CNL Table: Consolidated Public and Indigenous Groups' Comments on the Nuclear Power Demonstration (NPD) Closure Project Draft EIS

Tableau pour les LNC: Commentaires consolidés du public et des groupes autochtones sur l'ébauche de l'EIE du Projet de fermeture du réacteur nucléaire de démonstration (RND)

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Note: Please provide detailed responses to the following comments and questions in the official language chosen by the commenter (French or bilingual comments are highlighted in light green). If any do not fall within the scope of the project, please provide justification. Comments submitted of general support or opposition to the project have been noted, but are not reflected below. *Note: Veuillez fournir des réponses détaillées aux commentaires et aux questions ci-dessous dans la langue officielle choisie par l'intervenant (les commentaires en français ou bilingues sont soulignés en vert pâle). Si un commentaire est considéré hors de la portée du projet, veuillez fournir une justification. Les commentaires généraux de soutien ou d'opposition au projet ont été constatés, mais ne se reflètent pas ci-dessous.*				
Executive Summary / Sommaire exécutif				
1.	Northwatch (Feb. 19, 2018)	Section 2.1 (2-1) Also applicable to Section 3.1 (3-1)	The commenter notes that in the opening page of both the Executive Summary and the Project Description sections of the draft Environmental Impact Statement (EIS), Canadian Nuclear Laboratories (CNL) erroneously identifies the project as being located in Rolphton Township, rather than Rolph Township, and requests that the draft EIS be revised accordingly.	
2.	William Turner (Feb. 9, 2018)	Section 2.2.1 (2-3)	This section of the draft EIS states: "The purpose of the project is to safely carry out the decommissioning of the Nuclear Power Demonstration Waste Facility (NPDWF) using the in-situ decommissioning approach to isolate the contaminated systems and components inside the below-grade structure." The commenter notes that the purpose of the project as stated includes the proposed solution, that is, in-situ decommissioning (ISD). The commenter argues that by conflating the solution with the purpose, all other decommissioning approaches "… to isolate the contaminated systems and components…" are eliminated from consideration, and therefore, CNL is out of compliance with Section 19(1)(g) of the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), which corresponds to the "alternative means of carrying out the designated project …".	
3.	Métis Nation of Ontario (MNO) (Feb. 14, 2018)	Section 2.2.2 (2-4)	This section of the draft EIS states: "Although each of the four alternative means were determined to be technically feasible based on the use of reliable technology, regulatory compliance, and cost, the in-situ decommissioning offers a lower risk option than all other alternatives." The MNO expresses the concern that they had no opportunity to provide input into the four alternatives proposed or the preferred approach selected. As the ISD approach selected has implications for Métis future use of the CNL site in the exercise of their rights, consultation should have occurred to allow CNL to have a fulsome assessment of the alternatives.	
4.	Concerned Citizens of Renfrew County and Area (CCRCA) (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 2.2.2 (2-4)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "…the in-situ decommissioning offers a lower risk option than all other alternatives. This is because differences between the other alternative means are more pronounced during future time periods where disruptive events and long-term environmental processes occur. These alternative options have greater risks of effects from these events or processes since the waste would be stored above ground. In-situ decommissioning involves emplacement and grouting of waste below ground, thereby limiting the risks." The CCRCA finds that this reasoning is flawed. The assumption that waste arising from reactor dismantling would be stored above ground is unjustified. Long-term storage of radioactive waste	

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			above ground would indeed be unacceptable, but an alternative exists: the placement of waste below ground in a geological repository. Mr. Ryan echoes these concerns.	
5.	MNO (Feb. 14, 2018)	Section 2.3 (2-6)	This section of the draft EIS states: "The Local Study Area goes beyond the Site Study Area and includes the entire Nuclear Power Demonstration (NPD) property, and also extends 50 m into the Ottawa River. The Local Study Area is defined to encompass any measurable effects of the project." The MNO requests that CNL explain why the Local Study Area does not vary between environmental components. The MNO finds this problematic as, for example, measurable effects for wildlife often differ from that of atmospheric conditions.	
6.	MNO (Feb. 14, 2018)	Section 2.3 (2-8)	This section of the draft EIS states: "Institutional Controls, or an estimated period of about 100 years following the Decommissioning Execution phase, where long-term care and maintenance and oversight would be performed by CNL." The MNO poses the following question: Is 100 years sufficient for Institutional Controls as short-lived wastes have a decay period of 100 to 300 years? Sr-90, Cs-137, Co-60 and other relatively short-lived radionuclides have up to 300-year decay periods. The realistic Institutional Controls period is usually considered to be between 100 and 300 years for a site where waste has short decay periods and unrestricted site access may be permitted. For long-lived radionuclides, such as Tc-99, I-129, that extend well beyond the Institutional Controls period, the safety requirements should be more rigorous and may preclude on-site disposal [1]. Reference: [1] International Atomic Energy Agency (IAEA). (1999). *On-site Disposal as a Decommissioning Strategy*. IAEA-TECDOC-1124, IAEA. Vienna.	
7.	Algonquins of Ontario (AOO) (Feb. 26, 2018) CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 2.4 (2-9)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* In response to the question "how will the Ottawa River be protected?", the draft EIS states that "the use of grout to fill the structure is expected to slow down the release of contaminants to groundwater and subsequently to the Ottawa River." The CCRCA explains that the response above fails to address concerns about the burden on future generations of abandoning significant quantities of long-lived radionuclides and non-radioactive wastes, such as lead, asbestos, Polychlorinated Biphenyl (PCBs) and mercury in a near-surface facility 120 meters from the Ottawa River. Mr. Ryan echoes these concerns. Also in relation to the response provided above, the AOO express the concern that the maximum release of some nuclides, and a peak dose, will occur 40 years after decommissioning, according to the Post Closure Safety Assessment Technical Supporting Document (TSD). 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.	
8.	MNO (Feb. 14, 2018)	Section 2.5 (2-10)	This section of the draft EIS lists the engagement activities conducted by CNL with First Nations and Métis communities.	

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			The MNO indicates that these engagement activities are stakeholder engagement practices and are not equivalent to meaningful Aboriginal consultation. The consultation process with the rights-bearing MNO should be direct with the Nation, in accordance with their governance structures and regional consultation protocols, and a reciprocal process. A work plan to formalize the engagement process with MNO has not been developed. Further, the MNO provides the following explanation for why some of the listed activities are inappropriate as Aboriginal engagement: • Newspaper advertisements: notifications must be direct and plain language • The Environmental Stewardship Council Meetings: not project-specific and does not directly relate to adverse impacts from the project • Public information sessions: reliance on public participation cannot be used to fulfill the duty to consult. There must be MNO-specific information sessions with easily accessible and plain language documentation • Media notifications/releases: reliance on public participation cannot be used to fulfill the duty to consult. There must be MNO-specific information sessions with easily accessible and plain language documentation • Webpage content: generic webpage content cannot be a substitute for a separate, distinct and reciprocal consultation process • Capacity assistance and in-kind access to the technical expertise of CNL staff o This is not sufficient, particularly the "in kind access to the technical expertise of CNL staff" who cannot act as representatives or advocates for the MNO position. o Sufficient capacity includes enough funding to secure expertise, participate in meetings, review materials, collect information from citizens and present that information in a coherent and concise way. The capacity assistance listed does not achieve this.	
9.	MNO (Feb. 14, 2018)	Section 2.5 (2-10)	The MNO explains that they were not engaged by CNL in the identification of potential impacts of the NPD Closure Project. Rather, meetings focused on potential issues and concerns which cannot be used as a proxy for the identification of impacts.	
10.	MNO (Feb. 14, 2018)	Section 2.5 (2-11)	The MNO notes that references to "First Nation and Métis communities" in the draft EIS are disaggregated. Instead, they request that CNL identify where/when community presentations were completed; where copies of technical studies were provided; and where technical meetings were requested and completed.	
11.	MNO (Feb. 14, 2018)	Section 2.5 (2-11) Also applicable to Section 7.6 (7-30)	This section of the draft EIS states: "CNL has also provided opportunities for participation of First Nations community members in archaeological assessment field studies undertaken as part of the project." The MNO explains that the archaeological assessment field studies did not include the	

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			participation of MNO citizens, despite the MNO requesting capacity to review the archaeological assessment. This leaves the project potentially lacking information about Métis-specific heritage resources.	
12.	MNO (Feb. 14, 2018)	Section 2.5 (2-11)	This section of the draft EIS states: "Through these engagement activities, biodiversity and cultural heritage studies have been identified as topics of interest. In response, 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; and, • Shared updated project information with communities and/or organizations at periodic intervals" The MNO notes that the activities undertaken by CNL in response to topics of interest being identified are insufficient. Providing relevant information and updates regarding biodiversity and cultural heritage studies does not constitute meaningful consultation as it is a one-way dialogue with limited access to qualified and professional support. More importantly, these engagement activities did not occur with the MNO; therefore, by aggregating and generalizing these types of statements, it provides a misleading account of the level of consultation with the MNO. Where interest was expressed, the MNO expects: • Involvement in collection of baseline data for areas of interest • Collection of Métis specific information related to areas of interest • Integration of Métis specific information into the EIS • Collaborative identification of mitigation measures, where applicable	
13.	MNO (Feb. 14, 2018)	Section 2.6.2 (2-12)	This section of the draft EIS states: "There are numerous lakes in the region and due to regional topography, these lakes eventually drain into the Ottawa River. The EIS summarizes radionuclide content of sediment in the Ottawa River near the NPD site". The MNO poses the following question: What is meant by "the Ottawa River near the NPD site"? The Ottawa River is one of the major areas where MNO Citizens fish. Trout, perch and smelt, which are important (but not the only) Métis harvested species, have been identified as ecological receptors [1]. The project effects and sediment quality may interact with Métis rights to fish. Reference: [1] Matthew J. Bond, Renee Silke, Marilyne Stuart, Jamie Carr, and David J. Rowan. (2015). *A Weight-of-Evidence Approach to the Assessment of Ecological Risk from Historical Contamination of Ottawa River Sediments near Chalk River Laboratories*	
14.	MNO (Feb. 14, 2018)	Section 2.6.8 (2-14)	This section of the draft EIS states: "While access to the NPD site is currently restricted, it is likely that Aboriginal people and possibly their ancestors living in the Ottawa Valley undertook traditional activities such as: hunting, fishing, trapping, and gathering."	

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			While the MNO is aware that the NPD site is currently restricted, there are potential impacts to Aboriginal use in the vicinity of the project site that have not been considered by CNL, including perceptive effects and intangible effects to Métis way-of-life, not to mention the effects from dust and noise on aquatic species of importance that may extend beyond the property line. The MNO requests that these effects be considered, assessed and addressed by CNL prior to project approval.	
15.	MNO (Feb. 14, 2018)	Section 2.7.1 (2-15)	This section of the draft EIS states: "Valued components (VCs) are environmental features considered that may be affected by the project and were identified to be of importance by the proponent, government agencies, Aboriginal peoples, and/or members of the public." The MNO explains that they were not consulted on or provided input to the VCs listed within this section. This is of particular concern in relation to the terrestrial environment (vegetation species selected, mammal species selected and bird species selected), the aquatic environment (fish species selected), the human health assessment and the socio-economic environment.	
16.	Erwin Dreessen (Feb. 7, 2018)	Section 2.7.1 (2-15 to 2-16)	The commenter highlights that the VC discussion avoids mentioning drinking water. In fact, the term "drinking water" does not appear in the document.	
17.	William Turner (Feb. 9, 2018)	Section 2.7.1, Figure 2.7-1 (2-16) Also applicable to Section 5.2.4 (5-14 to 5-21)	The commenter is of the perspective that the VCs presented in Figure 2.7-1 are unlikely to remain the same over the 100-year Institutional Controls period, with the exception of the Human Health VCs. This figure ignores the effects of time on each of the VCs. As to what can happen to VCs over a 100-year period, one just has to consider what these components were like 100 years ago. Since the future is even more uncertain than the past, projections over the next 100 years is considerably more problematic. As such, the commenter is of the opinion that including these as VCs is somewhat meaningless given that the project can do very little to maintain these components over the 100-year project schedule.	
18.	MNO (Feb. 14, 2018)	Section 2.7.2 (2-17)	This section of the draft EIS states: "Project activities will result in vehicle and equipment exhaust and greenhouse gas emissions, as well as noise and dust generation, and air displacement from within the facility." The MNO requests input into the monitoring and mitigation of the dust, which may contain radiological and hazardous components, in order to ensure that the dust does not extend beyond the project footprint.	
19.	Erwin Dreessen (Feb. 7, 2018)	Section 2.7.3 (2-17)	This section of the draft EIS states: "In the Institutional Controls and Post-Institutional Controls phases, groundwater that comes into contact with the grouted facility may contain low levels of soluble contaminants that can potentially reach the surface water environment. In-design mitigation measures (i.e., containment and isolation of contaminants) will reduce the potential for the release of soluble contaminants to groundwater and eventually surface water." The commenter finds no further information about these in-design mitigation measures. However, the containment and isolation is only expected to "slow down" release of contaminants, and as such, the commenter is of the opinion that the effectiveness of this "mitigation" is questionable.	

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20.	MNO (Feb. 14, 2018)	Section 2.7.6 (2-19)	This section of the draft EIS states: "Project activities, such as demolition and operation of machinery and vehicles, have the potential to affect terrestrial biota, through creation of dust, noise, vibration and encroachment and potentially mortality from transportation." The MNO expresses the concern that CNL did not consider the terrestrial biodiversity from their perspective. There is no mention of species of importance to MNO Citizens for hunting and trapping, or vegetation for gathering. Moose and river otter have been identified as ecological receptors, which are important Métis harvested species [1]. A Métis-specific traditional land use study should be completed to provide CNL insight into the Métis perspective on terrestrial resources. Reference: [1] Matthew J. Bond, Renee Silke, Marilyne Stuart, Jamie Carr, and David J. Rowan. (2015). *A Weight-of-Evidence Approach to the Assessment of Ecological Risk from Historical Contamination of Ottawa River Sediments near Chalk River Laboratories*	
21.	MNO (Feb. 14, 2018)	Section 2.7.9 (2-20)	This section of the draft EIS states: "Decommissioning Execution activities could produce nuisance effects (i.e., noise and dust) for nearby hunting, trapping, fishing and gathering activities. Mitigation measures in other environmental components, such as dust suppression, timing decommissioning activities and periodic communication updates will be carried out to reduce potential effects on Aboriginal land and resource use." The MNO is of the opinion that limiting the effects to the current use of lands and resources for traditional purposes is not reflective of other aspects, as stated under Section 5(1)(c) of CEAA 2012. All the aspects under that section must be considered specifically for the MNO. [Please refer to comment no.14 of the MNO's submission for the quote referenced from Section 5(1)(c) of CEAA 2012.]	
22.	MNO (Feb. 14, 2018)	Section 2.8.2 (2-23)	This section of the draft EIS states: "The EIS highlights areas of uncertainty (e.g., contaminant concentrations, contaminant transport characteristics, land use near NPD, etc.) that could affect the EIS findings." The MNO notices that the ISD requires a meticulous on-site transportation planning and system to move contaminants, not to mention some other noticeable risks, such as erosion protection, indigenous vegetation, water table level [1]. Transportation is recognized as one of the uncertainties; however, it is unclear how it is to be addressed with regards to the specific effects on Métis people. The MNO expresses the concern that the listed processes do not consider the potential risk, noise, traffic volumes, travel routes, access and other inconveniences to Métis harvesters who may be exercising their rights in the vicinity. In addition, there is no existing traditional land use study undertaken with the MNO, putting Métis harvesters at a disadvantage. The MNO requests that CNL obtain traditional land use information to identify areas of importance to MNO Citizens to allow for better planning of transportation activities.	

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			Reference: [1] IAEA. (1999). *On-site Disposal as a Decommissioning Strategy*. IAEA-TECDOC-1124, IAEA. Vienna.	
23.	Erwin Dreessen (Feb. 7, 2018)	General	The commenter indicates that the same sentence is repeatedly used throughout the report for the different environmental components, for example: "Changes in the atmospheric environment were considered in the assessment of effects on VCs in the aquatic, terrestrial, and socio-economic environments as well as human health and Aboriginal land and resource use (described below). These changes are not expected to result in any adverse residual effects on VCs." The commenter is of the opinion that such "robotic reporting cannot be taken seriously as genuinely resulting from scientific analysis".	
Introduction				
Location of the project / Emplacement du projet				
24.	For the list of commenters on this specific topic, please refer to Appendix A.	Section 3.1 (3-1 to 3-2)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Most commenters express their concerns that the proposed NPD Closure Project is too close to the Ottawa River. They note that CNL is proposing a disposal site that is (1) only 400 meters from the Ottawa River, which has been designated as a Heritage River, (2) is a major source of drinking water for millions of Canadians downstream in Ontario and Quebec, and (3) is geologically unstable (i.e., on a major fault line). To highlight the importance of the Ottawa River, Eva Schacherl states: "Many Canadians do not realize that the Ottawa River is the second largest river in Eastern Canada and flows into the St. Lawrence River – the largest. The Ottawa River's watershed is over 145,000 square kilometres – larger than Switzerland, and the river system contains as much water as all of the freshwater in western Europe. Its significance to Canada cannot be overstated. In-situ decommissioning of the NPD reactor site endangers the health and safety of the Ottawa River watershed, its millions of human residents and many species." The commenters also express their concern with the radioactive materials and other toxic waste that will be entombed and abandoned within 400 meters of the Ottawa River. CNL indicates that "there is a potential for radionuclide releases to the groundwater from the in-situ decommissioned reactor and radionuclide migration to the Ottawa River." The identified long-lived radionuclides and other hazardous waste substances including lead, mercury, asbestos, and PCBs could leak into the Ottawa River. After deterioration of the concrete and grout, and/or during earthquakes, floods, other extreme weather events, or dam breaks, leaks from the radioactive "mausoleum" would enter the Ottawa River contaminating drinking water for millions. The commenters conclude that long-lived radioactive wastes must be stored in state-of-the art facilities, far away from drinking water sources, to ensure that they are kept out of the air and drinking water for as long as they remain hazardous.	

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25.	Elssa Martinez (13 février 2018)	Section 3.1 (3-1 à 3-2)	Le commentateur est d'avis que le projet tel que proposé par les Laboratoires Nucléaires Canadiens (LNC) expose les populations qui vivent à proximité de la rivière des Outaouais d'une contamination radioactive. Dans leur propre description du projet, les LNC stipulent : « (qu') il y a un risque de rejets de radionucléides dans les eaux souterraines par le réacteur déclassé et la migration des radionucléides dans la rivière des Outaouais. »	
26.	MNO (Feb. 14, 2018)	Section 3.1 (3-2)	This section of the draft EIS states: "More information on Aboriginal communities and traditional Aboriginal territories, treaty and reserve lands, and Métis harvesting regions are discussed in greater detail in Section 7 of this EIS." The MNO expresses the concern that there is no description of the Aboriginal rights practiced in the vicinity of the project. This is despite a description of the public uses, including hunting and fishing. The MNO is also concerned with the fact that no further details about MNO harvesting regions were found in Section 7 (Aboriginal Consultation) of the draft EIS.	
27.	Northwatch (Feb. 19, 2018)	Section 3.1 (3-2)	This section of the draft EIS describes the project site as being in a remote location: "The site is in a remote area, with relatively low population density." In the same section, the draft EIS identifies the site as having area residents living only 1 km away, and acknowledge that the hamlet of Rapides-des-Joachims is only 3 km away with a year round population of 170 residents (no estimate is provided of season residents or short-term visitors in this major recreational centre) and an additional 7,000 residents living downstream within approximately 20 km on the Ontario side of the Ottawa River (no population numbers are provided for Quebec residents in this section). The commenter poses the following question: On what basis and for what purpose does CNL describe this site as "remote"? While the commenter would agree that the area has a "relatively low population density" – this is the case relative to urban centres – it does not by default make this site "remote". The commenter's experiences and observations in northern Ontario is that the term "remote" is on occasion used by proponents who wish to suggest that the consequence of harm will be less serious if there are fewer people in the area to be affected by adverse outcomes. Based on their assessment, the commenter argues that the NPD site does not match any of the accepted definitions of "remote" and the selection of "remote" as a descriptor in this instance is both dismissive and erroneous.	
28.	Canadian Environmental Law Association (CELA) (Feb. 13, 2018)	Section 3.1.1 (3-4)	The commenter explains that, while the draft EIS includes some references to the Historical Site Assessment (King 2016), it does not seek to respond to the gaps or information deficiencies identified in the assessment. The Historical Site Assessment qualifies its conclusions within identified data gaps and specific paucities of information. The language of the text alludes to gaps and also further areas for study, as illustrated by the following statements: • "Based on available information" • "If re-sampled, the groundwater analyze list should include" • "Existing data set is limited too….and future characterization efforts should" • "A robust random/systematic sampling campaign should be performed to quantify the surface contamination levels" • "A robust random/systematic sampling campaign should be performed to quantify the	

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			surface and volumetric contamination levels" Based on the foregoing, the commenter requests that CNL: • Provide an update on the Historical Site Assessment and comment on the extent to which the suggestions for "future study" or gaps identified will be responded to • Explain how, given the identified data gaps, adequate contingency planning for unexpected wastes, hazards or structural defects can be established [Please refer to CELA's submission (Information Request no. 30) for more information.]	
29.	Northwatch (Feb. 19, 2018)	Section 3.1.1 (3-4)	This section of the draft EIS states: "...three underground storage tanks, used for diesel, heating furnace oil, and radiological liquid waste, were located on the NPD site, but have since been removed and the surrounding soil remediated (King 2016)." The commenter notes that an almost identical statement is included in the last paragraph of Section 3.3.1 of the draft EIS, but no additional information is included. In particular, the draft EIS does not characterize the radiological liquid waste or describe the method or extent (and end state) or the remediation effort. This information is necessary to understanding site conditions, and should be included in the draft EIS. The commenter requests that CNL provide a detailed description of the radiological liquid waste tank, details of its removal, and a detailed description of the residual site conditions. An exact location should also be included, and soil monitoring results.	
30.	Bonnechere River Watershed Project (Feb. 13, 2018) Northwatch (Feb. 19, 2018)	Section 3.1.1 (3-4)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "Ontario Hydro then turned over ownership of the facility and compliance responsibilities to Atomic Energy of Canada Limited (AECL), a federal corporation in September 1988 (Wills 2013)…" Northwatch points out that this statement is erroneous since the facility was never owned by Ontario Power Generation (OPG); rather, since construction, it was owned by AECL and operated by Ontario Hydro (now OPG). As with the errors in describing the location, this error may not be significant from a technical perspective, but does signal a sloppiness that is of increasing concern as the EIS moves from the general information to the more substantive descriptions and as the project potentially moves from application to operation. The Bonnechere River Watershed Project echoes this concern.	
Project Overview / Aperçu du projet				
31.	Northwatch (Feb. 19, 2018)	Section 3.2 (3-8)	This section of the draft EIS states: "The total residual radioactivity by 2018 will have decayed to 4.7 x 10^{13} Bq and is dominated by long-lived beta and gamma radionuclides." The commenter highlights the fact that in numerous locations, including in this example, CNL makes statements with respect to the predicted or estimated radioactivity, and acknowledges that some levels of radioactivity are measured, while others are estimated. However, in many instances, CNL does not indicate whether the level being communicated is measured or estimated. The commenter requests that CNL clearly states, in each instance where a level of radioactivity is	

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			communicated, whether that level is a result of measurement or estimation, and the methods used for that measurement or estimation.	
32.	AOO (Feb. 26, 2018)	Section 3.3.1 (3-10)	This section of the draft EIS states: "There are also buried utilities and drainage systems onsite, some of which are still in use." The AOO poses the following questions: • 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? The AOO requests that further information to respond to these questions be provided in the draft EIS.	
Applicant Organization / Organisme demandeur				
33.	CCNR (Feb. 13, 2018) CCRCA (Feb. 8, 2018) CELA (Feb. 13, 2018) Fred Ryan (Feb. 12, 2018)	Section 3.4 (3-13)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "…CNL is the licensee for the NPDWF, and is the proponent for this project. CNL is a private sector company that is contractually responsible for the management and operation of AECL's nuclear sites, facilities and assets, including the NPD site, and for the performance of AECL's waste and decommissioning responsibilities, under a Government-owned, Contractor-operated (GoCo) model." The commenters question whether CNL is the most appropriate proponent for this project. It is understood that the Rolphton site will be returned to AECL for Institutional Control. With the proposed entombment, CNL appears to be making commitments on the part of AECL – and by extension the Government of Canada – that could last for hundreds of years. The commenter argues that the proponent must be accountable for the entire life of the project (i.e., its design, construction, commissioning, operation, up to and including final abandonment). Given that CNL's contract with AECL is for a maximum of 10 years, it is questionable whether CNL is the most appropriate and only proponent. CCNR further notes that "[w]hen billions of dollars of public money are being spent on projects of vital importance to the health and safety of Canadian citizens and the environment for millennia, it is important that a crown agency that is wholly owned by and accountable to the Canadian government be in the driver's seat." Mr. Ryan echoes these concerns.	
34.	CCNR (Feb. 13, 2018) Joann McCann (Feb. 12, 2018)	Section 3.4 (3-13)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters worry about the present-day consortium of multinational corporations. In particular, CCNR is concerned with the fact that some of the corporations that are members of the coalition owning CNL have been accused of fraudulent practices, and that some of the very difficult radioactive waste management schemes that they have been involved in have not yielded satisfactory results from the point of view of the long-term health and safety of persons and the environment. The commenter is also concerned with the expenditure of huge sums of public	

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			money.	
35.	CCNR (Feb. 13, 2018)	Section 3.4 (3-13)	The commenter refers to the following excerpt from the Auditor General's (AG) March 2017 Report to the Board of Directors of AECL: "September 2015 marked the completion of a restructuring process that implemented [AECL's] new role and reduced its workforce from approximately 3,400 employees to 40." The commenter highlights (from the AG Report) that "as AECL emerged from the transition, the Privy Council Office could not fill vacant positions at the Crown corporation's helm, hobbling the latter's ability to make good long-term choices."	
36.	Herbert Fitzroy (Feb. 13, 2018) Martin Flood (Feb. 12, 2018) Old Fort Williams Cottagers' Association (OFWCA) (Feb. 8, 2018)	Section 3.4 (3-13)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters are of the opinion that CNL's project proposal is irresponsible and characterized by low cost as the driving rationale. The commenters argue that CNL is mistrusted by the public and that they will try to get away with doing things in the fastest and cheapest way, and cannot be trusted to look out for the long-term safety of people and the environment. The public views AECL in the same light. They pose the following question: "Why is AECL, as the owners, not stopping these ill-conceived proposals from going forward in the first place and thus wasting taxpayers' money and wasting precious time?"	
37.	William Turner (Feb. 9, 2018)	Section 3.4, Figure 3.4-1 (3-14)	The commenter notes that the EIS documentation for the NPD Closure Project is the first that includes a sign-off "Accepted by …", and that according to Figure 3.4-1, the person occupying the role of "NPD Closure Project General Manager" should be responsible for the content of the EIS documentation. The commenter further notes that the cover of the draft EIS is "Accepted" by a person not identified anywhere in Figure 3.4-1, and that on the next page (the signature page), the report's "Accepter" is the NPDWF Facility Authority, not the "NPD Closure Project General Manager". The commenter argues that, as an undertaking that has considerable potential for long-term commitments on the part of CNL, AECL and/or the Government of Canada, it is not appropriate for a lower tier person to sign-off on these documents that assign long-term responsibilities to AECL and/or the Government of Canada. The commenter expresses the concern that, while this demonstrates an appropriate document control process, the documentation for this project does not meet simple quality criteria and raises questions as to whether CNL is appropriately discharging its project oversight responsibilities at the appropriate organizational level.	
Regulatory Framework and the Role of Government / Cadre réglementaire et rôle du gouvernement				
38.	Eva Schacherl (Feb. 13, 2018) Dr. J.R. Walker (Jan. 2, 2018)	Section 3.5.2 (3-16)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters indicate that Canada has extant regulations concerning the release of radioactive materials from regulatory control and their entry into the accessible biosphere. CNL states that at the end of the Institutional Controls period, the site is to be abandoned. Therefore, the commenters argue that the proposal needs to comply with CNSC's Regulatory Policy P-290,	

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	William Turner (Feb. 9, 2018)		*Managing Radioactive Waste* [1], which states that the predicted impacts from the management of radioactive waste must be no greater than the impacts that are permissible in Canada today. When access to the site becomes unrestricted, the predicted residual activity must meet the clearance level criteria that are given in the *Nuclear Substances and Radiation Devices Regulations* [2]. That is, CNL needs to demonstrate that the residual activity on the NPD site will meet unconditional clearance criteria at the end of the 100-year Institutional Controls period. Dr. J.R. Walker further argues that, at the end of the Institutional Controls period, the radiological inventory of NPD, and the associated hazard, greatly exceed these clearance criteria. Hence, this proposal is noncompliant with CNSC's Regulatory Policy P-290. The commenter also indicates that, after the Institutional Controls period, realistically characterized anticipated normal human behaviour (e.g., construction, farming, etc.) would result in doses in excess of the Canadian unconditional clearance level (10 µSv/year), dose constraint (0.3 mSv/year) [3], and public dose limit (1.0 mSv/year) [4]. The commenters request that CNL discuss how the proposed project will meet the defined clearance level criteria at the end of the Institutional Controls period. References: [1] Canadian Nuclear Safety Commission, *Managing Radioactive Waste*, Regulatory Policy P-290, 2004. [2] Canada, *Nuclear Substances and Radiation Devices Regulations*, SOR/2000-207. [3] Canadian Nuclear Safety Commission, *Assessing the Long Term Safety of Radioactive Waste Management*, G-320, 2006. [4] Canada, *Radiation Protection Regulations*, SOR/2000-203. [Please refer to the submissions from Dr. J. R. Walker and Mr. Turner for more context and for the quotes from the references above.]	
39.	William Turner (Feb. 9, 2018)	Section 3.5.2 (3-16)	The commenter quotes from Section 6 of CNSC's Regulatory Guide G-320 and from Section 2.3 of CNL's Ecological Risk Assessment (EcoRA) TSD to point out a discrepancy regarding the development of waste acceptance criteria. In CNSC's Regulatory Guide G-320, the assessment criteria are quantitative (i.e., numerical), whereas CNL states they are qualitative. The commenter argues that, since CNL states that the site will be abandoned at the end of the Institutional Controls period, the numerical criteria for assessing abandonment have already been defined. Without appropriate numerical assessment criteria, CNL cannot demonstrate that the site can be abandoned after the proposed 100-year Institutional Controls period. The commenter requests that CNL provide a discussion of how the waste acceptance criteria were developed. [Please refer to Mr. Turner's submissions for more context and for the quotes referenced from CNSC's Regulatory Guide G-320 and CNL's EcoRA TSD.]	

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Project Description / Description du projet				
Purpose of the Project / But du projet				
40.	Anita Payne (Feb. 13, 2018) Anonymous (Feb. 5, 2018) CCRCA (Feb. 8, 2018) Chris Cavan (Feb. 12, 2018) Eva Schacherl (Feb. 13, 2018) Fred Ryan (Feb. 12, 2018) Green Party of Ontario (Feb. 13, 2018) John Almstedt (Feb. 12, 2018) Dr. J.R. Walker (Jan. 2, 2018) Judith Fox Lee and Ormond Lee (Feb. 13, 2018) Kathy Eisner (Feb. 14, 2018) OFWCA (Feb. 8, 2018) Philipp-Nowotny (Feb. 7, 2018)	Section 4.1 (4-1)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "The decommissioning of NPDWF will ensure a prompt reduction of Canadian legacy long-term liabilities and eliminate interim waste storage, while reducing worker risk and transport/waste handling risk." The commenters raise the concern that the proposed project does not discharge or reduce Canada's nuclear waste liabilities, and may actually increase them, as entombment would have to be remediated in the future. The commenters indicate that ISD is not synonymous with long-term decommissioning, and will leave a long term legacy for which we cannot estimate the long term impacts to the environment. Entombment would complicate matters and greatly increase costs down the road for future generations (e.g., in the event of a leak or other disaster, it would be difficult to extract and retrieve the waste encased in grout and concrete). The commenters note that this plan may succeed only in making the nuclear liabilities at Rolphton temporarily invisible. In addition, Dr. J. R. Walker refers to the following quote from one of AECL's recent presentations [1]: "Aim is to get these liabilities off the books of Canada within the agreed timeframe." Unfortunately, the proposal described in the Draft EIS fails to meet the stated objective and aim. The proposal would increase the liability due to the cost of the future remediation requirements. This project would leave legacy obligations for future generations, given that the materials in question include radioactive materials that will remain hazardous for tens of thousands of years, far longer than the entombment materials are expected to last. The commenters indicate that the EIS must address this burden on future generations arising from the abandonment of significant quantities of long-lived radionuclides and non-radioactive wastes, such as lead, asbestos, PCBs, in a near-surface disposal facility that is very close to the Ottawa River. Reference: [1] AECL, NEA Steering Committee Canada Update 2017, Presentation to NEA Steering Committee Dec 2017, provided to the Eleventh Annual Meeting of the International Decommissioning Network (IDN), 2017 December 5 – 7. [Please see the commenters' submissions for more information, including quotes and references].	
41.	Northwatch (Feb. 19, 2018)	Section 4.1 (4-1) Also applicable to Sections 2.1 (2-1), 2.2.1 (2-3) and 3.2 (3-8)	Various sections of the draft EIS describe the purpose of the project as being: • To "safely decommission the NPDWF, ensuring a reduction of Canadian legacy long-term liabilities and eliminating interim waste storage, while reducing worker risk and transport/waste handling risk" (Sections 2.1 and 4.1) • To "safely carry out the decommissioning of the NPDWF using the in-situ decommissioning approach to isolate the contaminated systems and components inside the below-grade	

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			structure" (Section 2.2.1) • To "safely carry out the decommissioning of the NPDWF." (Sections 3.2 and 4.1) The commenter is of the view that while the various statements do not directly conflict, neither do they fully coincide. The commenter makes the following remarks with respect to the various purpose statements: • They conflate purpose and method. • They fail to meet the requirements of the Operational Policy under CEAA 2012 in that it does not provide "the rationale or reasons for which the designated project would be carried" [1], particularly not in the context of the purposes of CEAA 2012; rather, the various statements are statements of intent rather than of purpose; singly and in combination, they state what the proponent intends to do, rather than why they intend to undertake the project. • They fail to meet the purposes of CEAA 2012, which identifies the first purpose of EA as being "to protect the components of the environment thatare within the legislative authority of Parliament from significant adverse environmental effects caused by a designated project", in that it does not speak to the protection of those "components", including the Ottawa River, endangered species, human health, and the rights of Indigenous peoples. Reference: [1] Operational Policy Statement: *Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act, 2012*	
42.	Northwatch (Feb. 19, 2018) William Turner (Feb. 9, 2018)	Section 4.1 (4-1)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "In-situ decommissioning of NPDWF meets one of the CNL integrated waste strategy objectives by providing a disposition route for the NPD reactor, components and systems." Northwatch argues that CNL does not provide the suite of waste strategy objectives, nor identify the decommissioning objectives and then discuss the means by which the waste strategy objectives and decommissioning objectives are mutually supportive or are in need of resolution. Mr. Turner also argues that because the *Integrated Waste Strategy Summary Document* does not include a definition for the various waste classes (as per [1] or [2]), and does not provide guidance as to the acceptable characteristics of the wastes, then CNL's argument that entombment "…meets one of the CNL integrated waste strategy objectives…" is not justified. According to Mr. Turner, CNL has invented its own waste classification to justify its choice of disposal facility. Further, Mr. Turner claims that access to the full *Integrated Waste Strategy Document* was not provided, and therefore, that one cannot determine whether this strategy meets the applicable Canadian and International standards, guidelines, or best practice. If the summary document is an accurate reflection of CNL's overall strategy, then Mr. Turner concludes that CNL's approach to managing radioactive wastes is significantly flawed. [Please see Mr. Turner's comment no. 24 for more information.]	

