

**Date:** February 26, 2018

**From:** Algonquins of Ontario

**To:** Lucia Abellan, Environmental Assessment Officer  
Canadian Nuclear Safety Commission

**By email:** cncs.ea-ee.ccsn@canada.ca

**Subject line:** Comments on the EIS for the Nuclear Power Demonstration Closure Project

**CEAA Reference number:** 80121

**Comments:**

**MESSAGE SENT ON BEHALF OF ROBERT J. POTTS, PRINCIPAL NEGOTIATOR AND SENIOR LEGAL COUNSEL, ALGONQUINS OF ONTARIO**

Please see the attached correspondence and submission of written comments on the review of Canadian Nuclear Laboratories' Nuclear Power Demonstration Closure Project.

**Janet Stavinga**  
Executive Director

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**Algonquins of Ontario Consultation Office**



# Algonquins of Ontario

February 26, 2018

Louise Levert  
Senior Tribunal Officer, Secretariat Division  
Canadian Nuclear Safety Commission  
Government of Canada  
280 Slater Street  
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**BY E-MAIL ONLY**

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Dear Ms. Levert,

**Subject: Submission of Written Comments on the Review of Canadian Nuclear Laboratories' (CNL) Nuclear Power Demonstration Closure Project (NPD) (Our File CF 48-2)**

On behalf of the Algonquins of Ontario (AOO) thank you for the opportunity to provide our views on Canadian Nuclear Laboratories' (CNL) Nuclear Power Demonstration (NPD) Closure Project as part of the Canadian Nuclear Safety Commission (CNSC) environmental assessment process.

## **Algonquins of Ontario**

Algonquins have lived in present-day Ontario for thousands of years before the Europeans arrived. Today, the AOO are comprised of ten Algonquin communities. These include the Algonquins of Pikwakanagan First Nation, Antoine, Kijicho Manito Madaouskarini (Bancroft), Bonnechere, Greater Golden Lake, Mattawa/North Bay, Ottawa, Shabot Obaadjiwan (Sharbot Lake), Snimikobi (Ardoch) and Whitney and Area.

Based on a Protocol signed in 2004, these communities are working together to provide a unified approach to reach a settlement of the Algonquin land claim.

Most Canadians are likely unaware that Parliament Hill not only sits within Algonquin Traditional Territory but on unceded Algonquin land. The House of Commons, the Senate and the Supreme Court of Canada make laws for all Canadians while situated on land that was never lawfully surrendered to the Crown, contrary to formal legal rules established as far back as 1763.

The AOO are currently in treaty negotiations with Ontario and Canada pursuant to assertions of unextinguished Aboriginal rights and title of Algonquins in Eastern Ontario. The Algonquins land claim includes an area of 9 million acres within the watersheds of the Kichissippi (Ottawa River)

and the Mattawa River in Ontario, unceded territory that covers most of eastern Ontario. More than 1.2 million people live and work within the Settlement Area. There are 84 municipal jurisdictions fully and partially located within the Settlement Area, including 75 lower and single tier municipalities and 9 upper tier counties.

On October 18, 2016, the AOO and the Governments of Ontario and Canada reached a major milestone in their journey toward reconciliation and renewed relationships with the signing of the Agreement-in-Principle (AIP). The signing of the AIP is a key step toward a Final Agreement, and a modern-day Treaty, which will clarify the rights of all concerned and open new economic development opportunities for the benefit of the AOO and their neighbours in the Settlement Area in eastern Ontario.

By signing the AIP, the AOO and the Crown have expressed in a formal way their mutual intention and desire for a lasting partnership. This event signalled the beginning of a new relationship between the AOO and the Crown, one in which the mistakes of the past must be supplanted by a new type of mutual respect and cooperation.

### **Review of the Canadian Nuclear Laboratories (CNL) Nuclear Power Demonstration Closure Project (NDP) as it relates to the AOO**

The NDP site is located within the unceded Algonquins of Ontario Settlement Area, on the west bank of to the Kitchissippi (Ottawa River), the Algonquins' most revered waterway. The NDP property is subject to the AOO's assertion of existing Aboriginal rights and title as a result of ongoing land claim agreements. As such, it is the AOO collectively who have declared an interest in the lands located within the watersheds of the Ottawa and Mattawa Rivers, and who regard this Territory as their traditional homelands.

The NDP was constructed without any consultation or consent from Algonquin communities that have used and occupied and who continue to use and occupy the lands and waters within and around the site. Due to the toxic and long life of nuclear contaminants, the NDP poses significant risks to the environment, health and the Aboriginal rights and title of Algonquin people.

It is important to note that the AOO have a significant interest in the NDP Closure Project and the NDP property given its location within the Algonquin Land Claim Settlement Area and its proximity to seven proposed land selections, as well as the Kitchissippi. The AOO wish to discuss potential land transfer agreements for portions of the NDP Property as part of the consultation and accommodation process with CNL/AECL. However, the AOO wishes to ensure that the contaminants on site are managed in the safest way possible.

Based on information provided by CNL in its Environmental Impact Statement (EIS) for the NDP Closure Project as submitted to the CNSC (EIS, 2017), this review focuses on the interactions between NDP Closure Project and the rights and interests of AOO members. Based on known land use and cultural heritage data, the AOO wish to emphasize that the NDP site is an area where Algonquin people have a longstanding and well-established record of historic and ongoing current use. Drawing on this knowledge, and based on AOO members' constitutionally protected Aboriginal rights and title, the AOO has considered the following potential issues related to the rights and interests of AOO members in our review of the NDP Closure Project:

- Potential impacts to the current use of lands and resources for traditional purposes by AOO members
- Potential impacts to the health of AOO members
- Potential impacts to AOO members' informal and formal socio-cultural and economic systems associated with the trade and sharing of resources or products from traditional land use
- Potential impacts to AOO members' commercial harvesting associated with traditional land use
- Potential impacts to AOO cultural heritage and archaeological resources

At the current time, no formal accommodation agreement exists between AOO and the CNSC representing the Crown, or the AOO and CNL. The results of our review provide a series of comments and accommodations that CNSC and CNL must consider prior to approval of the NPD Closure Project. The AOO are engaged in parallel discussions with the CNSC regarding accommodations with various facilities for which the CNSC provides Crown regulatory oversight.

This report provides a set of comments and accommodations that will enable us to work with the CNSC and CNL to move forward in a way that ensures Algonquin rights and interests are protected and promoted. We view this as an opportunity to set the stage for a productive relationship between the AOO, CNSC and CNL, rooted in respect and mutual benefit.

Should you wish to discuss this matter further, please do not hesitate to contact Janet Stavinga, Executive Director of the AOO Consultation Office by telephone at 613-735-3759 or by email at [jstavinga@tanakiwin.com](mailto:jstavinga@tanakiwin.com).

Yours truly,

*Original signed by*

Robert J. Potts  
**Principal Negotiator and Senior Legal Counsel**  
 Algonquin Treaty Negotiations

Attach 1      Review of the Canadian Nuclear Laboratories' (CNL) Nuclear Power  
 Demonstration Closure Project (NPD)

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Janet Stavinga, Executive Director – AOO



# Nuclear Power Demonstration Closure Project - Technical Review

Technical Review of the Draft Environmental  
Impact Statement

Prepared by:  
**Algonquins of Ontario**

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## Executive Summary

The Algonquins of Ontario (AOO) assert unextinguished and constitutionally protected Aboriginal rights and title to a traditional territory in Eastern Ontario (referred to as the “unceded AOO Settlement Area”) and are currently in negotiations towards a modern-day Treaty with the governments of Ontario and Canada. The AOO have conducted a review of the Canadian Nuclear Laboratories (CNL) Nuclear Power Demonstration (NPD) Closure Project as part of the Canadian Nuclear Safety Commission (CNSC) environmental assessment process. CNL is applying to the CNSC to decommission the NPD reactor beginning in 2019 using an in-situ decommissioning method, which would leave the NPD reactor and its residual radioactive material permanently entombed on the current NPD property. All major decommissioning work is expected to be completed by 2020, at which point the “institutional controls” begins and on-site monitoring and maintenance activities would commence for a minimum 100-year period.

The NPD is an out of service nuclear reactor facility that is located along the southern shores of the Ottawa River (known in the Algonquin language as “Kitchissippi”) near Rolphton, Ontario, within the boundaries of the unceded AOO Settlement Area. The NPD property covers an area of approximately 385 hectares. The Nuclear Power Demonstration Waste Facility (NPDWF), where the reactor and waste liabilities exist, is located on a 2.4 hectare parcel of land (roughly 140m wide by 180m deep) surrounded by a 380 hectare exclusion zone which is referred to in this document as the NPD property. There are no construction or development activities occurring in the exclusion zone.

The NPD site is located within unceded Algonquin Traditional Territory. The AOO have asserted existing Aboriginal rights and title throughout the Settlement Area, including the NPD site. At the time of the Crown decisions to establish and operate the NPD reactor in the unceded AOO Settlement Area, the Crown did not consult with the AOO, or provide accommodations for impacts to AOO rights and interests. It is time for CNL and the CNSC to formally acknowledge the use of the unceded Algonquin Settlement Area for the development of nuclear reactor technology, and as a site proposed for managing resulting radioactive waste materials. The NPD has significantly impacted the AOO through the displacement of our people, the loss of access for traditional purposes, the destruction of our cultural heritage resources and the release of radioactive, and other hazardous materials, into the environment.

It is important to note that the AOO have a significant interest in the NPD Closure Project and the NPD property given its location within the Algonquin Land Claim Settlement Area and its proximity to seven proposed land selections, as well as the Kitchissippi. The AOO wish to discuss potential land transfer agreements for portions of the NPD Property as part of the consultation and accommodation process with CNL/AECL. However, the AOO wishes to ensure that the contaminants on site are managed in the safest way possible.

Based on information provided by CNL in its Environmental Impact Statement (EIS) for the NPD Closure Project as submitted to the CNSC (EIS, 2017), this review focuses on the interactions between NPD Closure Project and the rights and interests of AOO members. Based on known land use and cultural heritage data, the AOO wish to emphasize that the NPD site is an area where Algonquin people have a

longstanding and well-established record of historic and ongoing current use. Drawing on this knowledge, and based on AOO members' constitutionally protected Aboriginal rights and title, the AOO has considered the following potential issues related to the rights and interests of AOO members in our review of the NPD Closure Project:

- Potential impacts to the current use of lands and resources for traditional purposes by AOO members
- Potential impacts to the health of AOO members
- Potential impacts to AOO members' informal and formal socio-cultural and economic systems associated with the trade and sharing of resources or products from traditional land use
- Potential impacts to AOO members' commercial harvesting associated with traditional land use
- Potential impacts to AOO cultural heritage and archaeological resources

At the current time, no formal accommodation agreement exists between AOO and the CNSC representing the Crown, or the AOO and CNL. The results of our review provide a series of comments and accommodations that CNSC and CNL must consider prior to approval of the NPD Closure Project. The AOO are engaged in parallel discussions with the CNSC regarding accommodations with various facilities for which the CNSC provides Crown regulatory oversight. The following list presents a high-level overview of the key accommodation measures identified by AOO with regard to CNL and its responsibilities:

- CNL must develop formal accommodation agreements with the AOO for past, present and future impacts through the development of a Long-Term Relationship Agreement, including land transfer arrangements for the NPD property.
- The CNL must provide formal responses to the issues and comments provided in this review. These should include detailed descriptions of the actions to be taken to provide additional information, collect missing data, and remedy shortcomings of the EIS.
- As noted in this review, additional data collection is required to adequately characterize the baseline environment. This includes data collection on groundwater quality, surface water quality (radiological and non-radiological), fish tissues, benthic invertebrates, and wetlands.
- CNL must provide detailed descriptions of follow up monitoring programs for a range of environmental parameters including groundwater, surface water, aquatic biota (i.e. fish tissue monitoring and benthic invertebrate monitoring), wetlands and the atmospheric environment. The CNL must engage in meaningful involvement of the AOO in the ongoing environmental, cultural heritage, and human health monitoring in and around NPD site.
- CNL must provide accessible information for Algonquin citizens, including communications protocols for informing communities about monitoring results, participation opportunities, and incidents such as spills, accidents or malfunctions.

- CNL should provide a framework for addressing the cumulative effects of CNSC-regulated projects (e.g. NRU reactor, Chalk River Laboratories, NSDF, etc.) and other activities in the region that affect AOO rights and interests across the unceded AOO Settlement Area
- CNL must engage in collaborative decision-making with the AOO, as part of the consultation delegated to it by the Crown, and the obligation to secure free, prior and informed consent for all projects. This decision-making must recognize and strengthen the jurisdiction that the AOO have with respect to this Project, the environment and culture.
- The CNL must create protocols to encourage transparency, accountability and credibility. Decisions should be based on rigorous science and the Indigenous Knowledge of the AOO. Where appropriate this must include the completion of comprehensive Indigenous Knowledge and land use studies with the AOO.
- To promote the effective participation of the AOO within the environmental management, monitoring, and remediation of the NPD site in coordination with CNSC regulation, we strongly suggest the creation of a Nuclear Environmental Review Board (NERB) composed of representatives from the AOO, CNSC and CNL. The NERB would be responsible for providing guidance to the operation monitoring programs. The NERB would also be responsible for reviewing annual reports, applications, licence renewals and other activities associated with the NPD. Resources must be provided to allow the NERB to dedicate the time required to complete these tasks. The NERB should have access to funding for obtaining guidance from technical experts, where appropriate.

This report provides a set of comments and accommodations that will enable us to work with the CNSC and CNL to move forward in a way that ensures Algonquin rights and interests are protected and promoted. We view this as an opportunity to set the stage for a productive relationship between the AOO, CNSC and CNL, rooted in respect and mutual benefit.

## 1.0 Introduction

Canadian Nuclear Laboratories (CNL or the Proponent) is applying to the Canadian Nuclear Safety Commission (CNSC) to demolish, remove and decommission the Nuclear Power Demonstration (NPD) facilities (the Project) in eastern Ontario. The Nuclear Power Demonstration Nuclear Generating Station (NPDNGS) was the first nuclear power reactor in Canada and was used as a prototype for the Canada Deuterium Uranium (CANDU®). CNL is proposing to decommission the NPD facilities using an in-situ decommissioning approach that isolates and contains the contaminated structures in a below-ground containment on the existing NPD property.

The NPD site located within the unceded Algonquins of Ontario Settlement Area, on the west bank of the Kitchissippi (Ottawa River), the Algonquins' most revered waterway. The NPD property is subject to the AOO's assertion of existing Aboriginal rights and title as a result of ongoing land claim agreements. As such, it is the AOO collectively who have declared an interest in the lands located within the watersheds of the Ottawa and Mattawa Rivers, and who regard this Territory as their traditional homelands.

The NPD was constructed without any consultation or consent from Algonquin communities that have used and occupied and who continue to use and occupy the lands and waters within and around the site. Due to the toxic and long life of nuclear contaminants, the NPD poses significant risks to the environment, health and the Aboriginal rights and title of Algonquin people.

The NPD site is located within the Algonquin Land Claim Settlement Area. The Algonquins of Ontario and the Governments of Canada and Ontario are negotiating towards a modern-day Treaty that will recognize and affirm the existing Aboriginal and treaty rights of the Algonquins of Ontario.

It is important to note that the AOO have a significant interest in the NPD Closure Project and the NPD property given its location within the unceded Algonquin Land Claim Settlement Area and its proximity to seven proposed land selections as well as the Kitchissippi. The AOO wish to discuss potential land transfer agreements for portions of the NPD Property as part of the consultation and accommodation process with CNL.

The AOO have an interest in ensuring that this Project occurs in a responsible manner that manages risks (both present and future), safeguards the environment, protects health and safety, and respects the Aboriginal rights and title of the AOO. To this end, we have completed a review of the Environmental Impact Statement (EIS) and supporting documents prepared on behalf of CNL. The objectives of this review are:

- to evaluate how the rights and interests of Algonquin people living in the unceded AOO Settlement Area overlap and may be impacted by the Project;
- to provide recommendations for actions that are needed to avoid, mitigate and/or accommodate any impacts to the AOO;
- to identify environmental and technical issues with the Project and provide recommendations for revisions to the EIS; and
- to identify strategies for involving the AOO in management and oversight of the Project;
- To identify appropriate consultation and accommodation measures for AOO.

## 1.1 Project Description

The NPD site is located in unceded AOO Traditional Territory along the Kitchissippi in eastern Ontario (Figure 1). The site is in the town of Laurentian Hills in Renfrew County approximately 25 km northwest (upstream) of the Chalk River Laboratories (CRL) site. The land around the site is primarily forested with many rivers and lakes that form part of the Ottawa River watershed.

The NPD property itself is approximately 385 hectares, while the Nuclear Power Demonstration Nuclear Generating Station (NPDNGS) and associated facilities make up less than 1% of this area. The NPDNGS is a 20 MWe Canada Deuterium Uranium (CANDU®) reactor that began operation in 1962. It was operated by Ontario Hydro until 1987 when it was permanently shut down, after which responsibility for the site was transferred to Atomic Energy of Canada Limited (AECL), a crown corporation. The NPD facilities are now referred to as the Nuclear Power Demonstration Waste Facility (NPDWF) and are considered a Class

I nuclear facility under the *Nuclear Safety and Control Act*. The NPDWF has a federal Decommissioning Waste Facility License and is authorized for storage and surveillance of nuclear waste (CNL EIS, 2017).

After permanent shutdown of the NPDWF, all systems not necessary for the safe storage of wastes were shutdown. Used fuel was moved to the Chalk River Laboratories (CRL) fuel storage facilities. Surplus equipment that could be moved was scavenged for re-use. Other equipment, including the turbine system, control room and support facilities were demolished to the extent possible. Underground storage tanks used for diesel, furnace oil and liquid radiological waste were removed, and the soil was remediated. There are two closed landfills on the NPD site located approximately 300m southwest (Landfill #1) and 600m northwest (Landfill #2) of the NPDWF. Remaining NPDWF structures include the reactor building, a diesel generator, the ventilation stack and a guardhouse (EIS, 2017).

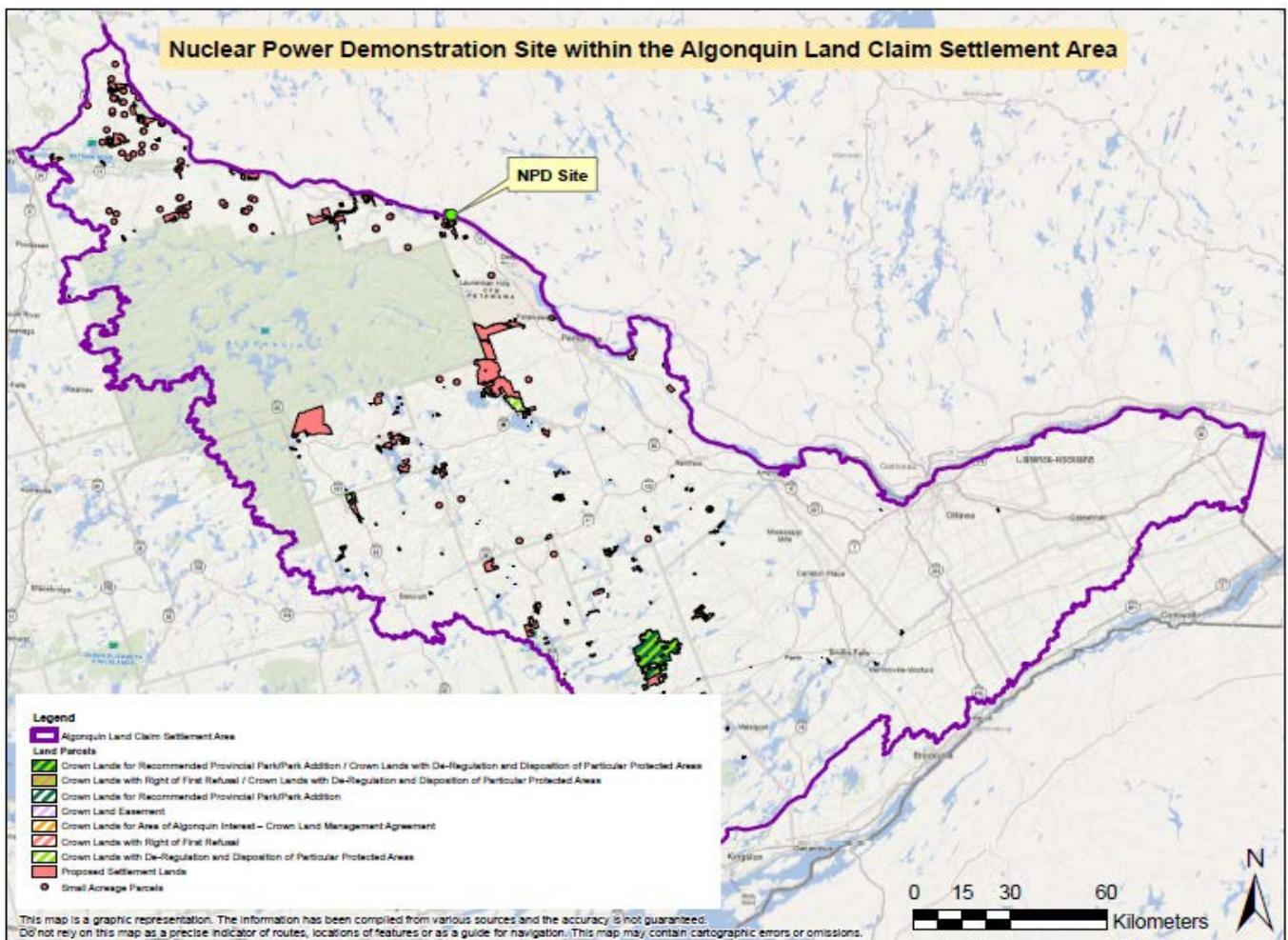


Figure 1- Location of the Nuclear Power Demonstration Site in AOO Settlement Area

Preliminary closure and decommissioning activities were completed in 1988. During this time, all spent nuclear fuel was removed and transferred to the CRL site. Since that time the NPD site has remained inactive and in a state of permanent shutdown to allow radioactive contamination to diminish. This

strategy is known as deferred decommissioning. It allowed the majority of short-lived radionuclides to decay, resulting in an estimated decrease of radioactivity from  $2 \times 10^{15}$  Bq in 1988 to  $4.7 \times 10^{13}$  in 2018. CNL has stated that this deferred decommissioning helps to reduce the hazards associated with working on the site and reduces the risk of decommissioning activities (EIS, 2017).

CNL is proposing to undertake in-situ decommissioning for the NPD site. The underlying rationale for using this method is that the underground facilities and barriers will contain the majority of nuclear contamination, allowing it to decay through time. Small amounts of nuclear contamination will be released through time but according to the proposed plan, these will be sufficiently small so that they pose minimal risks. For example, CNL claims that after 50,000 years, 98% of the radioactivity of contaminated materials will be retained within the below ground facilities.

CNL is proposing to complete decommissioning by first prepping the site and constructing a batch mixing plant for the fabrication of grout. This will be used to make a pourable type of Portland cement. The grout will be poured and pumped throughout the below ground structures to seal them in place. The grout is of a consistency that will allow it to be pumped so that it gets in all crevices of the facility. Next, the above ground structures will be demolished, broken down and used as a backfill overtop the underground facilities. After backfilling has been completed, a concrete cap and engineered barrier will be installed. Grading and drainage ditching will be installed to manage precipitation and runoff. The ventilation stack will be left in place for use by chimney swifts (a species at risk) that use it as roosting habitat. After demolition and grouting have been completed, the site will be rehabilitated and prepared for long-term maintenance and monitoring. After decommissioning activities have been completed the NPDWF will be fenced off and the site will be placed under institutional control, with restricted access. During institutional control, CNL will complete vegetation management, groundwater monitoring, site maintenance (e.g. fence and road), and inspections on engineered cover. Institutional control will continue for an undetermined amount of time.



Figure 2 - Nuclear Power Demonstration Waste Facility site and surrounding area (CNL EIS, 2017)

## 1.2 Regulatory Process

The NPD Project is subject to a Federal environmental assessment (EA) by Responsible Authority, as a “designated project” under Section 35 (Regulations Designating Physical Activities) of CEA, 2012 for “the construction, operation and decommissioning of a new nuclear fission or fusion reactor.” For this decommissioning project, the Responsible Authority is the Canadian Nuclear Safety Commission (CNSC).

The EA for this project is being conducted based on the standards and requirements laid out in the *Canadian Environmental Assessment Act (2012)* (CEAA 2012) and the Canadian Nuclear Safety Commission REGDOC 2.9.1 on *Environmental Protection: Environmental Policy, Assessments and Protection Measures*. The CNSC's REGDOC 2.9.1 document provides guidance on how the CNSC must carry out EAs that fall under CEAA 2012. Since the NPD Project is on CEAA's Designated Project List the EA is conducted under CEAA 2012 as opposed to the *Nuclear Safety and Control Act (NSCA 2000)* which is the other Act under which nuclear project assessments can be conducted.

The CNSC has been regulating the NPD site for the life of the project through the existing site license which was issued by CNSC. The current license for the site is a Class I Nuclear Facility License for Waste Facility Decommissioning and Prototype Waste Facilities; this particular license was issued under NSCA 2000.

CNSC REGDOC 2.9.1 is the regulatory document used by the Commission to assess the application and its associated environmental protection measures using the following scoping criteria:

- all licence applications that demonstrate potential interactions between the facility or activity and the environment are subject to an EA, either under the NSCA 2000 or under CEAA 2012
- for each facility or activity that has direct interactions with the environment, the applicant or licensee must demonstrate that environmental protection measures are or will be in place
- where an Environmental Risk Assessment (ERA) is required for a facility or activity:
  - the ERA is subject to regular updates (at least every five years, and whenever a significant change occurs in either the facility or activity that could alter the nature (type or magnitude) of the interaction with the environment
  - the licensee's ERA informs an EA under CEAA 2012

The assessment focuses on scale of complexity and level of environmental risk associated with the project.

As part of the CNSC's Environmental Protection the Commission requires the environmental effects of all facilities or activities to be evaluated and considered when licensing decisions are made as outlined in the figure below. For each licensing decision, the CNSC must be satisfied that the proponent (in this case CNL) will implement adequate environmental protection and health and safety provisions before a licence is issued.



