. Exceedances denoted by a check mark.

Table 8: In Situ Water Quality Measurements Along the South Bank Initial Access Road

Sample Site	Date	Time	In-Situ Tests - 2018						
			Water Temp (°C)	Hardness (ppm)	pH	EC (µS)	Alkalinity (ppm)	Turbidity	Flow (L/sec)
RBSBIAR-US	March 21, 2018	-	No reading	425	9.75	505	80	-	0.5
	June 19, 2018	8:41	12.7	425	7.57	680	240	clear	0.3
	August 21, 2018	8:56	14.4	425	8.05	543	180	clear/algae	0.2
	September 27, 2018	9:21	11.0	425	7.63	614	180	clear	0.5
	October 22, 2018	10:43	7.2	425	7.74	524	120	clear	0.1
	November 19, 2018	10:30	4.9	425	7.85	688	80	clear	0.1
	December 17, 2018	10:34	1.1	425	8.35	723	120	clear/algae	0.1
RBSBIAR-DS	March 21, 2018	-	No reading	425	8.20	582	80	-	2.0
	June 19, 2018	8:34	17.7	425	8.08	646	240	clear	1.0
	August 21, 2018	8:48	14.2	425	7.63	589	120	clear	2.5
	September 27, 2018	8:58	7.8	425	7.96	742	240	clear	3.0
	October 22, 2018	10:38	3.4	425	8.61	668	120	clear	2.0
	November 19, 2018	10:23	1.1	425	8.27	847	120	clear	0.5
RBSBIAR-EUS	June 19, 2018	9:01	12.4	425	7.63	590	240	clear	0.3
	August 21, 2018	9:02	15.4	425	7.54	764	240	clear	0.3
	September 27, 2018	9:52	12.1	425	7.39	785	180	clear	0.5
	October 22, 2018	10:49	8.2	425	7.56	705	120	clear	0.1
	November 19, 2018	10:35	4.5	425	7.74	894	180	clear	0.2
	December 17, 2018	11:41	1.0	425	7.8	910	240	clear/algae	0.1
RBSBIAR-EDS	June 19, 2018	9:10	16.8	425	8.23	672	240	clear	0.3
	August 21, 2018	9:08	14.1	425	8.51	863	180	clear	2.0
	September 27, 2018	10:06	7.8	425	8.47	929	240	clear	1.0
	October 22, 2018	10:53	1.6	425	8.86	790	120	clear	1.0
	November 19, 2018	10:41	0.6	425	8.39	1093	180	clear	0.5
RBSC-DS	March 21, 2018	-	0.3	425	8.52	665	120	-	none
	June 19, 2018	9:28	18.0	425	6.92	2240	240	clear/algae	none
	November 19, 2018	10:58	3.9	425	7.85	1148	180	clear	none
	December 17, 2018	12:19	2.2	425	8.03	1060	240	clear	none

Table 9: Summary of Water Quality Exceedances (BCAWQG-FSTM) Along SBIAR from Water Sampling Events in 2018

	Sampling Dates	Total Iron (Fe)	Dissolved Iron (Fe)	Dissolved Aluminum (Al)	Total Arsenic (As)	Total Copper (Cu)	Total Zinc (Zn)
RBSBIAR-DS (West ditch; downstream)	March 21, 2018	✓					
	June 19, 2018						
	September 27, 2018			✓			
RBSBIAR-US (West ditch; upstream)	March 21, 2018	✓			✓	✓	✓
	June 19, 2018						
	September 27, 2018						
	December 17, 2018						
RBSBIAR-EDS (East ditch; downstream)	June 19, 2018						
	September 27, 2018	✓		✓			
RBSBIAR-EUS (East ditch; upstream)	June 19, 2018						
	September 27, 2018	✓					
	December 17, 2018	✓					
RBSC-DS (side channel)	March 21, 2018	✓	✓				
	June 19, 2018						
	November 19, 2018	✓	✓				
	December 17, 2018	✓	✓				

[1] British Columbia Ministry of Environment, Water Protection & Sustainability Branch. 2018. British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. Referenced Guidelines are for Freshwater Aquatic Life (FWAL) water use and Short Term Maximum (STM) WQG. Exceedances denoted by a check mark.

Table 10: Minimum, Maximum and Mean Values for Measurements at Discharge and Downstream Locations

Discharge/Downstream Locations	Unit	LBRR-DD [a]			RBSBIAR-DS [b]			LBL3C-0.02 [c]		
		Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean
Hardness as $CaCO_3$	mg/L	258.0	821.0	539.5	275.0	298.0	285.3	279.0	1310.0	984.1
pH	pH	6.51	7.78	7.15	8.23	8.31	8.26	7.86	8.31	8.17
Total Dissolved Solids (TDS)	mg/L	362.0	1190.0	776.0	344.0	502.0	428.3	454.0	2100.0	1545.6
Total Suspended Solids (TSS)	mg/L	50.7	97.5	74.1	<3.0	75.5	[d] 36.8	7.5	173.0	33.3
Anions and Nutrients										
Alkalinity (Total as $CaCO_3$)	mg/L	5.0	91.4	48.2	188.0	233.0	211.3	86.9	254.0	207.9
Sulphate $(SO_4)^3$	mg/L	161.0	751.0	456.0	51.1	111.0	79.5	187.0	1320.0	871.3
Metals, Total										
Aluminum	mg/L	2.98	3.67	3.33	0.0459	1.12	0.578	0.558	4.34	1.30
Iron	mg/L	7.20	22.80	15.00	0.091	2.77	1.207	0.539	7.95	1.926
Arsenic	mg/L	0.00620	0.01630	0.01125	0.00050	0.00193	0.00099	0.00036	0.00403	0.00105
Cadmium	mg/L	0.00146	0.00481	0.00314	0.00002	0.00021	0.00012	0.00021	0.00058	0.00046
Cobalt	mg/L	0.01760	0.09060	0.05410	0.00039	0.00430	0.00290	0.00198	0.00957	0.00714
Copper	mg/L	0.02630	0.02670	0.02650	0.00100	0.00499	0.00325	0.00150	0.01110	0.00337
Zinc	mg/L	0.21000	0.58500	0.39750	0.00310	0.05070	0.03217	0.02810	0.08930	0.06730
Metals, Dissolved										
Aluminum	mg/L	0.028	0.392	0.210	0.0157	0.106	0.0577	0.0373	0.199	0.121
Iron	mg/L	0.290	0.765	0.528	<0.01	0.0120	[d] 0.0107	0.0140	0.168	0.0658
Arsenic	mg/L	0.00014	0.00022	0.00018	0.00017	0.00045	0.00029	0.00010	0.00039	0.00022
Cadmium	mg/L	0.00044	0.00449	0.00246	0.00002	0.00011	0.00006	0.00010	0.00049	0.00032
Cobalt	mg/L	0.01360	0.08840	0.05100	0.00032	0.00460	0.00259	0.00076	0.00883	0.00619
Copper	mg/L	0.00141	0.01310	0.00726	0.00075	0.00157	0.00104	0.00080	0.00181	0.00115
Zinc	mg/L	0.03580	0.54600	0.29090	0.00200	0.02610	0.01510	0.00910	0.05400	0.03913

[a] Calculations from the period March to December, 2018: based on two sampling events, March and April, 2018, due to dry or freezing conditions.

[b] Quarterly sampling completed in March, June, and September, 2018.

[c] Calculations from the period March to November, 2018: based on nine sampling events.

[d] Mean value calculated between the detection limit and all other values.

Table 11: In Situ Water Quality Measurements Along L3 Creek

Sample Site	Date	Time	In-Situ Tests - 2018						
			Water Temp (°C)	Hardness (ppm)	pH	EC (µS)	Alkalinity (ppm)	Turbidity	Flow (L/sec)
LBL3C-0.02 (Discharge)	March 21, 2018	-	0.2	425	9.11	790	120	-	5.00
	April 19, 2018	9:30	0.0	425	9.05	568	40	cloudy	100
	May 24, 2018	9:17	10.5	425	8.46	2200	180	clear	4.00
	June 19, 2018	10:27	15.2	425	8.12	1870	180	clear	5.00
	July 26, 2018	10:47	15.4	425	8.62	1452	180	clear	5.00
	August 21, 2018	10:04	12.9	425	8.36	2250	180	clear	4.00
	September 27, 2018	11:01	8.3	425	8.27	1856	180	clear	1.00
	October 22, 2018	11:22	3.3	425	8.34	1990	120	clear	4.00
	November 19, 2018	11:52	1.7	425	8.16	2370	120	clear	2.50
LBL3C-1.43	March 21, 2018	-	2.7	425	8.48	585	40	-	3.00
	April 19, 2018	11:45	0.5	425	8.10	396	40	cloudy	100
	May 24, 2018	12:04	11.5	425	7.98	2020	120	clear	2.00
	June 19, 2018	12:00	14.4	425	7.85	1500	240	clear	2.00
	July 26, 2018	12:55	18.0	425	8.31	1000	120	clear	5.00
	August 21, 2018	12:43	12.9	425	8.11	1721	180	clear	5.00
	September 27, 2018	13:20	8.0	425	8.00	1814	240	clear	3.00
	October 22, 2018	14:15	4.2	425	8.29	1663	120	slightly cloudy	3.00
	November 19, 2018	13:48	3.1	425	8.30	1947	120	clear	1.00
	December 17, 2018	13:53	1.3	425	8.02	2180	240	clear/algae	2.00
LBL3C-1.65	April 19, 2018	12:40	0.3	250	9.01	330	40	cloudy	100
	July 26, 2018	13:16	30.8	425	8.48	1065	240	clear	0.20
	December 17, 2018	14:25	2.7	250	6.50	4100	120	ear/orange sta	0.10
LBL3C-3.32	April 19, 2018	13:50	0.0	425	8.97	528	40	clear, brown	5.00
	May 24, 2018	13:10	12.2	425	7.55	1223	180	clear	0.50
	June 19, 2018	13:32	23.7	425	7.93	907	240	clear	0.10
	July 26, 2018	14:18	15.2	425	8.63	965	180	clear	2.00
LBL4C-0.18	March 21, 2018	-	No reading	425	9.20	1132	40	-	0.20
	April 19, 2018	12:22	0.0	250	8.23	2000	40	milky	10.00
	May 24, 2018	12:23	11.8	425	4.53	2320	0	clear	2.00
	June 19, 2018	12:15	14.9	425	5.58	1980	0	milky	1.00
	July 26, 2018	13:26	14.5	425	8.55	1070	40	cloudy	2.50
	October 22, 2018	15:00	2.5	425	4.86	2150	0	clear	0.05

Table 12: Summary of Water Quality Exceedances (BCAWQG-FSTM) Along L3 Creek From Water Sampling Events in 2018

	Sampling Dates	Total Iron (Fe)	Dissolved Iron (Fe)	Dissolved Aluminum (Al)	Dissolved Cadmium (Cd)	Total Cobalt (Co)	Total Zinc (Zn)	Total Copper (Cu)	Total Arsenic (As)	Total Manganese (Mn)	pH
LBL3C-0.02 (discharge)	21-Mar-18	✓									
	19-Apr-18	✓									
	24-May-18			✓							
	19-Jun-18			✓							
	26-Jul-18			✓							
	21-Aug-18	✓		✓							
	27-Sep-18			✓							
	22-Oct-18			✓							
	November 19, 2018										
LBL3C-1.43 (midstream)	March 21, 2018	✓									
	April 19, 2018	✓									
	May 24, 2018										
	June 19, 2018										
	July 26, 2018			✓							
	August 21, 2018	✓									
	September 27, 2018										
	October 22, 2018										
	November 19, 2018										
	December 17, 2018										
LBL3C-1.65	April 19, 2018	✓									
	July 26, 2018	✓									
	December 17, 2018	✓	✓	✓	✓	✓	✓			✓	✓
LBL3C-3.32 (upstream)	April 19, 2018										
	May 24, 2018										
	June 19, 2018										
	July 26, 2018			✓							
LBL4C-0.18	March 21, 2018	✓									
	April 19, 2018	✓					✓	✓	✓		
	May 24, 2018	✓	✓	✓	✓	✓	✓				✓
	June 19, 2018	✓	✓	✓	✓	✓	✓				✓
	July 26, 2018	✓		✓							
	October 22, 2018	✓	✓	✓	✓	✓	✓				✓

[1] British Columbia Ministry of Environment, Water Protection & Sustainability Branch. 2018. British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. Referenced Guidelines are for Freshwater Aquatic Life (FWAL) water use and Short Term Maximum (STM) WQG. Exceedances denoted by a check mark.

Note: L3 and L4 Creek are not considered a construction-related PAG management facility and are not monitored under requirement of the CEMP.

FIGURES

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Figure 2 SBIAR Monitoring Locations
Figure 3 L3 Creek Monitoring Locations
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Figure 28 a) Total and b) Dissolved Aluminum at L3 Creek Locations
Figure 29 a) Total and b) Dissolved Iron at L3 Creek Locations
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Figure 31 a) Total and b) Dissolved Cadmium at L3 Creek Locations
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Figure 33 a) Total and b) Dissolved Copper at L3 Creek Locations
Figure 34 a) Total and b) Dissolved Zinc at L3 Creek Locations



LEGEND

- Water Sample (Insitu Testing Only)
- Water Sample (Insitu Testing & External Lab Testing)
- Culvert
- Ditch
- Ditch Diversion
- Howe Pit
- Blind Corner Outcrop
- Site C Project Boundary
- Original Watercourse

NOTES
Base data source:
Imagery provided by the client (Oct 2017).

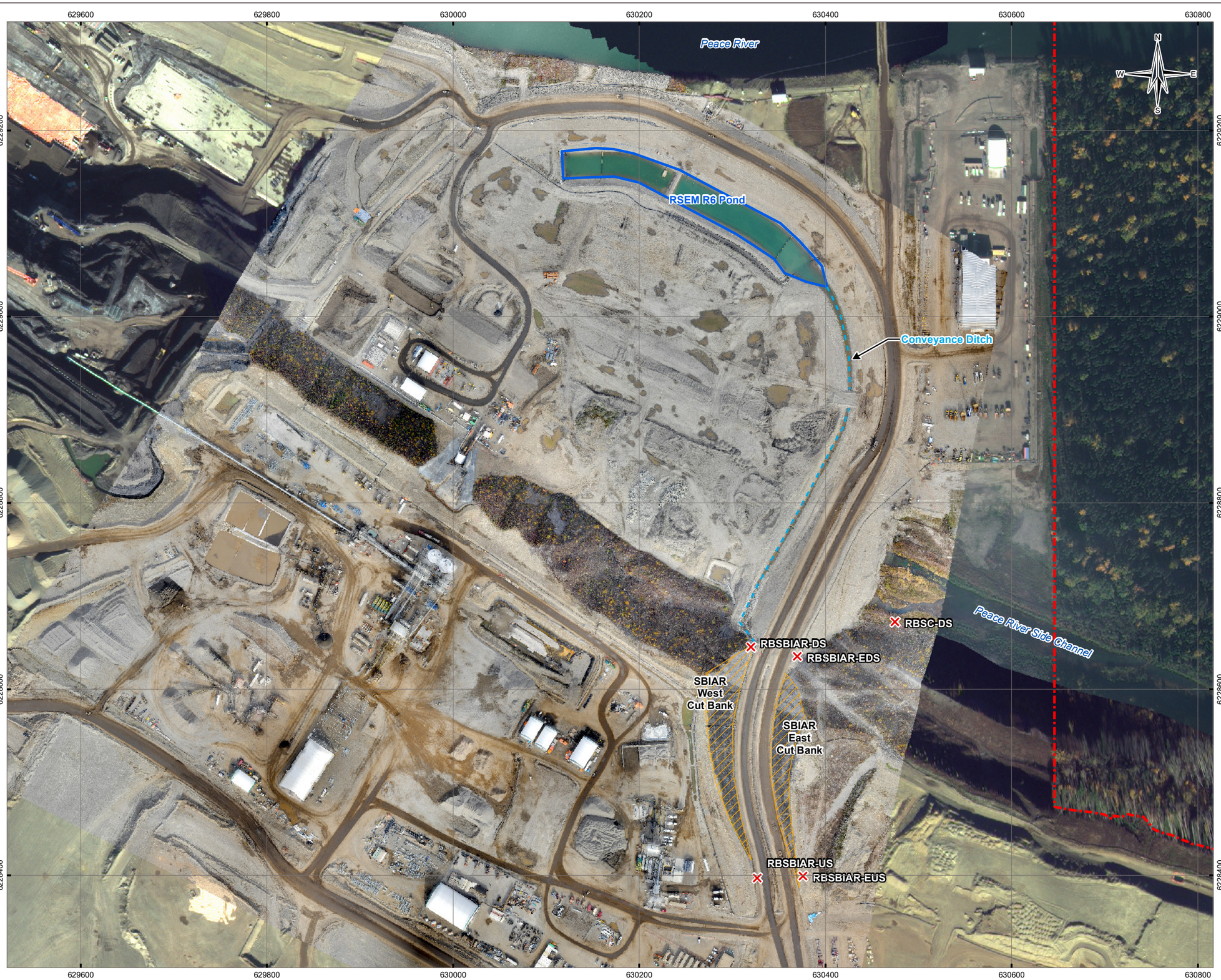
STATUS
ISSUED FOR REVIEW

WATER QUALITY MONITORING PLAN

Left Bank - River Road

PROJECTION UTM Zone 10	**DATUM** NAD83	**CLIENT** BC hydro	
Scale: 1:3,500 (50 25 0 50 Metres)			
FILE NO. VMIN03021-01_Map01_WaterSamplesLBRR_v3.mxd		TETRA TECH	
OFFICE Tt-VANC	**DWN** SL / **CKD** BB / **APVD** JB / **REV** 0		Map 1
DATE January 17, 2019	**PROJECT NO.** ENG.VMIN03021-01		

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LEGEND

- Water Sample (Insitu Testing & External Lab Testing)
- Ditch
- Cut Bank
- RSEM RG Pond
- Site C Project Boundary

NOTES
Base data source:
Imagery provided by the client (Oct 2017).

STATUS
ISSUED FOR USE

WATER QUALITY MONITORING PLAN

Right Bank - SBIAR

PROJECTION UTM Zone 10		**DATUM** NAD83			**CLIENT** BC hydro
Scale: 1:4,000 (80 40 0 80 Metres)					
FILE NO. VMIN03021-01_Map02_WaterSamplesRB.mxd					TETRA TECH
OFFICE Tt-VANC	**DWN** SL	**CKD** BB	**APVD** JB	**REV** 0	**Map 2**
DATE July 23, 2018	**PROJECT NO.** ENG.VMIN03021-01				

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LEGEND

- Water Sample (Insitu Testing & External Lab Testing)
- Culvert
- Ditch
- Ditch Diversion
- Howe Pit
- Blind Corner Outcrop
- Site C Project Boundary
- Original Watercourse

NOTES
Base data source:
Imagery provided by the client (Oct 2017).

STATUS
ISSUED FOR USE

WATER QUALITY MONITORING PLAN

Left Bank - L3 Creek

PROJECTION UTM Zone 10	**DATUM** NAD83				**CLIENT** BC hydro
Scale: 1:10,000 (200 100 0 200 Metres)					TETRA TECH
FILE NO. VMIN03021-01_Map03_WaterSamplesLBL3.mxd					
OFFICE Tt-VANC	**DWN** SL	**CKD** BB	**APVD** JB	**REV** 0	Map 3
DATE May 30, 2018	**PROJECT NO.** ENG.VMIN03021-01				

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Figure 4: BC Hydro – Site C Meteorological and Air Quality Stations