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			References: [1] IAEA, *Classification of Radioactive Waste*, General Safety Guide No. GSG-1, 2009 [2] CSA Standard N292.0-14, *General principles for the management of radioactive waste and irradiated fuel*, 2014	
43.	William Turner (Feb. 9, 2018)	Section 4.1.1 and Section 4.1.2 (4-2 to 4-3)	Sections 4.1.1 and 4.2 of the draft EIS discuss the robustness of the system (i.e., the decommissioned facility) over time. The commenter explains that if the residual radioactivity at the site met unconditional clearance criteria, CNL would not have to demonstrate any long-term stability. In other words, CNL would not need to provide "…containment and isolation of the NPDWF inventory for a sufficiently long time to ensure that the postclosure environmental concentrations do not cause adverse effects to human health or the environment …" since the site could be abandoned with no restrictions on its use and all emissions would not present unacceptable risks to the biosphere. The commenter requests that CNL demonstrate that the site can be abandoned after the Institutional Controls period, which means to demonstrate that the residual radioactivity at the site will meet unconditional clearance criteria. [Please refer to comments no.25 and 26 in Mr. Turner's submission for more information.]	
Natural Analogues / Analogues naturels				
44.	AOO (Feb. 26, 2018) CCRCA (Feb. 8, 2018) Christina Anderman (Feb. 13, 2018) Erwin Dreessen (Feb. 7, 2018) Fred Ryan (Feb. 12, 2018) Dr. J.R. Walker (Jan. 2, 2018) Ottawa Raging Grannies (Feb. 13, 2018)	Section 4.1.2 (4-2 to 4-3) Also applicable to Section 2.8.3 (2-24)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Section 2.8.3 of the draft EIS states: "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." Similarly, Section 4.1.2 states: "The cement being considered for radioactive disposal systems is similar to early cements used in the 3rd century and approximately 1,000 years earlier (Middleton 1888). These cements demonstrate little degradation over approximately 2,000 years…" The commenters are of the view that these comparisons are non sequiturs – irrelevant, unconvincing, not scientifically defensible and misleading in terms of assessing the long-term performance of the proposed concrete monolith and its contents. The AOO argues that Roman cement is a mix of volcanic ash and seawater, which form metallic crystals, while 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. The commenters argue that the examples brought forward by CNL represent structures that have survived in hot dry climates. They do not come close to replicating the extremes of temperature and the freeze/thaw cycles to which the proposed facility at Rolphton would be subjected. Similarly, when referring to the following quote saying that "dating of lead artifacts has shown that such artifacts undergo very slow corrosion when buried in soils with pH greater than 6.5", the	

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	Sharon Odell (Feb. 13, 2018) Valerie Needham (Feb. 13, 2018)		CCRCA explain that even if the concrete in the monolith is alkaline, the surrounding soils are very likely acidic, typical of the Canadian Shield. They point out that this is noted on p.8-69 of the draft EIS, although no data is provided. Dr. J. R. Walker further explains that Portland cement and reinforced concrete are susceptible to deterioration from numerous internal and external factors, including freeze/thaw cycles, aggregate expansion, decalcification, exposure to air and precipitation (e.g., calcium leaching, carbonation, sulphates from acid rain), fire, corrosion of the reinforcing material, physical damage, improper manufacture and installation, etc. Dr. J. R. Walker indicates that the civil engineering literature is replete with examples of early failure in concrete structures. Recent local examples include a shopping mall in Elliot Lake, Ontario, and bridge failures in both Ontario and Québec. The draft EIS contains no evidence or reasoned arguments as to why the proposed grout and reinforced concrete would be long-lived. The reader is expected to have faith in CNL's assumptions. Since the cement, the climate, and the environmental conditions are different from the Mediterranean examples provided, such faith is likely misplaced. The commenters request that CNL provide additional information to address the aforementioned issues and concerns.	
45.	CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 4.1.2 (4-3)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The draft EIS states: "These cements demonstrate little degradation over approximately 2,000 years (Cramer 1993, Oleson et al. 2004, Vola et al. 2011)." The CCRCA notes that the abstract of one of the references cited in support of this statement (i.e., Oleson et al. 2004) says, with regard to the engineering properties of Roman concrete, that volcanic ash was the "crucial component". The CCRCA asks the following question: Does CNL plan to import volcanic ash? Mr. Ryan echoes these concerns.	
Alternative Means of Carrying out the Project / Solutions de rechange pour réaliser le projet				
46.	Algonquin Anishinabeg Nation Tribal Council (AANTC) (Feb. 13, 2018) AOO (Feb. 26, 2018) CELA (Feb. 13, 2018) Dr. J.R. Walker (Jan. 2, 2018) Lynn Jones	Section 4.2 (All) Also applicable to Section 4.2, Table 4.2-1 (4-7)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Several commenters raise concerns with respect to the quality of the alternative means assessment. They argue that the draft EIS does not examine the alternatives to "entombment" with sufficient detail or provide an assessment of all potential environmental effects of each alternative. The AANTC indicates that the alternative means assessment needs to be expanded and rewritten to better present and articulate the relative advantages and disadvantages of the each of the 4 alternatives being proposed. The AOO argue that alternative means were only considered as an exercise to fulfill CNSC's EIS Generic Guidelines and were not seriously considered by CNL (e.g. lack of cost estimates or risk assessments presented for each alternative). The AOO believe that the ISD option is inadequate for the protection of future AOO land-users and that CNL must hold long-term liability beyond the removal of radioactive materials and full decommissioning of the site. CNL should be liable for monitoring and remediating the site to a state that is acceptable for safely engaging in	

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	(Feb. 13, 2018) William Turner (Feb. 9, 2018)		unrestricted land use. Dr. J.R. Walker, CELA and Mr. Turner express a particular concern with the fact that the alternative means assessment is subjective and too qualitative to give an accurate and comprehensive portrait of the relative contributions of each alternative to sustainability. For example, no dose estimates to workers, public, or non-human biota are provided for each of the alternative means. Similarly, no quantitative evaluation is provided on the non-radiological impacts to humans or non-human biota for each of the alternative means. Mr. Turner also suggests that Table 4.2-1 should present a quantitative risk scale instead of a qualitative evaluation of risk. For a disposal project that has very-long term potential consequences, a qualitative risk scale is not the appropriate measurement tool for a risk evaluation of this type. The commenter also notes that CNL's qualitative approach was questioned during a technical session held in Deep River in January 2017. The feedback given at this session regarding re-evaluating the alternative means selection process was ignored. The commenters find that CNL has failed to adequately address the requirements of CEAA 2012 and request that CNL provide a quantitative assessment of the impacts of each alternative means on VCs, including human health, to clearly demonstrate to the public how and why the preferred option was identified. [Please refer to Mr. Turner's submission for the Q&A exchange from the Deep River technical session. See also Information Request no. 5 from CELA's submission for more details.]	
47.	Anna Bogic (Feb.7, 2018) Ann Waters (Feb. 9, 2018) Angela Keller-Herzog (Feb. 13, 2018) Barry Stemshorn (Feb. 13, 2018) Christina Anderman (Feb. 13, 2018) Craig Robinson (Feb. 13, 2018) Darlene Buckingham (Feb. 13, 2018) CCRCA (Feb. 8, 2018) David Garcia (Feb. 12, 2018) Environment Haliburton!	Section 4.2 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters express the position that the proposed ISD approach is not the most suitable option to contain the waste and prevent environmental effects, including impacts to water quality and subsequent harm to the public. The following reasons are provided by the commenters to support this position: • Some of these materials will be dangerous for hundreds of thousands of years. The knowledge of the danger may be lost. It is our obligation to make that dangerous material as inaccessible as possible for future generations. Human intrusion is far more likely if materials are stored near the surface • Environmental protection is more important than cost • One of the disadvantages of entombment cited in the international literature is that the site cannot be reused. For the draft EIS to propose that there are no adverse impacts and that the site can be abandoned without clear warning and demarcation that this is a nuclear disposal site would seem to break the most basic of principles related to the management of hazardous materials • Waste retrievability is essential. Later removal of waste to a more secure facility would be difficult if entombment is used • CNL needs to make sure that all other options are looked at, including moving this waste to a more isolated spot	

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	(Feb. 12, 2018)
	Erwin Dreessen
	(Feb. 7, 2018)
	Fred Ryan
	(Feb. 12, 2018)
	Georgina Bartos
	(Feb. 7, 2018)
	Herbert Fitzroy
	(Feb. 13, 2018)
	Judith Fox Lee and Ormond Lee
	(Feb. 13, 2018)
	OFWCA
	(Feb. 8, 2018)
	Rita Redner
	(Feb. 13, 2018)
	Valerie Needham
	(Feb. 13, 2018)
			• The option of storing waste in geologically stable rock (e.g., geological caverns), away from water bodies, should be examined as part of the draft EIS
			• Entombment strikes as the "if you don't see it, it's not there" option
			• Better solutions for waste storage exist, specifically plans for Canada's Nuclear Waste Management Organization (NWMO) for deep geological disposal of spent nuclear fuels under an adaptive management regime that would allow reversibility or retrievability in the event of unforeseen circumstances, and that uses multiple barriers including the geosphere
			• More rigorous disposal alternatives may take longer and cost more in the short-term, but could at the same time reduce the long-term financial, environmental, social and reputational liabilities of the Government of Canada. This especially, when one considers:
			  ○ The clear warnings that have been formally raised by experts about risks of the proposed ISD option
			  ○ The possible failure to respect international standards and obligations
			  ○ The precedent that decisions in this matter may set for the eventual decommissioning of other reactors in Canada
			
			[Please refer to the submissions for more information, including references].	

48.	Anita Payne (Feb. 13, 2018) CCRCA (Feb. 8, 2018) Environment Haliburton! (Feb. 12, 2018) Fred Ryan (Feb. 12, 2018) Green Party of Ontario (Feb. 13, 2018) Judith Fox Lee and Ormond Lee (Feb. 13, 2018)	Section 4.2 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters highlight the lack of consideration for the option of storing radioactive materials and other contaminants below ground in a deep geological repository. They point to the IAEA's recommendation that long-lived radioactive wastes be put in a deep geological repository. The commenters further note that the dismantling of the NPD reactor, removal of wastes from the site, and placement in stable rock below the earth's surface is technically and economically feasible. Although it is likely that this option would be more expensive, it would significantly reduce the risk of contamination of bodies of water, the risk of site degradation, and damage from catastrophic events, such as an earthquake. The commenters request that CNL explain why storing the radioactive materials and other contaminants below ground in a geological repository is not a better, lower risk option. Some commenters also ask CNL to assess the alternative of placing the wastes arising from decommissioning of the NPD reactor below-ground in a deep geological repository.	
49.	Ralliement contre la pollution radioactive (Feb. 13, 2018 / 13 février 2018)	Section 4.2 (All / Au complet)	Le commentateur indique que puisqu'il n'y a pas encore au Canada de site d'enfouissement en couches géologiques profondes pour les déchets radioactifs de moyenne activité et de forte activité, les LNC sont coincés avec une solution risquée à long terme. Le commentateur réclame que l'on tourne en rond car il n'y a pas de volonté ferme d'agir en vue de la bonne solution qui faciliterait le travail de nos scientifiques qui doivent traiter ces déchets radioactifs.	

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50.	Protection de l'environnement du Pontiac (PEP), Alliance des espaces verts de la capitale du Canada, Écologie Ottawa, Amis de la Terre (Canada), Ralliement contre la pollution radioactive (RCPR), STOP Oléoduc Outaouais (SOO) (Feb. 13, 2018 / 13 février 2018)	Section 4.2 (All / Au complet)	*Please note that this comment was also submitted in French (see below). A response in both official languages is therefore required.* **English Comment:** The commenter is of the opinion that the draft EIS does not examine the geologic repository alternative recommended by the IAEA for intermediate-level radioactive wastes. *Veuillez noter que ce commentaire a été également été soumis en anglais (voir ci-dessus). Une réponse dans les deux langues officielles est donc requise.* **Commentaire en français**: Le commentateur est d'avis que l'étude d'impact environnemental (EIE) n'examine pas l'option de dépôt géologique recommandée par l'Agence internationale de l'énergie atomique (AIEA) pour les déchets radioactifs de niveau intermédiaire.	
51.	Barry Stemshorn (Feb. 13, 2018)	Section 4.2 (All)	The commenter finds the analysis of alternatives inadequate, referring to the contents of Section 4.2 of the draft EIS as "a somewhat superficial qualitative risk assessment of limited scope". The commenter requests that CNL include in the analysis of alternatives: • A "gold standard" option that would be consistent with guidelines of the IAEA, comply with Canada's international treaty obligations, and provide a world class example of responsible management by Canada's nuclear sector • Consideration of the long-term impacts including eventual degradation of the "tomb" or "monolith" under the proposed option of ISD and interventions that might be required to retrieve the waste "entombed" under this option • Comparison with an alternate scenario under which the waste would be stored in an engineered repository at an appropriate depth at a geologically stable site remote from a major waterway (the pictograms of the two "dismantling and removal" alternatives show only on-surface storage)	
52.	Barry Stemshorn (Feb. 13, 2018) Environment Haliburton! (Feb. 12, 2018) Judith Fox Lee and Ormond Lee (Feb. 13, 2018)	Section 4.2 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters ask whether the level of risk could be decreased significantly by alternate strategies, such as: • Those identified in Canada. Specifically, why is this not done in partnership with Canada's NWMO as it develops deep geological disposal capacity? Canada's options must not be limited to properties currently owned/operated by AECL/CNL for such a significant project. • Those identified in Finland, as reported by *The Economist* magazine on April 12, 2017 and available at: https://www.economist.com/news/international/21720591-finland-shows-way-project-expected-span-100000-years-how-dispose • The status quo ("do nothing" option) pending a better solution, which would allow	

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			interventions that might be required to deal with unforeseen events • Other options to avoid or mitigate the aforementioned concerns The commenters pose the following question to CNL: Why have such alternatives not been considered in depth?	
53.	CELA (Feb. 13, 2018)	Section 4.2 (All)	In its evaluation of alternative means, CNL defined and used two criteria (technical feasibility and economic feasibility), as well as an assessment of potential effects on VCs. However, the commenter is of the opinion that CNL did not discuss the relative contributions of the alternative means to sustainability, nor explain the process by which it incorporated sustainability concerns in its evaluations. The commenter requires the following additional information for CNL to clearly demonstrate to the public that the ISD option is the best option in light of contributions to sustainability: • A description of the sustainability-based criteria that CNL adopted to evaluate and compare the alternative means [Information Request no. 1]. • A description of how the two criteria (technical feasibility and economic feasibility) and VCs approach that CNL used to evaluate and compare the alternative means constitute relevant sustainability considerations [Information Request no. 2]. • A description of the relative contributions to sustainability of the alternative means [Information Request no. 3]. • A description of the process by which CNL incorporated consideration for net sustainability contributions in the alternative means assessment [Information Request no. 4]. [Please refer to CELA's submission for more information.]	
54.	CELA (Feb. 13, 2018)	Section 4.2 (All)	The commenter finds that it is unclear how the notion of adaptive management capacity (including the associated concepts of reversibility, retrievability, diversity and redundancy) influenced CNL's evaluation of alternative means, its assessment of the preferred ISD option, and its long-term monitoring program. It is in the public's best interest to have a good understanding of how CNL incorporated and operationalized the concept of adaptive management capacity throughout the draft EIS as it is critical to the long-term safety of the proposed project. The commenter requests that CNL describe how the notion of adaptive management capacity was applied in (a) the comparative analysis of alternative means and (b) the assessment and design of the preferred ISD option [Information Request no. 7]. [Please refer to CELA's submission for more information on the concept of adaptive management.]	
55.	CELA (Feb. 13, 2018)	Section 4.2 (All)	The commenter highlights that the associated design concepts that may increase the level of adaptive management capacity in nuclear waste management facilities include reversibility, retrievability, diversity and redundancy and refers to the 2001 [1] and 2012 [2] reports from the Organisation for Economic Co-operation and Development (OECD).	

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			The commenter requests that CNL describe how reversibility, retrievability, diversity, and redundancy were incorporated in (a) the comparative evaluation of alternative means and (b) the assessment and design of the preferred ISD option. [Information Request no. 8]. [Please refer to CELA's submission for a definition of each concept.] References: [1] Organisation for Economic Co-operation and Development. (2001). Reversibility and Retrievability in Geologic Disposal of Radioactive Waste: Reflections at the International Level. Nuclear Energy Agency, Organisation for Economic Co-operation and Development, Paris, France. [2] Organisation for Economic Co-operation and Development. (2012). Reversibility of Decisions and Retrievability of Radioactive Waste: Considerations for National Geological Disposal Programmes. Nuclear Energy Agency, Organisation for Economic Co-operation and Development, Paris, France.	
56.	CELA (Feb. 13, 2018)	Section 4.2 (All)	The commenter notes that although CNL incorporated the defence-in-depth principle in its postclosure safety analysis, CNL did not define and operationalize this principle in the draft EIS. Moreover, it is unclear how this principle influenced the comparative assessment of alternative means. The commenter requests that CNL define the "defence-in-depth" principle and explain how it was incorporated in the draft EIS and comparative assessment of alternative means [Information Request no. 9]. [Please refer to CELA's submission for more information.]	
57.	CELA (Feb. 13, 2018)	Section 4.2 (All)	According to the commenter, CNL's Post-Closure Safety Assessment Report indicates that the calandria may be removed before entombment and not form part of the waste inventory at the NPD site. It is uncertain whether CNL intends to remove the calandria immediately during decommissioning or defer its removal to a later date. The alternatives means analysis does not provide insight into which strategy might be preferable and it is unclear whether CNL has in fact undertaken any relative risk assessment on the matter. The commenter raises the following concerns that must be weighed in to determine whether the calandria should remain on site or be removed as soon as reasonably possible: • Based on the radiological inventory of the calandria, would worker dose level not remain largely the same even after deferring the calandria's decommissioning? • Would there be any capacity to decommission and remove the calandria in 100 to 300 years? Likewise, would the expertise, or funding exist? • Regardless of the benefits of deferring, would removal of the calandria reduce the relative risk to the Ottawa River? • A comparison of CNL's Figures G9 and G70 in Appendix G of the Post-Closure Safety Assessment Report indicate there is little difference between either strategy with respect	

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			to release of radionuclides, except for lower amounts of some nuclides 800 to 1000 years post-closure. • While deferring removal would eliminate some long-lived radionuclides, would removal result in an overall benefit? • What are the costs associated for each strategy? These questions essentially direct CNL to weigh the advantages and disadvantages of the deferred dismantling strategy compared to those of the other alternative means. The commenter recommends that CNL weigh the various advantages and disadvantages of the alternative means against each other for the specific circumstances of the NPDWF site, provide a coherent explanation of the risks posed to the environmental components by each of the strategies, and provide a rationally based explanation as to why a specific strategy is preferred. [Please refer to CELA's submission (Recommendation no. 6) for more information, figures and a reference to IAEA SRS 50.]	
58.	AOO (Feb. 26, 2018)	Section 4.2 (All)	The AOO is of the opinion that CNL has provided insufficient discussion of alternatives to ISD in its draft EIS. The AOO requests that CNL provide detailed assessments of the alternatives and give the AOO a workshop on alternatives, so that AOO can evaluate the options, including their strengths and weaknesses. The topics should include cost, liability, the magnitude and timing of risks to human health and non-human species.	
59.	CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 4.2 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The guidance document entitled, *Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act, 2012* [1] lists criteria that can be used to determine the feasibility of the alternative means. It states: "The description of the alternative means must be in sufficient detail to establish how to assess them relative to the criteria developed for determining their technical and economic feasibility." The CCRCA argues that the draft EIS for the NPD Closure Project fails completely in this regard, for the following reasons: • It does not identify what criteria were used to determine the feasibility of the alternative means • It does not describe the four alternative means in sufficient detail to assess them relative to criteria, whatever these criteria might be • It contains no information on siting considerations related to long-term radioactive waste management, and no examination of alternative sites • It does not address a below-ground geological repository, which represents the appropriate "supporting infrastructure" for alternatives that involve dismantling and removal of nuclear wastes from the NPD site • It has very limited information on scheduling aspects, such as why it would not be	

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			possible to maintain the NPD reactor in its current state pending development of a below-ground repository • It lacks adequate information on the costs of the alternatives, including the costs of Institutional Controls and the costs of remedial action (e.g., in the event that entombment would fail to safely contain the reactor wastes) Mr. Ryan echoes these concerns. Reference: [1] CEAA 2013. *Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act, 2012.* Canadian Environmental Assessment Agency. Catalogue No.: En106-77/2014E-PDF https://www.canada.ca/en/environmental-assessment-agency/news/media-room/media-room-2015/addressing-purpose-alternative-means-undercanadian-environmental-assessment-act-2012.html	
60.	CCNR (Feb. 13, 2018)	Section 4.2 (All)	According to the commenter, CNL argues that the only two options for decommissioning the NPD reactor are total removal of all radioactive materials from the site and emplacement of those materials in an approved repository for low- and intermediate-level wastes, or ISD. However, as there is no such approved repository at the present time, ISD is the only alternative. This argument ignores the evident fact that ISD requires making the reactor site itself into an approved repository for low- and intermediate-level wastes, thereby constituting a circular and facile argument. The commenter expresses the view that another alternative that must be fully explored in the draft EIS is the dismantling and careful packaging of all the radioactive waste from the NPD reactor, ensuring that each package is robust, transportable, and accompanied with a detailed inventory of the radioactive contents of each individual package.	
61.	William Turner (Feb. 9, 2018)	Section 4.2 (4-3)	This section of the draft EIS states: "The decommissioning of the NPDWF has been proposed using the In-Situ Decommissioning approach, as discussed in Section 2.2 of the Alternative Means Assessment TSD, triggering an EA." The commenter finds the following issues with this statement: • The statement implies that CNL proposed ISD before assessing the alternatives. This is essentially confirmed by CNL's purpose statement • The chosen option is not suitable for the disposal of intermediate level waste (ILW) • The option of entombment was chosen before any reasonable assessment of the alternatives could have been conducted • Section 2.2 of the Alternative Means TSD does not meet the requirements of Section 19(1)(g) of CEAA 2012, which is to assess the environmental effects of alternative means	
62.	William Turner (Feb. 9, 2018)	Section 4.2 (4-4)	This section of the draft EIS states: "It is difficult to specify alternative disposition pathways for the radioactive material within NPDWF, primarily for the reactor system and components, given that an alternate waste storage or disposal facility would require waste categorization dependent on the alternate facility's waste acceptance." The commenter argues that if CNL's Integrated Waste Strategy has addressed all "cradle to	

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			grave" approaches, as stated in Section 1 of CNL's *Integrated Waste Strategy Summary Document*, then all alternatives including the whole lifecycle for the various waste classes would have been identified along with their acceptance criteria for "… pre-treatment, treatment, storage, transport, and disposal ...". In other words, if CNL's Integrated Waste Strategy meets its stated objective, the quote above (from the draft EIS) cannot be true. The commenter suggests that CNL delete this sentence from the draft EIS.	
63.	Northwatch (Feb. 19, 2018)	Section 4.2 (4-5)	This section of the draft EIS states: "…this approach involves removal of the reactor system and components. The preliminary assumptions are that the feeders, pressure tubes, calandria tubes, calandria and associated bioshielding will all be removed, and the fuel handling room will be decommissioned." The commenter argues that the draft EIS is ambiguous on which radioactive components will remain in-situ. The commenter requests that CNL clearly state what parts of the reactor system and components will be left in-situ, the basis for making these decisions, and the final disposition of all removed components. This discussion should include a detailed characterization of the associated radiological hazard of all components, including structures.	
64.	Northwatch (Feb. 19, 2018)	Section 4.2 (4-5)	This section of the draft EIS states: "…a few drums of waste from the spent fuel bay cleanup would likely also be removed." According to the commenter, this is the only reference found in the draft EIS about these "few drums". The commenter requests that CNL provide a detailed description of the drums referenced in Section 4.2, including a detailed characterization of the associated radiological hazard, the volumes, current and proposed system / state of containment.	
65.	William Turner (Feb. 9, 2018)	Section 4.2 (4-5)	This section of the draft EIS states: "Continued SwS has been listed first here and throughout the document because it is used as a baseline case against which the other alternative means are compared." The commenter questions the appropriateness of using the "Continued Storage with Surveillance" (SwS) as the baseline for comparison for three reasons: • It cannot be considered an alternative means since it does not address the purpose of the project as stated in Section 4.1: "…to safely carry out the decommissioning of the NPDWF…" Therefore, all other alternatives that do result in a decommissioned NPD facility will reduce the risk, no matter how the risk is defined (quantitatively or qualitatively). • Unless the NPD facility is decommissioned, the activities associated with SwS can never cease. The facility remains in the storage state forever. • SwS is an interim state, not a final state. The commenter requests that CNL delete all references and discussions that suggest that SwS is an "alternative means".	
66.	Anita Payne (Feb. 13, 2018) Barry Stemshorn	Section 4.2 (4-6)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters question the cost-benefit analysis of the chosen solution versus the alternatives. CELA notes that CNL's evaluation of alternative means against the economic feasibility criteria	

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	(Feb. 13, 2018) CELA (Feb. 13, 2018)		did not provide a detailed breakdown of costs to enable a comprehensive comparative analysis. CNL's evaluation focused solely on the decommissioning phase, which excluded the costs of subsequent phases. Given that the project will be radioactive for thousands of years, it is important for CNL to ensure the public that it is planning for these costs and has the resources in place to respond effectively in perpetuity. Otherwise, the burden of these costs will be placed upon future generations who are not responsible for the nuclear waste and its associated hazards. The commenters request that CNL provide a detailed breakdown of costs for all phases of the project (Decommissioning, Institutional Control, and Post-Institutional Control) to enable a comprehensive comparative analysis of the alternative means against the economic feasibility criterion. [Please refer to CELA's submission (Information Request no. 6) for more information.]	
67.	CELA (Feb. 13, 2018)	Section 4.2 (4-6)	This section of the draft EIS states: "For this analysis it has been assumed that this alternative means involves removing all radioactive material from the site and storing it temporarily at another CNL facility (most likely Chalk River Laboratories (CRL)), until a final disposal location is available." The commenter believes that CNL asserts this because the risk posed by the storage of waste at the off-site location is unknown, and therefore, assumed to pose a greater risk than the continued SwS means (the baseline). It is important to note that CNL itself is the operator of the off-site storage facilities. If the dismantled NPDWF structures and waste were to be stored at CRL, the assumption that this course of action may pose a greater risk to the environment than the baseline also contradicts previous assertions by CNL and CNSC staff that the operations at CRL are safe. The commenter recommends that CNL explain why it considers the storage of waste at the CRL site, or any other CNSC-approved storage or disposal facility, to pose a greater relative risk to the environmental components than the ISD means. [Please refer to CELA's submission (Recommendation no.4) for more information.]	
68.	CELA (Feb. 13, 2018)	Section 4.2 (4-7)	This section of the draft EIS states: "Relative risk to the VCs for the four alternative means was assessed with respect to "1. continued SwS" as the baseline." The commenter argues that the draft EIS does not provide any specific, known or assumed, adverse effects of the individual alternative means with respect to the environmental components selected. There is also no explanation of how these effects were compared to select a preferred alternative mean. Furthermore, the draft EIS provides no description of the severity of an environmental effect that CNL would deem unacceptable for a viable decommissioning strategy, nor the manner in which the alternative means were tested to determine their compliance with the selected criteria. The information provided by CNL to describe its alternatives means assessment is insufficient for a member of the public, or indeed any person who did not conduct the analysis to provide any meaningful feedback on the analysis. The commenter requests that CNL provide the criteria used to identify alternative means as unacceptable, how these criteria were applied, and how the criteria were used to examine the	

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			environmental effects of each of the alternative means to identify the preferred means. This should be provided with sufficient detail to allow for meaningful feedback from the public. [Please refer to CELA's submission (Recommendation no.1) for more information.]	
69.	William Turner (Feb. 9, 2018)	Section 4.2 (4-7)	This section of the draft EIS states: "In the Institutional Controls phase, Table 4.2-3, the differences between the alternative means starts to become more obvious. This is a result of the work put in during the active decommissioning. It can be seen that again, "4. in-situ decommissioning" has many benefits over the others." The commenter asserts that the aforementioned segment contains an error given that, of all the alternatives, the only one that requires an Institutional Controls phase is ISD: • Option 1 – SwS does not result in a decommissioned site. • Options 2 and 3 – "Partial Dismantling and Removal" and "Full Dismantling and Removal" removes the source such that no Institutional Controls period will be required. • Option 4 – ISD leaves the source in place, thus requiring an Institutional Controls period until the residual activity meets unconditional clearance criteria. The commenter requests that CNL revise Table 4.2-3 to address this error.	
70.	William Turner (Feb. 9, 2018)	Section 4.2 (4-7)	This section of the draft EIS states: "Finally, in the Post-Institutional Controls phase, Table 4.2-4, the benefits of permanent disposal can be seen even more. "4. in-situ decommissioning" continues to have much less risk than the baseline case, as the contaminants are all held in the grouted monolith. As with the Institutional Controls phase, it can be seen that "3. full dismantling & removal" is very similar to the baseline case." The commenter argues that CNL has provided little evidence to support the conclusion above, and that the evidence in the draft EIS directly contradicts it. The term "Post-Institutional Controls phase" is meaningless because, at the end of the Institutional Controls period, the site is to be abandoned. Only the entombment option requires Institutional Controls, and thus, for all other options, there can be no "Post-Institutional Controls phase". [Please refer to Mr. Turner's submission for more information.]	
71.	William Turner (Feb. 9, 2018)	Section 4.2, Table 4.2-1 (4-7)	According to the commenter, the up and down arrows, as well as the coloured boxes associated with these arrows in Table 4.2-1 of the draft EIS imply an equal weighting among all the various factors defined by the column headings. Since for each component, the duration is a contributing factor and that duration is different, the risk weightings across these components cannot be equal. Further, these arrows and colours do not consider the implementation of any mitigation measures. Thus, they cannot compare the effects of the project across the various components nor can they assess the residual effects after the required mitigation as required by CEAA 2012. The commenter requests that CNL revisit the alternative means assessment and evaluate the residual effects to the environment after the implementation of the mitigation measures as required by CEAA 2012.	
72.	CELA (Feb. 13, 2018)	Section 4.2, Tables 4.2-2 4.2-3, and 4.2-4 (4-8 to 4-10)	The commenter indicates that the relative consideration of environmental components summarised in Tables 4.2-2, 4.2-3, and 4.2-4 of the draft EIS leave several comparisons among the alternative means unaddressed or confusing. CNL has used a relative risk scale with 'less risk	

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			than baseline' at the highest end, 'approximately same risk as baseline' in the middle or neutral point, and 'more risk than baseline' at the lowest end. Based on this scale, CNL has identified the most desirable alternative by determining which option received the greatest number of 'less risk than baseline' scores. This evaluation does not capture the complexities in the decisions that must be made in an alternative means assessment. The commenter recommends that CNL describe and demonstrate how risks to environmental components were weighed against each other in the comparative evaluation of alternative means and explain how short-term versus long-term impacts were weighted in its evaluation." [Please refer to CELA's submission (Recommendation no.2) for more information.]	
73.	CELA (Feb. 13, 2018)	Section 4.2 Tables 4.2-2 4.2-3, and 4.2-4 (4-8 to 4-10)	The commenter explains that the comparative level of risk attributed to the alternative means with respect to their environmental effects is confusing and seemingly contradictory to international standards. For example, according to CNL's analysis, the ISD option would be the most favourable option in terms of radiation and radioactivity environment during the Post-Institutional Controls phase; while the full-dismantling and removal means would present a slightly greater risk than the baseline. It is difficult to imagine a scenario where a remediated site, that no longer houses any radioactive material, nuclear or hazardous waste, could pose a greater risk compared to a scenario where all of the nuclear facilities, and nuclear and hazardous waste, are still present. This finding also contradicts the recommendations of the IAEA and other jurisdictions that have decommissioning experience on the risk posed by the full-dismantling and removal means. The commenter recommends that CNL explain why its comparative evaluation of alternative means, with respect to each of the environmental components, deviates from internationally relied upon perception of relative risk for each of the alternative means considered." [Please refer to CELA's submission (Recommendation no. 3) for more information and for the quote from the IAEA's SRS 50.]	
74.	William Turner (Feb. 9, 2018)	Section 4.2, Table 4.2-3 (4-9) and Table 4.2-4 (4-10)	According to the commenter, the dark green arrows associated with Option 4 in Table 4.2-3 of the draft EIS suggest that most of the risks associated with the Institutional Controls period will be less than that for any other alternative. This cannot be true since, for all other options (i.e., Options 2 and 3), there is no Institutional Controls period. The commenter suggests that all arrows associated with Options 2 and 3 in Table 4.2.-3 be removed and all boxes be coloured grey. Similarly, the commenter suggests that all arrows in Table 4.2-4 be deleted and all boxes be coloured grey.	
75.	MNO (Feb. 14, 2018)	Section 4.2 (4-11)	The MNO highlights that while Option 3 (full dismantling and removal) does have greater potential short-term effects, the long-term use of the site could be restored, and MNO rights could eventually be exercised in the vicinity. In contrast, the current proposed method of ISD does not allow for this option, as monitoring and control of the site will extend for more than 100 years. More importantly, the potential long-term impacts on Métis harvesting rights are not addressed in this draft EIS.	

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76.	William Turner (Feb. 9, 2018)	Section 4.2 (4-11)	This section of the draft EIS states: "In addition to relative risk, absolute risk was also considered in the comparison of alternative means… Similarly, if alternative means X is deemed to have less risk than alternative means Y, but both alternative means carry a significant risk to the environment, alternative means X cannot be considered as a good option, as it will still have significant environmental effects, regardless of how it compares to alternative means Y." The commenter indicates that a discussion of "absolute risk", "negligible risk" or "significant risk" is not provided in this section. Since CNL only provided a "qualitative relative risk scale" (Table 4.2-1), assigning these three terms ("absolute", "negligible" and "significant") to any risk comparison represents CNL's speculation. As comparative terms, they are not objective.	
Scope of the Project / Portée du projet				
Scope of the Project – General / Portée du projet – Général				
77.	William Turner (Feb. 9, 2018)	Section 4.3 (4-12)	The commenter argues that the list of items to be considered in the EA is missing the "abandonment of the site", which is the ultimate goal of the project. The commenter speculates that one of the reasons for this omission is that the site can never be abandoned and that the Institutional Controls period will last forever. As a result, "long-term care and maintenance" would be required in perpetuity. Further, the commenter argues that the fact that this goal is not included in the list allows CNL to truncate the assessment of alternative means to the assumed end of the Institutional Controls period, which is 100 years. The commenter suggests that CNL address all aspects of the project, including the proposed end-state, which is the abandonment of the site.	
Scope of the Project – Project Components and Activities / Portée du projet – Composantes et activités du projet				
78.	Northwatch (Feb. 19, 2018)	Section 4.3.1.2 (4-12)	The commenter indicates that while the word "grout" appears numerous times, the draft EIS provides very little actual information about the "grout" and its qualities and functions and provides no information about its formula. The commenter notes that the closest the draft EIS comes to providing information about the formula is in the definitions section: "Grout: a mixture of Portland Cement and water that produces a pourable, concrete-like, mixture." In addition, the commenter provides examples to illustrate that CNL's definition of "grout" varies from those in standard use. The commenter explains and refers to examples to support their statement that the utilization of grout in efforts to remediate radioactive waste storage systems has been in use for several decades in some limited circumstances, but even in these earlier applications and in associated technical papers in the public domain dating to that period, the discussion has generally included a description of the formula that goes well beyond CNL's "cement and water". The commenter notes that well-known problems with the use of concrete in encapsulating radioactive wastes include that, due to the porosity of the material, concrete allows access for water and leaching of radionuclides, and the release of undesirable gases, such as radon. In more recent decades, reliance and research has shifted from the earlier reliance on cement-based formulations to other alternatives, such as microfine cements, polymers, and other materials or other additives.	

