Environmental Protection Program Review

Manitoba Hydro Keeyask Generation Station

Manitoba Wildlands – January 2014

ABSTRACT

This report examines the Manitoba Hydro Keeyask Generation Station Preliminary Environment Protection Program, and identifies potential deficiencies in the Program and environmental monitoring plans.

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Disclaimer

This report represents views of Manitoba Wildlands regarding the Manitoba Hydro Keeyask Generation Station Project (Keeyask Project) Environmental Protection Program (EPP). To date the EPP is still preliminary, with some components missing from the proposed program and its plans. The review conducted by Manitoba Wildlands is not exhaustive. We highlight only major areas of concern with the EPP and advise that a thorough review of the complete EPP materials be conducted.

The information used as a basis for this report comes from the Manitoba Hydro EIS materials, filed during 2012, 2013, including presentations used in the CEC hearings.

Table of Contents

Environmental Protection Program Overview

The purpose of this document is to briefly describe the Manitoba Hydro Keeyask Generation Station (Keeyask Project) Preliminary Environmental Protection Program (EPP), the Environmental Monitoring Plans contained within the EPP and the issues identified with the EPP and environmental monitoring schedules. This report is intended to give an introduction to the issues identified with the EPP and more specifically the monitoring plans, with the understanding that a more in-depth review of the EPP is required.

The EPP is divided into three distinct sections; Environmental Protection Plans, Environmental Management Plans and Environmental Monitoring Plans (EMPs) (Table 1 and Figure 1). Each EPP section is divided into sub-sections, which are intended as stand-alone documents. The EMPs are used to monitor changes in Valued Environmental Components (VECs) and Supporting Topics selected within the EIS materials for the duration of the observation period defined by Manitoba Hydro (MBH): which does not correspond to the life of the Keeyask Project.

The format of the EPP consists of a series of independent documents/plans that fall under the umbrella of the EPP. The EPP lacks any guiding outline that links the individual sub-sections together into a cohesive document. Attachment #6 and 7 provide examples of environmental protection plan guidelines used by the National Energy Board of Canada (March 31, 2011) and British Columbia Hydro (January 2006).

Chapter 8 of the Environmental Impact Statement (EIS) entitled "Monitoring and Follow-up" provides a basic overview of the EPP. The chapter does not provide any type of detail as to how the EPP is to be carried out or timelines for the monitoring plans. A draft version of the Keeyask Project EPP was submitted on June 2013, year after submission of the Keeyask Project EIS. The June 2013 submission of the draft EPP was missing seven of the total fifteen draft sub-sections, four of which were Environment Management Plans. The missing sections were submitted in August 2013, with at least one section still incomplete (Table 1). According to MBH The EPP will be finalized following licensing of the Keeyask Project.

Oversight of the EPP will be through the Monitoring Advisory Committee (MAC), with representatives from each of the Keeyask Cree Nation (KCN) partners and MBH. The MAC will meet every two months for the duration of the Keeyask Project, and review the EPP activity, monitoring, and concerns raised by each KCN community. It is not clear at this time what level of transparency, turn around time, and scientific verifiability will be the basis for the work of the MAC. Nor is it clear whether the MAC reports to the KHLP board only, given the references during the hearings to Resource Management Boards receiving reports.

It was not clear during the hearings how project life span environmental protection, and monitoring in cooperation with the KCN's will be managed. Questions as to the integration of ATK, and the ability to improve on western science using ATK are outstanding from the CEC hearings. It was also not clear whether the KCN communities would be participating in monitoring of all VECs, at any scale or location relevant to their communities in the Keeyask region. It is evident there is risk the KCN communities may be severely limited in their ability to monitor and advise the MAC and the KHLP board where their combined voices do not provide any certainty in decision making.

On November 21st, 2013 the Keeyask Hydro Power Limited Partnership (KHLP) presented a PowerPoint presentation on the EPP during the Clean Environment Commission (CEC) hearings, entitled "Moving Forward as Partners on Environmental Matters" (presenters: Carolyne Northover, Ted Bland, George Neepin and Victor Spence). The information provided by KHLP was limited, allocating only 1-2 slides per section of the EPP. The PowerPoint presentation offered very little in the way of information to explain how the EPP and monitoring plans are to be executed and ATK incorporated.