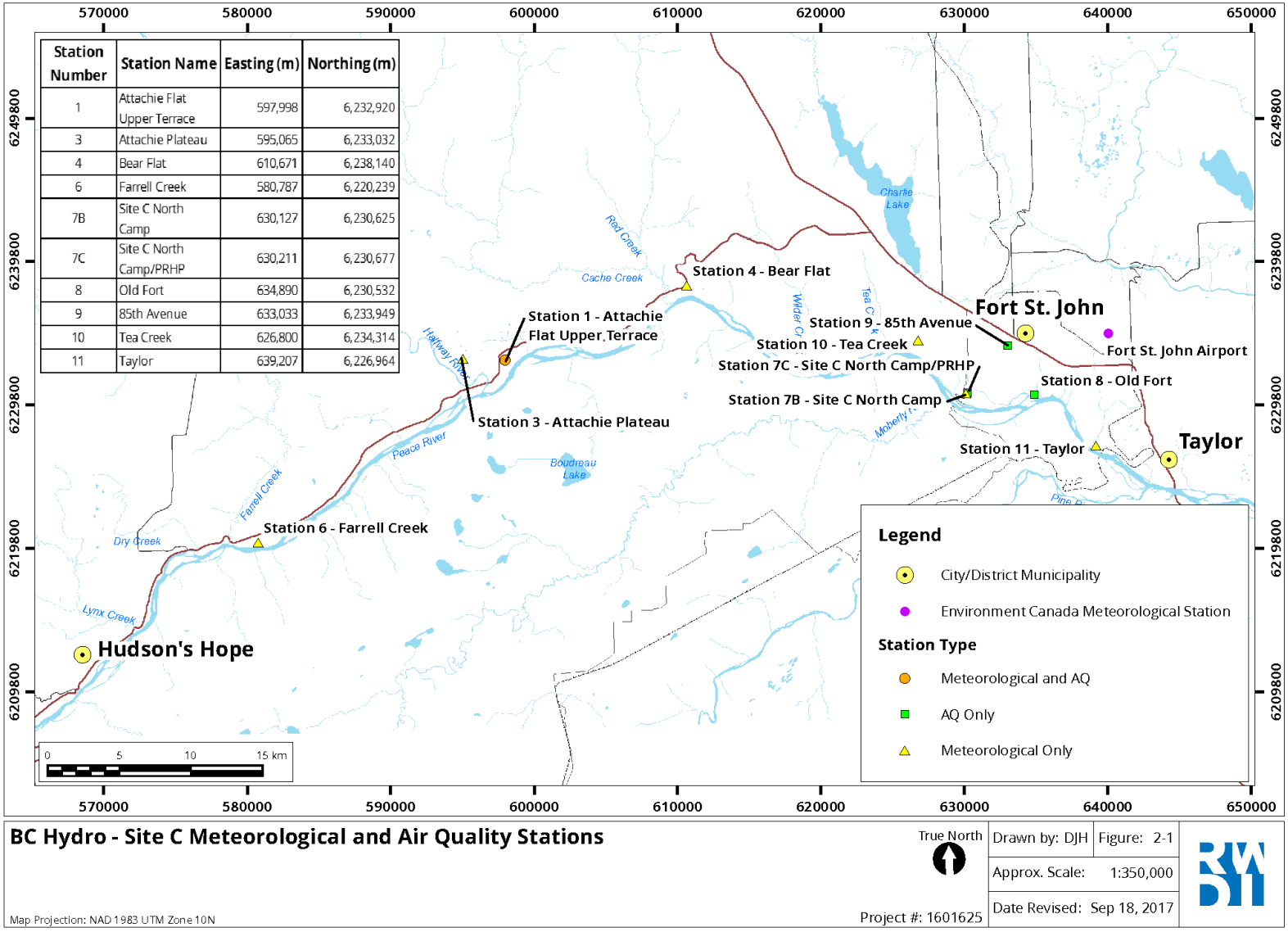


Figure 5: Total Alkalinity and pH at River Road Locations

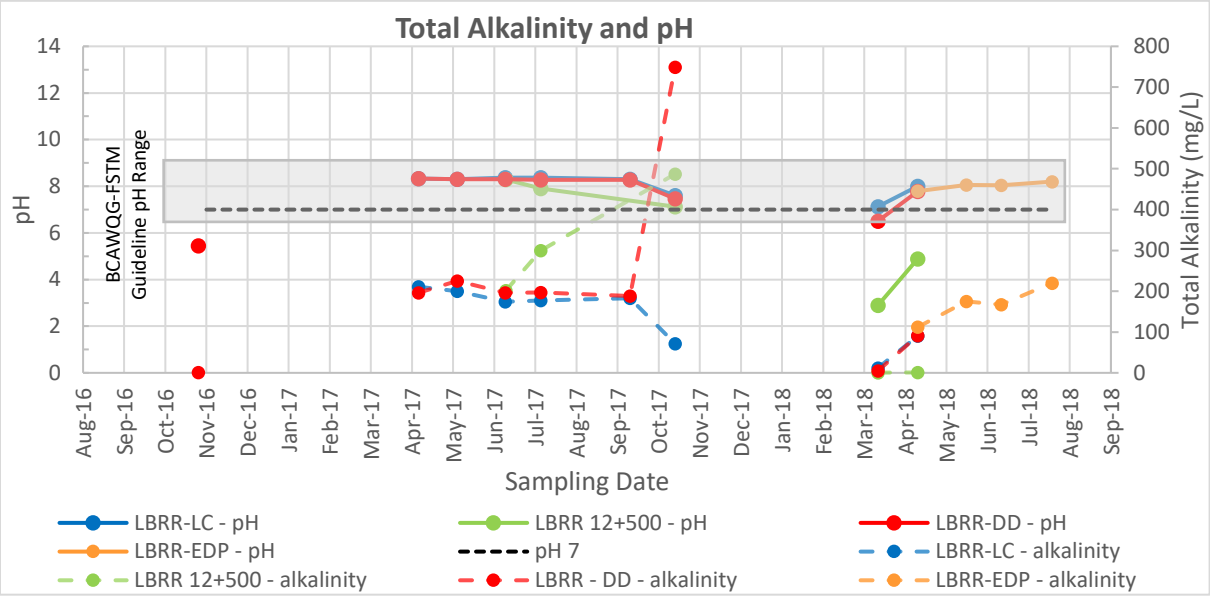


Figure 6: Total Dissolved and Total Suspended Solids at River Road Locations

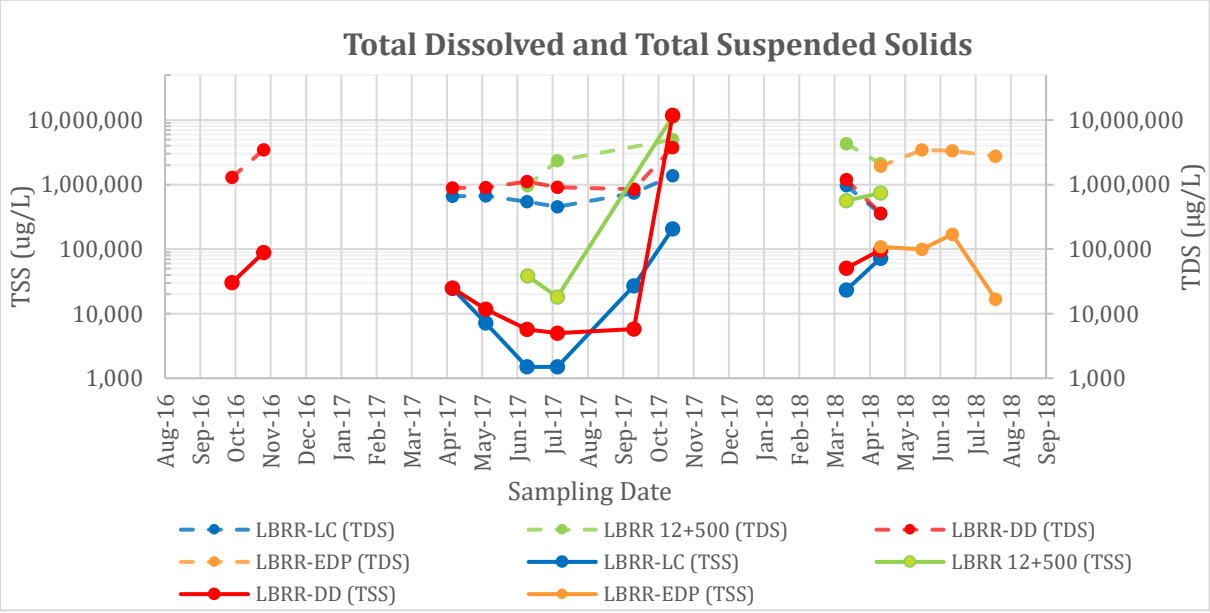


Figure 7: Sulphate at River Road Locations

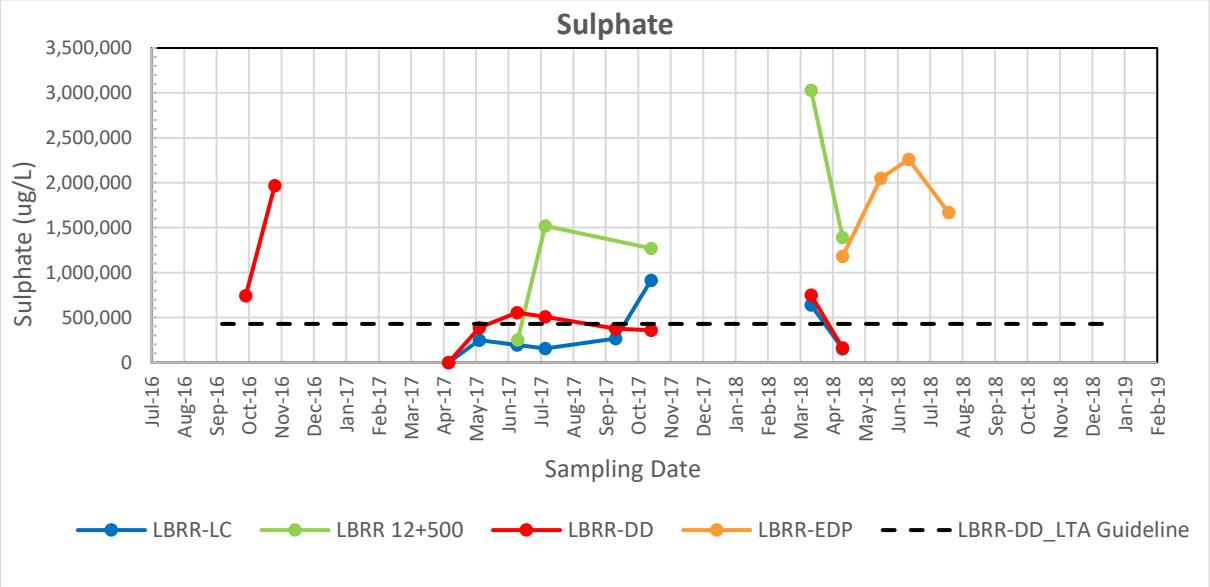


Figure 8: Aluminum (Total and Dissolved) at River Road Locations

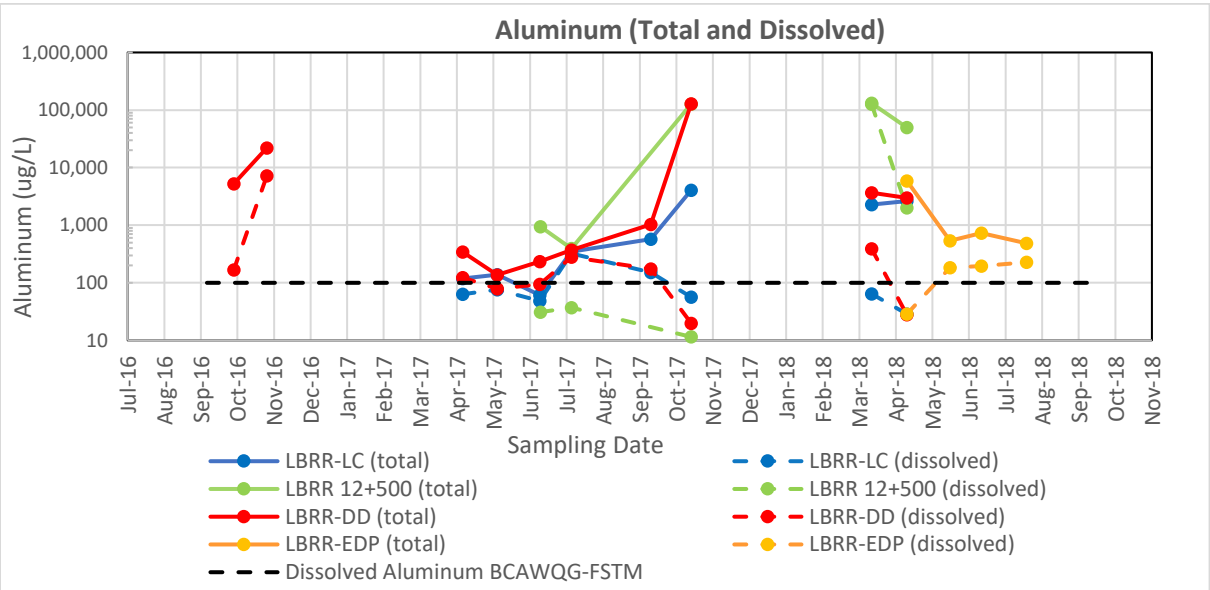


Figure 9: Iron (Total and Dissolved) at River Road Locations

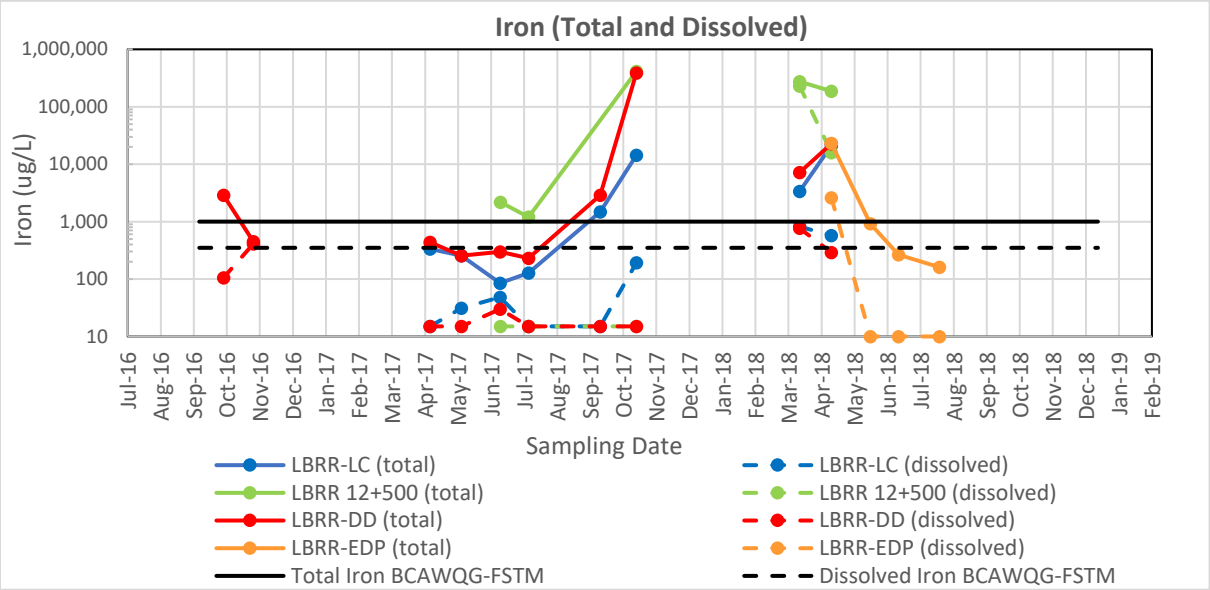


Figure 10: Arsenic (Total and Dissolved) at River Road Locations

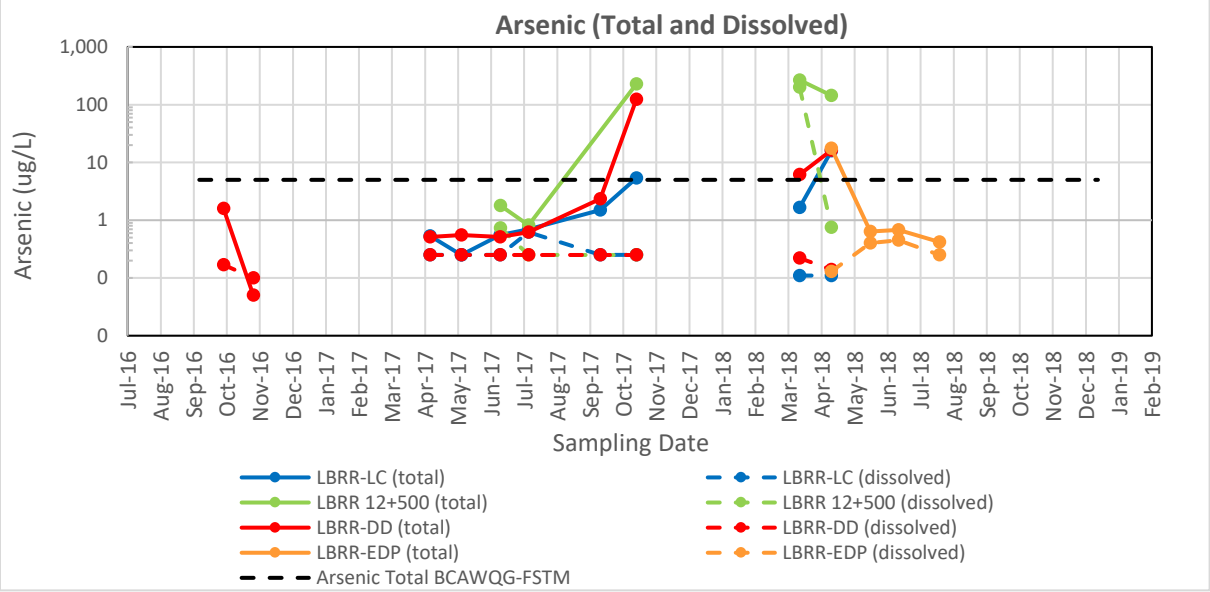


Figure 11: Cadmium (Total and Dissolved) at River Road Locations

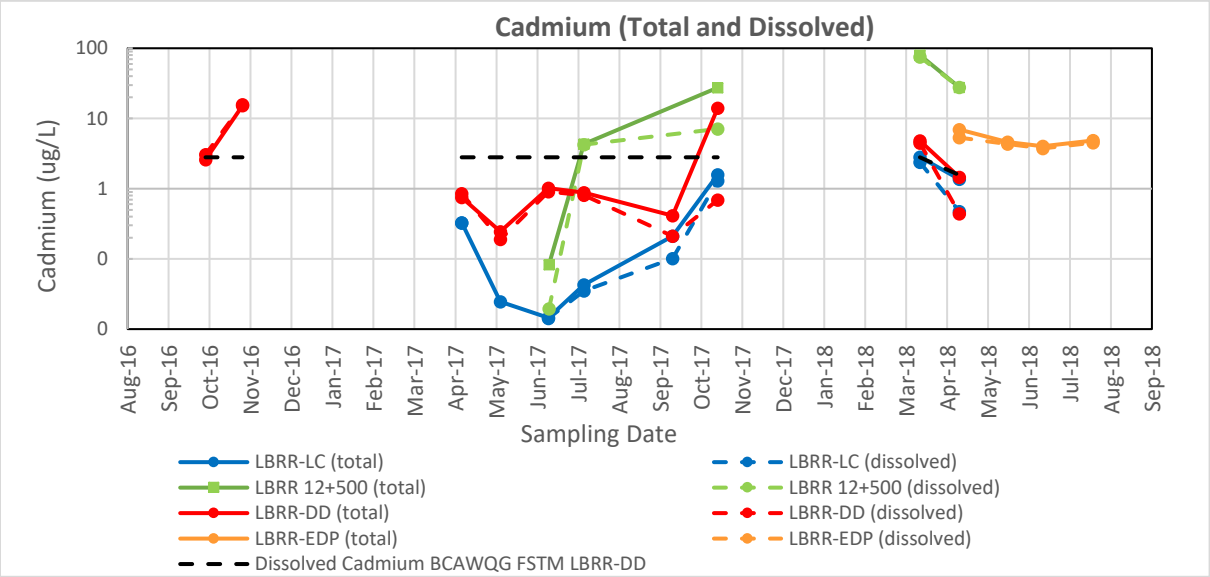


Figure 12: Cobalt (Total and Dissolved) at River Road Locations

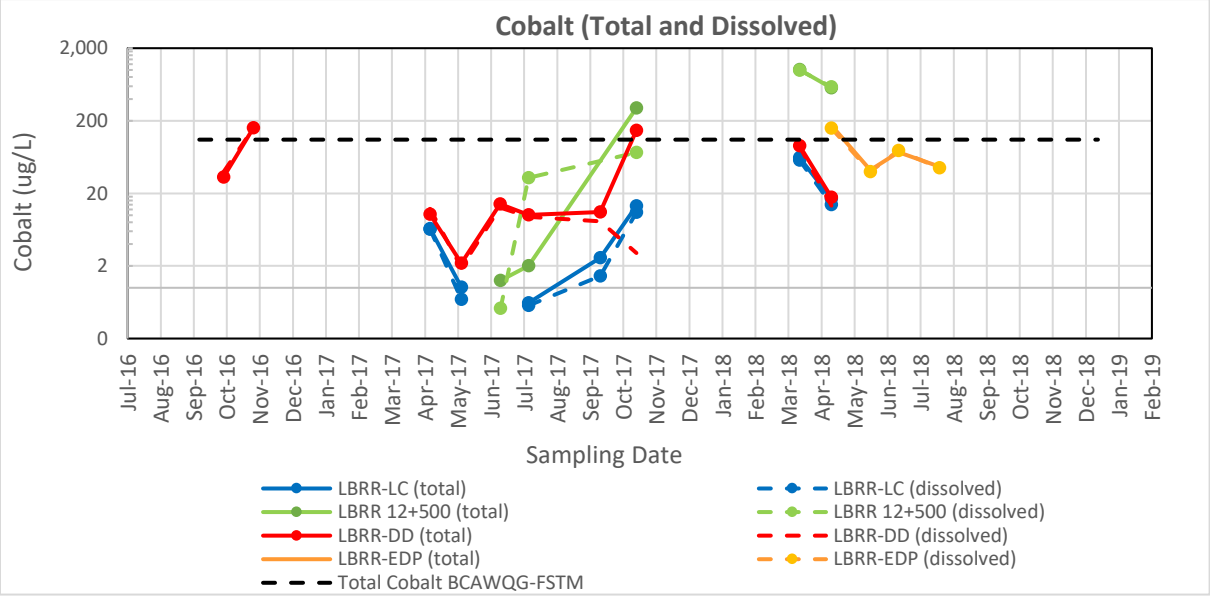


Figure 13: Copper (Total and Dissolved) at River Road Locations

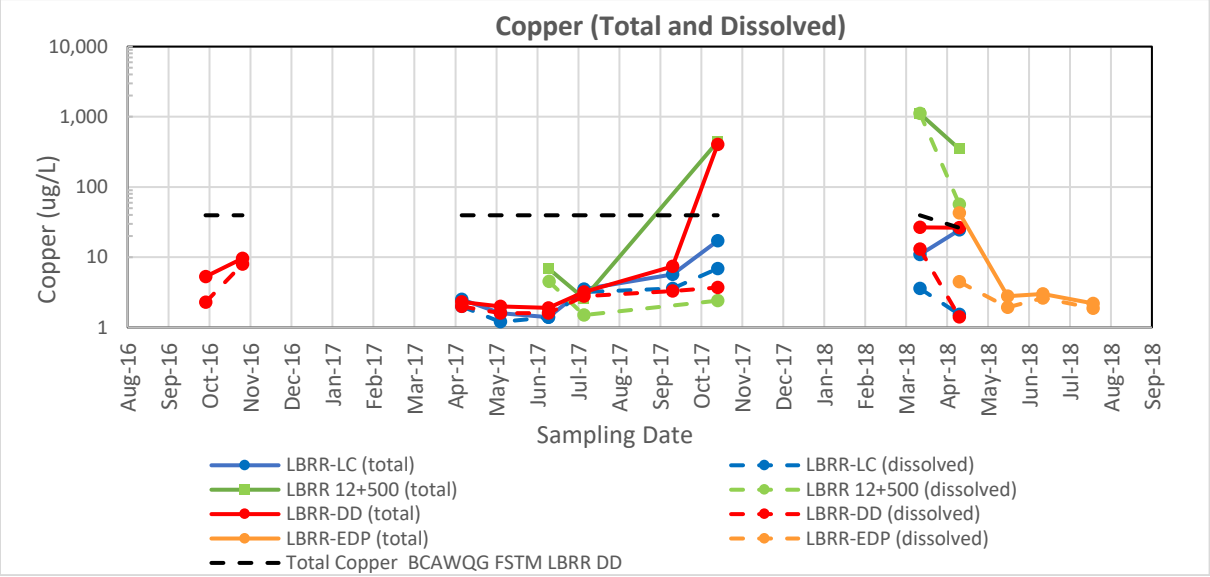


Figure 14: Zinc (Total and Dissolved) at River Road Locations

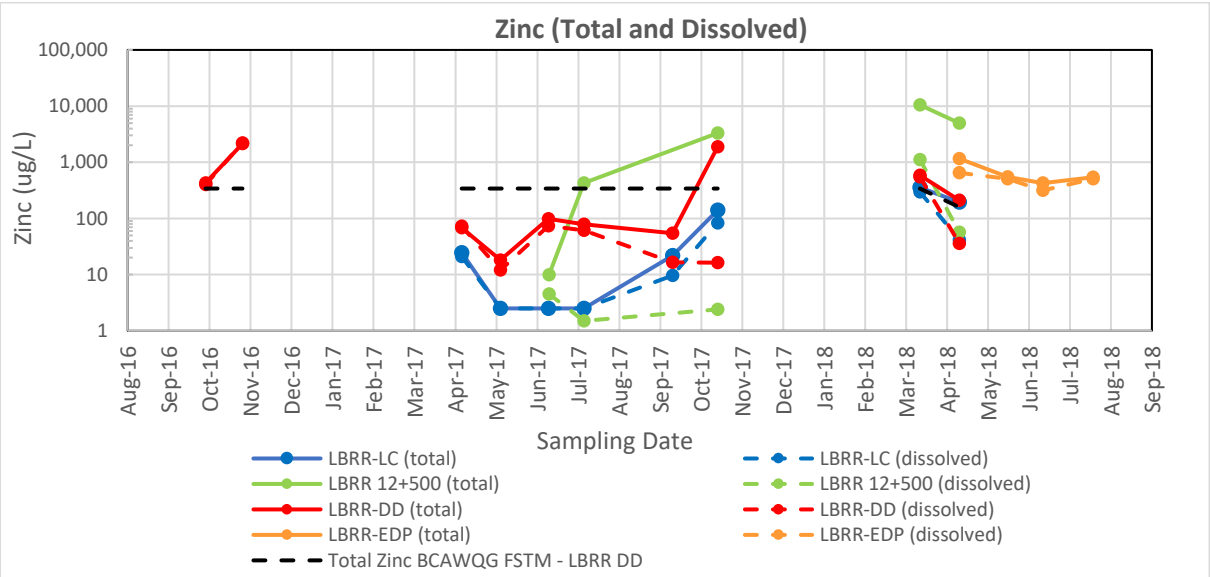


Figure 15a: pH at SBIAR Locations

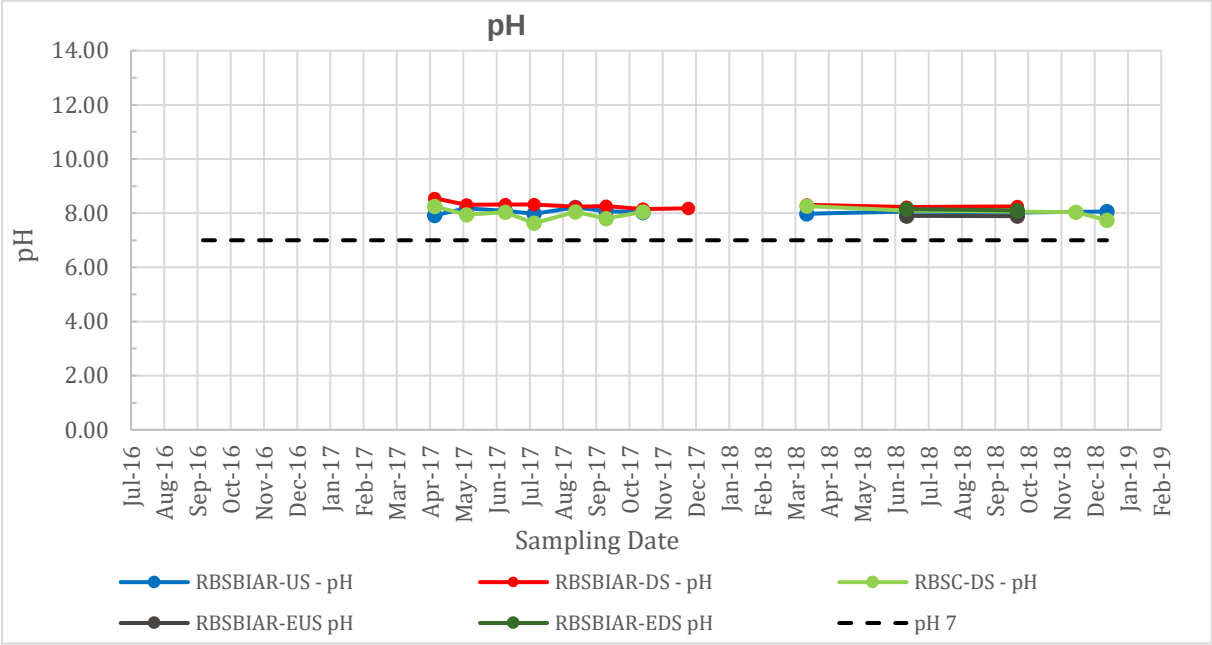


Figure 15b: Alkalinity at SBIAR Locations

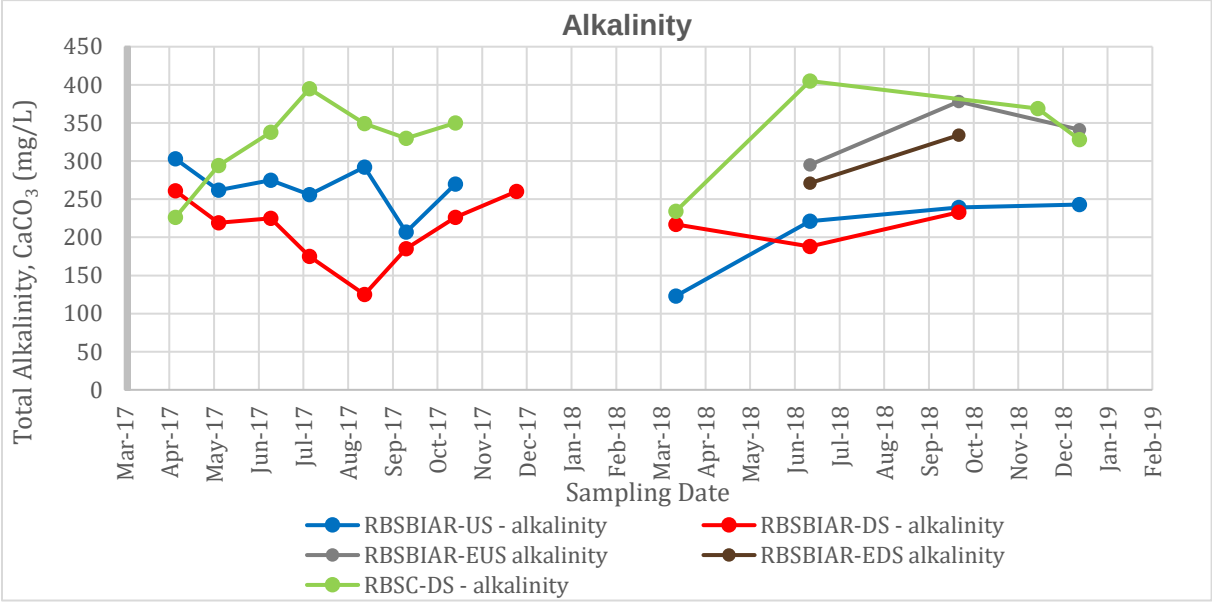


Figure 16a: Total Dissolved Solids at SBIAR Locations

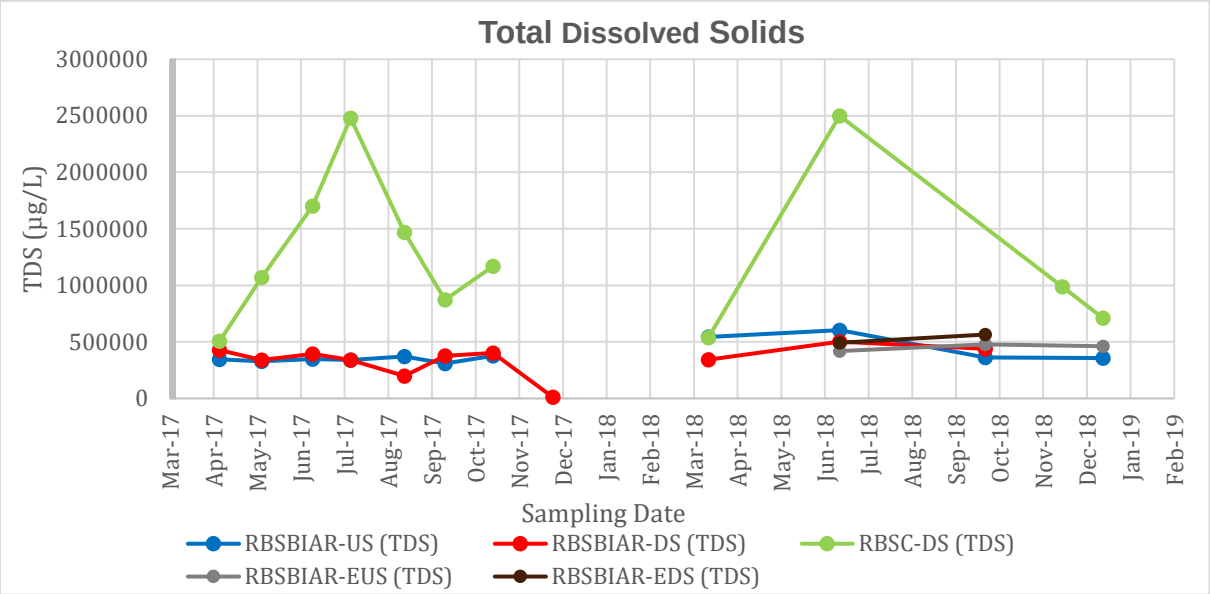


Figure 16b: Total Suspended Solids at SBIAR Locations

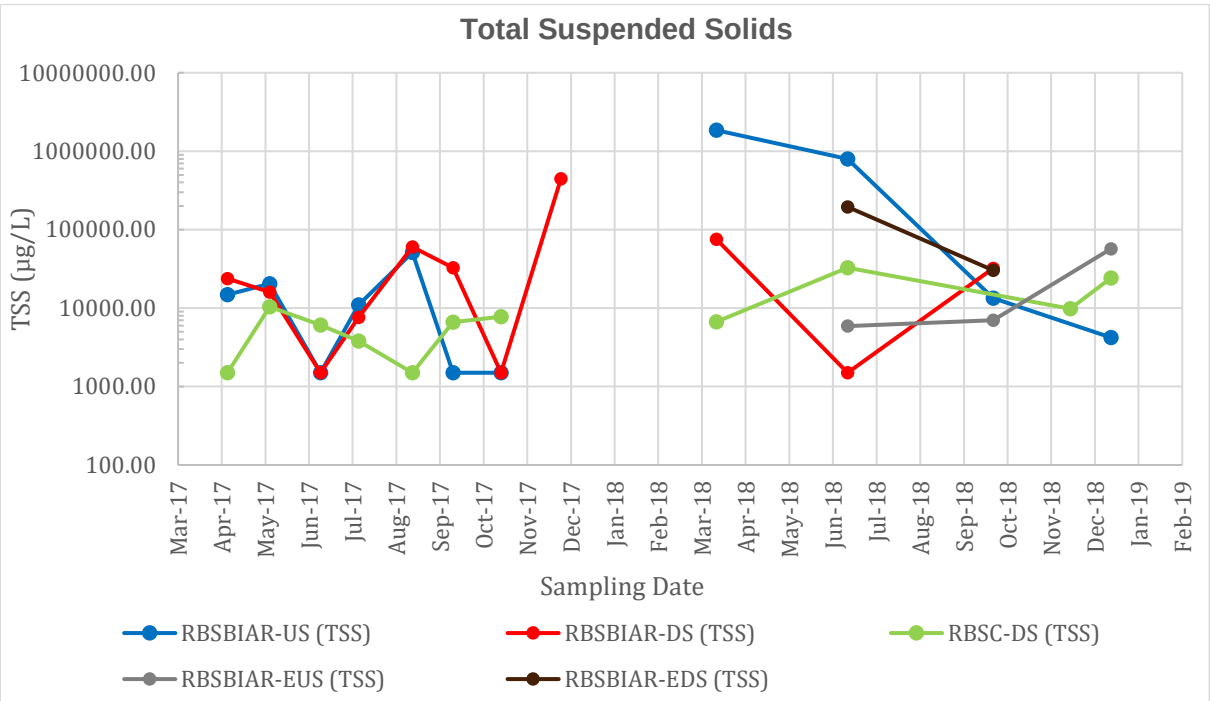


Figure 17: Sulphate at SBIAR Locations

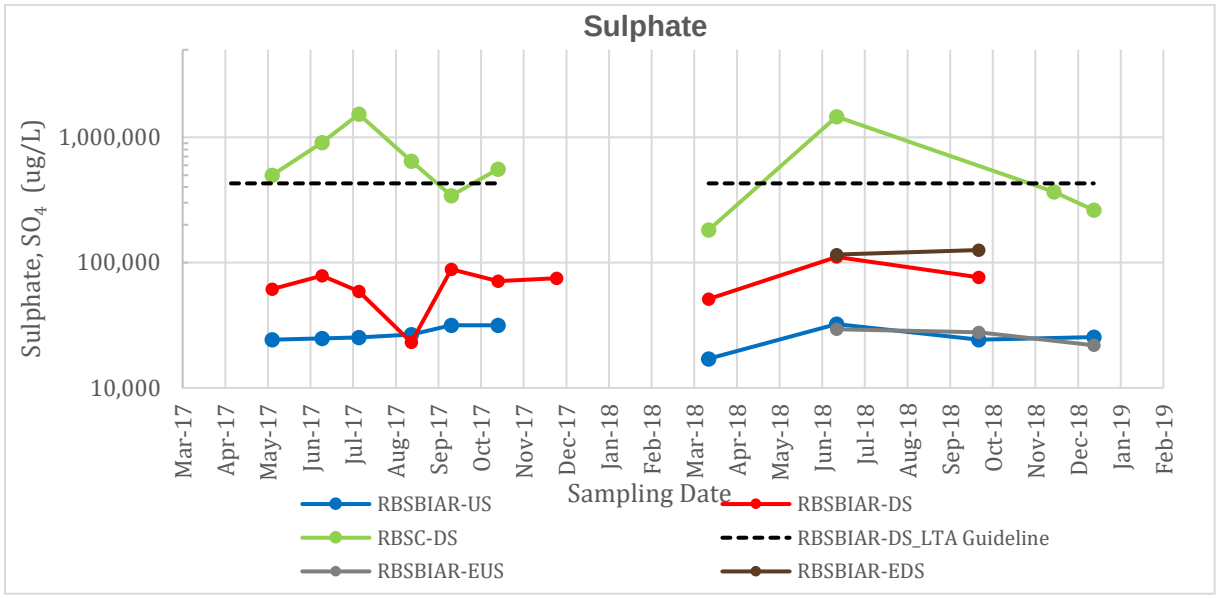


Figure 18: Aluminum (Total and Dissolved) at SBIAR Locations

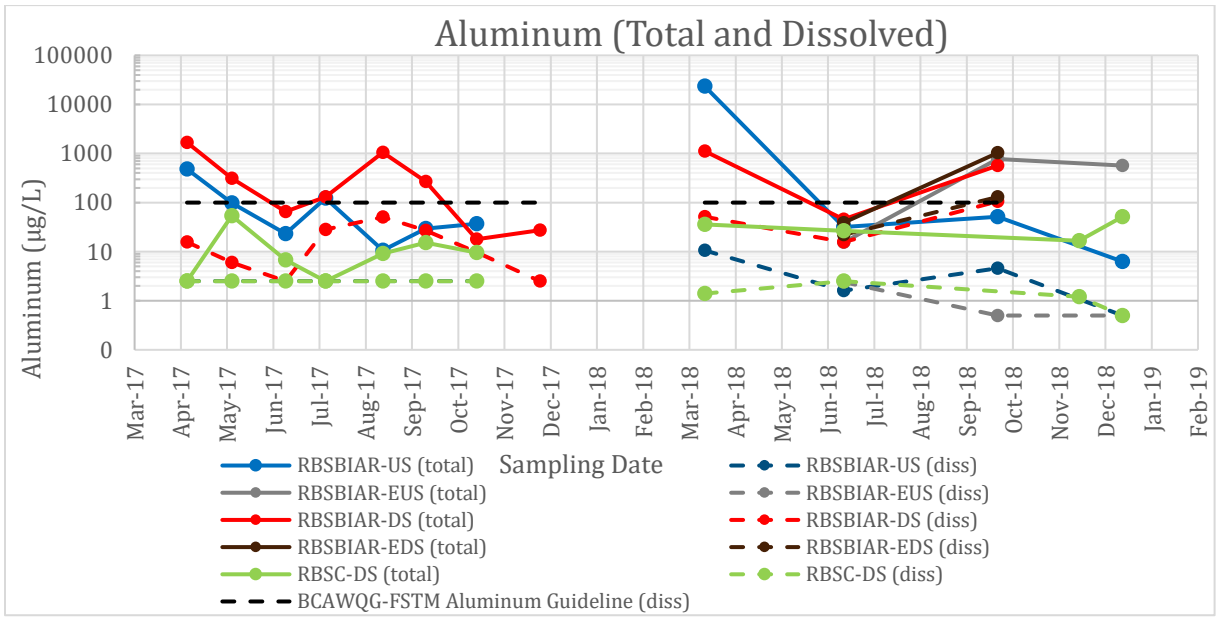


Figure 19: Iron (Total and Dissolved) at SBIAR Locations

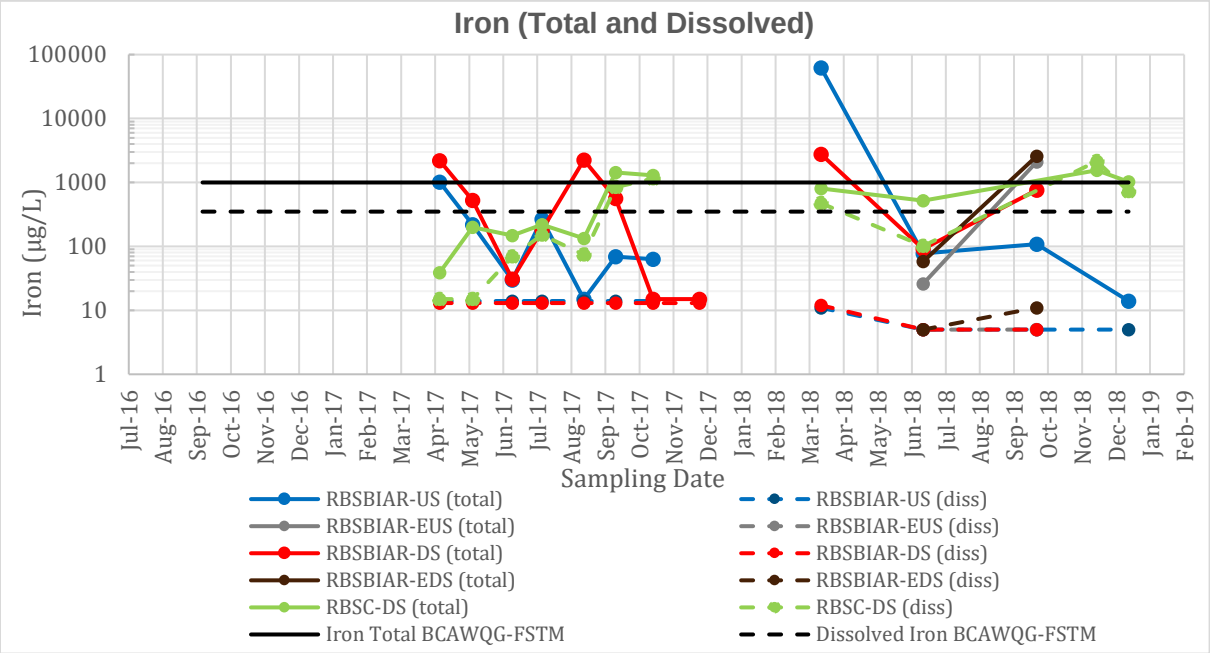


Figure 20: Arsenic (Total and Dissolved) at SBIAR Locations

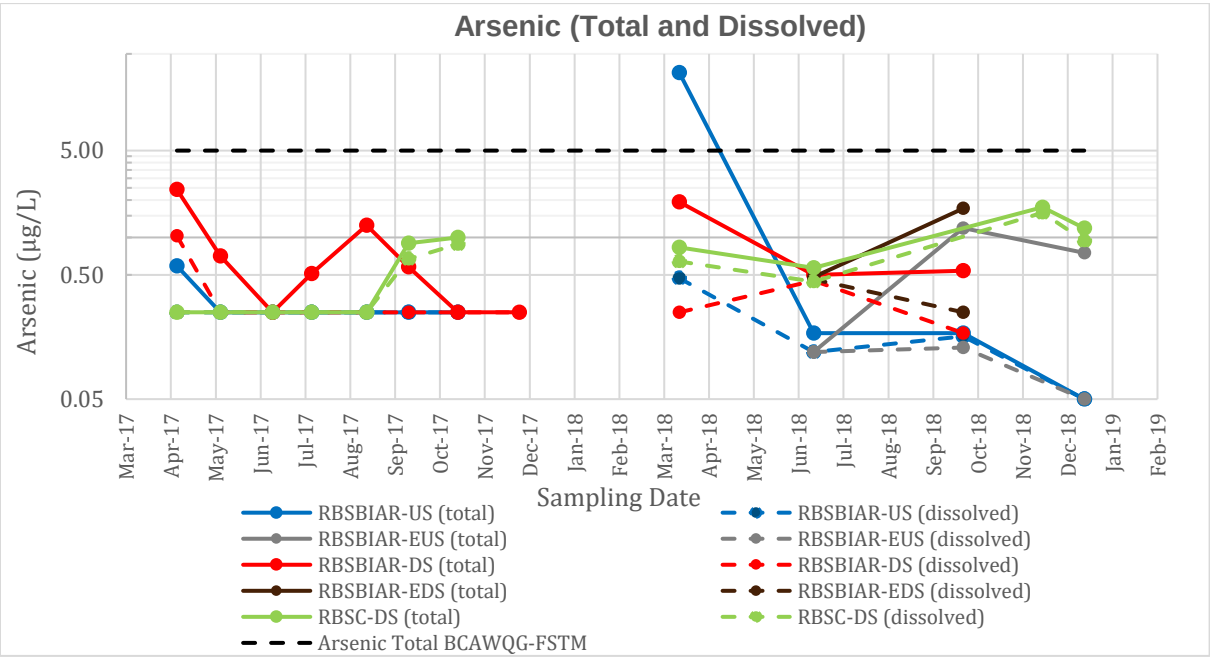


Figure 21: Cadmium (Total and Dissolved) at SBIAR Locations

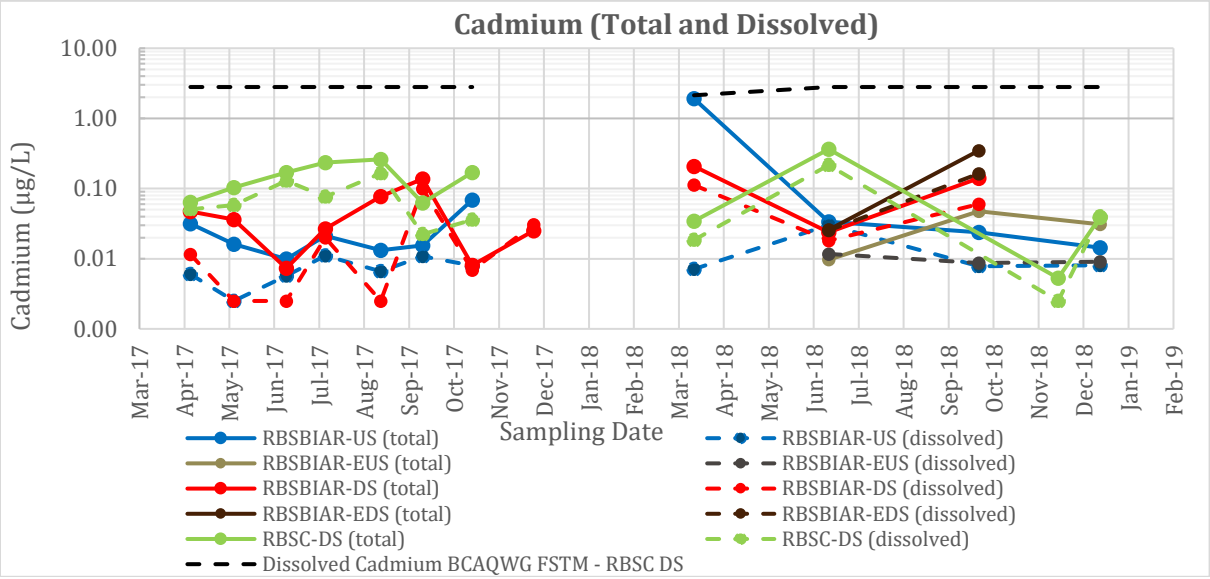


Figure 22: Cobalt (Total and Dissolved) at SBIAR Locations

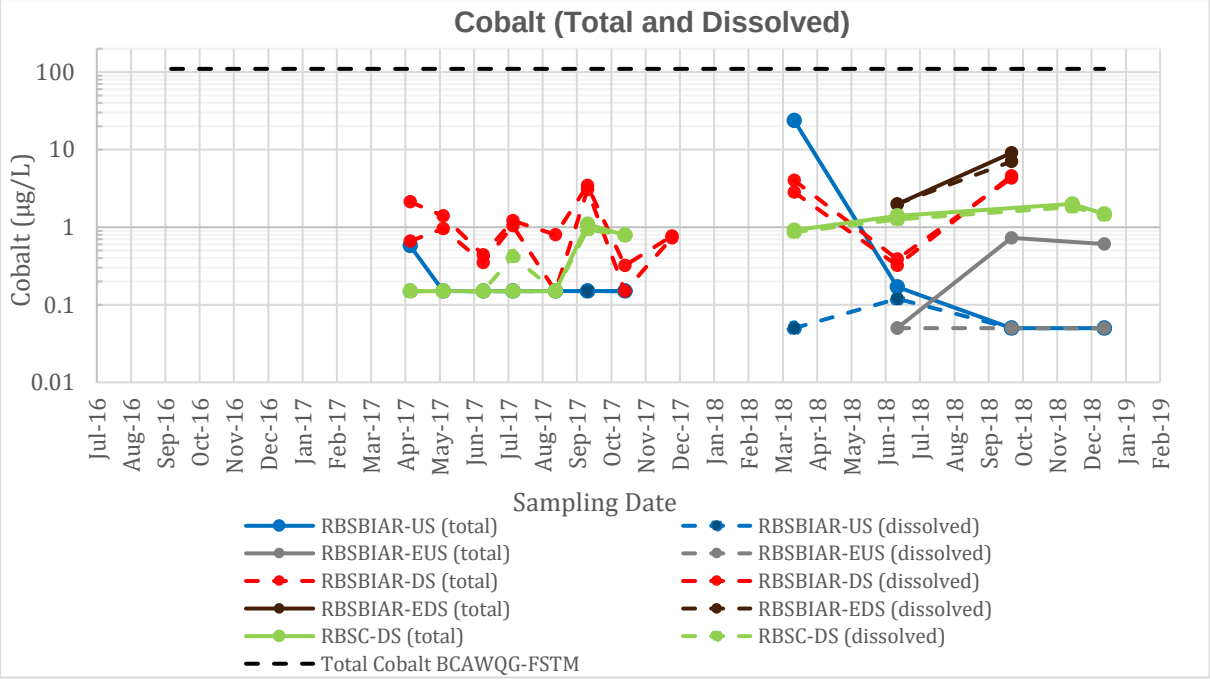


Figure 23: Copper (Total and Dissolved) at SBIAR Locations

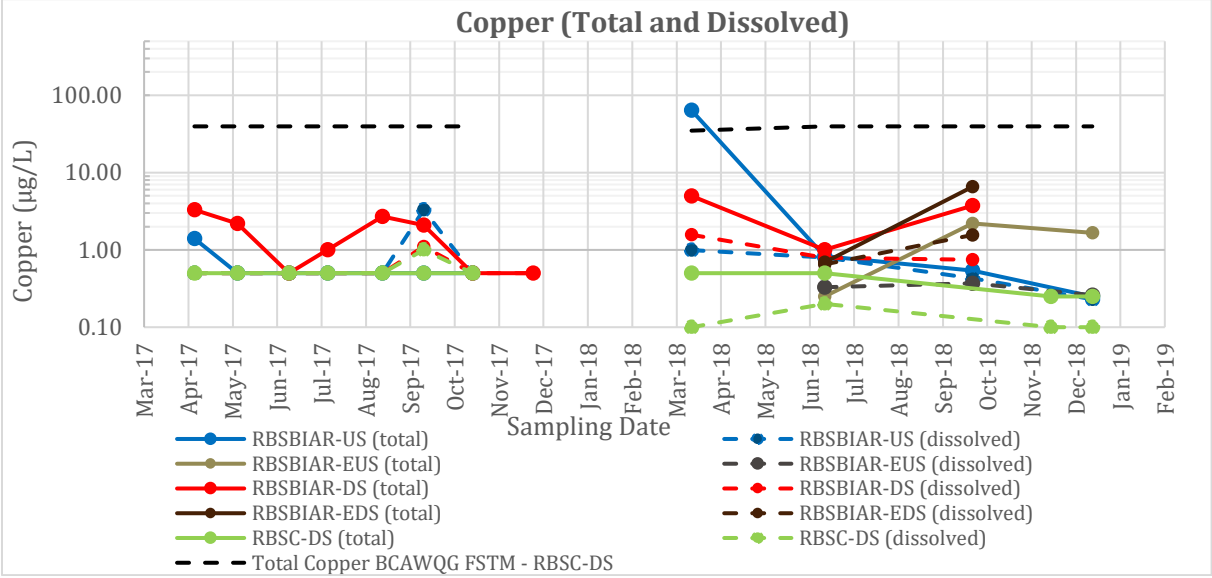


Figure 24: Zinc (Total and Dissolved) at SBIAR Locations

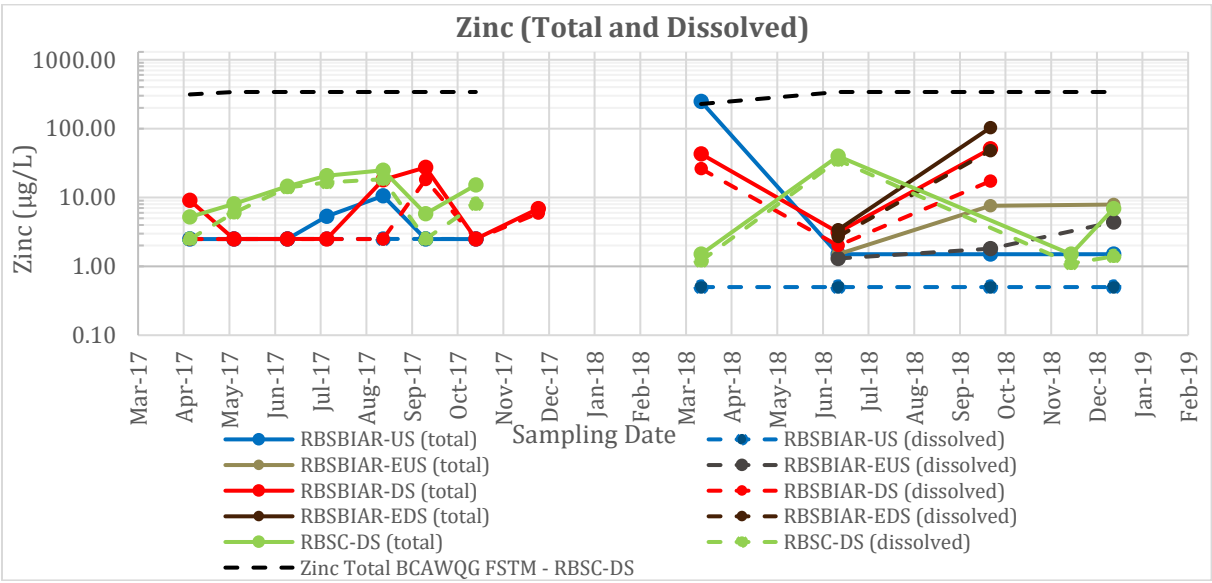


Figure 25: Total Alkalinity and pH at L3 Creek Locations

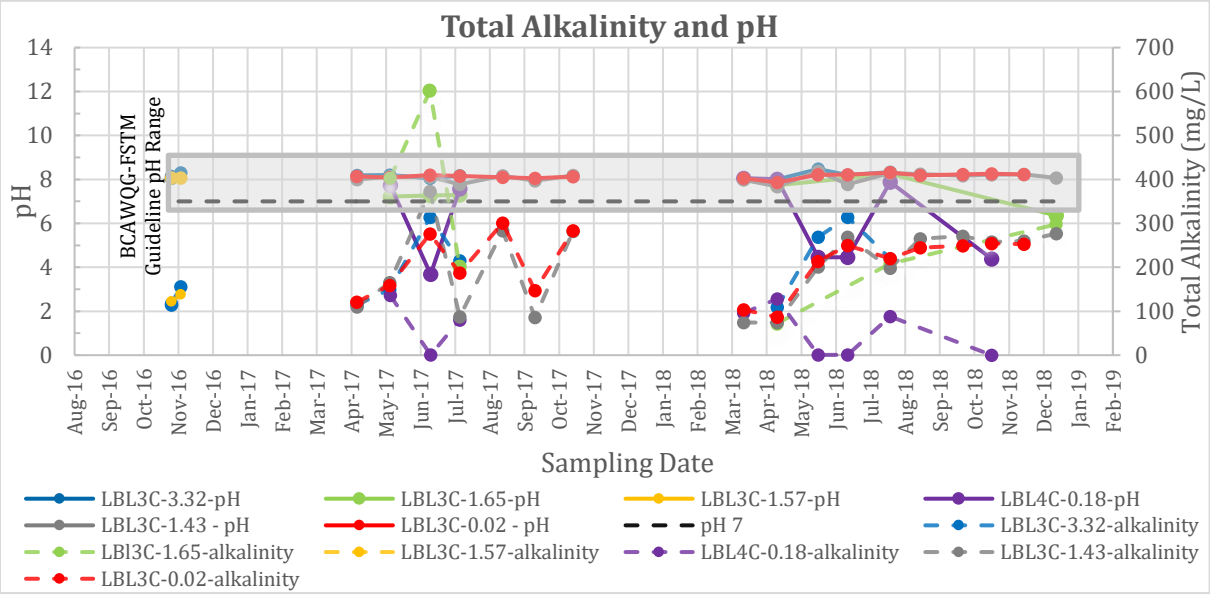


Figure 26: Total Dissolved and Total Suspended Solids at L3 Creek Locations

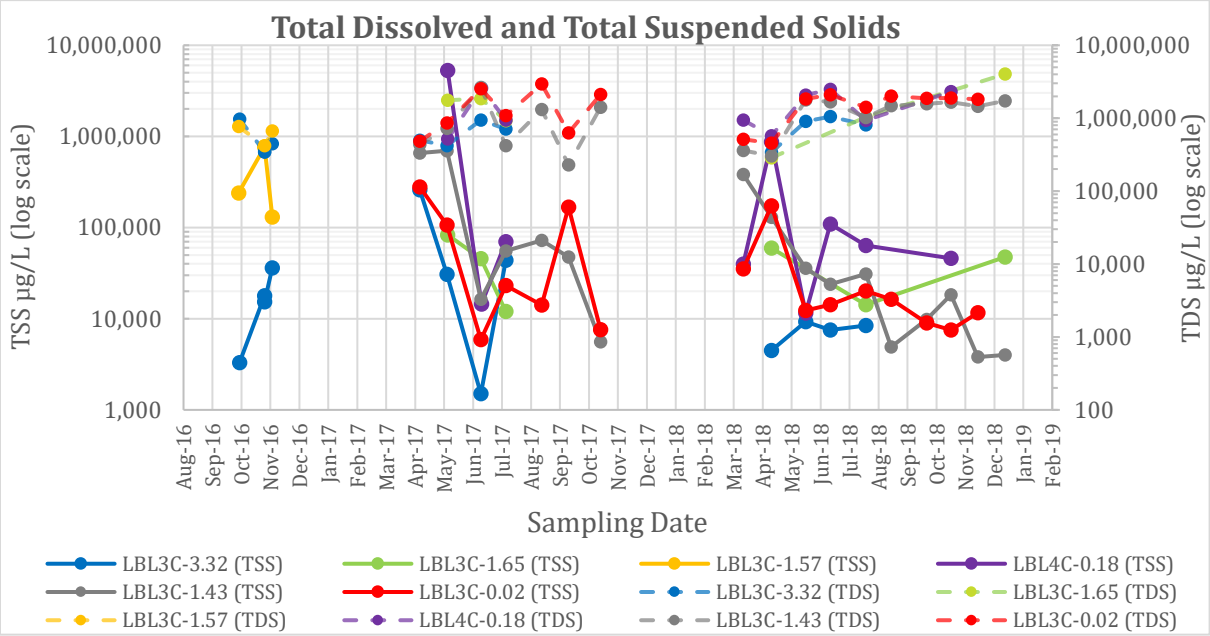


Figure 27: Sulphate at L3 Creek Locations