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			[Please refer to the commenter's submission for more context and for the examples referenced above.]	
79.	Northwatch (Feb. 19, 2018)	Section 4.3.1.2 (4-12)	The commenter notes the following concerns related to grout with the draft EIS: • The document provided no substantive description of the grout, and provides no details on the formulation of the grout or what is contained in the mix CNL proposes to apply at the NPD, other than the very generic statement that it will be made up of Portland cement and water. • The document provides no evidence of how CNL selected the particular formulation to be employed in this decommissioning project, or how the intended formulation was selected above alternatives, including alternative formulations such as those using polymers, polyesters, clays, epoxies or other materials. • The document provides no analysis of the inherent challenges in using Portland cement for this purpose, or the means by which these challenges will be addressed or shortcomings resolved. The commenter also raises the concern while the draft EIS acknowledges that in the course of grouting the below grade structure and demolition there will be a displacing of volatile radionuclides in underground air (and from surface contamination) to the surface environment, this impact on the biosphere is not addressed, nor is sufficient detail provided. The commenter further suggests that a reasonable expectation would be that "safe decommissioning" could be equated with the effective isolation of the radioactive hazards in the NPD. Based the information provided in the draft EIS, the commenter argues that the grouting-based approach selected by CNL is incapable of achieving that. [Please refer to pages 8-10 of the commenter's submission for more information].	
80.	William Turner (Feb. 9, 2018)	Section 4.3.1 (4-12)	The commenter poses the following questions: • What is the difference between concrete and grout? Where will these different materials be used to completely fill all void spaces within the NPD structure? • Will all the void spaces, including the piping, tanks, ventilation shafts, be filled with grout? • As void spaces are filled, there will be releases of the atmospheric gases contained in those voids. These releases will have the potential for the spread of airborne radioactive particulates both inside and outside the facility. Please provide an estimate of those releases and explain how these particulate releases will be mitigated and monitored. The commenter requests that CNL provide sufficient detail with respect to the development of the grout design, grout production (batch plant) and grout placement technology with their respective QA/QC requirements (including testing).	
81.	Northwatch (Feb. 19, 2018)	Section 4.3.1 (4-12 to 4-15)	The draft EIS describes the project as filling "all below-grade areas" with grout. This activity is described or referenced in numerous locations, including Section 4.	

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			The commenter indicates that no actual description of the grout is provided, or of its qualities and abilities to serve as a barrier or contribute to containment, or related challenges. The commenter also notes that components to be left in the below- grade areas will include metal. The commenter explains that there are known interactions between metal and concrete over time that are not outlined in the draft EIS. The commenter requests that CNL provide a detailed description of the grout to be used, including its formulation, the alternative formulations that were considered, alternative barriers that were considered, and the reasons for selecting grout as the preferred media and the selected formulation. In addition, the commenter requests that CNL provide a detailed description of the interactions between the grout/concrete and metal over time, including in the long-term. This should include estimates of radiological releases and/or other hazards and the basis for those estimates.	
82.	CELA (Feb. 13, 2018)	Section 4.3.1 (4-12 to 4-15)	The commenter indicates that based on the information provided to them by CNL on February 1, 2018 (Appendix 2 of their submission), the grout formulation is not finalized. The commenter submits that this is a crucial oversight as the success of the proposed decommission activity is inextricably dependent upon the grout's features. Absent a grout formulation against which models have been run and tests conducted, the long-term performance of the grout infill and barriers is hypothetical. The commenter refers to a 2009 report by the Savannah River National Laboratories [1] to illustrate that it is incumbent that the grout formula used for the proposed decommissioning project provide a necessary degree of flowability to ensure (1) voids and sufficiently filled, (2) desired strength and long term stability is achieved and (3) containment mobility is minimized. The commenter notes that it is unclear from the CNL documentation to what extent these factors have been analyzed and modelled. The commenter requests that CNL confirm upon what basis it is known that the grout will perform its function, absent a finalized formula. The commenter seeks clarity as to whether CNL has conducted an assessment for these attributes, listed above, and upon what basis it can justify the currently proposed grout formula. [Please refer to Appendix 2 and Information Request no. 28 of the commenter's submission for more information.] Reference: [1] Patricia Lee et al, "Technology Requirements for In Situ Decommissioning Workshop Report" Savannah River National Laboratories (June 2 2009), online: https://www.energy.gov/sites/prod/files/ISD_Workshop_Report_Final_June_18_2009.pdf [Savannah River National Laboratories 2009]	
83.	AANTC (Feb. 13, 2018)	Section 4.3.1.3 (4-12)	The AANTC indicates that careful consideration should be given to the merits of constructing a surface water management pond (SWMP) prior to the commencement of decommissioning activities, and grading the construction/decommissioning site such that the site runoff is directed into the SWMP.	

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84.	AOO (Feb. 26, 2018)	Section 4.3.1.3 (4-12)	This section of the draft EIS explains that the batch mixing plant will require the construction of wash out pits that will act as settling ponds. Section 4.3 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. The AOO request that CNL 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.	
85.	CELA (Feb. 13, 2018)	Section 4.3.1.6 (4-13)	Based on their review of literature and international guidance, the commenter raises the concern regarding whether the physiographic effects on the area, which will result when a large quantity of grout is placed within on-site structures (i.e., impacts on surrounding soil structure and water table), is understood and has been modelled. The commenter recommends that the effects resulting from significant increased loading due to the large quantity of grout material added on the surrounding soil structure and water table be modelled and reported on for review. The commenter requests that CNL provide sufficient data demonstrating that the effects resulting from significant loading of grout on site has been studied with regard to effects on surrounding soil structure and hydrology. [Please refer to the commenter's submission (Information Request no.32) for more information.]	
86.	AOO (Feb. 26, 2018)	Section 4.3.1.9 (4-14)	This section of the draft EIS states: "Once the final cap system has been completed, the temporary facilities will be removed. Clean building slabs, foundations and non-essential roadways will be reduced to rubble in place and the area restored with native vegetation." With respect to this statement, the AOO explain that there are too few details on how CNL intends to restore these disturbed areas as well as monitor them (including measures of success, monitoring intervals and scheduling) and report on progress (Section 9.6.3.2). Because of this, the AOO indicate it was not possible to adequately review CNL's restoration program. The AOO request that CNL develop a detailed site restoration plan (including specific monitoring protocols) in close consultation with AOO. Since the NPD Closure Project site falls within the unceded Algonquin Settlement Area, revegetation efforts have the potential to affect future AOO land use activities. The AOO also state that CNL should 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.	
Project Description – Project Schedule / Description du projet – Calendrier du projet				
87.	AANTC (Feb. 13, 2018) CCNR (Feb. 13, 2018)	Section 4.3.2 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters assert that the timelines for this project are aggressive [similarly with all three CNL projects], noting that the potential impacts of radioactive waste management projects are long term, lasting longer than only a few decades.	

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			Further, the CCNR expresses the concern that the timelines have put strain on non-governmental organizations (NGOs) wishing to intervene in a coherent and constructive manner, as well as the Canadian public, whose tax dollars fund these projects. The commenter argues that instead of providing ample opportunity for the public to become educated on the issues and to weigh the options at hand so that a satisfactory societal consensus can be developed, "the EA process seems to be highjacked" by CNL's commercial interests. The AANTC request that further details be provided on the impetus behind the current push to end the SwS status of the NPD Reactor facility.	
Project Description – Scope Change / Description du projet – Modifications à la portée				
88.	MNO (Feb. 14, 2018)	Section 4.3.3 (4-17)	The MNO indicates that the draft EIS does not include a summary of the changes that have been made to the project in terms of the benefits of "…these changes to… Aboriginal peoples…" The MNO indicates that this is contrary to specific direction within *CNSC's Generic EIS Guidelines* which states: "The EIS will include a summary of the changes that have been made to the project since originally proposed, including the benefits of these changes to the environment, Aboriginal peoples, and the public."	
Waste Strategy / Stratégie de gestion des déchets				
Waste Strategy – Waste Types / Stratégie de gestion des déchets – Types de déchets				
89.	Northwatch (Feb. 19, 2018)	Section 4.4 (4-19)	The commenter notes that the draft EIS contains only one reference (in Section 4.4) to the project end-state results or objectives: "By selecting a strategy of ISD, the project end state results in a disposal facility for the waste inventory at the NPD site. In that regard, all of the existing waste inventory at NPDWF, or generated as a result of the decommissioning activities, will remain within the grouted facility." While indicating that their selected strategy will result in an altered end-state (compared to the null option), the commenter explains that the draft EIS does not indicate what the intended end-state will be, or what the decommissioning objective is. The commenter explains that this single reference lacks content or any substantive statement with respect to the intended or aspired end-state. The commenter indicates that this failure to include a substantive discussion of the end-state is doubly curious, because not only does it fail to meet the information requirements of the EA process, but it is a sizeable information gap, which could have been readily filled with the following report: Seto, P. 2015. *Interim End State Report: Nuclear Power Demonstration (NPD) Waste Facility.64-508350-IES-001.* Prepared for CNL. October. The commenter argues that these statements and objectives should reference Canadian and international standards and guidance, and should reflect current and future site conditions at the NPD property. Particular attention should be paid to any potential impacts, or mitigation of impacts, on the Ottawa River. The commenter indicates that the statements or sections in the draft EIS, which reference this report on end-states for the NPD site, are not related – at least not directly – to end-state or decommissioning objectives. In each case of this end-state report being referenced, the draft EIS	

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			section describes current physical conditions of the site; none are statements or descriptions related to end-state objectives or decommissioning standards to be employed. The commenter concludes that the draft EIS provides no indication of the actual objectives of the decommissioning work beyond stating that the purpose of the project is "to safely carry out the decommissioning of the NPDWF". Subsequently, there are no measures against which project outcomes can be evaluated to determine project success. The commenter requests that CNL provide a clear and detailed statement that identifies the intended end state for the NPD property and the decommissioning objectives and how they will be met.	
90.	Nuclear Waste Watch (Feb. 9, 2018)	Section 4.4.1.1 (All)	From their review, the commenters identify a number of problems/errors with CNL's proposed radionuclide inventory for the NPD reactor facility and highlights the following important ones: • The value quoted for tritium in the reactor's Zircaloy pressure tubes. • The omission of data for H-3, C-14 and Co-60 as surface contaminants on reactor pipework, feeders, steam generators, pressurizers, heat exchangers, preheaters, etc. • The anomalous surface activity of Sb-125. • The anomalous surface activities of uranium and transuranic isotopes.	
91.	Nuclear Waste Watch (Feb. 9, 2018)	Section 4.4.1.1 (All)	The commenter requests that CNL provide all hydrogen/deuterium pickup data that have been determined from the analysis of removed pressure tubes over the operating life of the NPD reactor.	
92.	Nuclear Waste Watch (Feb. 9, 2018)	Section 4.4.1.1 (All)	The commenter requests that CNL provide fuel usage, fuel burnup and defect data for the NPD reactor from 1962 to 1987.	
93.	Nuclear Waste Watch (Feb. 9, 2018)	Section 4.4.1.1 (All)	The commenter requests that CNL provide all available quantitative radiometric data – including data for tritium, carbon-14, activated corrosion product, fission product, uranium and transuranics – derived from direct measurements of NPD pressure tubes, garter springs, calandria tubes, calandria shells and walls, end reflectors, end fittings, tube end supports, closure plugs, fuel latch assemblies, concrete shielding, steam generators, etc.	
94.	Nuclear Waste Watch (Feb. 9, 2018)	Section 4.4.1.1 (All)	The commenter requests that CNL provide all available analytical data, including gross alpha, and gross beta/gamma measurements, for smears that have been taken on contaminated surfaces within the NPD reactor vault including fuel handling areas.	
95.	Nuclear Waste Watch (Feb. 9, 2018)	Section 4.4.1.1 (All)	The commenter requests that CNL provide estimates, with an associated rationale, of the uncertainties in the entire inventory data provided thus far for the NPD facility.	
96.	Nuclear Waste Watch (Feb. 9, 2018)	Section 4.4.1.1 (4-19 to 4-20)	This section of the draft EIS states: "Typically, the modelled values (from neutron activation calculations) are used in preference to measurement data for the reactor systems." The commenters request that CNL provide a list of the assumptions and all input parameters (including estimated masses, impurity concentrations, full-power thermal, resonance and fast neutron fluxes, cross-sections and power histories from 1962 to 1987), used in neutron activation calculations for the NPD reactor facility.	
97.	Northwatch (Feb. 19, 2018)	Section 4.4.1.1 (4-19 to 4-20)	The commenter notes that the draft EIS describes various radioactive wastes on the NPD site as wastes that would generated by the project, rather than as wastes that had been generated through	

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		Also applicable to Section 2.2.3 (2-4)	NPD operations and would be managed through the project. The commenter raises the following concerns with the radioactive waste inventory and characterization in the draft EIS: • The radionuclide inventory of the reactor was estimated using mathematical models, rather than actual measurements; while CNL indicates that they have "also taken samples of reactor components to verify the estimated inventory" that statement was extremely vague and CNL provides no clear indication of which numbers are based on measures versus which are based on models; • CNL indicates that "Contamination in other areas of the NPDWF has been estimated based on previous measurements. These data have been combined with estimates of the amount of material that is contaminated in each room to derive an inventory for the main system, components or stored waste" but provides insufficient detail or information about the basis for estimates included in the draft EIS; and, • In some sections of the draft EIS, CNL makes precise statements about total residual radioactivity (e.g., by 2018) but is unclear on whether these definitive statements are based on measurements or on modelling.	
98.	CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 4.4.1.1 (4-19 to 4-20)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The CCRCA indicates that the source of the radiological inventory for the NPD site, and the methods used to develop it, should be described. More information is needed on the sampling procedure and analytical methods used to develop the waste inventory at the NPD site. The commenter explains that clarification should be provided as to whether radiometric methods, mass spectrometric methods, or a combination of the two were used to develop the inventory, noting the advantages and limitations of each. Mr. Ryan echoes these concerns.	
99.	CELA (Feb. 13, 2018)	Section 4.4.1.1 (4-19 to 4-25)	The commenter notes that tritium is the most significant nuclide at the Rolphton site due to its remaining large inventory and its high current annual releases. The commenter is of the view that CNL has not evaluated tritium activities in a wide range of materials prior to waste sentencing. To support this position, the commenter references several studies in their submission The commenter indicates that the reference studies render questionable, for example, CNL's estimate of 13.6 Bq of tritium in the 5,500 tonnes of stainless steel in the NPD. The commenter notes that the draft EIS states the computer models provide higher estimates (of nuclide amounts) than their measurements, so CNL used model results to be conservative but the details of their measurements are not provided (e.g., where were they taken). For example, if they measure nuclide levels of the concrete bioshields on their external surfaces that is where the lowest levels are while the highest levels are on the other end, nearest the reactor core. The commenter requests that CNL provide further analysis and justification for its conclusions in the EIS, taking into account tritium levels and emissions from this facility. In addition, the commenter requests that CNL provide the measurements and details used to inform computer modelling.	

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			[Please refer to the commenter's submission (Information Requests no. 20 and 25) for more context and for the studies referenced above.]	
100.	William Turner (Feb. 9, 2018)	Section 4.4.1.1 (4-20)	With respect to the existing radiological inventory, the commenter would expect that an assessment of the radioactive contents of any radioactively contaminated system would specifically address the activity of those components, not just give a number related to the total activity. The commenter argues that, as a minimum, CNL needs to provide the estimated activity content associated with each of the three IAEA waste classes, very low level waste (VLLW), low level waste (LLW) and ILW, for each of the six components listed on p.4-20. [Please refer to the commenter's submission for further information.]	
101.	CELA (Feb. 13, 2018)	Section 4.4.1.1, Table 4.4-1 (4-21)	The commenter refers to an email correspondence provided in December 2017 by CNL, which contains their estimated tritium concentration at present in the reactor vault concrete (Appendix 1) and which is outlined in Table 2a of the commenter's submission. The email correspondence also states that the mass of the concrete structures at NPD was estimated at 5,250,000 kg = 5.25E+09g. However, the commenter's estimation is that the "reactor vault" only constitutes about 1/12 of the total mass of the reactor building: the remainder is contained in all the other concrete structures of the reactor. The commenter refers to Krasznai 1993 [1], which discusses that the NPD reactor is made of both high density concrete (in the reactor vault) and regular density concrete surrounding the rest of the reactor structure. The mass of the latter is much greater than the former. The commenter notes that not only is the amount of regular concrete greater: its tritium concentration was found by Krasznai 1993 [1] to be approximately 5 times greater than that in high density concrete mainly because of the latter's lower pore volume. In other words, the commenter indicates that the amount of tritium in regular density concrete structures in the NPD reactor building considerably exceeds the amount of tritium in "reactor vault" concrete, perhaps by as much as a factor of 5 x 12 = 60. The commenter explains that if the factor of a 60 fold increase were conservatively adopted, then the amount of tritium in all concrete structures at the NPD would increase to 1.41E+12 x 60 = 8.46E+13 Bq. At present, the total nuclide inventory at Rolphton as estimated by CNL to be 5.19 E+13 Bq. If the above larger tritium estimate in concrete were used, the total nuclide inventory would increase to 1.39 E+14 Bq, a 160% increase. In addition, the commenter notes that AECL has stated that the 30-year post-shutdown total nuclide inventories were underestimated by factors of 1.46 and 1.26 for the pressure tubes and calandria tubes, respectively. It is not stated by CNL whether these factors have been taken into account in its nuclide inventories. The commenter recommends that CNL estimate the amount of tritium contained in the concrete outside the reactor vault. The commenter notes that it is likely to be large as the annual tritium emissions/releases to air and water from the NPD are still in GBq (109 Bq) amounts even today, 32 years after the cessation of operations. [Please refer to the commenter's submission (Information Requests no. 19 and 22) for more context as well as Table 2a and Appendix 1 referenced above.]	

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			Reference: [1] Krasznai JP (1993) The radiochemical characterization of regular- and high-density concrete from a decommissioned reactor. Waste Management. Volume 13, Issue 2 1993, Pages 131-141 http://www.sciencedirect.com/science/article/pii/0956053X9390005H	
102.	William Turner (Feb. 9, 2018)	Section 4.4.1.1, Table 4.4-1 (4-21 to 4-24)	The commenter poses the following questions with respect to Table 4.4-1: • What is the predicted residual activity for each of these nuclides at the end of the Institutional Controls period? • How does that predicted residual activity compare to the unconditional clearance levels provided in Schedule 2 of the *Nuclear Substances and Radiation Devices Regulations*?	
103.	Dr. J.R. Walker (Jan. 2, 2018) MNO (Feb. 14, 2018) Theresa Peluso (Feb. 8, 2018) Valerie Needham (Feb. 13, 2018) William Turner (Feb. 9, 2018)	Section 4.4.1.1 (4-25)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters raise the following concerns with CNL's proposal to store ILW in this location: From: • ILW has no place in a near surface disposal facility (NSDF), which the IAEA states should be disposed of in deep underground facilities. • CNL themselves have reversed their former position of disposing of ILW in their proposed NSDF at CRL; rather than placing the ILW at the nearby CRL site into a NSDF, CNL plans to manage ILW in interim storage until a long-term disposal solution for this category of radioactive waste has been developed and approved. Presumably, the transfer of the ILW from NPD into this interim storage at the nearby CRL site is an option. • There is a lack of clarity in the draft EIS on whether and which wastes could be classified as ILW and entombed at the NPD site; if there are hazards associated with ILW content of the facility, then appropriate evidence should be provided to prove CNL's assertion that any ILW entombed (no matter how small) will not present an undue risk to any "intruder" when the site is abandoned at the end of the Institutional Controls period.	
104.	Darlene Buckingham (Feb. 13, 2018)	Section 4.4.1.1 (4-25)	The commenter indicates that calling the waste that will be buried at this site "low-level" is misleading as all radioactive elements are included in the definition of "low level" waste, even the long-lived and highly radioactive isotopes will be found in this waste. The highly radioactive and long-lived reactor wastes are included in the "low-level" waste category along with the much-shorter lived wastes from medical treatment and diagnosis and scientific research.	
105.	CELA (Feb. 13, 2018)	Section 4.4.1.1 (4-25)	The commenter notes that ILW is defined by the CNSC as waste "that contains long-lived radionuclides in concentrations that require isolation and containment for periods beyond several hundred years." The commenter explains that the CSA standard N292.0-14, *General principles for the management of radioactive waste and irradiated fuel* contains an approximate boundary for radioactivity concentrations in ILW and LLW. Annex 5 of the CSA standard recommends limiting the amount of long-lived beta and/or gamma-emitting radionuclides (specifically	

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			including C-14, Cl-36, Ni-63, Zr-93, and Nb-94) in LLW to "an average of up to tens of kBq/g". The commenter notes, in other words, concentrations above this level (~E+04 Bq/g) constitute ILW. Annex 5 of the CSA standard also provides that the numerical limits for LLW and ILW are for orientation purposes and not rigid limits, as acceptable concentrations will differ between individual radionuclides or groups of radionuclides. However, as Table 3 [of the commenter's submission] indicates, individual concentrations of radionuclides (i.e., not an average in a mixture) in nearly every case (except one, Cl-36) exceed this CSA standard and constitute ILW. As such, the commenter argues that these radionuclides require a more rigorous containment and isolation than provided in near-surface facilities, such as that proposed for the ISD at Rolphton. The commenter refers to CNL's recent decision with respect to the NSDF project that ILW would not be disposed of in its proposed near-surface facility at the CRL site. The commenter argues that the same logic applies to the present proposal at Rolphton. In other words, the commenter indicates that high concentrations of long-lived nuclides at Rolphton constitute ILW and should not be disposed of in the proposed entombment which is also a near-surface facility. The commenter indicates that CNL does not seem to have addressed this vital issue in its draft EIS apart from one suggestion – the possible removal of the calandria. The commenter requests that CNL confirm whether CSA standard N292.0-14 has been implemented. [Please refer to Part II section 5, and Part IV section 4 of the commenter's submission (Information Request no.24) for further information].	
106.	MNO (Feb. 14, 2018)	Section 4.4.1.1 (4-25)	Section 4.4.1.1 of the draft EIS states: "The vast majority of the waste inventory, by volume, can be categorized as LLW due to the presence of short-lived radionuclides which will principally decay to below established clearance levels within the Institutional Controls phase." The MNO note that Sr-90, Cs-137, Co-60 and other relatively short-lived radionuclides have up to 300 year decay periods. The realistic Institutional Controls period is usually considered to be between 100 and 300 years for a site where waste has short decay periods and unrestricted site access may be permitted. For long lived radionuclides, such as Tc-99, I-129 and so on extend well beyond the institutional decay period, the MNO indicate that safety requirements should be more rigorous and may preclude on-site disposal, as discussed in the IAEA 1999 document [1]. The MNO explain that it is unclear, from the EIS statement quoted above, what is meant by "vast majority". If it is not all LLW, then one could assume there is ILW, albeit a small amount, proposed for ISD. The MNO refers to the recent public notice with respect to the NSDF project, regarding CNL's decision to only include LLW in this proposed facility. The MNO explains that it is unclear from the draft NPD EIS whether ILW, from the reactor, will be stored as part of the proposed ISD. Reference: [1] International Atomic Energy Agency (IAEA). (1999). On-site Disposal as a Decommissioning Strategy. IAEA-TECDOC-1124, IAEA. Vienna.	

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107.	William Turner (Feb. 9, 2018)	Section 4.4.1.2, Table 4.4-1 (4-25)	The commenter poses the following question with respect to the inventory of non-radiological contaminants: • Will the quantities of these non-radiological contaminants meet the most restrictive clean-up criteria for contaminated sites in Ontario?	
108.	CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 4.4.1.2 (4-25)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The CCRCA notes that p.4-25 of the draft EIS identifies that there are significant quantities of asbestos, lead, PCBs and mercury. The CCRCA indicates that details are needed as to how these quantities were determined. Mr. Ryan echoes these concerns.	
109.	AOO (Feb. 26, 2018)	Section 4.4.1.4 (4-25)	The AOO note that 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. The AOO state that CNL must remove all hazardous substances from the NPDWF and ensure that proper monitoring and disposal procedures are followed. In addition, CNL is requested to provide the AOO with all monitoring results during the active decommissioning phase to ensure regulatory compliance with the release of designated substances. The AOO indicate that leaving hazardous substances such as PCBs on the NPDWF does not represent best practice for the disposal of hazardous waste in Canada and that designated substances should be removed from the site and taken to appropriate waste storage facilities.	
Waste Strategy – Waste Characterization / Stratégie de gestion des déchets – Caractérisation des déchets				
110.	Darlene Buckingham (Feb. 13, 2018) Northwatch (Feb. 19, 2018)	Section 4.4.2 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "the radiological inventory comprises the radionuclides that would remain in NPDWF as part of the ISD strategy. These will primarily be associated with the reactor system (pressure tubes, calandria, and associated structures), as well as contamination within the heat transfer system, equipment for spent fuel storage and handling, facility structure and historic drummed waste." The commenters raise the concern that the radiological inventory that would be left in the below-grade areas is not sufficiently detailed in the draft EIS. In particular, Northwatch requests that CNL provide a detailed radiological inventory for all components that would be left in the below-grade areas, including levels of radioactivity over time. The inventory should include per component and total levels, and indicated if the provided levels are the result of measures, estimates, or some combination thereof.	
111.	PEP, Alliance des espaces verts de la capitale du Canada, Écologie Ottawa, Amis de la Terre	Section 4.4.2 (All / Au complet)	*Please note that this comment was also submitted in French (see below). A response in both official languages is therefore required.* **English Comment:** The commenter is of the opinion that the draft EIS lacks a credible radiological inventory with clear descriptions of how quantities of different radionuclides in the waste were determined.	

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	(Canada), RCPR, SOO (Feb. 13, 2018/ 13 février 2018)		*Veuillez noter que ce commentaire a été également été soumis en anglais (voir ci-dessus). Une réponse dans les deux langues officielles est donc requise.* **Commentaire en français**: Le commentateur est d'avis que l'EIE ne dispose pas d'un inventaire radiologique crédible avec des descriptions claires de la détermination des quantités de différents radionucléides dans les déchets.	
112.	CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 4.4.2 (4-27)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The CCRCA highlights that there is a lack of clarity on what limits, if any, there would be on amounts of radioactive and non-radioactive waste that CNL wishes to abandon in the concrete monolith. The draft EIS states on p.4-27: "As characterization of NPDWF progresses to verify waste inventories, a compilation of the measured inventory will be maintained in a database… Total measured inventories will then be compared against the reference inventory… Measured inventories that exceed the reference inventory, or may be generally problematic, would be removed for alternate disposition via other approved CNL routes. However, at this stage in the project, there have been no identified non-compliant inventories within NPDWF." The CCRCA poses the following questions: • What is the timeline for completing the verification of waste inventories? • Will there be an independent verification of the reference inventory? • On what basis has the "reference inventory" of radioactive and non-radioactive wastes at the NPD site been deemed "compliant"? • What bodies have the legal authority to make determinations of compliance? • On what basis would a finding of non-compliance be made? Mr. Ryan echoes these concerns.	
Scope of the EA / Portée de l'évaluation environnementale (EE)				
Scope of the EA – Scope of Factors / Portée de l'EE – Facteurs à prendre en considération				
113.	William Turner (Feb. 9, 2018)	General	The commenter argues that CNL has substituted an ERA for an EA, and that the difference between an ERA, EA and Performance Assessment (PA) is not properly understood. The commenter requests that CNL conduct an appropriate assessment of the potential impacts through the EA process, and refrain from using the ERA or PA tools inappropriately. Further, the commenter requests that CNL revise and eliminate all discussions and references to the results of an ERA since the process and results are inappropriate. For examples as to what should be included in a PA for an entombed facility, the commenter refers CNL to the following document cited as a reference in the EIS for the WR-1 *ISD* Project: U.S. Department of Energy. 2013. DOE EM Project Experience & Lessons Learned for In Situ Decommissioning. Prepared By U.S. Department of Energy, Office of Environmental	

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			Management, Office of D&D and FE, EM-13. Washington DC: Office of Environmental Management	
114.	MNO (Feb. 14, 2018)	Sections 5.2.1.1 (5-2) and 5.2.1.2 (5-6)	Sections 5.2.1.1 and 5.2.1.2 of the draft EIS indicates that to date, CNL has not received feedback from engagement activities on the spatial and temporal boundaries outlined for the project. The MNO indicates that no capacity or specific consultation was undertaken on the spatial and temporal boundaries, therefore, this statement is misleading. The MNO notes that the EIS statements imply that specific engagement was undertaken on the spatial and temporal boundaries, which was not the case. Furthermore, Table 2-1 (Summary of Guideline requirements and Concordance) in the Aboriginal Engagement Report TSD cross- referenced that Section 5.2.1 in this EIS "will contain a description of the geographical setting…including: description of local and Aboriginal communities; traditional Aboriginal territories, treaty lands, and Indian reserve lands and Métis harvesting regions and/or settlements". However, the MNO notes that Section 5.2.1 does not have such descriptions.	
115.	Northwatch (Feb. 19, 2018)	Section 5.2.1.2 (5-6)	The draft EIS states that Institutional Controls are expected to remain in place for a period of 100 years is assumed (based on the PostClosure Safety Assessment TSD) and further states:"100 years is a conservative assumption for cessation of Institutional Controls." The commenter indicates that a period of 100 years for Institutional Controls is stated, and claimed to be conservative, but no basis for the selection of 100 years is provided. The commenter notes that a period of 300 years is more common in Canadian proposals for long-term waste disposition projects. The commenter requests that CNL provide a basis for the selection of 100 years for Institutional Controls from a safety perspective, and a description of how the period of 100 years was selected over alternative lengths, including but not limited to consideration of a period of 300 years.	
116.	Joann McCann (Feb. 12, 2018) Bozena Hrycyna (Feb. 13, 2018) Diane Beckett (Feb. 13, 2018) Herbert Fitzroy (Feb. 13, 2018)	Section 5.2.1.2 (5-6)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters express concern with the entombment just below surface of radioactive materials that will be hazardous for hundreds of thousands of years and abandonment after only 100 years, especially when decommissioning a reactor with a footprint of this size. Ms. Beckett further notes that: "Entombment and abandonment have significantly more negative impacts than active management." In addition, Ms. Beckett states that abandonment is illegal, according to international guidelines.	
117.	William Turner (Feb. 9, 2018)	Section 5.2.1.2 (5-6)	The third bullet point on p.5-6 of the draft EIS states: "Post-Institutional Controls, which includes abandonment of the site following Institutional Controls. Assessment of the Post-Institutional Controls phase extends far into the future." The commenter argues that if abandonment is the goal, then all CNL needs to do is to assess the residual activity against unconditional clearance criteria. Therefore, there is no need to assess	

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			anything "… far into the future". The commenter requests that CNL revise this bullet point.	
118.	AOO (Feb. 26, 2018)	Section 5.2.2 (5-7)	Section 5.2.2 of the draft EIS states: "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." The AOO pose the following question: Is this selection process based entirely on professional judgement of CNL and its consultants? The AOO note that 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 Features, Events and Process (FEPs) analysis of the *Post Closure Safety Assessment* TSD. However, the AOO explain that there is a need for the process of peer review to ensure that technical decisions have support of evidence and appropriate interpretation and that such a process does not appear to have been followed. The AOO request that CNL provide further information to address these concerns with respect to the identification of potential project-environment interactions.	
119.	William Turner (Feb. 9, 2018)	Section 5.2.3 (5-11)	The commenter notes that, when identifying Contaminants of Potential Concern (COPCs), CNL needs to consider the ultimate goal of this project, which is site abandonment. If the site is to be abandoned, then there is no need to predict future concentrations except to demonstrate that they meet unconditional clearance criteria. However, the commenter argues that CNL needs to identify the COPCs with respect to the currently planned project activities associated with the temporal boundary between now and the end of the Institutional Controls period.	
120.	AOO (Feb. 26, 2018)	Section 5.2.2, Table 5.2-2 (5-12)	With respect to Table 5.2-2 in the draft EIS, the AOO provides the following example, under "Soil": "The presence of these contaminants is associated with natural background or past NPD operations, not with NPD closure project activities." The AOO explain that 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 the AOO note that there is no supporting evidence for this. Dioxins/furans in water at the base of the vault indicate transport from the landfills and incinerated waste. The high concentrations suggest a sizeable source. The AOO pose the following question: 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? The AOO request that CNL provide further information to address these concerns with respect to exceedances in soil and groundwater.	
121.	MNO (Feb. 14, 2018)	Section 5.2.2, Table 5.2-2 (5-12)	Table 5-2-2 of the draft EIS states: "At TP-N (near Landfill #1, See Figure 8.5-4) cadmium, copper, lead, molybdenum and zinc exceeded MOE Guidelines." The MNO are concerned that aluminum, cadmium, copper, lead, molybdenum and zinc exceeded MOE Guideline levels for soil but was minimized as they were identified as being in relation to past NPD operations. The MNO pose the following question: How will these past NPD operation levels be managed by the closure project to remediate levels to fall within MOE Guidelines?	

