

## Environmental Effects Evaluation Form Decommissioning of the Gentilly-1 Waste Facility

Section A: Project identification	
<b>Project title</b>	Decommissioning of the Gentilly-1 Waste Facility
<b>Project location</b>	Gentilly-1 Waste Facility near Bécancour, Québec
<b>Project proponent</b>	Canadian Nuclear Laboratories (CNL)
<b>Lead authority</b>	Canadian Nuclear Safety Commission (CNSC)
<b>Other authorities</b> (if applicable)	Atomic Energy of Canada Ltd. (AECL) is also an authority in this assessment.
	Environment and Climate Change Canada (ECCC) was consulted for their federal expertise on terrestrial species at risk, migratory birds, and the atmospheric environment; Health Canada (HC) was consulted for their federal expertise on air quality and noise.

Section B: Project description
<p>The Gentilly-1 Waste Facility (G1WF) is located in the Gentilly Nuclear Complex on Pointe-aux-Roches, on the south bank of the St. Lawrence River near Bécancour, Québec. The Gentilly Nuclear Complex is located in the traditional territory of the Abenaki people under the council of the W8banaki, and the traditional land of the Wendat people. The Gentilly Nuclear Complex hosts two nuclear facilities, namely the G1WF (the lands are leased to Atomic Energy of Canada Ltd. (AECL) and the facility is operated by Canadian Nuclear Laboratories (CNL)) and the Gentilly-2 (owned and operated by Hydro-Québec). Both the G1WF and Gentilly-2 sites host shutdown nuclear reactors.</p> <p>The G1WF currently consists of a permanently shut down, partially decommissioned Canadian Deuterium Uranium (CANDU) reactor and supporting structures. The nuclear reactor at the G1WF was put into service in 1972 and was operated intermittently for a total of 183 effective full power days, up until 1978 when it was determined that the reactor required considerable repairs and modifications. The reactor was put into a shutdown state in 1980 and in 1983, the decision was made to decommission the reactor. The G1WF is being decommissioned following a three-phased approach which began in the 1980s, and CNL is currently seeking a licence amendment to begin the third and final phase of decommissioning. The proposed activities include the removal of the building structures and associated components and equipment, followed by land remediation to meet the industrial reuse criteria. Following the conclusion of the phase three decommissioning, the G1WF lands will be returned to Hydro-Québec.</p> <p>The table below details the different project phases and activities being proposed for the phase three decommissioning of the G1WF, which is anticipated to take approximately 10 years.</p>

Project phase	Project activities/components
Stage 1: Project planning	Acquisition of materials and equipment; staging of the work area; installation of alternative washroom/shower facilities; installation of temporary construction power and lighting, if required; and temporary fire detection and suppression arrangements.
Stage 2: Completion of pre-requisites to decommissioning and demolition	Characterization; decontamination; removal of radioactive and hazardous waste, and cleaning; reconfiguration of services; isolation of obsolete services; and readiness checks.
Stage 3: Physical execution of work package(s)	Physical dismantling and demolition of buildings/structures/systems.
Stage 4: Interim site restoration and project close-out	Removal of any remaining structures; final overall radiation survey; backfill and grade of the entire area; removal of the project's site access control; completion of the project close-out/completion report; and completion of closure paperwork and filing of all records.

### Section C: Description of the baseline environment

The Gentilly Nuclear Complex covers an area of 240 hectares of land and is located within the larger Mixwood Plains Ecozone in the ecoregion of the St. Lawrence Lowlands, with vegetation characterized by mixed wood forests. The region surrounding the Gentilly Nuclear Complex provides a variety of habitat with a high degree of diversity in terrestrial and wetland habitat, home to various terrestrial mammals, waterfowl, and other bird species, including migratory birds. The meteorology in the area is characterized as humid, cold, temperate climate with westerly prevailing winds. Noise levels at the Gentilly Nuclear Complex are comparable to the surrounding industrial area.