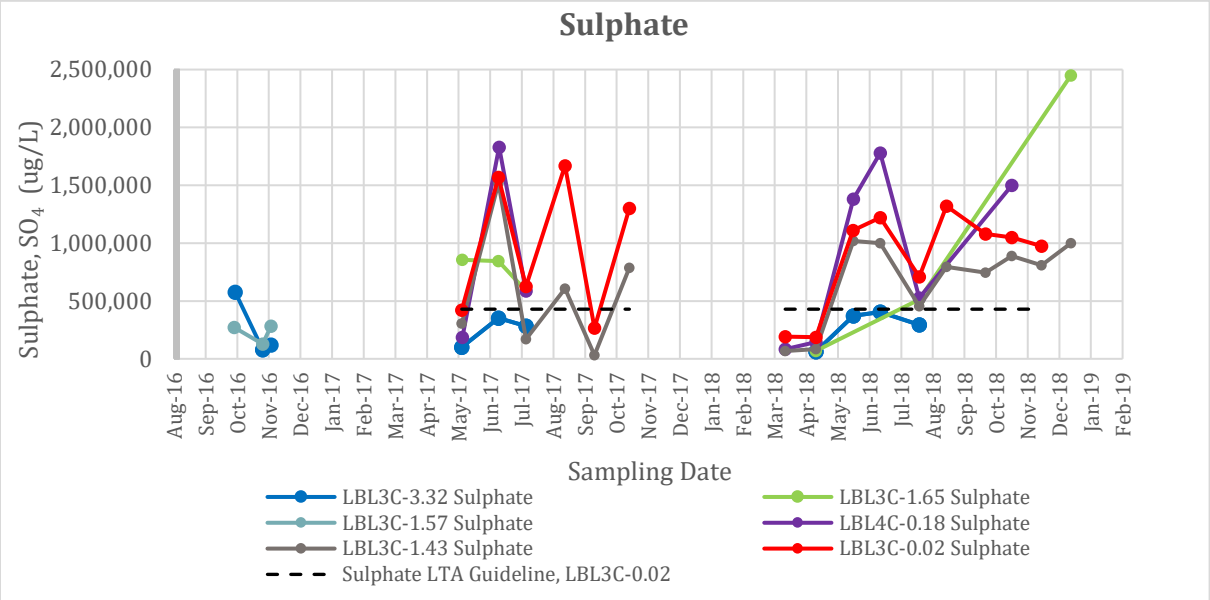


Figure 28a: Aluminum (Total) at L3 Creek Locations

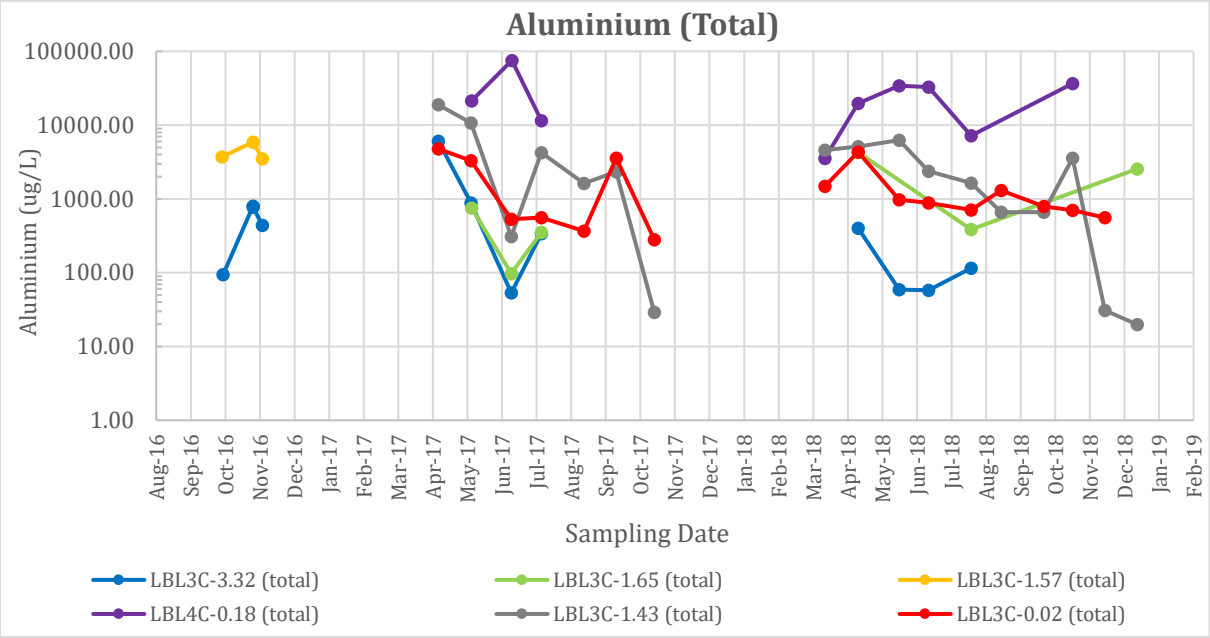


Figure 28b: Aluminium (Dissolved) at L3 Creek Locations

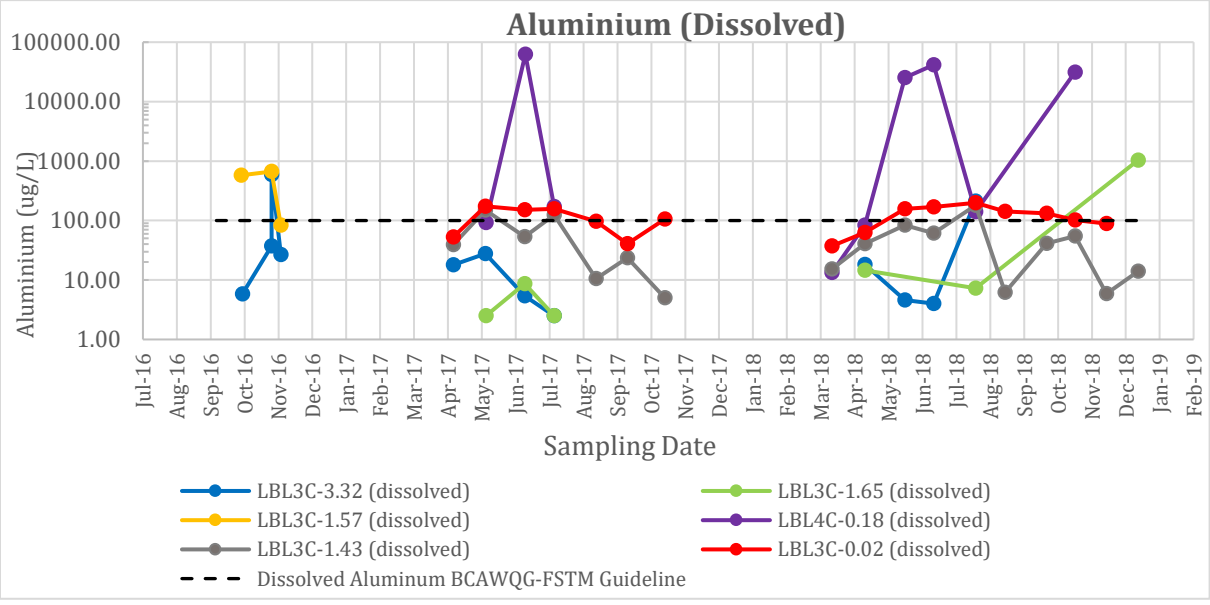


Figure 29a: Iron (Total) at L3 Creek Locations

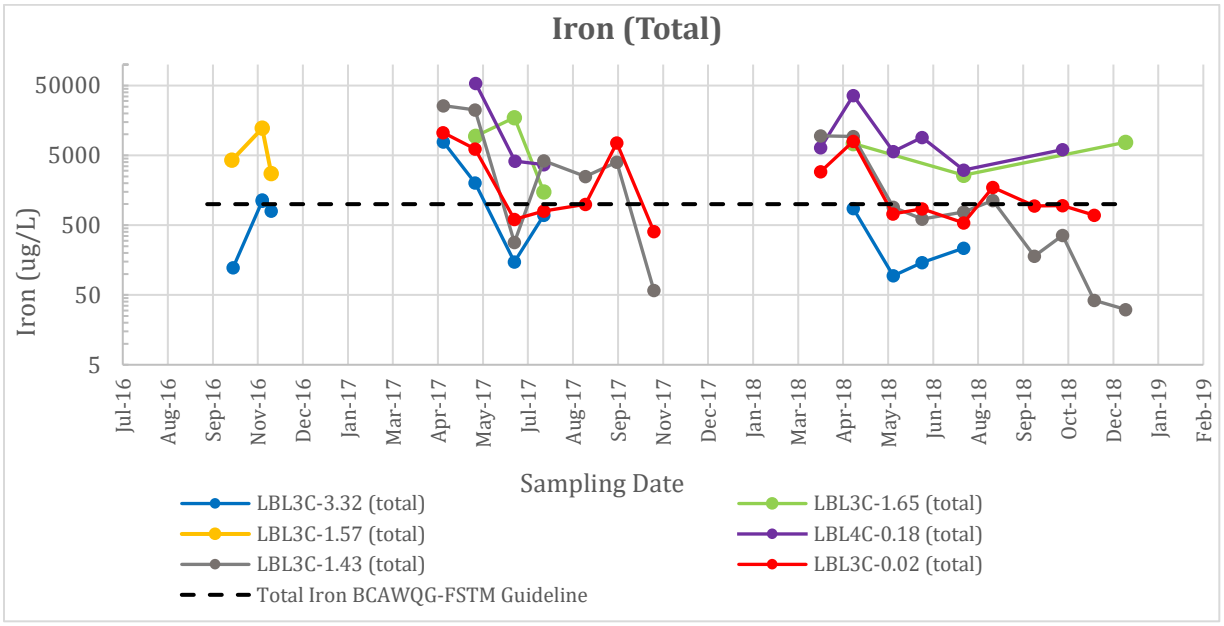


Figure 29b: Iron (Dissolved) at L3 Creek Locations

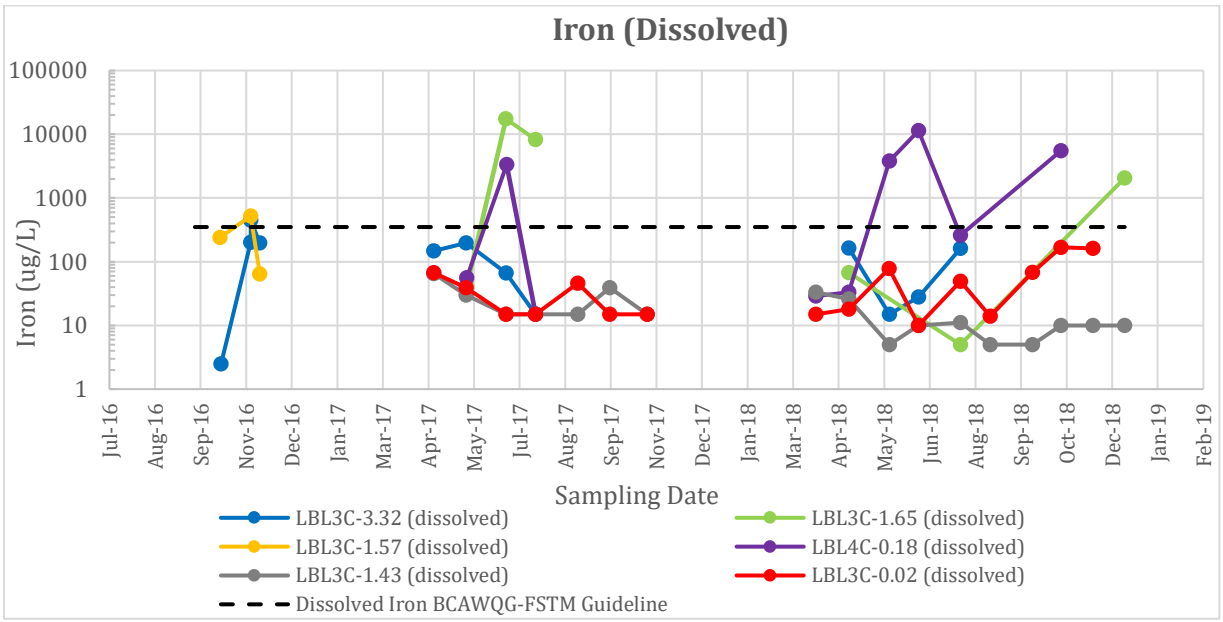


Figure 30a: Arsenic (Total) at L3 Creek Locations

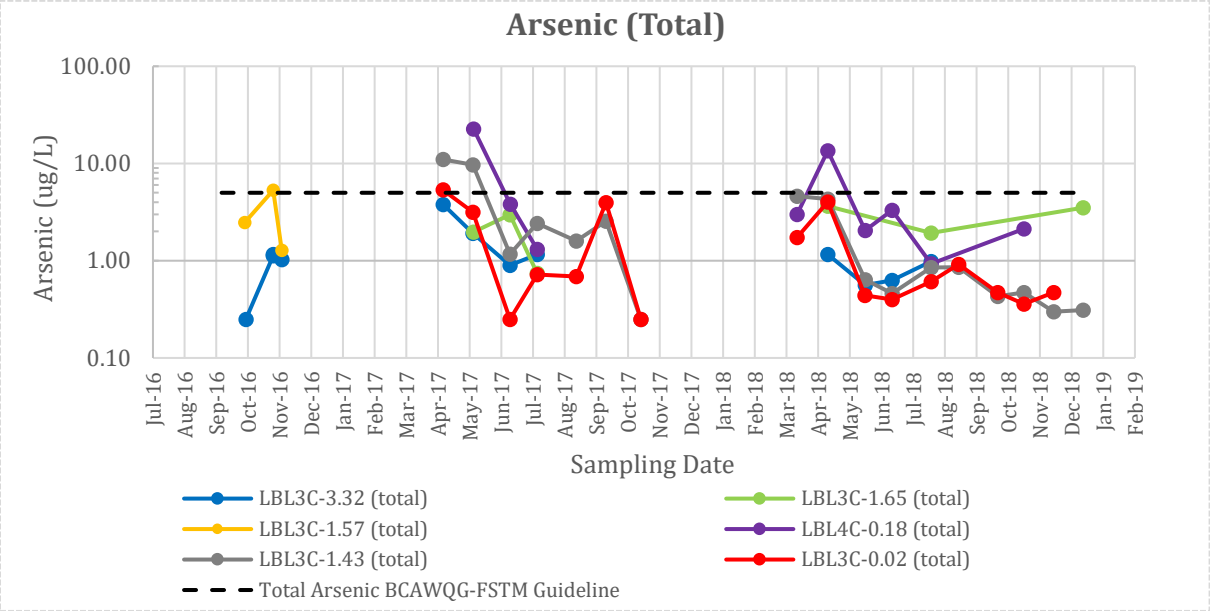


Figure 30b: Arsenic (Dissolved) at L3 Creek Locations

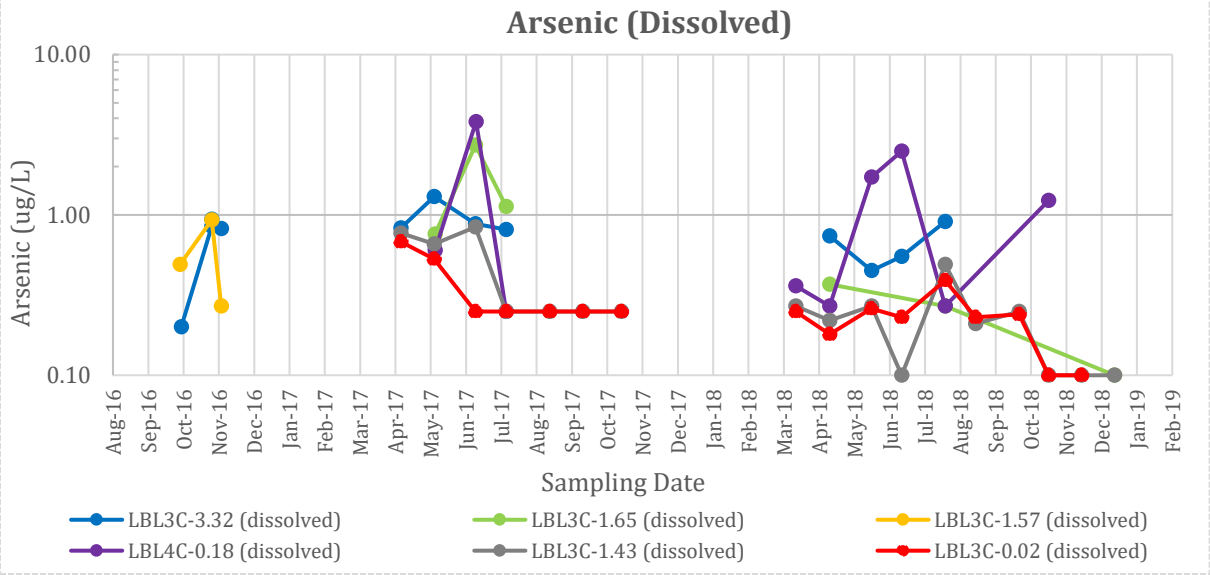


Figure 31a: Cadmium (Total) at L3 Creek Locations

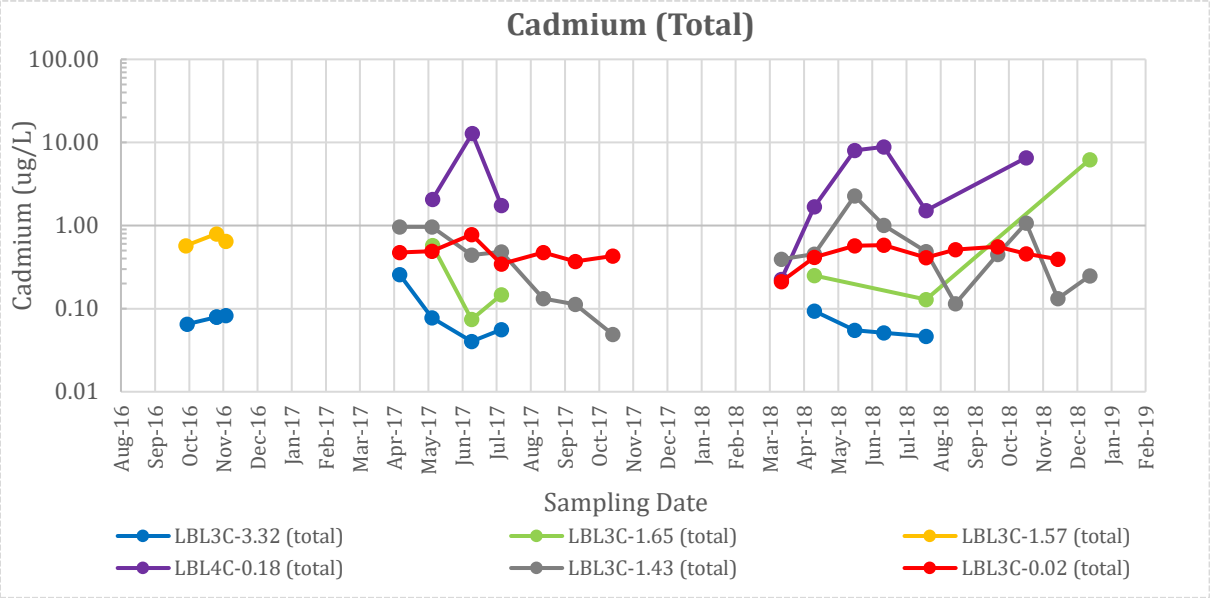


Figure 31b: Cadmium (Dissolved) at L3 Creek Locations

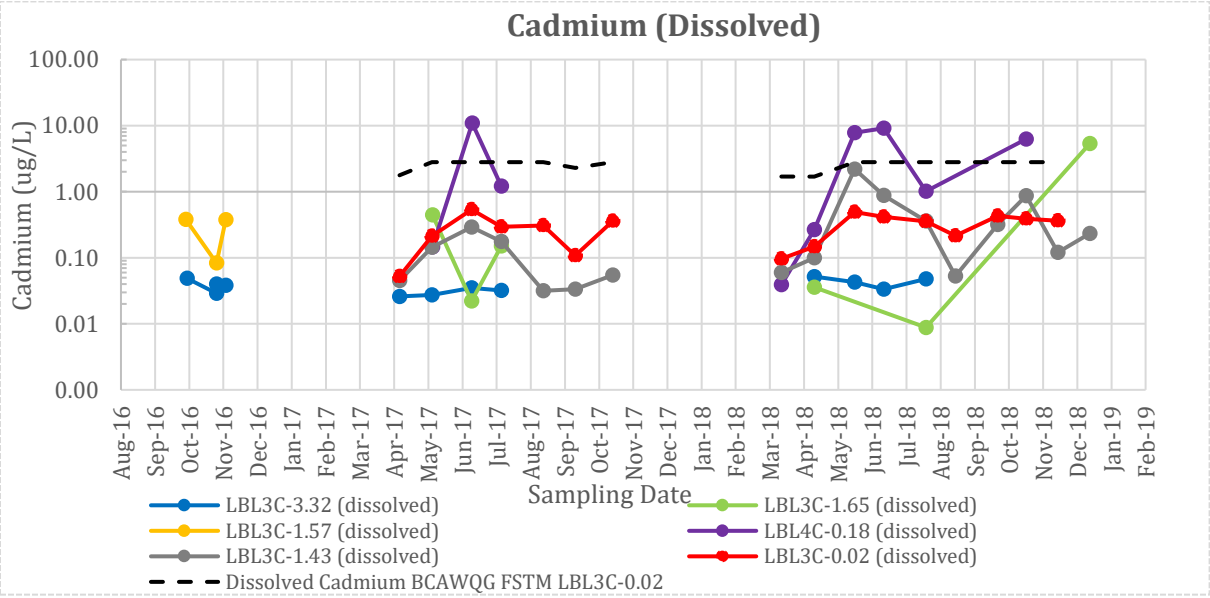


Figure 32a: Cobalt (Total) at L3 Creek Locations

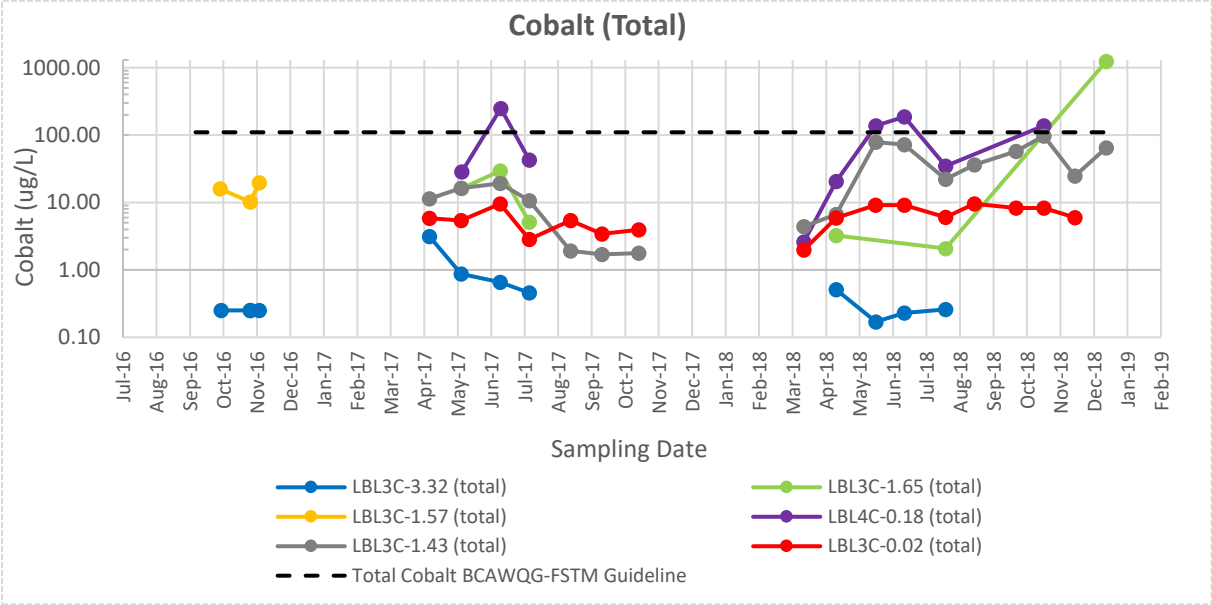


Figure 32b: Cobalt (Dissolved) at L3 Creek Locations

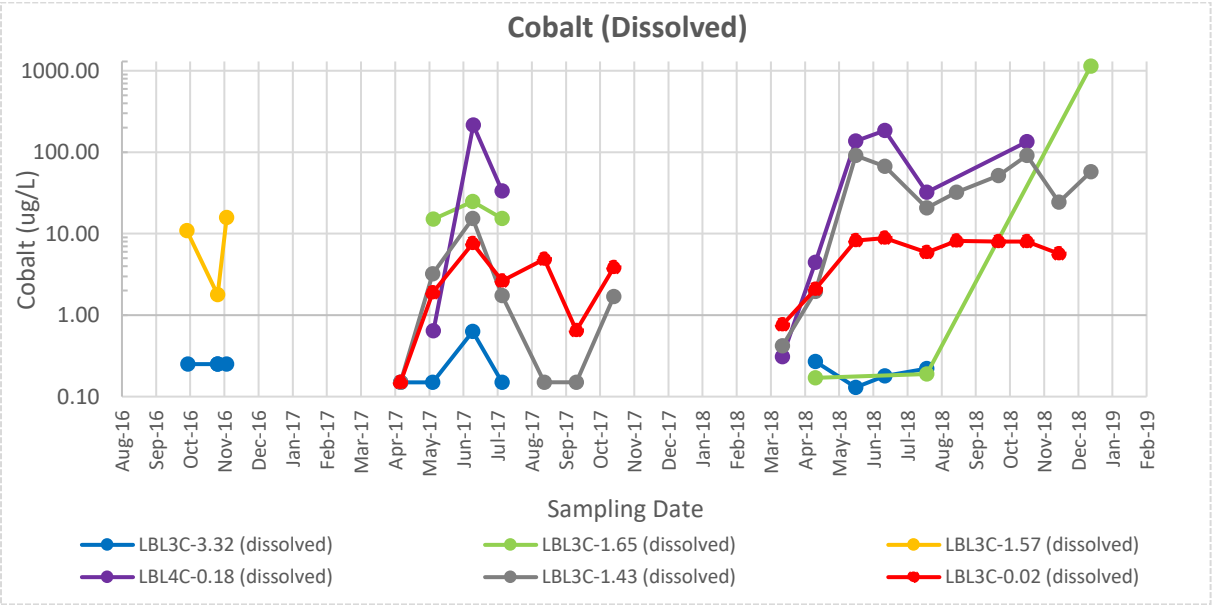


Figure 33a: Copper (Total) at L3 Creek Locations

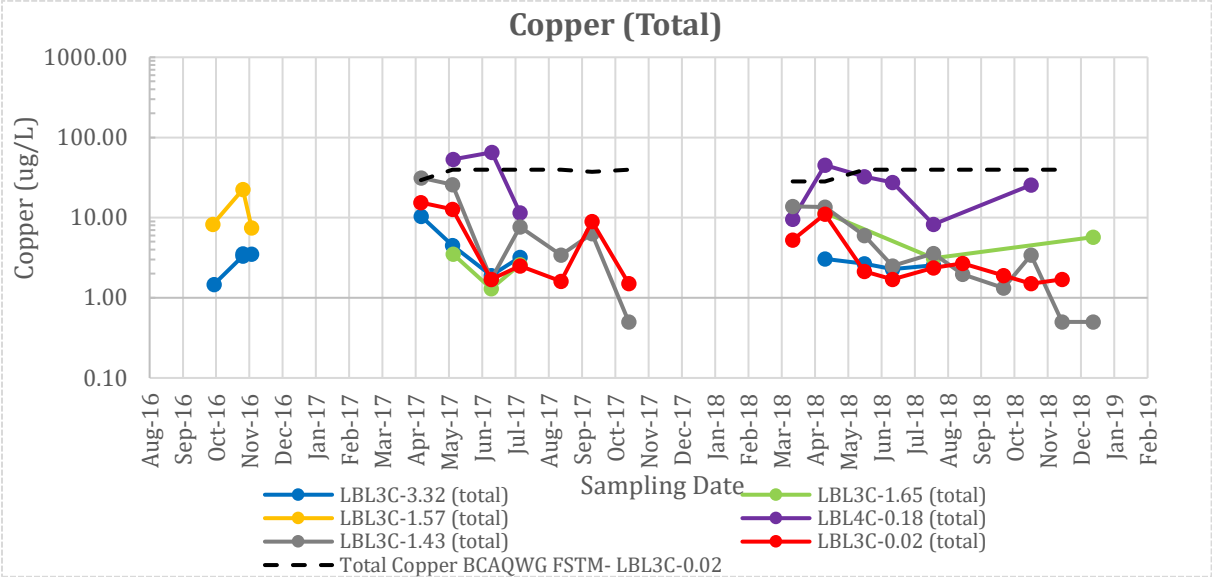


Figure 33b: Copper (Dissolved) at L3 Creek Locations

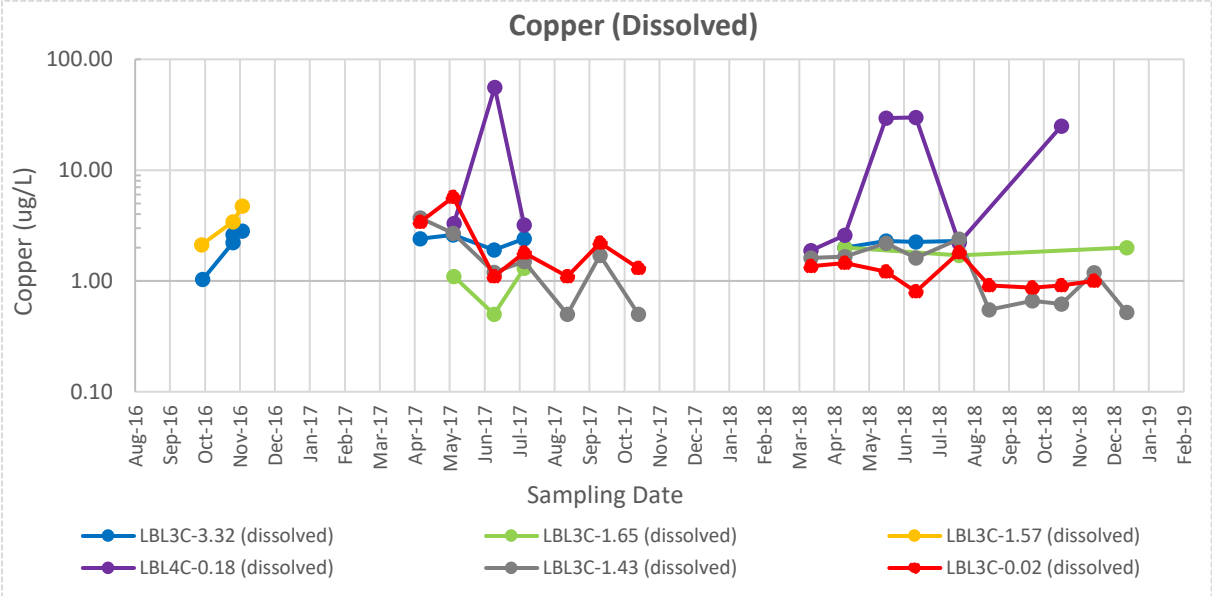


Figure 34a: Zinc (Total) at L3 Creek Locations

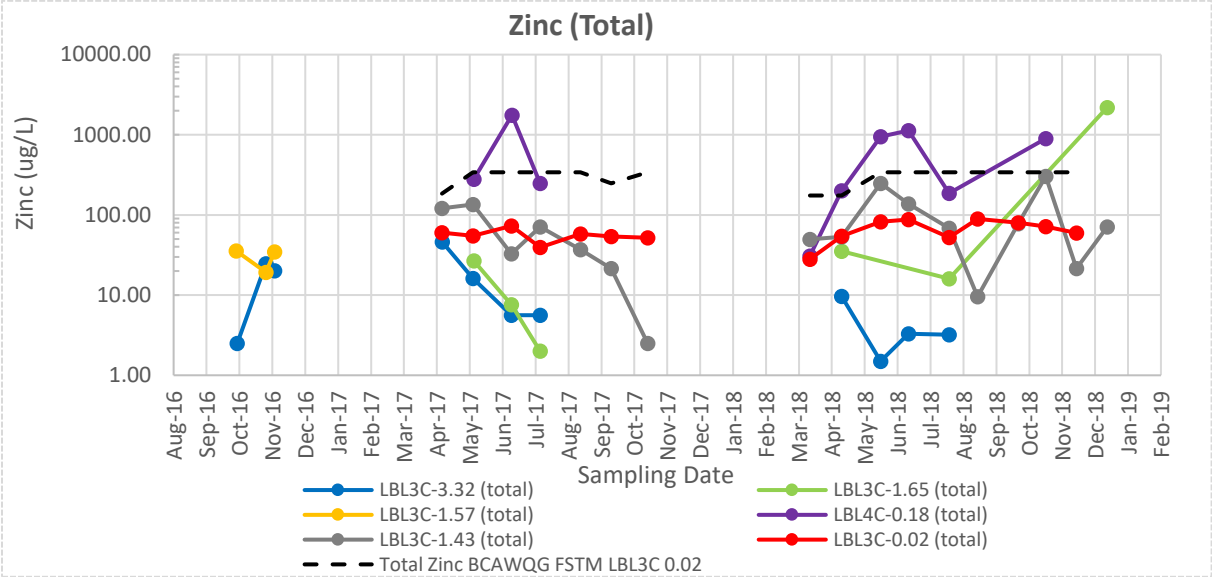
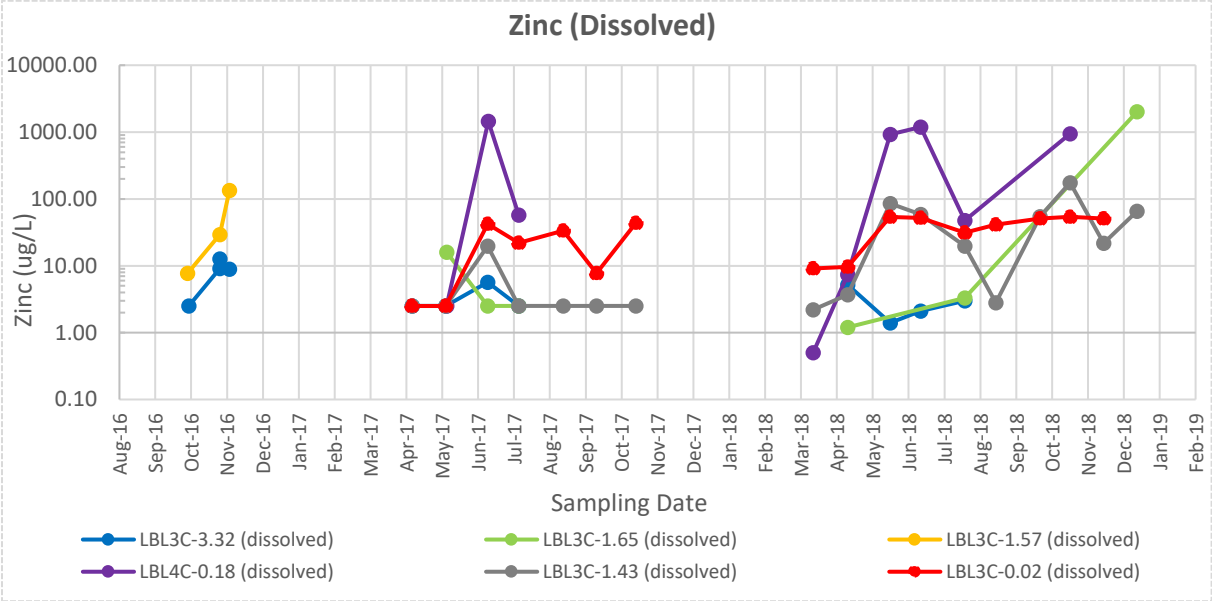


Figure 34b: Zinc (Dissolved) at L3 Creek Locations



PHOTOGRAPHS

Photo 1	River Road water sample location LBRR-DD, dated August 21, 2018
Photo 2	River Road water sample location LBRR-EDP, dated April 19, 2018
Photo 3	River Road water sample location LBRR-LC, dated April 19, 2018
Photo 4	River Road water sample location LBRR-UC, dated August 21, 2018
Photo 5	River Road water sample location RR8, dated April 19, 2018
Photo 6	River Road water sample location RR9, dated August 21, 2018
Photo 7	RBSBIAR water sample location SBIAR-DS, dated August 21, 2018
Photo 8	RBSBIAR water sample location SBIAR-EDS, dated August 21, 2018
Photo 9	RBSBIAR water sample location SBIAR-US, dated August 21, 2018
Photo 10	RBSBIAR water sample location SBIAR-EUS, dated August 21, 2018
Photo 11	RBSBIAR water sample location RBSC-DS, dated November 19, 2018
Photo 12	L3 Creek water sample location LBL3C-0.02, dated August 21, 2018
Photo 13	L3 Creek water sample location LBL3C-1.43, dated August 21, 2018
Photo 14	L3 Creek water sample location LBL3C-1.65, dated April 19, 2018
Photo 15	L3 Creek water sample location LBL3C-1.65, dated August 21, 2018
Photo 16	L3 Creek water sample location LBL3C-1.65, dated December 17, 2018