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122.	MNO (Feb. 14, 2018)	Section 5.2.4 (5-14)	The MNO note that the examples of socio-economic or cultural VCs listed which include heritage resources or hunting and trapping are limiting in their scope. Instead, the MNO indicate that this section should broadly refer to Aboriginal rights and interests as these rights and interests encompass a much broader scope than hunting and trapping. For example, Métis Citizen perception and intangible aspects of Métis rights such as Métis way-of-life must also be considered in the selection of VCs.	
123.	William Turner (Feb. 9, 2018)	Section 5.2.4.1 (5-14 to 5-15)	With respect to the VC selection process described in Section 5.2.4 of the draft EIS, the commenter asserts that the list is flawed. The implicit assumption that the list of VCs that currently exist on the site will be the same over the entire project timeline cannot be true. The commenter gives the example of the chimney swifts, which did not inhabit the ventilation stack 30 years ago but are now considered a VC. The commenter recommends that CNL revisit the VC selection process and include consideration of the full temporal boundary of the project. [Please refer to the commenter's submission for further information.]	
124.	AOO (Feb. 26, 2018)	Section 5.2.4.1 (5-14 to 5-15)	The AOO indicate that there is no mention in Section 5.2.4.1 of Aboriginal engagement in the selection of possible candidate species. The AOO pose the following question: Was any effort made to incorporate species important to the traditional users of the land around NPD? The AOO note that it appears that Aboriginal input was solicited once the VCs were decided and seeks further information regarding Aboriginal engagement on the selection of VCs.	
125.	MNO (Feb. 14, 2018)	Section 5.2.4.1 (5-15)	Section 5.2.4.1 of the draft EIS states: "3. Provide opportunity for VC engagement. Once a draft VC list was developed, input was solicited from Aboriginal, agency, and public stakeholders. The feedbackreceived during the VC engagement was documented and is summarized in Section 6.3.3.1, and includes discussion of VCs that were suggested for inclusion during the engagement process." The MNO explain that neither Section 6.3.3.1 nor the *Aboriginal Engagement Report* TSD indicates that MNO has been consulted with respect to traditional, cultural and heritage importance to Métis Citizens and their rights and interests prior to VC selection. No feedback or input on the VC selection was sought from the MNO.	
126.	MNO (Feb 14, 2018)	Section 5.2.4.2, Table 5.2-3 (5-17)	The MNO raise the following concerns with respect to Table 5.2-3 of the draft EIS: • There is no sub-component under human health for the assessment of Aboriginal health: Métis harvesters can and do have differing consumption levels from non-Aboriginal hunters, trappers, fishers and gatherers. Therefore, Aboriginal health must be considered separately; • There is no sub-component under Traditional Land and Resource Use by Aboriginal Peoples that deals with MNO Citizen perception or the intangible aspects of Métis rights: These aspects must be considered to ensure an accurate representation of effects to MNO is quantified; • There is no consideration of Métis use and enjoyment of the area surrounding the CNL property as a sub-component of the socio- economic environment. This is of importance	

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			to MNO as a component of Métis way-of-life; • There is no discussion in the rationale for white-tailed deer, of the importance of this species to Aboriginal hunters, particularly MNO who use white-tailed deer for subsistence and ceremonial purposes; and, • There is no discussion in the rationale for walleye, of the importance of this species to Aboriginal fishers, particularly MNO who use walleye for subsistence and ceremonial purposes.	
127.	AOO (Feb. 26, 2018)	Section 5.2.4.2, Table 5.2-3 (c) (5-17)	With respect to Table 5.2-3 "Selection of VCs" in the draft EIS, the AOO explain that the selection of fish species is problematic, and it is not clear if species important to Aboriginal groups were considered. The AOO indicate that white-tailed deer is harvested by First Nations and is considered under "Socio-economic" 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 AOO note that the activities of hunting, fishing and trapping are considered to be VCs, but not the non-human species that are involved. In addition, the AOO flag that there are no recreational or commercial fish used as VCs (e.g., northern pike, walleye or lake trout). The AOO request that CNL provide further information to address these concerns with respect to the selection of VCs.	
128.	AOO (Feb. 26, 2018)	Section 5.2.4.2 (5-20 to 5-21)	The AOO note that emerald shiner, lake whitefish and lake sturgeon were identified as VCs for the aquatic environment. The AOO indicate that it is unclear why these species were singled out, rather than choosing all fish as the VC. The AOO explain that if these species were chosen as representative of the fish community then there is a clear gap in that no piscivorous fish (e.g., northern pike, walleye, sauger, smallmouth bass, muskellunge) were 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. The AOO further explain that all species are of importance to them, 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 AOO request the CNL provide the rationale for the species chosen as aquatic VCs, and that the AOO be consulted on the selection of VCs. The AOO adds that the effects assessment for the project should be updated with additional fish, including piscivorous fish, as VCs.	
129.	AOO (Feb. 26, 2018)	Section 5.2.4.2, Table 5.2-3 (i) (5-21)	The AOO indicate that there are missing VCs in Table 5.2.3 of the draft EIS that would be relevant to the socio-economic aspects of the NPD Closure Project. The AOO request that CNL include and assess additional relevant VCs such as community safety, health and wellbeing, emergency response services, and AOO-specific employment and economic development. The AOO also ask that CNL consider AOO-specific measures such as AOO procurement, employment, and tenants within the AOO's Agreement-in-Principle.	

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Public and Stakeholder Engagement / Mobilisation du public et des parties prenantes				
Public and Stakeholder Engagement – General / Mobilisation du public et des parties prenantes – Général				
130.	Erin Parker (Feb. 12, 2018) OFWCA (Feb. 8, 2018) Sharon Odell (Feb. 13, 2018) William Turner (Feb. 9, 2018)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Overall, the commenters share the opinion that CNL's public consultation process is not meaningful in that the public was not consulted on the alternatives means; consultation only started after the preferred method was chosen, and the feedback provided by the public to CNL has not been adequately addressed. One commenter is of the opinion that CNL's public engagement sessions are aimed to persuade the Canadian public into believing that the legacy wastes will be well cared for, that all is proven and safe, and that the entombed hazardous material will be isolated from the environment ("best practices"). The commenter is of the perspective that CNL has mislead the public and that these conclusions are false. Another commenter questions if CNL has met section 4(1)(e) of CEAA 2012, which is "to ensure that opportunities are provided for meaningful public participation during an environmental assessment."	
131.	William Turner (Feb. 9, 2018)	Section 6.3.3.2, Table 6.3-4 (6-24 to 6-25) Also applicable to Section 2.4 (2-9)	The commenter argues that the following two significant issues should be included in Table 6.3-4: • Entombment of the reactor does not meet international best practice • There may be no end to the Institutional Controls period The commenter is of the opinion that if participants did not identify these two issues during the public engagement activities, then it is incumbent on CNL to ensure these issues are presented for discussion. The questions and responses in Table 6.3-4 miss the underlying problem with this project: the choice of "entombment" as the preferred option. If CNL addressed the comments submitted on the Project Description, this drawback would be obvious.	
Public and Stakeholder Engagement – Engagement Methods and Activities / Mobilisation du public et des parties prenantes – Méthodes et activités de mobilisation				
132.	Angela Keller-Herzog (Feb. 13, 2018) Diane Beckett (Feb. 13, 2018) Sharon Odell (Feb. 13, 2018)	Section 6.2 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters raise concerns with the lack of public engagement meetings in Ottawa-Gatineau, as well as the lack of media coverage, including from the Ottawa Citizen newspaper and other Ottawa media outlets.	
133.	Michele and Ronald Kaulbach (Feb. 7, 2018)	Section 6.2 (All)	The commenters explain that no information was provided to them by the Mayor of Laurentian Hills regarding the NPD Closure Project due to their location – Davis Island – which they were told is "not in the prescribed endangered area." No more information was provided to them, while Old Fort William, which is just a little further down the Ottawa River, had more information and precautionary recommendations. The commenters find this unacceptable.	
134.	William Turner	Section 6.2.1.1 (6-5)	This section of the draft EIS states: "On October 29, 2015, the NPD Closure Project was first	

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	(Feb. 9, 2018)		introduced to the members of the ESC (Environmental Sterwardship Council) as a part of a Decommissioning and Waste Management update. See Appendix Q1 of the Stakeholder Activities TSD." The commenter notes that Appendix Q1 of the Stakeholder Activities TSD provides no information regarding this ESC meeting, and therefore, it cannot be confirm whether this project was presented at that time or not. The commenter highlights that if the statement that the project was first introduced in October 2015 is taken at face value, then in less than two months from the commencement of the contract with CNEA, CNL made the decision to entomb the reactor. As a result, all subsequent activities associated with the decommissioning of the NPD reactor focused on justifying "entombment" as the preferred option. The commenter further argues that a cursory review of the Stakeholder Activities TSD shows that all subsequent communication activities consisted of announcements and all responses to questions consisted of defending the decision, rather than being a two way communication process. CNL should not decide on a "solution" before understanding and defining the "problem". That process must be open and transparent from beginning to the end.	
Public and Stakeholder Engagement – Feedback / Mobilisation du public et des parties prenantes – Rétroaction				
135.	MNO (Feb. 14, 2018)	Section 6.3.3.1 (6-22)	This section of the draft EIS states: "In general, organically generated feedback from public information sessions indicated that there are certain areas of interest from the public that correspond to what the project has determined to be VCs, so far. Specifically, there have been comments and questions, which unambiguously express value in the Ottawa River (water quality) and land use and planning (indicated by concern for future land use at the NPD site) as VCs. Comments and concerns also indicate general public interest and concern about protection of the chimney swift." The MNO is of the opinion that the feedback on VCs from the public is not reflective of perspectives of the MNO; the comments and concerns are rather generic. The MNO should be consulted as to whether the VCs selected have specifically considered Métis rights and interests in the assessment and the potential for interaction with the project activities.	
136.	AOO (Feb. 26, 2018)	Section 6.4 (6-28)	This section of the draft EIS states: "While most of the key issues that stakeholders have brought forth have been resolved or incorporated into the design of the project, one outlier is with regards to land use of the non-impacted land of the NPD site. To address this issue, CNL has clarified through consistent messaging and communications with stakeholders that the NPD property belongs to AECL, a federal corporation. Once CNL completes the decommissioning of the NPD reactor, AECL will look at the future of the lands. AECL will take into account consideration for stakeholder engagement, as appropriate, and the duty to consult with Aboriginal peoples." The AOO are of the opinion that 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 are interested in obtaining the remaining 364 hectares (900 acres) of the NPD property after CNL decommissioning and rehabilitation work is completed. The AOO recommends that CNL and AECL enter into formal discussions with the AOO regarding potential land transfer arrangements	

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			for portions of the NPD property. CNL and AECL should also commit to obtaining a Record of Site Condition under Ontario Reg. 153/04 for Residential/Parkland/Institutional Property Use Site Condition Standards in order to initiate the land transfer process.	
137.	MNO (Feb. 14, 2018)	Section 6.4 (6-28)	This section of the draft EIS states: "AECL will take into account consideration for stakeholder engagement, as appropriate, and the duty to consult with Aboriginal peoples." The MNO seeks clarity as to with whom, when and how such consultations will be conducted. Also, in order to ensure meaningful consultations occur in this regard, the MNO should develop and execute consultation/engagement protocols with both CNL and AECL. Additionally, if the CNSC continues to conduct procedural aspects of consultation, a consultation protocol with CNSC should also be developed.	
Aboriginal Engagement / Mobilisation des autochtones				
Aboriginal Engagement – General / Mobilisation des autochtones – Général				
138.	Bozena Hrycyna (Feb. 13, 2018) Cheslee Pettit Dexter (Feb. 11, 2018) Chris Cavan (Feb. 12, 2018) Christina Anderman (Feb. 13, 2018) Erin Parker (Feb. 12, 2018) Rita Redner (Feb. 13, 2018)	Section 7 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters want to be assured that proper consultation is conducted with Aboriginal peoples upon whose unceded territory the waste will remain, and question whether the United Nations Declaration on the Rights of Indigenous Peoples has been applied, including whether prior and informed consent has been obtained. One commenter states how "the Algonquins of Ontario […] should be honoured first in this conversation regarding this territory, one they have traditionally (responsibly) stewarded, and should continue to steward, according to their ways and traditional teachings. Their comments shed light on the many serious concerns that have not been addressed regarding land claims, transparency, and respect for indigenous rights, in connection with the CNL's activities near the Ottawa River." Another commenter states that all Algonquin peoples must be properly asked to share their perspectives with regards to this proposal, to be deeply, sincerely, and respectfully heard. Consultation must unfold on terms made and agreed upon by all parties.	
139.	CCNR (Feb. 13, 2018)	Section 7 (All)	The commenter identifies that the "Joint Declaration of the Anishinabek Nation and the Iroquois Caucus in Ontario"[1], released in May 2017, lists five principles that are not embodied in the draft EIS for the ISD of the NPD facility. The five principles that were agreed upon for the long-term management of radioactive wastes are: 1) No abandonment of radioactive waste materials 2) Long-term monitoring and retrievable storage 3) Better containment, more packaging 4) Away from major water bodies 5) No imports or exports of nuclear wastes over public roads and bridges Reference:	

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			[1] http://ccnr.org/Joint_Declaration_2017.pdf [Please refer to the commenter's submission for more information, including the details of each principle stated above.]	
140.	AOO (Feb. 26, 2018)	Section 7 (All)	The AOO state that they were not directly consulted regarding the NPD Closure 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. The AOO request that CNL continue to engage the AOO and ensure the NPD Closure Project 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.	
141.	MNO (Feb. 14, 2018)	Section 7 (All)	The MNO notes that the Aboriginal Engagement Report (AER) TSD referenced in this section does not contain sufficient information on the MNO to satisfy regulatory requirements. This may be due to insufficient capacity funding provided to the MNO for participation in this proposed project, a lack of specific consultation on project-specific effects, and a late start to consultation activities. The MNO explains that the deficiencies found will make it difficult, if not impossible, for the Crown to rely on the EIS to determine the degree to which Métis rights, interests and way of life may be negatively impacted by the proposed project. Accordingly, the draft EIS, in its current form, will not serve the Crown in being able to discharge its duty to consult and accommodate, which is lawfully owed to the rights-bearing Métis community in the regions represented by the MNO. The MNO emphasizes that their concerns are only preliminary in nature and should not be considered exhaustive, as the MNO has not yet been able to engage in effective and meaningful consultation with CNL in respect of this project. The MNO hopes and expects that, through meaningful consultations, they will be able to further understand, assess and articulate the potential effects that the project may have on Métis rights, interests and way of life.	
142.	William Turner (Feb. 9, 2018)	Section 7.1 (7-1)	This section of the draft EIS states: "An Aboriginal Engagement Report (AER) TSD for the proposed NPD closure project was prepared in 2016 by CNL… A final revision reflecting ongoing Aboriginal engagement activities and updated information as a result of this engagement will be submitted to accompany the final EIS." The commenter raises the concern that if the Aboriginal Engagement Report and its associated activities are not finalized, then CNL has yet to address the requirements under Section 4(1)(d) of CEAA 2012. An incomplete engagement process also suggests that some of the provisions of the *Constitution Act, 1982* remain unresolved. Without completing this critical process, it is unclear whether CNL has received any agreement as to the concerns of Aboriginal communities. As such, the commenter is of the opinion that all decisions made with respect to this project must be considered tentative. In addition, as the commenter understands it, there is an outstanding land claim for a considerable area of land that includes the NPD site. Thus, until the Aboriginal	

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			Engagement process is completed, the project cannot proceed and should be withdrawn until engagement with the Indigenous community is complete.	
Aboriginal Engagement – Objectives and Identified First Nation and Métis Communities / Mobilisation des autochtones – Objectifs et Communautés des Premières Nations et Métis identifiées				
143.	MNO (Feb. 14, 2018)	Section 7.2 (7-1)	This section of the draft EIS states: "Through its engagement activities, CNL seeks to […] identify potential impacts of project activities on treaty rights such as the right to trap, hunt, fish, gather or conduct cultural ceremonies." This is problematic for the Métis Nation of Ontario. The MNO states that although they do not have treaty rights, they have Aboriginal rights and interests, some of which were recognized by the Ontario-Métis Nation Framework Agreement signed in 2008 and the Canada-MNO Memorandum of Understanding signed in 2017. The Ontario-Métis Nation Framework Agreement was communicated to CNL and the CNSC in MNO's submissions dated July 4, 2011, May 31, 2011, and September 6, 2011. The MNO expects that their rights and interests be considered and assessed as part of the draft EIS.	
144.	MNO (Feb. 14, 2018)	Section 7.2 (7-1)	This section of the draft EIS states: "Through its engagement activities, CNL seeks to […] seek feedback from communities regarding traditional and current uses of the land surrounding the NPD site and to identify potential impacts of project activities on treaty rights such as the right to trap, hunt, fish, gather or conduct cultural ceremonies." The MNO quotes from Section 3 of CNSC's *REGDOC-3.2.2, Aboriginal Engagement*, which indicates: "Licensees shall conduct a review to consider whether the activity described in their licence application requesting authorization from the Commission: […] • Could adversely impact an Aboriginal group's potential or established Aboriginal and/or treaty rights, such as the ability to hunt, trap, fish, gatheror conduct ceremonies" The MNO is of the opinion that CNSC's *REGDOC-3.2.2, Aboriginal Engagement* is not proscriptive about Aboriginal rights and activities, and that the list above is not exhaustive; rather, it represents examples of potential or established Aboriginal rights. Therefore, by limiting the draft EIS to these activities, CNL is missing critical aspects of MNO's rights, particularly, MNO's perception and intangible aspects of Métis way-of-life.	
145.	MNO (Feb. 14, 2018)	Section 7.2 (7-2)	This section of the draft EIS states: "Chapter 5 of the AER TSD describes traditional land and resource use, based on existing and available information." The MNO notes that no traditional land and resource use information is presented in the draft EIS from the MNO. In fact, the only group with any information presented is the AOO. The MNO notes that this is problematic as the project is also situated within a traditional harvesting territory of the MNO. The MNO is of the opinion that this real and constructive knowledge of rights in the project vicinity should have prompted CNL to complete a traditional land use study with the MNO to document their rights and interests in the project vicinity. The MNO is also of the opinion that CNL's objectives and strategies are not reflective of the gist of the key objectives of CEAA 2012, which is to provide opportunities to Aboriginal communities to learn about the project's potential effects, specifically related to Aboriginal rights, and to form a two-way communication mechanism to discuss concerns	

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			and measures to mitigate those effects with Aboriginal communities. Instead, the MNO argues that CNL's objectives and strategies are mainly one-way communication about the project. The MNO asserts that this is not sufficient to consult the MNO.	
146.	MNO (Feb. 14, 2018)	Section 7.3, Table 7.3-1 (7-3)	Table 7.3-1 in the draft EIS states, for the MNO: "Assertion of rights in vicinity of project." The MNO indicates that they have recognized rights in the vicinity of the project, not just an assertion of those rights. Their rights are recognized and affirmed as part of the MNO-MNR Harvesting Agreement. These rights are further described via the Mattawa Research, a tripartite research initiative financially supported by the Ontario Government and the Government of Canada with equal participation of the MNO [1]. Reference: [1] http://www.metisnation.org/news-media/news/historic-research-report-on-métis-community-in-mattawanipissing-region-released/	
147.	MNO (Feb. 14, 2018)	Section 7.3 (7-4)	This section of the draft EIS states: "As noted in the Record of Decision, funding was offered by the CNSC to assist Aboriginal groups participate in the project, review of the licence application, and the CNSC's hearing processes." The MNO notes that funding offered by the CNSC does not replace the funding which should have been provided by CNL. CNL should have, at minimum, provided funding for the MNO to: • Engage in an early and comprehensive consultation process • Execute a traditional land use study in the project vicinity • Have input on the identification, mitigation and accommodation of project impacts on MNO rights and interests The MNO is of the opinion that due to insufficient funding for these activities, they were not able to be completed by MNO and were not considered or covered by the funding provided by CNSC, leaving this draft EIS deficient.	
Aboriginal Engagement – Engagement Methods / Mobilisation des autochtones – Moyens de mobilisation				
148.	MNO (Feb. 14, 2018)	Section 7.4 (7-5)	The MNO notes that the draft EIS lists all of the methods utilized by CNL to-date or in the future. The MNO is of the opinion that many of these "engagement methods" are standard stakeholder engagement practices, and thus, are not specific to a fulsome Aboriginal consultation program. The MNO also believes that the consultation process with the MNO should be a reciprocal process. The MNO indicates the reasons why the following engagement activities employed by CNL are not adequate: • Newspaper advertisements: these are not specific to Aboriginal groups, who may not view them. The MNO has a specific newsletter which could accommodate advertisements from CNL; • Meetings to discuss the project and potential impacts: these are meaningless when there has been no provision of capacity for the MNO to secure the necessary expertise to participate;	

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			• Environmental Stewardship Council meetings: these are not project-specific and are not intended as a mechanism to fulfill adequate consultation with the MNO; • Public information sessions, media notifications/releases and webpage content: these are not specific to Aboriginal groups and may not contain the information of importance to those groups in an easily digestible, plain language format; and, • Capacity assistance: this is not sufficient to execute a fulsome consultation process that allows for the identification of project effects to Métis rights and interest.	
Aboriginal Engagement – Engagement Activities Completed / Mobilisation des autochtones – Activités de mobilisation terminées				
149.	William Turner (Feb. 9, 2018)	Section 7.5 (7-5)	The commenter notes that, of the 14 methods listed in this section, none appears to include discussions about alternative means to allow Aboriginal groups to present their suggested alternatives. Further, the commenter argues that these methods are one-sided, consisting of announcement activities only. As such, none of these methods can be considered "engagement" activities.	
150.	MNO (Feb. 14, 2018)	Section 7.5, Table 7.5-1 (7-7)	The MNO argues that the activities listed in Table 7.5-1 (p.7-7) do not meant that CNL has fulfilled the duty to consult. Although the MNO confirms having received letters and phone calls, the meeting and other engagement activities that CNL has conducted so far did not facilitate a two-way meaningful consultation with the MNO. For example, CNL's meetings with the MNO's Mattawa/Lake Nipissing Traditional Territory Consultation Committee consisted mainly of a presentation by CNL on the project description. Project effects specific to Métis harvesting rights, perception and Métis way of life were not discussed. Furthermore, the insufficient capacity provided to the MNO made it impossible to give a detailed response during the ongoing consultation process. [Please refer to the MNO's submission for more information.]	
151.	AOO (Feb. 26, 2018)	Section 7.5, Table 7.5-1 (7-12)	The AOO state that they were not initially provided with adequate notice to participate in the Stage 1 Archaeological Assessment field visit, as outlined in communications between CNL and the AOO from November 2016. The AOO request that CNL provide adequate notice and capacity resources for the AOO to participate in archaeological site visits and field assessments related to the NPD Closure Project from this point forward. This includes directly engaging with Archaeological Liaisons identified by and serving as representatives of the AOO.	
Aboriginal Engagement – Feedback Received to Date / Mobilisation des autochtones – Rétroaction reçue à ce jour				
152.	MNO (Feb. 14, 2018)	Section 7.6 (7-30)	This section of the draft EIS states: "While discussions have been underway with respect to organizing formal meetings between CNL and Aboriginal communities and/or organizations, there has been limited opportunity to do so to date based on the availability of identified communities and organizations." The MNO indicates that, as evidenced by Table 7.5-1 as well as the statement within this section, the consultation activities undertaken by CNL with the MNO, to date, have been limited in scope	

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			and capacity provision. The MNO is of the opinion that this has led to a draft EIS that does not consider Métis rights and interests or project effects on these rights and interests.	
153.	MNO (Feb. 14, 2018)	Section 7.6 (7-30)	This section of the draft EIS states: "Information on traditional land use activities to date has been drawn from: existing studies and reports; formal and informal engagement activities; and general knowledge of the region and local Aboriginal communities and organizations." The MNO notes that although the site has been in place for many years, no traditional land use study has been undertaken by CNL with the MNO. There is no existing project-specific traditional land use information available specifically for CNL projects, putting the MNO at a disadvantage.	
Aboriginal Engagement – Planned Engagement Activities / Mobilisation des autochtones – Activités de mobilisation prévues				
154.	AOO (Feb. 26, 2018)	Section 7.7 (7-30 to 7-31)	The AOO state that no 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 traditional land and resource use values, or how the AOO will be involved in environmental monitoring or emergency response. The AOO request that CNL work with AOO Consultation Staff on developing an AOO-specific Aboriginal Engagement Plan that includes establishing a clear communication protocol between CNL and the AOO, providing a schedule for engagement opportunities between CNL and the AOO, and identifying what opportunities will be provided for further input on the project.	
155.	AOO (Feb. 26, 2018)	Section 7.7 (7-30 to 7-31)	The AOO state that CNL has not indicated how it will engage with the AOO regarding the protection of the AOO's land use interests in the Local Study Area. The AOO request CNL to work with the AOO to protect future land use interests of the AOO in the Local Study Area, including potential acquisition of adjacent buffer lands.	
156.	AOO (Feb. 26, 2018)	Section 7.7 (7-30 to 7-31)	The AOO state that there is currently 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. The AOO request that AECL/CNL enter into negotiations with the AOO to establish a Long-Term Relationship Agreement, and thus, determine a formal approach to consultation and accommodation for the NPD site moving forward. The AOO is of the opinions that since the NPD site lies within the unceded AOO Settlement Area, a formal accommodation arrangement between AECL/CNL and the AOO is necessary.	
157.	MNO (Feb. 14, 2018)	Section 7.7 (7-31)	The MNO notes that CNL has identified additional engagement activities that are planned to take place as the project progresses, such as "ongoing engagement with identified communities to develop a work plan to formalize a mutually understood working relationship." The MNO is of the opinion that the identified process for the development of individualized work plans is occurring too late in the EA process for the results to be meaningful, that potential project effects have already been identified, and that any work that the MNO puts into further identification of effects to their rights and interests will not be considered as part of the EIS. Therefore, the approach taken is problematic and has led to a deficient draft EIS. The MNO confirms that a work plan has not been developed and that based on the additional	

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			engagement activities listed by CNL, it is unclear how potential impacts to Métis rights will be identified and assessed.	
Description of the Existing Environment / Description du milieu				
Description of the Existing Environment – General / Description du milieu – Général				
158.	John Almstedt (Feb. 18, 2018)	General	The commenter is of the perspective that the greatest oversight of the draft EIS is a failure to show or refer to any environmental data, such as water monitoring information, collected over the past 30 years that the public can view and assess on their own accord.	

159.	AOO
	(Feb. 26, 2018)
		Section 8 (All)	The AOO find that the NPD environment is inadequately characterised, and note that the description of the chemical and biological environment at the NPD is very weak; the most basic environmental quality data have not been collected or reported in the EIS. Data from the CRL 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.
			The AOO cite various examples from the draft EIS, including:
			• "Climate normals on bright sunshine and cloud cover are not available at or near the CRL or NPD sites." (p.8-16)
			• "Climate normals on atmospheric pressure data are not available at or near the CRL or NPD sites." (p.8-18)
			• "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.8-29)
			• "Chemical levels in surface water in the part of the Ottawa River located in the Site and Local Study Areas are not available." (p.8-45)
			• "Chemical levels in surface water in the part of the Ottawa River located in the Regional Study Area are not available." (p.8-51)
			• Regarding sediment quality, Tables 8.3-8 and 8.3-9 report data on radionuclides in sediments near the outfall but do not report data from sites P-28 (included in Table 8.3-9), P-32, P-31, P-33 or P-34, which are closest to the outfall. The AOO question why are data from these sites not included with the others? (p.8-51)
			• Regarding 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) (p.8-81). The AOO ask:
			  ○ Why the analysis is so selective?
			  ○ Aren't the data on groundwater chemistry required for modelling the transport of radionuclides and other contaminants?
			• Regarding Sections 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. Chimney swifts seem to be the only species confirmed on the	

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			site (p.8-86). The AOO ask the following questions: ○ 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? The AOO express the view that CNL should conduct a detailed environmental survey of the physical, chemical, and biological conditions of the NPD site, 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. The baseline characterization of the environment is not acceptable for a project with this level of risk. The AOO conclude that additional information must be provided before the EA process can continue, and request responses to the issues noted above.	
160.	AOO (Feb. 26, 2018)	General	The draft EIS states: "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." The AOO note that 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. The AOO conclude that additional information must be provided before the EA process can continue, and request a response to the issue noted above.	
161.	MNO (Feb. 14, 2018)	Section 8.1, Table 8.1-1 (8-1)	Section 8.1 of the draft EIS states: "As discussed in DeWaele (2016), regarding the need for an environmental monitoring program (EMP), which is based on criteria set out in CSA N288.4 (2010). These criteria are summarized in Table 8.1-1 below. An EMP is needed if one or more of the criteria are met." The MNO notes that this table sets out the need for an Environmental Monitoring Plan (EMP) based on criteria set out in CSA N288.4 (2010). If one of the criteria is met, then an EMP is required. The MNO finds this approach problematic, as the CSA standards do no take Aboriginal rights and interests into account. Naturally this table of criteria does not consider the MNO's rights and interests at all. The MNO expresses the concern that compliance with CSA standards does not ensure that the potential adverse effects to Métis rights and interest and/or the resource required to sustain those rights are considered. Therefore, the decision that no EMP is needed solely based on CSA standards and criteria is flawed.	

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162.	MNO (Feb. 14, 2018)	Section 8.1, Table 8.1-1 (8-2)	The MNO notes that in Table 8.1-1, monitoring criteria include the results of an ERA, which indicate likelihood that a contaminant or physical stressor could exceed a Benchmark Value (BV). The criteria were indicated as not being met as there is no ERA for the NPDWF. The MNO asks for clarification on the difference between an ERA and the ERA completed for this draft EIS. The MNO further requests clarification on why, in the absence of an ERA and when BV's are exceeded in baseline conditions (e.g., soil, there is no requirement for an EMP. Based on the language within the monitoring criteria column, if BV's are exceeded an EMP must be completed and there is no distinction that an ERA must be completed for an EMP to be completed.	
Description of the Existing Environment – Atmospheric Environment / Description du milieu – Environnement atmosphérique				
163.	MNO (Feb. 14, 2018)	Section 8.2.1 (8-4)	Section 8.2.1 of the draft EIS states: "Even though CRL is beyond the Regional Study Area, these data are used to represent the Regional Study Area in the characterization of baseline atmospheric environment." MNO finds it problematic that data from the CRL site is used to represent the Regional Study Area of this project despite the CRL being beyond the Regional Study Area. Further, the limited boundaries of the Site and Local Study Area make the characterization of effects from changes to atmospheric conditions also quite limited and do not extend to where Métis perception or intangible aspects of Métis way-of-life may be affected.	
164.	William Turner (Feb. 9, 2018)	Section 8.2.2, Figure 8.2-2 (8-9)	Figure 8.2-2 depicts the variations in temperature by month at the Chalk River site. However, according to the commenter, all this figure indicates is that summers are hotter than winters, something that is already known. Given that the timeline for this project covers more than 100 years, the trends in temperature (average, minimum, and maximum) over the past 34 years (1981 to 2015) provide a better indication of the future at the site. The commenter requests that CNL revise Figure 8.2-2 to depict the trends in temperature over the past 34 years for which data is available.	
165.	William Turner (Feb. 9, 2018)	Section 8.2.2, Table 8.2-4 and Figure 8.2-3 (8-12 to 8-13)	Table 8.2-4 provides precipitation data from 1981 through 2010 by month, while Figure 8.2-3 depicts precipitation data from 2008 to 2016 by year and by month. The commenter indicates that a better depiction of the long-term trends could be provided if all the data from 1981 to 2016 was used. According to the commenter, all that the table and the figure indicate is that summers are wetter than winters, something that is already known. Given that the timeline for this project covers more than 100 years, the trends in precipitation from 1981 to 2016 provide a better indication of the future at the site. The commenter requests that CNL revise Table 8.2-4 and Figure 8.2-3 to depict the trends in precipitation over the past 34 years for which data is available.	
166.	MNO	Section 8.2.3,Table 8.2-	This section of the draft EIS states: "According to the NPD Baseline Report (Wills 2013), the	

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	(Feb. 14, 2018)	10 (8-20)	radioactive airborne releases from the NPDWF have been monitored by measuring gross beta, C-14 radioactivity and tritium radioactivity at the source." The MNO poses the following question in relation to Table 8.2-10: If the releases have been infrequent following the shutdown and subsequent transition into SwS, why was there an increase in C-14 radioactivity from previous level of 5.29 x10^8 in 2014 and a significant increase from 1.82 x 10^6 in 2012 to 6.79 x 10^8?	
167.	Nuclear Waste Watch (Feb. 9, 2018)	Section 8.2.3 (8-20 to 8-24) Also applicable to Section 8.3.3 (8-36 to 8-41)	The commenter requests current values for the airborne and waterborne emissions from the NPD facility of tritium, C-14 and radon + radon daughters in units of Bq/years.	
168.	Anonymous (Feb. 5, 2018) CELA (Feb. 13, 2018)	Section 8.2.3, Table 8.2-10 (8-20) Also applicable to Section 8.3.3, Table 8.3-1 (8-37)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* CELA expresses the concern that 30 years after the NPD reactor ceased operations in 1987, major tritium releases to air and water are still occurring. Table 8.2-10 of the draft EIS reports that 215 GBq of tritium was emitted to air from the NPD facility stack in 2015. In addition, 66.1 GBq of tritium were discharged from the Wells Area Sump (WAS) to water, as noted in Table 8.3- , which makes up a total release of 280 GBq in 2015. The commenter notes that this amount is similar to the tritium emissions from the WR-1 reactor at Whiteshell, where 61 GBq of tritium are still released annually to air. [For more information, the commenter refers to Table 3-12: Summary of Atmospheric Tritium Release Rates from WR-1 from 2011 to 2015 in WLDP-26000-REPT-006.] CELA finds it worrying that these tritium releases are not declining, and notes that this fact remains unexplained in the draft EIS; this matter should be discussed. One explanation is that the computer models used to estimate nuclide generation via activation and fission underestimate the amounts of tritium created and that a very large inventory of tritium remains in the reactor and in its component structures. CELA requests that CNL provide an explanation for why overall amounts of tritium have not declined over time, as well as a plan to forthwith cease ongoing tritium emissions to air and discharges to water, due to the hazard posed to local populations. An anonymous commenter also raises the concern that there have been reportable events to the CNSC in the past for unusual issues related to high tritium samples – (up to 800,000 Bq/L), caused by tritium migrating through concrete to water sources. In addition, the anonymous commenter expresses concern with respect to the verification of the long term integrity of the sub-surface drainage system metal piping and concrete structure which are ~80 feet underground and their associated ability to restrict tritium migration. This is especially concerning when combined with the known ability for tritium to migrate through concrete structures to water sources.	
169.	Environment	Section 8.2.3 (8-20)	The commenter poses the following questions:	

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	Haliburton! (Feb. 12, 2018)		• Has the level of radioactivity in the ventilation stack been measured? • Has it been found to be sufficiently low that the harm to the Chimney Swifts is minimal?	
170.	MNO (Feb. 14, 2018)	Section 8.2.3 Table 8.2-11 (8-21)	This section of the draft EIS states: "The 2015 C-14 release was higher than the average airborne release for 2010 to 2014, likely due to longer run time of the ventilation system, as discussed above. There is no evident trend in the airborne C-14 releases, as shown in Figure 8.2-7." The MNO notes that Table 8.2-11 demonstrates that the 2015 releases of tritium and C-14 were each respectively higher than the average airborne release for 2010 to 2014. The draft EIS suggests that the ventilation stack will be modified for roosting requirements (Chimney Swifts) as part of the final site restoration activities. The modification may further release radioactivity. The MNO expresses the concern that this will have potential impacts to Aboriginal use near the project site, including fishing, perceptive effects and intangible effects to Métis way-of-life.	
171.	MNO (Feb. 14, 2018)	Section 8.2.4.1 (8-25)	This section of the draft EIS states: "The 2015 sources of emissions included the burning of diesel fuel in emergency generators (minimal amount), unpaved road dust (below the reporting limit, as the main road is paved) and solvent use (not routinely being used). These sources were considered to be so minimal that formal calculations were not warranted for the NPD site […]. For this reason, air quality in the Site and Local Study areas is assumed to be similar to that in the Regional Study Area, as described below." The MNO notes that effects from road dust, emissions and noise are not minimal and negligible, as they may extend beyond the project line and have potential impacts on aquatic species of importance and perceptions of Métis way-of-life. The MNO explains that these effects must be considered, assessed and addressed within the draft EIS. It is potentially problematic to assume the air quality in the Site Study Area and Local Study Area is similar to that in the Regional Study Area, where baseline data is gathered from locations far beyond its area. The MNO further explains that data from locations outside the Regional Study Area to establish a baseline for the Site Study Area and Local Study Area is questionable as there may be differing atmospheric conditions present at these other locations, which would lead to increased/decreased baseline emissions.	
172.	MNO (Feb. 14, 2018)	Section 8.2.4.2 (8-26)	This section of the draft EIS states: "There is limited air quality data available in the vicinity of the NPD site. However, most constituents which define the air quality in the vicinity of the NPD site will not differ substantially from the general air quality in central and eastern Ontario […]. The measured $PM_{2.5}$ concentrations in Petawawa are more representative of the conditions at the NPD Site than the other stations, based on proximity." The MNO finds it questionable that data gathered from monitoring locations as far as the stations in central and eastern Ontario (especially in Ottawa, and North Bay) are used to determine the air quality in the vicinity of the project site. The MNO also finds the use baseline data collected from a single station (i.e., the Petawawa station) to represent the Site Study Area and Local Study Area problematic. Without measuring data on all air constituents of these stations, extrapolation on that basis does not instill confidence in the results. The MNO suggests	