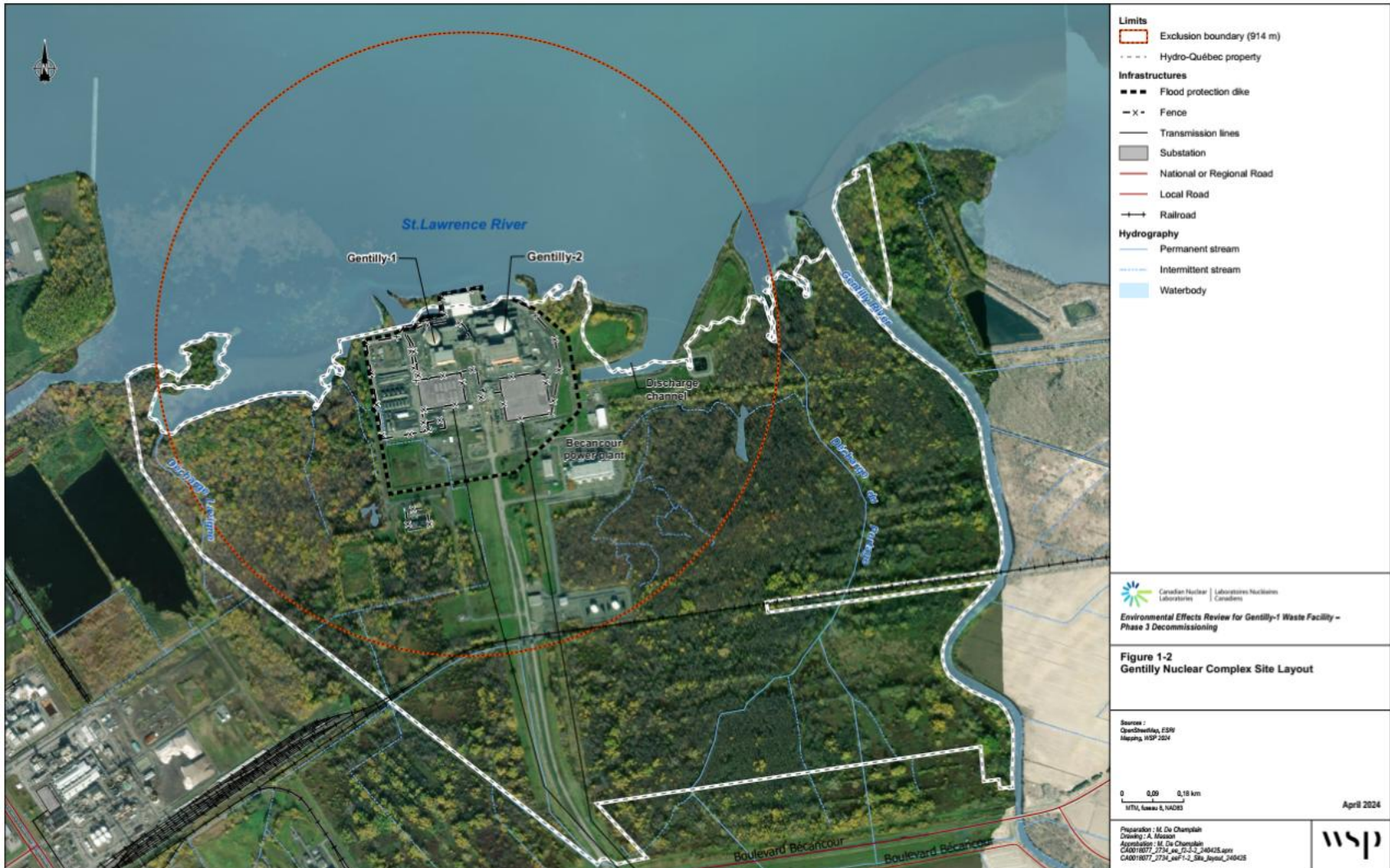
The segment of the St. Lawrence River located next to the Gentilly Nuclear Complex is known as a fluvial estuary and is approximately 2 kilometres wide. The flow of the St. Lawrence River varies seasonally and is strongly affected by spring flooding. The tidal influence in this segment of the St. Lawrence River is less than 0.3 metres and salt water does not reach this segment. Two tributaries, the Bécancour River and the Gentilly River, confluence with the St. Lawrence River on the south shore near the Gentilly Nuclear Complex. Nearby areas flooded by the rivers provide swamp and wetland habitat for many species of fish that are attracted to warm waters. Up to 46 species of fish have been reported on the south shore of the St. Lawrence River near the Gentilly Nuclear Complex, with sensitive aquatic species at risk having been identified in the St. Lawrence River.

The Gentilly Nuclear Complex is located in the St. Lawrence lowlands tectonic region. It consists primarily of shallow overburden comprised primarily of sands, till, silts, and organic deposits underlain by bedrock, consisting of horizontally bedded shale with small amounts of sandstone and limestone. While groundwater typically flows toward the St. Lawrence River, with flow predominantly through the

sand aquifer, the groundwater at the Gentilly Nuclear Complex is strongly influenced by a sump pump system, which lowers the groundwater table to bring it below the foundation of the Reactor Building.

Land use in the vicinity of the Gentilly Nuclear Complex consists primarily of rural residential development, agricultural lands, and industrial lands. The Bécancour Industrial Park is situated immediately to the west of the Gentilly Nuclear Complex and is comprised of approximately 30 companies, ranging from various manufacturers to professional service companies. Few people live within 5 kilometres of the Gentilly Nuclear Complex, with the majority of the population in the region residing in Trois-Rivière, followed by Bécancour.

**Figure 1: Gently Nuclear Complex and Surrounding Lands**



(Source: CNL, Gently-1 Waste Facility Licence Amendment Application: Environmental Protection Measures for Decommissioning and Demolition, Revision 1, April 2026)

**Section D: Potential environmental effects**

The federal guidance document titled [Projects on federal lands and outside Canada: guidance document on sections 81 to 91 of the Impact Assessment Act](#) (p. 51) defines ‘technically and economically feasible mitigation measures (TEFMM)’ as those that meet the following criteria:

- Technically feasible means an action can be successfully implemented under the specific circumstances of the project and is either generally accepted, common, well documented or tested or, if relatively new, it has a high-estimated probability of successful implementation.
- Economically feasible means that the costs associated with an action are not prohibitively high. In reviewing a proponent’s views regarding the extent to which mitigation measures are economically feasible, the authority should consider, on a case-by-case basis and in the context of the particular project, different economic criteria.

Canadian Nuclear Safety Commission (CNSC) staff used the above guidance document to guide their assessment of CNL’s proposed decommissioning of the G1WF, alongside other relevant regulatory documents.

**Biophysical effects (B)**

Does the project have the potential to:	No	Yes, and can be reduced to a non-significant level through TEFMM	Yes, but cannot be reduced to a non-significant level through mitigation measures
Alter, disturb, or destroy vulnerable natural features?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Release a polluting substance into the land, water or air?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Alter landscape features (e.g., resource extraction, deforestation, clearing vegetation)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Affect birds, aquatic animals, and wildlife (flora and fauna), including species at risk and their critical habitat?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Result in alteration of water level, quality, flow or management regime in a water body, or result in other important changes to surface or groundwater resources (including well water)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cause sensory disturbances, such as noise and/or vibrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cause any other change to the environment on federal lands or incidental to a federal decision?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Impacts on Indigenous peoples (IP)**

Does the project have the potential to result in changes to the environment that may impact Indigenous peoples, including:	No	Yes, and can be reduced to a non-significant level through TEFMM	Yes, but cannot be reduced to a non-significant level through mitigation measures