Photo 17	L3 Creek water sample location LBL3C-3.32, dated August 21, 2018
Photo 18	L3 Creek water sample location LBL4C-0.18, dated August 21, 2018
Photo 19	L3 Creek water sample collected slightly upstream from the L3 and L4 Creek confluence observed to be orange coloured, dated November 19, 2018
Photo 20	Gully Road Ditch water sample location, August 21, 2018



Photo 1: River Road water sample location LBRR-DD, dated August 21, 2018



Photo 2: River Road water sample location LBRR-EDP, dated April 19, 2018



Photo 3: River Road water sample location LBRR-LC, dated April 19, 2018



Photo 4: River Road water sample location LBRR-UC, dated August 21, 2018



Photo 5: River Road water sample location RR8, dated April 19, 2018



Photo 6: River Road water sample location RR9, dated August 21, 2018



Photo 7: RBSBIAR water sample location SBIAR-DS, dated August 21, 2018



Photo 8: RBSBIAR water sample location SBIAR-EDS, dated August 21, 2018



Photo 9: RBSBIAR water sample location SBIAR-US, dated August 21, 2018



Photo 10: RBSBIAR water sample location SBIAR-EUS, dated August 21, 2018



Photo 11: RBSBIAR water sample location RBSC-DS, dated November 19, 2018



Photo 12: L3 Creek water sample location LBL3C-0.02, dated August 21, 2018



Photo 13: L3 Creek water sample location LBL3C-1.43, dated August 21, 2018



Photo 14: L3 Creek water sample location LBL3C-1.65, dated April 19, 2018



Photo 15: L3 Creek water sample location LBL3C-1.65, dated August 21, 2018



Photo 16: L3 Creek water sample location LBL3C-1.65, dated December 17, 2018



Photo 17: L3 Creek water sample location LBL3C-3.32, dated August 21, 2018



Photo 18: L3 Creek water sample location LBL4C-0.18, dated August 21, 2018

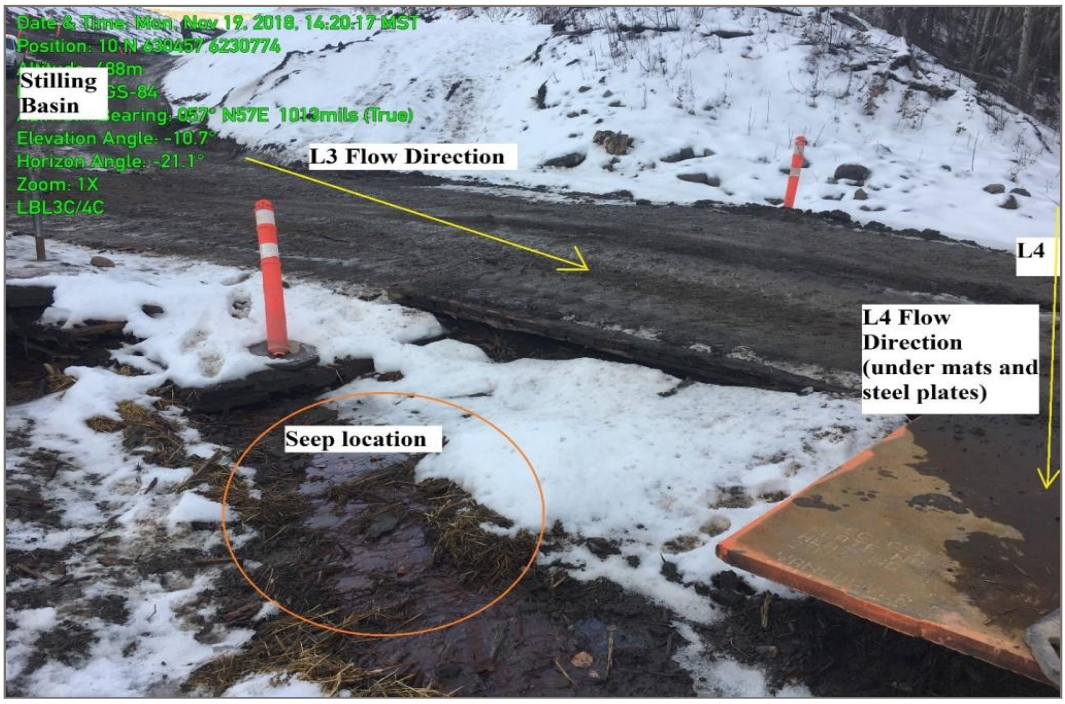


Photo 19: L3 Creek water sample collected slightly upstream from the L3 and L4 Creek confluence observed to be orange coloured, dated November 19, 2018



Photo 20: Gully Road Ditch water sample location, August 21, 2018

APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

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TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

APPENDIX B

SURFACE WATER ANALYTICAL LABORATORY RESULT TABLES

B1 – 2018 Surface Water Analytical Laboratory Results from Discharge and Downstream Locations at River Road, SBIAR, and L3 Creek Evaluated against the BCAWQG-FSTM Guidelines

B2 – 2018 Surface Water Laboratory Analytical Results from River Road Monitoring Locations Evaluated against the BCAWQG-FSTM Guidelines