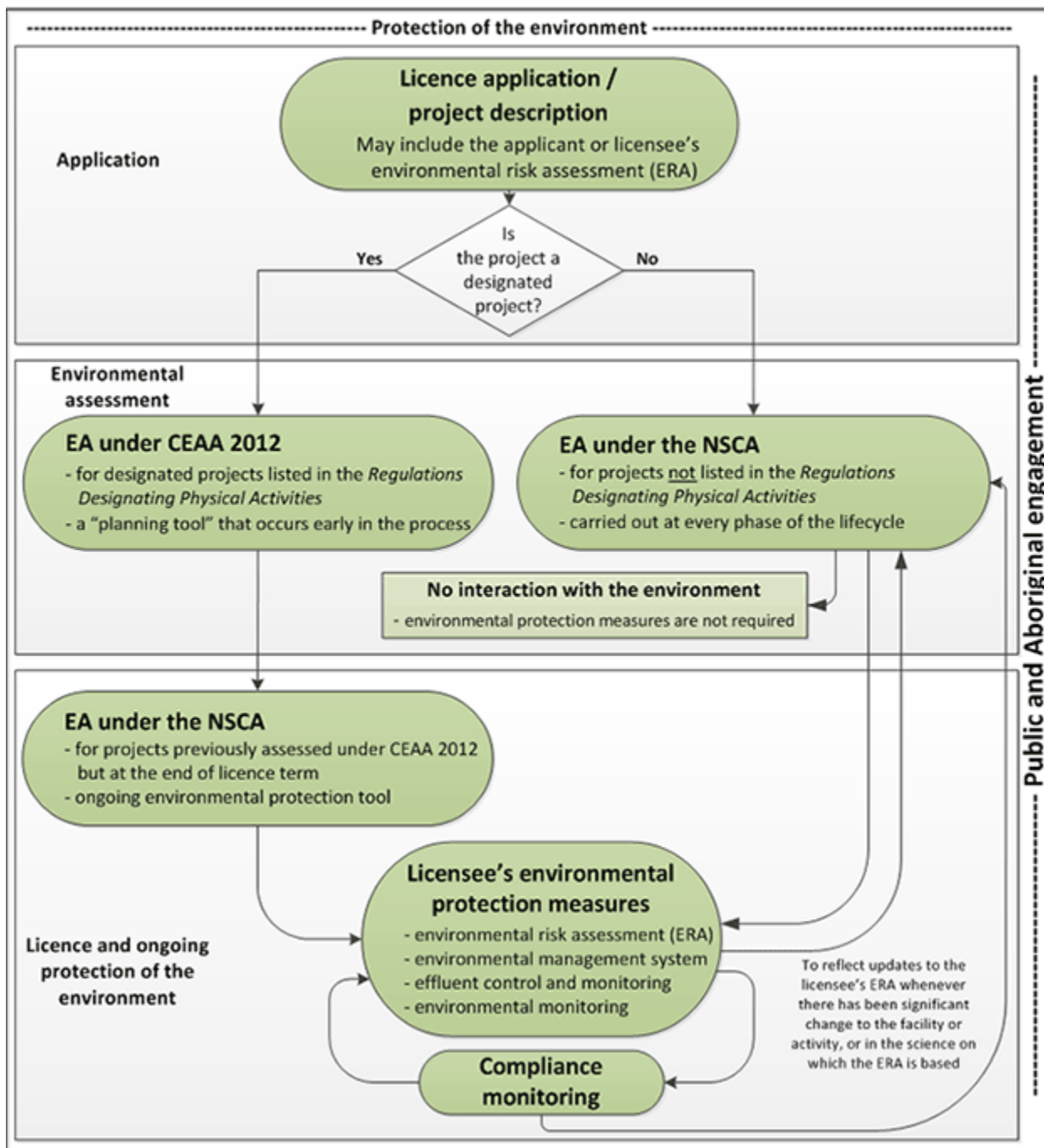


Figure 3 CNSC Environmental Protection Measures Framework (CNSC REGDOC 2.9.1)

Other federal and provincial permits, licenses, and authorizations that may be required include:

- Registration of on-site petroleum storage tanks with Environment Canada under the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*;
- a permit under the *Species at Risk Act* for decommissioning activities that would disturb chimney swift roosting in the ventilation stack; and

- authorization under the *Fisheries Act* for any in-water activities that have the potential to result in Serious Harm to fish or fish habitat (not expected at this time).

In addition to CEEA 2012, CNSC REGDOC 2.9.1, registration under *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, a *Species at Risk* permit, and *Fisheries Act* authorization the following regulations and technical guidance apply to the regulation of this project:

- *Migratory Birds Convention Act (1994)*
- *Nuclear Liability and Compensation Act (2015)*
- General Nuclear Safety and Control Regulations (SOR/2000-202);
- Radiation Protection Regulations (SOR/2000-203);
- Class I Nuclear Facility Regulations (SOR/2000-204);
- Nuclear Substances and Radiation Devices Regulations (SOR/2000-207);
- Packaging and Transport of Nuclear Substances Regulations, 2015 (SOR/2015-145);
- Nuclear Security Regulations (SOR/2000-209);
- Nuclear Non-Proliferation Import and Export Control Regulations (SOR/2000-210);
- Administrative Monetary Penalties Regulations (SOR/2013-139); and
- Canadian Nuclear Safety Commission Cost Recovery Fees Regulations (SOR/2000-212)
- CNSC (2000) *Regulatory Guide – Decommissioning Planning for Licensed Activities (G-219) [June 2000 version]*;
- CNSC (2004) *Regulatory Policy – Managing Radioactive Waste (P-290) [July 2004 version]*;
- CNSC (2006) *Regulatory Guide – Financial Guarantees for the Decommissioning of Licensed Activities (G-206) [June 2000 version]*;
- CNSC (2006) *Regulatory Guide – Assessing the Long-Term Safety of Radioactive Waste Management (G-320) [December 2006 version]*;
- CNSC (2014) *Safety Analysis – Deterministic Safety Analysis (REGDOC-2.4.1) [May 2014 version]*;
- CNSC (2012) *Public Information and Disclosure (RD/GD-99.3) [March 2012 version]*;
- CNSC (2016) *Public and Aboriginal Engagement – Aboriginal Engagement (REGDOC-3.2.2) [February 2016 version]*
- CSA (2000) *Phase II Environmental Site Assessment. (Z769-00) [Reaffirmed: 2013]*.
- CSA (2001) *Phase I Environmental Site Assessment. (Z768-01) [Reaffirmed: 2012]*.
- CSA (2010) *Environmental monitoring programs at Class I nuclear facilities and uranium mines and mills. (N288.4-10) [Reaffirmed: 2015]*.
- CSA (2011) *Effluent monitoring programs at Class I nuclear facilities and uranium mines and mills. (N288.5-11)*.
- CSA (2011) *Guidance for the exemption or clearance from regulatory control of materials that contain, or potentially contain, nuclear substances. (N292.5-11)*.
- CSA (2012) *Management system requirements for nuclear power plants (N286-12)*.
- CSA (2012) *Environmental risk assessments at Class I nuclear facilities and uranium mines and mills. (N288.6-12)*.
- CSA (2013) *Fire protection for facilities that process, handle, or store nuclear substances. (N393-13)*.
- CSA (2014) *Management of low-and intermediate-level radioactive waste. (N292.3-14)*.

- CSA (2014) *Decommissioning of facilities containing nuclear substances*. (N294-09) [Reaffirmed: 2014].
- CSA (2015) *Groundwater protection programs at Class I nuclear facilities and uranium mines and mills*. (N288.7-15).
- CSA (2016) Proposed new standard: *Long-term management and disposal of radioactive waste and irradiated fuel*. (N292.6) [In development].

The Environmental Impact Statement (EIS) is CNL's submission to the CNSC, which, if approved, will subsequently result in the CNSC issuing its own summary report on the Project and EA process as a basis for a regulatory decision regarding the decommissioning program. If it is determined that there are no significant adverse residual effects as a result of the Project, the CNSC will issue a decision to support the Project. If it is determined that there are significant residual effects from the Project, then the CNSC will issue a recommendation to the Minister of Natural Resources including the findings of their review. The final decision regarding whether such Project effects are justified under the circumstances, and subsequently, if the Project should be approved, rejected or approved with conditions, will be made by the Minister and Governor-in-Council (Cabinet).

All EA and permit processes for the NPD Closure Project involve Crown conduct that has the potential to trigger the Crown's duty to consult and, where appropriate, accommodate the AOO. CEAA 2012 also has specific requirements under Section 5 (c) of the Act for assessing the effects of changes to the biophysical environment on Aboriginal peoples which may be caused by a project, including:

- effects on current use of lands and resources for traditional purposes;
- effects on health or socio-economic conditions; and
- effects on archaeological or cultural heritage.

As such, the review of the EIS was conducted through the lens of potential impacts to AOO's rights and interests.

## 2.0 The Algonquins of Ontario

The Algonquins have lived in present-day Ontario for thousands of years before Europeans arrived. Today, ten Algonquin communities comprise the Algonquins of Ontario:

- the Algonquins of Pikwakanagan First Nation
- Antoine
- Kijicho Manito Madaouskarini (Bancroft)
- Bonnechere
- Greater Golden Lake
- Mattawa/North Bay
- Ottawa
- Shabot Obaadjiwan (Sharbot Lake)
- Snimikobi (Ardoch)
- Whitney and Area

Based on a Protocol signed in 2004, these communities are working together to provide a unified approach to negotiate a modern-day Treaty.

The Algonquin Negotiation Team consists of the Chief and Council of the Algonquins of Pikwakanagan First Nation, who are elected under the Pikwakanagan Custom Election Code, and one representative from each of the nine other Algonquin communities, each of whom is elected by the enrolled Algonquin Voters of each community for a three-year term.

The AOO Settlement Area includes an area of more than 9 million acres within the watersheds of the Kitchissippi (Ottawa River) and the Mattawa River in Ontario, unceded territory that covers most of eastern Ontario, including Ottawa, and most of Algonquin Park. More than 1.2 million people live and work within the unceded AOO Settlement Area. There are 84 municipal jurisdictions fully and partially located within the unceded AOO Settlement Area, including 75 lower and single tier municipalities and 9 upper tier counties.

On October 18, 2016, the AOO and the Governments of Ontario and Canada reached a major milestone in their journey toward reconciliation and renewed relationships with the signing of the Agreement-in-Principle (AIP). The signing of the AIP is a key step toward a Final Agreement, and a modern-day Treaty, which will clarify the rights of all concerned. By signing the AIP, the AOO and the Crown have expressed in a formal way their mutual intention and desire for a lasting partnership. This event signaled the beginning of a new relationship between the AOO and the Crown, one in which the mistakes of the past must be supplanted by a new type of mutual respect and cooperation.

## 2.1 Algonquin Values and Teachings

Today's Algonquins of Ontario share a history of common interests, traditions and needs arising from our common heritage. In the following section, we outline several Algonquin practices and teachings that are key to understanding the review comments that follow. We want to know that you understand who we are.

In developing these comments, we have been guided by the spirit and intent of the Teachings of the Seven Grandfathers. These teachings have been passed down from generation to generation and continue to be practiced today.

1. Honesty (Gwayakwaadiziwin): Honesty in facing a situation is to be brave
2. Humility (Dabaadendiziwin): Humility is to know yourself as a sacred part of Creation
3. Respect (Minaadendamowin): To honour all Creation is to have Respect
4. Bravery (Aakode'ewin): Bravery is to face the foe with integrity
5. Wisdom (Nibwaakaawin): To cherish knowledge is to know Wisdom
6. Love (Zaagi'idiwin): To know Love is to know peace
7. Truth (Debwewin): Truth is to know all of these things

Our survival on this land for thousands of years has required us to apply our teachings to ensure the protection of the lands and waters that we rely on. These teachings serve as the original instructions or "natural laws" that were built into our way of life. "Sustainability" is a modern term, but sustainability

has long been in practice by our people and our ancestors. There were consequences that occurred when we strayed from our natural teachings, instructions and laws. We were constantly monitoring the environment, and if changes occurred, we would adapt. It was (and is) a matter of survival. We had, and continue to have, deep connections to the land.

Industrial developments such as mines, hydroelectric dams and nuclear developments have significantly impacted the lands and waters that we rely upon. Protection and interaction with the lands and waters of our territory has been central to our existence for thousands of years. We maintained this connection to the land in spite of the arrival of Europeans to our territory. Nonetheless, this arrival dramatically affected our way of life. Because we are confined to harvesting in specific locations, resources have and can become depleted. We are in great competition with so many others on this land now for the resources that are here.

Algonquin oral history is also recorded by the Seven Fires wampum belt, which has been held by hereditary belt-keepers for centuries. The story concerns eight prophets who appeared to the Algonquins on seven occasions before a council fire just prior to crucial periods in their history. Each “Fire” can be correlated either with geological time periods, named after postglacial lakes and rivers, or to well-known events in Algonquin Post Contact history (Swayze, 2017). The First and Second Fires occurred during the existence of Glacial Lake Algonquin and the Champlain Sea, while the long Third Fire correlates to the phases of postglacial Lake Mattawa and spanned the entire Archaic period. The two prophets of the Fourth Fire spoke at the advent of the Protohistoric period. The Fifth Fire prophet warned of the changes that would happen during the Fur Trade. The Sixth Fire prophet warned that British and Canadian Colonialism would reduce the Algonquin to the lowest point in their history. The prophet of the Seventh Fire spoke of the opportunity that would arise in our time, when the Algonquin and “Rainbow People” who share the Algonquins’ land, will together face challenges to determine if the environment, and people who depend on it, will survive or perish (Swayze, 2017).

## 2.2 Algonquins of Ontario Rights and Interests and the Nuclear Power Property

### 2.2.1 AOO Rights and Interests and the NPD Closure Project

The NPD falls within lands to which AOO members assert their Aboriginal rights and title, and over which they will exercise Treaty rights once their Treaty negotiations with the Crown are complete. The NPD property occupies approximately 385 hectares of the unceded AOO Settlement Area along a portion of Kitchissippi that is significant to Algonquin people from a land use and cultural heritage perspective. No consultation or engagement occurred with Algonquin people in the original decision to build or operate this facility within AOO Territory. AOO members have exercised, and will continue to exercise, their inherent and Treaty rights around the NPD site without limitation. In addition, the environmental issues (such as leaks of radioactive contaminants or groundwater seepage of hazardous materials) associated with NPD have impacted the unceded AOO Settlement Area.

Based on known land use and cultural heritage data, it is well-known that the NPD property and adjacent areas is an area where Algonquin people have a longstanding and well-established record of historic and ongoing current use. Drawing on this knowledge, and based on AOO members' constitutionally protected rights, AOO has considered the following potential issues and concerns related to the rights and interests of AOO members in our review of the NPD Closure Project:

- Potential impacts to the current use of lands and resources for traditional purposes by AOO members must be avoided, mitigated, or accommodated
- Potential impacts to the health of AOO members—including, but not limited to those conditions reliant on the current use of lands and resources for traditional purposes—must be avoided, mitigated, or accommodated
- Potential impacts to AOO members' informal and formal socio-cultural and economic systems associated with the trade and sharing of resources or products from traditional land use must be avoided, mitigated, or accommodated
- Potential impacts to AOO members' commercial harvesting associated with traditional land use must be avoided, mitigated, or compensated
- Potential impacts to AOO cultural heritage and archaeological resources must be avoided, mitigated, or compensated

In addition to the NPD site being fully located within the Algonquin Settlement Area, it is also important for the CNSC and CNL to appreciate that the NPD property is in close proximity to AOO Proposed Land Selections (Figure 4). There are seven AOO proposed land selections located within 8 km of the NPD site. Should the AOO's land claim negotiations with Canada and Ontario culminate in a Final Agreement, these proposed land selections would be transferred to the AOO in fee simple absolute. Consequently, the AOO have a unique and special interest in the NPD Closure Project. These proposed land selections were identified as part of the Agreement-in-Principle initialed by the Negotiators for the AOO, Canada and Ontario in June 2015.

In addition, the AOO have as part of the federal surplus settlement land selection process indicated an interest in acquiring approximately 364 hectares (900 acres) of residual NPD lands after the decommissioned footprint is fenced off and environmental liabilities are addressed. AOO wish to formally discuss land transfer agreements with CNL and AECL.

The AOO recognizes that the best alternative for protecting the environment and human health would be the deferral of decommissioning and complete removal of all radioactive contamination to a long-term facility. This would help mitigate the long-term risk of the NPD site and reduce potential future impacts on AOO land users. However, as there are no existing long-term storage options for nuclear waste in Canada, this would require postponing the transfer of the residual NPD property to the AOO indefinitely. It is therefore important that all reasonable measures for protection of the environment be implemented. Moreover, as identified throughout this report, the CNL must ensure that best practices

for decommission and rigorous long-term monitoring programs are in place to evaluate on-going risks associated with contamination.

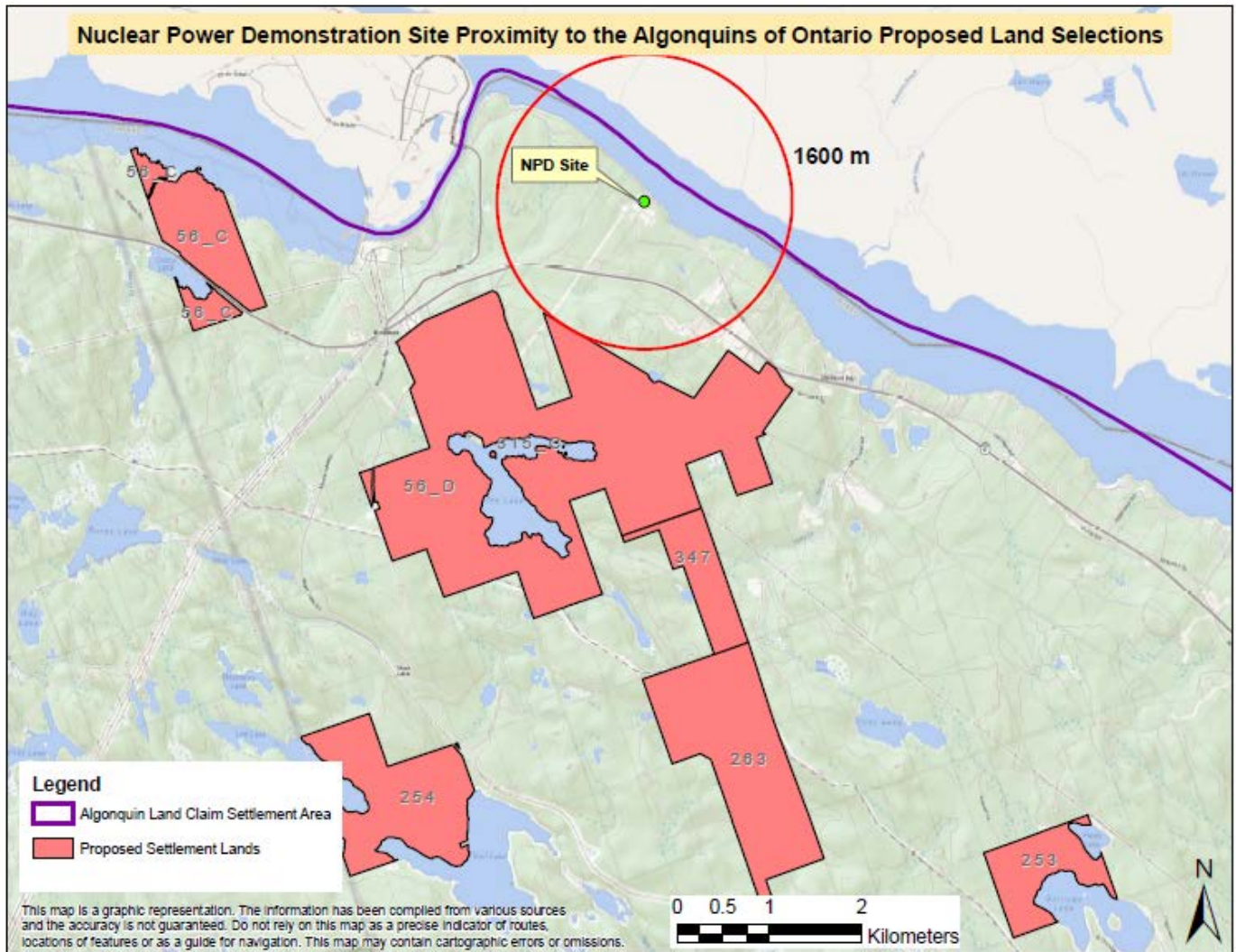


Figure 4 - AOO Land Selections in relation to the NPD property

For the Algonquin people, land has long been recognized as the source of strength and the basis of Nationhood. An appropriate Algonquin land base will provide Algonquin people with opportunities to exercise our ongoing relationship with Mother Earth, protect cultural, environmental and historically significant areas and provide support for economic development and the provision of job opportunities for Algonquins going forward.

### 2.2.1.1 The Duty to Consult and Accommodate

Algonquin people have always had a very close connection and reliance on the lands and waters for subsistence and cultural well-being. This connection to the land, combined with Algonquin peoples' established Aboriginal rights and interests as well as the fact that the NPD project falls within the Algonquin's Land Claim Settlement Area, demonstrate how necessary it is to appropriately and

adequately consult and accommodate Algonquin people in the matter of the Nuclear Power Demonstration Project.

In addition to the above, Algonquin people have protected rights under Section 35 of the Constitution Act which state:

35. (1) The existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed.

**Definition of “*aboriginal peoples of Canada*”**

(2) In this Act, “*aboriginal peoples of Canada*” includes the Indian, Inuit and Métis peoples of Canada.

**Land claims agreements**

(3) For greater certainty, in subsection (1) “*treaty rights*” includes rights that now exist by way of land claims agreements or may be so acquired.

The above sections demonstrate that the rights of Indigenous people must be recognized and affirmed. In addition to Section 35, the AOO is also in the process of negotiating a modern-day Treaty with the Crown. While this Treaty is being negotiated, a Consultation Process Interim Measures Agreement is in place between the Algonquins of Ontario, Her Majesty the Queen in Right of Ontario, and Her Majesty the Queen in Right of Canada. Some key components of the agreement that highlight the importance of adequate consultation and accommodation for AOO are as follows:

- Where a Federal department, Provincial ministry or other Crown agency proposes a particular decision or activity that is applicable to the territory as depicted on the map attached as Appendix "A," and where such decision or activity gives rise to a duty to consult with the Algonquins, it shall provide to the Algonquin Consultation Office appropriate notice and information of the proposed decision or activity.
- The Algonquin Consultation Office shall acknowledge receipt of the notice and information referred to in Article 6 in a timely manner, and duly advise the Federal department, Provincial ministry or other Crown agency providing notice that:
  - a. no further consultation is sought and that the Algonquins will take no action to oppose the decision or activity, or
  - b. the proposed decision or activity might have an adverse effect on Algonquin Aboriginal rights and the reasons therefore, and indicate that further consultation is sought.
- If the Algonquin Negotiation Office fails to duly respond pursuant to Article 7, nothing in this Agreement prohibits the Federal department, Provincial ministry or other Crown agency from proceeding with the decision or activity.



- Where further consultation is sought pursuant to Article 7 (b), the Federal department, Provincial ministry or other Crown agency shall consider the views and reasons of the Algonquin Consultation Office, and
  - a. if further consultation is required by law, offer to conduct further consultations with the Algonquins and, if appropriate, discuss potential accommodation with the Algonquins.

As an agent of the Crown, CNSC must uphold the requirements outlined within this agreement to ensure the requirements of consultation are being adequately met and ultimately AOO rights and interests are protected or accommodated where necessary in relation to the NPD site.

## 3.0 Algonquin Land Use and Occupancy near the Nuclear Power Demonstration Site

This section provides a high-level summary of Indigenous knowledge and cultural heritage considerations important to the AOO near the NPD site. Due to the limited scope, time and budget to complete this report, a fulsome Indigenous knowledge and cultural heritage study was not undertaken. Instead, input from AOO's archaeological specialist, Ken Swayze (Nipissing University and Kinickinick Consulting) was provided on February 8<sup>th</sup>, 2018 to examine the cultural heritage and historic use of areas near NPD property.

**Disclaimer: This information should not be considered inclusive of all AOO land use, knowledge or cultural heritage values within the areas discussed, rather as a snapshot of land use and cultural heritage based on the professional opinion of AOO's licensed professional archaeologist and consultant.**

### 3.1 Summary of Algonquin Land Use Activities near Chalk River Laboratories

#### 3.1.1 Hunting

Hunting small and large game is an important aspect of Algonquin culture and identity, both past and present. Hunting by the AOO members is an activity that is constitutionally protected as an Aboriginal right. Prior to the site restrictions that were imposed upon the NPD property, the NPD site was utilized by Algonquin people as a hunting ground for mammals and birds such as deer, bear, moose, partridge and duck.

According to an Algonquin elders, Algonquins who used to live in the vicinity of the NPD site relied on deer for fresh meat throughout the year, and organized hunts in the autumn to drive the deer down the mountain slopes into the river where they were taken in the water.

#### 3.1.2 Fishing

Fishing is an integral component of Algonquin culture and identity, both past and present and is also a constitutionally protected activity. Prior to the site restrictions that were imposed by AECL, the NPD site was utilized by Algonquin people for a variety of fishing practices. Some of the species of interest to Algonquin fishers included muskellunge, sturgeon, northern pike, suckers, whitefish and American eel.

The area of Kitchissippi adjacent to the NPD property was an area regularly used for fishing by Algonquin people due to its close proximity to a set of rapids upstream that acted as a prime fishing grounds for Algonquins.

### 3.1.3 Trapping

Trapping is an important land use activity for Algonquin people from a traditional use perspective, but also from an income perspective. It is constitutionally protected as an Aboriginal right of the AOO. Prior to the site restrictions imposed by AECL, the NPD site was utilized as an important trapping area by Algonquin people for small furbearers that could be used for making clothing, blankets or sold to fur traders. The primary species of interest to Algonquin trappers on the NPD site were beaver, muskrat, marten and mink. Algonquin people trapped for sustenance, but also for commercial purposes as a way to generate income for their families. Since Algonquin people are not permitted to enter the NPD site for trapping, this represents a permanent loss of use.

### 3.1.4 Gathering

Gathering is a critically significant component of Algonquin culture and identity and is also a constitutionally protected activity. Prior to the establishment of NPD, the lands were a productive gathering area for Algonquin people for a variety of medicinal and edible plants, as well as other materials, such as firewood or building supplies. Important medicinal plants such as gold thread and sweet grass are plentiful on the NPD site. Edible plants such as blueberries, raspberries and wintergreen are abundant throughout the NPD site and were gathered by Algonquin people during summer months prior to site restrictions.

### 3.1.5 Occupancy

The NPD property was extensively utilized by Algonquin people in the exercise of their Aboriginal rights as a settlement site due to the abundance of food and access to key waterways. In addition to the probable archaeological remnants the NPD site was utilized as a gathering and staging area for Algonquin people during the fur trade, as the Hudson's Bay Company had a nearby trading post.

### 3.1.6 Access

As the NPD site is located near a significant set of rapids, the NPD property was used extensively by Algonquin people as a portage route.

## 4.0 Review Methodology and Approach

The review of the Draft Environmental Impact Statement (EIS) for the NPD Decommissioning considers the entire area of the Project and any potential effects, including cumulative effects. The review was conducted through analyzing the connections between proposed activities and potential risks and impacts to AOO citizens. In our review, we have:

- i) assessed adequacy of baseline information and data, Valued Components (“VCs”), effects assessment, mitigation, management, and monitoring plans;
- ii) assessed adequacy of information provided in the EIS; and
- iii) evaluated the use of local knowledge, traditional knowledge and land use incorporated in the EIS.