Social, economic, and health conditions, including community health specific to Indigenous peoples (e.g., impact to an Indigenous fishery resulting from a change in fish population)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Physical and cultural heritage?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use of lands and resources for traditional purposes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any structure, site or thing that is of historical, archaeological, paleontological or architectural significance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any other impacts to Indigenous peoples?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Health conditions (H)</b>			
Does the project have the potential to result in changes to the environment that may affect health conditions? These changes could be on:	No	Yes, and can be reduced to a non-significant level through TEFMM	Yes, but cannot be reduced to a non-significant level through mitigation measures
Air quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Noise exposure and effects of vibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Current and future availability of country foods (traditional foods)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Current and future availability of water for drinking, recreational and cultural uses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any other changes that could affect health conditions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Social conditions (S)</b>			
Does the project have the potential to result in changes to the environment that may affect social conditions? These changes could be on:	No	Yes, and can be reduced to a non-significant level through TEFMM	Yes, but cannot be reduced to a non-significant level through mitigation measures
Services and infrastructure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land and resource use and recreation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Navigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community well-being	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Structures, sites, things of historical, archaeological, paleontological. or architectural significance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Economic conditions (E)</b>			
Does the project have the potential to result in changes to the environment that may affect economic conditions? These changes could be on:	No	Yes, and can be reduced to a non-significant level through TEFMM	Yes, but cannot be reduced to a non-significant level through mitigation measures
Forestry and logging operations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commercial recreational and sport fishing, hunting, trapping	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commercial outfitters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Commercial recreation and tourism	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agriculture, including predicted effects to livestock health and productivity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section E: Technically and economically feasible mitigation measures**

The following table provides a description of each potential adverse environmental effect identified for the proposed project, along with the proposed mitigation measures, the monitoring that will be put in place to verify the effectiveness of the mitigation measures, and CNSC staff (along with support from the identified federal authorities)’s significance determination for each potential adverse environmental effect.

Each potential adverse environmental effect identified below is also related to one or multiple of the following components, if it has the potential to cause impacts to an area related to the component: (B) biophysical, (IP) Indigenous Peoples and/or (H) health, socio (S) or economic (E) conditions.

<b>1) Potential adverse environmental effect:</b>	<b>B</b>	<b>IP</b>	<b>H</b>	<b>S</b>	<b>E</b>
The proposed G1 WF decommissioning could cause potential adverse environmental effects through fugitive dust emissions.	X	X	X	X	

<b>Description of the potential effect:</b>	<b>Proposed mitigation measures description:</b>
<p>Atmospheric releases of fugitive dust emissions may:</p> <ul style="list-style-type: none"> <li>decrease the quality of air, soils, surface water, vegetation, and wildlife habitat, which may in turn affect traditional land and resource use and recreational use of the area;</li> <li>cause changes to the quality of air, soils, surface water, vegetation, and wildlife habitat, which may in turn affect the health and social conditions of Indigenous Nations and communities; and</li> <li>result in health effects to workers and the public, and ecological receptors.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of dust management techniques (such as watering) to control dust generated during decommissioning.</li> <li>Use of dust suppression methods during building demolition activities to control airborne emissions and nuisance dust (such as wetting techniques and wind restrictions).</li> <li>Curtailment of activities during periods of adverse meteorological conditions.</li> <li>Road watering and sweeping, when necessary.</li> <li>Removal of accumulations of particulates (such as dirt) on roads.</li> <li>Limitations on idling of vehicles on-site and speed limits on roads on-site.</li> <li>Use of tarps or 3-sided enclosures for raw material storage.</li> <li>Use of contamination immobilization agents, containment, ventilation, and HEPA filters to control airborne emissions.</li> </ul>

<b>Magnitude of residual effect</b>	<b>Geographic extent of residual effect</b>	<b>Frequency of residual effect</b>	<b>Duration of residual effect</b>	<b>Reversibility of residual effect</b>	<b>Timing of residual effect</b>
<input type="checkbox"/> Low amount	<input type="checkbox"/> Small area <input checked="" type="checkbox"/> Medium area <input type="checkbox"/> Large area	<input type="checkbox"/> Rarely <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> All the time	<input type="checkbox"/> Short periods	<input checked="" type="checkbox"/> High degree	<input checked="" type="checkbox"/> Not dependant on timing

<input checked="" type="checkbox"/> Medium amount <input type="checkbox"/> High amount			<input checked="" type="checkbox"/> Medium periods <input type="checkbox"/> Long periods	<input type="checkbox"/> Medium degree <input type="checkbox"/> Low degree	<input type="checkbox"/> Dependant on specific timing							
<b>Monitoring to determine effectiveness of mitigation measures:</b>												
Monitoring for this potential adverse environmental effect will be managed through CNL's G1WF Effluent Monitoring Plan.												
<b>2) Potential adverse environmental effect:</b>					<b>B</b>	<b>IP</b>	<b>H</b>	<b>S</b>	<b>E</b>			
The proposed G1WF decommissioning could cause potential adverse environmental effects through radiological and non-radiological air emissions.					X	X	X	X				
<b>Description of the potential effect:</b>					<b>Proposed mitigation measures description:</b>							
<p>Atmospheric releases of non-radiological and radiological emissions may:</p> <ul style="list-style-type: none"> <li>decrease the quality of the air, soils, surface water, vegetation and wildlife habitat, which may in turn affect traditional land and resource use and recreational use of the area;</li> <li>cause changes to the quality of air, soils, surface water, vegetation, and wildlife habitat, which may in turn affect the health and social conditions of Indigenous Nations and communities; and</li> <li>result in health effects to workers and the public, and ecological receptors.</li> </ul>					<ul style="list-style-type: none"> <li>Use of contamination immobilization agents, containment, ventilation, shielding, air monitoring, and HEPA filters.</li> <li>Curtailment of activities during periods of adverse meteorological conditions.</li> <li>Referral to approved work plans, waste management plans, an occupational health and safety system, emergency preparedness systems, environmental protection programs, and related work authorizations.</li> <li>Use of tarps of 3-sided enclosures for raw material storage.</li> <li>Packaging of wastes in appropriate containers.</li> <li>Implementation of environmental reviews of decommissioning activities for each planning envelope, including need-for-monitoring assessments, as applicable.</li> </ul>							
<b>Magnitude of residual effect</b>	<b>Geographic extent of residual effect</b>	<b>Frequency of residual effect</b>	<b>Duration of residual effect</b>	<b>Reversibility of residual effect</b>	<b>Timing of residual effect</b>							
<input type="checkbox"/> Low amount <input checked="" type="checkbox"/> Medium amount <input type="checkbox"/> High amount	<input checked="" type="checkbox"/> Small area <input type="checkbox"/> Medium area <input type="checkbox"/> Large area	<input type="checkbox"/> Rarely <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> All the time	<input type="checkbox"/> Short periods <input checked="" type="checkbox"/> Medium periods <input type="checkbox"/> Long periods	<input checked="" type="checkbox"/> High degree <input type="checkbox"/> Medium degree <input type="checkbox"/> Low degree	<input checked="" type="checkbox"/> Not dependant on timing <input type="checkbox"/> Dependant on specific timing							
<b>Monitoring to determine effectiveness of mitigation measures:</b>												
Monitoring for this potential adverse environmental effect will be managed through CNL's G1WF Effluent Monitoring Plan.												
<b>3) Potential adverse environmental effect:</b>								<b>B</b>	<b>IP</b>	<b>H</b>	<b>S</b>	<b>E</b>