B3 – 2018 Surface Water Laboratory Analytical Results from SBIAR Monitoring Locations Evaluated against the BCAWQG-FSTM Guidelines

B4 – 2018 Surface Water Laboratory Analytical Results from L3 Creek Monitoring Locations Evaluated against the BCAWQG-FSTM Guidelines

B5 – 2018 Surface Water Laboratory Analytical Results from Other Sampling Locations Evaluated against the BCAWQG-FSTM Guidelines

Appendix B1: Surface Water Analytical Results Discharge and Downstream Locations

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	LBRR-DD		RBSBIAR-DS			LBL3C-0.02								
					21-Mar-18	19-Apr-18	21-Mar-18	19-Jun-18	27-Sep-18	21-Mar-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	19-Nov-18
Physical Parameters											9:30							
					21-Mar-18	19-Apr-18												
						9:50												
Flow Rate (L/s)	L/sec				0.4	5.0	2.0	1.0	3.0	5.0	100.0		5.0	5.0		1.0	4.0	2.5
Electrical Conductivity (EC)	µS/cm	2.0	NG	NG	1320	549	542	731	714	779	530	2040	2180	1660	2200	2150	2110	2100
Hardness as $CaCO_3$	µg/L	500	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	821000	258,000	275,000	298,000	283000	280,000	279,000	1270000	1280000	908000	1310000	1190000	1180000	1160000
pH	pH Units	0.10	6.5 - 9	6.5-9.0	6.51	7.78	8.31	8.23	8.25	8.06	7.86	8.21	8.21	8.31	8.18	8.23	8.26	8.23
Total Dissolved Solids (TDS)	µg/L	10000	NG	NG	1190000	362,000	344000.00	502000	439000	516,000	454,000	1830000	2100000	1410000	2020000	1880000	1890000	1810000
Total Suspended Solids (TSS)	µg/L	3000	NG	NG	50700	97,500	75500.00	1500	32000	35,100	173,000	12,300	14,300	20200	16300	9000	7500	11600
Anions and Nutrients																		
Acidity (Total as $CaCO_3$)	µg/L	1000	NG	NG					1800							2400		2400
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	NG	NG	5000	91,400	213,000	188,000	233000	103,000	86,900	213,000	250,000	217000	245000	249000	254000	253000
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	NG	NG	<1000	<1000	3600	<1000	<1000	<1000	<1000	<1000	<1000	3800	<1000	<1000	<1000	<1000
Alkalinity (Hydroxide) as $CaCO_3$	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	NG	NG	5	91.40	217.00	188	233	103	86.9	213	250	220	245	249	254	253
Ammonia (NH_4 as N)	µg/L	5.0	pH dependent (6.5-9.0)	pH dependent (6.5-9.0)	189	70.8	62.5	83.7	197	35	41.9	24.4	36.3	25.3	38.2	25.9	24.4	26.8
	µg/L		pH dependent (at Temp 4 °C)		27200	8770	3150	3950	3150	4950	7420	3950	3950	3150	3950	3950	3150	3950
	µg/L			pH dependent (at Temp 4 °C)	1970	1690	606	759	606	952	1430	759	759	606	759	759	606	759
Chloride (Cl^-)	µg/L	500	600,000	150,000	8800	21,000	26,600	60,000	32100	67,500	20,700	26,800	31,500	48300	55000	45300	44300	34000
Nitrate (NO_3^- as N)	µg/L	5.0-100	NG	NG	507	247	691	4000	2230	696	571	227	148	247	200	301	348	547
Nitrite (NO_2^- as N)	µg/L	1.0-20	60	20	8.8	8.2	14.1	**79.9**	27.4	14.6	11	<10	<10	<5.0	<20	<10	<10	<10
Sulphate (SO_4) [3]	µg/L	300.00	NG	309,000 - 429,001	751000	161,000	51100	111000	76400	191000	187000	1110000	1220000	710000	1320000	1080000	1050000	974000
SO_4 STM & LTA Guideline Calc (Based on Hardness as CaCO3)	µg/L		NG	Hardness 76,000-180,000 = 309,000 Hardness 181,000-250,000 = 429,000; Hardness > 250,000 site-specific	429000	429000	429000	429000	429000	429000	429000	429000	429000	429000	429000	429000	429000	429000
Metals, Total																		
Aluminum	µg/L	3.00	NG	NG	3670	2980	1120.00	45.9	569	1480.00	4340.00	980.00	885	707	1300	789	701	558
Antimony	µg/L	0.1-0.2	NG	NG	0.11	0.12	0.7	0.63	0.23	0.37	0.47	0.2	<0.2	0.24	0.21	<0.2	<0.2	<0.2
Arsenic	µg/L	0.10	5.0	5.0	**6.20**	**16.3**	1.93	0.50	0.54	1.74	4.03	0.44	0.40	0.61	0.92	0.47	0.36	0.47
Barium	µg/L	0.10	NG	NG	51.3	88.4	179	139	167	90.7	158	55.4	47.5	67	54.7	54.3	46.2	39.4
Beryllium	µg/L	0.10	NG	NG	0.61	0.43	0.12	<0.1	0.17	0.11	0.25	0.18	<0.2	0.11	0.22	<0.2	<0.2	<0.2
Bismuth	µg/L	0.05-0.10		NG					<0.05					<0.05	<0.1	<0.1	<0.1	<0.1
Boron	µg/L	10.0	1200	1200	25.0	16	39	162	98	35	29	113	142	112	154	124	113	113
Cadmium	µg/L	0.005	NG	NG	4.81	1.46	0.208	0.0239	0.141	0.21	0.416	0.57	0.583	0.413	0.514	0.555	0.458	0.393
Calcium	µg/L	50	NG	NG	250,000	70,800	84,800	79,300	80700	84,800	79,800	344,000	359,000	225000	358000	337000	325000	313000
Cesium	µg/L	0.01		NG					0.06					0.03	0.09	<0.02	<0.02	0.022
Chromium [4]	µg/L	0.1-0.7	NG	NG	4.43	4.45	3.28	<0.4	<1.0	3.27	7.79	0.32	<0.2	0.32	0.64	0.39	<0.2	<0.2
Cobalt	µg/L	0.10	110	4.0	90.6	17.6	4.01	0.39	4.3	1.98	5.92	9.18	9.11	6.01	9.57	8.27	8.25	5.95
Copper [3]	µg/L	0.50	Calc. based on Hardness	2 to 10	26.70	**26.30**	4.99	1.00	3.75	5.24	11.10	2.14	1.70	2.36	2.7	1.9	1.5	1.7
Cu STM Guideline Calc.	µg/L		Hardness 13,000 - 400,000 : calc.; Hardness ≥ 400,000 is Capped Value of 400,000		39.60	26.25	27.85	30.01	28.60	28.32	28.23	39.60	39.60	39.6	39.6	39.6	39.6	39.6
Cu LTA Guideline Calc.	µg/L			Hardness 50,000 - 250,000: calc.; Hardness > 250,000, Cu = 10	10	10	10.00	10.00	10.00	10	10	10	10	10	10	10	10	10
Iron	µg/L	10	1000	NG	**7200**	**22800**	**2770**	91	759	**2930**	**7950**	725	858	539	**1740**	939	957	697
Lead [3]	µg/L	0.05-0.1	Calc. based on Hardness	Calc. based on Hardness	0.562	0.997	1.55	<0.05	0.217	1.81	4.18	0.12	0.05	0.128	0.33	<0.1	<0.1	<0.1
Pb STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 8000-360,000 Hardness ≤ 8000: 3 Hardness > 8000 : calc.		1191	273	295.9	327.8	306.9	303	301	2075	2096.08	1353.9	2158.8	1910.3	1889.9	1849.2
Pb LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 8000-360,000 Hardness ≤ 8000, NG Hardness > 8000 : calc.	50	14	14.9	16.1	15.3	15	15	84	85	56	87	78	77	75
Lithium	µg/L	1.0	NG	NG	75.8	13.2	10.4	27.9	22.7	12.2	14.9	55.1	66.6	44.1	70.8	56.5	51.7	49.7
Magnesium	µg/L	5.0	NG	NG	49,900	17,400	19,300	24,100	22900	23,000	22,500	94,400	105,000	62400	101000	99700	102000	103000
Manganese [3]	µg/L	0.10	Calc. based on hardness	Calc. based on Hardness	1940	334	119.0	6.78	51.8	167	280	467	411	441	417	428	401	223
Mn STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 25000-259000 µg/L Mn : calc.		9587	3383	3570.5	3824	3659.0	3626	3615	14535	14645.6	10546	14976	13654	13544	13323
Mn LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 37000-450000 µg/L Mn : calc.	4217	1740	1815.0	1916.2	1850.2	1837	1833	6193	6237	4600	6369	5841	5797	5709
Mercury (Based on methyl Hg & total mass Hg)	µg/L	0.005	NG	Calc.	<0.05	0.0136	<0.05	<0.005	<0.005	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0062
Molybdenum	µg/L	0.05	2000	≤ 1000	1.24	4.13	3.16	4.3	2.46	2.53	3.05	1.59	1.65	2.2	2.48	1.61	1.59	1.85
Nickel	µg/L	0.5	NG	NG	289	63	13.9	6.51	17.9	11.7	22.8	44.9	48.3	30.2	48.2	41.2	40.6	32.7
Phosphorus	µg/L	50-100	NG	NG					51					<50	<100	<100	<100	<100
Potassium	µg/L	50.0	NG	NG	4350	3610	2650	3850	3680	3440	3610	6370	6220	6810	6630	5580	5700	5440
Rubidium	µg/L	0.2	NG	NG					2					1.9	2.98	1.89	1.74	1.62
Selenium	µg/L	0.05	NG	2.0	2.86	0.831	1.32	1.23	0.7	1.61	1.66	1.51	0.94	1.53	1.33	2.05	2.75	2.97
Silicon	µg/L	100		NG					4340					4470	5350	4510	4490	4050
Silver [3] (Based on Hardness < or > 100000)	µg/L	0.01-0.02	0.10 - 3.0	0.05 - 1.5	0.014	0.025	0.027	0.005	0.005	0.037	0.083	0.005	0.01	<0.01	<0.02	<0.02	<0.02	<0.02
Ag STM Guideline Calc	µg/L		Hardness ≤ 100,000 Ag = 0.10 Hardness > 100,000 Ag = 3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3	3	3	3	3	3

Appendix B1: Surface Water Analytical Results Discharge and Downstream Locations

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	LBRR-DD		RBSBIAR-DS			LBL3C-0.02								
					21-Mar-18	19-Apr-18	21-Mar-18	19-Jun-18	27-Sep-18	21-Mar-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	19-Nov-18
Ag LTA Guideline Calc	µg/L			Hardness ≤ 100,000 Ag = 0.05 Hardness > 100,000 Ag = 1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sodium	µg/L	50.0	NG	NG	7880	9950	16,400	47,700	37300	50,200	21,100	65,100	79,500	53200	79600	68900	76800	71200
Strontium	µg/L	0.2	NG	NG					435					680	1020	862	918	913
Sulfur	µg/L	500	NG	NG					34600					265000	408000	380000	411000	382000
Tellerium	µg/L	0.2-0.4	NG	NG					<0.2					<0.2	<0.4	<0.4	<0.4	<0.4
Thallium	µg/L	0.01-0.055	NG	NG	0.039	0.035	0.048	0.022	0.015	0.053	0.093	0.034	0.034	0.031	0.042	0.027	0.025	<0.02
Thorium	µg/L	0.1-0.2	NG	NG					0.23					<0.1	<0.2	<0.2	<0.2	<0.2
Tin	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2
Titanium	µg/L	0.3-1.2	NG	NG	7.33	5.19	23.2	0.52	<4.5	23	52.1	1.65	<0.6	2.47	<6.3	1.25	<0.6	<1.2
Tungsten	µg/L	0.1-0.2	NG	NG					<0.1					<0.1	<0.2	<0.2	<0.2	<0.2
Uranium	µg/L	0.01	NG	NG	4.67	6.13	1.72	1.41	1.19	2.23	1.89	6.52	7.08	4.95	6.83	6.14	6.33	6.49
Vanadium	µg/L	0.5-1.0	NG	NG	1.85	5.86	4.17	<0.5	0.73	5.55	14.7	0.51	<1	<0.5	1.4	<1.0	<1.0	<1.0
Zinc [3] (Based on Hardness < or > 90,000)	µg/L	3.0	Calc. based on Hardness	Calc. based on Hardness	**585.00**	**210.00**	42.7	3.1	50.7	28.10	54.20	82.40	88.10	52.3	89.3	80.1	71.6	59.6
Zn STM Guideline Calc.	µg/L		Hardness 90,000 - 500,000, Calc. Hardness > 500,000, is Capped Value of 500,000		340.50	159.00	172	189	177.75	175.50	174.75	340.50	340.50	340.5	340.5	340.5	340.5	340.5
Zn LTA Guideline Calc.	µg/L			Hardness 90,000 - 330,000, Calc. Hardness > 330,000, is Capped Value of 330,000	187.50	133.50	146	164	152	150.0	149.3	187.5	187.5	187.5	187.5	187.5	187.5	187.5
Zirconium	µg/L	0.06-0.12	NG	NG					0.095					0.158	0.15	<0.12	<0.12	<0.12
Metals, Dissolved																		
Aluminum [5]	µg/L	1.0	100	50	**392.0**	28.0	51.5	15.7	**106**	37.30	62.80	**158.00**	**169**	**199**	**142**	**132**	**102**	88.8
Al STM Guideline Calc (based on pH)	µg/L		pH < 6.5 : calc. Al pH ≥ 6.5 : 100.0 Al		100.0	100.0	100	100	100	100.00	100.00	100.00	100	100	100	100	100	100
Al LTA Guideline Calc (based on median pH)	µg/L			median pH < 6.5 : calc. Al median pH ≥ 6.5 : 50.0 Al	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Antimony	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	0.44	0.59	0.19	0.17	0.17	0.2	<0.2	0.26	0.19	<0.2	<0.2	<0.2
Arsenic	µg/L	0.10	NG	NG	0.22	0.14	0.25	0.45	0.17	0.25	0.18	0.26	0.23	0.39	0.23	0.24	0.1	0.1
Barium	µg/L	0.10	NG	NG	30.6	39.5	137	145	160	49.5	40.6	50.1	48.4	62.1	45.1	49.9	41.4	36.9
Beryllium	µg/L	0.1-0.2	NG	NG	0.21	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2
Bismuth	µg/L	0.05-0.1	NG	NG					<0.05					<0.05	<0.05	<0.1	<0.1	<0.1
Boron	µg/L	10.0	NG	NG	24	15	37	156	95	31	23	111	129	119	135	129	124	107
Cadmium [3] (Based on Hardness as $CaCO_3$)	µg/L	0.005	Calc. based on Hardness	Calc. based on hardness	**4.49**	0.439	0.112	0.0182	0.0601	0.10	0.147	0.489	0.415	0.356	0.216	0.429	0.387	0.362
Cd STM Guideline Calc.	µg/L		Hardness 7,000 - 455,000, Calc. Hardness > 455,000, is Capped Value of 455,000		2.801	1.561	1.667	1.811	1.717	1.699	1.692	2.801	2.801	2.801	2.801	2.801	2.801	2.801
Cd LTA Guideline Calc.	µg/L			Hardness 3,400 - 285,000, Calc. Hardness > 285,000, is Capped Value of 285,000	0.457	0.425	0.445	0.457	0.455	0.451	0.450	0.457	0.457	0.457	0.457	0.457	0.457	0.457
Calcium	µg/L	50.0	NG	NG	255,000	73,300	80,300	78,900	75200	78,400	77,100	373,000	342,000	252000	362000	324000	312000	315000
Cesium	µg/L	0.01	NG	NG					0.015					0.018	0.017	<0.02	<0.02	<0.02
Chromium	µg/L	0.10	NG	NG	0.26	<0.1	1.02	0.19	0.13	0.46	0.21	0.14	<0.2	0.15	<0.1	<0.2	<0.2	<0.2
Cobalt	µg/L	0.10	NG	NG	88.40	13.60	2.84	0.32	4.6	0.76	2.09	8.24	8.83	5.89	8.18	7.99	8.03	5.66
Copper	µg/L	0.20	NG	NG	13.10	1.41	1.57	0.79	0.75	1.36	1.45	1.21	0.80	1.81	0.91	0.87	0.91	1.0
Iron	µg/L	10.0-20.0	350	NG	**765.0**	290.0	12.0	5.0	5.0	15	18	78	10	49	14	68	168	162
Lead	µg/L	0.05-0.1	NG	NG	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.1	<0.1
Lithium	µg/L	1.0	NG	NG	69	14.4	10.1	24.8	26.1	10.9	10.7	58.9	56.5	47.3	62.3	57.9	54.3	45.6
Magnesium	µg/L	5.0	NG	NG	45,000	18,200	18,100	24,600	23100	20,500	21,100	82,400	105,000	67700	99000	93100	97900	90800
Manganese	µg/L	0.10	NG	NG	1770	307	59.6	5.29	56	117	167	411	423	435	387	434	397	207
Mercury	µg/L	0.005	NG	NG	0.0055	<0.005	<0.005	<0.005	<0.005	0.0072	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Molybdenum	µg/L	0.05	NG	NG	0.315	1.86	2.62	4.35	2.63	1.9	2.41	1.71	1.74	2.39	2.35	1.7	1.65	1.83
Nickel	µg/L	0.50	NG	NG	281	48.4	9.98	6.45	18.1	6.72	10.2	40.1	47.5	30.1	41	39.8	38.2	31.1
Phosphorus	µg/L	50.0-100.0	NG	NG					<50					<50	<50	<100	<100	<100
Potassium	µg/L	50.0	NG	NG	4130	3590	2420	4020	3590	3030	2730	6090	6290	6530	6580	5350	5760	5100
Rubidium	µg/L	0.20	NG	NG					1.51					1.85	2.35	1.63	1.55	1.52
Selenium	µg/L	0.05	NG	2.0	2.81	0.291	1.26	1.32	0.754	1.53	1.25	1.34	0.88	1.26	1.31	2.15	2.41	3.1
Silicon	µg/L	50.0	NG	NG					3960					4260	4400	4210	4010	3680
Silver	µg/L	0.01-0.02	NG	NG	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02
Sodium	µg/L	50.0	NG	NG	7800	9750	16,300	47,900	38400	47,500	20,200	58,600	78,600	54500	75800	68900	72400	68400
Strontium	µg/L	0.20	NG	NG					420					701	1020	930	920	913
Sulfur	µg/L	500	NG	NG					37400					266000	370000	381000	391000	366000
Tellerium	µg/L	0.2-0.4	NG	NG					<0.2					<0.2	<0.2	<0.4	<0.2	<0.4
Thallium	µg/L	0.01	NG	NG	0.023	<0.01	<0.01	0.023	0.014	<0.01	<0.01	0.033	0.032	0.03	0.033	0.027	0.024	0.022
Thorium	µg/L	0.1-0.2	NG	NG					<0.1					<0.1	<0.1	<0.2	<0.2	<0.2
Tin	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2
Titanium	µg/L	0.3-0.6	NG	NG	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.49	<0.3	<0.6	<0.9	0.76	<0.6	<0.6	<0.6
Tungsten	µg/L	0.1-0.2	NG	NG					<0.1					<0.1	<0.1	<0.2	<0.2	<0.2
Uranium	µg/L	0.01	NG	NG	0.999	1.5	1.36	1.37	0.931	1.73	1.74	6.58	6.86	4.9	6.55	5.89	6.52	6.27
Vanadium	µg/L	0.5-1.0	NG	NG	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<1.0	<1.0	<1.0
Zinc	µg/L	1.00	NG	NG	546.00	35.80	26.1	2	17.2	9.10	9.60	53.80	51.8	31.2	41.4	50.6	54	50.7
Zirconium	µg/L	0.06-0.12	NG	NG					<0.06					0.064	<0.06	<0.12	<0.12	<0.12
Laboratory Work Order Number					L2071158	L2082450	L2071158	L2115119	L2172306	L2071158	L2082450	L2100153	L2115119	L2136818	L2150694	L2172306	L2185138	L2198555
Laboratory Identification Number					L2071158-6	L2082450-8	L2071158-9	L2115119-7	L2172306-8	L2071158-2	L2082450-4	L2100153-3	L2115119-3	L2136818-4	L2150694-2	L2172306-2	L2185138-2	L2198555-2

Notes:

Screening completed on BC AWQG-FWAL STM [1] and LTA [2] guideline values.

[1] BC Ministry of Environment, Water Protection & Sustainability Branch (2018). British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture

[2] BC Ministry of Environment, Water Protection & Sustainability Branch. 2018. British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referencedfor Freshwater Aquatic Life (FWAL) water use and Long Term Average (LTA) guidelines.

[3] Guideline is hardness dependant. Where results are above laboratory reportable detection limits, guideline limits have been evaluated based on individual sample hardness. Sample-specific guideline values are listed in

[4] Guideline is for Chromium (IV) cation. Analytical results are for unspeciated Chromium. Where analytical results exceed the guideline, speciated analysis may be warranted.

[5] Guideline is pH dependant.

NG - No Guideline

Detection limit can vary as described in the COA. Detection limit can be raised when dilutation is requited due to high Dissolved Solids/Electrical Conductivity (DLDS), e.g. nitrite.

BOLD and shaded dark gray: Exceeds BCAWQG-FSTM (Short-term Maximum) guideline.

Shaded Light Gray: Exceeds BCAWQG-LTA (Long-term Average) guideline.

RED - Measured value is below detection limit (DL); value shown is 50% of DL

Blank - Not analyzed

Table B2: LBRR Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	LBRR-DD		LBRR-LC		LBRR-12+500	LBRR-12+500		LBRR-EDP			
					21-Mar-18	19-Apr-18	21-Mar-18	19-Apr-18	1-Jan-18	21-Mar-18	19-Apr-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18
Physical Parameters															
					21-Mar-18	19-Apr-18	21-Mar-18	19-Apr-18		21-Mar-18	19-Apr-18	19-Apr-18			10:02
						9:50		10:05			10:25	9:05			
Flow Rate (L/s)	L/sec				0.4	5.0	0.2			0.3	0.5	0.5		0.1	0.25
Electrical Conductivity (EC)	µS/cm	2.0	NG	NG	1320	549	1140	529		3780	2310	2120	3250	2970	2810
Hardness as $CaCO_3$	µg/L	500	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	821000	258,000	661000	254,000		1650000	1330000	1,290,000	2270000	2280000	1690000
pH	pH Units	0.10	6.5 - 9	6.5-9.0	6.51	7.78	7.13	8.00		**2.90**	**4.89**	7.79	8.05	8.04	8.2
Total Dissolved Solids (TDS)	µg/L	10000	NG	NG	1190000	362,000	961000	354,000		4310000	2110000	1920000	3440000	3350000	2750000
Total Suspended Solids (TSS)	µg/L	3000	NG	NG	50700	97,500	23300	71,900		564,000	739,000	109,000	99,300	170,000	16,800
Anions and Nutrients															
Acidity (Total as $CaCO_3$)	µg/L	1000	NG	NG											
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	NG	NG	5000	91,400	12,100	89,900		<1000	1000	112,000	175,000	167,000	220,000
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000		<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Hydroxide) as $CaCO_3$	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000		<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	NG	NG	5	91.40	12.1	89.9		0.5	1.00	112	175	167	220
Ammonia (NH_4 as N)	µg/L	5.0	pH dependent (6.5-9.0)	pH dependent (6.5-9.0)	189	70.8	222	44.2		347	298	100	14	14.5	6.1
			pH dependent (at Temp 4 °C)		27200	8770	20400	6220		-	-	8770	6220	6220	3950
				pH dependent (at Temp 4 °C)	1970	1690	1970	1200		-	-	1690	1200	1200	759
Chloride (Cl^-)	µg/L	500	600,000	150,000	8800	21,000	5000	20,800		39,000	90,600	60,000	46,000	40000	35000
Nitrate (NO_3^- as N)	µg/L	5.0-100	NG	NG	507	247	512	245		220	182	359	180	<100	<100
Nitrite (NO_2^- as N)	µg/L	1.0-20	60	20	8.8	8.2	9.1	8.6		<20	<10	<10	<20	<20	<20
Sulphate (SO_4) [3]	µg/L	300.00	NG	309,000 - 429,001	751000	161,000	638,000	153,000		3030000	1,390,000	1,180,000	2050000	2260000	1670000
SO_4 STM & LTA Guideline Calc (Based on Hardness as CaCO3)	µg/L		NG	Hardness 76,000-180,000 = 309,000 Hardness 181,000-250,000 = 429,000; Hardness > 250,000 site-specific	429000	429000	429000	429000		429000	429000	429000	429000	429000	429000
Metals, Total															
Aluminum	µg/L	3.00	NG	NG	3670	2980	2280	2610		131,000	49,700	5910	535	731	486
Antimony	µg/L	0.1-0.2	NG	NG	0.11	0.12	0.11	0.1		0.5	0.53	0.16	0.24	<0.5	0.2
Arsenic	µg/L	0.10	5.0	5.0	**6.20**	**16.3**	1.66	**15.9**		**267**	**145**	**17.6**	0.64	0.68	0.42
Barium	µg/L	0.10	NG	NG	51.3	88.4	51.5	93.3		213	150	35.4	40.9	28.2	25.8
Beryllium	µg/L	0.10	NG	NG	0.61	0.43	0.34	0.4		22.9	7.97	0.84	<0.2	<0.5	0.32
Bismuth	µg/L	0.05-0.10		NG											<0.10
Boron	µg/L	10.0	1200	1200	25.0	16	22.0	15		80.0	76	82	157	191	185
Cadmium	µg/L	0.005	NG	NG	4.81	1.46	2.82	1.36		80.0	27.9	6.95	4.62	4.02	4.88
Calcium	µg/L	50	NG	NG	250,000	70,800	221,000	68,100		383,000	271,000	333,000	588,000	566,000	504,000
Cesium	µg/L	0.01		NG											0.031
Chromium [4]	µg/L	0.1-0.7	NG	NG	4.43	4.45	1.64	4.28		152	71.7	8.68	1.06	0.5	0.37
Cobalt	µg/L	0.10	110	4.0	90.6	17.6	62.1	17		**1010**	**568**	**173**	41.9	74	46.6
Copper [3]	µg/L	0.50	Calc. based on Hardness	2 to 10	26.70	**26.30**	10.90	24.40		**1110**	**347**	**42.6**	2.8	3.0	2.2
Cu STM Guideline Calc.	µg/L		Hardness 13,000 - 400,000 : calc.; Hardness > 400,000 is Capped Value of 400,000		39.60	26.25	39.60	25.88		39.60	39.60	39.60	39.60	39.60	39.60
Cu LTA Guideline Calc.	µg/L			Hardness 50,000 - 250,000: calc.; Hardness > 250,000, Cu = 10	10	10	10	10		10	10	10	10	10	10
Iron	µg/L	10	1000	NG	**7200**	**22800**	**3380**	**21200**		**274000**	**186000**	**23000**	916	266	161
Lead [3]	µg/L	0.05-0.1	Calc. based on Hardness	Calc. based on Hardness	0.562	0.997	0.657	0.58		4.34	4.1	0.472	0.32	<0.25	<0.1
Pb STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 8000-360,000 Hardness ≤ 8000: 3 Hardness > 8000 : calc.		1191	273	904	267.5		2896	2201	2117	4347	4371	2986
Pb LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 8000-360,000 Hardness ≤ 8000, NG Hardness > 8000 : calc.	50	14	39	14		116	89	86	173	174	120
Lithium	µg/L	1.0	NG	NG	75.8	13.2	58.6	12		676	337	125	242	323	221
Magnesium	µg/L	5.0	NG	NG	49,900	17,400	40,200	16900		218,000	147,000	108,000	213,000	211,000	164,000
Manganese [3]	µg/L	0.10	Calc. based on hardness	Calc. based on Hardness	1940	334	1560	319		9890	7560	2480	740	1440	831
Mn STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 25000-259000 µg/L Mn : calc.		9587	3383	7824	3339		18723	15197	14756	25555	25665.6	19164
Mn LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 37000-450000 µg/L Mn : calc.	4217	1740	3513	1723		7865	6457	6281	10593	10637	8041
Mercury (Based on methyl Hg & total mass Hg)	µg/L	0.005	NG	Calc.	<0.05	0.0136	<0.05	0.0062		0.06	<0.005	0.008	<0.005	0.0101	<0.005
Molybdenum	µg/L	0.05	2000	≤ 1000	1.24	4.13	1.54	3.9		4.96	9.82	1.92	1.18	1.37	0.72
Nickel	µg/L	0.5	NG		289	63	194	59.7		3170	1830	586	702	700	584
Phosphorus	µg/L	50-100	NG	NG											<100
Potassium	µg/L	50.0	NG	NG	4350	3610	4040	3470		4400	4920	6590	13,500	14,100	11,800
Rubidium	µg/L	0.2	NG	NG											4.45
Selenium	µg/L	0.05	NG	2.0	2.86	0.831	2.97	0.893		9.23	4.71	4.87	3.49	2.05	4.31
Silicon	µg/L	100		NG											6890