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			that additional data should be collected to reflect the baseline condition in a more accurate manner.	
173.	MNO (Feb. 14, 2018)	Section 8.2.5.1 (8-27 to 8-28)	This section of the draft EIS states: "Currently, ambient daytime and nighttime noise levels are not measured in the site or local study areas. However, noise data from the CRL site are assumed to be an appropriate representation of noise conditions at the NPD site. […] Health Canada's definition of receptors includes residences, daycares, schools, hospitals, places of worship, nursing homes, and First Nations and Inuit communities. […] It is noted that no noise concerns have been raised from the public during current conditions at the NPD site." The MNO expresses the concern that using data from CRL site may be inappropriate to describe the baseline noise conditions at the NPD site, based on the distance of these locations and different activities at each location. More importantly, the MNO notes that there is no description of the existing environment in terms of ambient noise in the Site/Local Study Area or the Regional Study Area, which relates to the exercise of Métis rights and how ambient noise can affect perceived and actual use of the project area. There must be a separate and distinct consideration with separate and distinct assessment.	
174.	MNO (Feb. 14, 2018)	Section 8.2.5.2 (8-29)	This section of the draft EIS states: "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." The MNO find this approach problematic, as noise often extends beyond the project footprint and have the potential to impact Métis harvesters and their rights.	
Description of the Existing Environment – Surface Water Environment / Description du milieu – Eaux de surface				
175.	Northwatch (Feb. 19, 2018)	Section 8.3.2.1 (8-35)	This section of the draft EIS states: "Groundwater modelling undertaken at the NPD site (Calder 2017) indicates that groundwater in the vicinity flows towards the facility and discharges to the Ottawa River." The commenter notes that while the draft EIS indicates that groundwater modelling has been undertaken at the NPD site and draws conclusions on groundwater flows based on the referenced report, a groundwater modelling report is not provided. It is not clear to the commenter if actual groundwater monitoring results are or are not compared to the modelling report as verification. The commenter requests a copy of the referenced groundwater modelling report, a full suite of groundwater monitoring reports / results, and a discussion of how the groundwater modelling report and the monitoring results indicate in relation to each other.	
176.	AANTC (Feb. 13, 2018) Bonnechere River Watershed Project (Feb. 13, 2018)	Section 8.3.3 (All)	The AANTC raises the following concerns: • There has been a decades-long and concerning practice of dumping batches of untreated contaminated water from the NPD facility into the Ottawa River. This practice, termed "surface water releases", is discussed in Section 8.3.3 of the draft EIS. The AANTC recommends that CNL voluntarily discontinue this practice immediately. • Contaminated water which accumulates in the WAS during the Decommissioning Phase should not be simply dumped into the Ottawa River. The AANTC recommends that	

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			measures be implemented to allow the contaminated water to be collected and taken off-site for appropriate treatment. • The AANTC requests a full accounting and disclosure from CNL and/or CNSC about CNL's practices regarding liquid effluent releases from other facilities along the Ottawa River, including the CRL. The Bonnechere River Watershed project echoes these concerns and supports the above recommendations.	
177.	MNO (Feb. 14, 2018)	Section 8.3 Section 8.3.3 (8-36)	This section of the draft EIS states: "Releases to surface water from the NPD site are managed in accordance with the Effluent Monitoring Plan (DeWaele 2016), which is aligned with CSA N288.5." The MNO expresses the concern that CSA standards are not designed to consider Métis rights and interests. Alignment with CSA standards does not ensure that the potential adverse environmental effects to Métis rights and interest are considered.	
178.	AOO (Feb. 26, 2018)	Section 8.3.3 Table 8.3-1 (8-37)	The AOO note that the level of radioactive releases for all contaminants measured in the WAS is several orders of magnitude higher than the Maximum Allowable Concentration (MAC) of the Health Canada Drinking Water Guidelines. For example, levels of tritium measured in the WAS in 2015 were 66,100,000,000 Bq, which is more than 900,000 times the MAC guidelines of 7,000 Bq. The AOO further notes that while the total volume of effluent released is small and mixing will occur once this water is pumped to the river, CNL 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 Ottawa River has not been modelled. It is therefore unclear to the AOO how the seepage plume from the facility may affect aquatic organisms as the grouted NPDWF facility degrades. The AOO suggest that CNL complete dispersion modelling to assess the predicted mixing zone for all radioactive contaminants using the drinking water MAC as the threshold. This should be completed for periodic discharges from the WAS and for groundwater seepage at different periods of closure and post-closure.	
179.	AOO (Feb. 26, 2018)	Section 8.3.3 Table 8.3-1 (8-37)	In Table 8.3-1 of the draft EIS, Cesium-137 was reported until 2004 (8.2x104 Bq), but not after that. The AOO suggest that if Cs-137, Co-60, etc. are not detected, it should be indicated.	
180.	Northwatch (Feb. 19, 2018)	Section 8.3.3, Table 8.3-1 (8-37)	Table 8.3-1 of the draft EIS provides data for 1997 to 2015 for several parameters. The commenter notes that this table is missing data in several categories for several years. The commenter requests this table be replaced by one fully populated with data, or provide a detailed explanation as to why data is missing.	
181.	MNO (Feb. 14, 2018)	Section 8.3.3 (8-41)	This section of the draft EIS states: "Of the 176 non-radiological parameters analyzed, 11 were measured in exceedance of Canadian Council of Ministers of the Environment (CCME) Environmental Quality Guidelines (EQG). […] CNL is continuing routine monitoring for metals including mercury and lead, as well as dioxins/furans and PCBs in the WAS in order to evaluate the environmental performance further." The MNO notes that the 11 non-radiological parameters, including dioxins/furans and PCBs, as	

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			well as metals such as mercury, lead, copper, cadmium, iron, significantly exceeded the CCME EQC. In particular, mercury was measured at a level of 647 ng/l, as opposed to 26 ng/l provided by the CCME EQC. Lead was measured at a level of 1.9 mg/l, as opposed to 0.001 mg/l provided by the CCME EQC. The MNO finds this worrisome, as the Ottawa River is defined within one of the provincially recognized Métis rights-bearing traditional harvesting territories. MNO harvesters have recognized rights to fish in the project vicinity and Ottawa River. There is a perceivable risk to the fish and fish habitat and effects on Métis harvester's rights and interests. Furthermore, the MNO expresses concern that there are not enough details related to the Ottawa river and how it would assimilate the discharge from the drainage basins and groundwater contaminant releases, and how this would make aquatic life and drinking water sources unlikely to be affected. Simply carrying out routine monitoring from CNL's side is not considered by the MNO to be sufficient, given the significance of the effects.	
182.	MNO (Feb. 14, 2018)	Section 8.3.4 (8-51)	This section of the draft EIS states: "Chemical levels in surface water in the part of the Ottawa River located in the Site and Local Study Areas are not available. […] Chemical levels in surface water in the part of the Ottawa River located in the Regional Study Area are not available." Aquatic biota is predicted to be exposed to chemicals, such as dissolved oxygen, inorganic nutrients and metals (e.g., iron copper), which could have effects on fish intake. The MNO notes that chemical characteristics of surface water contamination vary considerably over time, and requests that additional details be provided about how the chemical level in surface water will not lead to increased effects on fish and fish habitat.	
183.	MNO (Feb. 14, 2018)	Section 8.3.5.2 (8-56)	This section of the draft EIS states, under "Radiological": "CNL has produced an in-depth model of the sediment contamination and transport at and around the outfall pipe of the CRL facility. The model provides a detailed assessment of the localized environment around the CRL outfall, and as such is not considered representative of the Ottawa River sediment in the Regional Study Area." This same section also states, under "Non-Radiological": "Chemical levels in sediment in the Ottawa River are summarized and reported as part of the CRL Environmental Risk Assessment. There were reported exceedances of several metals in both reference sites and sites affected by CRL operations." The MNO requests more information with regards to the model of sediment contamination and transport at and around the outfall pipe of the CRL facility. Where it is not considered representative of the Ottawa River sediment in the Regional Study Area, please provide details as to what baseline data is collected for the radiological sediment quality. Further, baseline trends were not identified and established in terms of the sediment quality. The MNO asks that this information be provided given that the quality of sediment and its interaction with other environmental factors have crucial impact on aquatic biota.	
184.	William Turner (Feb. 9, 2018)	Section 8.3.5.2 (8-56)	Section 8.3.5.2 of the draft EIS states: "CNL has produced an in-depth model of the sediment contamination and transport at and around the outfall pipe of the CRL facility (Silke et al. 2014)." The commenter highlights that CNL did not exist before June 2014 and that the date of the reference (Silke et al. 2014) is March 2014. The commenter concludes, therefore, that the model was produced for AECL and not CNL. The commenter finds the suggestion that this model was	

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			produced for CNL misleading. Please revise accordingly.	
185.	William Turner (Feb. 9, 2018)	Section 8.3.5.2 (8-56)	This section of the draft EIS states: "The model provides a detailed assessment of the localized environment around the CRL outfall, and as such is not considered representative of the Ottawa River sediment in the Regional Study Area." The commenter questions the use of this model. If the model cited is not representative of the Ottawa River sediment in the Regional Study Area, then CNL should provide information that is representative.	
Description of the Existing Environment – Aquatic Environment / Description du milieu – Milieu aquatique				
186.	AOO (Feb. 26, 2018)	Section 8.4.3 (All)	The AOO note that the NPD reactor began operation in 1962. The submission explains that effluent from the WAS and other activities on site have been discharged to the Ottawa River since this time. The AOO express the concern that after decommissioning, dissolved contamination will continue to reach the Ottawa River through groundwater as the NPD facility degrades. These radiological and non-radiological contaminants 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 to the AOO what the current level of contamination in fish tissues is or how that may change because of the project. Moreover, the draft EIS does not describe any follow up monitoring of contaminants in fish tissues, therefor any spike in contaminants will not be detected. AOO community members regularly harvest fish in the Ottawa River 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. The AOO request the following: • In order to evaluate the risk associated with contamination of fish tissues, CNL must complete baseline fish tissue analysis on the Ottawa River. 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. • In order to monitor the risks associated with consumption of contaminated fish, CNL should engage in follow-up monitoring of fish tissues during the Institutional Controls period. Sampling methodology can be maintained from the initial fish tissue analysis described above. A description of proposed monitoring activities must be shared with the AOO for review.	
187.	MNO (Feb. 14, 2018)	Section 8.4.3.2, Table 8.4-1 (8-59 to 8-60)	The MNO notes that the list of fish species from Table 8.4-1 cannot be deemed complete without a traditional land use study to identify species of importance to MNO harvesters. The list of fish species potentially present should have been compared against a list of typically fished species from the MNO, which could have been collected during a traditional land use study. This would ensure the indicator species selected for assessment cover Métis interests and the right of the Métis to fish.	

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188.	AOO (Feb. 26, 2018)	Section 8.4.3.2, Table 8.4-1 (8-60) Figure 3.1-4	This section of the draft EIS states: "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." The AOO find this argument very weak 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 in the draft EIS indicates that the NPD facility 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. The AOO indicate that an aquatic survey of physical, chemical, and biological conditions in the receiving water is warranted, and request more information be added to the draft EIS.	
189.	AOO (Feb. 26, 2018)	Section 8.4.3.2 (8-60)	The AOO note that 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), and can then be used to evaluate any changes associated with the project. The AOO request that CNL: • Complete baseline monitoring in the Local Study Area for water quality (radiological and non-radiological) and benthic invertebrates. • Monitor the risks associated with future releases of contaminants and groundwater leaching, including to monitor water quality and benthic invertebrates during the Institutional Controls period. Details on the locations and schedule of monitoring should be described in detail and provided to the AOO. [Please refer to the AOO's submission for more information, including an example to support the argument above.]	
Description of the Existing Environment – Geological and Hydrogeological Environment / Description du milieu – Environnement géologique et hydrogéologique				
190.	PEP, Alliance des espaces verts de la capitale du Canada, Écologie Ottawa, Amis de la Terre (Canada), RCPR, SOO (Feb. 13, 2018/ 13 février 2018)	Section 8.5.2 (8-63 to/à 8-65)	*Please note that this comment was also submitted in French (see below). A response in both official languages is therefore required.* **English Comment:** The commenter indicates that the draft EIS does not acknowledge the importance of the geosphere with regard to siting and performance of a radioactive waste disposal facility. It lacks a credible geologic analysis and does not describe issues that make the site unsuitable for radioactive waste disposal, such as seismic activity, extensive faulting and fracturing of bedrock, presence of a shear zone, and likely rapid movement of groundwater towards the Ottawa River.	

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			Veuillez noter que ce commentaire a été également été soumis en anglais (voir ci-dessus). Une réponse dans les deux langues officielles est donc requise. **Commentaire en français**: Le commentateur indique que l'EIE ne reconnaît pas l'importance de la géosphère en ce qui concerne l'emplacement et le rendement d'une installation d'élimination des déchets radioactifs. Elle manque une analyse géologique crédible et ne décrit pas les problèmes qui rendent le site impropre à l'élimination des déchets radioactifs, comme l'activité sismique, les failles étendues et la fracturation du substrat rocheux, la présence d'une zone de cisaillement et le mouvement rapide probable des eaux souterraines vers la rivière des Outaouais.	
191.	Northwatch (Feb. 19, 2018)	Section 8.5.3, Table 8.5-1 (8-67)	The commenter notes that Table 8.5-1 presents a set of data, but there is no discussion of significance. What does CNL learn from this data? For example, the draft EIS should discuss the significance of the concentrations relative to sampling site, any rationale for spikes (e.g., NPD-NE in 2012), and other observations. The commenter requests that a discussion of the significance of the data, including an explanation of any anomalies, be added to the draft EIS.	
192.	AANTC (Feb. 13, 2018)	Section 8.5.5 (8-76 to 8-79)	The AANTC notes that very little field work seems to have been done to investigate and understand the crucial bedrock groundwater flow system, and finds that as a result, the characterization of the bedrock groundwater flow system is the weakest part of the draft EIS' hydrogeological site characterization. The AANTC requests that CNL: • Conduct further field investigations (including drilling and testing of additional bedrock wells in at least 6 new locations) to confirm or disprove the bedrock hydraulic conductivity estimates which have been used to support the hydrogeological impact assessment of the NPD Closure Project • Use the data, once the field work has been completed, to update the computer modelling (currently presented in the 2017 Updated Groundwater Modelling Report and the 2017 Resaturation Modelling Report). The updated model data can then be used to review and revise the hydrogeology and surface water impact assessments, and the effects assessments for VCs in the aquatic and terrestrial ecosystems.	
193.	Northwatch (Feb. 19, 2018)	Section 8.5.5 (8-77)	The commenter notes that the draft EIS indicates that groundwater seepage into the facility is directed to the lowest point at the WAS and that this sump is periodically pumped to the Ottawa River after the water has been sampled and analysed. This groundwater seepage in the vicinity of and through the below-grade area is collected and then periodically pumped to the Ottawa River, but no sampling results are provided. The commenter request a record of sampling results for the WAS, including volume and parameters. By providing a full data set, the sampling frequency will also become known.	
194.	CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 2.6.4 (2-12) Section 8.5.5 (8-76)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The CCRCA concludes that the draft EIS has essentially no site data on geological, geochemical and hydrogeological conditions, and expresses the concern that no TSD related to site geological, geochemical and hydrogeological conditions has been provided, and states that such information	

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			is essential. To illustrate the information deficiency in the draft EIS with regard to site analysis, the CCRCA highlights: • Section 2.6.4 merely states: "The base rock in the Site Study Area is quartz and granite gneiss." • Section 8.5.5 states:"Bedrock at the Rolphton site is expected to be similar to bedrock at the CRL site; bedrock hydraulic conductivity is assumed to be between 10-11 and 10-4 m/s, with a geometric mean of 6 x10-8 m/s, and a porosity of 0.005, based on shallow bedrock investigations at CRL…" The CCRCA is of the understanding that bedrock hydraulic conductivity varies over seven orders of magnitude at the CRL site, which is 25 km distant from the NPD site, and finds this of no value in terms of assessing the long-term performance of this proposed radioactive waste disposal facility. Mr. Ryan echoes these concerns.	
Description of the Existing Environment – Terrestrial Environment / Description du milieu – Milieu terrestre				
195.	AOO (Feb. 26, 2018)	Section 8.6 (All)	The AOO express the concern that a rationale for establishing the terrestrial environment Regional Study Area boundary is not clearly described in the draft EIS. The AOO also find it unclear what methodologies were used to characterize the wildlife distribution and abundance in the existing terrestrial environment and to document the species at risk occurrences (e.g., juvenile eastern milksnake, eastern small-footed bat, little brown myotis, and northern myotis) within the Site and Local Study areas that are described in Sections 8.6.2 through 8.6.4 of the draft EIS. CNL based the description of the existing environment entirely on background information rather than targeted field surveys (aside from an Ecological Land Classification 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. The AOO request that CNL provide the AOO with: • A rationale for establishing the terrestrial environment Regional Study Area boundary for the AOO to complete an informed and fulsome review of the draft EIS • A description of the methodologies used to characterize the existing terrestrial environment, particularly the methods used to document species at risk occurrence in the Site and Local Study areas for the AOO to complete an informed and fulsome review of the draft EIS • A rationale as to why targeted field surveys were not necessary, if they were not undertaken to document baseline data (e.g., on wildlife occurrence, distribution, and habitat use)	
196.	MNO (Feb. 14, 2018)	Section 8.6.3 (8-86)	This section of the draft EIS states: "The CRL property is less than 30 km from the NPD site and has been used to represent the plant species within the Regional Study Area." The MNO finds concerning that baseline data collected from a single site/station (i.e., the CRL property) is used to represent the Reginal Study Area. Further to this, the MNO expresses the	

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			concern that there is no description of plants of traditional importance to the MNO, or a description of the hectares present of these species. Therefore, the assessment of the existing vegetation species is incomplete. The MNO suggests that this information be collected through a project-specific traditional land use study.	
197.	MNO (Feb. 14, 2018)	Section 8.6.3, Table 8.6-1 (8-88), Table 8.6-3 (8-93), and Table 8.6-4 (8-102)	The MNO notes that the vegetation species potentially present within the study areas should have been compared against a list of typically harvested species from the MNO, which could have been collected during a traditional land use study. Similarly, the MNO notes that the bird and mammal species potentially present within the study areas should have been compared against a list of species of importance from the MNO, which could have been collected during a traditional land use study. This would ensure the indicator species selected for assessment covered Métis rights and interests.	
Description of the Existing Environment – Ambient Radioactivity / Description du milieu – Radioactivité ambiante				
198.	William Turner (Feb. 9, 2018)	Section 8.7.2, Table 8.7-2 and Figure on p.8-111 (8-108 to 8-111)	The commenter notes several issues with Table 8.7-2 and with the figure on p.8-111: • There is no figure labelled "Figure 8.7-2", although the list of figures from the Table of Contents indicates that Figure 8.7-2 is on p.8-111. • There are three locations identified in this table, whereas the figure on p.8-111 depicts four. • The units used are Roentgens (specifically µR). The appropriate unit (from the International System of Units) is Gray (or in this case, µGy). This makes it very difficult to compare these levels with the benchmark dose rate used by CNL in their EcoRA TSD. That level is defined as 400 µGy/hr. • The graphs in the figure on p.8-111 depicting the trends in dose rate use the yearly average. The yearly average is not provided in this table. • The graphs in the figure on p.8-111 use different vertical axes, thus making comparisons difficult. Further, it is not clear as to what the trends are supposed to represent. For example, is there any contribution to these ambient gamma rates from the NPD site itself, or is the contribution from NPD operations so small that these graphs depict only the ambient rates?	
Description of the Existing Environment – Human Health / Description du milieu – Santé humaine				
199.	MNO (Feb. 14, 2018)	Section 8.8.1 (8-114)	This section of the draft EIS states: "As this area is all owned by the Federal Government, there are no residents present. Workers are, and will continue to be, present in this area for the duration of the decommissioning, and as such the Site/Local Study Areas will describe baseline worker health. […] The Regional Study Area for this assessment consists of the Renfrew County and District and Region de l'Outaouais Health Units." The MNO notes that the Site and Local Study areas focus on worker heath, whereas the Regional Study Area focuses on public health of the local residents; however, there is no description of Métis use and occupancy of this land.	

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			The MNO requests that CNL amend this section to include information on Métis. Furthermore, the MNO suggests that CNL include an additional category of Métis harvesters to reflect the concerns related to human health from the MNO's perspective.	
200.	William Turner (Feb. 9, 2018)	Section 8.8.3.1 (8-118 to 8-121)	The commenter is of the opinion that although the extensive review of the human health profiles in Ontario, Renfrew County, Quebec and the Outaouais Region provide interesting statistics, they are irrelevant to the project given that CNL has not provided any link between these statistics and the potential environmental effects from the physical activities associated with this project. Similarly, the commenter indicates that few, if any, of the "characteristics" listed in Table 8.2-2 can be linked to past activities or future activities at the NPD site.	
201.	MNO (Feb. 14, 2018)	Section 8.8.3.3 (8-126 to 8-127)	This section of the draft EIS states: "This section provides information on the local food consumption characteristics for people living in the Regional Study Area, based on the NPD Derived Release Limit (DRL) Study. […] The following assumptions were made in developing DRLs…" The MNO notes that the assumptions made in developing the DRLs do not include any assumptions related to Métis consumption, including: • That MNO harvesters fish in the Ottawa River • That MNO harvesters hunt and trap mammal and bird species • That MNO harvesters consume the meat and organs of animal species • That MNO harvesters collect and consume a variety of plant species for subsistence and medicinal purposes The MNO expresses the concern that consideration of these as assumptions may mean that the methodology of the NPD DRL Study does not properly consider Métis foods consumption.	
202.	MNO (Feb. 14, 2018)	Section 8.8.3.3, Table 8.8-6 (8-128)	The MNO notes that the animal, plant and fish products identified do not include those typically harvested by Métis in the project vicinity, and therefore, do not characterize the airborne or liquid effluent values which may be present.	
Description of the Existing Environment – Aboriginal Land and Resource Use / Description du milieu – Utilisation des terres et des ressources par les Autochtones				
203.	MNO (Feb. 14, 2018)	Section 8.9 (8-129)	This section of the draft EIS states: "Information for this section was derived from the Aboriginal Engagement Report (AER) TSD. As noted in the AER TSD, engagement on traditional land and resource use has so far been limited. Information has been drawn largely from: preliminary formal and informal engagement activities; existing studies and reports; and general knowledge of the region and local Aboriginal groups, such as the Algonquins of Ontario." The MNO raises the concern that the AER TSD does not contain any traditional land use information, or allow for the MNO to influence the identified VCs. Furthermore, the MNO notes that the AER TSD focuses on the activities of the AOO and lacks information related to the MNO. Information from the AOO cannot be used as a proxy for the MNO, given that Métis people have distinctive cultural perceptions, ways of life and activities in terms of hunting, fishing, trapping, gathering among other things. Therefore, the MNO finds the draft EIS deficient. The MNO requests that CNL consider and assess separately the effects to Métis rights and	

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			interests.	
204.	William Turner (Feb. 9, 2018)	Section 8.9 (8-129)	This section of the draft EIS states: "As noted in the AER TSD, engagement on traditional land and resource use has so far been limited." The commenter argues that, if Aboriginal Engagement has been limited, then CNL is non-compliant with s.5(1)(c) of the CEAA 2012. Until CNL has truly engaged the local aboriginal groups with respect to the four items listed under s.5(1)(c) of CEAA 2012 , and received the appropriate support, all decisions with respect to this project must be considered tentative. [Please refer to Mr. Turner's submission for the quote referenced from CEAA 2012].	
205.	MNO (Feb. 14, 2018)	Section 8.9.1 (8-129)	This section of the draft EIS states: "The spatial boundaries associated with the Aboriginal land and resource use environment were determined based on the potential for the project to affect First Nation and Métis communities and their use of land in proximity to the facility for traditional purposes." The MNO notes that no traditional land use information was collected from the MNO, nor was any historical information available to CNL, and therefore, it is unclear how this determination was made.	
206.	AOO (Feb. 26, 2018)	Section 8.9.2.1 (8-134)	The AOO note that two registered trapline holders within the Regional Study Area are identified. However, it is not clear if the traplines are held by AOO citizens and if mitigation or compensation measures have been developed for those trapline holders, if necessary. The AOO request that CNL ensure the trapline holders within the Regional Study Area are adequately accommodated and compensated for any impacts experienced as a result of the project.	
207.	MNO (Feb. 14, 2018)	Section 8.9.3 (8-138 to 8-139)	This section of the draft EIS states: "As indicated in the Archaeology TSD, historical photographs of NPD under construction clearly show that disturbance throughout the nuclear power plant grounds was deep and extensive, including the shoreline of the Ottawa River. The archaeologist noted that there is no archaeological potential within the proposed disturbance footprint for the NPD decommissioning. […] 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." The MNO notes that there is no information within this section and the Archaeology TSD related to the MNO. The archaeological assessment field studies did not include the participation of MNO Citizens, and therefore, the MNO finds that the project potentially lacks information about Métis-specific heritage resources. As there is reason to believe this area has the potential to include Métis archaeological resources, the MNO requests that a project-specific traditional land use study be undertaken to identify areas of importance to the MNO.	
208.	AOO (Feb. 26, 2018)	Section 8.9.3 (8-139)	This section of the draft EIS states: "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." The AOO note that 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	

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			resource use happening within the Regional Study Area, and in some cases, within the Local Study Area. However, no specific harvesting, cultural, and/ or ecological values have been identified nor is it evident how CNL plans to incorporate AOO traditional land and resource use in a meaningful way, beyond acknowledging the potential that it is occurring. The AOO find that this lack of consultation and engagement for the collection of traditional land and resource use and Algonquin Ecological Knowledge is unacceptable. The AOO request that AOO-specific harvesting, cultural, and/ or ecological values be incorporated into project planning, monitoring, and emergency response, either through engaging the AOO in conducting a traditional land and resource use study or another methodology (i.e., community cultural values mapping; oral history study etc.), decided upon by the AOO for sharing traditional land and resource use information related to the NPD project. The AOO note that this information is best collected at early phases of the project. Despite having failed to collect this information early, CNL must collaborate with the AOO for the collection of traditional land and resource use before the EA process continues.	
Description of the Existing Environment – Socio-Economic Environment / Description du milieu – Environnement socioéconomique				
209.	AOO (Feb. 26, 2018)	Section 8.10 (All)	The AOO note that there is no mention of the socio-economic conditions of Indigenous communities that are interacting with the NPD site, including the AOO. The AOO request CNL to provide an assessment of the socio-economic conditions and effects of the project on AOO citizens interacting with the project.	
210.	MNO (Feb. 14, 2018)	Section 8.10 (8-139)	The MNO notes that no data sources were listed from the MNO for the collection of baseline socio-economic data. The MNO finds this problematic as the MNO may have pertinent information which could have been incorporated. Project effects specific to Métis harvesting rights, perception and Métis way of life are not discussed. The MNO requests that a Métis-specific traditional land use study be completed to provide CNL insight into the Métis perspective on this component.	
211.	William Turner (Feb. 9, 2018)	Section 8.10 (8-139)	This section of the draft EIS states: "Socio-economic baseline data was collected through a variety of sources. These included Statistics Canada, Municipal corporations, planning documents, tourism boards, and provincial agencies." The commenter is of the opinion that, although the extensive review of the socio-economic baseline for the area provide interesting statistics, they are irrelevant to the project for two reasons: • A remote site with low population density does not require an extensive review of socioeconomic baseline. • The footprint of the building, even if it entombed, is relatively small. Whatever option, chosen to address the residual activity in the NPD reactor, will not require a significant increase in local employment. Whatever those increases are, would be would be relatively short-term. The commenter suggests that CNL needs to provide baseline information commensurate with the potential effects on the specific component being assessed. The commenter suggests that CNL refrain from including information, data and/or assessments designed to divert the reader from	

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			evaluating the potential impacts from this project.	
212.	MNO (Feb. 14, 2018)	Section 8.10.2 (All)	The MNO notes that there is no consideration of Métis use and enjoyment of the area surrounding the CNL property as a sub-component of the socio- economic environment. This is of particular importance to the MNO as it a component of the Métis way-of-life. Furthermore, the MNO finds the examples of socio-economic hunting and trapping limiting in their scope. The MNO suggests that CNL broadly refer to Aboriginal rights and interests in this section of the draft EIS, as Métis rights and interests encompass a much broader scope than hunting and trapping.	
213.	AOO (Feb. 26, 2018)	Section 8.10.4 (All) Also applicable to the Archeology TSD	The AOO note that they have reviewed the Stage 1 Archaeological Assessment Report and wish to develop a deeper understanding of the archaeological potential of the NPD property. The AOO understand that 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 the AOO to understand and preserve the remaining Algonquin cultural heritage resources on the NPD site. Based on the findings the Stage 1 Archaeological Assessment Report, the potential for archaeological resources on the NPD property is high, and the site has value from an archaeological research perspective. The AOO request that CNL, in collaboration with the AOO, undertake additional field research at the NPD property for areas that have demonstrated high archaeological potential (e.g., relic shorelines) in Stage 1 of the Archaeological Report. The AOO also express the position that CNL should negotiate a long-term archaeological agreement with the AOO, which would provide education, training, and research for the remaining AOO cultural heritage resources on the site. In addition, the AOO recommend that the NPD property be further investigated by the CNL Archaeological Field School in order to better understand the site and build capacity with AOO members for cultural heritage research.	
214.	AOO (Feb. 26, 2018)	Section 8.10.4 (All) Also applicable to the Archeology TSD	Section 10.4 of the Archeology TSD states: "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." The AOO note that Algonquins used the area prior to European contact, and therefore, there may be areas of significance to the AOO. The AOO requests that CNL provide more information in the draft EIS.	
Description of the Existing Environment – Natural Disasters / Description du milieu – Catastrophes naturelles				
215.	Andrew Sare (Feb. 8, 2018) Anita Payne (Feb. 13, 2018) Christina Anderman (Feb. 13, 2018) Eva Schacherl (Feb. 13, 2018)	Section 8.11.2 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Various commenters express concern with the potential seismicity in the Ottawa River Valley, given the presence of a major fault line. The commenters are concerned with how the impacts of an earthquake could be exacerbated by the presence of the upriver Joachims Dam, climate change and extreme weather events, as well as incremental changes to temperature and in the earth's surface and crust. The commenters also note that this could result in "unprecedented, unpredictable and long-lasting flooding", worrying that future generations could consequently	

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	Georgina Bartos (Feb. 8, 2018) Herbert Fitzroy (Feb. 13, 2018) Kathy Eisner (Feb. 14, 2018) Martha Ruben (Feb.12, 2018) OFWCA (Feb. 8, 2018) Rita Redner (Feb. 13, 2018) Sharon Odell (Feb. 13, 2018)		suffer nuclear contamination of drinking water.	
216.	Herbert Fitzroy (Feb. 13, 2018) Rita Redner (Feb. 13, 2018) Christina Anderman (Feb. 13, 2018) Chris Cavan (Feb. 12, 2018) Judith Fox Lee and Ormond Lee (Feb. 13, 2018)	Section 8.11.2 (8-157 to 8-158)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Various commenters express concerns with the discovery of a shear zone, referred to as "an important unstable structural 'discontinuity surface' in the Earth's crust and upper mantle", which would be located beneath the NPD reactor building. The commenters worry that this could be disrupted by a mild tremor, resulting in serious contamination of the Ottawa River. For this reason, the commenters express the perspective that the NPD site is clearly a highly unsuitable location for permanent disposal of long-lived and hazardous radioactive waste. Further to the above, Herbert Fitzroy concludes that CNL has made great efforts not to disclose or discuss the shear zone at public information sessions, given that this issue has not been raised.	
Assessment & Mitigation of Environmental Effects / Évaluation et mesures d'atténuation des incidences environnementales				
Assessment & Mitigation of Environmental Effects – Approach / Évaluation et mesures d'atténuation des incidences environnementales – Approche				
217.	PEP, Alliance des espaces verts de la capitale du Canada, Écologie Ottawa, Amis de la Terre (Canada), RCPR, SOO (Feb. 13, 2018 / 13 février 2018)	General / Général	*Please note that this comment was also submitted in French (see below). A response in both official languages is therefore required.* **English Comment:** The commenter is of the opinion that the draft EIS makes inadequate provision for keeping non-radiological contaminants (e.g. PCBs, dioxins/furans, lead, cadmium, mercury, etc.) out of the environment. *Veuillez noter que ce commentaire a été également été soumis en anglais (voir ci-dessus). Une réponse dans les deux langues officielles est donc requise.* **Commentaire en français**: Le commentateur est d'avis que l'EIE ne contient pas suffisamment de dispositions pour maintenir les contaminants non radiologiques (par exemple, BPC, dioxines / furanes, plomb, cadmium, mercure, etc.) hors de l'environnement.	
218.	William Turner	Section 9.1.1.1, Figure	With respect to Figure 9.1-2 of the draft EIS, the commenter is of the opinion that the Post Safety	

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	(Feb. 9, 2018)	9.1-2 (9-4)	Assessment TSD is meaningless since the site will be abandoned, and thus, all scenarios and "what if" cases will be "normal".	
219.	Dr. J.R. Walker (Jan. 2, 2018) Rita Redner (Feb. 13, 2018)	Section 9.1.1.1 (9-5 to 9-8)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters indicate that Canadian and international guidance provides for a dose constraint of 0.3 mSv/year for radioactive waste disposal [1, 2, 3, 4, 5], and that the normal evolution scenario should be based on reasonable extrapolation of present day site features and receptor lifestyles. It should include expected evolution of the site and degradation of the waste disposal system (i.e., gradual or total loss of barrier function) as it ages. The commenters note that CNL does not compare "disruptive event scenarios" and "what if cases" to the dose constraint of 0.3 mSv/year. Furthermore, CNL uses a dose criterion of 1.0 mSv/year for "disruptive event scenarios" because of their "low likelihood", while declining to compare the assessed dose to any radiological criteria for "what if cases" because they are "extremely unlikely, and in some cases implausible." The commenters argue that the failure to compare "disruptive event scenarios" and "what if cases" to the established Canadian criteria calls into question the credibility of the assessment and its conclusions. The NPD site will remain a radiological hazard for tens of thousands of years. All of the items listed as "disruptive event scenarios" and "what if cases" may be quite likely over that period of time. According to the commenters, CNL also claims that it is "extremely unlikely" and "not considered to be plausible" that the NPD site would be excavated over a period of tens of thousands of years. This is in marked contrast to international guidance (e.g., IAEA's SSG-23 [3]), which notes that the probabilistic measures of human intrusion should not be employed in the assessment of near surface disposal facilities. The commenters recommend that CNL refrain from using a risk-based concept and, instead, follow appropriate Canadian and international guidance. They also recommend that CNL include the "disruptive event scenarios" and "what if cases" in the normal evolution scenario and compare them to the Canadian unconditional clearance level (10 μSv/year) and dose constraint (0.3 mSv/year). [Please refer to Dr. J. R. Walker's submission for more context and for the quotes from the references above.] References: [1] International Atomic Energy Agency, *Disposal of Radioactive Waste*, Specific Safety Requirements SSR-5, 2011. [2] Canadian Nuclear Safety Commission, *Assessing the Long Term Safety of Radioactive Waste Management*, G-320, 2006. [3] International Atomic Energy Agency, *The Safety Case and Safety Assessment for the Disposal of Radioactive Waste*, Specific Safety Guide SSG-23, 2012. [4] International Atomic Energy Agency, *Near Surface Disposal Facilities for Radioactive Waste*, Specific Safety Guide SSG-29, 2014.	