The proposed GIWF decommissioning could cause potential adverse environmental effects through liquid releases of chemical and radiological contaminants.					X	X	X	X	
<b>Description of the potential effect:</b>					<b>Proposed mitigation measures description:</b>				
<p>Liquid releases of chemical and radiological contaminants may:</p> <ul style="list-style-type: none"> <li>decrease the quality of soils, groundwater, surface water, vegetation, and wildlife habitat, which may in turn affect traditional land and resource use and recreational use of the area;</li> <li>cause changes to the quality of soils, groundwater, surface water, vegetation, and wildlife habitat, which may in turn affect the health and social conditions of Indigenous Nations and communities; and</li> <li>result in health effects to workers, the public, and ecological receptors.</li> </ul>					<ul style="list-style-type: none"> <li>Referral to a characterization survey to confirm the presence of contaminated liquids and sludge in oil, tanks, pipes, or drums and abandoned chemical and/or active drains.</li> <li>Referral to approved work plans, waste management plans, an occupational health and safety system, emergency preparedness systems, environmental protection programs, and related work authorizations.</li> <li>Monitoring and characterization of any radiological waste to determine appropriate disposal route, if discovered.</li> <li>Maintenance of vehicles and equipment, including use of shutoff switches.</li> <li>Sampling of any accumulated water in soil excavation areas.</li> <li>Isolation or covering of buildings and storm drains.</li> <li>Referral to acceptability criteria for routine and non-routine discharge of liquids.</li> <li>Presence of standalone spill kits and an approved spill response plan.</li> <li>Use of secondary containment and confinement systems, if needed, in the case of systems or equipment failure.</li> </ul>				
<b>Magnitude of residual effect</b>	<b>Geographic extent of residual effect</b>	<b>Frequency of residual effect</b>	<b>Duration of residual effect</b>	<b>Reversibility of residual effect</b>	<b>Timing of residual effect</b>				
<input checked="" type="checkbox"/> Low amount <input type="checkbox"/> Medium amount <input type="checkbox"/> High amount	<input type="checkbox"/> Small area <input checked="" type="checkbox"/> Medium area <input type="checkbox"/> Large area	<input type="checkbox"/> Rarely <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> All the time	<input type="checkbox"/> Short periods <input checked="" type="checkbox"/> Medium periods <input type="checkbox"/> Long periods	<input checked="" type="checkbox"/> High degree <input type="checkbox"/> Medium degree <input type="checkbox"/> Low degree	<input checked="" type="checkbox"/> Not dependant on timing <input type="checkbox"/> Dependant on specific timing				
<b>Monitoring to determine effectiveness of mitigation measures:</b>									
Monitoring for this potential adverse environmental effect will be managed through CNL's GIWF Effluent Monitoring Plan.									
<b>4) Potential adverse environmental effect:</b>					<b>B</b>	<b>IP</b>	<b>H</b>	<b>S</b>	<b>E</b>
The proposed GIWF decommissioning could cause potential adverse environmental effects through the generation and management of decommissioning waste.					X	X	X	X	
<b>Description of the potential effect:</b>					<b>Proposed mitigation measures description:</b>				

<p>The generation and management of liquid and solid, non-radioactive, hazardous, and non-hazardous waste may:</p> <ul style="list-style-type: none"> <li>• decrease the quality of soils, surface water, vegetation, and wildlife habitat, which may in turn affect traditional land and resource use and recreational use of the area;</li> <li>• cause changes to the quality of soils, surface water, vegetation, and wildlife habitat, which may in turn affect the health and social conditions of Indigenous Nations and communities; and</li> <li>• result in health effects to workers, the public, and ecological receptors.</li> </ul>	<ul style="list-style-type: none"> <li>• Characterization of all waste, including contaminated soil from excavations.</li> <li>• Labelling of all liquid waste containers.</li> <li>• Waste sorting and size reduction.</li> <li>• Storage and transport of radioactive or chemically contaminated sludge in drums or other suitable containers.</li> <li>• Referring to the asbestos handling procedure for material containing asbestos.</li> <li>• Referral to waste management plans for the handling of hazardous waste.</li> </ul>
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Magnitude of residual effect	Geographic extent of residual effect	Frequency of residual effect	Duration of residual effect	Reversibility of residual effect	Timing of residual effect
<input checked="" type="checkbox"/> Low amount <input type="checkbox"/> Medium amount <input type="checkbox"/> High amount	<input checked="" type="checkbox"/> Small area <input type="checkbox"/> Medium area <input type="checkbox"/> Large area	<input type="checkbox"/> Rarely <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> All the time	<input type="checkbox"/> Short periods <input checked="" type="checkbox"/> Medium periods <input type="checkbox"/> Long periods	<input checked="" type="checkbox"/> High degree <input type="checkbox"/> Medium degree <input type="checkbox"/> Low degree	<input checked="" type="checkbox"/> Not dependant on timing <input type="checkbox"/> Dependant on specific timing

**Monitoring to determine effectiveness of mitigation measures:**

Monitoring for this potential adverse environmental effect will be managed through CNL’s G1WF Effluent Monitoring Plan.