Using the results of the review, we provide specific accommodations to address the identified issues and concerns, which are representative of Algonquin values, rights and interests (Section 5.0). These accommodations include best practice mitigations, management and monitoring plans for respective subject areas, as well as recommendations for emergency response planning. These issues and accommodations reflect potential impacts from the Project on Algonquin rights and interests, and are meant to inform CNL and the CNSC of priority issues for resolution/accommodation. The review was completed by focusing on the following categories of concern that are of priority to the AOO:

**Section 5.1** Surface and groundwater

**Section 5.2** Aquatic environment

**Section 5.3** Terrestrial environment

**Section 5.4** Traditional land use and cultural resources

**Section 5.5** Archeological resources

**Section 5.6** Ecological and human health risk assessment

**Section 5.7** Socioeconomics and community well-being

**Section 5.8** Environmental monitoring

## 5.0 Review Findings

### 5.1 Surface Water and Groundwater

#### 5.1.1 Summary of EIS Content

The Nuclear Demonstration Closure Project site is situated on the south bank of the Ottawa River in Ontario, near Rolphton and 3km downstream of the Des Joachims Generating Station. The Ottawa River at the NDP site is very wide and deep (approximately 500m wide, up to 60m deep) and with a mean annual flow rate of 807m<sup>3</sup>/s. Water levels and flow are regulated by a series of dams upstream,

including the Des Joachim Dam and generating station. All surface drainage from the Project Study Area, including a network of ditches and tile drains will ultimately flow into the Ottawa River.

The geology and hydrogeology of the site consists of quartz and granite gneiss bedrock with low hydraulic conductivity overlain by a thin overburden (1.5-7.5m) of sand-gravel alluvial deposits that are very well-drained. Topography ranges from 160m above sea level (masl) at Highway 17, 125masl at the Study Site Area and 111masl at the average water level of the Ottawa River, and groundwater follows the surface topography, eventually discharging to the Ottawa River. Several monitoring wells are sampled semi-annually as part of the groundwater monitoring for tritium and other radiological and non-radiological (metals, other contaminants) parameters.

The decommissioning strategy of in-situ entombment requires the creation of an on-site concrete batch mixing plant and associated wash pits during the decommissioning phase. The 5 underground stories of the NDP site will be grouted (filled with concrete) and capped with an engineered cap of geotextile and fill. Groundwater is expected to fill the relatively porous grout pore spaces below the water table in the Facility over several decades, and slowly leach towards the Ottawa River.

## 5.1.2 Evaluation and Accommodations

**Issue 1-** The greatest concern for the hydrogeology of the area is that groundwater quality will be compromised by the leachate emerging from the NPD site that has come in contact with radioactive materials. The integrity of the existing underground structures, grouting, capping and collection system of this in-situ decommissioning option has not been adequately assessed to provide a level of comfort to the AOO. The modeling has many assumptions, has varying levels of uncertainty, and has inadequate mitigation measures for the possible level of contamination that will remain in on site and potentially leach into local groundwater systems and ultimately into the Ottawa River.

**Accommodation 1a** – CNL should provide additional monitoring and mitigation measures, and assurances to AOO, that in-situ decommissioning as planned in this EIS involves internationally recognized best management practices. In-situ decommissioning is not the preferred strategy for decommissioning nuclear facilities, based on research on international standards (Candesco, 2014). The Proponent should seek the advice and recommendations of Canadian and international standards (i.e. International Atomic Energy Agency, IAEA) and employ informative (non-mandatory) clauses to provide additional assurances that the site is adequately decommissioned.

**Accommodation 1b** – A monitoring well and collection system should be installed that that allows for the sampling of the groundwater downgradient of the Facility and possible capture, treatment and appropriate management of contaminated groundwater with radionuclides or other non-radioactive contaminants.

**Issue 2** – The assessment of the release of tritium from the Facility is expected to peak at 1M Bq/Year (1,000,000 Bq/year, or  $10^6$  Bq/year), or about 1000 Bq/L of groundwater, as stated in the Post Closure Safety Assessment Report. This amount of contaminant will enter the Ottawa River, which is already experiencing elevated levels of radionuclides due to past nuclear facilities and activities in the area (CNCS, 2009). Several drinking water intakes occur downstream of the NPD site on the Ottawa River, as

well as being in the traditional territory of the AOO that rely on the land and water for their livelihoods as well as being spiritually and culturally important.

**Accommodation 2** – The Proponent should provide additional mitigation measures to limit the introduction of tritium and radionuclides from the NDP into the Ottawa River, through capture and management of the leachate and groundwater flow, or other appropriate measures.

**Issue 3** – Water quality of the groundwater and surface water from the Project site was sampled for radiological and non-radiological parameters. Non-radiological sampling of contaminants were compared to the CCME Environmental Quality Guidelines (EQG) for metals, other inorganic and organic compounds. Several of the parameters sampled from the Wells Area Sump (WAS) were an order of magnitude higher than the EQG, including iron, mercury, total dioxins/furans and Bis(2-ethylhexyl)phthalate.

Additionally, several parameters were several orders of magnitude above the EQG, including cadmium, copper, lead, zinc and total PCBs. As the water table is closely connected to the surface water system, these contaminants have high potential to affect the aquatic environment downgradient of the Facility.

Many of these contaminants have serious physiological implications for aquatic species, especially at these concentrations. If not properly managed or mitigated, contaminants can cause lethal and sub-lethal toxicological effects on fish, other aquatic species, and can reduce the productivity of the affected ecosystems.

**Accommodation 3a** - The Proponent did not provide mitigation measures for the poor water quality of the Project Site. The Proponent needs to provide additional mitigation measures to address water quality issues, regularly monitor the WAS, and provide reporting to the AOO on the exceedances.

**Accommodation 3b** - The Proponent needs to provide a monitoring plan including frequency, parameters and locations of surface water and groundwater sampling for review by the AOO during the decommissioning phase, the Institutional Controls Phase and the Post-Institutional Controls Phase.

**Issue 4** – While surface water and groundwater were considered pathways for Valued Components (VCs) and not VCs themselves, these components of the ecosystem are culturally, spiritually and traditionally very important to the AOO. Water is a sacred entity for these First Nation communities. The Project has the potential to negatively affect the hydrological and hydrogeological systems in the Regional Study Area, yet there are very few details on how these systems will be monitored throughout the various phases from decommissioning through to Post-Institutional Controls. The Proponent has only offered only periodic inspections, incident-specific water quality monitoring, event-based (i.e. due to a spill or accident), periodic surface water quality monitoring on a quarterly basis. These descriptions are too vague to determine whether the sampling and protection of surface water and groundwater will be adequate.

**Accommodation 4a** - The Proponent needs to provide a more detailed and specific monitoring plan, and reporting to the AOO, for surface water and groundwater resources. Additional locations for sampling should include the water within the tile drains and the water quality at the outlet of these tile

drains, as well as the groundwater downgradient of the Facility for both radiological and non-radiological parameters of concern. The AOO should be provided an opportunity to review the monitoring plans and provide input into the need for additional frequency, location and/or parameters for the monitoring program.

**Accommodation 4b** – The Proponent should employ AOO citizens as Environmental Monitors during any and all phases of the Project as they have familiarity of the area from generations of traditional land use. The Proponent should provide training for these positions.

**Information Gap 5** – The batch mixing plant will require the construction of wash pits that will act as settling ponds. The Project description does not include detail regarding a liner underneath these ponds to prevent the water from contaminating local groundwater and surface water, however, in Section 9.3.3.1 there is mention of a watertight material lining.

**Information/Clarification Requirement 5** - The Proponent needs to provide additional clarification on the construction and details of the wash out pits as well as how their design and materials will prevent contamination of the local groundwater and surface water from the decommissioning activities.

## 5.2 Aquatic Environment

### 5.2.1 Summary of EIS Content

The NPD site borders the Kitchissippi along a stretch of approximately 2,800m. All surface water runoff from precipitation, snowmelt and shallow groundwater is directed through ditches, subsurface drainage systems and overland flow to the Ottawa River. This includes two tile drains that discharge approximately 60m upstream and 100m downstream of the NPDWF process drain. Water from drainage ditches are tested twice annually for average gross beta and tritium levels at each of three monitoring locations. The process drain from the NPDWF discharges effluent collected from the well sump area into the Ottawa River.

Radioactive effluent from the NPDWF collects in the well sump area located approximately 25m below surface (104 m asl) under the reactor hall. This effluent is discharged in controlled batch releases once the sump is mostly full. The number of times the sump is discharged varies year to year but has been between 0 and 5 releases per year from 1997 – 2015. Prior to discharge, effluent is tested to ensure contaminants are below Derived Release Limits (DRL) which governs the discharge of radionuclides. Since 2010, all discharges of tritium, gross beta/gamma radionuclides and C-14 from the well sump area have been below 0.01% of DRL. Water quality testing in 2015 measured non-radiological contaminants in the well sump area. This showed that 11 parameters were above CCME guidelines (Table 1).

Table 1. Effluent Contaminants from the Well Sump Area (WAS) that exceed Canadian Council of Ministers of the Environment (CNL EIS, 2017)

Contaminant	Unit	[WAS]	[WAS duplicate]	CCME EQG
Nitrate	mg/L	25.23	25.83	13
Cadmium (Cd)	mg/L	0.051	0.035	0.00009
Copper (Cu)	mg/L	1.37	1.26	0.002
Iron (Fe)	mg/L	7.45	9.02	0.3
Mercury (Hg)	ng/L	647	651	26
Lead (Pb)	mg/L	1.90	1.55	0.001
Zinc (Zn)	mg/L	1.16	0.874	0.03
Pyrene	µg/L	<1.0	1.3	0.025
Bis(2-ethylhexyl)phthalate	µg/L	14	15	2.2 <sup>1</sup>
Total dioxins/furans (detected)	pgTEQ/L	204.6	189.1	23
Total PCB	µg/L	4.9	6.0	0.026

Water quality sampling on the Kitchissippi both upstream (near the Rapides de Joachim) and downstream (near the town of Deep River) of the NPD site show that levels of radioactive Tritium, Cs-137, and Sr-90 are comparable. These values are well below the guidelines for Maximum Allowable Concentration from Health Canada (2017). Sediment samples were collected in 2014 from the Kitchissippi near the outlet of the process drain (Figure 5). Radionuclide concentrations (Bk/kg) for several contaminants were measured. Sediment samples were collected and tested for non-radiological contaminants in 2016. Results of this testing showed average values all below CCME Interim Sediment Quality Guidelines.

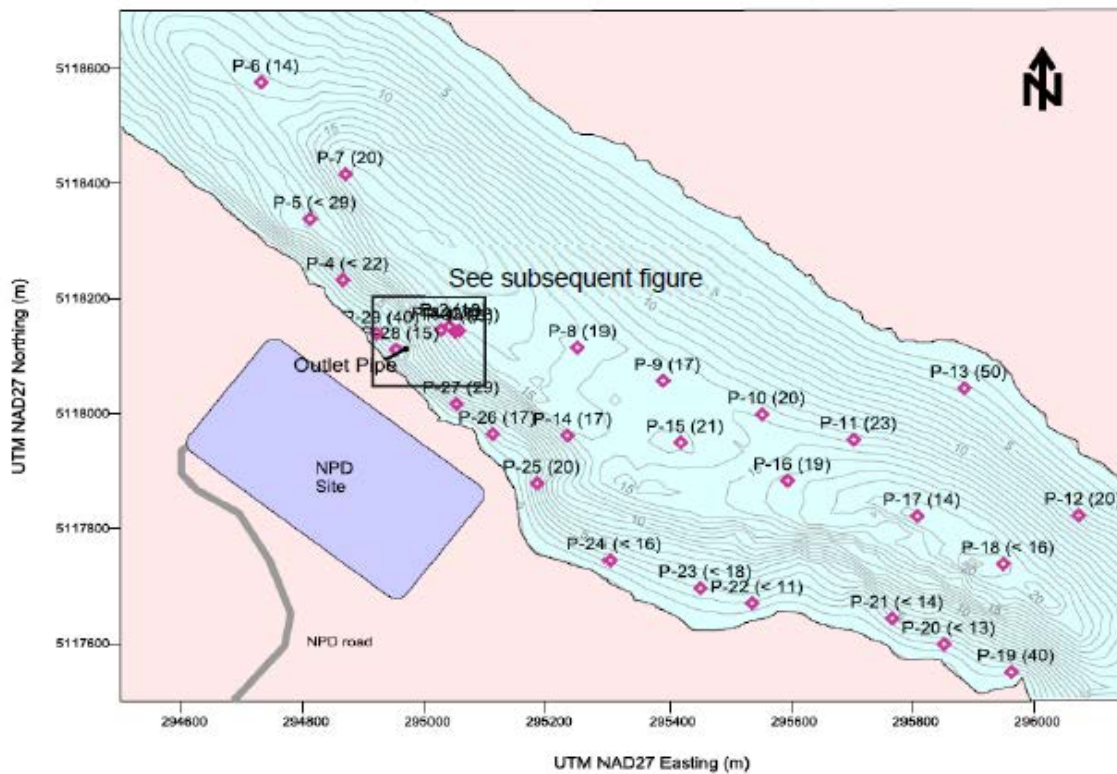


Figure 5 - Sediment Sampling Locations near the NPDWF (CNL EIS, 2017)

The Proponent reports that there are at least 55 species of fish found within the Kitchissippi in the RSA. This includes American eel (listed as threatened by COSEWIC and endangered under the *Ontario Species at Risk Act [SAR]*), lake sturgeon (listed as threatened by COSEWIC and the *Ontario SAR*), northern brook lamprey (a species of special concern under the *Species at Risk Act (SARA)* and the *Ontario SAR*) and the river redhorse (a species of special concern under SARA and the *Ontario SAR*). Other species present include several gamefish (e.g. walleye, lake trout, lake whitefish, northern pike and smallmouth bass) and forage fish (e.g. minnows and darters). Benthic invertebrates present are typical of oligotrophic (low nutrient) riverine systems. The hickorynut mussel (listed as endangered under the *Ontario SAR*) may also be present within the study area, although this has not been confirmed.

## 5.2.2 Evaluation and Accommodations

AOO has concerns related to the rights and interests of the Algonquin people. The Algonquins have lived near the Kitchissippi since time immemorial, catching fish, harvesting medicines and travelling the waterways. As stewards of the land, the AOO strive to protect and manage the land within the unceded AOO Settlement Area, including the land and water potentially affected by the Project. The decommissioning of the NPDWF may cause negative impacts to the aquatic environment through a variety of means. Of primary concern to the AOO are:

- discharges to the Ottawa River from the process pipe prior to completion of decommissioning;
- spills of fuel, oil or other contaminants from heavy equipment operating on-site during the active decommissioning phase;
- surface runoff of grout or other contaminated materials during the active decommissioning phase; and
- seepage of contaminated groundwater from the NPDWF to the Ottawa River during institutional control and post institutional control.

The risks from the Project must be managed appropriately so that impacts to the aquatic environment and the traditional activities of AOO members are minimized. A review of the EIS was completed focusing on adequacy of baseline data collection, effects assessment, mitigation and monitoring of the aquatic environment. The goal of this review is to ensure adequate protections are in place for ensuring the sustainability of aquatic ecosystems and the AOO members that rely on them. This includes fish, fish habitat, benthic invertebrates, sediment and surface water.

**Issue 1-** During the Decommissioning Execution phase, there are significant environmental risks associated with a range of activities. For example, the grout used for entombing the below-ground facilities has a low viscosity and is highly mobile; poorly managed grouting or equipment washout could result in grout entering the Ottawa River. Improper mesh over water intake could result in fish impingement during pumping from the Ottawa River. Spills or leaks from heavy equipment or refuelling activities could contaminate surface water.

**Accommodation 1** – As stewards of the lands and waters, Algonquins must have a role in the environmental monitoring of the Project. An environmental monitor from the AOO must be on-site to



monitor the environmental risks during the Decommissioning Execution phase. Training and capacity funding must be provided to allow this monitor to be effective in their role.

**Issue 2** – Section 5.2.4.2 Identified emerald shiner, lake whitefish and lake sturgeon as VCs for the aquatic environment. It is unclear why these species were singled out, rather than choosing all fishes as the VC. If these species were chosen as representative of the fish community then there is a clear gap in that no piscivorous fishes (e.g. northern pike, walleye, sauger, smallmouth bass, muskellunge) were not chosen as a VC. These predators play a critical role in complex riverine communities and are likely to experience different exposure pathways to contaminants and different effects from the Project than fish from other guilds. In addition, it is these piscivorous fishes that are most often targeted by AOO citizens fishing on the Ottawa River.

**Accommodation 2** – All species are of importance to the AOO, therefore limiting the effects assessment to these VCs is problematic. Moreover, the lack of a piscivorous fish (fish that eat other fish that are important in the aquatic ecosystem, and important to the AOO) chosen as a VC represents a critical gap for the effects assessment of the Project. The rationale for the species chosen as aquatic VCs must be provided, and the AOO should be consulted on choosing VCs. The effects assessment for the Project must be updated with additional fish, including piscivorous fishes, as VCs.

**Issue 3** – There has not been any targeted data collection of benthic invertebrate abundance/diversity or of nearfield water quality downstream of the NPDWF. This baseline information is critical to characterize the current state of the environment and to evaluate the potential effects of historic activities on aquatic fauna (e.g. fishes and invertebrates). This data can then be used to evaluate any changes associated with the Project.

For example, the nearest downstream monitoring station for radioactive contamination of surface water releases is located near the town of Deep River, several kilometers downstream. Such monitoring is unable to exclude the possibility for contamination of upstream aquatic environments and is unacceptably low level of detail for a project with this level of risk. Moreover, many non-radiological contaminants found in the WAS, including mercury, lead, dioxins/furans and PCBs were not tested for in surface water.

**Accommodation 3a** – CNL must complete baseline monitoring in the LSA for:

- water quality (radiological and non-radiological); and
- benthic invertebrates.

This data will provide CNL and the AOO with information on the effects of historic contamination that has occurred through operation and during closure. This data will be used to evaluate the current state of these aquatic receptors.

**Accommodation 3b** - To monitor the risks associated with future releases of contaminants and groundwater leaching, the Proponent should engage in monitoring of water quality and benthic invertebrates during the period of institutional control. Details on the locations and schedule of monitoring should be described in detail and provided to the AOO.

**Accommodation 3c** – As stewards of the lands and waters, AOO citizens should be given the opportunity and training necessary to be included in follow-up environmental monitoring of the site.

**Issue 4** – The NPDGS began operation in 1962. Effluent from the well sump area and other activities on site have been discharged to the Kitchissippi since this time. After decommissioning, dissolved contamination will continue to reach the Kitchissippi through groundwater as the NPDWF degrades. These contaminants (radiological and non-radiological) are likely to enter the food chain and contaminate game fish that are consumed by AOO citizens. Despite this risk, no studies of fish tissues have been completed. As a result, it is unclear what the current level of contamination in fish tissues is or how that may change because of the Project. Moreover, CNL has not described any follow up monitoring of contaminants in fish tissues, therefore any spike in contaminants will not be detected.

AOO community members regularly harvest fish in the Kitchissippi for baitfish and consumption (e.g. smallmouth bass, walleye, sauger, northern pike, whitefish and suckers). The risk of health effects from eating contaminated fish must be taken seriously.

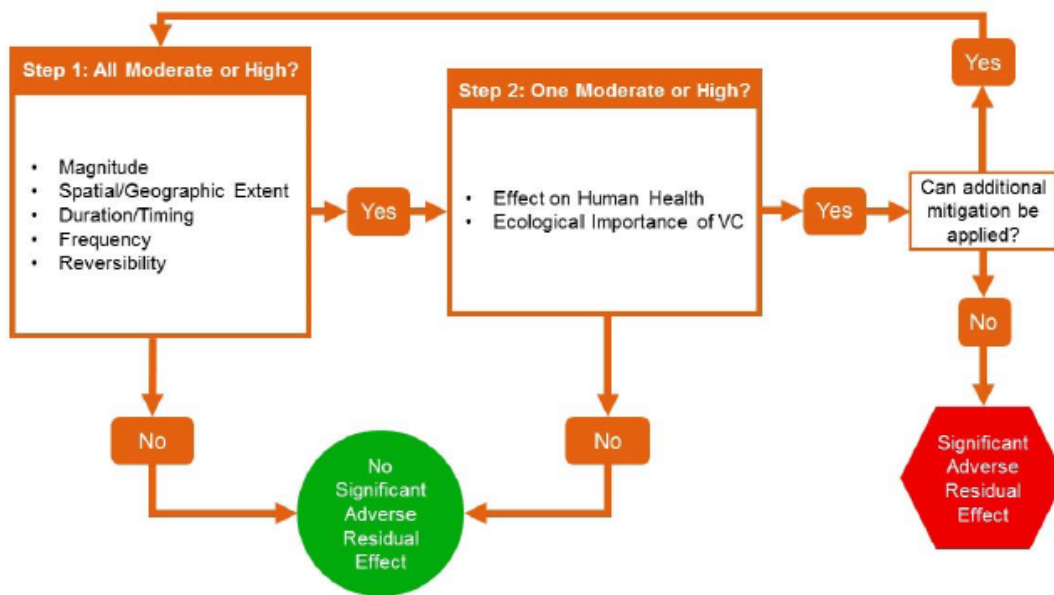
**Accommodation 4a** – In order to evaluate the risk associated with contamination of fish tissues the proponent must complete baseline fish tissue analysis on the Kitchissippi. Fish should be collected – with AOO environmental monitors - at locations within the vicinity and downstream of the effluent discharge and from a reference site upstream, above the falls. A minimum of two sentinel species should be used for this tissue monitoring. Species selected should include a gamefish species (e.g. walleye, smallmouth, northern pike) and a small bodied baitfish species.

**Accommodation 4b** – To monitor the risks associated with consumption of contaminated fish, the Proponent should engage in follow-up monitoring of fish tissues during the period of institutional control. Sampling methodology can be maintained from the initial fish tissue analysis described above. A description of proposed monitoring activities must be shared with AOO for review.

**Issue 5** – The determination for significance of the adverse residual effects is not reasonable. According to the Proponent’s methodology (CNL EIS, 2017, Section 2.7), a significant adverse residual effect can only occur if a moderate or high rating is applied to all effects criteria, including:

- magnitude;
- spatial (geographic) extent;
- duration/timing;
- frequency/probability; and
- reversibility.

Then if that is the case, the effects assessment is carried through to evaluation of effect on human health and ecological importance of VC. If additional mitigation is not possible the effect will be considered a significant adverse residual effect. According to this definition, an activity with high level of effect for magnitude; spatial (geographic) extent; duration/timing; and reversibility but low frequency/probability would not be carried forward for assessment of significance. An event that would fit this description includes a massive failure of containment resulting in contaminant release to the Kitchissippi (summarized below).



**Accommodation 5:** A lower threshold for determination of significant adverse residual effects must be employed. Effects must also be carried forward for assessment of significance where there is a high rating is applied to any effects criteria.

**Information Gap 6** –The level of radioactive releases for all contaminants measured in the Well Sump Area are several orders of magnitude higher than the Maximum Allowable Concentration (MAC) of the Health Canada Drinking Water Guidelines (CNL EIS, 2017, Table 8.3-1). For example, levels of tritium measured in the sump in 2015 were 66,100,000,000 Bq, more than 900,000 times the MAC guidelines of 7,000 Bq (Health Canada, 2007). While, the total volume of effluent released is small and mixing will occur once this water is pumped to the river, the Proponent has not completed any modeling of mixing zones to show the area where contamination would exceed these guidelines. As a result, it is unclear what downstream concentrations can be expected from these releases throughout the different phases of the Project. Secondly, the contamination from groundwater to the Kitchissippi has not been modelled. It is therefore unclear how the seepage plume from the facility may affect aquatic organisms as the grouted NPDWF facility degrades.

**Information/Clarification Requirement 6** – CNL must complete dispersion modelling to assess the predicted mixing zone for all radioactive contaminants using the drinking water MAC (Health Canada, 2007) as the threshold. This should be completed for periodic discharges from the well sump area and for groundwater seepage at different periods of closure and post-closure.

**Information Gap 7** – The Derived Release Limits for the NPDWF have not been described in the EIS. These are important to share so that AOO can evaluate whether the project complies with CSA Standards N288.1-14 (CSA, 2016).

**Information/Clarification Requirement 7** - Provide the Derived Release Limits for the NPDWF.

**Information Gap 8** – The Proponent has utilized an effects assessment protocol so that radionuclides were “screened out” of the Ecological Risk Assessment if no “dose coefficient” was available. They have stated:

*“In the EcoRA screening process for radiological contaminants, if the radionuclide concentration was below the no effects concentration (NEC) value, then that radionuclide was “screened out” or excluded from the assessment for the particular scenario being screened. If the radionuclide concentration was greater than the NEC value and a dose coefficient was available, then the radionuclide was “screened in” or included for assessment in the EcoRA; if a dose coefficient was not available, then the radionuclide was “screened out.” [...] “It is noted that excluding a radionuclide from assessment because a dose coefficient is not available would result in an underestimation of the total dose and perhaps any potential effects; however, the radiation dose cannot be estimated without a dose coefficient.” (CNL EIS, 2017, pp 9-8)*

It is unclear from the EIS how excluding these radiological contaminants will influence the evaluation of risk and potential impacts of the Project.

**Information/Clarification Requirement 8** - The Proponent must provide additional justification for this methodological decision. The Proponent must also provide a list of all radiological contaminants that have been screened out of the risk assessment. This information is necessary for the AOO to complete its evaluation of the adequacy of the EIS.

## 5.3 Terrestrial Environment

### 5.3.1 Summary of EIS Content

With respect to terrestrial vegetation, both the Site Study Area (SSA) and Local Study Areas (LSA) support diverse mixed upland forest and cultural communities with some wetlands areas scattered throughout. The upland forest habitats are primarily coniferous with a canopy dominated by white pine, red pine, and jack pine. While sub-canopy vegetation of upland forest varies by locations, it predominantly includes a mix of red maple, black spruce, white birch, balsam fir, white spruce, eastern hemlock and sugar maple. The Proponent describes “cultural communities” in RSA as those vegetated areas that have been heavily influenced by past human disturbance (e.g. roads, abandoned/reclaimed land, decommissioned structures, tree plantations). The local study area features a scattering of several wetlands, including a complex on the western side of the property that spans the entire north-south length of the site. The wetland types present include shallow marshes, meadow marshes, and shallow ponds. These ecosystems support a variety of vegetative species including sedges, jewelweed, hairy goldenrod, white meadow sweet, alder, white pine, fireweed, meadow rue, cattails, and a variety of pond lilies. During baseline studies the wetlands were found to be habitat for beavers, raccoons, white-tailed deer, moose, turtles, frogs, hairy woodpeckers, and minnows. At least one wetland on site is likely groundwater-fed. Groundwater contour figures developed as part of the hydrogeological survey indicate that all wetlands on site are upgradient of the Nuclear Power Demonstration Waste Facility (NPDWF) footprint. All wetlands on the property are also at a higher elevation than the NPDWF. As such, the wetlands on site are not expected to be impacted by surface water or groundwater flows originating at

the NPDWF, with the Draft EIS predicting that the project will have no adverse effects on these wetlands.

The Regional Study Area (RSA) contains forest that is more mixed and deciduous than the SSA and LSA, as well as open sand dunes, sand barrens, rock barrens, and several Provincially Significant Wetlands (PSWs). The upland forest consists mainly of white pine, red maple poplar, red pine and birch trees. Overall, a total of 103 vascular plant species were recorded on the NPD site, 21% of which are non-native and none of which are provincially or federally listed Species At Risk (SAR).