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			[5] International Commission on Radiological Protection, *ICRP Publication 81: Radiation Protection Recommendations as Applied to the Disposal of Long-lived Solid Radioactive Waste*, 2000.	
220.	CELA (Feb. 13, 2018)	Section 9.1.1.1 (9-7)	This section of the draft EIS states: "The primary point of potential contaminant release into the biosphere is taken to be the riverbed close to the shore of the Ottawa River. In the aquatic environment, the contaminants may sorb to sediments or be taken up by aquatic flora and fauna. The dominant process will, however, be advection, dispersion and subsequent dilution in the water. River water is also used by people in many cases; for example, Deep River obtains its water from the Ottawa River." The commenter highlights that once the buried reactor vault becomes flooded after 40 to 60 years, the nuclides will travel underground to the Ottawa River where they will be diluted (as stated in the draft EIS). The commenter is concerned with this method of dealing with radionuclides and argues that dilution (and dispersion) is not the solution to pollution.	
221.	AOO (Feb. 26, 2018)	Section 9.1.1.1 (9-8)	This section of the draft EIS states: "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"…" The AOO indicates that CNL has utilized an effects assessment protocol to "screen out" radionuclides of the EcoRA if no "dose coefficient" was available. However, the AOO finds that it is unclear from the draft EIS how excluding these radiological contaminants will influence the evaluation of risk and potential impacts of the project. The AOO requests that CNL provide additional justification for this methodological decision, as well as 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 draft EIS.	
222.	Erwin Dreessen (Feb. 7, 2018) Green Party of Ontario (Feb. 13, 2018)	Section 9.1.2 (9-10)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "…the use of grout to fill the structure is expected to slow down the release of contaminants to groundwater and subsequently to the Ottawa River." The commenters ask the following questions in relation to the abovementioned statement: • What is meant by "slow down" and how does it relate to the longevity of the grout? • What contaminants will be released over what time period? • What if the release of contaminants occurs more rapidly than predicted?	

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223.	William Turner (Feb. 9, 2018)	Section 9.1.2.2, Table 9.1-1 (9-11)	As shown in Table 9.1-1 of the draft EIS under the "Duration/Timing of Effect" row, the effect level for any effect that "Extends into the Post-Institutional Controls phase" will be classified as "High". The commenter claims that this confirms that the goal of the project should be to ensure that the residual activity meets unconditional clearance criteria. If any residual effects were above these criteria, then CNL would fail to demonstrate that the site can be abandoned at the end of the Institutional Controls period.	
224.	MNO (Feb. 14, 2018)	Section 9.1.2.2 (9-11 to 9-12)	This section of the draft EIS states: "Each adverse residual effect was evaluated based on the criteria from CNSC REGDOC-2.9.1 […] as outlined in Table 9.1-1 below. For each of the criteria below, a rating of Low, Moderate or High was assigned…" The MNO finds this methodology of assessing residual effects and determining significance debatable for the following reasons: • The MNO is concerned with the two-step process which was applied to determine significance. The statement that "if a low rating is assigned to any of the Step 1 criteria, the effect is deemed a minor residual adverse effect (i.e., not significant), and no further assessment is required" is problematic as effects that have 4 out of 5 criteria as moderate or high should trigger additional consideration. • The assessment did not consider the likelihood of a residual effect occurring for each VC or the likelihood of mitigation being successful when determining the significance. • The determination of significance in EAs should not only include ecological significance, but also societal values [1]. CNSC's REGDOC-2.9.1 (Section A.3.6) states that "[t]he EIS should identify additional criteria used to assign significance ratings to any predicted adverse effects". However, no additional criteria were employed. In particular, social values of the potentially affected Aboriginal communities should play an important role in determining significance [2]. Therefore, the MNO requests to be consulted specifically in relation to the criteria and thresholds to be used to assess the impacts of residual effects on Aboriginal rights. • In addition, as a project an Institutional Controls period of 100 years, the MNO suggests that it is prudent to include sustainability as a criterion when determining the significance of residual impacts, particularly in the context of ecological integrity and Métis way of life for the future generations. • None of the principal measures, such as probability/likelihood analysis, sensitivity analysis or confirmatory analysis, was taken to address the uncertainty in impact prediction. For confirmatory purposes, the significance analysis was not subject to the MNO to test the reasonableness and sensitivity of the overall significance determined. The MNO requests that CNL address the abovementioned points. References: [1] Noble, B. F. (2016). *Introduction to environmental impact assessment: A guide to principles and practice*. Don Mills: Oxford University Press. [2] Ehrlich, A., & Ross, W. (2015). *The significance spectrum and EIA significance determinations.* Impact Assessment and Project Appraisal, 33(2), 87-97.	

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			doi:10.1080/14615517.2014.981023	
225.	CELA (Feb. 13, 2018)	Section 9.1.2.3 (9-13)	This section of the EIS states: "The preliminary scope of the EA follow-up monitoring program covers the Decommissioning Execution and Institutional Controls phases of the project. Recommendations are also provided on how to use this monitoring data during the initiation of the Post- Institutional Controls Phase." The commenter is of the perspective that while this statement evidences some appropriate foresight with respect to the transmission of information from one generation to the next, CNL does not provide guidelines that clearly set out the process by which these recommendations will be made. The commenter requests that CNL explain how the monitoring data collected during the Decommissioning Execution and Institutional Controls phases will be used during the initiative of the Post-Institutional Controls stage. The commenter also requests that CNL include a description of the internal process that will be established to ensure this happens [Information Request no. 13]. [Please refer to the commenter's submission for more information.]	
Assessment & Mitigation of Environmental Effects – Atmospheric Environment / Évaluation et mesures d'atténuation des incidences environnementales – Environnement atmosphérique				
226.	MNO (Feb. 14, 2018)	Section 9.2.1 (9-14)	This section of the draft EIS states: "No VCs have been selected in the atmospheric environment. The effects of changes in atmospheric conditions will be considered in the applicable environmental components, which include effects in Socio-Economic Environment and Aboriginal Land and Resource Use." The MNO notes that although no VCs have been selected for the atmospheric environment, Section 9.2.1 of the draft EIS still provides details for mitigation, residual effects, etc. without pulling the necessary information from those subsections to facilitate a fulsome consideration.	
227.	AOO (Feb. 26, 2018)	Section 9.2.3.2 (9-18)	This section of the draft EIS explains that the removal of the above-grade structure will result in the production of dust. The AOO explains that the dust generated will contain lead particulates given the historical use of lead bricks for shielding and of lead paint on the existing structures. The AOO highlights that 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. The AOO is concerned about the wetlands on site, which are located less than 2 km away from the NPD site, and are therefore at risk of being exposed to contaminated dust fallout from the demolition activities. The AOO requests that CNL: • Describe the parameters of the proposed dust suppression methods to adequately assess their potential effectiveness • Do not conduct demolition activities during high wind events or when the winds are originating from the southeast to further minimize dust fallout in the wetland areas. Baseline studies have determined that the prevailing winds on site are northwesterly and	

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			southeasterly, and that the wetlands present are to the west/northwest of the NPDWF footprint • Add a sampling location within the wetland closest to the NPDWF to the ongoing routine monitoring program to ensure that wetlands are not being affected by atmospheric transport of contaminated dust. The chemical analyses of these samples should include quantitative measurements of radionuclide and lead concentrations.	
228.	AOO (Feb. 26, 2018)	Section 9.2.3.3 (9-20)	The AOO argues that lead, asbestos, mercury and PCBs are not adequately assessed or modelled in the atmospheric environment assessment. The AOO requests that CNL include lead, asbestos, mercury and PCBs in the atmospheric assessment and air dispersion modelling due to their presence on the NPD site. The AOO also requests that CNL provide details on how designated substances on the NPD site will be managed and monitored during the project to minimize exposure to local AOO members.	
229.	MNO (Feb. 14, 2018)	Section 9.2.3.5, Table 9.2-3 (9-24)	The MNO notes that the potential effects listed under "Atmospheric Environment: Noise" in Table 9.2-3 are troubling for the following reasons: • The proposed restriction of the construction activities between 7 a.m. and 7 p.m. does not take into account the MNO's harvesting timing windows, which may be potentially affected by the transportation of material and equipment to the batch mixing plant • The implementation of standard construction practices does not necessarily address additional effects, such as trucking noise, demolition noise, earth moving, or removal of temporary structures • The potential effect of noise after mitigation is listed as 'unlikely' on humans or wildlife. This does not constitute an elimination of the effect, and therefore, additional mitigation measures should be developed.	
230.	MNO (Feb. 14, 2018)	Section 9.2.4 (9-27)	This section of the draft EIS states: "Since the atmospheric environment is a pathway to other environmental components (e.g., terrestrial environment and human health), potential adverse residual effects are considered within those environmental components." The MNO indicates that no residual effects to atmospheric conditions were considered within the environmental component of Aboriginal Land and Resource Use despite it being identified as a pathway to this other environmental component.	
231.	MNO (Feb. 14, 2018)	Section 9.2.5, Table 9.2-4 (9-28)	Table 9.2-4 in the draft EIS states under "Suggested Duration" and "Relation to Current NPD Monitoring Program" for "Noise": "At periods of high activity: monitor for minimum one week. Currently, NPDWF does not routinely monitor noise levels." The MNO expresses the concern that this monitoring program does not effectively verify the prediction of the noise effects or the proposed mitigation measures related to Métis people, as no traditional land use information from the MNO was collected to date.	
Assessment & Mitigation of Environmental Effects – Surface Water Environment / Évaluation et mesures d'atténuation des incidences environnementales – Eaux de surface				
232.	AOO (Feb. 26, 2018)	Section 9.3.3 (All)	Based on the AOO's understanding of the Post Closure Safety Assessment Report, releases of tritium from the NPD facility are expected to peak at 1,000,000 Bq/year or at about 1000 Bq/L of groundwater. This quantity of contaminants will enter the Ottawa River, which is already	

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			experiencing elevated levels of radionuclides due to past nuclear facilities and activities in the area. Furthermore, several drinking water intakes occur downstream of the NPD site on the Ottawa River, which is in the traditional territory of the AOO (who relies on the land and water for their livelihoods) and is spiritually and culturally important. The AOO requests that CNL provide additional mitigation measures to limit the introduction of tritium and radionuclides from the NDP facility into the Ottawa River, through the capture and management of the leachate and groundwater flow, or other appropriate measures.	
233.	AOO (Feb. 26, 2018)	Section 9.3.3 (All)	Groundwater and surface water quality was sampled for radiological and non-radiological parameters. The AOO highlights that for the non-radiological sampling, several of the parameters sampled were orders of magnitude higher than the CCME EQG (e.g., iron, mercury, copper, lead, zinc, etc.). As the water table is closely connected to the surface water system, the AOO is concerned with the high potential of these contaminants to affect the aquatic environment downgradient of the NPD 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. The AOO requests that CNL provide mitigation measures for the poor water quality of the NPD Site. The AOO also requests that CNL provide additional mitigation measures to address water quality issues, regularly monitor the WAS, and report any exceedances to the AOO.	
234.	Jaro Franta (Dec. 12, 2017)	Section 9.3.3, Figure 9.3-1 (9-35)	The commenter notes that Figure 9.3-1 only offers a single comparison for tritium concentrations in the Ottawa River surface water, where it is shown that "[c]oncentrations within 5 m of where the groundwater plume releases to the surface water are three orders of magnitude below measured baseline tritium concentrations." The commenter explains that while the tritium example is a good comparison, more needs to be done to address concerns about long-lived radioisotopes, such as Plutonium-239, Americium-241, and Technetium-99. As an appropriate quantitative comparison, the commenter recommends selecting radioisotopes occurring naturally in the Ottawa River due to groundwater transport and soil erosion (by the river itself, as well as tributaries and numerous in-flowing streams), that are similar to radioisotopes contained in the NPD facility. The commenter further indicates that a valid comparison must list the actual quantities of each radioisotope discharged annually into the Ottawa River – from natural sources or from an assumed leaching from the NPD facility in the distant future, long after Institutional Controls cease and the various containment barriers gradually degrade. The commenter also suggests performing an International Commission on Radiological Protection (ICRP)-type dose assessment for comparison. [Please see the commenter's submission for the context, including figures and examples].	
Assessment & Mitigation of Environmental Effects – Aquatic Environment / Évaluation et mesures d'atténuation des incidences environnementales – Milieu aquatique				
235.	MNO (Feb. 14, 2018)	Section 9.4.3.2 (9-48)	This section of the draft EIS states: "Because there are no in-water activities expected, no additional mitigation measures specific to the aquatic environment have been identified." The MNO draws attention to the fact that the aquatic environment in the Ottawa River is of great	

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			importance to Métis harvesters. The MNO requests that CNL develop additional mitigation measures that are specific to the aquatic environment.	
236.	MNO (Feb. 14, 2018)	Section 9.4.3.5, Table 9.4-3 (9-52)	The MNO notes that for benthic invertebrates, aquatic vegetation, Emerald shiner, White sucker and Lake sturgeon, "no undue effects are predicted" after mitigation for both "Engineering Degradation" and "Surface Erosion" under "Institutional Controls and Post-Institutional Controls" The MNO argues that this does not constitute an elimination of the effect, and requests that CNL develop additional mitigation measures.	
237.	William Turner (Feb. 9, 2018)	Section 9.4.4 (9-53) Also applicable to Section 9.6.4 (9-87) and Section 9.8.4 (9-111)	This section (and others) of the draft EIS states: "Based on the assessment described above, no adverse residual effects on the terrestrial environment have been predicted." The commenter argues that this statement has yet to be proven because the predicted adverse residual effects will be present well over 100,000 years into the future.	
Assessment & Mitigation of Environmental Effects – Geological and Hydrogeological Environment / Évaluation et mesures d'atténuation des incidences environnementales – Environnement géologique et hydrogéologique				
238.	CELA (Feb. 13, 2018)	Section 9.5.3.3 (9-60)	The commenter points out that the draft EIS refers to Health Canada's limit for tritium in drinking water of 7,000 Bq per litre, although this limit was set over two decades ago and is outdated compared to limits used by the European Commission and the US Environmental Protection Agency [see Table 4 in the commenter's submission]. The commenter also notes that the Ontario Drinking Water Advisory Council (ODWAC) published in 2009 a comprehensive report which recommended that the tritium limit in drinking water be tightened to 20 Bq/litre, annualized. The commenter recommends that CNL use the ODWAC limit for tritium in drinking water in their draft EIS, given the possibility or even likelihood of more stringent limits being established by the Ontario government and included in federal guidelines. This would contribute both to an assessment against more health protective standards, and ensure the proposed project is assessed against a long-term health standard that may well be adopted within the impacting life-span of this project. [Please refer to the commenter's submission (Recommendation No. 8) for more information.]	
Assessment & Mitigation of Environmental Effects – Terrestrial Environment / Évaluation et mesures d'atténuation des incidences environnementales – Milieu terrestre				
239.	AOO (Feb. 26, 2018)	Section 9.6.3.1, Table 9.6-2 (9-74) Also applicable to Section 4.3.2, Table 4.3-1 (4-16)	Table 9.6-2 of the draft EIS states: "Improvements made to the ventilation stack will improve conditions for the chimney swifts." The AOO indicates that in Table 4.3-1, these improvement activities are projected to start in April 2019, and that according to Environment and Climate Change Canadas's guidance on the 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. The AOO requests that CNL commit to completing the Ventilation Stack Isolation work before April 1st to avoid disturbance to chimney swifts during migratory and nesting periods.	

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240.	AOO (Feb. 26, 2018)	Section 9.6.3.2 (9-75)	This section of the draft EIS states: "In order to protect nesting migratory birds, in accordance with the Migratory Birds Convention Act, the site preparation activities will avoid tree clearing during the breeding bird season (April 15 – August 20), wherever possible. If such activities cannot be scheduled outside the prime nesting season, a nest survey should be conducted beforehand (i.e., within 2 days) to ensure there are no active nests in the areas of activity." In addition to avoiding disruptive activities (e.g., tree clearing) during the breeding bird season and conducting nest surveys, the AOO requests that CNL commit to implementing setback distances associated with medium-disturbance levels in the event that any of the avian species at risk listed as present or potentially present on site are discovered nesting in the Site Study Area. The following setback distances should be followed: • 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)	
241.	AOO (Feb. 26, 2018)	9.6.3.4 (9-81)	This section of the draft EIS states: "The exact locations of the batch mixing plant, staging areas, raw material storage areas, on-site trucking routes have not yet been finalized." The AOO requests that CNL specify the exact locations of project activities (batch mixing plant, staging areas, etc.) to adequately determine their potential effects on the site's terrestrial vegetation and wetland areas.	
242.	MNO (Feb. 14, 2018)	Section 9.6.3.5, Table 9.6-3 (9-83)	The MNO is concerned with the potential effects on the terrestrial environment and the proposed mitigation measures described in Table 9.6-3 (left column) for the following reasons: • The exposure effects to vegetation and wildlife, as well as the habitat-related effects from demobilization may have potential impacts on Métis rights and interests, and yet, no mitigation measures have been identified • In the context of minimizing physical effects, such as noise and dust, the implementation of standard construction practices does not address additional effects on vegetation and wildlife, such as trucking noise, demolition noise, earth moving, or removal of temporary structures The MNO recommends that CNL develops additional mitigation measures specific to the terrestrial environment. By completing a traditional land use study with the MNO, CNL could have documented their rights and interests in the vicinity of the project and considered their traditional environmental knowledge when developing mitigation measures.	
243.	AOO (Feb. 26, 2018)	Section 9.6.3.5, Table	Table 9.6-3 in the draft EIS states: "Wildlife exclusion fencing to be put in place around	

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		9.6-3 (9-83)	construction areas if required. Employee training and site sweeps for eastern milksnake will increase awareness and proper procedures are followed. The AOO expresses the view that the circumstances that will trigger the installation of exclusion fencing are unclear. The AOO also believes that CNL provides few details on its planned design and installation techniques for reptilian exclusion fencing. The AOO requests that CNL provide a description of the circumstances (e.g., quantifiable targets and thresholds) under which the installation of exclusion fencing for species at risk reptiles will be triggered. Otherwise, CNL should take a conservative approach and commit to installing exclusion fencing around the Site Study Area 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.	
244.	William Turner (Feb. 9, 2018)	Section 9.6.3.5, Table 9.6-3 (9-86)	Under "Potential Effect" for the "Institutional Controls and Post-Institutional Controls", Table 9.6-3 states: "Groundwater will flow into the eventually degraded structure. Contaminated groundwater may flow out and eventually into the Ottawa River. This may be transferred to soil through irrigation, and biota through drinking water." Under "Proposed Mitigation" for the same timeframe, the table states: "In-design mitigation to isolate and contain the inventory in order to reduce the potential of groundwater contamination and effects in the terrestrial environment." The commenter requests that CNL provide the evidence that the proposed in-design mitigation addresses the "Potential Effect". Since the effect results from the degraded structure, what are the proposed measures that will mitigate the eventual degradation of the structure? The commenter asks that CNL provide details as to the measures that will address natural degradation.	
245.	William Turner (Feb. 9, 2018)	Section 9.6.3.5, Table 9.6-3 (9-86)	Under "Potential Effect After Mitigation" for the "Institutional Controls and Post-Institutional Controls", Table 9.6-3 states: "Radionuclides are expected to be within acceptance criteria." The commenter wonders if the term "acceptance criteria" refers to the public dose limit (1 mSv/yr). If it does, the commenter argues that the statement above cannot be true since the 1 mSv/yr dose limit will not be achieved until about 80,000 years from the end of the Institutional Controls period. The commenter recommends that CNL revise this statement to reflect that the proposed ISD of the NPD facility will not meet unconditional clearance criteria without an unrealistic Institutional Controls period of more than 100,000 years.	
Assessment & Mitigation of Environmental Effects – Ambient Radioactivity / Évaluation et mesures d'atténuation des incidences environnementales – Radioactivité ambiante				
246.	Nuclear Waste Watch (Feb. 9, 2018)	Section 9.7.5, Table 9.7-4 (9-101)	Table 9.7-4 in the draft EIS states: "NPDWF currently […] monitors tritium levels with passive air samples within the facility." The commenter requests that CNL provide evidence for the reliability of such measurements, including comparisons with equivalent data collected using active tritium monitors.	
Assessment & Mitigation of Environmental Effects – Human Health / Évaluation et mesures d'atténuation des incidences environnementales – Santé humaine				
247.	Judith Fox Lee and Ormond Lee	Section 9.8 (All)	The commenter raises concerns with radiation exposure to biological systems, given that radiation is mutagenic, carcinogenic, teratogenic, and immuno-suppressing. The commenter notes that	

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	(Feb. 13, 2018)		these effects, which begin at a submicroscopic level, remain invisible for extended periods of time until they reach observable proportions. References sourced by the commenter assert that the latent period may be decades in the case of an incipient cancer, or it may be centuries in the case of a genetic effect. The commenter concludes that one aspect of nuclear waste is human (and other life forms') suffering, ill health and death over extremely long periods of time, tens of thousands of years or longer. The commenter notes that it has become universally recognized that there is no proven threshold for potentially fatal injury from radiation – that there is no "safe" dose. The commenter also notes that it is now widely recognized that all exposures to radiation are cumulative; both in individuals, and in the species as a whole. [Please see the commenter's submission for more information, including references for the above statements.]	
248.	MNO (Feb. 14, 2018)	Section 9.8.1 (9-102)	The MNO note that there is no sub-component under Human Health for the assessment of Aboriginal people. Métis harvesters can and do have differing consumption levels and dietary habits from non-Aboriginal hunters, trappers, fishers and gatherers. Therefore, the MNO request that Aboriginal health be considered separately.	
249.	Jaro Franta (Dec. 12, 2017)	Section 9.8.3 (All) Also applicable to Section 9.1.1.1 (9-5)	The draft EIS concludes that there are no adverse residual effects on human health. The commenter highlights that this conclusion and that of low radiation doses derive from mathematical modeling, as explained in slightly more detail in section 9.1.1.1 of the draft EIS as such: "Evaluating postclosure safety requires projections of the future condition of the NPDWF and its environment and how people might interact with it. Approaches have been developed to undertake such evaluations, centred on a "system analysis" method." The commenter indicates that the part about "how people might interact with it" and how radiation dose assessment is performed includes standard ICRP methods [1, 2, 3] – the same methods used by the CNSC in their dose assessment calculations, and the main data on which the CNSC bases its licensing decisions. However, the commenter notes that the draft EIS never mentions ICRP, presumably leaving the details to the Postclosure Safety Analysis TSD. The commenter argues that this single omission markedly reduces the apparent value of the draft EIS for all readers who do not have access to the Postclosure Safety Analysis TSD – or indeed to the other TSDs. The commenter further explains that ICRP methods also incorporate any and all factors that much of the public believes differentiates between natural and anthropogenic radioactive substances. In other words, a dose calculation result obtained using standard radiation dose assessment methods is completely independent of the radioisotopes or chemical species involved, be they natural or anthropogenic in nature, because all metabolic and radiation differences (radiation type and energy) are taken into account a priori. The commenter believes that this important, basic concept should be conveyed to the public and media interested in the NPD Closure Project for a better understanding of the draft EIS. The commenter recommends that CNL include in the draft EIS a brief and general explanation of the radiation dose assessment process and ICRP's method in particular, to further underscore the	

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			"well-grounded and auditable" claim, as stated in Section 9.1.1.1. References: [1] ICRP, *Age-Dependent Doses to Members of the Public from Intake of Radionuclides: Part 5*, ICRP Publication 72, Pergamon Press, Oxford, 1996 [2] ICRP, *Dose Coefficients for Intakes of Radionuclides by Workers*, ICRP Publication 68, Pergamon Press, Oxford, 1994 [3] ICRP, *Limits for Intakes by Workers, ICRP Publication 30, Part 1*, Pergamon Press, Oxford, 1979	
250.	MNO (Feb. 14, 2018)	Section 9.8.3.5, Table 9.8-3 (9-113 to 9-116)	The MNO notes that without a separate consideration of the health of Aboriginal people, CNL failed to assess the potential effects on the physical and mental well-being of Aboriginal groups whose exposure pathways may differ due to traditions and cultural practices. The MNO also argues that CNL failed to consider how Métis citizens could be affected as human receptors through multiple pathways, to identify Métis interests as receptors, and assess the potential effects to their rights and interests. Therefore, the MNO is of the opinion that the conclusion that there are no adverse residual effects on human health is deficient.	
251.	AOO (Feb. 26, 2018)	Section 9.8.3.3 (9-109)	The AOO requests that CNL make greater efforts to engage the AOO in the development of critical group scenarios and resource use. CNL should discuss the models of AOO citizen exposure and dose with the AOO to determine if they are accurate. The maximum dose from the NPD facility is expected to be for the hunter , and that information should be communicated to the AOO.	
Assessment & Mitigation of Environmental Effects – Aboriginal Land and Resource Use / Évaluation et mesures d'atténuation des incidences environnementales – Utilisation des terres et des ressources par les Autochtones				
252.	MNO (Feb. 14, 2018)	Section 9.9.1 (9-119 to 9-120)	This section of the draft EIS states: "VCs for Aboriginal traditional land and resource use were selected based on consideration of a number of factors, including the: • Knowledge of Aboriginal traditional land and resource use practices that interact with the environment; • Aboriginal and/or treaty rights; • Engagement (as documented in the Aboriginal Engagement TSD); • Consideration of other EAs." The MNO indicates that the selection of VCs for Aboriginal traditional land and resource use is problematic, given that none of these factors was sufficient to characterize the traditional land use activities of the MNO in the vicinity of the proposed project. Further, the MNO notes that the examples of cultural VCs listed, which include heritage resources, hunting and trapping, are limiting in their scope. Instead, the MNO recommends that this section broadly refer to Aboriginal rights and interests as Métis rights and interests encompass a much broader scope than hunting and trapping. For example, Métis perception and intangible aspects of Métis rights, such as Métis way-of-life, should be considered in the selection of VCs. These aspects must be considered to ensure an accurate assessment of effects to Métis rights and interests is quantified.	

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253.	MNO (Feb. 14, 2018)	Section 9.9.3.1, Table 9.9-2 (9-122 to 9-125)	The MNO notes that the construction of the batch mixing station will have a potential effects on Aboriginal land and resource use as it will contribute to dust, noise and visual quality effects, which could affect the exercise of Métis rights and interests near the NPD facility. Vegetation removal, road maintenance and fence maintenance should have a potential project impact on the exercise of Métis rights and interests near the CNL property.	
254.	AOO (Feb. 26, 2018)	Section 9.9.3.2 (9-125)	This section of the draft EIS states: "…construction activities 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 Local and Regional Study Areas." The AOO is of the opinion that this mitigation measure is too vague. The AOO requests that CNL engage and consult the AOO on developing specific measures to minimize nuisance effects of construction on Aboriginal Land and Resource Use, including traditionally important species and their habitat.	
255.	MNO (Feb. 14, 2018)	Section 9.9.3.5, Table 9.9-3 (9-128)	The MNO notes that the potential effects described in Table 9.9-3 on Aboriginal land and resource use, as well as the proposed mitigation measures, are concerning for the following reasons: • The potential effects are limited and do not take into account Métis perceptions and intangible aspects of Métis way-of-life (e.g., there is no Métis-specific information in terms of trapping, hunting, fishing and gathering). • The implementation of standard dust suppression and restring hours of activities are not sufficient in the context of minimizing physical effects to Métis harvesters, such as noise and dust. • The same mitigation measures identified for the terrestrial and aquatic environments are proposed for minimizing potential effects on trapping, hunting, fishing and gathering of Aboriginal groups. It is particularly deficient as Métis rights and interests in the vicinity of the project are not documented in a fulsome manner in the draft EIS. Additional mitigation measures specific to the terrestrial environment should have been developed. • It is unclear how periodic updates on the project construction activities and discussions with Aboriginal groups as a proposed mitigation measure would be implemented and guaranteed. This should not be seen as fulfillment of the duty to consult.	
256.	MNO (Feb. 14, 2018)	Section 9.9.4 (9-129)	This section of the draft EIS states: "Based on the assessment described above, no adverse residual effects on Aboriginal land and resource use have been predicted." The MNO argues that the assessment is built on an inaccurate project-interaction matrix, and therefore, does not capture the full scope of Métis rights and interests. Particularly, more qualitative aspects, such as Métis perceptions and way-of-life, should be considered.	
257.	MNO (Feb. 14, 2018)	Sections 9.9.6 (9-129)	This section of the draft EIS states: "Monitoring activities in other environmental components (i.e., atmospheric, surface water, geological and hydrogeological and terrestrial environments, ambient radioactivity and human health) will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to Aboriginal land and resource use. If monitoring identifies concerns in the other environmental components, CNL will assess the implications to Aboriginal land and resource	

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			use (e.g., through ongoing Aboriginal engagement activities)." The MNO finds this conclusion worrisome for the following reasons: • There was no baseline data collection undertaken with the MNO, while they may have pertinent information which could have been incorporated. Thus, no baseline characterization can be compared to in this respect when implementing monitoring activities. • It is fundamentally flawed to verify the predicted effects related to Aboriginal land and resource use by monitoring activities in other environmental components. Monitoring in these components cannot be used as a proxy for the Aboriginal land and resource use as baseline characterization in those components is different. • The lack of monitoring and follow-up for Aboriginal land and resource use further highlights the cursory nature of this assessment. How will Métis rights be protected through the ongoing engagement activities without a specific monitoring and follow-up plan, and without a project-specific traditional land use study The MNO recommends that CNL develop a monitoring program specific to the MNO.	
Assessment & Mitigation of Environmental Effects – Socio-Economic Environment / Évaluation et mesures d'atténuation des incidences environnementales – Environnement socioéconomique				
258.	AOO (Feb. 26, 2018)	Section 9.10 (All)	The AOO is of the opinion that the draft EIS does not fully consider project-human interactions, such as • Human resources/workforce • Employment and income from the various project phases • Impact of influx of workers (if applicable) on community safety • Well-being • Services As a result of these gaps, the AOO argues that some socio-economic value components and their potential effects have not been considered. With a special focus on AOO citizens, the AOO requests that CNL evaluate the implications of the interactions described above, whether they represent potential positive or negative socio-economic and well-being effects.	
259.	AOO (Feb. 26, 2018)	Section 9.10 (All)	The AOO draws attention to the following socio-economic components that are missing from CNL's effects assessment: • Primary socio-economic and community well-being components and indicators (i.e., health, education, infrastructure and services, economic development, etc.) • Opportunities for Indigenous employment or procurement, including opportunities for the AOO The AOO requests that CNL provide a more complete assessment and consideration of the socio-economic indicators identified above. The AOO also requests that CNL include information regarding the ways with which they intend to engage the AOO in developing employment and procurement opportunities for the proposed project.	
260.	MNO	Section 9.10.3.2 (9-	This section of the draft EIS states: "No mitigation measures have been identified for land use in	

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	(Feb. 14, 2018)	136)	the study area, as formal changes in land use designation are not expected to occur during the Decommissioning Execution." The MNO argues that most of the proposed mitigation measures are only standard construction mitigation measures, and therefore, are inadequate to address indirect socio-economic effects.	
261.	AOO (Feb. 26, 2018)	Section 9.10.3.3 (9-137)	This section of the draft EIS states: "The visual character of the shoreline, as viewed from the Ottawa River, may decrease." Based on the AOO's assessment of the draft EIS, the impacts to the Ottawa River shoreline would not be fully mitigated. In addition, information on how the shoreline would be impacted was not clearly identified in the draft EIS. The AOO requests that the Ottawa River shoreline be mitigated to the greatest extent possible given the cultural significance of the Ottawa River to AOO people, its rich history, cultural resource potential, and present-day use for fishing. Where mitigation is not possible, CNL should work with the AOO on identifying appropriate accommodation and compensation measures to ensure impacts are fully addressed.	
262.	MNO (Feb. 14, 2018)	Section 9.10.3.3 (9-137 to 9-138)	This section of the draft EIS states: "No effects are expected on walleye and white-tailed deer populations. Therefore, no effects are expected on the ability to hunt and fish in the Local Study Area." The MNO argues that because no effects are expected on white-tailed deer does not necessarily mean that there is no effect on Métis harvester's rights. Métis harvesters' perceptions and access to hunting white-tailed deer maybe indirectly affected.	
263.	Herbert Fitzroy (Feb. 13, 2018)	Section 9.10.3.5 (9-139 to 9-143)	The commenter raises concerns with how negative headlines related to the NPD Closure Project will impact perceptions of the Ottawa Valley as a place of outdoor fun and entertainment. The commenter believes that the Ottawa Valley's reputation is at stake, and that tour outfitters and marina operators will feel the impacts.	
264.	MNO (Feb. 14, 2018)	Section 9.10.6 (9-143)	This section of the draft EIS states: "Monitoring activities in other environmental components (i.e., atmospheric, surface water, geological and hydrogeological and terrestrial environments, ambient radioactivity and human health) will verify the accuracy of the EA predictions and effectiveness of measures implemented to mitigate potential adverse environmental effects related to the socio-economic environment." The MNO finds this conclusion debatable for the following reasons: • No data sources were listed from the MNO for the collection of baseline socio-economic data. This is problematic as the MNO may have pertinent information which could have been incorporated. • It is fundamentally flawed to verify the predicted effects related to the socio-economic environment by monitoring activities in other environmental components. Monitoring in these components cannot be used as a proxy for the socio-economic environment as baseline characterization in those components is different. • If sustainable development is the objective of an EIS, the biophysical and socio-economic components must be given equal consideration throughout all phases of the EA, including in the post-decision monitoring phase [1].	