**5) Potential adverse environmental effect:**

	<b>B</b>	<b>IP</b>	<b>H</b>	<b>S</b>	<b>E</b>
The proposed G1WF decommissioning could cause potential adverse environmental effects through increase noise levels and potential sensory disturbances.	X	X		X	

Description of the potential effect:	Proposed mitigation measures description:
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<p>Sensory disturbances and increased noise levels may:</p> <ul style="list-style-type: none"> <li>• affect the quality of wildlife habitat, causing displacement of wildlife (including species at risk);</li> <li>• cause changes to wildlife habitat, which may in turn affect the health and social conditions of Indigenous Nations and communities; and</li> <li>• affect traditional land and resource use and recreational use of the area.</li> </ul>	<ul style="list-style-type: none"> <li>• Limiting of decommissioning activities to daytime hours, with noise production being short-term and sporadic.</li> <li>• Avoidance of potentially destructive or disruptive activities during sensitive periods.</li> <li>• Implementation of exclusion measures, as needed.</li> <li>• Implementation of avoidance measures if sensitive species are discovered, in addition to consultation with the Canadian Wildlife Service for additional guidance, if needed.</li> <li>• Adhering to a controlled manner for decommissioning activities, with the loudest</li> </ul>
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			<p>activities limited to the interior if the building envelope.</p> <ul style="list-style-type: none"> <li>Maintenance of all equipment and mufflers.</li> </ul>					
Magnitude of residual effect	Geographic extent of residual effect	Frequency of residual effect	Duration of residual effect	Reversibility of residual effect	Timing of residual effect			
<input checked="" type="checkbox"/> Low amount <input type="checkbox"/> Medium amount <input type="checkbox"/> High amount	<input checked="" type="checkbox"/> Small area <input type="checkbox"/> Medium area <input type="checkbox"/> Large area	<input type="checkbox"/> Rarely <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> All the time	<input type="checkbox"/> Short periods <input checked="" type="checkbox"/> Medium periods <input type="checkbox"/> Long periods	<input checked="" type="checkbox"/> High degree <input type="checkbox"/> Medium degree <input type="checkbox"/> Low degree	<input type="checkbox"/> Not dependant on timing <input checked="" type="checkbox"/> Dependant on specific timing			
<b>Monitoring to determine effectiveness of mitigation measures:</b>								
<p>Monitoring for this potential adverse environmental effect will be managed through CNL’s Environmental Protection Program and CNL’s plan for the management of land, habitat, and wildlife. Additional follow-up measures have been proposed by CNL for sensitive species, including visual inspections for Barn Swallows, monitoring for noise around Cliff Swallow nesting areas, bat monitoring using ultrasonic wildlife recorders and visual observations, noise monitoring by the forest during sensitive periods, and inspections by a migratory bird specialist, if needed.</p>								
<b>6) Potential adverse environmental effect:</b>				<b>B</b>	<b>IP</b>	<b>H</b>	<b>S</b>	<b>E</b>
The proposed G1 WF decommissioning could cause potential adverse environmental effects through the demolition of above-ground buildings.				X				
<b>Description of the potential effect:</b>			<b>Proposed mitigation measures description:</b>					
<p>The demolition of above-ground buildings may:</p> <ul style="list-style-type: none"> <li>cause potential loss or alteration of wildlife habitat (including for species at risk) from demolition of the above ground buildings and from surface water runoff;</li> <li>impact surface water runoff; and</li> <li>disturb wildlife species and species at risk, primarily bird and bat species.</li> </ul>			<ul style="list-style-type: none"> <li>Use of pre-disturbance surveys to confirm the potential for presence of bat roosts and cliff swallow nests, and pre-disturbance searches for hibernating bats and bird species.</li> <li>Initiation of species-appropriate barriers and mitigations if bat maternity roosts are identified.</li> <li>Avoidance of potentially destructive or disruptive activities during sensitive periods, such as breeding season, and in sensitive locations for birds.</li> <li>Implementation of appropriate preventative and mitigation measures to minimize risks of bycatches for migratory bird populations.</li> <li>Implementation of exclusion practices if species of bats at risk are detected.</li> <li>Use of erosion and sediment control practices around disturbed areas.</li> <li>Use of nesting prevention methods, if needed.</li> <li>Implementation of avoidance measures if bird species at risk are detected.</li> </ul>					

Magnitude of residual effect	Geographic extent of residual effect	Frequency of residual effect	Duration of residual effect	Reversibility of residual effect	Timing of residual effect			
<input checked="" type="checkbox"/> Low amount <input type="checkbox"/> Medium amount <input type="checkbox"/> High amount	<input checked="" type="checkbox"/> Small area <input type="checkbox"/> Medium area <input type="checkbox"/> Large area	<input type="checkbox"/> Rarely <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> All the time	<input type="checkbox"/> Short periods <input type="checkbox"/> Medium periods <input checked="" type="checkbox"/> Long periods	<input type="checkbox"/> High degree <input type="checkbox"/> Medium degree <input checked="" type="checkbox"/> Low degree	<input checked="" type="checkbox"/> Not dependant on timing <input type="checkbox"/> Dependant on specific timing			
<b>Monitoring to determine effectiveness of mitigation measures:</b>								
<p>Monitoring for this adverse potential environmental effect will be managed through CNL's Environmental Protection Program and CNL's plan for the management of land, habitat, and wildlife. Additional follow-up measures have been proposed by CNL for sensitive species, including visual inspections for Barn Swallows, monitoring of noise around Cliff Swallow nesting areas, bat monitoring using ultrasonic wildlife recorders and visual observations, noise monitoring by the forest during sensitive periods, and inspections by a migratory bird specialist, if needed.</p>								
<b>7) Potential adverse environmental effect:</b>				<b>B</b>	<b>IP</b>	<b>H</b>	<b>S</b>	<b>E</b>
The proposed GIWF decommissioning could cause potential adverse environmental effects through the contamination of groundwater.				X	X			
<b>Description of the potential effect:</b>				<b>Proposed mitigation measures description:</b>				
<p>Release of contaminants into the groundwater may:</p> <ul style="list-style-type: none"> <li>impact groundwater quality and quality in the area during decommissioning and potentially post-decommissioning; and</li> <li>cause changes to the quality of groundwater, which may in turn affect the health and social conditions of Indigenous Nations and communities.</li> </ul>				<ul style="list-style-type: none"> <li>Sump pump system to prevent groundwater from being impacted by potential releases, to be run until contaminated structures and soil have been brought to free-release levels by decommissioning, as verified by the final status survey.</li> <li>Removal of contaminated materials or managed to free-release levels, if some contaminated soils cannot be removed.</li> <li>Decontamination of structures deeper than 1 metre below grade that cannot be safely removed.</li> <li>Execution of a final status survey, including both remaining structures and soil, to confirm the site meets free-release criteria.</li> </ul>				
Magnitude of residual effect	Geographic extent of residual effect	Frequency of residual effect	Duration of residual effect	Reversibility of residual effect	Timing of residual effect			
<input checked="" type="checkbox"/> Low amount <input type="checkbox"/> Medium amount <input type="checkbox"/> High amount	<input type="checkbox"/> Small area <input type="checkbox"/> Medium area <input checked="" type="checkbox"/> Large area	<input type="checkbox"/> Rarely <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> All the time	<input type="checkbox"/> Short periods <input type="checkbox"/> Medium periods <input checked="" type="checkbox"/> Long periods	<input type="checkbox"/> High degree <input type="checkbox"/> Medium degree <input checked="" type="checkbox"/> Low degree	<input checked="" type="checkbox"/> Not dependant on timing <input type="checkbox"/> Dependant on specific timing			