The wildlife species found within the SSA, LSA, and RSA are typical of the boreal region. Those that are listed in the EIS as present or potentially present within this area consists of 25 herpetiles species (including SAR such as eastern milksnake, western chorus frog, eastern musk turtle, eastern hog-nosed snake, eastern ribbonsnake, eastern spiny softshell, northern map turtle, snapping turtle), 152 avian species (including SAR such as bank swallow, barn swallow, black tern, Canada warbler, cerulean warbler, common nighthawk, eastern whip-poor-will, eastern wood peewee, golden-winged warbler, grasshopper sparrow, Kirtland's warbler, least bittern, loggerhead shrike, olive-sided flycatcher, peregrine falcon, red-headed woodpecker, red-shouldered hawk, rusty blackbird, short-eared owl and wood thrush), 35 mammal species (including three bat SAR eastern small-footed bat, little brown myotis, northern myotis), and 3 SAR insects (monarch butterfly, northern barrens tiger beetle, rusty patched bumblebee).

Several notable species occurrences have been recorded within the NPD/NPDWF properties, including juvenile eastern milksnake (observed on the NPDWF site), chimney swifts (annually migrate to the NPD ventilation stack), and the three endangered bat species previously mentioned (found hibernating in site infrastructure). The NPD ventilation stack currently provides habitat for Ontario's largest known roost of chimney swift, a threatened aerial insectivore that experienced a 95% population decline between 1968-2005. There is also an active bald eagle nest located roughly 875m northwest of the facility. Culturally important species that may be present on-site include various waterfowl, black bear, white-tailed deer, marten, mink, moose, muskrat, and white-tailed deer.

The project's activities, including demolition, operation of machinery and vehicles have the potential to negatively affect terrestrial vegetation, wetlands, and wildlife species through the creation of dust, noise, vibration, habitat encroachment, disturbance, and mortality due to vehicle collisions. These impacts are expected to be most prominent during the Decommissioning Execution phase of the project. The proponent has decided to retain the existing ventilation stack due to the large annual chimney swift roost it support and due to the fact that the construction of artificial roosting structures is often met with little success. Wildlife sweeps for herpetilian and mammalian SAR will be completed prior to undertaking specific project activities to prevent wildlife mortalities.

### 5.3.2 Evaluation and Accommodations

The AOO recognize terrestrial ecosystems as providing habitat for many ecologically and economically important species, as well as many critical ecosystem services. The wetlands and terrestrial vegetation on-site are no exception, and also provide conditions that support culturally significant species.

The NPDWF project site falls within the unceded Algonquin Settlement Area, which is subject to the AOO's Aboriginal rights and title. The AOO is therefore interested in ensuring that this project does not bring any detrimental effects to the terrestrial environment (including wildlife, vegetation, and wetlands), and that the ecosystem integrity is maintained to support future traditional use of the area (e.g. hunting, trapping, and harvesting).

Specific issues and information gaps in the NPD Closure Project EIS relating to the terrestrial environment are identified below.

**Issue 1** - In Table 9.6-2, the proponent states that Ventilation Stack Isolation (e.g. modification of ventilation stack for roosting requirement) will improve conditions for chimney swifts. However, Table 4.3-1 states that these activities, which will last for 16 days, are projected to start in April 2019. According to Environment and Climate Change's guidance on general nesting period of migratory birds, open field and forest dwelling birds (including chimney swifts) in region C3 arrive at their nesting sites as early as mid-April. (EIS Table 9.6-2 and Table 4.3-1)

**Accommodation 1** – To conservatively avoid disturbance to chimney swifts during migratory and nesting periods, the proponent should commit to completing the Ventilation Stack Isolation work before April 1<sup>st</sup>.

**Issue 2** – As part of the mitigation measures outlined in EIS Section 9.6.3.2 (p. 9-75), the proponent has committed to avoiding tree clearing activities during the breeding bird season (April 15-August 20) wherever possible, as per the Migratory Birds Convention Act. They have also committed to conducting (tree and ground) nest surveys within 2 days of unavoidable disruptive activities that may need to occur during this time-period. (EIS 9.6.3.2)

**Accommodation 2** – In addition to avoiding disruptive activities (e.g. tree clearing) during the breeding bird season (April 15-August 20) and conducting nest surveys, the proponent should commit to implementing setback distances associated with medium-disturbance levels in the event that any of the avian SAR listed as present or potentially present on-site (EIS Table 8.6-3) are discovered nesting in the Site Study Area. Setback distances for the following avian SAR should be implemented: Canada warbler (300m), bobolink (250m), common nighthawk (200m), eastern wood peewee (150m), loggerhead shrike (250m), peregrine falcon (500m), eastern whip-poor-will (200m), grasshopper sparrow (250m), red-headed woodpecker (100m) (MCDC, 2014).

**Issue 3** – In EIS Section 9.6.5, the proponent outlines their plan for Terrestrial Environment monitoring and follow-up activities but does not commit to involving AOO environmental monitors in this plan. (EIS 9.6.5)

**Accommodation 3** – Commit to providing capacity funding to train and hire AOO environmental monitors to complete all terrestrial environment monitoring and follow-up activities (e.g. routine checks for barn swallows, monarch butterflies, bats and eastern milksnakes; chimney swift roost counts, inclement weather behavioural monitoring; work area SAR sweeps, etc.).

**Issue 4** – The installation of exclusion fencing for eastern milksnakes and other reptilian SAR present or potentially present in the SSA (e.g. snapping turtle, eastern ribbonsnake, eastern musk turtle, etc.) will

only be undertaken if required. It is unclear what circumstances will trigger the installation of exclusion fencing. Further, there are few details on the proponent's planned design and installation techniques for reptilian exclusion fencing. (EIS 9.6.3.2 & Table 9.6-3)

**Accommodation 4** – The Proponent should provide AOO with a description of the circumstances (e.g. quantifiable targets and thresholds) under which the installation of exclusion fencing for SAR reptiles will be triggered. Otherwise, the Proponent should take a conservative approach and commit to installing exclusion fencing around the SSA in accordance with the Ontario Ministry of Natural Resource and Forestry's Reptile and Amphibian Exclusion Fencing Best Practices (OMNR, 2013). Installation of exclusion fencing should be completed prior to species emergence from hibernation.

**Issue 5** - The demolition of above-grade structures will result in the production of dust. Given the historical use of lead bricks for shielding and of lead paint on the existing structures, the dust generated will contain lead particulates. Researchers have shown that lead fallout resulting from settling atmospheric particles can occur at distances of up to 8.6 km from the source (Munksgaard and Parry, 1998). The dust produced from demolition activities will also contain radionuclides such as tritium. Most wetlands on site are less than 2 km away from the NPDWF and are therefore at risk to being exposed to contaminated dust fallout from the demolition activities. (EIS9.6.3.1/p.9-72)

**Accommodation 5a** – The Draft EIS states that dust suppression will occur during demolition and material sizing activities but does not describe the methods or extent of this mitigation measure. The parameters of the proposed dust suppression methods need to be identified in order to adequately assess their potential effectiveness.

**Accommodation 5b** – Baseline studies have determined that the prevailing winds on site are northwesterly and southeasterly, and that the wetlands present are to the west/northwest of the NPDWF footprint. To further minimize dust fallout in the wetland areas, demolition activities should not occur during high wind events or when the winds are originating from the southeast.

**Accommodation 5c** – To ensure that wetlands are not being affected by atmospheric transport of contaminated dust, a sampling location within the wetland closest to the NPDWF should be added to the ongoing routine monitoring program. The chemical analyses of these samples should include quantitative measurements of radionuclide and lead concentrations.

**Issue 6** – Monitoring and follow-up activities will be conducted during the Institutional Controls phase to confirm effects to the terrestrial environment. There are no details provided in the Draft EIS about the scope, extent, frequency, or temporal duration of this monitoring. The Draft EIS also mentions that if any parameters are above applicable guidelines or notable changes are observed, that CNL biologist(s) will be consulted. Based on the information provided it is currently unclear if future monitoring will adequately capture any potential effects to the site's wetlands. (EIS 9.6.5/p.9-90)

**Accommodation 6** – In close consultation with the AOO, develop and confirm details on the environmental components to be monitored, proposed monitoring locations, frequency of monitoring, threshold and trigger values, and temporal duration. The proposed program should also include monitoring locations within the wetland of closest proximity to the project site.

**Issue 7** – The Proponent has stated that the disturbed areas (e.g. non-essential roadways, NPD site) final will be restored with native vegetation once the final cap system has been completed and temporary facilities are removed (EIS Sect. 4.3.1.9). However, there are too few details on how the proponent intends to restore these disturbed areas as well as monitor them (including measures of success, monitoring intervals and scheduling) and report on progress (Sect. 9.6.3.2). Because of this, it is not possible to adequately review the proponent’s restoration program. (EIS 4.3.1.9 & 9.6.3.2)

**Accommodation 7** – Development of the detailed site restoration plan (including specific monitoring protocols) should be completed in close consultation with AOO. Since the NPD Project Closure site falls within the unceded Algonquin Settlement Area, revegetation efforts have the potential to affect future AOO land use activities. The Proponent should also consider providing capacity funding to train and hire AOO members to complete revegetation activities and long-term environmental monitoring. Specific activities of importance to the AOO include seeding to support pollinator species, tree planting to support ungulate browsing habitat, and monitoring of flora and fauna abundance and distribution through follow-up activities.

**Information Gap 8** – The proponent’s rationale for establishing the Terrestrial Environment RSA boundary is not clearly described in the EIS. It is also unclear what methodologies were used to characterize the wildlife distribution and abundance in the Existing Terrestrial environment and to document the SAR occurrences (e.g. juvenile eastern milksnake, eastern small-footed bat, little brown myotis, and northern myotis) within the SSA and LSA that are described in EIS Sections 8.6.2 through 8.6.4. The Proponent has based the description of the existing environment entirely on background information rather than targeted field surveys (aside from an Ecological Land Classification (ELC) that was undertaken in 2016). The baseline description of the terrestrial environment is critical for understanding the current state of environmental VCs and for evaluating the Project-related effects during follow-up monitoring. (EIS 8.6.2 – 8.6.4)

**Information/Clarification Requirement 8a** – Provide the AOO with a rationale for establishing the Terrestrial Environment RSA boundary so they may complete an informed and fulsome review of the EIS.

**Information/Clarification Requirement 8b** – Provide the AOO with a description of the methodologies used to characterize the existing Terrestrial Environment, particularly the methods used to document SAR occurrence in the SSA and LSA, so they may complete an informed and fulsome review of the EIS. If targeted field surveys were not undertaken to document baseline data (e.g. on wildlife occurrence, distribution, and habitat use), provide the AOO with a rationale as to why they were not necessary.

**Information Gap 9** – The Draft EIS states that the locations of the batch mixing plant, staging areas, and on-site trucking routes have not yet been finalized for this project. The proposed project activities also include the production of wastewater from runoff and wash out pit discharges. (EIS 9.6.3.4/p.9-81)

**Information/Clarification Requirement 9** – The exact locations of project activities (batch mixing plant, staging areas, etc.) need to be specified to adequately determine their potential effects on the site’s terrestrial vegetation and wetland areas.



## 5.4 Traditional Land Use and Cultural Resources

### 5.4.1 Summary of EIS Content

The following documents related to traditional land and resource use and cultural resources were reviewed through the lens of AOO rights and interests:

- Sec 7 Aboriginal Engagement of the Draft EIS for the CNL Nuclear Power Demonstration Closure Project
- Sec 8.9 Description of the Existing Environment: Aboriginal Land and Resource Use of the Draft EIS for the CNL Nuclear Power Demonstration Closure Project
- Sec 9.9 Assessment and Mitigation of Environmental Effects: Aboriginal Land and Resource Use of the Draft EIS for the CNL Nuclear Power Demonstration Closure Project
- Sec 10 Mitigation Measures of the Draft EIS for the CNL Nuclear Power Demonstration Closure Project
- Nuclear Power Demonstration Aboriginal Engagement Report Revision 2 September 2017

Engagement with Algonquins of Pikwakanagan First Nation (AOPFN), one of the ten Communities represented by the AOO commenced in September 2015. However, the AOO was not being included in consultation activities at that point in time. As a result, the AOO included comments requesting that the AOO be engaged in future consultation activities in the Preliminary Comments on the CNL NPD Closure (File no. CF 48-2). These comments were submitted on June 24, 2016.

Formal engagement with the Algonquins of Ontario around the project commenced on July 15, 2016 with CNL sending the AOO a project introduction letter and request for input on any effects the Project may have on AOO rights and interests. Since the issuance of the Project Introduction Letter the following engagement activities have taken place with the AOO according to the EIS:

- On August 10, 2016 two engagement meetings were held. One meeting was an information session with AOO Consultation and Technical Staff and the other was a visit with AOO Consultation Staff to the NPD site and Chalk River Laboratories Site
- From November 1, 2016 to June 19, 2017 three tele-conferences occurred between the AOO and CNL on various project updates
- From November 1, 2016 to June 19, 2017 eleven instances of email correspondence occurred between the AOO and CNL on various project updates
- From November 1, 2016 to June 19, 2017 two instances of letter correspondence occurred between the AOO and CNL on various project updates
- From November 1, 2016 to June 19, 2017 one in-person meetings occurred between the AOO Algonquin Negotiation Representations and CNL to discuss the project and opportunities for AOO involvement including employment, procurement, and participation in field work/ monitoring
- On June 9, 2017 a site-visit occurred between the AOO and CNL to the NPD facility occurred

- On June 19, 2017 the only public information session recorded in the EIS took place to inform and gather AOO citizens input about the project

According to the EIS, the above engagements identified biodiversity and cultural heritage studies as topics on interest to the AOO and other Indigenous groups. In response to these interests, CNL has:

- provided copies to communities, where an interest has been expressed, of project documents related to biodiversity, archaeology and the NPD site in general, as well as images and topographical maps of the site;
- shared informational posters with all identified communities and/or organizations;
- shared updated project information with communities and/or organizations at periodic intervals; and
- provided opportunities for participation of First Nations community members in archaeological assessment field studies undertaken as part of the project.

Regarding CNL's invitation for First Nations to participate in archaeological field studies as part of the project it is important to note that correspondence between AOO and CNL on November 9, 2016 outlined in Appendix E of the Aboriginal Engagement Report, version 2 indicates that CNL failed to acknowledge AOO's desire to have AOO Archaeological Liaisons engaged in the Stage 1 Archaeological Assessment. In the correspondence it also outlined that AOO was not included in a Stage 1 field visit despite AOO's request for involvement and further requests that AOO be properly informed and in a timely way of the commencement of the Stage 2 archaeological assessment.

CNL acknowledges in their EIS that engagement around understanding and integration of traditional land and resource use (TLRU) use in the EIS has been limited, at best, and state a commitment to ongoing engagement around incorporating TLRU into the project. Further to that point, the EIS states that thus far all TLRU incorporated was from existing studies and reports, formal and informal engagement, and publicly available literature and that NPD project-specific studies have not been conducted. Although NPD project-specific TLRU studies have not been conducted, CNL has identified study areas for traditional land and resource use to assess effects based on existing data. The study areas identified are:

- The Site Study Area (SSA) extends 50 m from the NPD site into the Kitchissippi to capture releases from the NPD site (for example, sub-surface Drain 1 discharges onto the shore of the Kitchissippi, and the wells area sump (WAS) discharges roughly 20 m from the shoreline into the Kitchissippi;
- The Local Study Area (LSA) has been defined as the Site Study Area plus a 1-km radius beyond that area;
- The Regional Study Area (RSA) has been defined as the Site Study Area plus a 5-km radius beyond that area

The EIS further acknowledges that the project occurs within the AOO Settlement Boundary and that the area is subject to the Algonquin Land Claim, as a result CNL assumes that AOO citizens continue to

practice traditional land use in the region. However, CNL also states that this assumption has not been directly confirmed with the AOO.

According to the EIS, CNL has carried out some preliminary engagement with the Algonquins of Ontario and is aware through the Agreement-in-Principle signed by the Algonquins of Ontario, provincial and federal governments that several land parcels near the NPD site (within the Local and Regional Study Areas) have been identified as “Proposed Settlement Lands” that are to be transferred to some Algonquin institution. It is unclear what purposes these lands might be for but as they are currently Crown lands upon which Algonquins could practice traditional activities, CNL has assumed that those activities might also occur in the future.

The EIS provide some specific information regarding trapping, hunting, fishing, and gathering. In terms of trapping, CNL has identified that there is one registered Trapline Area (PE026) within the LSA and an additional registered Trapline Area (PE027) within the RSA. However, CNL has not yet determined if there are traplines held by Algonquin people. The EIS does also note that there is private land adjacent to the CNL NPD site where trapping may or may not be occurring.

CNL has identified that hunting is actively happening in the Ottawa Valley Forest and that species that are harvested include moose, elk, deer, small game such as partridge, waterfowl, and possibly black bear. The EIS also acknowledges that AOO citizens continue to hunt in present day, prepare an annual Algonquin Harvest Management Plan, and that harvesting wildlife is outlined in a section of the AOO’s Agreement-in-principle. CNL has stated that there is no confirmed hunting in the LSA due to restricted access but do acknowledge that it could be occurring in adjacent privately-owned land. Lastly, CNL acknowledges that hunting could be occurring in the RSA but do not have data to confirm this. However, CNL does state that the project is within the MNRF Wildlife Management Area # 48 and that Algonquin people are known to harvest in this area based on information from the AOO.

The EIS states that the Kitchissippi (is a site that is used actively for sport and subsistence fishing and the Kitchissippi is within the SSA. Fish species likely harvested according to the EIS are walleye, smallmouth bass, and northern pike. The harvesting of fish is also outlined in the AOO’s Agreement-in-Principle. CNL has stated that fishing is likely not occurring in the LSA due to restricted access. However, fishing likely is occurring in the RSA in the Kitchissippi and adjacent lakes such as Tee Lake.

In terms of gathering, CNL acknowledge that Algonquin citizens harvest plant resources such as spruce roots, mushrooms, White Birch, and Cedar. The harvesting of plants is outlined in section 8.5 of the Algonquins of Ontario Agreement-In-Principle. CNL has stated that plant gathering is likely not occurring in the LSA due to restricted access. However, gathering likely is occurring in the RSA in the provincial land and designated AOO Settlement Lands.

In terms of cultural resources and ceremonies, CNL states that there has been no indication of ceremonies occurring within the SSA. However, CNL further elaborates that A Stage 1 Archaeological Assessment of the NPD site (Archaeology TSD) was undertaken by Kinickiniick Heritage Consulting. The Stage 1 Assessment determined that there is no archaeological potential within the decommissioning

footprint due to extensive disturbance during facility construction, however CNL contracted Kinickiniick to undertake a Stage 1 assessment in order to provide background information about the history and archaeological potential of the NPD property.

In terms of ceremonies and cultural resources in the RSA, CNL acknowledges that there are proposed Algonquin land claim settlement lands located near the NPD site (near Tee Lake) that likely are of significance to certain members of the Algonquins of Ontario. There may be cultural ceremonies associated with this area, which is situated south of the NPD property.

As a result of the above findings around TLRU, CNL has proposed the following preliminary mitigation measures:

- dust suppression measures;
- construction activities scheduling that will generally occur between 7 am and 7 pm with the overall objective of minimizing nuisance effects (i.e. noise and traffic) on traditional resource users in the LSA and RSA.
  - CNL does note that this should be subject to further discussion with potentially impacted Aboriginal groups including AOO. It is noted that special or emergency circumstances may require deviation from this restriction; and,
- periodic communication updates on project construction activities to Aboriginal groups, including: construction schedule, activities, dedicated contact person for inquiries and emergencies, etc.

CNL acknowledges that as the project approaches detailed work planning, additional mitigation measures may be developed as required.

At this point, no specific environmental monitoring has been identified for TLRU. CNL is planning to use monitoring in other environmental components to confirm its EIS predictions (i.e., that no effects are expected on Aboriginal land and resource use). In addition, CNL intends to carry out ongoing Aboriginal engagement activities throughout the Decommissioning Execution and Institutional Controls phases to identify any changing concerns or perceptions related to the project.

Moving forward, CNL has stated in the EIS that they intend to develop community specific Aboriginal engagement plans. These plans are intended to:

- Clarify communities and community representatives the CNL will continue to engage with;
- Schedule times of engagements on areas of interests such as valued components, potential environmental effects, and proposed mitigation measures;
- Outline the documentation that will be shared with Indigenous groups and the anticipated release date of those documents;
- Outline any additional engagement opportunities between CNL and Indigenous communities

## 5.4.2 Evaluation and Accommodations

At this point the EIS integrates TLRU in a vague, non-specific manner that acknowledges TLRU could be occurring but does not provide any AOO-specific values that are being actively monitored or mitigated both within the LSA and RSA.

**Issue 1** – The AOO were not directly consulted regarding the NPD Project until an express request was made to be included in the consultation record for this project despite the project being located directly within the Proposed AOO Land Claim Settlement Area.

**Accommodation 1** – Continue to engage the AOO and ensure said engagement is conducted using best practices on engaging Indigenous peoples. This includes but is not limited to the provision of adequate capacity funding for participation, establishing or following a communications protocol as set out by the AOO, and providing information in an accessible and timely manner.

**Issue 2** – AOO was not initially provided with adequate notice to participate in the Stage 1 archaeological assessment field visit as outlined in communications between CNL and AOO on November 9, 2016 despite express requests for such engagement.

**Accommodation 2** – Provide adequate notice and capacity resources for AOO to participate in archaeological site visits/ field assessments from this point forward with the NPD project. This includes directly engaging with Archaeological Liaisons identified by and serving as representatives of the AOO.

**Issue 3** – No AOO specific Aboriginal Engagement Plan has been developed on how CNL will continue to conduct its engagement with the AOO, including how CNL intends to incorporate AOO-specific TLRU values or how AOO will be involved in environmental monitoring or emergency response.

**Accommodation 3** – Work with AOO Consultation Staff on developing an AOO-specific Aboriginal Engagement Plan that includes establishing a clear communications protocol between CNL and the AOO, provides a schedule for engagement opportunities between CNL and the AOO, and identifies what opportunities will be provided for further input on the project.

**Issue 4** – CNL has acknowledged that the NPD project is within the unceded AOO Land Claim Settlement Area and recognizes that there is potential AOO traditional land and resource use happening within the RSA and in some cases the LSA. However, there are no specific harvesting, cultural, and/ or ecological values that have been identified nor is it evident how CNL plans to incorporate AOO TLRU in a meaningful way beyond acknowledging the potential that it is occurring. This lack of consultation and engagement for the collection of TLRU and Algonquin Ecological Knowledge (AEK) is unacceptable.

**Accommodation 4** - Incorporate AOO-specific harvesting, cultural, and/ or ecological values into project planning, monitoring, and emergency response either through engaging the AOO in conducting a TLRU study or other methodology (i.e. community cultural values mapping; oral history study etc.) decided upon by the AOO for sharing TLRU information related to the NPD project. This information is best collected at early phases of the Project. Despite having failed to collect this information early, the CNL must collaborate with AOO for the collection of TLRU before the EA process continues. In summary, CNL

must provide adequate capacity funding for AOO to conduct an Algonquin Knowledge and Land Use Study in order to better understand Algonquin land use patterns

**Issue 5** – The current proposed mitigation measures around TLRU values are very generic, limited in scope, and lack details on how AOO-specific values and cultural resources will be mitigated for in the SSA, LSA, and RSA.

**Accommodation 5** – Engage and consult with the AOO regarding the development of AOO-specific mitigation measures that ensure cultural resources, harvesting locations, and areas of traditional ecological knowledge significance are properly protected and mitigated.

**Issue 6** – The mitigation measure around construction scheduling is vague, simply stating, “construction activities scheduling that will generally occur between 7 am and 7 pm with the overall objective of minimizing nuisance effects.” The EIS also goes on to state that this mitigation measure will ensure construction activities will not interfere with TLRU activities or cause disturbance to species and wildlife.

**Accommodation 6** – Engage and consult the AOO on developing specific measures to minimize nuisance effects of construction on TLRU including traditionally important species and their habitat.

**Issue 7** – At this point no environmental effects monitoring for TLRU impacts is planned despite the EIS stating there is potential TLRU within the RSA as well as harvesting occurring within MNRF Wildlife Management Area #48 which intersects with the SSA.

**Accommodation 7** - Work with the AOO on developing an AOO-specific environmental effects monitoring plan and program for protecting and mitigating areas of AOO traditional land use and areas of cultural significance to the AOO.

**Issue 8** – In the trapping section of the TLRU section, CNL identifies that there are 2 registered trapline holders within the RSA. However, it is not clear if the traplines are held by AOO citizens or if mitigation or compensation measures have been developed for those trapline holders if necessary.

**Accommodation 8** – Ensure the trapline holders within the RSA are adequately accommodated and compensated for any impacts experienced as a result of the project.

## 5.5 Archaeological Resources

### 5.5.1 Summary of EIS Content

The NPD property underwent a Stage 1 archaeological assessment in 2016, completed by Ken Swayze, AOO’s preferred archaeological consultant. Based on the findings of the report, the archaeological potential of the NPD property can be considered high. However, the lands within the NPDWF are considered to have little to no archaeological potential due to significant past disturbance. Historical photographs of NPD under construction clearly show that disturbance throughout the nuclear power plant grounds was deep and extensive, including the river shore (Swayze, 2016). This disturbance would have likely impacted or destroyed all Algonquin archaeological resources present on the NPDWF site.

According to the Stage 1 report, areas on, and adjacent to the NPD property demonstrate high archaeological potential due to close proximity to rapids on the Kitchissippi and evidence of seven historical shorelines on the NPD property. However, to date only a Stage 1 desktop assessment has been completed so future fieldwork is required on the NPD property to locate specific archaeological sites.

Currently, there are no recorded archaeological sites on the NPD property, however, there are several beyond the NPD property boundary, including Meilleur Bay (CbGj-3), Boom Creek (CbGj-1), Fraser Bay (CbGj-2) and Postes des Rapides-des-Joachim (CbGk-1), which has archaeological material spanning the 19<sup>th</sup> century that relates to the local Algonquin people (Swayze, 2016).

“Given that Pre-Contact archaeological potential is predicted primarily by proximity to water, and given that every elevation of the NPD property was once an active river shoreline, the whole property between 200 m and the modern waterline is one big relic shoreline and therefore, it all has archaeological potential (Swayze, 2016).”

The NPD property is surrounded by two areas of historical Algonquin importance, the first is near the Rapides-des-Joachim, an island between courses of white-water. The island is known as “Swisha” and it was first an Indigenous village and later became well known as a trading post (Swayze, 2016). The NPD is located just upstream from Stewarts Point, a well known sandy beach which was a gathering place for Algonquins and non-Indigenous people prior to site restrictions (Swayze, 2016).

The Stage 1 Archaeological Assessment report concludes that although the plant itself has nil archaeological potential, there is high archaeological potential widely across the NPD property, for Pre-Contact sites of every age (Swayze, 2016).

## 5.5.2 Evaluation and Accommodations

**Issue 1** – The AOO have reviewed the Stage 1 Archaeological Report and wish to develop a deeper understanding of the archaeological potential on the NPD property. We understand no activities are planned outside of the NPDWF, however due to the significant disturbance of cultural heritage resources during NPD construction, it is important for AOO to understand and preserve the remaining Algonquin cultural heritage resources on the NPD site. Based on the findings of the Stage 1 Archaeological Report, the potential for archaeological resources on the NPD property is high, and the site has value from an archaeological research perspective.