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			• The lack of monitoring and follow-up for the socio-economic environment further highlights the cursory nature of this assessment. The MNO requests that CNL develop a specific monitoring program for the socio-economic environment. Reference: [1] Noble, B. F. (2016). *Introduction to environmental impact assessment: A guide to principles and practice*. Don Mills: Oxford University Press.	
Accidents and Malfunctions / Accidents et défaillances				
265.	AOO (Feb. 26, 2018)	Section 9.11 (All)	The AOO is of the view that CNL should ensure effective contingency plans are in place for extreme weather and natural hazard scenarios that may impact or damage the NPD facility. 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 radiological and non-radiological contaminants from the NPD facility to be released to the environment, in particular to the Ottawa River. The AOO request that CNL provide more detailed information regarding extreme weather and natural hazard contingency planning. Since the potential for extreme weather and natural hazards is high at the NPD facility, CNL should provide a more detailed discussion regarding the potential impacts of flooding and the types of releases that would occur if the NPD facility was inundated.	
266.	CCNR (Feb. 13, 2018)	Section 9.11 (All)	The commenter is of the opinion that the draft EIS should include an exhaustive study of possible chemical reactions that could lead to the production of explosive and/or non-condensable gases that might seriously compromise the safety and security of the NPD facility over a long period of time. The commenter also believes that the draft EIS should provide a detailed and realistic description of the expected breakdown of the NPD subterranean structures over the centuries and millennia to come. Moreover, the commenter recommends that a complete and detailed inventory of all radionuclides be provided, with half-lives, total activity (in Bq), mode of decay (alpha, beta, gamma), and detailed information about radiotoxicity (including target organs and environmental pathways).	
267.	MNO (Feb. 14, 2018)	Section 9.11 (All)	The MNO is concerned about potential impacts from accidents and malfunctions related to the proposed project, in particular with relation to the intensive offsite transportation activities. The MNO requests that CNL assess the effects of accidents and malfunctions on human and environmental health, and on the rights and interests of the Métis community. In the event of an accident or malfunction, the MNO should be notified immediately to ensure relevant information can be passed on to the Métis harvesters in the region.	
268.	William Turner (Feb. 9, 2018)	Section 9.11.3.2, Table 9.11-3 (9-148)	The commenter requests that CNL explain why only the 5 chemicals listed in Table 9.11-3 are of concern in an accident and malfunction event. According to the commenter, many other	

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			chemicals could present a hazard to workers during the postulated event. What sampling and analytical methods will be used to ensure the worker's exposure is below these values? In addition, the commenter discusses dioxins and furans resulting from a fire-related accident, and expresses the concern that CNL failed to address the potential for adverse environmental effects resulting from the potential dispersal of the 5 chemicals listed in Table 9.11-3 due to fire. The commenter also requests that CNL assess impacts to nonhuman biota receptors. [Please refer to comment no. 74 in Mr. Turner's submission for more information.]	
269.	AOO (Feb. 26, 2018)	Section 9.11.4.4 (9-153 to 9-154)	The draft EIS explains that Chimney Swifts would unlikely be exposed to the potential airborne and liquid releases of contaminants during a stack collapse accident (scenario 10) given that it could only occur during the day (when heavy equipment is in operation), while Chimney Swifts only reside in the stack at night. The AOO finds this argument odd for an assessment that should be evaluating all impacts (physical, chemical and biological) at all stages, and especially because the stack collapse could destroy the nests of the Chimney Swift population. A stack collapse, depending on the time of year, could wipe out the colony, regardless of the time of day. The AOO requests more information from CNL.	
Cumulative Effects / Effets cumulatifs				
270.	AOO (Feb. 26, 2018)	Section 9.12.2 (9-159)	The AOO requests that an analysis of cumulative effects be conducted for the releases from the NPD site and those from CRL and other industries and cities on the Ottawa River. The AOO also request an assessment of cumulative effects of the overall NPD site, including all sources of contamination (landfills, wetlands, stored materials, etc.)	
271.	CELA (Feb. 13, 2018)	Section 9.12.2 (9-159)	This section of the draft EIS states: "Since the project has no residual effects, cumulative effects assessment is therefore not required. The following discussion is provided in recognition of the identification of the Ottawa River as a key stakeholder concern." Given the uncertainties and risks surrounding the effects of the NPD Closure Project on surface water and groundwater resources over millennia, the commenter requests that CNL provide an in-depth quantitative analysis of cumulative effects that covers the following concerns, as per CEAA's *Reference Guide: Addressing Cumulative Environmental Effects* [Information Requests no. 15 and no. 27]: • The long-term timeframe of the project, including all three project phases and > 2120 • The interactions among the environmental effects of the project, and past and future projects and activities (e.g., the proposed Chalk River near-surface facility and the remaining Chalk River facilities) • The synergistic effects of the project, and past and future projects and activities • How individual thresholds were identified and considered for surface water and groundwater VCs In the absence of such an in-depth investigation of cumulative effects, the commenter requests	

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			that CNL provide a sound and detailed rationale to ensure the public that the NPD Closure Project will not – in combination with other projects – have adverse effects on vital drinking water sources over the lifetime of the project [Information Request no. 16]. [Please refer to the commenter's submission for more information.]	
272.	MNO (Feb. 14, 2018)	Section 9.12.2 (9-159)	This section of the draft EIS states: "Since the project has no residual effects, cumulative effects assessment is therefore not required. The following discussion is provided in recognition of the identification of the Ottawa River as a key stakeholder concern." The MNO is of the opinion that the NPD Closure Project has the potential to interact with many existing and reasonably foreseeable projects and activities in the vicinity, namely the NSDF Project, CRL infrastructure decommissioning projects, upgrading research and development facilities, and remediation waste management areas. The MNO find that it is prudent for CNL to predict potential cumulative effects of a synergistic and additive nature, as these projects are located in the same area and may have effects that may result from the accumulation of similar effects or synergistic interaction of different effects.	
Summary of Mitigation Measures / Synthèse des mesures d'atténuation				
273.	MNO (Feb. 14, 2018)	Section 10.2 (10-3)	This section of the draft EIS states: "[The] Environmental Protection Program […] is registered under ISO 14001 and is designed to provide for the protection of the environment and the public in relation to CNL's activities." The MNO argues that ISO 14001 standards do not take the MNO's rights and interests into consideration. Therefore, incorporation and compliance with those standards does not ensure that the potential adverse environmental effects to Métis rights and interest are considered. The MNO assert they should have input into the Environmental Protection Program to ensure Métis rights are reflected in the document and for the ongoing reduction of potential effects on Métis rights and interests.	
274.	Northwatch (Feb. 19, 2018)	Section 10. 2 (10-3 to 10-4)	The commenter notes that while the draft EIS does provide a brief outline of CNL's Radiation Protection Program and its general objectives, it does not discuss the means by which the Radiation Protection Program objectives and CNL's decommissioning objectives are mutually supportive or are in need of resolution.	
275.	MNO (Feb. 14, 2018)	Section 10.5 (10-11)	The MNO indicates that they had no opportunity to provide input into alternate mitigation measures. Consultation and input should have been sought from the MNO to ensure reduction and elimination of potential effects.	
Conclusion on Significance / Conclusion sur l'importance				
276.	AOO (Feb. 26, 2018)	Section 11 (All)	The AOO is of the opinion that the determination of significance of adverse residual effects is not reasonable. According to CNL's methodology (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. The AOO argues	

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			that an activity with a high level of effects for magnitude, spatial (geographic) extent, duration/timing, and reversibility, but with a 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 Ottawa River [see figure in AOO's submission]. The AOO requests that CNL employs a lower threshold for the determination of significant adverse residual effects.	
277.	MNO (Feb. 14, 2018)	Section 11.1 (11-1)	The MNO notes that "significance" is not an appropriate threshold for considering impacts to Aboriginal rights, as it is neither a requirement to trigger a duty to consult, nor part of the legal test in relation to infringement. The MNO explains that standard criteria and thresholds typically used to assess potential impacts to biophysical components are not suitable for measuring changes and impacts to Aboriginal rights. Appropriate sources of information need to be used when establishing the criteria and thresholds for assessing potential impacts to rights, such as traditional ecological knowledge, traditional land use data, anthropological and ethno-historical resources and other relevant literature. The MNO requests to be consulted specifically in relation to the criteria and thresholds to be used to assess the impacts of residual effects on Aboriginal rights.	
278.	CELA (Feb. 13, 2018)	Section 11.2 (11-1)	This section of the draft EIS states: "All proposed Decommissioning Execution activities will be carried out in accordance with CNL policies and procedures, provincial and federal regulations, and measures designed to mitigate effects on human health and the environment. The proposed technologies are known and proven. In-situ decommissioning has been in use for at least 50 years." According to the commenter, CNL rests its safety case in part on the idea that the ISD option represents proven technology because it has been in use for 50 years. Given that the proposed technology must isolate and contain radioactive waste for thousands of years into the future, and given the uncertainties and risks associated with the project, it seems unlikely that 50 years is enough time to prove the safety and technological efficacy of the ISD method of managing long-lived radioactive waste. The commenter requests that CNL provide a sound justification for using the 50-year timeframe as the basis for asserting that the ISD technology is proven technology [Information Request no. 10].	
Follow-up Program and Monitoring / Programme de suivi et de surveillance				
279.	CELA (Feb. 13, 2018)	Section 12 (All)	The commenter asserts that the draft EIS should have included a more detailed analysis of monitoring for the proposed ISD. According to the commenter, the extent of monitoring considerations in the draft EIS can be briefly summarized as follows: • Monitoring will continue for Chimney Swifts at the site • Emissions and effluent monitoring will occur during the demolition/grouting phase • Visual inspections and groundwater monitoring will be carried out during the Institutional Controls phase	

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			• Checks or species at risk will occur on a "per-event basis" The commenter's review of the draft EIS and supplemental documents does not support a finding that monitoring, specifically responsive to the form of decommissioning beyond proposed, has been adequately considered by CNL. Therefore, the commenter reiterates the findings of the 2009 Savannah River National Laboratories report and recommends the following be adopted before, during and after ISD activities: • Develop innovative monitoring schemes and sensors for grout placement verification (e.g., grout lift temperature, measure off-gas production, vertical settlement and displacement) and combine with surrounding groundwater monitoring wells and structural settlement monitoring • Develop long-term sustained performance monitoring schemes and sensors to measure grout monolith curing, remaining structure stability and performance, and combine with surrounding groundwater and ecological monitoring • Install and collect laser monitoring of elevations to monitor for structural subsidence • Install instruments nearby shallow groundwater wells with transducers to measure effects on the shallow groundwater elevation The commenter's recommendations, while far from exhaustive, are examples of monitoring schemes which are directly related to the project proposed by CNL. This level of depth or detail does not appear in the draft EIS. While CNL states that during the Institutional Controls phase "it is expected that monitoring activities will verify the robustness and integrity of containment and that releases carry no undue risk under normal operating conditions", the commenter requests that CNL substantiate the methods and mechanism justifying this assertion.	
280.	AANTC (Feb. 13, 2018) Angela Keller-Herzog (Feb. 13, 2018) Bonnechere River Watershed Project (Feb. 13, 2018) CELA (Feb. 13, 2018)	Section 12 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters are concerned with the short-sighted timeframe of CNL's follow-up monitoring program, which only covers the decommissioning and Institutional Controls phases. The draft EIS proposes to discontinue CNL's obligations for monitoring of the NPD site after only 100 years. The commenters argue that it would be more prudent and responsible for CNL to commit to monitoring "as long as required" (and at a minimum, for the desired period of at least 100 years), with no automatic termination at all. Ms. Keller-Herzog indicates that dismissing environmental impacts expected to occur in more than 100 years is unacceptable, because the peak dosage of contamination is expected to occur 1,200 years after closure of the facility. Ms. Keller-Herzog also notes that the proposal makes no provision for disruptive events after 100 years, which would require monitoring and remediation. The AANTC recommends that CNL prepare a "Check Point Report" outlining the results of a full final site investigation (including field studies and a future-risk analysis). This type of report should be required prior to any proposed termination of monitoring and Institutional Controls to confirm that it is safe to abandon the site. The "Check Point Report" should be submitted for regulatory consideration and circulated to the public and Aboriginal groups for review and comment beforehand.	

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			In addition, the AANTC and Bonnechere River Watershed Project recommend that CNL commit to updating and improving the follow-up and monitoring program over time. A commitment from CNL to adaptively update the follow-up and monitoring program in concert with technological advances is essential, but is currently missing from the draft EIS.	
281.	Bonnechere River Watershed Project (Feb. 13, 2018) CELA (Feb. 13, 2018)	Section 12 (All)	CELA explains that CNL has an opportunity to incorporate the concept of "rolling stewardship" in planning for the long-term monitoring and safety of the NPD Closure Project. Given that the waste in the NPD Closure Project will be radioactive for many thousands of years, the commenter argues that CNL must provide appropriate guidelines that ensure rolling stewardship with respect to transmission of information, transfer of responsibility, recharacterization of waste, mitigation of problems, retrieval of waste (as appropriate), and continual adaptive management. CELA requests that CNL describe how the concept of "rolling stewardship" will be incorporated in monitoring plans [Information Request no.14]. The Bonnechere River Watershed Project echoes this recommendation. [Please refer to CELA's submission (p.16) for a discussion on the concept of rolling stewardship.]	

282.	AOO (Feb. 26, 2018)	Section 12 (All)	During the Decommissioning Execution phase, there are significant environmental risks associated with a range of activities. As stewards of the lands and waters, Algonquins must have a role in the environmental monitoring of the project.
			Currently, there is no mechanism for the AOO to participate in the environmental management of the NPD site (and beyond) during the Decommissioning Execution, Institutional Controls and Post-Institutional Controls phases. 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.
			To ensure transparency and confidence in monitoring activities, the AOO ask that there 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 the following actions by CNL:
			• Provide funding for full-time AOO monitors who would be able to:
			  ○ Be on-site to monitor the environmental risks during the Decommissioning Execution phase
			  ○ Be responsible for participating in the design, implementation and reporting of monitoring and remediation
			  ○ Liaise with AOO members, leadership and CNL to share information
			  ○ Complete 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.)
			• Provide training and reasonable capacity funding to allow AOO monitors to be effective in their role	

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283.	AOO (Feb. 26, 2018)	Section 12 (All)	The AOO are of the opinion that monitoring of environmental receptors is crucial to ensure that potential effects from NPD facility 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 the AOO to help AOO members have confidence that components of the environment that they value are being monitored appropriately. To promote the effective participation of the AOO within the environmental management and monitoring programs at the NPD site, the AOO strongly recommend the creation of a Nuclear Environmental Review Board (NERB). The NERB would allow for effective coordination between the AOO, CNL and the CNSC. Moreover, having representatives from the AOO would help ensure that the rights and interests of AOO members are upheld. The AOO make the following suggestions with respect to the NERB: ○ That the NERB be composed of representatives from the AOO, CNL and the CNSC ○ That the NERB be responsible for overseeing all nuclear activities in the AOO Settlement Area ○ That the NERB be responsible for reviewing annual reports, applications, licence renewals and other activities associated with the NPD site ○ That resources be provided to allow the NERB to dedicate the time required to complete these tasks. ○ That funding be provided to obtain guidance from technical experts, where appropriate While the AOO recognize the value of the Environmental Stewardship Council and wish to participate, they believe a more fulsome environmental advisory authority – like the NERB – should be created to oversee the various CNL facilities with the unceded Algonquin Settlement. The AOO recommend that the role of the Environmental Stewardship Council be expanded (or replaced by the NERB) to provide the Council with increased oversight and decision-making powers over CNL's environmental management program, where appropriate. [Please refer to the AOO's submission for more information on the NERB.]	
284.	AOO (Feb. 26, 2018)	Section 12 (All)	The AOO claims to have a vested interest in ensuring that the NPD site and adjacent lands are monitored effectively and that all environmental liabilities and human health risks (on-site and off-site) are identified and remediated to the highest standard achievable. The AOO believe that it is paramount that they be meaningfully involved and informed regarding all environmental monitoring and remediation activities related to the NPD facility, on and off site. The AOO wish to have adjacent lands monitored to ensure that no environmental liabilities exist off the NPD site. Given the unique position of the AOO as landowners, the AOO request to play an active role in the monitoring of the NPD site (and beyond) over the course of the proposed project. The AOO ask that CNL identify all environmental liabilities related to NPD facility (on-site and off-site), including adjacent lands and the Ottawa River.	
285.	MNO (Feb. 14, 2018)	Section 12.1 (12-1)	This section of the draft EIS states: "The final scope and framework of the EA follow-up monitoring program will incorporate feedback from stakeholders and regulatory authorities."	

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			The MNO requests to be consulted to be able to provide input to the final scope and framework of the follow-up monitoring program.	
286.	MNO (Feb. 14, 2018)	Section 12.2 (12-2)	This section of the draft EIS states: "The detailed follow-up monitoring program will be developed to ensure compliance with requirements specified in CSA standards N288.4, N288.5, N288.6 and N288.7…" CSA standards do not take the MNO's rights and interests into consideration. Therefore, compliance with those standards does not ensure that the potential adverse environmental effects to Métis rights and interests are considered.	
287.	AANTC (Feb. 13, 2018) Bonnechere River Watershed Project (Feb. 13, 2018)	Section 12.4 (12-3)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "Analysis of results from the monitoring and follow-up program will be reported and submitted to the relevant regulatory agencies, and the public and Aboriginal groups as required. Periodic review of selected EA follow-up monitoring results by independent researchers will also be assessed." The AANTC expresses the view that the above statement does not represent an actual commitment by CNL to provide the results of the follow-up monitoring program to either the public or Aboriginal groups – only "as required". Likewise, there is no actual commitment for CNL to have the results of the follow-up monitoring program reviewed by independent researchers – only that this "will also be assessed". The AANTC requests that CNL firm up, complete and circulate these possible commitments to the public and Aboriginal communities as soon as possible, at a minimum before the draft EIS is finalized. The commenters recommend that CNL add a provision to the follow-up monitoring program to subject it to independent and proponent-funded review, make the full monitoring program results readily available to the public and Aboriginal communities, and as a result, ensure the programs remain relevant and up-to-date. The Bonnechere River Watershed Project echoes this recommendation.	
288.	MNO (Feb. 14, 2018)	Table 12.5-1 (12-4)	Regarding Table 12.5-1, the MNO poses the following question: Why is there no follow-up and monitoring measures with Aboriginal groups? The MNO requests that potential impacts on Métis way-of-life, as well as other residual effects that could not be addressed within the context of the draft EIS, be dealt with in a follow-up monitoring program that is specific to the MNO. Furthermore, results of follow-up monitoring initiatives must be duly provided to the MNO. The MNO also requests to be consulted and provided capacity for input into the design of the follow-up monitoring programs and any adaptive management, if applicable.	
289.	AANTC (Feb. 13, 2018) Bonnechere River Watershed Project (Feb. 13, 2018)	Section 12.5, Table 12.5-1 (12-4 to 12-5)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters are concerned with the proposed follow-up monitoring program for groundwater and surface water quality. CNL rightly admits that the ISD design will potentially impact groundwater and surface water quality over the lifetime of the project. The public, therefore, must be reassured that long-term monitoring plans and mitigation measures are in place – beyond 2120	

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	CELA (Feb. 13, 2018)		– to verify the accuracy of CNL's EA predictions and determine the effectiveness of the engineered barriers/in-design mitigation measures. The commenters argue that the draft EIS fails to provide specific details for the proposed follow-up monitoring program for groundwater and surface water quality. The following components, which are generally missing from the draft EIS, should be included: • A list of groundwater monitoring locations, and a map showing those locations • A list of surface water monitoring locations, and a map showing those locations • For each monitoring location, a list of indicator parameters which will be used to quickly help determine if contamination is occurring • For each monitoring location, a more lengthy list of routine monitoring parameters which will be used to confirm that the decommissioned NPD facility is not having unacceptable effects on groundwater, surface water, or the aquatic environment • Trigger levels for each of the monitoring parameters (which if exceeded will trigger action by CNL), and a full description of what actions will be triggered • Conceptual outlines of contingency plan options which will be triggered if adverse monitoring results are obtained The commenters request that CNL add the above details to the draft EIS. In addition, CELA requests that CNL provide a sound rationale for discontinuing active controls for surface water and groundwater quality monitoring during the Post-Institutional Controls stage [Information Request no. 12].	
290.	AOO (Feb. 26, 2018)	Section 12.5, Table 12.5-1 (12-4 to 12-5)	Groundwater and surface water quality was sampled for radiological and non-radiological parameters. The AOO highlight that for the non-radiological sampling, several of the parameters sampled were orders of magnitude higher than the CCME EQG (e.g., iron, mercury, copper, lead, zinc, etc.). As the water table is closely connected to the surface water system, the AOO is concerned with the high potential of these contaminants to affect the aquatic environment downgradient of the NPD facility. Furthermore, the proposed project has the potential to negatively affect the hydrological/hydrogeological systems in the Regional Study Area; yet, there are very few details on how these systems will be monitored throughout the various phases of the project. CNL only mentions periodic inspections, incident-specific water quality monitoring, event-based monitoring (i.e., due to a spill or accident), periodic surface water quality monitoring on a quarterly basis, etc. These descriptions are too vague to determine whether the sampling and protection of surface water and groundwater will be adequate. The AOO request that CNL provide a monitoring plan, including frequency, parameters and locations of surface water and groundwater sampling, for review by the AOO during the Decommissioning Execution, the Institutional Controls and the Post-Institutional Controls phases. The AOO also request that CNL sample the water within the tile drains and at the outlet of these tile drains, as well as 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 input into the need for additional frequency, location and/or parameters.	

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291.	AOO (Feb. 26, 2018)	Section 12.5, Table 12.5-1 (12-9)	Monitoring and follow-up activities will be conducted during the Institutional Controls phase to confirm effects to the terrestrial environment. The AOO note that there are no details in the draft EIS about the scope, extent, frequency, or temporal duration of monitoring for this environmental component. The AOO also find it unclear if future monitoring will adequately capture any potential effects to the site's wetlands. The AOO request that CNL develop and confirm, in close consultation with the AOO, the details of the environmental monitoring plan for the terrestrial environment, including monitoring locations, frequency, threshold and trigger values, and duration. The proposed plan should also include monitoring locations within the wetlands closest to the NPD site.	
292.	AOO (Feb. 26, 2018)	Section 12.5, Table 12.5-1 (12-4 to 12-11)	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 the proposed ISD option has not been adequately assessed to provide a level of comfort to the AOO. The AOO request that CNL provide additional monitoring and mitigation measures to assure the AOO that the proposed ISD option is safe. The AOO also ask CNL to install a monitoring well and collection system that allows for the sampling of the groundwater downgradient of the NPD facility, as well as the possible capture, treatment and management of contaminated groundwater.	
293.	AOO (Feb. 26, 2018)	Section 12.5, Table 12.5-1 (12-4 to 12-11)	The AOO indicate that no environmental effects monitoring for traditional land and resource use impacts is planned, despite the fact that the draft EIS confirms the existence of potential traditional land and resource use within the Regional Study Area, including harvesting within Wildlife Management Area #48 (designated by the Ontario Ministry of Natural Resources and Forestry), which intersects with the Site Study Area. The AOO request that CNL work with them on developing an AOO-specific environmental effects monitoring plan to protect and mitigate areas of AOO traditional land and resource use, as well as areas of cultural significance to the AOO.	
294.	AOO (Feb. 26, 2018)	Section 12.5, Table 12.5-1 (12-4 to 12-11)	In regard to archaeological resources within the NPD 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 NPD site, there is potential for archaeological resources to be present within the project footprint. The AOO highlight that past disturbances and use of the site do not discharge CNL from its obligation to protect any artifacts that may still be present. The AOO request that CNL provide an archaeological monitor chosen by the AOO to oversee construction activities at the NPD site to ensure that Algonquin archaeological resources are properly identified and protected during construction and decommissioning activities.	
295.	AOO (Feb. 26, 2018)	Section 12.5, Table 12.5-1 (12-4 to 12-11)	The AOO reiterate that there is no socio-economic effects monitoring planned for the proposed project. The AOO argue that failing to monitor these effects could lead to negative impacts being amplified and positive effects not being fully realized. The AOO request that CNL work with them to develop a socio-economic program/plan for monitoring and managing the socio-economic effects of the project on AOO citizens.	

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Long-Term Safety Assessment / Évaluation de la sûreté à long terme				
296.	Anita Payne (Feb. 13, 2018) CELA (Feb. 13, 2018) Darlene Buckingham (Feb. 13, 2018) Dr. J.R. Walker (Jan. 2, 2018) Georgina Bartos (Feb. 7, 2018) Green Party of Ontario (Feb. 13, 2018) Herbert Fitzroy (Feb. 13, 2018) OFWCA (Feb. 8, 2018) Sonia Cirka (Feb. 13, 2018)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters are concerned with the long-term integrity of the grout backfill, concrete slab, and other 'in-design mitigation measures' for the NPD facility. They are specifically worried about the durability of cement, which ages and cracks, and therefore, may not last a century, let alone for the thousands of years that will be required. Several commenters are of the perspective that experts would say that no concrete lasts more than 60-80 years, and question how CNL can assume or prove that the grouting will not crack and allow the water to infiltrate. The plan is to abandon the site after 100 years – just around the time when the concrete might begin to be seriously compromised. According to CELA, CNL assumes that this deterioration will not undermine the integrity of the system because, as CNL states "…the effectiveness of the engineered barriers over time and as they progressively degrade is adequate to protect the ever-decreasing radiological hazard at any given point in time." However, CNL does not provide sufficient data to demonstrate that the rate of deterioration of the engineered barriers and the rate at which low- and intermediate-level radioactive waste decays over time will occur in tandem to the extent that the isolation and containment functions of the engineered barriers will effectively function for tens of thousands of years into the future. The commenters request that CNL explain how the engineered barriers will protect people and non-human biota over tens of thousands of years. CELA also requests that CNL provide sufficient data to demonstrate the rate of deterioration of the engineered barriers in relation to the rate at which low- and intermediate-level radioactive waste decays over time [Information Request no.11].	
297.	CCNR (Feb. 13, 2018)	General	The commenter is of the opinion that the draft EIS should include all of the detailed studies covering a period of at least 500,000 years to establish the safety of a permanent radioactive waste repository on the NPD site, which is very close to the Ottawa River, and taking into account the effects of geological and hydrological changes, including the effects of climate change, seismic activity, and the geochemical evolution of subterranean wastes over the long period of time.	
298.	CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 9.1.1.1 (9-6)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* This section of the draft EIS states: "Over thousands of years, the cement and concrete will gradually lose strength and may begin to crack and fracture." The CCRCA argues that cracking and fracturing of concrete occurs in much shorter time spans. The CCRCA also notes that the draft EIS should provide a more realistic assessment of the performance of concrete in a radioactive waste repository, taking account published studies, such as the one from Craeye et al. 2009 [1]. There is no indication in the draft EIS that CNL has taken into account any of the phenomena mentioned in Craeye et al. 2009, which	

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			would have major impacts on the durability of the concrete monolith. Mr. Ryan echoes these concerns. Reference: [1] Craeye, B., De Schutter, G., Van Humbeeck, H. and Van Cotthem, A., 2009. *Early age behaviour of concrete supercontainers for radioactive waste disposal.* Nuclear Engineering and Design, 239: 23-35. https://biblio.ugent.be/publication/494602/file/494605	
299.	Anonymous (Feb. 5, 2018) CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters pose the following question to CNL: Assuming that the concrete monolith would not last for thousands of years, could the surrounding bedrock provide a barrier to the migration of radionuclides into the Ottawa River? An anonymous commenter also raises concerns with respect to the suitability of incorporating the current concrete foundations, which are known to leak as part of the proposed barrier within the entombment strategy.	
300.	PEP, Alliance des espaces verts de la capitale du Canada, Écologie Ottawa, Amis de la Terre (Canada), RCPR, SOO (Feb. 13, 2018 / 13 février 2018)	General / Général	*Please note that this comment was also submitted in French (see below). A response in both official languages is therefore required.* **English Comment:** The commenter notes that the draft EIS does not provide convincing evidence that a concrete structure would contain and isolate wastes for the duration of their radiological hazard and provide adequate protection for humans and the environment. *Veuillez noter que ce commentaire a été également été soumis en anglais (voir ci-dessus). Une réponse dans les deux langues officielles est donc requise.* **Commentaire en français**: Le commentateur souligne que l'EIE ne fournit pas de preuves convaincantes qu'une structure en béton contiendrait et isolerait les déchets pendant la durée de leur danger radiologique et fournirait une protection adéquate aux êtres humains et à l'environnement.	
International Standards and Guidance / Normes et lignes directrices internationales				
301.	For the list of commenters on this specific topic, please refer to Appendix B.	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Most commenters note that the IAEA does not consider entombment a safe, recommended solution to decommissioning, and therefore, that the NPD Closure Project does not meet international standards and guidelines. Various commenters note that the IAEA identifies three decommissioning strategies for nuclear facilities – immediate dismantling, deferred dismantling and entombment – but indicates the inappropriateness of entombment to permanently shut down reactors, as such: "[e]ntombment, in which all or part of the facility in encased in a structurally long lived material, is not considered a decommissioning strategy and is not an option in case of planned permanent shutdown. It may be a solution only under exceptional circumstances (e.g., following a severe accident) for an existing facility." [1]	

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			Dr. J. R. Walker argues that further explanation regarding the inappropriateness of entombment as a decommissioning strategy is provided in the IAEA's Specific Safety Guide 47 (SSG-47), *Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities* [2]. The commenter provides an example of how this safety requirement is incorporated into the policies of IAEA Member States (from the US Nuclear Regulatory Commission). Dr. J. R. Walker concludes by stating that this safety requirement has not been incorporated into the proposal described in the draft EIS. The commenters request that CNL address their concerns and justify the entombment option even though it is not considered appropriate for the NPD reactor. Many commenters also recommend that no action be taken until there is an internationally and nationally acceptable plan in place for the safe disposal of radioactive materials from this site. References: [1] IAEA, *Decommissioning of Facilities*, General Safety Requirements Part 6, IAEA, Vienna, 2014. [2] IAEA, *Decommissioning of Nuclear Power Plants, Research Reactors and Other Nuclear Fuel Cycle Facilities*, Specific Safety Guide SSG-47, (In Publication) 2018.	
302.	OFWCA (Feb. 8, 2018)	General	Considering that the NPD facility has been in "deferred dismantling" for 30 years, the commenter asks why there is a rush now to do something different that is completely against international standards (i.e., entombment is not an option for permanent shutdown unless there is an emergency)? The commenter further inquires: is there an emergency?	
303.	CCRCA (Feb. 8, 2018) Erwin Dreessen (Feb. 7, 2018) Fred Ryan (Feb. 12, 2018)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Mr. Dreessen argues that CNL used an IAEA document from 2007 to justify this project, ignoring more recent guidance documents which clearly state that entombment is not to be considered a decommissioning strategy. Similarly, the CCRCA indicate that CNL selectively quoted a statement from the IAIA SSG-29 [1] in the draft EIS to alter its meaning, as such: • Partial quote used in the draft EIS (p.10-2) from the IAEA SSG-29: "It states that "that potential adverse impacts can be mitigated to an acceptable degree, technical, economic, social and environmental factors being taken into account"(IAEA, 2014b)." • Full quote from the IAEA SSG-29: "The site should be located so that that the environment will be adequately protected for the entire lifetime of the facility and so that potential adverse impacts can be mitigated to an acceptable degree, technical, economic, social and environmental factors being taken into account." The CCRCA also argue that CNL dismisses the IAEA guidance because it "does not comprise regulatory requirements", which is unhelpful. Mr. Ryan echoes the concerns raised by the CCRCA. Reference: [1] IAEA, 2014a. *Near Surface Disposal Facilities for Radioactive Waste.* Specific Safety Guide No. SSG-29.	

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304.	Anonymous (Feb. 5, 2018) CCRCA (Feb. 8, 2018) CELA (Feb. 13, 2018) Fred Ryan (Feb. 12, 2018 Dr. J.R. Walker (Jan. 2, 2018) William Turner (Feb. 9, 2018)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters are concerned with the fact that near-surface disposal of waste containing long-lived radionuclides has been discouraged by the IAEA. Dr. J. R Walker refers to the IAEA's Specific Safety Requirements SSR-5 [1] to explain that different classes of radioactive waste require different disposal concepts, depending upon the length of time that the waste remains a hazard. Near-surface disposal is only appropriate for very low-level waste and low-level waste, because NSDF are located in the biosphere, and, hence, can be accessed by members of the public at the end of the Institutional Controls period. Intermediate-level waste and high-level waste, which contain larger quantities of long-lived radionuclides, must be disposed in deeper geological disposal facilities. The CCRCA refers to another IAEA technical document [2], which says that "[f]or many nuclear facilities, the on-site disposal strategy requires essentially the same level of environmental assessment as a centralized disposal facility since unrestricted release may not be achieved for very long periods […] Accordingly, a similar level of site analysis and characterization of waste inventory as for a centralized near surface repository will be needed to approve the site for disposal." Mr. Ryan echoes this argument brought forward by the CCRCA. CELA and Mr. Turner also note that since the facility results in an NSDF, criteria for such a facility will need to be met. This entails that, in addition to the decommissioning regulations for an ISD, there will also need to be regulations for an NSDF. Since it is also unlikely that the NPD site was assessed to serve as an NSDF, such an evaluation may need to be conducted as part of the approval process for the ISD. An anonymous commenter also raises the concern that the future planning for the facility is flawed as it would relinquish the buffer zone of the property eventually to public use and therefore the site would not be able to be Class I licensed again. The commenters conclude that CNL's proposed project is noncompliant with Canadian and international guidance concerning the disposal of radioactive waste. CELA recommends that CNL meet the regulatory requirements for an NSDF for the NPD site prior to gaining approval for the ISD strategy and, meet or exceed the standards and best practices set by the IAEA and other international jurisdictions with extensive experience in decommissioning nuclear facilities [Recommendation No. 5]. References: [1] IAEA, *Disposal of Radioactive Waste*, Specific Safety Requirements SSR-5, 2011. [2] IAEA, *On-site Disposal as a Decommissioning Strategy*, 1999	
305.	Elssa Martinez (13 février 2018)	Général	Le commentateur est d'avis que l'approche proposée par les LNC, la mise en tombeau ou le déclassement in-situ du réacteur nucléaire de démonstration, contrevient aux normes de sûreté établies par l'AIEA. L'AIEA recommande la mise au tombeau seulement dans le cas d'un accident grave ou majeur. Selon l'AIEA, les pratiques basées sur des données probantes révèlent qu'il y a deux moyens sécuritaires pour déclasser un réacteur nucléaire: le démantèlement	

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			immédiat ou le démantèlement différé complet du réacteur. Bien que ces approches soient des solutions de rechange présentées dans l'EIE comme faisable, le commentateur remarque que les LNC estiment que ces solutions, pourtant recommandées par l'AIEA, présentent de plus grands risques sans en faire la démonstration scientifique. Les normes de sûreté de l'AIEA sont pourtant reconnues dans le but de protéger la santé et réduire au minimum les risques de contamination. Le commentateur conclut que le projet tel que proposé par les LNC va à l'encontre des normes internationales de sûreté nucléaire.	
306.	Eva Schacherl (Feb. 13, 2018) Dr. J.R. Walker (Jan. 2, 2018) Juan Pedro Unger (Feb. 13, 2018) Lynn Jones (Feb. 13, 2018) Ottawa Raging Grannies (Feb. 13, 2018) Theresa Peluso (Feb. 8, 2018)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters argue that CNL's proposed project does not meet Canada's international obligations, in particular the requirements of the *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*. [1] The commenters provide the following reasons for why the proposed project would cause Canada to be in violation of its obligations under this Joint Convention: • Internationally endorsed criteria and standards have been ignored (e.g. [2, 3]) • Reasonably predictable impacts on future generations are greater than those permitted for the current generation • Undue burdens are imposed on future generations References: [1] IAEA, *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management*, International Law Series No. 1, 2006. [2] IAEA, *Decommissioning of Facilities*, General Safety Requirements Part 6, IAEA, Vienna, 2014. [3] IAEA, *Disposal of Radioactive Waste*, Specific Safety Requirements SSR-5, 2011.	
307.	Green Party of Ontario (Feb. 13, 2018)	General	The commenter mentions the Canadian Nuclear Association (CNA), who states that enough reinforcement is provided at the NPD site to permit an "entombed" containment structure, because the NPD reactor systems are within an underground structure with thick concrete walls, based in bedrock. The commenter argues that the case has not been made, and that the two existing examples of this technique, which have been effective for the last 20, 30 or 50 years only, do not prove the point. According to the commenter, the CNA also states that ISD is a proven technique that has been used in multiple sites in the United States. The commenter requests the following information given that "multiple sites" does not equate to a valid sample size: • What do the sites contain – low-level, intermediate-level waste, etc.? • What did they entomb – reactors, reactor components? • What radioactive isotopes do they contain and at what levels? • What is their proximity to rivers, streams, aquifers, population centres? • Are these sites viewed as short-term, intermediate-term or permanent remedies?	

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			The commenter concludes by stating that to be relatively certain that there are no environmental risks, the decommissioning plan and containment structure must be better than those that have failed in other countries. This is particularly important since some members of the coalition owning CNL have been involved in sites that have not yielded satisfactory results.	
308.	CCNR (Feb. 13, 2018)	General	The commenter notes that CNL is inclined to misrepresent the acceptability of the waste management approaches it is advocating here in Canada, as these approaches are not at all the "best practice" models claimed by CNL. According to the commenter, the only instances of ISD of small nuclear reactors are located on military sites, such as the Hanford Reservation in Washington DC, the Savannah River Site in South Carolina, and the Idaho National Laboratory. All of them are highly secure sites associated with the military-industrial complex that are not freely accessible to the general public, and maintained and policed under the jurisdiction of the United States Department of Energy. The commenter believes that this is "a far cry from the NDP site at Rolphton, which is a civilian research facility that has been closed down for many years, and that will become completely deserted in the foreseeable future". The commenter requests that CNL provide in the draft EIS a detailed description of all non-military examples of ISD of nuclear reactors, as well as background information on all nuclear decommissioning and radioactive waste management projects undertaken by any of the consortium members, either alone or in partnership with others, over the last fifteen years.	
309.	Bozena Hrycyna (Feb. 13, 2018) Sonia Cirka (Feb. 13, 2018)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* Both commenters highlight Chernobyl as a failed example of entombment which is still being dealt with. Ms. Hrycyna refers to the findings of the status report on Chernobyl prepared for Greenpeace Germany by physicist Oda Becker [1], which explains that a new protective "sarcophagus" to encase the ruins of the nuclear reactor is long overdue, and has been complicated by many factors, including the enormous costs of such an endeavour and deterioration accelerated by moisture leaking through the cracks. Ms. Hrycyna also provides the following quote from Greenpeace Germany's nuclear expert: "The technology that's needed does not yet exist and the funding has not been secured. The international community bears a huge responsibility." Ms. Hrycyna concludes that the international community is aware of the failures of entombment, and that CNL, who claims to be at the cutting edge of international scientific research, is resorting to "basic backward solutions" that are quick and cheap. Reference: [1] https://www.greenpeace.org/archive-international/en/press/releases/2016/Chernobyl-status-report-reveals-a-catalogue-of-failures-and-ongoing-nuclear-risks/	
EIS Terminologies and Definitions / Terminologies et définitions de l'EIE				
310.	CELA (Feb. 13, 2018)	General	The commenter highlights a discrepancy between CNL's characterization of the site, post decommissioning, and characterizations used by nuclear law journals and international guidance. The commenter quotes from the draft EIS, which alludes to a distinction between ISD and NSDF.	