**Monitoring to determine effectiveness of mitigation measures:**

Monitoring for this potential adverse environmental effect will be managed through CNL’s G1WF Effluent Monitoring Plan.

<b>8) Potential adverse environmental effect:</b>	<b>B</b>	<b>IP</b>	<b>H</b>	<b>S</b>	<b>E</b>
The proposed G1WF decommissioning could cause potential adverse environmental effects through the impacts of external environmental hazards.	X	X	X	X	

<b>Description of the potential effect:</b>	<b>Proposed mitigation measures description:</b>
<p>External environmental hazards, including tornadoes and extreme winds, flooding, seismic hazards, and other extreme weather, may:</p> <ul style="list-style-type: none"> <li>• result in releases that could decrease the quality of air, soils, surface water, vegetation, and wildlife habitat, which may in turn affect traditional land and resource use and recreational use of the area;</li> <li>• cause changes to the quality of air, soils, surface water, vegetation, and wildlife habitat, which may in turn affect the health and social conditions of Indigenous Nations and communities; and</li> <li>• result in health effects to workers and the public, and ecological receptors.</li> </ul>	<ul style="list-style-type: none"> <li>• Curtailment of activities during periods of adverse meteorological conditions.</li> <li>• Referral to approved work plans, waste management plans, an occupational health and safety system, emergency preparedness systems, environmental protection programs, and related work authorizations.</li> <li>• Routine inspections and maintenance of perimeter dyke, stormwater conveyance systems, and related infrastructure.</li> <li>• Implementation of environmental reviews of decommissioning activities for each planning envelope, including need-for-monitoring assessments, as applicable.</li> <li>• Referral to acceptability criteria for routine and non-routine discharge of liquids.</li> <li>• Presence of standalone spill kits and an approved spill response plan.</li> <li>• Use of secondary containment and confinement systems, if needed, in the case of systems or equipment failure.</li> </ul>

Magnitude of residual effect	Geographic extent of residual effect	Frequency of residual effect	Duration of residual effect	Reversibility of residual effect	Timing of residual effect
<input checked="" type="checkbox"/> Low amount <input type="checkbox"/> Medium amount <input type="checkbox"/> High amount	<input checked="" type="checkbox"/> Small area <input type="checkbox"/> Medium area <input type="checkbox"/> Large area	<input checked="" type="checkbox"/> Rarely <input type="checkbox"/> Intermittent <input type="checkbox"/> All the time	<input type="checkbox"/> Short periods <input checked="" type="checkbox"/> Medium periods <input type="checkbox"/> Long periods	<input checked="" type="checkbox"/> High degree <input type="checkbox"/> Medium degree <input type="checkbox"/> Low degree	<input checked="" type="checkbox"/> Not dependant on timing <input type="checkbox"/> Dependant on specific timing

**Monitoring to determine effectiveness of mitigation measures:**

Monitoring for this potential adverse environmental effect will be managed through CNL’s Emergency Response Plan, along with CNL’s Effluent Monitoring Plan and Airborne Emissions Monitoring Plan.

## Section F: Consideration of factors 84(1)(a) to (d) of the *Impact Assessment Act*

**84(1)(a) – Does the project have the potential to have any adverse impacts on the rights of the Indigenous peoples of Canada recognized and affirmed by section 35 of the Constitution Act, 1982?**  Yes  No

As CNL's requested licence amendment for the G1WF would permit the dismantling of structures at the current site, and considering these activities have the potential for impacts on the environment, CNSC staff's assessment is that there is a low potential for new adverse impacts on Indigenous and/or Treaty Rights. Thus, the duty to consult was triggered for this proposed project.

The Indigenous Nations and communities listed below have been identified based on analysis conducted by CNSC staff using Crown Indigenous Relations and Northern Affairs Canada's [Aboriginal and Treaty Rights Information System](#) and other mapping tools, as well as through a review of existing CNSC and open resources.

Indigenous Nations and communities potentially directly impacted by the G1WF decommissioning include:

- La Nation Wendat
- Abénakis de Wolinak (represented by the W8banaki)
- Première Nation des Abenakis D'Odanak (represented by the W8banaki)

On December 15, 2025, pursuant to subsection 86(1) of the *Impact Assessment Act* (IAA), the [Notice of Intent](#) for the conduct of a federal lands assessment in accordance with the IAA was posted to the [Canadian Impact Assessment Registry](#).

The CNSC sent notification emails to the above identified Indigenous Nations and communities on December 24, 2025, as well as to other Indigenous Nations and communities who have expressed interest in the project; namely, Kebaowek First Nation (KFN) and the Passamaquoddy Recognition Group Inc. (PRGI) on behalf of the Peskotomuhkati Nation, as to the posting of the [Notice of Intent](#) and the associated comment period. The notification email also provided information on upcoming opportunities to comment on CNSC staff's findings and recommendations via interventions to the Commission. CNSC staff also encouraged Indigenous Nations and communities to share any issues and concerns, perspectives, information, and Indigenous Knowledge relevant to the licence amendment application and associated federal lands assessment.