**Accommodation 1** – CNL, in collaboration with AOO should undertake additional field research at the NPD property for areas that have demonstrated high archaeological potential (e.g. relic shorelines) in the Stage 1 Archaeological Report and modelling. The AOO recommends that the NPD property be further investigated by the CNL Archaeological Field School in order to better understand the site and build capacity within AOO members for cultural heritage research.

**Issue 2** – The Algonquins have lost a significant part of their history through development of the NPD property.

**Accommodation 2** – CNL should negotiate a long-term archaeological agreement with the AOO, which will provide educational, training, and research related to remaining AOO cultural heritage resources on the site.

**Issue 3** – In regard to archaeological resources within the NPDWF site, the AOO wish to play a direct role in the monitoring of the site during construction and decommissioning activities. Although there has been extensive disturbance at the NPDWF, there is potential for archaeological resources to be present within the decommissioning footprint. Past disturbance and use of a site does not discharge CNL from its obligation to protect any artifacts that may still be existing.

**Accommodation 3** – The AOO requires that CNL provide an archaeological monitor chosen by the AOO to oversee construction activities at NPDWF to ensure that Algonquin archaeological resources are properly identified and protected during construction.

## 5.6 Ecological and Human Health Risk Assessment

### 5.6.1 Summary of EIS Content

This review is a technical evaluation of the Ecological and Human Health risk assessment of the EIS and supporting technical documents. The major focus of the review is the process used to estimate releases of radioactivity and other contaminants from the decommissioned reactor to the local environment. A key component of the risk analysis is how well the local environment (e.g., air quality, surface and ground water and the receiving environment) is characterised, how releases of radioactivity from the facility are estimated and how well the risk analysis for human health is estimated. Human health risk is estimated for aboriginal groups that may follow a more traditional lifestyle near the NPD in the future, the general public and non-human species living on or near the NPD site.

The proposed *in-situ* decommissioning of the reactor involves the grouting of the NPD vault and associated structures and placing an engineered concrete cap over the whole structure. Through time the vault is expected to degrade and fill with ground water and radioactivity transported to the Ottawa River, where the radionuclides are released through sediment to the water column. The levels of radioactivity and the dose to non-human biota and humans is estimated to be low and well below benchmarks for human health and the safety of non-human species. The first peak of radioactivity is predicted to be released at 40 years followed by higher doses after about 1000 years. The highest dose to humans is the hunter who is hunting, trapping and fishing near the site. There is no consideration for how the presence of radioactivity on the site will impact the use of the land in the future (e.g., avoidance due to the radioactivity on the site).

The EIS generally follows the guidance from the CNSC and CEAA in terms of the topics to be covered and areas of emphasis. The consideration of alternatives to the *in-situ* decommissioning is cursory and more information needs to be provided on costs and how each alternative affects government liability, a key driver of the decommissioning process. Aboriginal engagement is weak, particularly in terms of the selection of the VCs and should be improved, especially given that the highest dose to be received from the radionuclides entering the Ottawa River is for the hunter scenario, and not the critical farm group



living on or near the NPD in the future. This is a significant concern for AOO, as the Algonquin people regularly hunt within the RSA.

The methods used to estimate exposure and radiation dose in humans and non-human species are standard protocols used by several international organisations (and CSA, CNSC, Health Canada, etc.). Exposure/dose coefficients are taken from several sources but appear to be standard. The benchmark radiation dose used for the non-human species (which are important for species hunted, trapped and fishes by AOO members) is outdated. Recent methods recommended for the international ERICA modelling exercise use a more conservative approach and safety factors, however adopting the newer methods are not likely change the conclusions of the effects assessment.

The EIS is surprisingly weak in the chemical and biological characterisation of the NDP site and the receiving environment for the nuclides transported by groundwater. For some media, the assessment relies on data from Chalk River Laboratories, while for other media there are no data available (see below). Given the requirements of modelling groundwater transport and the interactions of nuclides with dissolved and particulate compounds after discharge in the river, much more site-specific data should be used. In some cases, it isn't clear what data are used (e.g., the chemistry of groundwater entering and exiting the vault). As described below, a program to measure water chemistry in bore holes between the NPD and river did not analyse for several standard water quality components. The lack of site specific data undermines the validity of conclusions related to the effects assessment for the Project.

The alternative methods of decommissioning considered by CNL include allowing the NPD to remain as it is until radioactivity declines further or the removal of the most radioactive sections for storage at Chalk River Laboratories until a national permanent disposal site is constructed. These alternatives are required by the CEAA guidelines, but none of the alternatives are presented in any depth. As indicated from the history of the NPD assessment process outlined in the Post Closure Safety Assessment Report, *in-situ* decommissioning has been the preferred option since the beginning of the process and has been the only alternative considered rigorously. The best alternative for protecting safety and human health would be the deferral of decommissioning and complete removal of all radioactive contamination to a long-term facility. However, as there are no existing long-term storage options for nuclear waste in Canada, this would require postponing the transfer of the residual NPD property to AOO for the foreseeable future. Acknowledging the risks of the preferred approach by CNL, it is therefore important that best practices for protection of the environment associated with in-situ decommissioning be implemented. Moreover, as identified in various places in this report, the CNL must ensure that rigorous long-term monitoring programs are in place to evaluate on-going risks associated with contamination.

The Post Closure Safety analysis supporting document provides a background for the development of the assessment which includes human health and ecological risk estimates (EIS, pp 1-2). The report recognizes the iterative nature of the assessment which began in 1999 and the modifications as data were collected, and the assessment matured. The problem with this approach is that the parts of the assessment are not fully coordinated which causes confusion and individual assessments may contradict statements within the EIS. The ecological risk assessment is presented in a supporting document, but there is a second iteration which is listed as Appendix D. The second iteration contains different

scenarios and a reanalysis of older scenarios. Some environmental concerns, such as high lead concentration being released in postclosure, become non-issues in the new assessment. The screening of compounds, and the changing scenarios and conclusions, significantly reduce the confidence in the general approach.

The intent of the decommissioning is to reduce the liabilities of the federal government. It is stated in supporting material: “As indicated in the project description (section 3.1.2), the objective of the proposed project is to safely decommission Nuclear Power Demonstration Waste Facility (NPDWF) ensuring the prompt reduction of Canadian legacy long-term liabilities.” What factors are involved in determining the liability to the government, and whether alternative methods of decommissioning address these, while achieving similar safety outcomes, is not discussed in the EIS. *In-situ* decommissioning will not remove the radioactivity from the site, but, conversely, the radioactivity will continue to transfer to the Ottawa River for several thousand years. Full removal of the radioactive sources from the site seems to be a more acceptable method of reducing liability.

## 5.6.2 Evaluation and Accommodations

**Issue 1** - Insufficient discussion of alternatives to In-situ Decommissioning

**Accommodation 1** – Provide detailed assessments of the alternatives in the EIS, and provide the AOO with a workshop on alternatives, so that AOO can evaluate the options and their strengths and weaknesses. The topics should include cost, liability, the magnitude and timing of risks to human health and non-human species.

**Issue 2** – Inadequate characterisation of the NPD Environment

**Accommodation 2** – The proponent should conduct a detailed environmental survey of the physical, chemical, and biological conditions of the NPD, in close collaboration with the AOO. Much of the physical environment is mapped, but the chemical composition of groundwater, surface water, sediment, and the receiving environment are missing. The results will help reviewers to interpret the conditions of the receiving environment and the importance of water quality factors in transport in groundwater, through sediment and in the water column. Biological surveys conducted with the AOO will establish the species present, their numbers, distribution and timing on the NPD site, and importance of those species, habitats and activities to the AOO.

**Issue 3** – The Ecological Risk Report does not include the second iteration of the models (as described above).

**Accommodation 3** – The ecoRisk report needs to be amended to incorporate the second iteration of models and the re-interpretation of results. A full suite of radionuclides should be included in the estimation of dose in VCs and the VCs reconsidered to include fish important to the AOO, sport fish and potentially commercial fish. The doses to such fish might be lower than those species associated with the sediment but will provide information to those actively using the resource.

**Issue 4** – Algonquin Scenarios of Land Use and Interpretation of Results.

**Accommodation 4** A greater effort must be made to engage AOO in the development of critical group scenarios and resource use. Models of AOO citizen exposure and dose should be discussed with AOO to determine if they are accurate and feedback encouraged. The maximum dose from the NPD is expected to be in the hunter and that information should be communicated to the AOO.

**Information Gap 5** - Several terms used throughout the EIS are unclear as to their meaning and need to be better defined for a full evaluation. For example:

Disposal: the term is used throughout the EIS but the proposed decommissioning does not “dispose” radioactivity and places it into long-term storage to allow it to seep into the surface environment. The term “disposal” suggests the removal of the radioactivity from the biosphere (such as placing it deep in the Canadian Shield or in the deep ocean) but the *in-situ* decommissioning just delays its release to the receiving environment.

Normal Evolution: the term is used in all model simulations for human health and ecological risk assessment. The term implies that the physical, chemical, biological, and socio-economic environment hundreds and thousands of years in the future are predictable and largely the same as it is today. There is no way to test this, making the estimation of effects to humans and non-human species difficult to validate.

Cumulative effects: The EIS does not conduct an assessment of cumulative effects because no impacts are predicted from the releases of radioactivity and non-radioactive contaminants from the facility. An analysis should be conducted on the release from NPD with those from the Chalk River Laboratories and other industries and cities on the Ottawa River. Also, an assessment of the overall NPD site, including all sources of contamination (landfills, wetlands, stored materials, etc.) should be conducted.

Institutional Control and Post Closure: What is involved with Institutional Control? Security and monitoring of the site, verification and validation of modelling scenarios, in particular the release of tritium after 40 years? Will monitoring be continued in the Post Closure period and, if so, for how long? Commitments on programs need to be scoped out before decommissioning is considered, although programs can be altered or suspended at any time.

**Information/Clarification Requirement 5** – CNL must provide additional description for the terms used. CNL must provide responses to the issues noted above.

**Information Gap 6** - As described above, the description of the chemical and biological environment at the NPD is very weak and the most basic environmental quality data have not been collected or reported in the EIS. Data from the Chalk River Lab is used in the place of site specific data but appears to be inappropriate. For example, the chemistry and level of contamination of groundwater at CRL is probably different from NPD. Other examples include:

EIS, pp 8-16- “Climate normals on bright sunshine and cloud cover are not available at or near the CRL or NPD sites.”

EIS, pp 8-18- “Climate normals on atmospheric pressure data are not available at or near the CRL or NPD sites.”

EIS, pp 8-29- “Measurements of noise along Highway 17 in the Regional Study Area are not available; however, outdoor noise at receptors close to the highway is likely to range from 50-70 dBA, depending on traffic volume (CHC 2016).”

EIS, pp 8-45- “Chemical levels in surface water in the part of the Ottawa River located in the Site and Local Study Areas are not available.”

EIS, pp 8-51- “Chemical levels in surface water in the part of the Ottawa River located in the Regional Study Area are not available.”

EIS, pp 8-51 Sediment Quality – Table 8.3-8 and 8.3-9 report data on radionuclides in sediments near the outfall but does not report data from sites P-28 (included in Table 8.3-9), P-32, P-31, P-33 or P-34 that are closest to the outfall.” Why are data from these sites not included with the others?

EIS, pp 8-81 – Table 8.5-8 The “BH” sites (with water) located between the NPD and the shoreline have not been analyzed for a number of parameters (anions & DOC, TKN, alkalinity, major cations, trace metals, volatiles and PCBs). Why is the analysis so selective? Aren’t the data on groundwater chemistry required for modelling the transport of radionuclides and other contaminants?

EIS, pp 8-86 8.6.3 Vegetation Species and 8.6.4 Wildlife Species. Several general species lists are provided but there have been no actual surveys of species that are present on the NPD site. Are these resident species or migrating species (for birds)? Have they been identified and recorded on the NPD site? What is their distribution and numbers relative to the landscape at NPD? Chimney swifts seem to be the only species confirmed on the site.

“As the NPD site is not currently used for traditional purposes (hunting, fishing, trapping etc) the project is not expected to affect the health of aboriginal peoples. Consultation of aboriginal peoples during the project was discussed in Section 2.3.” This lack of use is not surprising considering it is a controlled federal facility, however, the use of the site may change over the length of time that the radioactivity remains on the site. Land use can change significantly over time, particularly given the ongoing Algonquin Land Claim Agreement and negotiations. Traditional land use activities such as hunting, trapping, fishing, or even construction of businesses and residences by the AOO on the NPD site could be expected to occur in the future.

**Information/Clarification Requirement 6** – The baseline characterization of the environment is not acceptable for a Project with this level of risk. Additional information must be provided before the Environmental Assessment process can continue. Moreover, the CNL must provide responses to the issues noted above.

**Other specific comments on the EIS for which additional information is required:**

**Issue 7** - Executive Summary Pg 12 “For example, the use of grout to fill the structure is expected to slow down the release of contaminants to groundwater and subsequently to the Kitchissippi, and allow more time for radioactive decay.” The maximum release of some nuclides, and a peak dose, will occur 40 years after decommissioning according to the Post Closure Assessment report. Other nuclides will be released much later but the peak at 40 years probably would not occur if the facility is left in its current state for several more years.

**Issue 8** - Executive summary - Pg 27 “The cement being considered for radioactive disposal systems is similar to early cements used by the Romans in the 3rd century or those used in Tiryns and Mycenae approximately 1,000 years earlier. These cements demonstrate little degradation over approximately 2,000 years.” This statement is misleading. Roman cement is a mix of volcanic ash and seawater which form metallic crystals. The proposed grout is based on Portland cement, which is not as durable. The expected lifetime of the grout is not discussed in detail but is probably much less than 2,000 years.

**Issue 9** - Pg 2-12 – How long will the drainage system that is currently in place function? The current design relies on the drainage system now in place to transport groundwater to the river. Presumably there is a lifespan for the system. What is expected to happen to groundwater flows when the system degrades?

**Issue 10** - Section 5.2.2 Project-Environment Interactions –“Project-environment interactions were developed by screening potential effects of project-related activities within each relevant component of the environment. At this stage of the EA process, the identification of the potential project-environment interactions was based on the experience and professional judgement of technical specialists involved with the assessment.” Is this selection process based entirely on professional judgement of CNL and its consultants? There is no way to track or understand the reasoning behind many of the decisions taken by the technical staff. Some of these pathways are considered in the FEPs analysis of the Post Closure Assessment report. However, there is a need for the process of peer review to ensure that technical decisions have support of evidence and appropriate interpretation. That process does not appear to be followed here.

**Issue 11** -Table 5.2-2 – Chemical COPC screening – “Baseline screening. For example, under “Soil” “The presence of these contaminants is associated with *natural background or past NPD operations*, not with NPD closure project activities [emphasis added].” The assessment needs to look at all contaminants from all activities if they exceed guidelines. Similarly, high manganese in groundwater is dismissed as it is “not associated with NPD closure project activities” although there is no supporting evidence for this. Dioxins/furans in water at the base of the vault indicates transport from the landfills and incinerated waste. The high concentrations suggest a sizeable source. Given that the site will be abandoned after the reactor decommissioning, will the exceedances in soil and groundwater be taken into account even if they are not associated with the NPD assessment?

**Issue 12** - Section 5.2.4.1 Selection of candidate VCs – No mention is made of aboriginal engagement in the selection of possible candidate species. Was any effort made to incorporate species important to the traditional users of the land around NPD? It appears that Aboriginal input was solicited once the VCs were decided (Pg 5-15).

**Issue 13** - Table 5.2-3 Selection of VCs. The selection of fish species is problematic, and it is not clear if species important to aboriginal groups were considered. White-tailed deer is harvested by First Nations and is considered under Socio-economics and not under Traditional Land Use or Terrestrial Environment (Moose is usually a preferred species for VC selection because of the presence of aquatic plants in its diet). The activities of hunting, fishing and trapping are considered to be VCs, but not the non-human species that are involved. There are no recreational or commercial fish used as VCs, e.g., northern pike, walleye or lake trout.

**Issue 14** - Table 8.3-1 In this table and many others it is not shown what “NA” indicates? Not analysed? Not available? Cesium-137 was reported until 2004 ( $8.2 \times 10^4$  Bq) but not after that. If Cs-137, Co-60, etc. are not detected, it should be indicated.

**Issue 15** - Pg 8-60 “It is noted that while some baseline characteristics of the aquatic environment have been compiled, detailed mapping (e.g., of substrate, fish habitat, and temperature) has not been carried out specifically for the NPD closure project, because no fish habitat impacts are anticipated from the project.” This is a very weak argument for not determining baseline conditions of the chemical composition of the water in the receiving environment and the aquatic habitat that could potentially be affected by chemicals and dissolved solids (during the grouting process). Figure 3.1-4 indicates that the NPD is about 300 m from the shoreline which suggests that changes to the shoreline could occur during the construction of the grout plant, transport and moving materials on the site. An aquatic survey of physical, chemical, and biological conditions in the receiving water is warranted.

**Issue 16** - 10.4 Archeology Site/Local Study Area – “Historical research detailed in the Archeology TSD clearly shows there were generations of settlers on the NPD property, raising families and constructing buildings and docks.” Algonquins p used the area prior to European contact and there may be areas of significance to the AOO.

**Issue 17** - “For scenario 12 (accidental stack collapse), the resulting releases would be localized, with exposure pathways limited to on-site biota only, namely, the Chimney swifts roosting in the stack. However, Chimney swifts reside in the stack only during the night and a heavy equipment accident leading to the accidental collapse of the stack could only occur during the day when heavy equipment is in operation. Therefore, it is unlikely that Chimney swifts would be present and exposed to the potential airborne and liquid releases of contaminants during a stack collapse accident.” – This is an odd argument for an assessment that should be evaluating all impacts (physical, chemical, and biological) of all stages given that the stack collapse could destroy the nests of the swift population. A stack collapse, depending on the time of year, would wipe out the colony, regardless of the time of day.

**Issue 18** - Ecological Risk report Pg 2-17 “If the radionuclide concentration was greater than the NEC value and a dose coefficient was available, then the radionuclide was “screened in” or included for assessment in the EcoRA; if a dose coefficient was not available, then the radionuclide was “screened out”.” It should be possible to calculate dose coefficients based on basic principles or using analogues. Not having a dose coefficient is not a valid reason for “screening out” radionuclides. The text indicates later that this did not happen during this screening process.

**Issue 19** - Ecological Risk Report Table 2.16 – Very few details of the assessment are reported. Only H-3, Co-60 and Cs-137 are reported in the table, although a large number of nuclides are present in the vault and associated structures (see Post Closure report). Also, the doses to non-human species are not reported. It appears that most nuclides have been screened out before the actual screening process of doses has occurred.

**Issue 20** - Ecological Risk Report Table 2.18 – Dioxins/furans are “screened out” but the units are in mg/kg and not in Toxic Equivalence (TEQ) based on the congeners of the dioxins/furans present. This congener information is needed before dioxins/furans are “screened out”. See Table 9.11-5 of the EIS for TEFs for individual congeners. [Note: The USEPA uses slightly different TEFs 1,2,3,7,8-PeCDD = 1.0 and OCDD and OCDF are 0.0001].

**Issue 21** -The text of the EcoRisk Report discusses a “second iteration” of risk assessment, which is presented in Appendix D of the report. This second iteration contains new scenarios and a re-analysis of data. Lead, which was a major concern from the first iteration, has become a minor component. It isn’t clear why lead is less important (an Ontario-wide value for background lead in soil was used in the first iteration but was considered incorrect because of the high risk values from the assessment. Site-specific data should have been available). In all, there is enough confusion regarding the methods and the reasons why a second assessment process was required (and placed in an Appendix and not in the main text) that the document should be redone to clarify the methods and conclusions.

**Issue 22** - Post Closure Assessment Report – This is a well written report and provides some good background information for the human health and ecological risk assessment, but the assessment is centered around *in-situ* decommissioning. Alternatives were only considered as an exercise to fulfill CNSC guidelines for the EIS and were not seriously considered. There are no cost estimates or safety cases and risk assessments presented for each alternative. It appears that the minimum long-term liability for the NPD is the removal of radioactive materials and full decommissioning of the rest of the site. The site can then return to natural conditions or other land uses without restrictions. This is inadequate for the protection of future AOO land-users. The CNL must hold long-term liability beyond the removal of radioactive materials and full decommissioning of the site. The CNL should be liable for monitoring and remediation of the site to a state that is acceptable for safely engaging in unrestricted land use.

**Issue 23** - Post Closure Assessment Report Pg 2-9 Dealing with Uncertainties – The issue of uncertainty and conservatism is often subjective, particularly in future scenarios when there are

so many unknowns. Conservative relative to what? Conditions that appear to be conservative now may be closer to a realistic scenario in the future. Conservatism is often used to support an argument but there is very little support for it in the models, especially those using empirical data for transfer factors or dose coefficients.

**Issue 24** -Post Closure Assessment Report - Normal Evolution Scenario. There are no time lines associated with any of the major events described in this section. It is accepted that groundwater will infiltrate the vault and associated structures and that nuclides will be transported to the river. The timing of these events is not given, although those values are given later in Section A9 (Timeframe of Interest). It is important to note that this scenario is entirely based on the natural environment as it exists in the far future and does not include socio-political changes over the centuries that might impact land use. The selection of FEPS to include in the scenarios is not transparent and could be used by the proponent to justify the selection of *in-situ* decommissioning.

**Issue 25** - Post Closure Assessment Report Figure 5-7 – This is a significant observation from the assessment. The maximum rate of release of nuclides to the river occurs at about 40 years after grouting, which is during Institutional Control. It is suggested in other parts of the EIS that the maximum release occurs far in the future. Similarly, in Figure 5-12 the maximum concentration in the river sediment occurs 40 years after grouting. The maximum of nuclides in sediment reaches 100 Bg/kg after 100 years, but is 10x higher in Fig 5-12 at 40 years. The *in-situ* decommissioning releases nuclides to the environment soon after the grouting is complete and continues to do so for several thousand years. The total amount of radioactivity released is low and the doses received by the critical group and hunter/gatherers is low.

## 5.7 Socioeconomics and Community Well-Being

### 5.7.1 Summary of EIS Content

In regards to socio-economics and community well-being the following documents were reviewed through the lens of AOO rights and interests:

- Sec 8.10 Description of the Existing Environment: Socio-Economic Environment of the Draft EIS for the CNL Nuclear Power Demonstration Closure Project
- Sec 9.10 Assessment and Mitigation of Environmental Effects: Socio-Economic Environment of the Draft EIS for the CNL Nuclear Power Demonstration Closure Project
- Socio-Economic Assessment Technical Supporting Document for the NPD Closure Project

CNL used the following sources to develop an understanding of the socio-economic environment and conditions around the NPD project:

- planning and land use documents (e.g., Official Plans, municipal zoning documents, forest management plans, provincial agency reports and ZEC profiles);
- government databases (e.g., census profiles; MNRF Crown Land Use Policy Atlas);



- interactive maps (e.g., ZEC and Ministry of Natural Resources and Forestry (MNR) maps);
- acts and regulations (e.g., regulations overseeing ZEC); and,
- municipal and local websites (e.g. tourism association websites, campground and recreational websites).

These sources of information were applied to give an understanding of the socio-economic conditions within the following identified study areas:

- The Site Study Area (SSA) extends 50 m from the NPD site into the Kitchissippi to capture releases from the NPD site (for example, sub-surface Drain 1 discharges onto the shore of the Kitchissippi, and the wells area sump(WAS) discharges roughly 20 m from the shoreline into the Kitchissippi and falls within Renfrew County;
- The Local Study Area (LSA) has been defined as the Site Study Area plus a 1-km radius beyond that area which encompasses portions of the Town of Laurentian Hills;
- The Regional Study Area (RSA) has been defined as the Site Study Area plus a 5-km radius beyond that area which encompasses portions of the Town of Laurentian Hills and the United Townships of Head, Clara, and Maria and extends into Quebec to include includes the eastern portion of the island of Rapides-des-Joachims and two ZECs (controlled harvesting zones or zones d’exploitation controlee) across the Kitchissippi, as well as the municipality of Sheenboro.

The EIS provides a profile for each municipality within the SSA, LSA, and RSA that includes population size, land base, and major source of employment. Similar profiles are provided for Indigenous communities in the Aboriginal Engagement Report (AER) Technical Support Document, however sources of employment are missing from the Indigenous community profiles.

The EIS also provides an asset of the following assets in each of the Study Areas:

- Hunting, Trapping, and Fishing
- Recreation and Tourism
- Natural Resources such as aggregate, forestry, and mining claims
- Residential Dwellings
- Community Infrastructure such as hydro dams and landfills

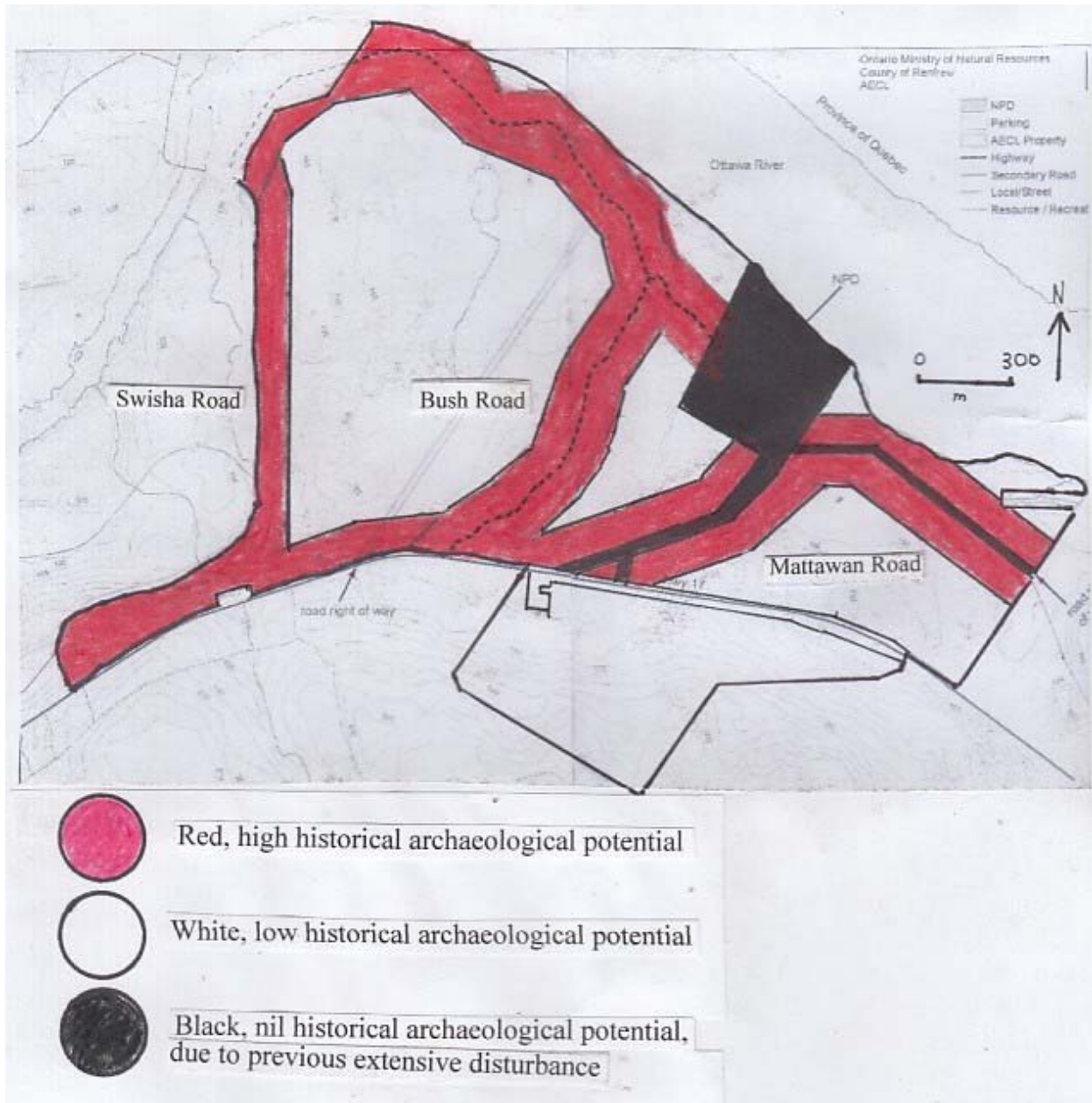
Land use within the socio-economic environment section of the EIS focuses strictly on municipal and provincial land-use and planning designations. For example, according to the EIS,

“The majority of the Regional Study Area intersects an area of provincial land-use designation known as “Multiple Natural Resource Use” (Figure 8.10-1). According to the Ministry of Natural Resources and Forestry (MNR 1983) Pembroke District Land Use Guidelines for this designation, the Land Use Intent of this area is:

*“Within this area, resource management will be directed to multiple use management. Standard management practices combined with the concept of sequential use will enable MNR to take full advantage of the potential of the natural resource. Management of this area is also governed by the general policies contained in the*

*Pembroke District Land Use Guidelines (1983)."*

The socio-economic section of the EIS does also mention of archaeological potential and built heritage resources in and around the Kitchissippi but does not make any mention of AOO cultural heritage within the section. However, the EIS does state there are areas of "high historical archaeological potential" as demonstrated in Figure 6:



*Figure 6. Archeological potential of the NPD site*

Further to that the EIS states:

“Given that pre-contact archaeological potential is predicted primarily by proximity to water, and given that every elevation of the NPD property was once an active river shoreline, the whole property

between 200 m and the modern waterline is one big relic shoreline and therefore, it all has archaeological potential. Nevertheless, there were times of shoreline stasis—sometimes for millennia, sometimes a few centuries or generations—where human activity would have been concentrated and artifacts more likely to be deposited.