Table B2: LBRR Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	LBRR-DD		LBRR-LC		LBRR-12+500	LBRR-12+500		LBRR-EDP			
					21-Mar-18	19-Apr-18	21-Mar-18	19-Apr-18	1-Jan-18	21-Mar-18	19-Apr-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18
Silver [3] (Based on Hardness < or > 100000)	µg/L	0.01-0.02	0.10 - 3.0	0.05 - 1.5	0.014	0.025	0.016	0.013		0.154	0.114	0.02	<0.02	<0.05	<0.02
Ag STM Guideline Calc	µg/L		Hardness ≤ 100,000 Ag = 0.10 Hardness > 100,000 Ag = 3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Ag LTA Guideline Calc				Hardness ≤ 100,000 Ag = 0.05 Hardness > 100,000 Ag = 1.5	1.5	1.5	1.5	1.5		1.5	1.5	1.5	1.5	1.5	1.5
Sodium	µg/L	50.0	NG	NG	7880	9950	4650	9570		88,100	69,600	52,100	41,700	47,700	41,600
Strontium	µg/L	0.2	NG	NG											1,350
Sulfur	µg/L	500	NG	NG											626,000
Tellerium	µg/L	0.2-0.4	NG	NG											<0.4
Thallium	µg/L	0.01-0.055	NG	NG	0.039	0.035	0.043	0.023		0.153	0.155	0.037	0.066	0.065	0.055
Thorium	µg/L	0.1-0.2	NG	NG											<0.2
Tin	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	<0.1	<0.1		0.22	<0.5	<0.1	<0.2	<0.5	<0.2
Titanium	µg/L	0.3-1.2	NG	NG	7.33	5.19	5.77	3.54		72.3	27.5	5.72	8.82	<1.8	<1.2
Tungsten	µg/L	0.1-0.2	NG	NG											<0.2
Uranium	µg/L	0.01	NG	NG	4.67	6.13	3.73	6.19		111	49.9	7.17	4.3	4.12	3.15
Vanadium	µg/L	0.5-1.0	NG	NG	1.85	5.86	1.66	4.88		33.6	27.1	3.62	1.4	<2.5	<1.0
Zinc [3] (Based on Hardness < or > 90,000)	µg/L	3.0	Calc. based on Hardness	Calc. based on Hardness	**585.0**	**210.0**	**355.0**	**194.0**		**10500.0**	**4980.0**	**1160.0**	**548.0**	**425.0**	**538.0**
Zn STM Guideline Calc.	µg/L		Hardness 90,000 - 500,000, Calc. Hardness > 500,000, is Capped Value of 500,000		340.5	159.0	340.5	156.0		340.5	340.5	340.5	340.5	340.5	340.5
Zn LTA Guideline Calc.				Hardness 90,000 - 330,000, Calc. Hardness > 330,000, is Capped Value of 330,000	187.5	133.5	187.5	130.5		187.5	187.5	187.5	187.5	187.5	187.5
Zirconium	µg/L	0.06-0.12	NG	NG											
Metals, Dissolved															
Aluminum [5]	µg/L	1.0	100	50	**392.0**	28.0	64.5	28.8		**126000.0**	**2000.0**	28.6	**183.0**	**195.0**	**227.0**
Al STM Guideline Calc (based on pH)	µg/L		pH < 6.5 : calc. Al pH ≥ 6.5 : 100.0 Al		100.0	100.0	100.0	100.0		32.9	22.5	100.0	100.0	100	100
Al LTA Guideline Calc (based on median pH)				median pH < 6.5 : calc. Al median pH ≥ 6.5 : 50.0 Al	50.0	50.0	50.0	50.0		50.0	50.0	50.0	50.0	50.0	50.0
Antimony	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	<0.1	<0.1		<0.5	<0.2	<0.1	0.21	0.38	<0.2
Arsenic	µg/L	0.10	NG	NG	0.22	0.14	0.11	0.11		201.00	0.75	0.13	0.40	0.45	0.25
Barium	µg/L	0.10	NG	NG	30.6	39.5	28.7	41.3		70.9	32.1	16.5	29	25.1	23.5
Beryllium	µg/L	0.1-0.2	NG	NG	0.21	<0.1	<0.1	<0.1		21.5	0.6	<0.1	<0.2	<0.2	<0.2
Bismuth	µg/L	0.05-0.1	NG	NG											<0.1
Boron	µg/L	10.0	NG	NG	24	15	21	14		72	70	83	164	168	174
Cadmium [3] (Based on Hardness as $CaCO_3$)	µg/L	0.005	Calc. based on Hardness	Calc. based on hardness	**4.49**	0.439	2.38	0.475		**75.30**	**27.70**	**5.34**	**4.33**	**3.75**	**4.50**
Cd STM Guideline Calc.	µg/L		Hardness 7,000 - 455,000, Calc. Hardness > 455,000, is Capped Value of 455,000		2.80	1.56	2.80	1.54		2.80	2.80	2.80	2.80	2.80	2.80
Cd LTA Guideline Calc.				Hardness 3,400 - 285,000, Calc. Hardness > 285,000, is Capped Value of 285,000	0.46	0.42	0.46	0.42		0.46	0.46	0.46	0.46	0.46	0.46
Calcium	µg/L	50.0	NG	NG	255,000	73,300	208,000	71,800		340,000	271,000	336,000	584,000	551,000	432,000
Cesium	µg/L	0.01	NG	NG											0.026
Chromium	µg/L	0.10	NG	NG	0.26	<0.1	<0.1	0.11		130	<0.2	0.14	0.23	<0.2	0.42
Cobalt	µg/L	0.10	NG	NG	88.40	13.60	57.40	13.90		997.00	586.00	158.00	39.90	77.50	45
Copper	µg/L	0.20	NG	NG	13.10	1.41	3.57	1.54		1120.00	56.40	4.46	1.93	2.63	1.88
Iron	µg/L	10.0-20.0	350	NG	**765.0**	290.0	**819.0**	**574.0**		**230000.0**	**15800.0**	**2600.0**	10	10	10
Lead	µg/L	0.05-0.1	NG	NG	<0.05	<0.05	<0.05	<0.05		0.64	<0.1	<0.05	<0.1	<0.1	<0.1
Lithium	µg/L	1.0	NG	NG	69	14.4	57.8	13.2		590	334	146	253	330	199
Magnesium	µg/L	5.0	NG	NG	45,000	18,200	34,500	18,100		195,000	159,000	110,000	196,000	219,000	149,000
Manganese	µg/L	0.10	NG	NG	1770	307	1400	305		9200	7590	2430	668	1450	795
Mercury	µg/L	0.005	NG	NG	0.0055	<0.005	0.0134	0.006		0.0183	<0.005	<0.005	<0.005	<0.005	<0.005
Molybdenum	µg/L	0.05	NG	NG	0.315	1.86	0.952	1.75		1.88	<0.1	1.11	1.17	1.44	0.71
Nickel	µg/L	0.50	NG	NG	281	48.4	180	49.6		3170	1820	548	634	717	558
Phosphorus	µg/L	50.0-100.0	NG	NG											<100
Potassium	µg/L	50.0	NG	NG	4130	3590	3750	3600		3500	4510	6350	13,300	15,300	11,700
Rubidium	µg/L	0.20	NG	NG											4.35
Selenium	µg/L	0.05	NG	2.0	2.81	0.291	2.79	0.259		7.67	2.21	3.82	3.5	1.97	4.65
Silicon	µg/L	50.0	NG	NG											6770
Silver	µg/L	0.01-0.02	NG	NG	<0.01	<0.01	<0.01	<0.01		<0.05	<0.02	<0.01	<0.02	<0.02	<0.02
Sodium	µg/L	50.0	NG	NG	7800	9750	4250	9810		83,600	74,000	48,400	40,400	42,100	40,700
Strontium	µg/L	0.20	NG	NG											1,260
Sulfur	µg/L	500	NG	NG											629,000
Tellerium	µg/L	0.2-0.4	NG	NG											<0.4
Thallium	µg/L	0.01	NG	NG	0.023	<0.01	0.021	<0.01		0.059	0.041	0.028	0.058	0.058	0.053
Thorium	µg/L	0.1-0.2	NG	NG											<0.2
Tin	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	<0.1	<0.1		<0.5	<0.2	<0.1	<0.2	<0.2	<0.2
Titanium	µg/L	0.3-0.6	NG	NG	<0.3	<0.3	<0.3	<0.3		<1.5	<0.6	<0.3	<0.6	<0.6	<0.6
Tungsten	µg/L	0.1-0.2	NG	NG											<0.2
Uranium	µg/L	0.01	NG	NG	0.999	1.5	1.18	1.46		110	1.45	2.73	4.34	3.83	3.22
Vanadium	µg/L	0.5-1.0	NG	NG	<0.5	<0.5	<0.5	<0.5		14.5	<1	<0.5	<1	<1	<1.0
Zinc	µg/L	1.00	NG	NG	546.00	35.80	297.00	41.40		10800.00	5090.00	649.00	505.00	315	506
Zirconium	µg/L	0.06-0.12	NG	NG											<0.12
Laboratory Work Order Number					L2071158	L2082450	L2071158	L2082450		L2071158	L2082450	L2082450	L2100153	L2115118	L2136818
Laboratory Identification Number					L2071158-6	L2082450-8	L2071158-5	L2082450-7		L2071158-4	L2082450-6	L2082450-9	L2100153-5	L2115118-2	L2136818-6

Notes:

Screening completed on BC AWQG-FWAL STM [1] and LTA [2] guideline values.

[1] BC Ministry of Environment, Water Protection & Sustainability Branch (2018). British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referenced for Freshwater Aquatic Life (FWAL) water use and Short Term Maximum (STM) guidelines.

uidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referencedfor Freshwater Aquatic Life (FWAL) water use and Long Term Average (LTA) guidelines.

[3] Guideline is hardness dependant. Where results are above laboratory reportable detection limits, guideline limits have been evaluated based on individual sample hardness. Sample-specific guideline values are listed in parentheses after the laboratory result, where applicable.

[4] Guideline is for Chromium (IV) cation. Analytical results are for unspeciated Chromium. Where analytical results exceed the guideline, speciated analysis may be warranted.

[5] Guideline is pH dependant.

NG - No Guideline

Detection limit can vary as described in the COA. Detection limit can be raised when dilutation is requited due to high Dissolved Solids/Electrical Conductivity (DLDS), e.g. nitrite.

BOLD and shaded dark gray: Exceeds BCAWQG-FSTM (Short-term Maximum) guideline.

Shaded Light Gray: Exceeds BCAWQG-LTA (Long-term Average) guideline.

RED - Measured value is below detection limit (DL); value shown is 50% of DL

Blank - Not analyzed

Table B3: SBIAR Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	RBSBIAR-DS			RBSBIAR-US				RBSC-DS				RBSBIAR-EDS		RBSBIAR-EUS		
					21-Mar-18	19-Jun-18	27-Sep-18	21-Mar-18	19-Jun-18	27-Sep-18	17-Dec-18	21-Mar-18	19-Jun-18	19-Nov-18	17-Dec-18	19-Jun-18	27-Sep-18	19-Jun-18	27-Sep-18	17-Dec-18
Flow Rate	L/sec				2.0	1.0	3.0	0.5	0.25	0.50	0.10	n/a	none	none	none	0.25	1.0	0.25	0.5	0.1
Electrical Conductivity (EC)	µS/cm	2.0	NG	NG	542	731	714	496	733	609	639	754	2520	1330	1050	687	887	574	770	777
Hardness as $CaCO_3$	µg/L	500	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	275,000	298,000	283000	188,000	402,000	255000	338000	350000.00	1460000	606000	504000	265,000	341000	383,000	401000	469000
pH	pH Units	0.10	6.5 - 9	6.5-9.0	8.31	8.23	8.25	7.98	8.06	8.02	8.06	8.26	8.10	8.04	7.74	8.15	8.10	7.90	7.89	7.78
Total Dissolved Solids (TDS)	µg/L	10000	NG	NG	344000.00	502000	439000	543000.00	604000	363000	357000	539000.00	2500000	989000	712000	492000	565000	419000	478000	462000
Total Suspended Solids (TSS)	µg/L	3000	NG	NG	75500.00	1500	32000	1850000.00	799000	13400	4200	6700.00	32700	9800	24200	195000	30400	5900	7000	57000
Anions and Nutrients																				
Acidity (Total as $CaCO_3$)	µg/L	1000	NG	NG			1800			3300	4300			8500	11000		2700		7500	13100
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	NG	NG	213,000	188,000	233000	123,000	221,000	239000	243000	234000.00	405,000	369,000	328000	271,000	334000	295,000	378000	341000
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	NG	NG	3600	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Hydroxide) as $CaCO_3$	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	NG	NG	217.00	188	233	123.00	221	239	243	234.00	405	369	328	271	334	295	378	341
Ammonia (NH_4 as N)	µg/L	5.0	pH dependent (6.5-9.0)	pH dependent (6.5-9.0)	62.5	83.7	197	198	6.7	<5.0	6.6	5.1	<5	13.7	17.3	205	184	<5	<5.0	5.8
			pH dependent (at Temp 4 °C)		3150	3950	3150	6220	4950	6220	4950	3150	4950	6220	10300	3950	4950	7420	7420	8770
				pH dependent (at Temp 4 °C)	606	759	606	1200	952	1200	952	606.00	952	1200	1980	759	952	1430	1430	1690
Chloride (Cl^-)	µg/L	500	600000	150,000	26,600	60,000	32100	112,000	89,900	41800	39800	11100	21,000	15,400	17000	21,300	17700	17,900	22800	32400
Nitrate (NO_3^- as N)	µg/L	5.0-25.0	NG	NG	691	4000	2230	565	1320	1170	1240	52	<100	<25	<25	659	490	555	592	565
Nitrite (NO_2^- as N)	µg/L	1.0-5.0	60	20	14.1	**79.9**	27.4	43.4	<5	<1.0	<1	<5	<20	<5	<5	41.2	6.7	<1	<5.0	<5.0
Sulphate (SO_4) [3]	µg/L	300	NG	309,000 - 429,000	51100	111000	76400	17100	32300	24300	25400	182000	1460000	368000	263000	116000	126000	29400	27800	21900
SO_4 STM & LTA Guideline Calc (Based on Hardness as CaCO3)	µg/L		NG	Hardness 76,000-180,000 = 309,000 Hardness 181,000-250,000 = 429,000; Hardness > 250,000 site-specific	429000	429000	429000	309000	429000	429000	429000	429000	429000	429000	429000	429000	429000	429000	429000	429000
Metals, Total																				
Aluminum	µg/L	3.00	NG	NG	1120.00	45.9	569	23400.00	31.9	51.5	6.3	35.70	26.5	16.60	51.3	38.9	1030	15.4	774	568
Antimony	µg/L	0.10	NG	NG	0.7	0.63	0.23	1.59	0.19	0.11	<0.1	<0.1	<0.2	<0.1	<0.1	0.47	0.24	0.16	0.25	0.16
Arsenic	µg/L	0.10	5.00	5.0	1.93	0.50	0.54	**21.20**	0.17	0.17	0.05	0.83	0.57	1.75	1.19	0.48	1.71	0.12	1.19	0.75
Barium	µg/L	0.10	NG	NG	179	139	167	1080	270	240	192	68.9	54.6	36.5	39.4	151	273	244	354	280
Beryllium	µg/L	0.10	NG	NG	0.12	<0.1	0.17	1.55	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	0.17	<0.1	<0.1	<0.1
Bismuth	µg/L	0.05	NG	NG			<0.05			<0.05	<0.05			<0.05	<0.05		<0.05		<0.05	<0.05
Boron	µg/L	10.0	1200	1200	39	162	98	53	24	26	14	34	176	86	42	248	189	22	23	18
Cadmium	µg/L	0.005	NG	NG	0.208	0.0239	0.141	1.91	0.0336	0.0237	0.0143	0.0342	0.364	0.0053	0.0388	0.0259	0.347	0.0097	0.0475	0.0308
Calcium	µg/L	50	NG	NG	84,800	79,300	80700	142,000	112,000	92000	85000	107000.00	377,000	179,000	132000	67,100	104000	109,000	126000	121000
Cesium	µg/L	0.01	NG	NG			0.06			<0.01	<0.01			<0.01	0.011		0.245		0.117	0.102
Chromium [4]	µg/L	0.1-1.0	NG	NG	3.28	<0.4	<1.0	47.6	<0.4	<0.6	0.14	0.21	<0.2	<0.1	0.13	<0.2	2.16	<0.3	1.85	1.06
Cobalt	µg/L	0.10	110	4.0	4.01	0.39	4.3	23.8	0.17	0.05	0.05	0.91	1.4	2.0	1.49	1.98	9.07	0.05	0.73	0.61
Copper [3]	µg/L	0.50	Calc. based on Hardness	2 to 10	4.99	1.00	3.75	**63.90**	0.83	0.54	0.25	0.50	0.50	0.25	0.25	0.69	6.56	0.25	2.20	1.67
Cu STM Guideline Calc.	µg/L		Hardness 13,000 - 400,000 : calc.; Hardness ≥ 400,000 is Capped Value of 400,000		27.85	30.01	28.60	19.67	39.60	25.97	33.77	34.90	39.60	39.60	39.60	26.91	34.05	38.00	39.60	39.60
Cu LTA Guideline Calc.	µg/L			Hardness 50,000 - 250,000: calc.; Hardness > 250,000, Cu = 10	10.00	10.00	10.00	7.52	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Iron	µg/L	10	1000	NG	**2770**	91	759	**62100**	78	109	14	802	519	**1550**	**1030**	58	**2580**	26	**2100**	**1340**
Lead [3]	µg/L	0.05	101 - 348	Calc. based on Hardness	1.55	<0.05	0.217	28.1	0.087	0.084	<0.05	0.062	<0.1	<0.05	0.057	<0.05	1.15	<0.05	0.936	0.744
Pb STM Guideline Calc (Based on Hardness as $CaCO_3$), applies to water hardness 8000-360,000 µg/L	µg/L		Based on Hardness 8000-360,000 Hardness ≤ 8000: 3 Hardness > 8000 : calc.		295.9	327.8	306.9	182.4	479.9	268.8	384.8	402.3	2478.3	809.1	639.9	282.3	389.2	451.2	478.3	583.9
Pb LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 8000-360,000 Hardness ≤ 8000, NG Hardness > 8000 : calc.	14.9	16.1	15.3	10.4	22.0	13.8	18.3	19.0	99.9	34.9	28.3	14.3	18.5	20.9	22.0	26.1
Lithium	µg/L	1.0	NG	NG	10.4	27.9	22.7	34.5	9.5	8.9	6.4	13.7	113	49.4	23.3	42.7	41.1	9.2	10.1	8.2
Magnesium	µg/L	5.0	NG	NG	19,300	24,100	22900	20,500	25,500	18700	19400	23200.00	130,000	50,800	31300	22,100	29000	25,200	28300	28100
Manganese [3]	µg/L	0.10	Calc. based on Hardness	Calc. based on Hardness	119.0	6.78	51.8	1370.0	3.45	4.28	0.7	254.0	3050	606	475	44.1	126.0	1.89	43.4	24.5
Mn STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 25000-259000 µg/L Mn : calc.		3570.5	3824	3659.0	2611.8	4970.0	3350	4265	4397.0	16629.2	7218	6094	3460.3	4298.0	4760.7	4959.0	5708
Mn LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 37000-450000 µg/L Mn : calc.	1815.0	1916.2	1850.2	1432.2	2373.8	1727.0	2092.2	2145.0	7029.0	3271.4	2822.6	1771.0	2105.4	2290.2	2369.4	2668.6
Mercury (Based on methyl Hg & total mass Hg)	µg/L	0.005	NG	Calc.	<0.05	<0.005	<0.005	0.23	<0.005	0.0075	<0.005	<0.005	<0.005	0.0151	<0.005	<0.005	<0.005	<0.005	0.0082	0.0146
Molybdenum	µg/L	0.05	2000	≤ 1000	3.16	4.3	2.46	6.06	1.28	1.14	0.992	1.14	0.88	0.846	0.919	3.59	1.47	0.914	0.964	0.797
Nickel	µg/L	0.50	NG		13.9	6.51	17.9	72.2	<0.5	0.52	<0.5	2.82	74.1	6.02	3.92	9.94	31.5	<0.5	2.55	1.8
Phosphorus	µg/L	50.0	NG	NG			51			<50	<50			54	<50		162		161	66
Potassium	µg/L	50.0	NG	NG	2650	3850	3680	8440	4030	3800	3220	1220	3280	1540	1410	3200	3620	3580	4170	3210
Rubidium	µg/L	0.2	NG	NG			2			0.65	0.34			0.78	0.7		3.23		1.77	1.32
Selenium	µg/L	0.05	NG	2.0	1.32	1.23	0.7	1.1	0.485	0.463	1.02	0.1	0.2	<0.05	0.05	1.34	0.66	0.986	0.817	0.668
Silicon	µg/L	100.0	NG	NG			4340			5030	4100			4590	3750		6530		7530	5790
Silver [3] (Based on Hardness < or > 100000)	µg/L	0.01	0.10 - 3.0	0.05 - 1.5	0.027	0.005	0.005	0.518	0.005	0.005	0.005	0.005	0.01	0.005	0.005	0.005	0.022	0.005	0.012	0.011
Ag STM Guideline Calc	µg/L		Hardness ≤ 100,000 Ag = 0.10 Hardness > 100,000 Ag = 3.0		3.0	3.0	3.0	3.0	3.0	3.0	3	3.0	3.0	3.0	3	3.0	3.0	3.0	3.0	3
Ag LTA Guideline Calc				Hardness ≤ 100,000 Ag = 0.05 Hardness > 100,000 Ag = 1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sodium	µg/L	50.0	NG	NG	16,400	47,700	37300	12,900	12,600	8100	7740	28800.00	167,000	59,400	35200	85,000	74300	5950	5770	5500
Strontium	µg/L	0.2	NG	NG			435			247	263			441	349		422		318	290
Sulfur	µg/L	500.0	NG	NG			34600			8700	8860			150,000	69100		52300		10600	8430
Tellerium	µg/L	0.2	NG	NG			<0.2			<0.2	<0.2			<0.2	<0.2		<0.2		<0.2	<0.2
Thallium	µg/L	0.01	NG	NG	0.048	0.022	0.015	0.597	<0.01	<0.01	<0.01	<0.01	0.022	<0.01	<0.01	0.025	0.03	<0.01	0.019	0.019
Thorium	µg/L	0.10	NG	NG			0.23			<0.1	<0.1			<0.1	<0.1		0.64		0.25	0.17

TETRA TECH

Table B3: SBIAR Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	RBSBIAR-DS			RBSBIAR-US				RBSC-DS				RBSBIAR-EDS		RBSBIAR-EUS		
					21-Mar-18	19-Jun-18	27-Sep-18	21-Mar-18	19-Jun-18	27-Sep-18	17-Dec-18	21-Mar-18	19-Jun-18	19-Nov-18	17-Dec-18	19-Jun-18	27-Sep-18	19-Jun-18	27-Sep-18	17-Dec-18
Tin	µg/L	0.10	NG	NG	0.11	<0.1	<0.1	0.38	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium	µg/L	0.3-4.5	NG	NG	23.2	0.52	<4.5	163	0.88	1.36	<0.3	<0.9	<0.6	<0.6	<1.5	0.39	12.6	0.46	24.4	18
Tungsten	µg/L	0.10	NG	NG			<0.1			<0.1	<0.1			<0.1	<0.1		<0.1		<0.1	<0.1
Uranium	µg/L	0.01	NG	NG	1.72	1.41	1.19	4.01	1.45	1.05	1.18	1.64	7.07	2.26	1.72	1.39	1.62	1.58	1.83	1.79
Vanadium	µg/L	0.50	NG	NG	4.17	<0.5	0.73	80.1	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	2.92	<0.5	2.9	2.01
Zinc [3] (Based on Hardness < or > 90,000)	µg/L	3.0	Calc. based on Hardness	Calc. based on Hardness	42.7	3.1	50.7	**247**	1.5	1.5	1.5	1.50	39.8	1.5	6.9	3.4	103	1.5	7.6	7.9
Zn STM Guideline Calc.	µg/L		Hardness 90,000 - 500,000, Calc. Hardness > 500,000, is Capped Value of 500,000		171.8	189.0	177.8	106.5	267.0	156.8	219.0	228.0	340.5	340.5	340.5	164.3	221.3	252.8	266.3	317.3
Zn LTA Guideline Calc.				Hardness 90,000 - 330,000, Calc. Hardness > 330,000, is Capped Value of 330,000	146	164	152	81	188	131	188	188	188	188	188	139	188	188	188	188
Zircronium	µg/L	0.06	NG	NG																
Metals, Dissolved																				
Aluminum [5]	µg/L	1.0	100	50	51.5	15.7	**106**	10.6	1.6	4.6	0.5	1.40	2.5	1.2	0.5	22.1	**130**	2.4	0.5	0.5
Al STM Guideline Calc (based on pH)	µg/L		pH < 6.5 : calc. Al pH ≥ 6.5 : 100.0 Al		100	100	100	100	100	100	100	100.00	100	100	100	100	100	100	100	100
Al LTA Guideline Calc (based on median pH)				median pH < 6.5 : calc. Al median pH ≥ 6.5 : 50.0 Al	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Antimony	µg/L	0.10	NG	NG	0.44	0.59	0.19	1.31	0.17	0.11	<0.1	<0.1	<0.2	<0.1	<0.1	0.45	0.15	0.13	0.13	<0.1
Arsenic	µg/L	0.10	NG	NG	0.25	0.45	0.17	0.47	0.12	0.16	0.05	0.64	0.44	1.58	0.94	0.46	0.25	0.12	0.13	0.05
Barium	µg/L	0.10	NG	NG	137	145	160	89.5	292	191	222	59.2	50.6	35	39.6	163	226	269	313	306
Beryllium	µg/L	0.10	NG	NG	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bismuth		0.05	NG	NG			<0.05			<0.05	<0.05			<0.05	<0.05		<0.05		<0.05	<0.05
Boron	µg/L	10.0	NG	NG	37	156	95	28	22	21	15	32	176	76	41	230	176	19	21	17
Cadmium [3] (Based on Hardness as $CaCO_3$)	µg/L	0.005	Calc. based on Hardness	Calc. based on hardness	0.112	0.0182	0.0601	0.007	0.0302	0.0078	0.0081	0.0185	0.216	0.0025	0.0399	0.0253	0.163	0.0117	0.0087	0.0091
Cd STM Guideline Calc.	µg/L		Hardness 7,000 - 455,000, Calc. Hardness > 455,000, is Capped Value of 455,000		1.667	1.811	1.717	1.127	2.465	1.543	2.062	2.138	2.801	2.801	2.801	1.605	2.081	2.345	2.459	2.801
Cd LTA Guideline Calc.				Hardness 3,400 - 285,000, Calc. Hardness > 285,000, is Capped Value of 285,000	0.445	0.457	0.455	0.337	0.457	0.421	0.457	0.457	0.457	0.457	0.457	0.433	0.457	0.457	0.457	0.457
Calcium	µg/L	50.0	NG	NG	80,300	78,900	75200	65,700	116,000	72000	99400	105000.00	377,000	167,000	143000	68,800	91100	110,000	115000	135000
Cesium		0.01	NG	NG			0.015			<0.01	<0.01			<0.01	<0.01		0.021		<0.01	<0.01
Chromium	µg/L	0.10	NG	NG	1.02	0.19	0.13	2.61	0.15	0.14	0.17	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Cobalt	µg/L	0.10	NG	NG	2.84	0.32	4.6	0.05	0.12	0.05	0.05	0.86	1.26	1.82	1.44	1.99	7.04	0.05	0.05	0.05
Copper	µg/L	0.20	NG	NG	1.57	0.79	0.75	0.99	0.8	0.43	0.23	0.10	0.2	0.1	0.1	0.65	1.56	0.33	0.37	0.26
Iron	µg/L	10.0	350	NG	12.0	5.0	5.0	11.0	5.0	5.0	5.0	**474.0**	101	**2150**	**725**	5.0	11.0	5.0	5.0	5.0
Lead	µg/L	0.05	NG	NG	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lithium	µg/L	1.0	NG	NG	10.1	24.8	26.1	5.6	9.1	7.9	7.3	13.4	109	42.6	24.8	44.3	43.6	9.8	10	8.3
Magnesium	µg/L	5.0	NG	NG	18,100	24,600	23100	5890	27,000	18300	21700	21100.00	126,000	45,700	35900	22,700	27600	26,100	28000	31900
Manganese	µg/L	0.10	NG	NG	59.6	5.29	56	4.93	0.6	1.33	0.32	234	2880	657	495	47.5	86.9	1.38	0.46	1.38
Mercury	µg/L	0.005	NG	NG	<0.005	<0.005	<0.005	0.0077	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005	0.0089
Molybdenum	µg/L	0.05	NG	NG	2.62	4.35	2.63	9.77	1.34	1.11	1.06	1.02	0.93	0.614	0.865	3.65	1.46	0.885	0.96	0.732
Nickel	µg/L	0.50	NG	NG	9.98	6.45	18.1	0.54	<0.5	<0.5	<0.5	2.43	71.3	5.12	3.13	10.2	25.1	<0.5	<0.5	<0.5
Phosphorus	µg/L	50.0	NG	NG			<50			<50	<50			<50	<50		<50		<50	<50
Potassium	µg/L	50.0	NG	NG	2420	4020	3590	3900	4450	3290	3300	1170	3010	1580	1500	3510	3350	3840	4060	3330
Rubidium	µg/L	0.20	NG	NG			1.51			0.4	0.43			0.76	0.68		1.38		0.63	0.4
Selenium	µg/L	0.05	NG	2.0	1.26	1.32	0.754	0.463	0.452	0.617	0.938	0.066	0.17	0.063	<0.05	1.29	0.631	1.18	0.877	0.657
Silicon	µg/L	50.0	NG	NG			3960			3350	4160			4200	3990		5210		6200	5240
Silver	µg/L	0.01	NG	NG	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	µg/L	50.0	NG	NG	16,300	47,900	38400	10,800	13,100	5440	7970	27500.00	163,000	52,600	38300	84,700	76000	5960	5800	5970
Strontium	µg/L	0.20	NG	NG			420			244	295			434	353		384		288	310
Sulfur	µg/L	500	NG	NG			37400			7820	8380			112,000	67000		50900		10400	8100
Tellurium	µg/L	0.20	NG	NG			<0.2			<0.2	<0.2			<0.2	<0.2		<0.2		<0.2	<0.2
Thallium	µg/L	0.01	NG	NG	<0.01	0.023	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	<0.01	<0.01	0.028	0.011	<0.01	<0.01	<0.01
Thorium	µg/L	0.10	NG	NG			<0.1			<0.1	<0.1			<0.1	<0.1		<0.1		<0.1	<0.1
Tin	µg/L	0.10	NG	NG	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Titanium	µg/L	0.30	NG	NG	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Tungsten	µg/L	0.10	NG	NG			<0.1			<0.1	<0.1			<0.1	<0.1		<0.1		<0.1	<0.1
Uranium	µg/L	0.01	NG	NG	1.36	1.37	0.931	0.995	1.48	0.915	1.15	1.4	6.96	1.97	1.67	1.42	1.43	1.58	1.68	1.63
Vanadium	µg/L	0.50	NG	NG	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Zinc	µg/L	1.00	NG	NG	26.1	2	17.2	0.5	0.5	0.5	0.5	1.2	34.9	1.1	1.4	2.7	47.9	1.3	1.8	4.4
Zircronium	µg/L	0.06	NG	NG			<0.06			<0.06	<0.06			<0.06	<0.06		<0.06		<0.06	<0.06
Laboratory Work Order Number					L2071158	L2115119	L2172306	L2071158	L2115119	L2172306	L2211507	L2071158	L2115119	L2198555	L2211507	L2115118	L2172306	L2115118	L2172306	L2211507
Laboratory Identification Number					L2071158-9	L2115119-7	L2172306-8	L2071158-8	L2115119-6	L2172306-7	L2211507-6	L2071158-7	L2115119-5	L2198555-6	L2211507-8	L2115118-5	L2172306-10	L2115118-4	L2172306-9	L2211507-7

Notes:

Screening completed on BC AWQG-FWAL STM [1] and LTA [2] guideline values.

[1] BC Ministry of Environment, Water Protection & Sustainability Branch (2018), British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture

[2] BC Ministry of Environment, Water Protection & Sustainability Branch (2018). British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referencedfor Freshwater Aquatic Life (FWAL) water use and Long Term Average (LTA) guidelines.

[3] Guideline is hardness dependant. Where results are above laboratory reportable detection limits, guideline limits have been evaluated based on individual sample hardness. Sample-specific guideline values are listed in

[4] Guideline is for Chromium (IV) cation. Analytical results are for unspeciated Chromium. Where analytical results exceed the guideline, speciated analysis may be warranted.

[5] Guideline is pH dependant.

NG - No Guideline

Detection limit can vary as described in the COA. Detection limit can be raised when dilutation is requited due to high Dissolved Solids/Electrical Conductivity (DLDS), e.g. nitrite.

BOLD and shaded dark gray: Exceeds BCAWQG-FSTM (Short-term Maximum) guideline.

Shaded Light Gray: Exceeds BCAWQG-LTA (Long-term Average) guideline.