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			According to this statement, it appears the draft EIS does not consider the proposed ISD, once finished, to be an NSDF. In particular, the commenter finds that the draft EIS' assertion of "limiting the risk" is devoid of backup or justification. The point is that wastes are emplaced and grouted below ground in both the proposed ISD and in an NSFD. The commenter further notes that the "bedrock" point is misleading as the proposed ISD is mostly located in surface deposits above bedrock. The commenter quotes from the National Nuclear Safety Journal and the IAEA to define NSDF and notes that the proposed project appears to fit, in part, within the quoted definitions of an NSDF. Thus, the commenter submits that the entombment of the facility at Rolphton by way of its proposed ISD creates an NSDF. The commenter requests that CNL demonstrate how its proposed project meets all requisite criteria for the creation of an NSDF, and given the ongoing review of CNL's proposed NSDF, indicate to what extent the cumulative effects or the combined effect of having two NSDFs within 30 km of each other was factored into their modelling, planning and justification for the project [Information Request no.31]. [Please see p. 53 of the commenters submission for the quotes referenced above, as well as additional context.]	
311.	AOO (Feb. 26, 2018)	General	The AOO note that several terms used throughout the draft 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 draft 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), where ISD instead 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. • Institutional Controls and Post-Closure: What is involved in the Institutional Controls phase? Does it include security and monitoring of the site, as well as 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? The AOO express the opinion that the draft EIS must provide additional description for the terms used, and request that CNL provide responses to the issues noted above.	
312.	MNO (Feb. 14, 2018)	General	The MNO is inconsistently referred to as "Métis communities" and "Métis community" in various places throughout the EIS. As the MNO is the only Métis organization consulted for this project, please reference the "Métis Nation" rather than "Métis community", which minimizes the political structure and organization that the MNO has and operates under.	

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			The MNO requests that CNL correct this mistake.	
313.	William Turner (Feb. 9, 2018)	Section 1 (1-5)	This section of the draft EIS defines ILW as: "Radioactive solid waste that typically exhibits levels of penetrating radiation sufficient to require shielding during handling and interim storage." The commenter claims that a discrepancy exists between CNL's definition of ILW and the following IAEA definition of ILW: "Intermediate level waste is defined as waste that contains long lived radionuclides in quantities that need a greater degree of containment and isolation from the biosphere than is provided by near surface disposal." [1] The commenter indicates that the difference between CNL' definition of ILW and that of the IAEA is crucial to an understanding of this assessment. This discrepancy raises a fundamental problem with the results of draft EIS report given that they do not address this crucial aspect: ILW is not suitable for disposal in a NSDF. The commenter requests that CNL revise the draft EIS such that the use of the term "Intermediate Level Waste" is consistent with international best practice specifically as it relates to the objective of this project, that is, the disposal of the radioactive materials contained in the NPD facility. Reference: [1] IAEA, *Classification of Radioactive Waste, General Safety Guide No. GSG-1*, 2009	
314.	William Turner (Feb. 9, 2018)	Section 1 (1-8) Also applicable to Section 9 (9-138)	This section of the draft EIS defines the Post-Institutional Controls phase as: "a phase of the NPD closure project which includes abandonment of the site after the cessation of the Institutional Controls phase; it is assumed that no further management and monitoring will take place during this phase." The commenter finds the definition somewhat problematic, given that once the site is abandoned, there can be no further management or monitoring, and no "project" phase. The draft EIS further states on p.9-138: "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. It is unknown how the licensed area might be redesignated. Changes in land use planning designation are not expected to result in residual effects." The commenter notes that this statement is inconsistent with the Glossary's definition of the Post-Institutional Controls phase. Consistency in the use of terminology, specifically as it relates to "abandonment of the site" is critical. If this project is approved, then it will result in a "Near Surface Radioactive Waste Disposal Facility". As a solution, the commenter recommends that CNL explicitly states that the residual radioactivity at the site when it is abandoned will meet or exceed the unconditional clearance criteria.	
EIS Deficiencies / Lacunes de l'EIE				
315.	Northwatch (Feb. 19, 2018)	General	The commenter examined the draft EIS in order to evaluate CNL's presentation and technical evidence with respect to their proposed decommissioning standard, including an evaluation of CNL's end-state objectives for the decommissioning project and the ability for the proposed ISD approach of the NPD decommissioning project to achieve those objectives. The commenter expresses the position that the draft EIS failed to provide the information that would be required to undertake this evaluation.	

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			Furthermore, the commenter finds that CNL has failed to produce a credible EIS and set of supporting documents, which do not provide a basis for proceeding in the EA process. The commenter concludes that there are several potential causes for this failure, and offers three: • CNL is seeking to avoid the scrutiny that would come from a rigorous assessment process by simply starving the process of necessary information • The proposed project is not sufficiently developed to provide an adequate description with sufficient supporting information • The proposed project is simply not viable, and evidence in its support cannot be presented due to the fundamental flaws with the project concept and design	
316.	AANTC (Feb. 13, 2018) Bonnechere River Watershed Project (Feb. 13, 2018)	General	The AANTC finds that the draft EIS (with its supporting documentation) should not be accepted or approved in its current form, because it is incomplete, inconsistent, and inadequate in terms of providing a proper or adequate assessment of the potential impacts of the proposed NPD Closure Project, specifically with respect to groundwater and surface water quality. The Bonnechere River Watershed Project echoes these concerns and supports the above recommendations.	
317.	CELA (Feb. 13, 2018)	General	The commenter notes the following omissions/errors in various tables in the draft EIS, which require rectifying [Information Request No.17]: • Tables 8.3-8 and 8.3-9 should be labelled "radionuclide concentrations" rather than radiation contamination • In Table 4.44-1, Zircalloy is misspelled	
318.	CELA (Feb. 13, 2018)	General	The commenter notes that the following technical issues were provided little to no description or analysis in the draft EIS and requests they be remedied [Information Request No. 18]: • No technical description of the engineered cover system • No technical description of the proposed grout and its properties • No discussion of the doses received during proposed dismantling and grouting • No discussion of hydrogen releases from grout-aluminium reactions • No discussion of collective doses • Little discussion of organically bound tritium	
319.	AANTC (Feb. 13, 2018)	General	The AANTC notes that they were not able to find complete information (or references to completed documents containing the information being sought) on numerous hydrogeology-related critical details pertaining to the NPD Closure Project in the draft EIS, including the following: • Information on whether groundwater is moving down the drain for the pressure relief duct, and if so what the water quality in that duct has been and is today • The specific details of the proposed groundwater and surface water monitoring programs for the 2-year decommissioning period and for the 100-year Institutional Controls phase; • A persuasive rationale which explains and justifies how the duration of the 100-year Institutional Controls phase was selected	

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			• Contingency plans that might be implemented in the event that critical assumptions (pertaining to groundwater and/or surface water impacts) turn out to be incorrect • A detailed discussion of the water quality/quantity management issues needing to be considered in regard to the plans for retention of the ventilation stack • Plans for the eventual fate of the stack (i.e., whether it will be maintained or removed after a certain period, and what decision-making process will guide that decision) • A surface water management plan for the project's 2-year decommissioning phase • Design details of the mixing batch plant's wash out pit, including plans for water management and environmental testing and protection measures • The proposed precise footprint, thickness, and other construction details for the reinforced concrete cap (designed to prevent intrusion into the concrete monolith) • The design longevity and permeability of the engineered barrier (designed to minimize infiltration into the concrete monolith) • Specific details on any inspection/monitoring program intended to verify that the engineered barrier is performing as intended, and specific details regarding what if anything would trigger replacement of the engineered barrier • Detail(s) and thickness(es) of any material(s) which will separate the concrete cap from the overlying engineered barrier • Details of the proposed grading below and above the engineered barrier • Proposed grading and planting and landscape management plans for the relatively flat and highly modified landscape surrounding the concrete monolith • Final dimensions of the fenced-in area for the 100-year Institutional Controls phase • Whether there is any flexibility on what is to happen at the end of the 100-year Institutional Controls phase (e.g., if there will be a detailed assessment of whether various estimates and projections made in 2018 have proved to be valid 100 years later, and whether there is a need for continued Institutional Controls) The AANTC expresses the opinion that the draft EIS cannot be considered complete, because this information is currently not yet developed and/or missing from the document and/or not referenced in the document. The AANTC recommends that the final EIS be amended to either include this information, or to provide references to publicly available documents which provide this information.	
320.	CCRCA (Feb. 8, 2018) Chris Cavan (Feb. 12, 2018) Fred Ryan (Feb. 12, 2018)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters share concerns about information sharing on CNL's part, in terms of making all of the draft EIS's source documents publically available, and providing a full disclosure of all potential disasters in the draft EIS. Various commenters note that the authors continually refer to TSDs for more details regarding the topic under discussion, but find that these documents are not included in the list of references of the draft EIS or are not publically available.	

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	Northwatch (Feb. 19, 2018) William Turner (Feb. 9, 2018)		Mr. Turner notes that this lack of supporting documentation and reference availability makes it difficult to determine whether a review of the information contained in these documents is even within the scope of the review of the draft EIS. He suggests that if they are not within this scope, then the draft EIS report must be considered incomplete. On a related note, the CCRCA make reference to Section 2.8.1 of the draft EIS, noting that the unavailability of TSDs is a process deficiency that makes it impossible to verify the so-called conclusion on p. 2-22 that "no adverse residual effects were predicted from the NPD closure project." Further to this, Mr. Turner finds the use of TSDs an impediment to the public's access to critical information and data with respect to the assessment subject to this review process, and suggests that CNL is out of compliance with Section 4 (1)(e) of CEAA (2012). In conclusion, the commenters agree that the draft EIS should reveal all source documents and TSDs containing critical information to the public, as these documents will be necessary to many public intervenors and technical experts who are assisting them. In addition, Northwatch requests a specific list of documents. [Please see p 5 of Mr. Turner's submission for more information on Section 4 (1)(e) of CEAA 2012.] [Please see pages 12 to 15 of the Northwatch submission, as well as Appendix 1, for the full list of Northwatch's reference requests.] [Please see pages 7 and 8 of the CCRCA submission for more details on the references requested.]	
321.	AOO (Feb. 26, 2018)	General	The AOO note that DRLs for the NPD facility have not been described in the draft EIS, but are important to share so that the AOO can evaluate whether the project complies with CSA Standards N288.1-14. The AOO request that CNL provide the DRLs for the NPD facility.	
322.	Jaro Franta (Dec. 12, 2017)	General	The commenter suggests that in order to ensure project impacts are understood by the interested readers, the local natural environment "perspective" should be presented in layman's terms, along with an "apples-to-apples" comparison of the project-versus-nature. The commenter underscores that in the case of the NPD facility, because the issue of concern is radioactivity of the waste to be disposed, an appropriate comparison would be with radioactivity in the natural environment (specifically radioactivity in groundwater and the Ottawa River). The commenter expresses the opinion that a failure to present the local natural environment perspective and provide this comparison, relative to the local natural environment, "could lead to the spread of a polemic of hyperbole that could dominate discussion in the media and elsewhere."	
323.	MNO (Feb. 14, 2018)	General	The MNO is of the opinion that the EIS is deficient in the following ways: • It fails to adequately assess the potential adverse effects that the project may ultimately have on the MNO's rights, interests and way of life • It contains significant information gaps, including Métis-specific VCs and potential perceptive effects of the project on the regional rights-bearing Métis community	

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			• The methodology used in the assessment of residual effects and the determination of significance is ineffective • The lack of consideration of the likelihood of a residual effect occurring for each VC or the likelihood of mitigation being successful when determining the significance of a potential impact • Neither the proposed mitigation measures nor the proposed follow-up monitoring program (beyond the standard construction mitigation measures) address the potential impacts that the project may have on the regional rights-bearing Métis community The MNO requests that CNL revise the draft EIS to ensure that effects on the regional rights-bearing Métis community are effectively assessed and properly mitigated to allow for accurate and responsive accommodation discussions with CNL and the CNSC. In order for this to occur, the MNO respectfully requests that: • Comprehensive engagement activities be undertaken by CNL with the MNO • Capacity be provided to the MNO to identify MNO-specific VCs and to complete a project-specific traditional knowledge and land use study • MNO project-specific information and VCs be assessed and integrated into the final EIS • Additional mitigation measures and follow-up monitoring plans be developed and implemented in a collaborative manner with the MNO • Societal values and sustainability be included as additional criteria in the final EIS to determine the significance of residual impacts, particularly in the context of ecological integrity and Métis rights, interests and way of life • The MNO be able to undertake a review of the project's final EIS to ensure that Métis rights, interests and way of life are adequately assessed	
324.	Northwatch (Feb. 19, 2018)	General	The commenter notes that the draft EIS is not identified as a "draft" document. The administrative protocol, the public registry and other sources accurately identify it as a draft document, but the document itself does not.	
325.	Northwatch (Feb. 19, 2018)	General	The commenter notes that the draft EIS does not identify its authors or provide their credentials or areas of expertise. The consulting firm (Arcadis) is identified, but no information is provided about the report authors or the expertise of the unidentified author or the consulting group more generally.	
326.	Bonnechere River Watershed Project (Feb. 13, 2018) Northwatch (Feb. 19, 2018) William Turner (Dec. 13, 2017)	General	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The commenters note that in reviewing the draft EIS, they had expected the shortcomings identified by public commenters in the project description to be resolved, but this is not the case. Northwatch's conclusions on progress between the Project Description and the draft EIS are as follows: • Like the Project Description, the draft EIS provides no clear and detailed statement of the project's purpose, nor does it provide a clear statement on the basis for bringing forward approaches that are very similar for two different projects concurrently (NPD and WR#1	

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			in Manitoba) • Like the Project Description, the document is tedious in its over-generalization and failure to provide basic information in a straightforward fashion • Like the Project Description, there are numerous statements that the underground structures will be sealed by grouting, but the draft EIS lacks adequate descriptions of the grouting, the grouting material or the grouting methods • Like the Project Description, the draft EIS utilizes non-sequiturs and attempts to assign relationships to unrelated statements; this occurs in what are some of the most fundamental aspects of the decommissioning project • Like the Project Description, the document provides inadequate information about the site, site conditions, past land uses, and related residual hazards Similarly, Mr. Turner provides examples, in Table 1 of his initial submission, to illustrate that CNL did not address in the draft EIS the public comments received on the Project Description. Mr. Turner further states that CNL is therefore not in compliance with Section 19(1)(c) of CEAA 2012. The Bonnechere River Watershed Project echoes these concerns. [Please refer to Mr. Turner's first submission for more information, including Table 1 and quote from CEAA 2012.]	
327.	William Turner (Feb. 9, 2018)	General	The commenter notes that the "approver" and at least one of the authors is the same person in the following TSDs: • Alternative Means Assessment TSD • Decommissioning Safety Assessment TSD • EcoRA TSD • Postclosure Safety Analysis TSD The commenter argues that this is a direct conflict with good document quality practice. An approver must be independent of the author, otherwise the document is suspect. The commenter questions the independence of these documents given that this same "approver" and author also holds the role of Vice President in the consulting firm (Arcadis) and that any staff member below him/her in the organization could be reluctant to question his/her conclusions. This lack of a quality process raises questions as to the overall quality of these documents. With respect to ensuring quality documentation, the commenter poses the following question: why has CNL failed to discharge its contract administrator responsibilities to ensure the supporting documents submitted met the basics of good quality?	
328.	Ralliement contre la pollution radioactive (13 février 2018)	Général	Le commentateur note que l'EIE est un bel effort intellectuel pour nous persuader de la validité de la solution proposée, mais qu'elle manque de preuves à l'appui. Le commentateur demande que les LNC: • Fournissent la preuve que le sarcophage en béton aura une durée de vie supérieure à celle	

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			des substances radioactives confinées • Fournissent les détails concernant la composition du béton/coulis/ciment, sa durabilité, sa perméabilité et l'effet de la corrosion • Complètent la description de tous les déchets radioactifs et autres • Expliquent le blindage de la voûte du réacteur et comment cela nous protégera des radiations à long terme • Fournissent la preuve que les tuyaux et drains en place ne peuvent pas laisser de l'eau contaminée migrer vers la rivière • Détaillent le programme de surveillance et d'intervention à moyen terme et à long terme • Démontrent comment on pourrait comparer la pollution avant et après la mise en sarcophage du réacteur étant donné la teneur vague des données dans ce rapport • Fournissent plus de mesures actuelles et futures des substances radioactives et des polluants dans l'eau, dans les sédiments et dans l'air sur le site du réacteur nucléaire de démonstration ainsi que dans la rivière pour effectuer un contrôle scientifique de la qualité de l'environnement pendant et après ce projet • Indiquent toutes les valeurs-limites acceptables pour les contaminants radioactifs et non radioactifs dans l'eau, dans les sédiments et dans l'air car il y a de fortes lacunes • Décrivent plus précisément les caractéristiques hydrogéologiques du site • Fassent une évaluation des risques plus réfléchie et prudente • Fassent la preuve que vous respectez les normes canadiennes et internationales, car ce n'est pas le cas dans l'EIE	
329.	William Turner (Feb. 9, 2018)	General	The commenter notes that CNL is the proponent for two very similar projects (i.e., the *In Situ* Decommissioning of the Whiteshell Reactor #1 and the NPD Closure Project). Since the EA requirements are the same for both, one would expect to see similar draft EIS reports for the two project proposal. Yet, neither the processes used nor the results obtained are similar. Although the format of the two draft EIS reports for the projects are very different, that difference can be partially explained by the use of two different consultants to write the reports. However, as the sole proponent, CNL has the responsibility to ensure that the two EAs conducted in accordance with CNSC guidance are similar. This is especially true since both EIS reports cite CNSC's EIS Generic Guidelines as a reference. Furthermore, both EIS reports cite CNSC's Regulatory Guide G-320, and yet, describe very different end-states. The commenter finds the discrepancy between the two EAs unacceptable. As the proponent for both projects, CNL has the responsibility to ensure consistency.	
330.	William Turner (Feb. 9, 2018)	Cover Page	The commenter highlights that on the title page of the EIS report, the document number is "64-508760-ENA-004", while on the signature page the document number is "64-509200-ENA-004". The commenter requests that CNL clarifies how to refer to the draft EIS when there are two numbers assigned to the document.	
331.	William Turner (Feb. 9, 2018)	Section 3.4 (3-13)	The first paragraph of Section 3.4 makes reference to "Schruder 2017", which corresponds to the following citation: Schruder, K. 2017. NPD Closure Project Organization. 64-514100-ORG-001.	

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			Prepared for CNL. May. The commenter notes that the actual author identified on this document is not K. Schruder but J. Ingram, and requests CNL to revise the above-mentioned reference in the draft EIS.	
332.	William Turner (Feb. 9, 2018)	Section 4.2 (4-4) Also applicable to Section 13	Section 4.2 of the draft EIS states: "Currently, CNL only has interim waste storage for most ILW until a future ILW disposal facility becomes available (CNL 2017b)." The commenter notes that this statement does not appear in the source cited (i.e., CNL 2017b), which corresponds to the following document: Canadian Nuclear Laboratories (CNL). 2017b. *Near Surface Disposal Facility – Environmental Impact Statement Executive Summary*. Prepared by Golder Associates for CNL. Report No. 1547525. March.	
333.	AOO (Feb. 26, 2018)	Section 8.3.3, Table 8.3-1 (8-37)	The AOO express the concern that various tables throughout the draft EIS do not specify what "NA" indicates – one example of this is in Table 8.3-1. Does "NA" mean "not analysed" or "not available"? The AOO request CNL to define the term "NA" in the draft EIS.	
334.	William Turner (Feb. 9, 2018)	Section 13 (All)	This section of the draft EIS states: "… documented in a report of the International Atomic Energy Agency's (IAEA) Improving Safety Assessment Methodologies (ISAM) programme (IAEA 2004) and incorporated into a more recent safety guide (IAEA 2012)." The commenter notes that the two references in the above-mentioned segment (i.e., IAEA 2004 and IAEA 2012) are not included in the References (Section 13).	
335.	CCRCA (Feb. 8, 2018) Fred Ryan (Feb. 12, 2018)	Section 13 (All)	*Concerns on this topic were expressed by more than one commenter, and comments have either been summarized, or included as excerpts from commenter submissions.* The CCRCA notes that citations to "King 2016" appear eight times in the draft EIS. However, "King 2016" does not appear in the References section. The CCRCA asks CNL to clarify if the following is the correct citation: King, D.A. 2017. *Historical Site Assessment Report for the Nuclear Power Demonstration Waste Management Facility Rolphton, Ontario. 64-509410-ASD-001. Rev.1*. Prepared by ORAU for CNL. April. Mr. Ryan echoes these concerns.	
336.	William Turner (Feb. 9, 2018)	Section 13 (All)	The commenter indicates that the following eight references in Section 13 have dates that precede the formation of CNL, and yet, include the statement "Prepared for CNL" which is misleading: • MacLarentech Inc. 1990. *Rolphton NPD Waste Management Facility Site Characterisation and Facility Evaluation. Project No. 703725.* Prepared for CNL. February. • Ontario Power Generation. 1999. *Ottawa River Dam Break and Inundation Mapping Study, Final Report, Volume 1. 64-10150-226-001-0001, R-DSP-08410-1-00-01103-0001.* Prepared for CNL. December. • Paterson Group Inc. 2012. Groundwater Sampling and Testing, NPD Waste Management Facility, AECL Candu Site, Rolphton, Ontario. Prepared for CNL by M.S. D'Arcy, 22 August. • Silke, R., M. Bond, J. Olfert, D. Rowan, M. Audet, A. Ethier, and D. Lee. 2014. *Chalk River Laboratories Ottawa River Sediment Remediation Assessment – Refined*	

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			Conceptual Site Model. 175-121250- REPT-002. Prepared for CNL. March. • Turner, W. 2008. Chalk River Laboratories: A description of the Environmental Baseline for Environmental Assessments. CRL-509200-ENA-001. Prepared for CNL. August. • Verney, B. 2011. *NPD Waste Management Facility Annual Compliance Report for 2010. 64-00521-REPT- 007.* Prepared for CNL. February. • Verney, B. 2009. *NPDWMF Annual Compliance Report for 2008. 64-00521-REPT-005.* Prepared for CNL. February. • Wills, A. 2013. *Nuclear Power Demonstration Site: A Description of the Environmental Baseline for Decommissioning. 64-509200-ENA-001*. Prepared for CNL. February. The commenter requests that CNL explain the use of the phrase "Prepared for CNL". Further, the commenter notes that a copy of the reference "Turner 2008" (fifth in the list above) was sent to him with redactions despite the document being "unrestricted" and previously publically available. The commenter requests that CNL explain why redactions were made to a document whose distribution is identified as "unrestricted". [Please refer to comment 75 of the commenter's submission for more information.]	
Requests for CNL Documents / Demandes de documents des LNC				
337.	Nuclear Waste Watch (Feb. 9, 2018)	General	The commenter requests the following documents from CNL: • Gillespie, A. 2017. *Waste Management Plan for the Nuclear Power Demonstration (NPD) Closure Project*. 64-508600-WMP-001. Issued Aug, 2017 • Smith, W.M. 1988. *Calculated Radioactive Inventory of NPD*. 64-01631-021. Issued April, 2017 • New Millennium Nuclear Technologies International, Inc. (NMNTI). 2017. *Final Report for the Characterization of NPD Reactor Using Tru-Pro®- Technology*. 64-509410-REPT-004. Issued May 2017.	
Supporting Documents / Documents à l'appui				
338.	AOO (Feb. 26, 2018)	Postclosure Safety Analysis TSD, Section 4.1.2 (All)	The AOO express the concern that there are no timelines associated with any of the major events described in Section 4.2.1 of the Post Closure Safety Analysis TSD. The AOO note that the timing of events, such as groundwater infiltrating the vault and associated structures and radionuclides transported to the river, is not given although values are given later in Section A9. Further, the AOO find it 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 AOO also indicate that the selection of Features, Events and Process (FEPs) to include in the scenarios is not transparent and could be used by CNL to justify the selection of ISD. The AOO request more information on this issue.	
339.	AOO	Postclosure Safety	The AOO raise concerns with how CNL deals with uncertainties. The AOO highlight that the	

No.	Source	Section, Table or Figure (Page No.) Section, tableau ou figure (no. de page)	Comment Summary (all original submissions can be found on the Canadian Environmental Assessment Registry, reference #80121) Synthèse des commentaires (toutes les soumissions originales se trouvent sur le Registre canadien d'évaluation environnementale, référence #80121)	Response (to be completed by CNL) Réponse (à remplir par les LNC)
	(Feb. 26, 2018)	Analysis TSD, Section 2.2.4 (2-9)	issue of uncertainty and conservatism is often subjective, particularly in future scenarios when there are so many unknowns. The AOO ask the question: 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. The AOO request more information on this issue.	
340.	AOO (Feb. 26, 2018)	Postclosure Safety Analysis TSD, Section 5.1.1.3, Figure 5-7 (5-8) and Section 5.1.2.2, Figure 5-12 (5-13)	The AOO is concerned with the fact that the maximum rate of release of radionuclides to the river occurs at about 40 years after grouting, which is during the Institutional Controls period, while other parts of the draft EIS suggest that the maximum release occurs far into the future. The maximum of rate of releases of radionuclides in sediment reaches 100 Bg/kg after 100 years, but is 10 times higher in Figure 5-12 at 40 years. The AOO request more information on this issue.	
341.	William Turner (Feb. 9, 2018)	Postclosure Safety Analysis TSD, Section G 5.1, Figure G-75 (G-77)	The commenter uses Figure G-75 (*Radiation Doses to Adults Site Resient (Mass Excavation Case)*) to explain that the site cannot be abandoned after the 100-year Institutional Controls period. To illustrate his argument, the commenter added two lines to the figure: the 1 mSv/yr dose limit and the dose constraint of 0.3 mSv/yr. The annotated figure shows that at the end of the Institutional Controls period (the yellow area), the residual activity never meets unconditional clearance criteria, and therefore, the site cannot be abandoned until way past the 100,000-year upper bound shown on the x-axis. The commenter suggests two options for CNL to address this concern: • Revisit the project such that it will allow for the radioactivity contained in the entombed facility to decay to the extent that the ultimate goal "to abandon the site after the Institutional Controls period" can occur within the 100-year time period • Explicitly state that the Institutional Controls period will last indefinitely [Please refer to Mr. Turner's submission for more context and for the annotated Figure G-75.]	
342.	AOO (Feb. 26, 2018)	EcoRA TSD, Section 2.4.2.1 (2-17)	This section of the draft EIS states: "If the radionuclide concentration was greater than the NEC [Normal Evolution Scenario] 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"." The AOO are of the opinion that dose coefdficients should be calculated based on basic principles or using analogues. Not having a dose coefficient is not a valid reason for "screening out" radionuclides. The AOO request more information on this issue.	
343.	AOO (Feb. 26, 2018)	EcoRA TSD, Section 2.4.2.3, Table 2.16 (2-31)	The AOO highlight that very few details are reported with regards to the assessment associated with Table 2.16. Only H-3, Co-60 and Cs-137 are reported in the table, although a large number of radionuclides are present in the vault and associated structures (see Post Closure Safety Assessment Report). The AOO also note that doses to non-human species are not reported and that most radionuclides seem to have been screened out before the actual screening process of doses occurred.	

No.	Source	Section, Table or Figure (Page No.) Section, tableau ou figure (no. de page)	Comment Summary (all original submissions can be found on the Canadian Environmental Assessment Registry, reference #80121) Synthèse des commentaires (toutes les soumissions originales se trouvent sur le Registre canadien d'évaluation environnementale, référence #80121)	Response (to be completed by CNL) Réponse (à remplir par les LNC)
			The AOO request more information on this issue.	
344.	AOO (Feb. 26, 2018)	EcoRA TSD, Section 2.4.2.3, Table 2.18 (2-34)	The AOO highlight that dioxins and furans are "screened out" in Table 2.18, but that their associated units are in mg/kg and not in Toxic Equivalence (TEQ) based on the congeners of the dioxins and furans present. This congener information is needed before dioxins and furans are "screened out". The AOO refer to Table 9.11-5 in the draft EIS for Toxicity Equivalency Factors (TEFs) for individual congeners, and note that the United States Environmental Protection Agency uses slightly different TEFs. The AOO request more information on this issue.	
345.	AOO (Feb. 26, 2018)	EcoRA TSD, Appendix D, Table D.4-2 (D-28 to D-48)	The AOO note that the EcoRA TSD discusses a "second iteration" of risk assessment, which is presented in Appendix D. The AOO understand that this second iteration contains new scenarios and a re-analysis of data that are not included in the EcoRA TSD. The AOO also note that lead, which is a major concern in the first iteration, has become a minor component. It is not 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). Overall, the AOO concludes that there is confusion regarding the methods and the reasons why a second assessment process is required (and placed in an Appendix and not in the main text of the Report), and therefore suggest that the EcoRA TSD be redone to clarify the methods and conclusions. Furthermore, the AOO request that the EcoRA TSD include a full suite of radionuclides in the estimation of dose in VCs, and that VCs be 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 sediment, but will provide information to people actively using those resources. The AOO request more information on this issue.	

Appendix A / Annexe A

Here is the full list of commenters for comment no. 24 / Voici la liste complète des intervenants pour le commentaire no. 24:

Andrew Sare (Feb. 8, 2018 / 8 février 2018)
Anita Payne (Feb. 13, 2018/ 13 février 2018)
Anna Bogic (Feb. 7, 2018 / 7 février 2018)
Ann Waters (Feb. 9, 2018 / 9 février 2018)
Bozena Hrycyna (Feb. 13, 2018 / 13 février 2018)
Canadian Coalition for Nuclear Responsibility (Feb. 13, 2018 / 13 février 2018)
Candace Wooley (Feb. 11, 2018 / 11 février 2018)
Cheslee Pettit Dexter (Feb. 11, 2018 / 11 février 2018)
Chris Cavan (Feb. 12, 2018/ 12 février 2018)
Christina Anderman (Feb. 13, 2018 / 13 février 2018)
Daniel Buckles (Feb. 8, 2018 / 8 février 2018)
Darlene Buckingham (Feb. 13, 2018 / 13 février 2018)
David Garcia (Feb 12, 2018 / 12 février 2018)
Environment Haliburton! (Feb 12. 2018 / 12 février 2018)
Eva Schacherl (Feb 13. 2018 / 13 février 2018)
Francis Style (Feb 11. 2018 / 11 février 2018)
Georgina Bartos (Feb. 7, 2018 / 7 février 2018)
Herbert Fitzroy (Feb. 13, 2018 / 13 février 2018)
Joann McCann (Feb. 12, 2018 / 12 février 2018)
Judith Fox Lee and Ormond Lee (Feb. 13, 2018 / 13 février 2018)
Judith Maclean Miller (Feb. 9, 2018 / 9 février 2018)
Kathy Eisner (Feb. 14, 2018 / 14 février 2018)
Kim Wheatley (Feb. 6, 2018 / 6 février 2018)
Lady Diana Gillam (Feb. 7, 2018 / 7 février 2018)
Martha Ruben (Feb 12. 2018 / 12 février 2018)
Martin Flood (Feb. 12, 2018 / 12 février 2018)
Old Fort Williams Cottagers' Association (Feb. 8, 2018 / 8 février 2018)
Ottawa Raging Grannies (Feb. 13, 2018 / 13 février 2018)
Ria Heynen (Feb. 11, 2018 / 11 février 2018)
Rita Redner (Feb. 13, 2018 / 13 février 2018)
Sharon Odell (Feb. 13, 2018 / 13 février 2018)
Sonia Cirka (Feb. 13, 2018 / 13 février 2018)
Susan Brown (Feb. 12, 2018 / 12 février 2018)
Theresa Peluso (Feb. 8, 2018 / 8 février 2018)
Valerie Needham (Feb. 13, 2018 / 13 février 2018)
WildGreens-Canada (Feb. 12, 2018 / 12 février 2018)

Appendix B / Annexe B

Here is the full list of commenters for comment no. 301 / Voici la liste complète des intervenants pour le commentaire no. 301:

AOO (Feb. 26, 2018 / 26 février 2018)
Andrew Sare (Feb. 8, 2018 / 8 février 2018)
Angela Keller-Herzog (Feb. 13, 2018 / 13 février 2018)
Anita Payne (Feb. 13, 2018 / 13 février 2018)
Bonnechere River Watershed Project (Feb. 13, 2018 / 13 février 2018)
Bozena Hrycyna (Feb. 13, 2018 / 13 février 2018)
Candace Wooley (Feb. 11, 2018 / 11 février 2018)
Chris Cavan (Feb. 12, 2018 / 12 février 2018)
CCRCA (Feb. 8, 2018/ 8 février 2018)
Craig Robinson (Feb. 13, 2018)
David Garcia (Feb 12, 2018 / 12 février 2018)
David Prentice (Feb. 12, 2018 / 12 février 2018)
Diane Beckett (Feb. 13, 2018 / 13 février 2018)
Environment Haliburton! (Feb 12. 2018 / 12 février 2018)
Eva Schacherl (Feb 13. 2018 / 13 février 2018)
Francis Style (Feb 11. 2018/ 11 février 2018)
Georgina Bartos (Feb. 7, 2018 / 7 février 2018)
Green Party of Ontario (Feb. 13, 2018 / 13 février 2018)
Herbert Fitzroy (Feb. 13, 2018 / 13 février 2018)
Joann McCann (Feb. 12, 2018 / 12 février 2018)
John Almstedt (Feb. 12. 2018 / 12 février 2018)
Jo Wood (Feb. 12, 2018 / 12 février 2018)
Judith Fox Lee and Ormond Lee (Feb. 13, 2018 / 13 février 2018)
Kathy Eisner (Feb. 14, 2018 / 14 février 2018)
Martha Ruben (Feb 12. 2018 / 12 février 2018)
Martin Flood (Feb. 12, 2018 / 12 février 2018)
OFWCA (Feb. 8, 2018 / 8 février 2018)
Philipp-Nowotny (Feb. 7, 2018 / 7 février 2018)
Ria Heynen (Feb. 11, 2018 / 11 février 2018)
Rita Redner (Feb. 13, 2018 / 13 février 2018)
Sharon Odell (Feb. 13, 2018 / 13 février 2018)
Sonia Cirka (Feb. 13, 2018 / 13 février 2018)
Susan Brown (Feb. 12, 2018 / 12 février 2018)
Thomas Ackermann (Feb. 12, 2018 / 12 février 2018)
Valerie Needham (Feb. 13, 2018 / 13 février 2018)
WildGreens-Canada (Feb. 12, 2018 / 12 février 2018)
William Turner (Feb. 9, 2018 / 9 février 2018)