The pre-contact archaeological predictive model for the NPD property takes these longer-lived shorelines into account and maps them in distinctive colours. Furthermore, in the NPD model, the full 150 m width is considered to have high archaeological potential and the areas in between have been given moderate archaeological potential, instead of low potential as the standards allow. In these respects, the NPD model of pre-contact archaeological potential is more rigorous than the Ministry of Culture standards and guidelines require.”

To protect the socio-economic environment the following mitigation measures were identified by CNL in the EIS:

- dust suppression measures;
- post speed limits on-site
- the greatest effect of traffic and transportation associated with the project will occur during the Decommissioning Execution phase. Within the Local and Regional Study Areas, the transportation/haul route is limited to Highway 17 and the NPD site access road from the highway;
- review of a company's safety records which includes any traffic accidents or driver's records, as per CNL's contracting and hiring practices;
- construction activities will generally occur between 7 am and 7 pm wherever possible, with the overall objective of minimizing nuisance effects (i.e. noise and traffic) on residents in the Local and Regional Study Areas. This should be subject to further discussion with the local municipality. It is noted that special or emergency circumstances may require deviation from this restriction;
- when a significant amount of off-site transportation is required (e.g., during raw material delivery), the timing of equipment and material shipping to the site should be staggered to minimize the contribution of the project to peak traffic volumes;
- during the Decommissioning Execution and Institutional Controls phases, restrict access to the licensed area via a fence with a locked gate to deter trespassing; and,
- periodic communication updates on project construction activities to local residents are recommended, including: construction schedule, activities, dedicated contact person for inquiries and emergencies etc.

No mitigation measures have been identified for land use in the study area, as formal changes in land use designation are not expected to occur during the Decommissioning Execution. Land use re-designation will only be applied as appropriate during the Institutional Controls phase. During the Institutional Controls phase, land in the Local Study Area surrounding the licensed area may be released for other uses.

No mitigation measures have been identified with respect to aggregate depletion, as the effect is expected to be minor, and accompanied by positive economic benefits.

Following the mitigation measures proposed in the EIS CNL anticipates the following socio-economic effects to remain during the decommissioning execution phase:

- traffic and transportation effects including delays and risk of incidents;
- nuisance effects (noise, dust, traffic) experienced by tourists and residents in the LSA and RSA;
- minor depletion of aggregate in the LSA if aggregate for the project is procured locally which would have a net economic benefit;
- impacts to the landscape along the Kitchissippi (Ottawa) River from general activities and project footprint activities;
- nuisance effects experienced by land users in the RSA;

Following the mitigation measures proposed in the EIS CNL anticipates the following socio-economic effects to remain during the institutional controls phase and post-institutional controls phase:

- renaturalization that may increase vegetation and habitat for wildlife providing benefit to hunters and trappers in the site and LSA;
- renaturalization may also result in minor economic benefits due to a marginal increase in tourism;
- renaturalization could also increase the availability of forestry resources in the region;
- during the Institutional Controls and Post-Institutional Controls phases, it is assumed that the licensed area will be abandoned, making the land available for other uses

According to the EIS, no adverse residual effects on the socio-economic environment have been predicted.

No specific environmental monitoring has been identified for the socio-economic environment. Monitoring in other environmental components will confirm the EIS predictions (i.e., that no effects are expected in the socio-economic environment). Ongoing public and stakeholder engagement activities will take place throughout the Decommissioning Execution and Institutional Controls phases to identify any changing concerns or perceptions related to the project.

## 5.7.2 Evaluation and Accommodations

The following issues and accommodations are put forth in regard to the socio-economic environment and community well-being of AOO.

**Issue 1-** There is no mention of the socio-economic conditions of Indigenous communities that are interacting with the NPD Project site, including AOO.

**Accommodation 1** – Provide an assessment of the socio-economic conditions and effects the project will have on AOO citizens interacting with the project.

**Issue 2** – There are still a number of residual nuisance effects that could impact AOO citizens through impacts to land use access for both traditional practices and economic livelihood opportunities.

**Accommodation 2** – Work with the AOO on identifying and implement adequate mitigation measures to eliminate nuisance effects to the greatest extent possible.

**Issue 3:** There are missing valued components that would be relevant to the socio-economic aspects of the NPD Closure Project.

**Accommodation 3:** Include and assess additional relevant value components such as community safety, health and wellbeing, emergency response services, and AOO-specific employment and economic development Also consider AOO-specific measures such as AOO procurement, employment, and tenants within the AOO’s Agreement-in-Principle.

**Issue 4:** CNL’s EIS for the NPD project does not fully consider project-human interactions such as human resources/workforce; employment & income from the decommissioning execution phase, institution control phase, and post-institutional control phase, impacts an influx of workers (if applicable) may have on community safety, well-being, and services. As a result of these gaps, some socio-economic value components and their potential effects, have not been considered.

**Accommodation 4:** Evaluate the implications of the interactions described above for their impact potential - whether that includes adverse or positive potential socio-economic and well-being effects in general, and specifically, to AOO citizens.

**Issue 5:** Primary socio-economic and community wellbeing components and indicators are not considered in the effects assessment (i.e., health, education, infrastructure and services; economic development etc.). These are not described nor assessed as part of the NPD EIS.

**Accommodation 5:** Provide a more complete assessment and consideration of the effects on the socio-economic indicators identified in the issue above.

**Issue 6:** Opportunities for Indigenous employment or procurement, including opportunities for AOO have not been assessed or identified in the NPD EIS.

**Accommodation 6:** Include information regarding the ways CNL intends to engage the AOO in developing employment and procurement opportunities for the project.

**Issue 7:** There is no socio-economic effects monitoring planned for the project. Failing to monitor these effects could lead to negative impacts being amplified and positive effects not being fully realized.

**Accommodation 7:** Work with the AOO on developing a socio-economic program/plan for monitoring and managing the socio-economic effects of the project on AOO citizens.

**Issue 8:** One of the effects that was not able to be fully mitigated according to the EIS was impacts to the Kitchissippi (Ottawa) River shoreline landscape. Information on how shoreline impacts would be impacted were also not clearly identified.

**Accommodation 8:** Given the cultural significance of the Kitchissippi to AOO people, the rich history, cultural resource potential, and use of the river for fishing to this day the impacts to the shoreline must be mitigated to the greatest extent possible. Where mitigation is not possible, CNL should work with AOO on identifying appropriate accommodation and compensation to ensure impacts are fully addressed.

**Issue 9:** The CNL has not indicated how it will engage with the AOO regarding the protection of AOO land use interests in the local study area.

**Accommodation 9:** There should be cooperation between CNL and AOO to protect future land use interests of the AOO in local study area including potential acquisition of adjacent buffer lands.

## 5.8 Environmental Monitoring

As stewards of the land and resources within our Traditional Territory, the AOO recognize the fundamental importance of protecting the flora, fauna, as well as the ecosystems in which they reside, for generations to come. Our values which have been passed down from our ancestral ways of life embody an inherent respect for the environment and an intrinsic commitment to the sustainable management of resources.

As land users, the members of AOO often bear inequitably the potential dangers to health and well-being of large industrial projects. Accordingly, AOO requires a high standard of assessment, mitigation, and monitoring for any project with the unceded AOO Settlement Area. The NPDWF poses a serious environmental risk to land, waters, wildlife and people within the unceded AOO Settlement Area.

In addition, AOO has a vested interest in ensuring that the NPD property and adjacent lands are monitored effectively and that all environmental liabilities (on and off-site) are identified and remediated to the highest standard achievable. Since AOO will likely own lands adjacent to the NPDWF site it is important that any potential off-site environmental risks are monitored and managed effectively. Furthermore, given AOO's interest in obtaining the remaining 364 hectares (900 acres) of the NPD property (after CNL decommissioning and rehabilitation work) it is important that all environmental liabilities on the site are identified, monitored and remediated appropriately.

It is paramount that the AOO be meaningfully involved and informed regarding all environmental monitoring and remediation activities related to the NPD. AOO wishes to play an active role in the monitoring of the NPD property (and beyond) over the course of the institutional control and post institutional control phase of the project. AOO must be adequately informed regarding results of environmental monitoring and facility integrity testing. AOO wishes to be actively engaged in the monitoring of the NPDWF and Kitchissippi. The following comments and accommodations outline AOO's vision for a collaborative environmental monitoring program for the NPD property.

**Issue 1-** Currently, there is no mechanism for AOO to participate in the environmental management of the NPD property (and beyond) during decommissioning, the institutional control phase and post institutional control phase. This includes opportunities for reviewing reports, providing input, on-site construction monitoring, participating in site remediation and being involved in decision making or information sharing agreements. Likewise, during decommissioning activities the NPDWF site will have

environmental emissions (e.g. wastewater, dust, noise, greenhouse gases, etc.), AOO representatives are not able to participate effectively based on the contents of the EIS.

**Accommodation 1** – To ensure transparency and confidence in monitoring activities, there must be direct AOO involvement in CNL’s Environmental Protection Program as well as the CSNC Integrated Environmental Monitoring Program (IEMP). This could be achieved by providing funding for full-time AOO monitors. This must include reasonable capacity funding for training. The monitor would be responsible for participating in design, implementation and reporting all site related monitoring and remediation initiatives. The monitors would also be able to liaise with AOO members, leadership and CNL to share information.

**Issue 2-** Monitoring of environmental receptors is crucial to ensure that potential effects from NPDWF are being managed effectively. This includes, but is not limited to, monitoring of groundwater, surface water, sediment, fish communities, fish tissues, and wildlife. Monitoring must be conducted in a manner that is transparent and inclusive of AOO. This will help AOO members to have confidence that components of the environment that they value are being monitored appropriately.

**Accommodation 2** - To promote the effective participation of AOO within the environmental management and monitoring programs of NPDWF we strongly suggest the creation of a Nuclear Environmental Review Board (NERB). This board should be composed of representatives from AOO, CNSC and CNL. The NERB would be responsible for overseeing all nuclear activities in the AOO Settlement Area. The NERB would also be responsible for reviewing annual reports, applications, licence renewals and other activities associated with the NPDWF. Resources must be provided to allow the NERB to dedicate the time required to complete these tasks. Secondly, the NERB should have access to funding for obtaining guidance from technical experts where appropriate. The NERB would allow for effective coordination between AOO, CNL and the CNSC. Moreover, having representatives from AOO would help ensure that the rights and interests of AOO members are upheld.

**Issue 3** – It is noted within the EIS that AOO is a member of the CNL’s Environmental Stewardship Council. However, this is inaccurate as currently only the Algonquins of Pikwàkanagàn have a seat on CNL’s Environmental Stewardship Council.

**Accommodation 3** AOO recognizes the value of the Environmental Stewardship Council and wishes to participate, however AOO believes a more fulsome environmental advisory authority should be created to oversee the various CNL facilities with the unceded Algonquin Settlement. AOO believes the role of the Environmental Stewardship Council should be expanded to provide the council with increased oversight and decision-making powers over CNL’s environmental management program where appropriate. This would increase transparency related to the environmental monitoring of all CNL facilities. The NERB model proposed in Accommodation 2 should replace the Environmental Stewardship Council to create a more robust environmental oversight authority for the NPD property.

**Issue 4-** CRL must ensure that effective contingency plans are in place for extreme weather and natural hazard scenarios that may impact or damage CRL infrastructure. These incidents are expected to increase in frequency and intensity as a result of climate change, so proper contingency planning is crucial. In the event of a natural hazard (e.g. flood, ice storm, hurricane, tornado, earthquake) there is

potential for contaminants (radiological and non-radiological) from the NPDWF to be released to the environment, in particular the Kitchissippi.

**Accommodation 4** - CNL should provide AOO with more detailed information regarding extreme weather and natural hazard contingency planning. Since the potential for extreme weather and natural hazards (e.g. tornadoes, earthquakes, flooding) is high at the NPDWF. CNL should provide more detailed discussion regarding the potential impacts of flooding at the NPDWF, and the types of releases that would occur if the NPDWF facility was inundated.

**Issue 5**- The following non-radiological hazardous substances have been identified on the NPDWF site; lead, asbestos, mercury and polychlorinated biphenyl. These designated substances have the potential to be released to the environment through atmospheric emissions or groundwater.

**Accommodation 5** – CNL must remove all hazardous substances from the NPDWF and ensure that proper monitoring and disposal procedures are followed. AOO must be provided with all monitoring results during the active decommissioning phase to ensure regulatory compliance with the release of designated substances. Leaving hazardous substances such as PCB's on the NPDWF does not represent best practice for the disposal of hazardous waste in Canada. Designated substances should be removed from the site and taken to appropriate waste storage facilities.

**Issue 6**- Lead, asbestos, mercury and polychlorinated biphenyl are not adequately assessed or modelled in the atmospheric environment assessment. The release of lead, asbestos, mercury and polychlorinated biphenyl during the demolition phase of the project must be monitored and managed carefully to minimize exposure to local AOO members.

**Accommodation 6** – Lead, asbestos, mercury and polychlorinated biphenyl should be included in the atmospheric assessment and air dispersion modelling due to their presence on the NPDWF site. CNL must provide details on how designated substances on the NPDWF site will be managed and monitored during the project.

**Issue 7** – AOO has a vested interest in ensuring that the NPD property and adjacent lands are monitored effectively and that all environmental liabilities and human health risks (on and off-site) are identified and remediated to the highest standard achievable, including, but not limited to, the Site Condition Standards for Residential/Parkland/Institutional Property Use under Ontario Reg 153/04 that would enable a Qualified Person to submit a Record of Site Condition that the Ontario Ministry of the Environment and Climate Change will accept for filing to the Environmental Site Registry.

**Accommodation 7** - It is paramount that AOO be meaningfully involved and informed regarding all environmental monitoring and remediation activities related to the NPD, on and off site. AOO wishes to have adjacent lands monitored to ensure that no environmental liabilities exist off the NPDWF. Given the unique position of AOO as landowners, the AOO must to play an active role in the monitoring of the NPD property (and beyond) over the course of the project. CNL must identify all environmental liabilities related to NPD on and off the project site, including adjacent lands and Kitchissippi.



## 6.0 Towards a Long-Term Relationship Agreement

Part of the reconciliation process in Canada is acknowledging past wrongdoings by governments or corporations to Indigenous peoples or communities. As part of the Truth and Reconciliation Commission's (TRC) 94 Calls to Action, the TRC has outlined a call to action that is applicable to CNL/AECL:

"We call upon the corporate sector in Canada to adopt the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) as a reconciliation framework and to apply its principles, norms, and standards to corporate policy and core operational activities involving Indigenous peoples and their lands and resources. This would include, but not be limited to, the following:

- I. Commit to meaningful consultation, building respectful relationships, and obtaining the free, prior, and informed consent of Indigenous peoples before proceeding with economic development projects.
- II. Ensure that Aboriginal peoples have equitable access to jobs, training, and education opportunities in the corporate sector, and that Aboriginal communities gain long-term sustainable benefits from economic development projects.
- III. Provide education for management and staff on the history of Aboriginal peoples, including the history and legacy of residential schools, the UNDRIP, Treaties and Aboriginal rights, Indigenous law, and Aboriginal–Crown relations. This will require skills-based training in intercultural competency, conflict resolution, human rights, and anti-racism." (TRC, 2015)

As a way to advance reconciliation, many corporate entities (including Crown corporations) have begun to develop formalized relationships and partnerships with local Indigenous communities. One such arrangement is called a Long-Term Relationship Agreement (LTRA), which lays out the framework for a relationship between the corporate entity and Indigenous communities to specify how Indigenous people will be involved and share in the benefits of a project/facility equitably.

In an effort to establish a formal arrangement for consultation and accommodation related to the NPD site, AOO proposes the establishment of a LTRA between CNL/AECL and the AOO. The LTRA would create a process for negotiating accommodation measures for impacts (past, present and future) as a result of the NPD Project. The LTRA would be a binding legal document that both parties would jointly negotiate and develop a plan for implementation.

The LTRA would outline the impacts of the NPD project as well as the commitment and responsibilities of both parties. The LTRA would set out terms for how CNL/AECL would share the benefits of the operation with AOO. The following potential accommodation measures could be laid out in the LTRA:

- Land transfer arrangements for portions of the NPD property
- Employment related to decommissioning and environmental monitoring
- Formal roles in the oversight of all environmental monitoring at the NPD site

- Training and apprenticeship programs
- Business opportunities related to NPD site (e.g. construction contracting opportunities, monitoring and security opportunities, etc.)
- Environmental and cultural heritage monitoring programs
- Rehabilitation and remediation programs
- Full-time liaison position

The LTRA would be used as a tool to formally acknowledge the use of Algonquin lands for the NPD site by CNL/AECL. Accommodation measures for impacts from the permanent loss of access as a result of NPD would assist AOO in playing a more active role in the monitoring site conditions during the decommissioning and monitoring phases of the project.

As part of a LTRA, there is a great need and opportunity for a long-term program of archaeological research, education, and conservation that will ensure that when NPD site is decommissioned the AOO will already have documented its archaeological potential.

### Land Transfer Considerations

As stated previously, the NPD property is located within the Algonquin Settlement Area, in close proximity to seven of AOO's Proposed Land Selections. AOO's is also interested in obtaining the remaining 364 hectares (900 acres) of the NPD property (after CNL decommissioning and rehabilitation work is complete) due to its close proximity to Kitchissippi. For the AOO, it is important that all environmental liabilities on and off the site are identified, monitored and remediated to the highest standards prior to any land transfer, including, but not limited to, under Ontario Reg 153/04 that would enable a Qualified Person to submit a Record of Site Condition that the Ontario Ministry of the Environment and Climate Change will accept for filing to the Environmental Site Registry. The AOO wish to formally discuss land transfer agreements with CNL and AECL as part of the LTRA process.

The AOO will need assurances that the NPD property is free of environmental issues for the purpose of obtaining a Record of Site Condition under Ontario Reg. 153/04. Obtaining a Record of Site Condition will be the responsibility of CNL and AECL. Indigenous and Northern Affairs Canada (INAC) may be engaged in the land transfer process to ensure that environmental liabilities on the site are identified and managed to ensure effective land transfer. CNL and AECL must ensure that sufficient environmental monitoring data is in place to provide the data necessary to satisfy Ontario Reg. 153/04 Residential/Parkland/Institutional Property Use Site Condition Standards, the AOO and INAC.

**Issue 1** - Currently there is no formal accommodation agreement in place between AECL/CNL and the AOO regarding the past, present and future activities at the NPD site and the associated impacts and risks.

**Accommodation 1** - AECL/CNL should enter into negotiations with AOO to establish a Long-Term Relationship Agreement with the AOO to determine a formal approach to consultation and accommodation for NPD site moving forward. Since the NPD site lies within the unceded AOO Settlement Area, a formal accommodation arrangement between AECL/CNL and the AOO is necessary.

**Issue 2** – CNL does not adequately discuss the future use and ownership of the NPD property (excluding the NPDWF). There is no discussion of potential transfer arrangements for portions of the NPD property. As noted previously, the AOO is interested in obtaining the remaining 364 hectares (900 acres) of the NPD property after CNL decommissioning and rehabilitation work is completed.

**Accommodation 2** – CNL and AECL must enter into formal discussions with AOO regarding potential land transfer arrangements for portions of the NPD property. CNL and AECL must also commit to obtaining a Record of Site Condition (RSC) under Ontario Reg. 153/04 for Residential/Parkland/Institutional Property Use Site Condition Standards in order to initiate the land transfer process.

## 7.0 Conclusion

The NPD site is located within unceded Algonquin Traditional Territory. The AOO have asserted existing Aboriginal rights and title throughout the Settlement Area, including the NPD site. At the time of the Crown decisions to establish and operate the NPD reactor in the unceded AOO Settlement Area, the Crown did not consult with the AOO, or provide accommodations for impacts to AOO rights and interests. It is time for CNL and the CNSC to formally acknowledge the use of the unceded Algonquin Settlement Area for the development of nuclear reactor technology. The NPD has significantly impacted the AOO through the displacement of our people, the loss of access for traditional purposes, the destruction of our cultural heritage resources and the release of radioactive and other hazardous materials into the environment.

The NPD property represents a substantial loss of land for AOO members, this is further exacerbated by environmental degradation caused by the operations of the facility. CNL/AECL and CNSC must develop a plan to accommodate AOO for grievances related to the NPD property, including the lack of consultation or consent in siting the facility and environmental caused by the NPD reactor. It is also important to note that the AOO have a significant interest in the NPD Closure Project and the NPD property given its location within the Algonquin Land Claim Settlement Area, and proximity to seven proposed AOO land selections.

AOO has a vested interest in ensuring that the NPD property and adjacent lands are monitored effectively and that all environmental liabilities (on and off-site) are identified and remediated to the highest standard achievable. Since AOO will likely own lands adjacent to the NPDWF site it important that any potential off-site environmental risks are monitored and managed effectively. Furthermore, given AOO's interest in obtaining the remaining 364 hectares (900 acres) of the NPD property (after CNL decommissioning and rehabilitation work) it is important that all environmental liabilities on the site are identified, monitored and remediated appropriately.

It is paramount that AOO be meaningfully involved and informed regarding all environmental monitoring and remediation activities related to the NPD. AOO wishes to play an active role in the monitoring of the NPD property (and beyond) over the course of the decommissioning, institutional control and post institutional control phases of the project. The AOO will need assurances that the NPD property is free of environmental issues for the purpose of obtaining a Record of Site Condition (RSC) under Ontario Reg. 153/04.

As noted throughout this review, the baseline characterization of the environment is not acceptable for a Project with this level of risk. This lack of information extends to the missing input (including TRLU and TEK) from the AOO. The AOO requires that additional information must be collected and incorporated into the EIS before the Environmental Assessment process can continue. AOO should be engaged in the collection of this information.

While In-Situ Decommissioning is not the ideal alternative for minimizing risks to the environment and human health, the AOO recognizes the limitations of long-term nuclear waste disposal in Canada. Therefore, it is of critical importance to the AOO to ensure that best practices for decommission and rigorous long-term monitoring programs are in place to evaluate on-going risks associated with contamination. To this end, the AOO must be included in the environmental monitoring and decision making for the NPD site during active decommissioning, institutional control and post-institutional control. This should include Consultation with AOO regarding the potential uses for the site during post-institutional control and how the renaturalization process should occur.

In light of the Consultation Process Interim Measures Agreement, it is critical that the AOO be included in all future engagement activities executed not only by the CNSC, but by CNL as well. We expect that moving forward, the consultation and accommodation process will be comprehensive, recognize the AOO's unique interests and provide meaningful opportunities for input and involvement in the NPD Closure Project.

At the current time, no formal accommodation agreement exists between AOO and CNL. The results of our review provide a series of comments and accommodations that CNSC and CNL must consider prior to approval of the NPD Closure Project. The following list presents a high-level overview of the key accommodation measures identified by AOO:

- CNL must develop formal accommodation agreements with the AOO for past, present and future impacts through the development of a Long-Term Relationship Agreement, including land transfer arrangements for the NPD property.
- The CNL must provide formal responses to the issues and comments provided in this review. These should include detailed descriptions of the actions to be taken to provide additional information, collect missing data, and remedy shortcomings of the EIS.
- As noted in this review, additional data collection is required to adequately characterize the baseline environment. This includes data collection on groundwater quality, surface water quality (radiological and non-radiological), fish tissues, benthic invertebrates, and wetlands.
- CNL must provide detailed descriptions of follow up monitoring programs for a range of environmental parameters including groundwater, surface water, aquatic biota (i.e. fish tissue monitoring and benthic invertebrate monitoring), wetlands and the atmospheric environment. The CNL must engage in meaningful involvement of the AOO in the ongoing environmental, cultural heritage, and human health monitoring in and around NPD site.

- CNL must provide accessible information for Algonquin citizens, including communications protocols for informing communities about monitoring results, participation opportunities, and incidents such as spills, accidents or malfunctions.
- CNL should provide a framework for addressing the cumulative effects of CNSC-regulated projects (e.g. NRU reactor, Chalk River Laboratories, NSDF, etc.) and other activities in the region that affect AOO rights and interests across the unceded AOO Settlement Area
- CNL must engage in collaborative decision-making with AOO, based on a nation-to-nation relationship and the obligation to secure free, prior and informed consent for all projects. This decision-making must recognize and strengthen the jurisdiction that the AOO have with respect to this Project, the environment and culture.
- The CNL must create protocols to encourage transparency, accountability and credibility. Decisions should be based on rigorous science and Indigenous Knowledge. Where appropriate this must include the completion of comprehensive Indigenous knowledge and land use studies.
- To promote the effective participation of AOO within the environmental management, monitoring, and remediation of the NPD site, we strongly suggest the creation of a Nuclear Environmental Review Board (NERB). This board should be composed of representatives from AOO, CNSC and CNL. The NERB would be responsible for providing guidance to the operation monitoring programs. The NERB would also be responsible for reviewing annual reports, applications, licence renewals and other activities associated with the NPD. Resources must be provided to allow the NERB to dedicate the time required to complete these tasks. The NERB should have access to funding for obtaining guidance from technical experts, where appropriate.