RED - Measured value is below detection limit (DL); value shown is 50% of DL

Blank - Not analyzed

Table B4: L3 Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	LBL3C-0.02									LBL3C-1.43								
					21-Mar-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	19-Nov-18	21-Mar-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	19-Nov-18	17-Dec-18	19-Apr-18
Physical Parameters						9:30									11:45								12:40
Flow Rate	L/sec				5.0	100.0		5.0	5.0		1.0	4.0	2.5	3.0	100.0		2.0	5.0		3.0	3.0	1.0	2.0	100.0
Electrical Conductivity (EC)	µS/cm	2.0	NG	NG	779	530	2040	2180	1660	2200	2150	2110	2100	478	348	1970	1870	1240	1710	1850	1800	1740	2070	303
Hardness as $CaCO_3$	µg/L	500	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	280,000	279,000	1270000	1280000	908000	1310000	1190000	1,180,000	1,160,000	138,000	159,000	1190000	1050000	616000	1010000	1030000	1090000	990000	1230000	142,000
pH	pH Units	0.10	6.5 - 9.0	6.5-9.0	8.06	7.86	8.21	8.21	8.31	8.18	8.23	8.26	8.23	7.98	7.68	8.37	7.78	8.29	8.25	8.17	8.22	8.23	8.07	7.73
Total Dissolved Solids (TDS)	µg/L	10000	NG	NG	516,000	454,000	1830000	2100000	1410000	2020000	1880000	1890000	1810000	362,000	303,000	1,780,000	1,680,000	1020000	1490000	1580000	1660000	1450000	1720000	287,000
Total Suspended Solids (TSS)	µg/L	3000	NG	NG	35,100	173,000	12,300	14,300	20200	16300	9000	7500	11600	383,000	129,000	35,700	23,900	31000	4900	9800	18300	3800	4000	59,700
Anions and Nutrients																								
Acidity (Total as $CaCO_3$)	µg/L	1000	NG	NG							2400		2400							4800		2400	9100	
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	NG	NG	103,000	86,900	213,000	250,000	217000	245000	249000	254000	253000	74,400	74,300	192,000	269,000	198000	265000	271000	258000	260000	277000	72,300
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000	3800	<1000	<1000	<1000	<1000	<1000	<1000	9000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Hydroxide) as $CaCO_3$	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	NG	NG	103	86.9	213	250	220	245	249	254	253	74.4	74.3	201	269	198	265	271	258	260	277	72.3
Ammonia (NH_4 as N)	µg/L	5.0	pH dependent (6.5-9.0)	pH dependent (6.5-9.0)	35	41.9	24.4	36.3	25.3	38.2	25.9	24.4	26.8	79.5	76.9	77.1	43.4	25.7	8.6	15.6	23.8	5.7	10.6	60
			pH dependent (at Temp 4 °C)		4950	7420	3950	3950	3150	3950	3950	3150	3950	6220	10300	2520	8770	3150	3150	3950	3950	3950	4950	10300
				pH dependent (at Temp 4 °C)	952	1430	759	759	606	759	759	606	759	1200	1980	484	1690	606	606	759	759	759	952	1980
Chloride (Cl^-)	µg/L	500	600000	150,000	67,500	20,700	26,800	31,500	48300	55000	45300	44300	34000	60,700	25,600	17,000	13,500	42600	12900	17600	22000	16600	19100	19,200
Nitrate (NO_3^- as N)	µg/L	5.0-100	NG	NG	696	571	227	148	247	200	301	348	547	887	595	1110	1860	546	1890	1450	1830	2680	3690	837
Nitrite (NO_2^- as N)	µg/L	1.0-20.0	60	20	14.6	11	<10	<10	<5.0	<20	<10	<10	<10	18.8	11.7	<10	<10	<5.0	<10	<5	<10	<10	<10	11.4
Sulphate (SO_4) [3]	µg/L	300	NG	309,000 - 429,000	191000	187000	1110000	1220000	710000	1320000	1080000	1050000	974000	66500	85000	1020000	1000000	454000	795000	746000	889000	809000	1000000	68500
SO_4 STM & LTA Guideline Calc (Based on Hardness as CaCO3)	µg/L		NG	Hardness 76,000-180,000 = 309,000 Hardness 181,000-250,000 = 429,000; Hardness > 250,000 site-specific	429000	429000	429000	429000	429000	429000	429000	429000	429000	309000	309000	429000	429000	429000	429000	429000	429000	429000	429000	309000
Metals, Total																								
Aluminum	µg/L	3.00	NG	NG	1480.00	4340.00	980.00	885	707	1300	789	701	558	4610.00	5120.00	6240.00	2370	1650	664	664	3570	30.8	19.9	4280.00
Antimony	µg/L	0.1-1.0	NG	NG	0.37	0.47	0.2	<0.2	0.24	0.21	<0.2	<0.2	<0.2	0.64	0.52	0.21	0.21	0.3	0.23	0.14	<0.2	<0.2	<0.2	0.48
Arsenic	µg/L	0.10	5.0	5.0	1.74	4.03	0.44	0.40	0.61	0.92	0.47	0.36	0.47	4.61	4.30	0.64	0.46	0.85	0.86	0.43	0.47	0.3	0.31	3.64
Barium	µg/L	0.10	NG	NG	90.7	158	55.4	47.5	67	54.7	54.3	46.2	39.4	281	237	48.2	44.9	109	80.9	69.6	46.6	49.2	44.4	179
Beryllium	µg/L	0.1-1.0	NG	NG	0.11	0.25	0.18	<0.2	0.11	0.22	<0.2	<0.2	<0.2	0.28	0.28	0.84	0.35	0.24	<0.1	<0.1	0.53	<0.2	<0.2	0.22
Bismuth	µg/L	0.05-0.10	NG	NG					<0.05	<0.1	<0.1	<0.1	<0.1					<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	
Boron	µg/L	10.0	1200	1200	35	29	113	142	112	154	124	113	113	20	21	102	124	92	111	110	112	93	108	23
Cadmium	µg/L	0.005	NG	NG	0.21	0.416	0.57	0.583	0.413	0.514	0.555	0.458	0.393	0.39	0.453	2.27	1.01	0.489	0.115	0.448	1.07	0.132	0.248	0.251
Calcium	µg/L	50	NG	NG	84,800	79,800	344,000	359,000	225000	358000	337000	325000	313000	51,000	48,900	276,000	277,000	141000	247000	258000	275000	236000	295000	37,800
Cesium	µg/L	0.01-0.02	NG	NG					0.03	0.09	<0.02	<0.02	0.022					0.031	0.116	0.01	<0.02	<0.02	<0.02	
Chromium [4]	µg/L	0.10	NG	NG	3.27	7.79	0.32	<0.2	0.32	0.64	0.39	<0.2	<0.2	9.96	9.36	1.2	<0.6	0.72	1.5	0.36	0.55	0.24	<0.2	8.27
Cobalt	µg/L	0.10	110.0	4.0	1.98	5.92	9.18	9.11	6.01	9.57	8.27	8.25	5.95	4.39	6.63	78.90	71.90	22.2	36.2	57.2	97.3	24.8	64.5	3.25
Copper [3]	µg/L	0.5-1.0	Calc. based on Hardness	2 to 10	5.24	11.10	2.14	1.70	2.36	2.7	1.9	1.5	1.7	13.80	13.60	6.00	2.50	3.59	1.96	1.32	3.4	0.5	0.5	11.50
Cu STM Guideline Calc.	µg/L		Hardness 13,000 - 400,000 : calc.; Hardness ≥ 400,000 is Capped Value of 400,000		28.32	28.23	39.60	39.60	39.60	39.60	39.60	39.60	39.60	14.97	16.95	39.60	39.60	39.60	39.60	39.60	39.60	39.60	39.60	15.35
Cu LTA Guideline Calc.	µg/L			Hardness 50,000 - 250,000: calc.; Hardness > 250,000, Cu = 10	10	10	10	10	10	10	10	10	10	6	6	10	10	10	10	10	10	10	10	6
Iron	µg/L	10	1000	NG	**2930**	**7950**	725	858	539	**1740**	939	957	697	**9570**	**9320**	901	611	770	**1130**	179	358	42	31	**7400**
Lead [3]	µg/L	0.05-0.1	Calc. based on Hardness	Calc. based on Hardness	1.81	4.18	0.12	0.05	0.128	0.33	<0.1	<0.1	<0.1	5.82	5.05	0.105	0.15	0.286	0.608	<0.05	<0.1	<0.1	<0.1	3.99
Pb STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 8000-360,000 Hardness ≤ 8000: 3 Hardness > 8000 : calc.		303	301	2075	2096.08	1353.9	2158.8	1910.3	1889.9	1849.2	123	147	1910	1628.94	826.2	1550.4	1589.5	1708.3	1511.4	1992.4	128
Pb LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 8000-360,000 Hardness ≤ 8000, NG Hardness > 8000 : calc.	15	15	84	85	56	87	78	77	75	8	9	78	67	36	64	65	70	62	81	8
Lithium	µg/L	1.0	NG	NG	12.2	14.9	55.1	66.6	44.1	70.8	56.5	51.7	49.7	8.7	9.9	82.8	62.7	29.3	47.6	45.1	54.3	40.6	46.9	6.1
Magnesium	µg/L	5.0	NG	NG	23,000	22,500	94,400	105,000	62400	101000	99700	102000	103000	14,100	16,200	103,000	106,000	51000	96500	107000	112000	99100	118000	12,900
Manganese [3]	µg/L	0.10	Calc. based on Hardness	Calc. based on Hardness	167	280	467	411	441	417	428	401	223	323	376	7400	7610	2200	2640	6040	8110	2760	6070	117
Mn STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 25000-259000 µg/L Mn : calc.		3626	3615	14535	14645.6	10546	14976	13654	13544	13323	2061	2292	13654	12111	7328	11670	11891	12552	11450	14095	2105
Mn LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 37000-450000 µg/L Mn : calc.	1837	1833	6193	6237	4600	6369	5841	5797	5709	1212	1305	5841	5225	3315	5049	5137	5401	4961	6017	1230
Mercury (Based on methyl Hg & total mass Hg)	µg/L	0.005	NG	Calc.	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0062	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0087	0.008	<0.05
Molybdenum	µg/L	0.05-0.10	2000	≤ 1000	2.53	3.05	1.59	1.65	2.2	2.48	1.61	1.59	1.85	3.13	2.82	0.77	0.75	1.85	1.06	1.04	0.83	0.94	0.87	2.39
Nickel	µg/L	0.5	NG		11.7	22.8	44.9	48.3	30.2	48.2	41.2	40.6	32.7	17.1	22.1	212	175	61.8	100	139	207	56.7	145	12.3
Phosphorus	µg/L	50-500	NG	NG					<50	<100	<100	<100	<100					<50	75	<50	<100	<100	<100	
Potassium	µg/L	50.0	NG	NG	3440	3610	6370	6220	6810	6630	5580	5700	5440	3380	3840	6650	6550	8810	6480	6430	6270	5320	6410	4240
Rubidium	µg/L	0.2	NG	NG					1.9	2.98	1.89	1.74	1.62					1.43	1.87	1.23	1.24	0.69	1.05	
Selenium	µg/L	0.05	NG	2.0	1.61	1.66	1.51	0.94	1.53	1.33	2.05	2.75	2.97	1.58	1.74	5.81	8.91	3.12	12.7	10.7	9.69	10.5	12.9	1.65
Silicon	µg/L	100.0	NG	NG					4470	5350	4510	4490	4050					4820	7000	5700	6440	5240	5750	
Silver [3] (Based on Hardness < or > 100000)	µg/L	0.01-0.02	0.10 - 3.0	0.05 - 1.5	0.037	0.083	0.005	0.01	<0.01	<0.02	<0.02	<0.02	<0.02	0.103	0.086	0.005	0.01	0.011	0.014	<0.01	<0.02	<0.02	<0.02	0.074
Ag STM Guideline Calc	µg/L		Hardness ≤ 100,000 Ag = 0.10 Hardness > 100,000 Ag = 3.0		3.0	3.0	3.0	3	3	3	3	3	3	3.0	3.0	3.0	3	3	3	3	3	3	3	3.0

Table B4: L3 Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	LBL3C-0.02									LBL3C-1.43								
					21-Mar-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	19-Nov-18	21-Mar-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	19-Nov-18	17-Dec-18	19-Apr-18
Ag LTA Guideline Calc	µg/L			Hardness ≤ 100,000 Ag = 0.05 Hardness > 100,000 Ag = 1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sodium	µg/L	50.0	NG	NG	50,200	21,100	65,100	79,500	53200	79600	68900	76800	71200	36,900	19,100	63,800	60,400	44000	45700	48600	58400	41200	52500	14,600
Strontium	µg/L	0.2	NG	NG					680	1020	862	918	913					496	740	743	777	735	803	
Sulfur	µg/L	500.0	NG	NG					265000	408000	380000	411000	382000					165000	286000	362000	381000	292000	354000	
Tellurium	µg/L	0.2-2.0	NG	NG					<0.2	<0.4	<0.4	<0.4	<0.4					<0.2	<0.2	<0.2	<0.4	<0.4	<0.4	
Thallium	µg/L	0.01-0.02	NG	NG	0.053	0.093	0.034	0.034	0.031	0.042	0.027	0.025	<0.02	0.125	0.102	0.03	0.022	0.021	0.028	0.017	0.021	<0.02	<0.02	0.087
Thorium	µg/L	0.1-1.0	NG	NG					<0.1	<0.2	<0.2	<0.2	<0.2					0.12	0.18	<0.1	<0.2	<0.2	<0.2	
Tin	µg/L	0.1-1.0	NG	NG	<0.1	<0.1	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	0.12	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.1
Titanium	µg/L	0.3-6.3	NG	NG	23	52.1	1.65	<0.6	2.47	<6.3	1.25	<0.6	<1.2	76.7	68.5	1.68	2.49	6.06	16.1	<1.2	0.86	<0.9	<0.6	57.9
Tungsten	µg/L	0.1-1.0	NG	NG					<0.1	<0.2	<0.2	<0.2	<0.2					<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	
Uranium	µg/L	0.01	NG	NG	2.23	1.89	6.52	7.08	4.95	6.83	6.14	6.33	6.49	1.87	1.61	4.24	4.24	4.11	4.84	5.36	5.07	5.07	5.98	1.53
Vanadium	µg/L	0.5-1.0	NG	NG	5.55	14.7	0.51	<1	<0.5	1.4	<1.0	<1.0	<1.0	17.7	17.8	<0.5	<1	1.0	2.54	<0.5	<1.0	<1.0	<1.0	15.6
Zinc [3] (Based on Hardness < or > 90,000)	µg/L	3.0	Calc. based on Hardness	Calc. based on Hardness	28.10	54.20	82.40	88.10	52.3	89.3	80.1	71.6	59.6	49.50	53.40	248.00	137.00	68.6	9.6	77.9	303	21.4	71.2	35.30
Zn STM Guideline Calc.	µg/L		Hardness 90,000 - 500,000, Calc. Hardness > 500,000, is Capped Value of 500,000		175.50	174.75	340.50	340.50	340.50	340.50	340.50	340.50	340.50	69.00	84.75	340.50	340.50	340.50	340.50	340.50	340.50	340.50	340.50	72.00
Zn LTA Guideline Calc.	µg/L			Hardness 90,000 - 330,000, Calc. Hardness > 330,000, is Capped Value of 330,000	150.0	149.3	187.5	187.5	187.5	187.5	187.5	187.5	187.5	43.5	59.3	187.5	187.5	187.5	187.5	187.5	187.5	187.5	46.5
Zircronium	µg/L	0.06-0.12	NG	NG					0.158	0.15	<0.12	<0.12	<0.12					0.32	0.324	0.065	<0.12	<0.12	<0.12	
Metals, Dissolved																								
Aluminum [5]	µg/L	1.0	100.0	50.0	37.30	62.80	**158.00**	**169**	**199**	**142**	**132**	**102**	88.8	15.20	40.70	83.70	61.1	**180**	6.2	41	54.6	5.9	14.1	14.60
Al STM Guideline Calc (based on pH)	µg/L		pH < 6.5 : calc. Al pH ≥ 6.5 : 100.0 Al		100.00	100.00	100.00	100	100	100	100	100	100	100.00	100.00	100.00	100.00	100	100	100	100	100	100	100.00
Al LTA Guideline Calc (based on median pH)	µg/L			median pH < 6.5 : calc. Al median pH ≥ 6.5 : 50.0 Al	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Antimony	µg/L	0.1-2.0	NG	NG	0.17	0.17	0.2	<0.2	0.26	0.19	<0.2	<0.2	<0.2	0.21	0.19	0.21	<0.2	0.31	0.18	0.13	<0.2	<0.2	<0.2	0.19
Arsenic	µg/L	0.1-2.0	NG	NG	0.25	0.18	0.26	0.23	0.39	0.23	0.24	0.1	0.1	0.27	0.22	0.27	0.10	0.49	0.21	0.25	0.10	0.10	0.10	0.37
Barium	µg/L	0.10	NG	NG	49.5	40.6	50.1	48.4	62.1	45.1	49.9	41.4	36.9	53.9	43.7	45.6	42.5	94.8	59	63.6	44.2	49.5	41.7	48.3
Beryllium	µg/L	0.1-2.0	NG	NG	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.1
Bismuth	µg/L	0.05-1.0	NG	NG					<0.05	<0.05	<0.1	<0.1	<0.1					<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	
Boron	µg/L	10.0	NG	NG	31	23	111	129	119	135	129	124	107	13	16	105	111	99	97	106	120	93	105	18
Cadmium [3] (Based on Hardness as $CaCO_3$)	µg/L	0.005	Calc. based on Hardness	Calc. based on hardness	0.10	0.147	0.489	0.415	0.356	0.216	0.429	0.387	0.362	0.06	0.10	2.20	0.881	0.36	0.0526	0.318	0.867	0.12	0.233	0.0357
Cd STM Guideline Calc.	µg/L		Hardness 7,000 - 455,000, Calc. Hardness > 455,000, is Capped Value of 455,000		1.70	1.69	2.80	2.80	2.80	2.80	2.80	2.80	2.80	0.82	0.95	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80	0.84
Cd LTA Guideline Calc.	µg/L			Hardness 3,400 - 285,000, Calc. Hardness > 285,000, is Capped Value of 285,000	0.45	0.45	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.27	0.30	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.27
Calcium	µg/L	50.0	NG	NG	78,400	77,100	373,000	342,000	252000	362000	324000	312000	315000	38,800	42,300	314,000	251,000	155000	247000	254000	261000	248000	290000	37,600
Cesium	µg/L	0.01-0.2	NG	NG					0.018	0.017	<0.02	<0.02	<0.02					<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	
Chromium	µg/L	0.1-2.0	NG	NG	0.46	0.21	0.14	<0.2	0.15	<0.1	<0.2	<0.2	<0.2	0.34	0.24	<0.1	<0.2	0.26	0.14	0.14	<0.2	<0.2	0.21	0.53
Cobalt	µg/L	0.10	NG	NG	0.76	2.09	8.24	8.83	5.89	8.18	7.99	8.03	5.66	0.42	1.96	91.00	67.1	20.7	32.2	51.5	90.9	24.3	57.4	0.17
Copper	µg/L	0.2-4.0	NG	NG	1.36	1.45	1.21	0.80	1.81	0.91	0.87	0.91	1.0	1.61	1.66	2.19	1.61	2.39	0.55	0.66	0.62	1.19	0.52	2.00
Iron	µg/L	10.0	350	NG	15	18	78	10	49	14	68	168	162	33	26	5	10	11	5.0	5.0	10	10	10	67
Lead	µg/L	0.05-1.0	NG	NG	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.1	<0.1	<0.1	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	0.067
Lithium	µg/L	1.0	NG	NG	10.9	10.7	58.9	56.5	47.3	62.3	57.9	54.3	45.6	2.4	4.9	101	53.5	30.7	41.8	44.2	53.8	38.9	50.3	2.2
Magnesium	µg/L	5.0	NG	NG	20,500	21,100	82,400	105,000	67700	99000	93100	97900	90800	10,100	13,000	98,800	104,000	55500	94700	95600	107000	90200	123000	11,600
Manganese	µg/L	0.10	NG	NG	117	167	411	423	435	387	434	397	207	154	217	8420	7620	2240	2570	5680	7630	2600	6370	26.5
Mercury	µg/L	0.005-0.1	NG	NG	0.0072	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0088	<0.005	<0.005	<0.005	0.0067	<0.005	<0.005	<0.005	0.0067	<0.025	0.0074
Molybdenum	µg/L	0.05-1.0	NG	NG	1.9	2.41	1.71	1.74	2.39	2.35	1.7	1.65	1.83	2.39	2.47	0.71	0.74	1.98	0.958	1.03	0.72	0.93	0.87	2.04
Nickel	µg/L	0.50	NG	NG	6.72	10.2	40.1	47.5	30.1	41	39.8	38.2	31.1	2.89	7.11	241	162	58	90.4	124	195	55.6	133	1.38
Phosphorus	µg/L	50-1000	NG	NG					<50	<50	<100	<100	<100					<50	<50	<50	<100	<100	<100	
Potassium	µg/L	50.0	NG	NG	3030	2730	6090	6290	6530	6580	5350	5760	5100	2360	2870	6570	6600	8550	6150	5710	6270	4920	6020	3560
Rubidium	µg/L	0.20	NG	NG					1.85	2.35	1.63	1.55	1.52					1.2	0.99	0.94	1.2	0.63	0.92	
Selenium	µg/L	0.05-1.0	NG	2.0	1.53	1.25	1.34	0.88	1.26	1.31	2.15	2.41	3.1	1.25	1.27	5.02	8.81	2.83	11.8	12.4	9.34	11.1	11.1	1.4
Silicon	µg/L	50.0	NG	NG					4260	4400	4210	4010	3680					4370	5470	5130	5210	5190	5750	
Silver	µg/L	0.01-0.2	NG	NG	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01
Sodium	µg/L	50.0	NG	NG	47,500	20,200	58,600	78,600	54500	75800	68900	72400	68400	34,800	17,400	63,600	59,800	45300	43400	46900	54400	37700	51900	14,500
Strontium	µg/L	0.20	NG	NG					701	1020	930	920	913					508	738	763	752	743	857	
Sulfur	µg/L	500	NG	NG					266000	370000	381000	391000	366000					169000	252000	299000	344000	288000	350000	
Tellurium	µg/L	0.2-4.0	NG	NG					<0.2	<0.2	<0.4	<0.2	<0.4					<0.2	<0.2	<0.2	<0.4	<0.4	<0.4	
Thallium	µg/L	0.01-0.2	NG	NG	<0.01	<0.01	0.033	0.032	0.03	0.033	0.027	0.024	0.022	<0.01	<0.01	0.038	0.022	0.018	0.018	0.016	<0.02	<0.02	<0.02	<0.01
Thorium	µg/L	0.1-2.0	NG	NG					<0.1	<0.1	<0.2	<0.2	<0.2					<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	
Tin	µg/L	0.1-2.0	NG	NG	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.1
Titanium	µg/L	0.3-6.0	NG	NG	<0.3	0.49	<0.3	<0.6	<0.9	0.76	<0.6	<0.6	<0.6	0.64	0.89	<0.3	<0.6	<0.3	<0.3	<0.3	<0.6	<0.6	<0.6	2.06
Tungsten	µg/L	0.1-2.0	NG	NG					<0.1	<0.1	<0.2	<0.2	<0.2					<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	
Uranium	µg/L	0.01	NG	NG	1.73	1.74	6.58	6.86	4.9	6.55	5.89	6.52	6.27	1.19	1.34	3.07	3.53	3.8	4.53	4.78	4.67	5.33	5.44	1.38
Vanadium	µg/L	0.5-10	NG	NG	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5	<0.5	<0.5	<1	0.53	<0.5	<0.5	<1.0	<1.0	<1.0	<0.5
Zinc	µg/L	1.00	NG	NG	9.10	9.60	53.80	51.8	31.2	41.4	50.6	54	50.7	2.20	3.70	85.70	58.9	19.7	2.8	54.1	175	21.7	65.5	1.20
Zirconium	µg/L	0.06-1.2	NG	NG					0.064	<0.06	<0.12	<0.12	<0.12					0.096	<0.06	<0.06	<0.12	<0.12	<0.12	
Laboratory Work Order Number					L2071158	L2082450	L2100153	L2115119	L2136818	L2150694	L2172306	L2185138	L2198555	L2071158	L2082450	L2100153	L2115119	L2136818	L2150694	L2172306	L2185138	L2198555	L2211507	L2082450
Laboratory Identification Number					L2071158-2	L2082450-4	L2100153-3	L2115119-3	L2136818-4	L2150694-2	L2172306-2	L2185138-2	L2198555-2	L2071158-1	L2082450-3	L2100153-2	L2115119-2	L2136818-3	L2150694-1	L2172306-1	L2185138-1	L2198555-1	L2211507-2	L2082450-2

Notes:

Screening completed on BC AWQG-FWAL STM [1] and LTA [2] guideline values.

[1] BC Ministry of Environment, Water Protection & Sustainability Branch (2018). British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referenced for Freshwater Aquatic Life (FWAL) water use and Short Term Maximum (STM) guidelines.

[2] BC Ministry of Environment, Water Protection & Sustainability Branch. 2018. British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referencedfor Freshwater Aquatic Life (FWAL) water use and Long Term Average (LTA) guidelines.

[3] Guideline is hardness dependant. Where results are above laboratory reportable detection limits, guideline limits have been evaluated based on individual sample hardness. Sample-specific guideline values are listed in parentheses after the laboratory result, where applicable.

[4] Guideline is for Chromium (IV) cation. Analytical results are for unspeciated Chromium. Where analytical results exceed the guideline, speciated analysis may be warranted.

[5] Guideline is pH dependant.

NG - No Guideline

Detection limit can vary as described in the COA. Detection limit can be raised when dilutation is requited due to high Dissolved Solids/Electrical Conductivity (DLDS), e.g. nitrite.

BOLD and shaded dark gray: Exceeds BCAWQG-FSTM (Short-term Maximum) guideline.

Shaded Light Gray: Exceeds BCAWQG-LTA (Long-term Average) guideline.

RED - Measured value is below detection limit (DL); value shown is 50% of DL

Blank - Not analyzed

TETRA TECH

Table B4: L3 Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	LBL3C-1.65		LBL3C-3.32				LBL4C-0.18					
					26-Jul-18	17-Dec-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	21-Mar-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	22-Oct-18
Physical Parameters							13:50					12:22				
Flow Rate	L/sec				0.2	0.1	5.0		0.1	2.0	0.2	10.0		1.0	2.5	0.05
Electrical Conductivity (EC)	µS/cm	2.0	NG	NG	1230	3970	550	1180	1300	1110	1540	830	2160	2490	1200	2360
Hardness as $CaCO_3$	µg/L	500	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	707000	2580000	180,000	628,000	683,000	451000	209,000	286,000	1010000	1180000	506000	986000
pH	pH Units	0.10	6.5 - 9.0	6.5-9.0	8.25	**6.36**	8.00	8.47	8.20	8.33	8.06	8.01	**4.45**	**4.46**	7.88	**4.39**
Total Dissolved Solids (TDS)	µg/L	10000	NG	NG	1030000	4020000	340,000	904,000	1,050,000	812000	943,000	574,000	2,070,000	2,480,000	933000	2310000
Total Suspended Solids (TSS)	µg/L	3000	NG	NG	14200	47400	4500.00	9300	7500	8400	39,700	875,000	11,500	109,000	63400	45900
Anions and Nutrients																
Acidity (Total as $CaCO_3$)	µg/L	1000	NG	NG		115000										
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	NG	NG	208000	298000	109,000	250,000	314,000	213000	96,000	128,000	<1000	<1000	88300	<1000
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	NG	NG	<1000	<1000	<1000	19,200	<1000	6200	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Hydroxide) as $CaCO_3$	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	NG	NG	208	298	109	269	314	219	96.00	128	0.5	0.5	88.3	<1
Ammonia (NH_4 as N)	µg/L	5.0	pH dependent (6.5-9.0)	pH dependent (6.5-9.0)	5.6	275	232	9	14.2	11.8	39.5	21.3	171	284	84.8	232
			pH dependent (at Temp 4 °C)		3150	-	6220	2010	3950	3150	4950	6220	-	-	7420	-
				pH dependent (at Temp 4 °C)	606	-	1200	387	759	606	952	1200	-	-	1430	-
Chloride (Cl^-)	µg/L	500	600000	150,000	10500	15000	62,200	52,400	53,300	67600	375,000	108,000	28,900	34,000	32700	33000
Nitrate (NO_3^- as N)	µg/L	5.0-100	NG	NG	4440	<100	284	<25	<25	<25	244	302	75	<100	<25	<100
Nitrite (NO_2^- as N)	µg/L	1.0-20.0	60	20	<5.0	<20	17.5	<5	<5	<5	20.9	<5	<10	<20	<5.0	<20
Sulphate (SO_4) [3]	µg/L	300	NG	309,000 - 429,000	512000	2450000	62400	371000	404000	295000	83100	145000	1380000	1780000	526000	1500000
SO_4 STM & LTA Guideline Calc (Based on Hardness as CaCO3)	µg/L		NG	Hardness 76,000-180,000 = 309,000 Hardness 181,000-250,000 = 429,000; Hardness > 250,000 site-specific	429000	429000	309000	429000	429000	429000	309000	429000	429000	429000	429000	429000
Metals, Total																
Aluminum	µg/L	3.00	NG	NG	386	2540	403.00	59.00	57.80	115	3560.00	19800	34300	33000	7200	36800
Antimony	µg/L	0.1-1.0	NG	NG	0.3	<1.0	0.19	0.3	0.3	0.3	0.48	0.69	<0.2	<0.2	0.19	<0.2
Arsenic	µg/L	0.10	5.0	5.0	1.93	3.5	1.16	0.56	0.63	0.98	2.99	**13.50**	2.05	3.30	0.93	2.13
Barium	µg/L	0.10	NG	NG	83.5	103	73.5	132	137	101	129	448	47.2	41.6	81.4	23.4
Beryllium	µg/L	0.1-1.0	NG	NG	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	0.21	1.17	4.54	5.08	1.15	4.75
Bismuth	µg/L	0.05-0.10	NG	NG	<0.05	<0.5				<0.05					<0.05	<0.1
Boron	µg/L	10.0	1200	1200	60	200	43	72	83	118	19	34	118	172	88	166
Cadmium	µg/L	0.005	NG	NG	0.129	6.23	0.094	0.055	0.051	0.0466	0.23	1.69	8.04	8.86	1.51	6.54
Calcium	µg/L	50	NG	NG	145000	566000	48,300	163,000	176,000	129000	63,200	87,600	257,000	300,000	122000	245000
Cesium	µg/L	0.01-0.02	NG	NG	0.042	0.31				0.024					0.083	0.041
Chromium [4]	µg/L	0.10	NG	NG	1.08	3.1	1.07	0.24	<0.3	0.49	7.11	33.2	5.2	2.21	1.58	2.58
Cobalt	µg/L	0.10	110.0	4.0	2.08	**1240**	0.51	0.17	0.23	0.26	2.60	20.60	**138**	**186**	34.8	**138**
Copper [3]	µg/L	0.5-1.0	Calc. based on Hardness	2 to 10	3.1	5.7	3.07	2.66	2.27	2.54	9.59	**45.00**	32.30	27.4	8.24	25.6
Cu STM Guideline Calc.	µg/L		Hardness 13,000 - 400,000 : calc.; Hardness ≥ 400,000 is Capped Value of 400,000		39.60	39.60	18.92	39.60	39.60	39.60	21.65	28.88	39.60	39.60	39.60	39.60
Cu LTA Guideline Calc.	µg/L			Hardness 50,000 - 250,000: calc.; Hardness > 250,000, Cu = 10	10	10	7	10	10	10	8	10	10	10	10	10
Iron	µg/L	10	1000	NG	**2590**	**7720**	867	94	145	233	**6430**	**36100**	**5650**	**9040**	**3080**	**6050**
Lead [3]	µg/L	0.05-0.1	Calc. based on Hardness	Calc. based on Hardness	0.479	2.38	0.514	0.068	0.074	0.141	3.2	15.8	0.31	0.15	0.485	<0.1
Pb STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 8000-360,000 Hardness ≤ 8000: 3 Hardness > 8000 : calc.		984.6	5115.9	173	847	942.21	555.5	209	311	1550	1889.89	643.2	1503.6
Pb LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 8000-360,000 Hardness ≤ 8000, NG Hardness > 8000 : calc.	42	203	10	36	40	25	11	15	64	77	28	62
Lithium	µg/L	1.0	NG	NG	13.5	142	3.7	17.7	18.7	12.6	10.2	38.9	206	248	63.1	160
Magnesium	µg/L	5.0	NG	NG	59300	264000	16,200	54,100	58,000	45100	20,800	31,800	106,000	130,000	46100	115000
Manganese [3]	µg/L	0.10	Calc. based on Hardness	Calc. based on Hardness	73.4	**80500**	75.6	20.2	42.7	10.9	99.4	736	4810	6860	1620	5730
Mn STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 25000-259000 µg/L Mn : calc.		8331	28972	2524	7461	8066.66	5510	2843	3692	11670	13543.6	6116	11406
Mn LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 37000-450000 µg/L Mn : calc.	3716	11957	1397	3368	3610	2589	1525	1863	5049	5797	2831	4943
Mercury (Based on methyl Hg & total mass Hg)	µg/L	0.005	NG	Calc.	<0.005	<0.005	0.0075	<0.005	<0.005	<0.005	<0.05	0.0101	<0.005	<0.005	<0.005	<0.005
Molybdenum	µg/L	0.05-0.10	2000	≤ 1000	1.07	1.02	0.948	1.44	1.72	1.63	2.3	2.28	0.29	0.12	0.744	<0.1
Nickel	µg/L	0.5	NG		6.87	2180	2.78	3.96	4.26	5.49	10.8	75.2	469	608	116	472
Phosphorus	µg/L	50-500	NG	NG	151	<500				<50					<50	<100
Potassium	µg/L	50.0	NG	NG	7360	10800	8100	11,800	13,500	10500	5100	8.22	6880	6790	7020	5330
Rubidium	µg/L	0.2	NG	NG	1.74	6.3				1.24					3.4	4.65
Selenium	µg/L	0.05	NG	2.0	3.26	0.57	0.168	1.28	0.624	0.351	2.05	2.42	1.2	0.95	0.613	0.65
Silicon	µg/L	100.0	NG	NG	5160	10100				3940					6040	10100
Silver [3] (Based on Hardness < or > 100000)	µg/L	0.01-0.02	0.10 - 3.0	0.05 - 1.5	<0.01	<0.01	0.015	0.005	0.005	<0.01	0.058	0.328	0.01	0.01	0.012	<0.02
Ag STM Guideline Calc	µg/L		Hardness ≤ 100,000 Ag = 0.10 Hardness > 100,000 Ag = 3.0		3	3	3.0	3.0	3	3	3.0	3.0	3.0	3.0	3	3