To date, the Indigenous Nations and communities that have been identified as being potentially directly impacted by the activities included in CNL's licence amendment application have not expressed any specific concerns with regards to the G1WF application, or any concerns with respect to the federal lands assessment being conducted by the CNSC.

Through regular meetings and the comment period of the [Notice of Intent](#) for the federal lands assessment, an additional Indigenous Nation, the Algonquins of Pikwakanagan First Nation, expressed interest in the project.

The comments provided by the interested Indigenous Nations and communities on the [Notice of Intent](#) and the federal lands assessment touched on the following key concerns and topics:

- the CNSC's policies, processes, and practices, including the CNSC's implementation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and participant funding;
- the potential management of G1WF waste at the Chalk River Laboratories site;
- the transport of nuclear waste;
- the scoping of rights-bearing and interested Indigenous Nations and communities in relation to the G1WF; and

- the proposed project not being considered a designated project and therefore not being subject to an integrated assessment as per the IAA.

Though these concerns are not directly within scope of this proposed project or this federal lands assessment, CNSC staff have taken steps to respond to and address these concerns by engaging in dialogue, responding directly to Indigenous Nations and communities to respond to their questions, concerns, and comments, following up with the proponent to identify comments and concerns that should be addressed by CNL, and offering opportunities to meet and collaboratively explore solutions with the concerned Nations. CNSC staff remain committed to working with Indigenous Nations and communities to find effective approaches to addressing key issues and concerns raised with respect to the G1WF, the current licence application, the CNSC's processes for assessing projects on federal lands, and broader policy and regulatory concerns.

CNSC staff acknowledge that efforts to address and respond to concerns are based on the information received to date and recognize that the upcoming public Commission hearing provides an opportunity for Indigenous Nations and communities to express their views directly to the Commission through written interventions. The hearing process is an important part of the CNSC's overall engagement and consultation process; the Commission carefully considers all submissions from Indigenous Nations and communities alongside submissions from CNSC staff, AECL, CNL, and other intervenors. Additional details on the comments received by Indigenous Nations and communities throughout the consultation and engagement activities for this licence amendment request can be found within section 4 of the CNSC Staff's Commission Member Document.

The CNSC has made funding available through its Participant Funding Program (PFP) for Indigenous Nations and communities, members of the public, non-governmental organizations, and other interested parties to support interventions relating to the proposed project. All interventions received ahead of the hearing in writing will be considered by the Commission when making the section 82 determination in accordance with the IAA and the licensing decision.

**84(1)(b) – Was Indigenous knowledge provided with respect to the project?**  Yes  No

The Indigenous Nations and communities who provided comments or have expressed concerns with respect to the proposed project did not provide any Indigenous knowledge or traditional land use information for consideration as part of the assessment to date. CNSC staff continue to encourage Indigenous Nations and communities to share any Indigenous Knowledge and Traditional Land Use data applicable to the application and associated federal lands assessment, where applicable.

**84(1)(c) – Was community knowledge provided with respect to the project?**  Yes  No

Individuals and non-governmental organizations who have provided comments or have expressed concerns with respect to the proposed project did not provide any community knowledge for consideration.

**84(1)(d) – Did the public provide feedback on the project?**  Yes  No

Approximately 40 comments were received on the Notice of Intent for the proposed project between December 15, 2025 and February 5, 2026 from members of the public, non-governmental organizations, and Indigenous Nations and communities. The comments received from members of the public and non-governmental organizations highlighted two main areas of concern that were within scope of the assessment:

- demolition activities and contaminated materials having the potential to impact adjacent lands and the St. Lawrence River; and
- danger to workers due to exposure to radioactive dust.

Additional concerns outlined by members of the public and non-governmental organizations were outside of the scope of this assessment. The concerns touched on the following areas and topics:

- the proposed project not being considered a designated project and therefore not being subject to an integrated assessment as per the IAA;
- CNL's environmental protection information within the Gentilly-1 Waste Facility Licence Amendment Application: Environmental Protection Measures for Decommissioning and Demolition report not being publicly available to support the public comment period;
- the exclusion of transportation and management of G1WF waste at Chalk River Laboratories from the federal lands assessment;
- the opportunity for simultaneous decommissioning of both the G1WF and the Gentilly-2 site;
- the government-owned and contractor-operated model, namely in relation to the management of the project being led by a United States consortium; and

the Commission proceedings being held as a hearing in writing as opposed to a hybrid hearing with oral interventions.

CNSC staff have not been made aware of any concerns from members of the public with respect to potential environmental effects or associated impacts that are not appropriately mitigated through CNL's planned mitigation measures.

The CNSC has made funding available through its Participant Funding Program for Indigenous Nations and communities, members of the public, non-governmental organizations, and other interested parties to support interventions relating to the proposed project. All interventions received ahead of the hearing in writing will be considered by the Commission when making the section 82 determination in accordance with the IAA and the licensing decision.

**Are other federal authorities being consulted?**  Yes  No

Both Environment and Climate Change Canada (ECCC) and Health Canada (HC) supported CNSC staff in the technical assessment of CNL's Gentilly-1 Waste Facility Licence Amendment Application: Environmental Protection Measures for Decommissioning and Demolition report for the proposed G1WF decommissioning. ECCC provided technical expertise on terrestrial species at risk, migratory birds, and the atmospheric environment, while HC provided technical expertise on air quality and noise.

The Department of Fisheries and Oceans (DFO) was also contacted and informed CNSC staff that due to the proposed project not involving physical works being conducted within water bodies, DFO found that the proposed project does not pose a risk to fish and fish habitat and therefore DFO's expertise was not required for this assessment.

## Section G: Resources

The following resources were consulted to complete this form.