## 8.0 References

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## Appendix A – Comment Tracking Table

Table 2. Comment and Response Tracking Table

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
<b>SURFACE WATER AND GROUNDWATER</b>		
5.1.2.1	<p>The greatest concern for the hydrogeology of the area is that groundwater quality will be compromised by the leachate emerging from the NPD site that has come in contact with radioactive materials. The integrity of the existing underground structures, grouting, capping and collection system of this in-situ decommissioning option has not been adequately assessed to provide a level of comfort to the AOO. The modeling has many assumptions, has varying levels of uncertainty, and has inadequate mitigation measures for the possible level of contamination that will remain in on site and potentially leach into local groundwater systems and ultimately into the Ottawa River.</p>	<p><b>a</b> – CNL should provide additional monitoring and mitigation measures, and assurances to AOO, that in-situ decommissioning as planned in this EIS involves internationally recognized best management practices. In-situ decommissioning is not the preferred strategy for decommissioning nuclear facilities, based on research on international standards (Candesco, 2014). The Proponent should seek the advice and recommendations of Canadian and international standards (i.e. International Atomic Energy Agency, IAEA) and employ informative (non-mandatory) clauses to provide additional assurances that the site is adequately decommissioned.</p> <p><b>b</b> – A monitoring well and collection system should be installed that that allows for the sampling of the groundwater downgradient of the Facility and possible capture, treatment and appropriate management of contaminated groundwater with radionuclides or other non-radioactive contaminants.</p>
5.1.2.2	<p>The assessment of the release of tritium from the Facility is expected to peak at 1M Bq/Year (1,000,000 Bq/year, or <math>10^6</math> Bq/year), or about 1000 Bq/L of groundwater, as stated in the Post Closure Safety Assessment Report. This amount of contaminant will enter the Ottawa River, which is already experiencing elevated levels of radionuclides due to past nuclear facilities and activities in the area (CNSC, 2009). Several drinking water intakes occur</p>	<p>The Proponent should provide additional mitigation measures to limit the introduction of tritium and radionuclides from the NDP into the Ottawa River, through capture and management of the leachate and groundwater flow, or other appropriate measures.</p>

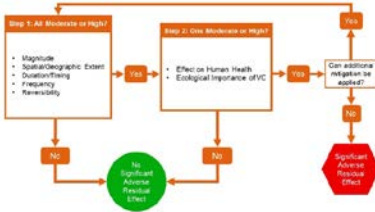
Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	<p>downstream of the NPD site on the Ottawa River, as well as being in the traditional territory of the AOO that rely on the land and water for their livelihoods as well as being spiritually and culturally important.</p>	
5.1.2.3	<p>Water quality of the groundwater and surface water from the Project site was sampled for radiological and non-radiological parameters. Non-radiological sampling of contaminants were compared to the CCME Environmental Quality Guidelines (EQG) for metals, other inorganic and organic compounds. Several of the parameters sampled from the Wells Area Sump (WAS) were an order of magnitude higher than the EQG, including iron, mercury, total dioxins/furans and Bis(2-ethylhexyl)phthalate.</p> <p>Additionally, several parameters were several orders of magnitude above the EQG, including cadmium, copper, lead, zinc and total PCBs. As the water table is closely connected to the surface water system, these contaminants have high potential to affect the aquatic environment downgradient of the Facility.</p> <p>Many of these contaminants have serious physiological implications for aquatic species, especially at these concentrations. If not properly managed or mitigated, contaminants can cause lethal and sub-lethal toxicological effects on fish, other aquatic species, and can reduce the productivity of the affected ecosystems.</p>	<p><b>a</b> - The Proponent did not provide mitigation measures for the poor water quality of the Project Site. The Proponent needs to provide additional mitigation measures to address water quality issues, regularly monitor the WAS, and provide reporting to the AOO on the exceedances.</p> <p><b>b</b> - The Proponent needs to provide a monitoring plan including frequency, parameters and locations of surface water and groundwater sampling for review by the AOO during the decommissioning phase, the Institutional Controls Phase and the Post-Institutional Controls Phase.</p>
5.1.2.4	<p>While surface water and groundwater were considered pathways for Valued Components (VCs) and not VCs themselves, these components of the ecosystem are culturally, spiritually and traditionally very important to the AOO. Water is a sacred entity for these First Nation communities. The Project has the</p>	<p><b>a</b> - The Proponent needs to provide a more detailed and specific monitoring plan, and reporting to the AOO, for surface water and groundwater resources. Additional locations for sampling should include the water within the tile drains and the water quality at the outlet of these tile drains, as well as the</p>



Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	<p>potential to negatively affect the hydrological and hydrogeological systems in the Regional Study Area, yet there are very few details on how these systems will be monitored throughout the various phases from decommissioning through to Post-Institutional Controls. The Proponent has only offered only periodic inspections, incident-specific water quality monitoring, event-based (i.e. due to a spill or accident), periodic surface water quality monitoring on a quarterly basis. These descriptions are too vague to determine whether the sampling and protection of surface water and groundwater will be adequate.</p>	<p>groundwater downgradient of the Facility for both radiological and non-radiological parameters of concern. The AOO should be provided an opportunity to review the monitoring plans and provide input into the need for additional frequency, location and/or parameters for the monitoring program.</p> <p><b>b</b> – The Proponent should employ AOO citizens as Environmental Monitors during any and all phases of the Project as they have familiarity of the area from generations of traditional land use. The Proponent should provide training for these positions.</p>
5.1.2.5	<p>The batch mixing plant will require the construction of wash pits that will act as settling ponds. The Project description does not include detail regarding a liner underneath these ponds to prevent the water from contaminating local groundwater and surface water, however, in Section 9.3.3.1 there is mention of a watertight material lining.</p>	<p>The Proponent needs to provide additional clarification on the construction and details of the wash out pits as well as how their design and materials will prevent contamination of the local groundwater and surface water from the decommissioning activities.</p>
<b>AQUATIC ENVIRONMENT</b>		
5.2.2.1	<p>During the Decommissioning Execution phase, there are significant environmental risks associated with a range of activities. For example, the grout used for entombing the below-ground facilities has a low viscosity and is highly mobile; poorly managed grouting or equipment washout could result in grout entering the Ottawa River. Improper mesh over water intake could result in fish impingement during pumping from the Ottawa River. Spills or leaks from heavy equipment or refuelling activities could contaminate surface water.</p>	<p>As stewards of the lands and waters, Algonquins must have a role in the environmental monitoring of the Project. An environmental monitor from the AOO must be on-site to monitor the environmental risks during the Decommissioning Execution phase. Training and capacity funding must be provided to allow this monitor to be effective in their role.</p>
5.2.2.2	<p>Section 5.2.4.2 Identified emerald shiner, lake whitefish and lake sturgeon as VCs for the</p>	<p>All species are of importance to the AOO, therefore limiting the effects assessment to</p>

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	<p>aquatic environment. It is unclear why these species were singled out, rather than choosing all fishes as the VC. If these species were chosen as representative of the fish community then there is a clear gap in that no piscivorous fishes (e.g. northern pike, walleye, sauger, smallmouth bass, muskellunge) were not chosen as a VC. These predators play a critical role in complex riverine communities and are likely to experience different exposure pathways to contaminants and different effects from the Project than fish from other guilds. In addition, it is these piscivorous fishes that are most often targeted by AOO citizens fishing on the Ottawa River.</p>	<p>these VCs is problematic. Moreover, the lack of a piscivorous fish (fish that eat other fish that are important in the aquatic ecosystem, and important to the AOO) chosen as a VC represents a critical gap for the effects assessment of the Project. The rationale for the species chosen as aquatic VCs must be provided, and the AOO should be consulted on choosing VCs. The effects assessment for the Project must be updated with additional fish, including piscivorous fishes, as VCs.</p>
5.2.2.3	<p>There has not been any targeted data collection of benthic invertebrate abundance/diversity or of nearfield water quality downstream of the NPDWF. This baseline information is critical to characterize the current state of the environment and to evaluate the potential effects of historic activities on aquatic fauna (e.g. fishes and invertebrates). This data can then be used to evaluate any changes associated with the Project.</p> <p>For example, the nearest downstream monitoring station for radioactive contamination of surface water releases is located near the town of Deep River, several kilometers downstream. Such monitoring is unable to exclude the possibility for contamination of upstream aquatic environments and is unacceptably low level of detail for a project with this level of risk. Moreover, many non-radiological contaminants found in the WAS, including mercury, lead, dioxins/furans and PCBs were not tested for in surface water.</p>	<p><b>a</b> – CNL must complete baseline monitoring in the <u>LSA</u> for:</p> <ul style="list-style-type: none"> <li>• water quality (radiological and non-radiological); and</li> <li>• benthic invertebrates.</li> </ul> <p>This data will provide CNL and the AOO with information on the effects of historic contamination that has occurred through operation and during closure. This data will be used to evaluate the current state of these aquatic receptors.</p> <p><b>b</b> - To monitor the risks associated with future releases of contaminants and groundwater leaching, the Proponent should engage in monitoring of water quality and benthic invertebrates during the period of institutional control. Details on the locations and schedule of monitoring should be described in detail and provided to the AOO.</p> <p><b>c</b> – As stewards of the lands and waters, AOO citizens should be given the opportunity and training necessary to be included in follow-up environmental monitoring of the site.</p>

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
5.2.2.4	<p>The NPDGS began operation in 1962. Effluent from the well sump area and other activities on site have been discharged to the Kitchissippi since this time. After decommissioning, dissolved contamination will continue to reach the Kitchissippi through groundwater as the NPDWF degrades. These contaminants (radiological and non-radiological) are likely to enter the food chain and contaminate game fish that are consumed by AOO citizens. Despite this risk, no studies of fish tissues have been completed. As a result, it is unclear what the current level of contamination in fish tissues is or how that may change because of the Project. Moreover, CNL has not described any follow up monitoring of contaminants in fish tissues, therefore any spike in contaminants will not be detected.</p> <p>AOO community members regularly harvest fish in the Kitchissippi for baitfish and consumption (e.g. smallmouth bass, walleye, sauger, northern pike, whitefish and suckers). The risk of health effects from eating contaminated fish must be taken seriously.</p>	<p><b>a</b> – In order to evaluate the risk associated with contamination of fish tissues the proponent must complete baseline fish tissue analysis on the Kitchissippi. Fish should be collected – with AOO environmental monitors - at locations within the vicinity and downstream of the effluent discharge and from a reference site upstream, above the falls. A minimum of two sentinel species should be used for this tissue monitoring. Species selected should include a gamefish species (e.g. walleye, smallmouth, northern pike) and a small bodied baitfish species.</p> <p><b>b</b> – To monitor the risks associated with consumption of contaminated fish, the Proponent should engage in follow-up monitoring of fish tissues during the period of institutional control. Sampling methodology can be maintained from the initial fish tissue analysis described above. A description of proposed monitoring activities must be shared with AOO for review.</p>
5.2.2.5	<p>The determination for significance of the adverse residual effects is not reasonable. According to the Proponent’s methodology (CNL EIS, 2017, Section 2.7), a significant adverse residual effect can only occur if a moderate or high rating is applied to <b>all</b> effects criteria, including:</p> <ul style="list-style-type: none"> <li>• magnitude;</li> <li>• spatial (geographic) extent;</li> <li>• duration/timing;</li> <li>• frequency/probability; and</li> <li>• reversibility.</li> </ul> <p>Then if that is the case, the effects assessment is carried through to evaluation of effect on human health and ecological</p>	<p>A lower threshold for determination of significant adverse residual effects must be employed. Effects must also be carried forward for assessment of significance where there is a high rating is applied to <b>any</b> effects criteria</p>

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	<p>importance of VC. If additional mitigation is not possible the effect will be considered a significant adverse residual effect. According to this definition, an activity with high level of effect for magnitude; spatial (geographic) extent; duration/timing; and reversibility but low frequency/probability would not be carried forward for assessment of significance. An event that would fit this description includes a massive failure of containment resulting in contaminant release to the Kitchissippi (summarized below).</p> 	
5.2.2.6	<p>The level of radioactive releases for all contaminants measured in the Well Sump Area are several orders of magnitude higher than the Maximum Allowable Concentration (MAC) of the Health Canada Drinking Water Guidelines (CNL EIS, 2017, Table 8.3-1). For example, levels of tritium measured in the sump in 2015 were 66,100,000,000 Bq, more than 900,000 times the MAC guidelines of 7,000 Bq (Health Canada, 2007). While, the total volume of effluent released is small and mixing will occur once this water is pumped to the river, the Proponent has not completed any modeling of mixing zones to show the area where contamination would exceed these guidelines. As a result, it is unclear what downstream concentrations can be expected from these releases throughout the different phases of the Project. Secondly, the contamination from groundwater to the</p>	<p>CNL must complete dispersion modelling to assess the predicted mixing zone for all radioactive contaminants using the drinking water MAC (Health Canada, 2007) as the threshold. This should be completed for periodic discharges from the well sump area and for groundwater seepage at different periods of closure and post-closure.</p>

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	Kitchissippi has not been modelled. It is therefore unclear how the seepage plume from the facility may affect aquatic organisms as the grouted NPDWF facility degrades.	
5.2.2.7	The Derived Release Limits for the NPDWF have not been described in the EIS. These are important to share so that AOO can evaluate whether the project complies with CSA Standards N288.1-14 (CSA, 2016).	Provide the Derived Release Limits for the NPDWF.
5.2.2.8	<p>The Proponent has utilized an effects assessment protocol so that radionuclides were “screened out” of the Ecological Risk Assessment if no “dose coefficient” was available. They have stated:</p> <p><i>“In the EcoRA screening process for radiological contaminants, if the radionuclide concentration was below the no effects concentration (NEC) value, then that radionuclide was “screened out” or excluded from the assessment for the particular scenario being screened. If the radionuclide concentration was greater than the NEC value and a dose coefficient was available, then the radionuclide was “screened in” or included for assessment in the EcoRA; if a dose coefficient was not available, then the radionuclide was “screened out.” [...] “It is noted that excluding a radionuclide from assessment because a dose coefficient is not available would result in an underestimation of the total dose and perhaps any potential effects; however, the radiation dose cannot be estimated without a dose coefficient.” (CNL EIS, 2017, pp 9-8)</i></p> <p>It is unclear from the EIS how excluding these radiological contaminants will influence the</p>	The Proponent must provide additional justification for this methodological decision. The Proponent must also provide a list of all radiological contaminants that have been screened out of the risk assessment. This information is necessary for the AOO to complete its evaluation of the adequacy of the EIS.

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	evaluation of risk and potential impacts of the Project.	
<b>WILDLIFE, VEGETATION AND WETLANDS</b>		
5.3.2.1	In Table 9.6-2, the proponent states that Ventilation Stack Isolation (e.g. modification of ventilation stack for roosting requirement) will improve conditions for chimney swifts. However, Table 4.3-1 states that these activities, which will last for 16 days, are projected to start in April 2019. According to Environment and Climate Change's guidance on general nesting period of migratory birds, open field and forest dwelling birds (including chimney swifts) in region C3 arrive at their nesting sites as early as mid-April. (EIS Table 9.6-2 and Table 4.3-1)	To conservatively avoid disturbance to chimney swifts during migratory and nesting periods, the proponent should commit to completing the Ventilation Stack Isolation work before April 1 <sup>st</sup> .
5.3.2.2	As part of the mitigation measures outlined in EIS Section 9.6.3.2 (p. 9-75), the proponent has committed to avoiding tree clearing activities during the breeding bird season (April 15-August 20) wherever possible, as per the Migratory Birds Convention Act. They have also committed to conducting (tree and ground) nest surveys within 2 days of unavoidable disruptive activities that may need to occur during this time-period. (EIS 9.6.3.2)	In addition to avoiding disruptive activities (e.g. tree clearing) during the breeding bird season (April 15-August 20) and conducting nest surveys, the proponent should commit to implementing setback distances associated with medium-disturbance levels in the event that any of the avian SAR listed as present or potentially present on-site (EIS Table 8.6-3) are discovered nesting in the Site Study Area. Setback distances for the following avian SAR should be implemented: Canada warbler (300m), bobolink (250m), common nighthawk (200m), eastern wood peewee (150m), loggerhead shrike (250m), peregrine falcon (500m), eastern whip-poor-will (200m), grasshopper sparrow (250m), red-headed woodpecker (100m) (MCDL, 2014).
5.3.2.3	In EIS Section 9.6.5, the proponent outlines their plan for Terrestrial Environment monitoring and follow-up activities but does not commit to involving AOO environmental monitors in this plan. (EIS 9.6.5)	Commit to providing capacity funding to train and hire AOO environmental monitors to complete all terrestrial environment monitoring and follow-up activities (e.g. routine checks for barn swallows, monarch butterflies, bats and eastern milksnakes; chimney swift roost counts, inclement

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
		weather behavioural monitoring; work area SAR sweeps, etc.).
5.3.2.4	The installation of exclusion fencing for eastern milksnakes and other reptilian SAR present or potentially present in the SSA (e.g. snapping turtle, eastern ribbonsnake, eastern musk turtle, etc.) will only be undertaken if required. It is unclear what circumstances will trigger the installation of exclusion fencing. Further, there are few details on the proponent's planned design and installation techniques for reptilian exclusion fencing. (EIS 9.6.3.2 & Table 9.6-3)	The Proponent should provide AOO with a description of the circumstances (e.g. quantifiable targets and thresholds) under which the installation of exclusion fencing for SAR reptiles will be triggered. Otherwise, the Proponent should take a conservative approach and commit to installing exclusion fencing around the SSA in accordance with the Ontario Ministry of Natural Resource and Forestry's Reptile and Amphibian Exclusion Fencing Best Practices (OMNR, 2013). Installation of exclusion fencing should be completed prior to species emergence from hibernation.
5.3.2.5	The demolition of above-grade structures will result in the production of dust. Given the historical use of lead bricks for shielding and of lead paint on the existing structures, the dust generated will contain lead particulates. Researchers have shown that lead fallout resulting from settling atmospheric particles can occur at distances of up to 8.6 km from the source (Munksgaard and Parry, 1998). The dust produced from demolition activities will also contain radionuclides such as tritium. Most wetlands on site are less than 2 km away from the NPDWF and are therefore at risk to being exposed to contaminated dust fallout from the demolition activities. (EIS9.6.3.1/p.9-72)	<p><b>a</b> – The Draft EIS states that dust suppression will occur during demolition and material sizing activities but does not describe the methods or extent of this mitigation measure. The parameters of the proposed dust suppression methods need to be identified in order to adequately assess their potential effectiveness.</p> <p><b>b</b> – Baseline studies have determined that the prevailing winds on site are northwesterly and southeasterly, and that the wetlands present are to the west/northwest of the NPDWF footprint. To further minimize dust fallout in the wetland areas, demolition activities should not occur during high wind events or when the winds are originating from the southeast.</p> <p><b>c</b> – To ensure that wetlands are not being affected by atmospheric transport of contaminated dust, a sampling location within the wetland closest to the NPDWF should be added to the ongoing routine monitoring program. The chemical analyses of these samples should include quantitative</p>

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
		measurements of radionuclide and lead concentrations.
5.3.2.6	Monitoring and follow-up activities will be conducted during the Institutional Controls phase to confirm effects to the terrestrial environment. There are no details provided in the Draft EIS about the scope, extent, frequency, or temporal duration of this monitoring. The Draft EIS also mentions that if any parameters are above applicable guidelines or notable changes are observed, that CNL biologist(s) will be consulted. Based on the information provided it is currently unclear if future monitoring will adequately capture any potential effects to the site's wetlands. (EIS 9.6.5/p.9-90)	In close consultation with the AOO, develop and confirm details on the environmental components to be monitored, proposed monitoring locations, frequency of monitoring, threshold and trigger values, and temporal duration. The proposed program should also include monitoring locations within the wetland of closest proximity to the project site.
5.3.2.7	The Proponent has stated that the disturbed areas (e.g. non-essential roadways, NPD site) final will be restored with native vegetation once the final cap system has been completed and temporary facilities are removed (EIS Sect. 4.3.1.9). However, there are too few details on how the proponent intends to restore these disturbed areas as well as monitor them (including measures of success, monitoring intervals and scheduling) and report on progress (Sect. 9.6.3.2). Because of this, it is not possible to adequately review the proponent's restoration program. (EIS 4.3.1.9 & 9.6.3.2)	Development of the detailed site restoration plan (including specific monitoring protocols) should be completed in close consultation with AOO. Since the NPD Project Closure site falls within the unceded Algonquin Settlement Area, revegetation efforts have the potential to affect future AOO land use activities. The Proponent should also consider providing capacity funding to train and hire AOO members to complete revegetation activities and long-term environmental monitoring. Specific activities of importance to the AOO include seeding to support pollinator species, tree planting to support ungulate browsing habitat, and monitoring of flora and fauna abundance and distribution through follow-up activities.
5.3.2.8	The proponent's rationale for establishing the Terrestrial Environment RSA boundary is not clearly described in the EIS. It is also unclear what methodologies were used to characterize the wildlife distribution and abundance in the Existing Terrestrial environment and to document the SAR	<p><b>a</b> –Provide the AOO with a rationale for establishing the Terrestrial Environment RSA boundary so they may complete an informed and fulsome review of the EIS.</p> <p><b>b</b> – Provide the AOO with a description of the methodologies used to characterize the existing Terrestrial Environment, particularly</p>



Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	occurrences (e.g. juvenile eastern milksnake, eastern small-footed bat, little brown myotis, and northern myotis) within the SSA and LSA that are described in EIS Sections 8.6.2 through 8.6.4. The Proponent has based the description of the existing environment entirely on background information rather than targeted field surveys (aside from an Ecological Land Classification (ELC) that was undertaken in 2016). The baseline description of the terrestrial environment is critical for understanding the current state of environmental VCs and for evaluating the Project-related effects during follow-up monitoring. (EIS 8.6.2 – 8.6.4)	the methods used to document SAR occurrence in the SSA and LSA, so they may complete an informed and fulsome review of the EIS. If targeted field surveys were not undertaken to document baseline data (e.g. on wildlife occurrence, distribution, and habitat use), provide the AOO with a rationale as to why they were not necessary.
5.3.2.9	The Draft EIS states that the locations of the batch mixing plant, staging areas, and on-site trucking routes have not yet been finalized for this project. The proposed project activities also include the production of wastewater from runoff and wash out pit discharges. (EIS 9.6.3.4/p.9-81)	The exact locations of project activities (batch mixing plant, staging areas, etc.) need to be specified to adequately determine their potential effects on the site's terrestrial vegetation and wetland areas.
<b>TRADITIONAL LAND USE AND CULTURAL RESOURCES</b>		
5.4.2.1	The AOO were not directly consulted regarding the NPD Project until an express request was made to be included in the consultation record for this project despite the project being located directly within the Proposed AOO Land Claim Settlement Area.	Continue to engage the AOO and ensure said engagement is conducted using best practices on engaging Indigenous peoples. This includes but is not limited to the provision of adequate capacity funding for participation, establishing or following a communications protocol as set out by the AOO, and providing information in an accessible and timely manner.
5.4.2.2	AOO was not initially provided with adequate notice to participate in the Stage 1 archaeological assessment field visit as outlined in communications between CNL and AOO on November 9, 2016 despite express requests for such engagement.	Provide adequate notice and capacity resources for AOO to participate in archaeological site visits/ field assessments from this point forward with the NPD project. This includes directly engaging with Archaeological Liaisons identified by and serving as representatives of the AOO.
5.4.2.3	No AOO specific Aboriginal Engagement Plan has been developed on how CNL will	Work with AOO Consultation Staff on developing an AOO-specific Aboriginal

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	continue to conduct its engagement with the AOO, including how CNL intends to incorporate AOO-specific TLRU values or how AOO will be involved in environmental monitoring or emergency response.	Engagement Plan that includes establishing a clear communications protocol between CNL and the AOO, provides a schedule for engagement opportunities between CNL and the AOO, and identifies what opportunities will be provided for further input on the project.
5.4.2.4	CNL has acknowledged that the NPD project is within the unceded AOO Land Claim Settlement Area and recognizes that there is potential AOO traditional land and resource use happening within the RSA and in some cases the LSA. However, there are no specific harvesting, cultural, and/ or ecological values that have been identified nor is it evident how CNL plans to incorporate AOO TLRU in a meaningful way beyond acknowledging the potential that it is occurring. This lack of consultation and engagement for the collection of TLRU and Algonquin Ecological Knowledge (AEK) is unacceptable.	Incorporate AOO-specific harvesting, cultural, and/ or ecological values into project planning, monitoring, and emergency response either through engaging the AOO in conducting a TLRU study or other methodology (i.e. community cultural values mapping; oral history study etc.) decided upon by the AOO for sharing TLRU information related to the NPD project. This information is best collected at early phases of the Project. Despite having failed to collect this information early, the CNL must collaborate with AOO for the collection of TLRU before the EA process continues. In summary, CNL must provide adequate capacity funding for AOO to conduct an Algonquin Knowledge and Land Use Study in order to better understand Algonquin land use patterns.
5.4.2.5	The current proposed mitigation measures around TLRU values are very generic, limited in scope, and lack details on how AOO-specific values and cultural resources will be mitigated for in the SSA, LSA, and RSA.	Engage and consult with the AOO regarding the development of AOO-specific mitigation measures that ensure cultural resources, harvesting locations, and areas of traditional ecological knowledge significance are properly protected and mitigated.
5.4.2.6	The mitigation measure around construction scheduling is vague, simply stating, “construction activities scheduling that will generally occur between 7 am and 7 pm with the overall objective of minimizing nuisance effects.” The EIS also goes on to state that this mitigation measure will ensure construction activities will not interfere with	Engage and consult the AOO on developing specific measures to minimize nuisance effects of construction on TLRU including traditionally important species and their habitat.