Table B4: L3 Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	LBL3C-1.65		LBL3C-3.32				LBL4C-0.18					
					26-Jul-18	17-Dec-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	21-Mar-18	19-Apr-18	24-May-18	19-Jun-18	26-Jul-18	22-Oct-18
Ag LTA Guideline Calc	µg/L			Hardness ≤ 100,000 Ag = 0.05 Hardness > 100,000 Ag = 1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sodium	µg/L	50.0	NG	NG	25400	143000	35,800	30,200	46,700	43900	230,000	60,600	102,000	138,000	59200	144000
Strontium	µg/L	0.2	NG	NG	603	1320				507					403	673
Sulfur	µg/L	500.0	NG	NG	176000	922000				107000					175000	534000
Tellurium	µg/L	0.2-2.0	NG	NG	<0.2	<2.0				<0.2					<0.2	<0.4
Thallium	µg/L	0.01-0.02	NG	NG	0.062	0.18	<0.01	<0.01	<0.01	0.01	0.08	0.317	0.057	0.073	0.033	0.054
Thorium	µg/L	0.1-1.0	NG	NG	0.92	<1.0				<0.1					0.33	0.33
Tin	µg/L	0.1-1.0	NG	NG	<0.1	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.2	<0.2	<0.1	<0.2
Titanium	µg/L	0.3-6.3	NG	NG	6	24.1	8.13	1.37	0.96	<1.8	54.7	110	3.27	<0.6	16.2	<0.6
Tungsten	µg/L	0.1-1.0	NG	NG	<0.1	<1.0				<0.1					<0.1	<0.2
Uranium	µg/L	0.01	NG	NG	7.5	2.84	0.778	8.33	8.23	3.05	1.67	2.43	5.09	5.24	2.18	3.56
Vanadium	µg/L	0.5-1.0	NG	NG	1.24	5.8	1.85	0.54	0.6	1.01	13.6	56.2	<1	<1	1.65	<1.0
Zinc [3] (Based on Hardness < or > 90,000)	µg/L	3.0	Calc. based on Hardness	Calc. based on Hardness	16	**2190**	9.70	1.50	3.30	3.2	30.90	**201.0**	**945**	**1130**	186	**894**
Zn STM Guideline Calc.	µg/L		Hardness 90,000 - 500,000, Calc. Hardness > 500,000, is Capped Value of 500,000		340.50	340.50	100.50	340.50	340.50	303.75	122.25	180.00	340.50	340.50	340.50	340.50
Zn LTA Guideline Calc.	µg/L			Hardness 90,000 - 330,000, Calc. Hardness > 330,000, is Capped Value of 330,000	187.5	187.5	75.0	187.5	187.5	187.5	96.8	154.5	187.5	187.5	187.5	187.5
Zircronium	µg/L	0.06-0.12	NG	NG	0.214	0.95				0.344					0.458	0.12
Metals, Dissolved																
Aluminum [5]	µg/L	1.0	100.0	50.0	7.3	**1040**	18.10	4.60	4.00	**211**	13.30	83.50	**25300**	**41500**	**141**	**31300**
Al STM Guideline Calc (based on pH)	µg/L		pH < 6.5 : calc. Al pH ≥ 6.5 : 100.0 Al		100	0.073	100.00	100.00	100.00	100	100.00	100.00	20.09	20.12	100	19.96
Al LTA Guideline Calc (based on median pH)	µg/L			median pH < 6.5 : calc. Al median pH ≥ 6.5 : 50.0 Al	50.00	36.92	50.00	50.00	50.00	50.00	50.00	50.00	5.28	5.29	50.00	5.20
Antimony	µg/L	0.1-2.0	NG	NG	0.28	<2.0	0.15	0.29	0.27	0.26	0.18	0.13	<0.2	<0.2	0.18	<0.2
Arsenic	µg/L	0.1-2.0	NG	NG	0.27	0.10	0.74	0.45	0.55	0.91	0.36	0.27	1.72	2.50	0.27	1.23
Barium	µg/L	0.10	NG	NG	58.5	20.5	64.4	127	144	103	55.3	54	41.4	46.9	61.1	21.7
Beryllium	µg/L	0.1-2.0	NG	NG	<0.1	<2.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	3.84	5.36	<0.1	4.85
Bismuth	µg/L	0.05-1.0	NG	NG	<0.05	<1.0				<0.05					<0.05	<0.1
Boron	µg/L	10.0	NG	NG	69	200	38	71	73	105	15	23	122	149	89	177
Cadmium [3] (Based on Hardness as $CaCO_3$)	µg/L	0.005	Calc. based on Hardness	Calc. based on hardness	0.0088	**5.35**	0.0519	0.0427	0.0335	0.0477	0.04	0.267	**7.81**	**9.11**	1.02	**6.23**
Cd STM Guideline Calc.	µg/L		Hardness 7,000 - 455,000, Calc. Hardness > 455,000, is Capped Value of 455,000		2.80	2.80	1.08	2.80	2.80	2.78	1.26	1.74	2.80	2.80	2.80	2.80
Cd LTA Guideline Calc.	µg/L			Hardness 3,400 - 285,000, Calc. Hardness > 285,000, is Capped Value of 285,000	0.46	0.46	0.33	0.46	0.46	0.46	0.36	0.46	0.46	0.46	0.46	0.46
Calcium	µg/L	50.0	NG	NG	175000	566000	47,700	171,000	175,000	114000	54,700	73,300	235,000	267,000	125000	225000
Cesium	µg/L	0.01-0.2	NG	NG	<0.01	<0.2				0.028					0.018	0.043
Chromium	µg/L	0.1-2.0	NG	NG	0.16	<2.0	0.34	<0.1	<0.1	0.55	0.49	0.14	2.61	4.69	<0.1	1.95
Cobalt	µg/L	0.10	NG	NG	0.19	1140	0.27	0.13	0.18	0.22	0.31	4.45	137	185	32.2	135
Copper	µg/L	0.2-4.0	NG	NG	1.7	2.0	1.99	2.29	2.25	2.29	1.88	2.58	29.5	29.8	2.2	24.9
Iron	µg/L	10.0	350	NG	5	**2050**	164	15	28	161	29	33	**3800**	11,400	259	**5490**
Lead	µg/L	0.05-1.0	NG	NG	<0.05	<1.0	0.115	<0.05	<0.05	0.126	<0.05	<0.05	0.16	0.8	<0.05	0.1
Lithium	µg/L	1.0	NG	NG	15.3	141	3.2	17.8	16.2	11.1	5.9	18.1	198	226	62.3	171
Magnesium	µg/L	5.0	NG	NG	65400	283000	14,800	48,800	60,000	40100	17,500	25,000	103,000	125,000	47300	103000
Manganese	µg/L	0.10	NG	NG	9.05	83300	61.2	15.9	43.4	10.1	24.5	288	4620	6950	1640	5130
Mercury	µg/L	0.005-0.1	NG	NG	<0.1	<0.005	0.0081	<0.005	<0.005	<0.005	0.0093	0.0087	<0.005	<0.005	<0.005	<0.005
Molybdenum	µg/L	0.05-1.0	NG	NG	1.01	<1.0	0.877	1.52	1.74	1.55	1.66	1.18	0.11	0.18	0.927	<0.1
Nickel	µg/L	0.50	NG	NG	1.87	2020	2	3.69	4.14	5.17	1.93	19.2	460	602	105	455
Phosphorus	µg/L	50-1000	NG	NG	<50	<1000				<50					<50	<100
Potassium	µg/L	50.0	NG	NG	7510	9600	7860	11,200	14,200	10000	4120	5.63	6680	6430	7070	5210
Rubidium	µg/L	0.20	NG	NG	1.45	4.2				1.49					2.6	4.18
Selenium	µg/L	0.05-1.0	NG	2.0	2.72	<1.0	0.158	1.19	0.602	0.484	1.89	1.26	1.23	0.96	0.571	0.69
Silicon	µg/L	50.0	NG	NG	4860	7500				4100					4280	9810
Silver	µg/L	0.01-0.2	NG	NG	<0.01	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.01	<0.02
Sodium	µg/L	50.0	NG	NG	27700	138000	32,800	28,000	47,100	41500	216,000	59,400	97,900	133,000	56800	139000
Strontium	µg/L	0.20	NG	NG	606	1340				497					396	662
Sulfur	µg/L	500	NG	NG	180000	879000				100000					191000	546000
Tellurium	µg/L	0.2-4.0	NG	NG	<0.2	<4.0				<0.2					<0.2	<0.4
Thallium	µg/L	0.01-0.2	NG	NG	0.054	<0.2	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.054	0.071	0.027	0.055
Thorium	µg/L	0.1-2.0	NG	NG	<0.1	<2.0				<0.1					<0.1	0.25
Tin	µg/L	0.1-2.0	NG	NG	<0.1	<2.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.2
Titanium	µg/L	0.3-6.0	NG	NG	<0.3	<6.0	2.68	<0.3	<0.3	<12	<1.2	1.27	<0.6	<6	<0.3	<0.6
Tungsten	µg/L	0.1-2.0	NG	NG	<0.1	<2.0				<0.1					<0.1	<0.2
Uranium	µg/L	0.01	NG	NG	7.01	2.33	0.803	8.86	7.96	3.02	1.24	1.59	4.46	5.63	1.58	3.69
Vanadium	µg/L	0.5-10	NG	NG	<0.5	<10.0	<0.5	<0.5	<0.5	1.06	<0.5	<0.5	<1	<1	<0.5	<1.0
Zinc	µg/L	1.00	NG	NG	3.3	2010	5.20	1.40	2.10	3.0	0.50	7.40	923	1190	47.7	942
Zirconium	µg/L	0.06-1.2	NG	NG	<0.06	<1.2				0.568					<0.06	<0.12
Laboratory Work Order Number					L2136818	L2211507	L2082450	L2100153	L2115119	L2136818	L2071158	L2082450	L2100153	L2115119	L2136818	L2185138
Laboratory Identification Number					L2136818-2	L2211507-1	L2082450-1	L2100153-1	L2115119-1	L2136818-1	L2071158-3	L2082450-5	L2100153-4	L2115119-4	L2136818-5	L2185138-3

Notes:

Screening completed on BC AWQG-FWAL STM [1] and LTA [2] guideline values.

[1] BC Ministry of Environment, Water Protection & Sustainability Branch (2018). British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referenced for Freshwater Aquatic Life (FWAL) water use and Short Term Maximum (STM) guidelines.

[2] BC Ministry of Environment, Water Protection & Sustainability Branch. 2018. British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referencedfor Freshwater Aquatic Life (FWAL) water use and Long Term Average (LTA) guidelines.

[3] Guideline is hardness dependant. Where results are above laboratory reportable detection limits, guideline limits have been evaluated based on individual sample hardness. Sample-specific guideline values are listed in parentheses after the laboratory result, where applicable.

[4] Guideline is for Chromium (IV) cation. Analytical results are for unspeciated Chromium. Where analytical results exceed the guideline, speciated analysis may be warranted.

[5] Guideline is pH dependant.

NG - No Guideline

Detection limit can vary as described in the COA. Detection limit can be raised when dilutation is requited due to high Dissolved Solids/Electrical Conductivity (DLDS), e.g. nitrite.

BOLD and shaded dark gray: Exceeds BCAWQG-FSTM (Short-term Maximum) guideline.

Shaded Light Gray: Exceeds BCAWQG-LTA (Long-term Average) guideline.

RED - Measured value is below detection limit (DL); value shown is 50% of DL

Blank - Not analyzed

Table B5: Other Sampling Locations Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	Gully Rd Ditch						Wiley C.
					24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	27-Sep-18
Physical Parameters											
							12:10		12:01	12:57	10:55
Flow Rate (L/s)	L/sec						0.10		0.10	0.10	0
Electrical Conductivity (EC)	µS/cm	2.0	NG	NG	2050	1610	2330	1520	1890	1690	2850
Hardness as $CaCO_3$	µg/L	500	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	NG (Acceptable ranges exist when calculating exceedances for Cd, Cu, Pb, Mn, Zn, F)	850,000	582,000	1010000	493000	709000	695000	1800000
pH	pH Units	0.10	6.5 - 9	6.5-9.0	7.90	8.01	8.09	8.20	7.97	7.96	7.83
Total Dissolved Solids (TDS)	µg/L	10000	NG	NG	1540000	1190000	1860000	1060000	1320000	1230000	2830000
Total Suspended Solids (TSS)	µg/L	3000	NG	NG	319,000	70,500	245000	<3000	24000	29900	33400
Anions and Nutrients											
Acidity (Total as $CaCO_3$)	µg/L	1000	NG	NG					7800		4700
Alkalinity (Bicarbonate as $CaCO_3$)	µg/L	1000	NG	NG	234,000	245,000	254000	206000	294000	303000	116000
Alkalinity (Carbonate as $CaCO_3$)	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Hydroxide) as $CaCO_3$	µg/L	1000	NG	NG	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Alkalinity (Total as $CaCO_3$)	mg/L	1.0	NG	NG	234	245	254	206	294	303	116
Ammonia (NH_4 as N)	µg/L	5.0	pH dependent (6.5-9.0)	pH dependent (6.5-9.0)	83.8	59.0	358	19.6	335	266	<5.0
			pH dependent (at Temp 4 °C)		6220	6220	4950	3950	6220	6220	8770
				pH dependent (at Temp 4 °C)	1430	1200	952	759	1200	1200	1690
Chloride (Cl^-)	µg/L	500	600,000	150,000	320,000	244,000	284000	185000	212000	221000	38000
Nitrate (NO_3^- as N)	µg/L	5.0-100	NG	NG	290	304	82	208	143	170	<100
Nitrite (NO_2^- as N)	µg/L	1.0-20	60	20	10	17	<10	12	7.9	<5.0	<20
Sulphate (SO_4) [3]	µg/L	300.00	NG	309,000 - 429,001	440,000	363,000	676000	333,000	396000	340000	1850000
SO_4 STM & LTA Guideline Calc (Based on Hardness as CaCO3)	µg/L		NG	Hardness 76,000-180,000 = 309,000 Hardness 181,000-250,000 = 429,000; Hardness > 250,000 site-specific	429000	429000	429000	429000	429000	429000	429000
Metals, Total											
Aluminum	µg/L	3.00	NG	NG	164	76.5	4810	79.7	403	317	6720
Antimony	µg/L	0.1-0.2	NG	NG	0.17	0.16	0.12	<0.1	<0.1	<0.1	<0.2
Arsenic	µg/L	0.10	5.0	5.0	0.43	0.33	3.3	0.27	0.45	0.36	1.12
Barium	µg/L	0.10	NG	NG	57.9	46.8	73.8	38.8	45.8	46.3	16.1
Beryllium	µg/L	0.10	NG	NG	<0.1	<0.1	1.37	<0.1	0.11	0.11	1.74
Bismuth	µg/L	0.05-0.10		NG			<0.05	<0.05	<0.05	<0.05	<0.1
Boron	µg/L	10.0	1200	1200	234	267	266	286	201	153	160
Cadmium	µg/L	0.005	NG	NG	0.472	0.0518	3.53	0.0067	0.578	0.44	6.63
Calcium	µg/L	50	NG	NG	223,000	146,000	232000	114000	187000	169000	464000
Cesium	µg/L	0.01		NG			0.033	0.017	0.011	0.011	0.024
Chromium [4]	µg/L	0.1-0.7	NG	NG	0.36	0.1	3.33	0.12	0.23	0.22	<0.7
Cobalt	µg/L	0.10	110	4.0	2.38	1.64	49.4	1.76	14.6	9.29	**179**
Copper [3]	µg/L	0.50	Calc. based on Hardness	2 to 10	1.66	0.93	28.3	0.94	3.4	2.56	4.5
Cu STM Guideline Calc.	µg/L		Hardness 13,000 - 400,000 : calc.; Hardness ≥ 400,000 is Capped Value of 400,000		39.60	39.60	39.60	39.60	39.60	39.60	39.60
Cu LTA Guideline Calc.	µg/L			Hardness 50,000 - 250,000: calc.; Hardness > 250,000, Cu = 10	10	10	10	10	10	10	10
Iron	µg/L	10	1000	NG	419	163	**17100**	61	**1470**	**1650**	61
Lead [3]	µg/L	0.05-0.1	Calc. based on Hardness	Calc. based on Hardness	0.119	0.054	0.335	<0.05	<0.05	<0.05	<0.1
Pb STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 8000-360,000 Hardness ≤ 8000: 3 Hardness > 8000 : calc.		1245	768.5586518	1550.4	622.2	988.1	963.3	3235.1
Pb LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 8000-360,000 Hardness ≤ 8000, NG Hardness > 8000 : calc.	52	33	64	28	42	41	129
Lithium	µg/L	1.0	NG	NG	72.2	57.6	90.6	59.7	55.1	44.5	325
Magnesium	µg/L	5.0	NG	NG	68,000	53,300	84400	50500	71400	56300	174000
Manganese [3]	µg/L	0.10	Calc. based on hardness	Calc. based on Hardness	185	70.8	1570	32.7	653	412	2350
Mn STM Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L		Applies to Hardness 25000-259000 µg/L Mn : calc.		9907	6953.64	11670	5973	8353	8199	20376
Mn LTA Guideline Calc (Based on Hardness as $CaCO_3$)	µg/L			Applies to Hardness 37000-450000 µg/L Mn : calc.	4345	3166	5049	2774	3725	3663	8525
Mercury (Based on methyl Hg & total mass Hg)	µg/L	0.005	NG	Calc.	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Molybdenum	µg/L	0.05	2000	≤ 1000	2.58	1.77	2.33	1.67	1.63	1.21	0.33
Nickel	µg/L	0.5	NG		22.1	15	150	19	52.4	36.4	1110
Phosphorus	µg/L	50-100	NG	NG			341	<50	<50	<50	<100
Potassium	µg/L	50.0	NG	NG	6510	6930	7760	6510	6680	5960	13800
Rubidium	µg/L	0.2	NG	NG			3.24	2.34	1.97	1.4	4.93
Selenium	µg/L	0.05	NG	2.0	0.427	0.336	0.378	0.199	0.29	0.326	0.92

Table B5: Other Sampling Locations Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	Gully Rd Ditch						Wiley C.
					24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	27-Sep-18
Silicon	µg/L	100		NG			5680	3980	4590	4650	5980
Silver [3] (Based on Hardness < or > 100000)	µg/L	0.01-0.02	0.10 - 3.0	0.05 - 1.5	<0.01	<0.01	0.014	<0.01	0.012	<0.01	<0.02
Ag STM Guideline Calc	µg/L		Hardness ≤ 100,000 Ag = 0.10 Hardness > 100,000 Ag = 3.0		3.0	3.0	3.0	3	3	3	3
Ag LTA Guideline Calc				Hardness ≤ 100,000 Ag = 0.05 Hardness > 100,000 Ag = 1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sodium	µg/L	50.0	NG	NG	172,000	177,000	156000	160000	152000	135000	37000
Strontium	µg/L	0.2	NG	NG			1400	896	1140	945	1330
Sulfur	µg/L	500	NG	NG			259000	121000	162000	124000	743000
Tellerium	µg/L	0.2-0.4	NG	NG			<0.2	<0.2	<0.2	<0.4	<0.4
Thallium	µg/L	0.01-0.055	NG	NG	0.039	0.023	0.036	0.014	0.012	0.01	0.063
Thorium	µg/L	0.1-0.2	NG	NG			8.7	<0.1	0.23	0.19	<0.2
Tin	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
Titanium	µg/L	0.3-1.2	NG	NG	2.73	0.94	3.27	0.74	0.36	0.63	<0.6
Tungsten	µg/L	0.1-0.2	NG	NG			<0.1	<0.1	<0.1	<0.1	<0.2
Uranium	µg/L	0.01	NG	NG	3.78	2.63	10.8	2.22	3.58	2.37	1.33
Vanadium	µg/L	0.5-1.0	NG	NG	<0.5	<0.5	0.98	<0.5	<0.5	<0.5	<1.0
Zinc [3] (Based on Hardness < or > 90,000)	µg/L	3.0	Calc. based on Hardness	Calc. based on Hardness	17.5	4.30	**414**	1.5	66.6	57.2	**1190**
Zn STM Guideline Calc.	µg/L		Hardness 90,000 - 500,000, Calc. Hardness > 500,000, is Capped Value of 500,000		340.50	340.50	340.50	335.25	340.50	340.50	340.50
Zn LTA Guideline Calc.				Hardness 90,000 - 330,000, Calc. Hardness > 330,000, is Capped Value of 330,000	187.50	187.50	187.50	187.50	187.50	187.50	187.50
Zirconium	µg/L	0.06-0.12	NG	NG			0.139	<0.06	<0.06	<0.06	<0.12
Metals, Dissolved											
Aluminum [5]	µg/L	1.0	100	50	25.4	34.0	**259**	56.1	91.3	53.4	**181**
Al STM Guideline Calc (based on pH)	µg/L		pH < 6.5 : calc. Al pH ≥ 6.5 : 100.0 Al		100.0	100.0	100	100	100	100	100
Al LTA Guideline Calc (based on median pH)				median pH < 6.5 : calc. Al median pH ≥ 6.5 : 50.0 Al	4953.0	4953.0	4953.0	4953.0	4953.0	4953.0	4953.0
Antimony	µg/L	0.1-0.2	NG	NG	0.15	0.12	0.12	<0.1	<0.1	<0.1	<0.2
Arsenic	µg/L	0.10	NG	NG	0.26	0.25	0.24	0.22	0.2	0.2	0.1
Barium	µg/L	0.10	NG	NG	56.8	50.6	53.7	36.7	40.2	42.4	14.4
Beryllium	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
Bismuth	µg/L	0.05-0.1	NG	NG			<0.05	<0.05	<0.05	<0.05	<0.1
Boron	µg/L	10.0	NG	NG	226	238	279	259	205	174	159
Cadmium [3] (Based on Hardness as $CaCO_3$)	µg/L	0.005	Calc. based on Hardness	Calc. based on hardness	0.437	0.0441	1.05	<0.005	0.406	0.326	**5.94**
Cd STM Guideline Calc.	µg/L		Hardness 7,000 - 455,000, Calc. Hardness > 455,000, is Capped Value of 455,000		2.80	2.80	2.80	2.80	2.80	2.80	2.80
Cd LTA Guideline Calc.				Hardness 3,400 - 285,000, Calc. Hardness > 285,000, is Capped Value of 285,000	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Calcium	µg/L	50.0	NG	NG	234,000	145,000	255000	116000	182000	181000	444000
Cesium	µg/L	0.01	NG	NG			0.02	0.016	0.013	<0.01	0.022
Chromium	µg/L	0.10	NG	NG	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
Cobalt	µg/L	0.10	NG	NG	2.22	1.58	36	1.54	12.8	8.33	172
Copper	µg/L	0.20	NG	NG	1.17	0.72	1.51	0.8	1.23	0.99	1.78
Iron	µg/L	10.0-20.0	350	NG	19.0	<10	<10	<10	<10	13	10
Lead	µg/L	0.05-0.1	NG	NG	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1
Lithium	µg/L	1.0	NG	NG	75	53.9	97.7	53.6	56.7	48.8	337
Magnesium	µg/L	5.0	NG	NG	64,500	53,300	90000	49200	62100	58900	167000
Manganese	µg/L	0.10	NG	NG	173	71.8	1470	30	603	382	2290
Mercury	µg/L	0.005	NG	NG	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Molybdenum	µg/L	0.05	NG	NG	2.82	1.84	2.38	1.62	1.66	1.51	0.31
Nickel	µg/L	0.50	NG	NG	21.1	14.6	110	17.3	45.5	31.9	1060
Phosphorus	µg/L	50.0-100.0	NG	NG			<50	<50	<50	<50	<100
Potassium	µg/L	50.0	NG	NG	6720	7340	7480	6420	5870	6180	13000
Rubidium	µg/L	0.20	NG	NG			3.13	2.34	1.76	1.42	4.34
Selenium	µg/L	0.05	NG	2.0	0.407	0.375	0.266	0.184	0.332	0.323	1.11
Silicon	µg/L	50.0	NG	NG			3880	3730	4030	4200	5300
Silver	µg/L	0.01-0.02	NG	NG	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
Sodium	µg/L	50.0	NG	NG	171,000	172,000	160000	151000	146000	136000	38100
Strontium	µg/L	0.20	NG	NG			1480	921	1140	1010	1240
Sulfur	µg/L	500	NG	NG			260000	112000	149000	123000	701000
Tellerium	µg/L	0.2-0.4	NG	NG			<0.2	<0.2	<0.2	<0.2	<0.4
Thallium	µg/L	0.01	NG	NG	0.041	0.023	0.036	0.015	0.013	<0.01	0.064

Table B5: Other Sampling Locations Surface Water Analytical Results

Parameter	Unit	RDL	BC AWQG - FWAL STM [1]	BC AWQG-FWAL LTA [2]	Gully Rd Ditch						Wiley C.
					24-May-18	19-Jun-18	26-Jul-18	21-Aug-18	27-Sep-18	22-Oct-18	27-Sep-18
Thorium	µg/L	0.1-0.2	NG	NG			<0.1	<0.1	<0.1	<0.1	<0.2
Tin	µg/L	0.1-0.2	NG	NG	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2
Titanium	µg/L	0.3-0.6	NG	NG	0.34	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6
Tungsten	µg/L	0.1-0.2	NG	NG			<0.1	<0.1	<0.1	<0.1	<0.2
Uranium	µg/L	0.01	NG	NG	3.85	2.5	8.77	2.12	3.2	2.56	1.02
Vanadium	µg/L	0.5-1.0	NG	NG	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0
Zinc	µg/L	1.00	NG	NG	13.10	4.10	28.2	0.5	30.6	29.3	800
Zirconium	µg/L	0.06-0.12	NG	NG			<0.06	<0.06	<0.06	<0.06	<0.12
Laboratory Work Order Number					L2100153	L2115118	L2136818	L2150694	L2172306	L2185138	L2172306
Laboratory Identification Number					L2100153-9	L2115118-3	L2136818-7	L2150694-3	L2172306-3	L2185138-4	L2172306-11

Notes:

Screening completed on BC AWQG-FWAL STM [1] and LTA [2] guideline values.

[1] BC Ministry of Environment, Water Protection & Sustainability Branch (2018). British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referenced for Freshwater Aquatic Life (FWAL) water use and Short Term Maximum (STM) guidelines.

[2] BC Ministry of Environment, Water Protection & Sustainability Branch. 2018. British Columbia Approved Water Quality Guidelines (BCAWQG): Aquatic Life, Wildlife & Agriculture Summary Report. 36 pp. Referencedfor Freshwater Aquatic Life (FWAL) water use and Long Term Average (LTA) guidelines.

[3] Guideline is hardness dependant. Where results are above laboratory reportable detection limits, guideline limits have been evaluated based on individual sample hardness. Sample-specific guideline values are listed in parentheses after the laboratory result, where applicable.

[4] Guideline is for Chromium (IV) cation. Analytical results are for unspeciated Chromium. Where analytical results exceed the guideline, speciated analysis may be warranted.

[5] Guideline is pH dependant.

NG - No Guideline

Detection limit can vary as described in the COA. Detection limit can be raised when dilutation is requited due to high Dissolved Solids/Electrical Conductivity (DLDS), e.g. nitrite.

BOLD and shaded dark gray: Exceeds BCAWQG-FSTM (Short-term Maximum) guideline.

Shaded Light Gray: Exceeds BCAWQG-LTA (Long-term Average) guideline.

RED - Measured value is below detection limit (DL); value shown is 50% of DL

Blank - Not analyzed