- Impact Assessment Agency of Canada, *Projects on federal lands and outside Canada - Guidance document on Sections 81 to 91 of the Impact Assessment Act*, December 2021, [Projects on federal lands and outside Canada: Guidance on Sections 81 to 91 of the Impact Assessment Act - Canada.ca](#).
- Canadian Nuclear Laboratories, *Gentilly-1 Waste Facility Licence Amendment Application: Environmental Protection Measures for Decommissioning and Demolition*, Revision 1, April 2026.
- Canadian Nuclear Safety Commission, *REGDOC-2.9.1: Environmental Protection: Environmental Principles, Assessments and Protection Measures*, Version 1.2, September 2020, [REGDOC-2.9.1, Environmental Protection: Environmental Principles, Assessments and Protection Measures, Version 1.2](#).
- Government of Canada, *Impact Assessment Act*, August 2019, [Impact Assessment Act](#).
- Government of Canada, *Nuclear Safety and Control Act*, May 2000, [Nuclear Safety and Control Act](#).
- Government of Canada, *Species at Risk Act*, amended July 2025, [Species at Risk Act](#).
- Government of Canada, *Species at risk public registry*, accessed February 13, 2026, [Species at risk public registry - Canada.ca](#).
- Canadian Nuclear Laboratories, *Environmental Risk Assessment for the Gentilly-1 Waste Facility*, Revision 2, May 2025.
- Canadian Nuclear Laboratories, *Gentilly-1 Waste Facility Effluent Monitoring Plan for Gentilly-1 Decommissioning*, Revision 1.1, October 2024.
- Canadian Nuclear Laboratories, *Management and Monitoring of Effluents and Emissions*, Revision 1, December 2022.
- Canadian Nuclear Laboratories, *Management of Land, Habitat and Wildlife*, Revision 0, April 2018.
- Canadian Nuclear Laboratories, *Gentilly-1 Waste Facility: Determination of Groundwater Protection and Groundwater Monitoring Requirements*, Revision 0, 2021.
- Hydro-Québec, *Résultats de la surveillance de l'environnement des installations de Gentilly-2*, April 2022.
- Government of Canada, *Strategic Assessment of Climate Change*, October 2020, [Strategic Assessment of Climate Change - Canada.ca](#).
- Government of Canada, *Air quality processes research*, 2018, [Air quality processes research - Canada.ca](#).
- Government of Canada, *Air pollution from cars, trucks, vans, and SUVs*, 2018, [Air pollution from cars, trucks, vans and SUVs - Canada.ca](#).
- Government of Canada, *Acid Rain: Causes and Effects*, 2018, [Acid rain: causes and effects - Canada.ca](#).
- Canadian Standards Association Group, *Guidelines for modelling radionuclide environmental transport, fate, and exposure associated with the normal operation of nuclear facilities*, March 2020.
- Government of Canada, *Barn Swallow (*Hirundo rustica*): COWEWIC assessment and status report 2021, 2022*, [Barn Swallow \(\*Hirundo rustica\*\): COSEWIC assessment and status report 2021 - Canada.ca](#).
- Government of Canada, *Recovery strategy for the Chimney Swift (*Chaetura pelagica*) in Canada, 2023*, [Recovery strategy for the Chimney Swift \(\*Chaetura pelagica\*\) in Canada.: En3-4/365-2023E-PDF - Government of Canada Publications - Canada.ca](#).
- Government of Canada, *Recovery strategy for the bank swallow (*Riparia riparia*) in Canada, 2022*, [Recovery strategy for the bank swallow \(\*Riparia riparia\*\) in Canada.: En3-4/353-2022E-PDF - Government of Canada Publications - Canada.ca](#).
- Government of Canada, *Recovery Strategy for the Bobolink (*Dolichonyx oryzivorus*) in Canada [proposed], 2022*, [Bobolink \(\*Dolichonyx oryzivorus\*\): recovery strategy \[proposed\] 2022 - Canada.ca](#).
- Government of Canada, *Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tri-colored Bat (*Perimyotis subflavus*) in Canada, 2018*, [Little Brown Myotis \(\*Myotis lucifugus\*\), the Northern Myotis \(\*Myotis septentrionalis\*\), and the Tri-colored Bat \(\*Perimyotis subflavus\*\): recovery strategy 2018 - Canada.ca](#).
- Government of Canada, *Recovery Strategy for the Common Nighthawk (*Chordeiles minor*) in Canada, 2016*, [Recovery Strategy for the Common Nighthawk \(\*Chordeiles minor\*\) in Canada - 2016 - Canada.ca](#).

- Canadian Standards Association Group, *Environmental risk assessments at nuclear facilities and uranium mines and mills*, February 2022.
- National Parks Service, *Effects of Noise on Wildlife*, 2025, [Effects of Noise on Wildlife - Natural Sounds \(U.S. National Park Service\)](#).
- Canadian Nuclear Safety Commission, *REGDOC-3.2.2: Indigenous Engagement*, Version 1.2, February 2022, [REGDOC-3.2.2, Indigenous Engagement, Version 1.2](#).
- Crown-Indigenous and Northern Affairs Canada, *Aboriginal Consultation and Accommodation – Updated Guidelines for Federal Officials to Fulfill the Duty to Consult*, March 2011, [Aboriginal Consultation and Accommodation - Updated Guidelines for Federal Officials to Fulfill the Duty to Consult - March 2011](#).

## Section H: Determination

Taking into account the implementation of the technically and economically feasible mitigation measures outlined in Section E and the other section 84 factors under the IAA, outlined in Section F, CNSC staff are recommending that the Commission determine this project is:

**Not likely** to cause significant adverse environmental effects (the authority can carry out the project, exercise a power, perform a duty or function, or provide financial assistance that could permit or enable the project to proceed.)



**Likely** to cause significant adverse environmental effects (the authority may choose not to make any decision or take any action that may permit or enable the project to be carried out; or refer the project to the GiC to determine whether the significant adverse environmental effects are justified in the circumstances under subsection 90(3).)



### Comments

A federal lands assessment in accordance with the IAA was conducted by the CNSC for the proposed G1WF decommissioning, with federal technical expertise provided by ECCC and HC. The CNSC also sought comments and feedback from Indigenous Nations and communities and members of the public through the public comment period hosted on the [Notice of Intent](#) through the [Canadian Impact Assessment Registry web page](#).

CNSC staff recommend that the Commission determine that the G1WF decommissioning is not likely to cause significant adverse environmental effects.