Comment #	Issue/ Information Gap	Accommodation/ Information Requirement
	TLRU activities or cause disturbance to species and wildlife.	
5.4.2.7	At this point no environmental effects monitoring for TLRU impacts is planned despite the EIS stating there is potential TLRU within the RSA as well as harvesting occurring within MNRF Wildlife Management Area #48 which intersects with the SSA.	Work with the AOO on developing an AOO-specific environmental effects monitoring plan and program for protecting and mitigating areas of AOO traditional land use and areas of cultural significance to the AOO.
5.4.2.8	In the trapping section of the TLRU section, CNL identifies that there are 2 registered trapline holders within the RSA. However, it is not clear if the traplines are held by AOO citizens or if mitigation or compensation measures have been developed for those trapline holders if necessary.	Ensure the trapline holders within the RSA are adequately accommodated and compensated for any impacts experienced as a result of the project.
<b>ARCHEOLOGICAL RESOURCES</b>		
5.5.2.1	The AOO have reviewed the Stage 1 Archaeological Report and wish to develop a deeper understanding of the archaeological potential on the NPD property. We understand no activities are planned outside of the NPDWF, however due to the significant disturbance of cultural heritage resources during NPD construction, it is important for AOO to understand and preserve the remaining Algonquin cultural heritage resources on the NPD site. Based on the findings of the Stage 1 Archaeological Report, the potential for archaeological resources on the NPD property is high, and the site has value from an archaeological research perspective.	CNL, in collaboration with AOO should undertake additional field research at the NPD property for areas that have demonstrated high archaeological potential (e.g. relic shorelines) in the Stage 1 Archaeological Report and modelling. The AOO recommends that the NPD property be further investigated by the CNL Archaeological Field School in order to better understand the site and build capacity within AOO members for cultural heritage research.
5.5.2.2	The Algonquins have lost a significant part of their history through development of the NPD property.	CNL should negotiate a long-term archaeological agreement with the AOO, which will provide educational, training, and research related to remaining AOO cultural heritage resources on the site.
5.5.2.3	In regard to archaeological resources within the NPDWF site, the AOO wish to play a	The AOO requires that CNL provide an archaeological monitor chosen by the AOO to

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	<p>direct role in the monitoring of the site during construction and decommissioning activities. Although there has been extensive disturbance at the NPDWF, there is potential for archaeological resources to be present within the decommissioning footprint. Past disturbance and use of a site does not discharge CNL from its obligation to protect any artifacts that may still be existing.</p>	<p>oversee construction activities at NPDWF to ensure that Algonquin archaeological resources are properly identified and protected during construction.</p>
<b>ECOLOGICAL AND HUMAN HEALTH RISK ASSESSMENT</b>		
5.6.2.1	<p>Insufficient discussion of alternatives to In-situ Decommissioning</p>	<p>Provide detailed assessments of the alternatives in the EIS, and provide the AOO with a workshop on alternatives, so that AOO can evaluate the options and their strengths and weaknesses. The topics should include cost, liability, the magnitude and timing of risks to human health and non-human species.</p>
5.6.2.2	<p>Inadequate characterisation of the NPD Environment</p>	<p>The proponent should conduct a detailed environmental survey of the physical, chemical, and biological conditions of the NPD, in close collaboration with the AOO. Much of the physical environment is mapped, but the chemical composition of groundwater, surface water, sediment, and the receiving environment are missing. The results will help reviewers to interpret the conditions of the receiving environment and the importance of water quality factors in transport in groundwater, through sediment and in the water column. Biological surveys conducted with the AOO will establish the species present, their numbers, distribution and timing on the NPD site, and importance of those species, habitats and activities to the AOO.</p>
5.6.2.3	<p>The Ecological Risk Report does not include the second iteration of the models (as described above).</p>	<p>The ecoRisk report needs to be amended to incorporate the second iteration of models and the re-interpretation of results. A full suite of radionuclides should be included in the estimation of dose in VCs and the VCs</p>

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		reconsidered to include fish important to the AOO, sport fish and potentially commercial fish. The doses to such fish might be lower than those species associated with the sediment but will provide information to those actively using the resource.
5.6.2.4	Algonquin Scenarios of Land Use and Interpretation of Results.	A greater effort must be made to engage AOO in the development of critical group scenarios and resource use. Models of AOO citizen exposure and dose should be discussed with AOO to determine if they are accurate and feedback encouraged. The maximum dose from the NPD is expected to be in the hunter and that information should be communicated to the AOO.
5.6.2.5	<p>Several terms used throughout the EIS are unclear as to their meaning and need to be better defined for a full evaluation. For example:</p> <p>Disposal:           the term is used throughout the EIS but the proposed decommissioning does not “dispose” radioactivity and places it into long-term storage to allow it to seep into the surface environment. The term “disposal” suggests the removal of the radioactivity from the biosphere (such as placing it deep in the Canadian Shield or in the deep ocean) but the <i>in-situ</i> decommissioning just delays its release to the receiving environment.</p> <p>Normal Evolution: the term is used in all model simulations for human health and ecological risk assessment. The term implies that the physical, chemical,</p>	CNL must provide additional description for the terms used. CNL must provide responses to the issues noted above.

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	<p>biological, and socio-economic environment hundreds and thousands of years in the future are predictable and largely the same as it is today. There is no way to test this, making the estimation of effects to humans and non-human species difficult to validate.</p> <p>Cumulative effects: The EIS does not conduct an assessment of cumulative effects because no impacts are predicted from the releases of radioactivity and non-radioactive contaminants from the facility. An analysis should be conducted on the release from NPD with those from the Chalk River Laboratories and other industries and cities on the Ottawa River. Also, an assessment of the overall NPD site, including all sources of contamination (landfills, wetlands, stored materials, etc.) should be conducted.</p> <p>Institutional Control and Post Closure: What is involved with Institutional Control? Security and monitoring of the site, verification and validation of modelling scenarios, in particular the release of tritium after 40 years? Will monitoring be continued in the Post Closure period and, if so, for how long?</p>	

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	<p>Commitments on programs need to be scoped out before decommissioning is considered, although programs can be altered or suspended at any time.</p>	
5.6.2.6	<p>As described above, the description of the chemical and biological environment at the NPD is very weak and the most basic environmental quality data have not been collected or reported in the EIS. Data from the Chalk River Lab is used in the place of site specific data but appears to be inappropriate. For example, the chemistry and level of contamination of groundwater at CRL is probably different from NPD. Other examples include:</p> <p>EIS, pp 8-16- "Climate normals on bright sunshine and cloud cover are not available at or near the CRL or NPD sites."</p> <p>EIS, pp 8-18- "Climate normals on atmospheric pressure data are not available at or near the CRL or NPD sites."</p> <p>EIS, pp 8-29- "Measurements of noise along Highway 17 in the Regional Study Area are not available; however, outdoor noise at receptors close to the highway is likely to range from 50-70 dBA, depending on traffic volume (CHC 2016)."</p> <p>EIS, pp 8-45- "Chemical levels in surface water in the part of the Ottawa River located in the Site and Local Study Areas are not available."</p> <p>EIS, pp 8-51- "Chemical levels in surface water in the part of the Ottawa River located in the Regional Study Area are not available."</p>	<p>The baseline characterization of the environment is not acceptable for a Project with this level of risk. Additional information must be provided before the Environmental Assessment process can continue. Moreover, the CNL must provide responses to the issues noted above.</p>

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	<p>EIS, pp 8-51 Sediment Quality – Table 8.3-8 and 8.3-9 report data on radionuclides in sediments near the outfall but does not report data from sites P-28 (included in Table 8.3-9), P-32, P-31, P-33 or P-34 that are closest to the outfall.” Why are data from these sites not included with the others?</p> <p>EIS, pp 8-81 – Table 8.5-8 The “BH” sites (with water) located between the NPD and the shoreline have not been analyzed for a number of parameters (anions &amp; DOC, TKN, alkalinity, major cations, trace metals, volatiles and PCBs). Why is the analysis so selective? Aren’t the data on groundwater chemistry required for modelling the transport of radionuclides and other contaminants?</p> <p>EIS, pp 8-86 8.6.3 Vegetation Species and 8.6.4 Wildlife Species. Several general species lists are provided but there have been no actual surveys of species that are present on the NPD site. Are these resident species or migrating species (for birds)? Have they been identified and recorded on the NPD site? What is their distribution and numbers relative to the landscape at NPD? Chimney swifts seem to be the only species confirmed on the site.</p> <p>“As the NPD site is not currently used for traditional purposes (hunting, fishing, trapping etc) the project is not expected to affect the health of aboriginal peoples. Consultation of aboriginal peoples during the project</p>	



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	<p>was discussed in Section 2.3.” This lack of use is not surprising considering it is a controlled federal facility, however, the use of the site may change over the length of time that the radioactivity remains on the site. Land use can change significantly over time, particularly given the ongoing Algonquin Land Claim Agreement and negotiations. Traditional land use activities such as hunting, trapping, fishing, or even construction of businesses and residences by the AOO on the NPD site could be expected to occur in the future.</p>	
5.6.2.7	<p>Executive Summary Pg 12 “For example, the use of grout to fill the structure is expected to slow down the release of contaminants to groundwater and subsequently to the Kitchissippi, and allow more time for radioactive decay.” The maximum release of some nuclides, and a peak dose, will occur 40 years after decommissioning according to the Post Closure Assessment report. Other nuclides will be released much later but the peak at 40 years probably would not occur if the facility is left in its current state for several more years</p>	
5.6.2.8	<p>Executive summary - Pg 27 “The cement being considered for radioactive disposal systems is similar to early cements used by the Romans in the 3rd century or those used in Tiryns and Mycenae approximately 1,000 years earlier. These cements demonstrate little degradation over approximately 2,000 years.” This statement is misleading. Roman cement is a mix of volcanic ash and seawater which form metallic crystals. The proposed grout is based on Portland cement, which is</p>	

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	not as durable. The expected lifetime of the grout is not discussed in detail but is probably much less than 2,000 years.	
5.6.2.9	Pg 2-12 – How long will the drainage system that is currently in place function? The current design relies on the drainage system now in place to transport groundwater to the river. Presumably there is a lifespan for the system. What is expected to happen to groundwater flows when the system degrades?	
5.6.2.10	Section 5.2.2 Project-Environment Interactions –“Project-environment interactions were developed by screening potential effects of project-related activities within each relevant component of the environment. At this stage of the EA process, the identification of the potential project-environment interactions was based on the experience and professional judgement of technical specialists involved with the assessment.” Is this selection process based entirely on professional judgement of CNL and its consultants? There is no way to track or understand the reasoning behind many of the decisions taken by the technical staff. Some of these pathways are considered in the FEPs analysis of the Post Closure Assessment report. However, there is a need for the process of peer review to ensure that technical decisions have support of evidence and appropriate interpretation. That process does not appear to be followed here.	
5.6.2.11	Table 5.2-2 – Chemical COPC screening – “Baseline screening. For example, under “Soil” “The presence of these contaminants is associated with <i>natural background or past NPD operations</i> , not with NPD closure project activities [emphasis added].” The assessment needs to look at all contaminants from all	

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	<p>activities if they exceed guidelines. Similarly, high manganese in groundwater is dismissed as it is “not associated with NPD closure project activities” although there is no supporting evidence for this. Dioxins/furans in water at the base of the vault indicates transport from the landfills and incinerated waste. The high concentrations suggest a sizeable source. Given that the site will be abandoned after the reactor decommissioning, will the exceedances in soil and groundwater be taken into account even if they are not associated with the NPD assessment?</p>	
5.6.2.12	<p>Section 5.2.4.1 Selection of candidate VCs – No mention is made of aboriginal engagement in the selection of possible candidate species. Was any effort made to incorporate species important to the traditional users of the land around NPD? It appears that Aboriginal input was solicited once the VCs were decided (Pg 5-15).</p>	
5.6.2.13	<p>Table 5.2-3 Selection of VCs. The selection of fish species is problematic, and it is not clear if species important to aboriginal groups were considered. White-tailed deer is harvested by First Nations and is considered under Socio-economics and not under Traditional Land Use or Terrestrial Environment (Moose is usually a preferred species for VC selection because of the presence of aquatic plants in its diet). The activities of hunting, fishing and trapping are considered to be VCs, but not the non-human species that are involved. There are no recreational or commercial fish used as VCs, e.g., northern pike, walleye or lake trout.</p>	
5.6.2.14	<p>Table 8.3-1 In this table and many others it is not shown what “NA” indicates? Not analysed? Not available? Cesium-137 was</p>	

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	reported until 2004 ( $8.2 \times 10^4$ Bq) but not after that. If Cs-137, Co-60, etc. are not detected, it should be indicated.	
5.6.2.15	Pg 8-60 "It is noted that while some baseline characteristics of the aquatic environment have been compiled, detailed mapping (e.g., of substrate, fish habitat, and temperature) has not been carried out specifically for the NPD closure project, because no fish habitat impacts are anticipated from the project." This is a very weak argument for not determining baseline conditions of the chemical composition of the water in the receiving environment and the aquatic habitat that could potentially be affected by chemicals and dissolved solids (during the grouting process). Figure 3.1-4 indicates that the NPD is about 300 m from the shoreline which suggests that changes to the shoreline could occur during the construction of the grout plant, transport and moving materials on the site. An aquatic survey of physical, chemical, and biological conditions in the receiving water is warranted.	
5.6.2.16	10.4 Archeology Site/Local Study Area – "Historical research detailed in the Archeology TSD clearly shows there were generations of settlers on the NPD property, raising families and constructing buildings and docks." Algonquins p used the area prior to European contact and there may be areas of significance to the AOO.	
5.6.2.17	"For scenario 12 (accidental stack collapse), the resulting releases would be localized, with exposure pathways limited to on-site biota only, namely, the Chimney swifts roosting in the stack. However, Chimney swifts reside in the stack only during the night and a heavy equipment accident leading to the accidental collapse of the stack could only	

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	<p>occur during the day when heavy equipment is in operation. Therefore, it is unlikely that Chimney swifts would be present and exposed to the potential airborne and liquid releases of contaminants during a stack collapse accident.” – This is an odd argument for an assessment that should be evaluating all impacts (physical, chemical, and biological) of all stages given that the stack collapse could destroy the nests of the swift population. A stack collapse, depending on the time of year, would wipe out the colony, regardless of the time of day.</p>	
5.6.2.18	<p>Ecological Risk report Pg 2-17 “If the radionuclide concentration was greater than the NEC value and a dose coefficient was available, then the radionuclide was “screened in” or included for assessment in the EcoRA; if a dose coefficient was not available, then the radionuclide was “screened out”.” It should be possible to calculate dose coefficients based on basic principles or using analogues. Not having a dose coefficient is not a valid reason for “screening out” radionuclides. The text indicates later that this did not happen during this screening process.</p>	
5.6.2.19	<p>Ecological Risk Report Table 2.16 – Very few details of the assessment are reported. Only H-3, Co-60 and Cs-137 are reported in the table, although a large number of nuclides are present in the vault and associated structures (see Post Closure report). Also, the doses to non-human species are not reported. It appears that most nuclides have been screened out before the actual screening process of doses has occurred.</p>	
5.6.2.20	<p>Ecological Risk Report Table 2.18 – Dioxins/furans are “screened out” but the units are in mg/kg and not in Toxic</p>	

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	<p>Equivalence (TEQ) based on the congeners of the dioxins/furans present. This congener information is needed before dioxins/furans are “screened out”. See Table 9.11-5 of the EIS for TEFs for individual congeners. [Note: The USEPA uses slightly different TEFs 1,2,3,7,8-PeCDD = 1.0 and OCDD and OCDF are 0.0001].</p>	
5.6.2.21	<p>The text of the EcoRisk Report discusses a “second iteration” of risk assessment, which is presented in Appendix D of the report. This second iteration contains new scenarios and a re-analysis of data. Lead, which was a major concern from the first iteration, has become a minor component. It isn’t clear why lead is less important (an Ontario-wide value for background lead in soil was used in the first iteration but was considered incorrect because of the high risk values from the assessment. Site-specific data should have been available). In all, there is enough confusion regarding the methods and the reasons why a second assessment process was required (and placed in an Appendix and not in the main text) that the document should be redone to clarify the methods and conclusions.</p>	
5.6.2.22	<p>Post Closure Assessment Report – This is a well written report and provides some good background information for the human health and ecological risk assessment, but the assessment is centered around <i>in-situ</i> decommissioning. Alternatives were only considered as an exercise to fulfill CNSC guidelines for the EIS and were not seriously considered. There are no cost estimates or safety cases and risk assessments presented for each alternative. It appears that the minimum long-term liability for the NPD is the removal of radioactive materials and full</p>	

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	<p>decommissioning of the rest of the site. The site can then return to natural conditions or other land uses without restrictions. This is inadequate for the protection of future AOO land-users. The CNL must hold long-term liability beyond the removal of radioactive materials and full decommissioning of the site. The CNL should be liable for monitoring and remediation of the site to a state that is acceptable for safely engaging in unrestricted land use.</p>	
5.6.2.23	<p>Post Closure Assessment Report Pg 2-9 Dealing with Uncertainties – The issue of uncertainty and conservatism is often subjective, particularly in future scenarios when there are so many unknowns. Conservative relative to what? Conditions that appear to be conservative now may be closer to a realistic scenario in the future. Conservatism is often used to support an argument but there is very little support for it in the models, especially those using empirical data for transfer factors or dose coefficients.</p>	
5.6.2.24	<p>Post Closure Assessment Report - Normal Evolution Scenario. There are no time lines associated with any of the major events described in this section. It is accepted that groundwater will infiltrate the vault and associated structures and that nuclides will be transported to the river. The timing of these events is not given, although those values are given later in Section A9 (Timeframe of Interest). It is important to note that this scenario is entirely based on the natural environment as it exists in the far future and does not include socio-political changes over the centuries that might impact land use. The selection of FEPS to include in</p>	

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	the scenarios is not transparent and could be used by the proponent to justify the selection of <i>in-situ</i> decommissioning.	
5.6.2.25	Post Closure Assessment Report Figure 5-7 – This is a significant observation from the assessment. The maximum rate of release of nuclides to the river occurs at about 40 years after grouting, which is during Institutional Control. It is suggested in other parts of the EIS that the maximum release occurs far in the future. Similarly, in Figure 5-12 the maximum concentration in the river sediment occurs 40 years after grouting. The maximum of nuclides in sediment reaches 100 Bg/kg after 100 years, but is 10x higher in Fig 5-12 at 40 years. The <i>in-situ</i> decommissioning releases nuclides to the environment soon after the grouting is complete and continues to do so for several thousand years. The total amount of radioactivity released is low and the doses received by the critical group and hunter/gatherers is low.	
<b>SOCIOECONOMICS AND COMMUNITY WELL-BEING</b>		
5.7.2.1	There is no mention of the socio-economic conditions of Indigenous communities that are interacting with the NPD Project site, including AOO.	Provide an assessment of the socio-economic conditions and effects the project will have on AOO citizens interacting with the project.
5.7.2.2	There are still a number of residual nuisance effects that could impact AOO citizens through impacts to land use access for both traditional practices and economic livelihood opportunities.	Work with the AOO on identifying and implement adequate mitigation measures to eliminate nuisance effects to the greatest extent possible.
5.7.2.3	There are missing valued components that would be relevant to the socio-economic aspects of the NPD Closure Project.	Include and assess additional relevant value components such as community safety, health and wellbeing, emergency response services, and AOO-specific employment and economic development Also consider AOO-specific measures such as AOO procurement, employment, and tenants within the AOO's Agreement-in-Principle.



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5.7.2.4	CNL's EIS for the NPD project does not fully consider project-human interactions such as human resources/workforce; employment & income from the decommissioning execution phase, institution control phase, and post-institutional control phase, impacts an influx of workers (if applicable) may have on community safety, well-being, and services. As a result of these gaps, some socio-economic value components and their potential effects, have not been considered.	Evaluate the implications of the interactions described above for their impact potential - whether that includes adverse or positive potential socio-economic and well-being effects in general, and specifically, to AOO citizens.
5.7.2.5	Primary socio-economic and community wellbeing components and indicators are not considered in the effects assessment (i.e., health, education, infrastructure and services; economic development etc.). These are not described nor assessed as part of the NPD EIS.	Provide a more complete assessment and consideration of the effects on the socio-economic indicators identified in the issue above.
5.7.2.6	Opportunities for Indigenous employment or procurement, including opportunities for AOO have not been assessed or identified in the NPD EIS.	Include information regarding the ways CNL intends to engage the AOO in developing employment and procurement opportunities for the project.
5.7.2.7	There is no socio-economic effects monitoring planned for the project. Failing to monitor these effects could lead to negative impacts being amplified and positive effects not being fully realized.	Work with the AOO on developing a socio-economic program/plan for monitoring and managing the socio-economic effects of the project on AOO citizens.
5.7.2.8	One of the effects that was not able to be fully mitigated according to the EIS was impacts to the Kitchissippi (Ottawa) River shoreline landscape. Information on how shoreline impacts would be impacted were also not clearly identified.	Given the cultural significance of the Kitchissippi to AOO people, the rich history, cultural resource potential, and use of the river for fishing to this day the impacts to the shoreline must be mitigated to the greatest extent possible. Where mitigation is not possible, CNL should work with AOO on identifying appropriate accommodation and compensation to ensure impacts are fully addressed.
5.7.2.9	The CNL has not indicated how it will engage with the AOO regarding the protection of	There should be cooperation between CNL and AOO to protect future land use interests

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	AOO land use interests in the local study area.	of the AOO in local study area including potential acquisition of adjacent buffer lands.
<b>ENVIRONMENTAL MONITORING</b>		
5.8.2.1	Currently, there is no mechanism for AOO to participate in the environmental management of the NPD property (and beyond) during decommissioning, the institutional control phase and post institutional control phase. This includes opportunities for reviewing reports, providing input, on-site construction monitoring, participating in site remediation and being involved in decision making or information sharing agreements. Likewise, during decommissioning activities the NPDWF site will have environmental emissions (e.g. wastewater, dust, noise, greenhouse gases, etc.), AOO representatives are not able to participate effectively based on the contents of the EIS.	To ensure transparency and confidence in monitoring activities, there must be direct AOO involvement in CNL's Environmental Protection Program as well as the CSNC Integrated Environmental Monitoring Program (IEMP). This could be achieved by providing funding for full-time AOO monitors. This must include reasonable capacity funding for training. The monitor would be responsible for participating in design, implementation and reporting all site related monitoring and remediation initiatives. The monitors would also be able to liaise with AOO members, leadership and CNL to share information.
5.8.2.2	Monitoring of environmental receptors is crucial to ensure that potential effects from NPDWF are being managed effectively. This includes, but is not limited to, monitoring of groundwater, surface water, sediment, fish communities, fish tissues, and wildlife. Monitoring must be conducted in a manner that is transparent and inclusive of AOO. This will help AOO members to have confidence that components of the environment that they value are being monitored appropriately.	To promote the effective participation of AOO within the environmental management and monitoring programs of NPDWF we strongly suggest the creation of a Nuclear Environmental Review Board (NERB). This board should be composed of representatives from AOO, CNSC and CNL. The NERB would be responsible for overseeing all nuclear activities in the AOO Settlement Area. The NERB would also be responsible for reviewing annual reports, applications, licence renewals and other activities associated with the NPDWF. Resources must be provided to allow the NERB to dedicate the time required to complete these tasks. Secondly, the NERB should have access to funding for obtaining guidance from technical experts where appropriate. The NERB would allow for effective coordination between AOO, CNL and the CNSC. Moreover, having representatives

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		from AOO would help ensure that the rights and interests of AOO members are upheld.
5.8.2.3	It is noted within the EIS that AOO is a member of the CNL's Environmental Stewardship Council. However, this is inaccurate as currently only the Algonquins of Pikwàkanagàn have a seat on CNL's Environmental Stewardship Council.	AOO recognizes the value of the Environmental Stewardship Council and wishes to participate, however AOO believes a more fulsome environmental advisory authority should be created to oversee the various CNL facilities with the unceded Algonquin Settlement. AOO believes the role of the Environmental Stewardship Council should be expanded to provide the council with increased oversight and decision-making powers over CNL's environmental management program where appropriate. This would increase transparency related to the environmental monitoring of all CNL facilities. The NERB model proposed in Accommodation 2 should replace the Environmental Stewardship Council to create a more robust environmental oversight authority for the NPD property.
5.8.2.4	CRL must ensure that effective contingency plans are in place for extreme weather and natural hazard scenarios that may impact or damage CRL infrastructure. These incidents are expected to increase in frequency and intensity as a result of climate change, so proper contingency planning is crucial. In the event of a natural hazard (e.g. flood, ice storm, hurricane, tornado, earthquake) there is potential for contaminants (radiological and non-radiological) from the NPDWF to be released to the environment, in particular the Kitchissippi.	CNL should provide AOO with more detailed information regarding extreme weather and natural hazard contingency planning. Since the potential for extreme weather and natural hazards (e.g. tornadoes, earthquakes, flooding) is high at the NPDWF. CNL should provide more detailed discussion regarding the potential impacts of flooding at the NPDWF, and the types of releases that would occur if the NPDWF facility was inundated.
5.8.2.5	The following non-radiological hazardous substances have been identified on the NPDWF site; lead, asbestos, mercury and polychlorinated biphenyl. These designated substances have the potential to	CNL must remove all hazardous substances from the NPDWF and ensure that proper monitoring and disposal procedures are followed. AOO must be provided with all monitoring results during the active decommissioning phase to ensure regulatory

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	be released to the environment through atmospheric emissions or groundwater.	compliance with the release of designated substances. Leaving hazardous substances such as PCB's on the NPDWF does not represent best practice for the disposal of hazardous waste in Canada. Designated substances should be removed from the site and taken to appropriate waste storage facilities.
5.8.2.6	Lead, asbestos, mercury and polychlorinated biphenyl are not adequately assessed or modelled in the atmospheric environment assessment. The release of lead, asbestos, mercury and polychlorinated biphenyl during the demolition phase of the project must be monitored and managed carefully to minimize exposure to local AOO members.	Lead, asbestos, mercury and polychlorinated biphenyl should be included in the atmospheric assessment and air dispersion modelling due to their presence on the NPDWF site. CNL must provide details on how designated substances on the NPDWF site will be managed and monitored during the project.
5.8.2.7	AOO has a vested interest in ensuring that the NPD property and adjacent lands are monitored effectively and that all environmental liabilities and human health risks (on and off-site) are identified and remediated to the highest standard achievable, including, but not limited to, the Site Condition Standards for Residential/Parkland/Institutional Property Use under Ontario Reg 153/04 that would enable a Qualified Person to submit a Record of Site Condition that the Ontario Ministry of the Environment and Climate Change will accept for filing to the Environmental Site Registry.	It is paramount that AOO be meaningfully involved and informed regarding all environmental monitoring and remediation activities related to the NPD, on and off site. AOO wishes to have adjacent lands monitored to ensure that no environmental liabilities exist off the NPDWF. Given the unique position of AOO as landowners, the AOO must to play an active role in the monitoring of the NPD property (and beyond) over the course of the project. CNL must identify all environmental liabilities related to NPD on and off the project site, including adjacent lands and Kitchissippi.
<b>TOWARDS A LONG-TERM RELATIONSHIP AGREEMENT</b>		
6.1	Currently there is no formal accommodation agreement in place between AECL/CNL and the AOO regarding the past, present and future activities at the NPD site and the associated impacts and risks.	AECL/CNL should enter into negotiations with AOO to establish a Long-Term Relationship Agreement with the AOO to determine a formal approach to consultation and accommodation for NPD site moving forward. Since the NPD site lies within the unceded AOO Settlement Area, a formal

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		accommodation arrangement between AECL/CNL and the AOO is necessary.
6.2	CNL does not adequately discuss the future use and ownership of the NPD property (excluding the NPDWF). There is no discussion of potential transfer arrangements for portions of the NPD property. As noted previously, the AOO is interested in obtaining the remaining 364 hectares (900 acres) of the NPD property after CNL decommissioning and rehabilitation work is completed.	CNL and AECL must enter into formal discussions with AOO regarding potential land transfer arrangements for portions of the NPD property. CNL and AECL must also commit to obtaining a Record of Site Condition (RSC) under Ontario Reg. 153/04 for Residential/Parkland/Institutional Property Use Site Condition Standards in order to initiate the land transfer process.