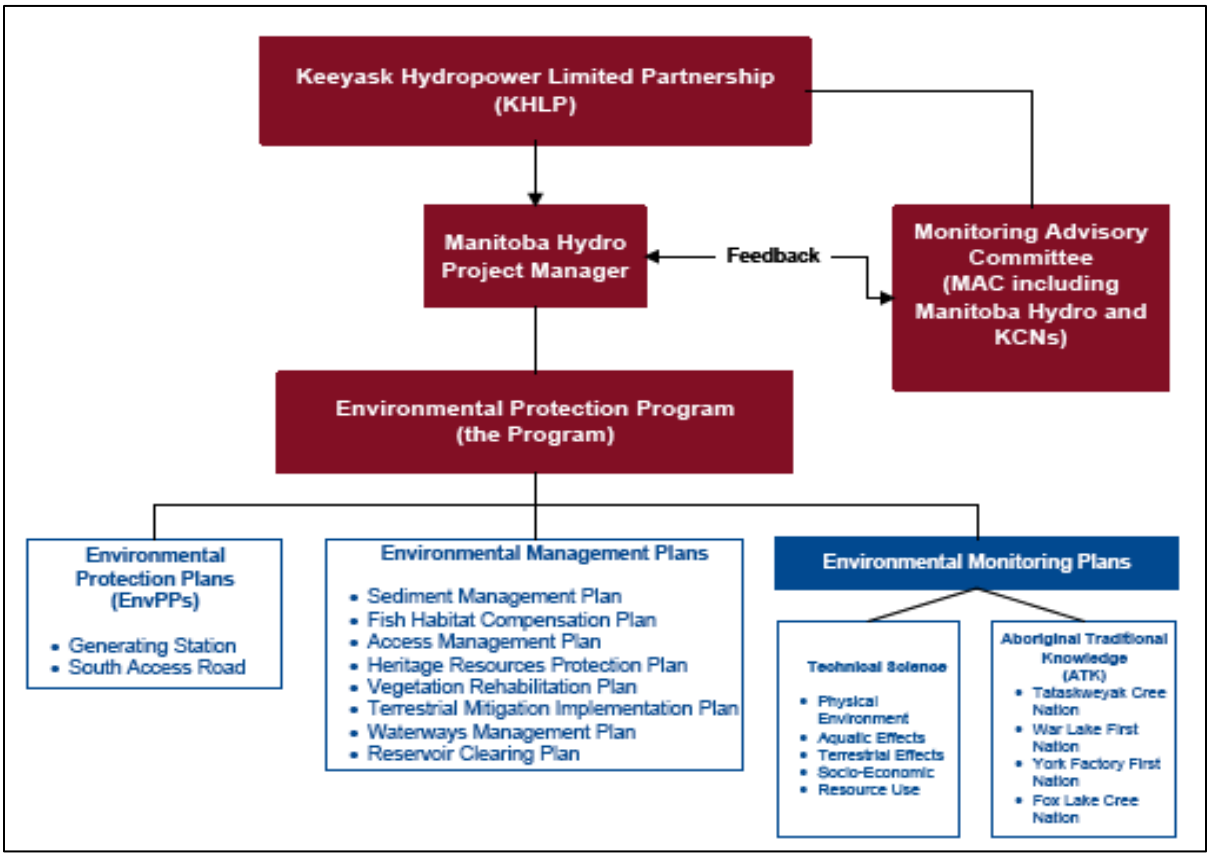
On January 6, 2014 MBH delivered another presentation (at the request of the CEC) during the CEC hearings on the EPP entitled "Environmental Protection Program (presenter Carolyne Northover)". The information contained in the January 6, 2013 and November 21, 2013 presentations was similar, but failed to elaborate on the details of the EPP. Finally, the January 6, 2014 presentation did not mention that the EPP was still in draft form, and will be finalized once the Keeyask Project license is approved.

This report brings to attention the deficiencies with the EPP and specifically the EMPs, addressing how the monitoring plans fail to satisfy the objectives of a thorough monitoring program; 1) that it should gather information in a consistent and reproducible fashion, 2) the temporal scope should be consistent with the life-span of the Keeyask Project, 3) study areas should be well defined and based upon those utilized within the EIS materials and technical reports, 4) study methodology should be clearly described and 5) Aboriginal Traditional Knowledge (ATK) should be incorporated throughout all monitoring activities.

Information provided by KHLP during the CEC hearings on the EPP gave only a narrow view of the program, withholding critical details relevant to EPP methodology, execution, reporting and incorporation of ATK.

VECs and sub topics that will be monitored are not explicitly identified in the charts provided by the proponent. Each environmental component to be protected, management, monitored will require a plan.

Figure 1. Environmental Protection Program



Source: Keeyask Generation Project Environmental Impact Statement: Preliminary Environmental Protection Program, section 1, page I.

Table 1. Manitoba Hydro Keeyask Generation Station Environmental Protection Program Structure.

Environmental Protection Program	
EPP Component	**Section of Component**
Environmental Protection Plans	1) Generation Station 2) South Access Road
Environmental Management Plans	1) Sediment Management Plan 2) Fish Habitat Compensation Plan 3) Access Management Plan 4) Heritage Resources Protection Plan 5) **Vegetation Rehabilitation Plan*** 6) **Terrestrial Mitigation Implementation Plan** 7) **Waterways Management Plan** 8) Reservoir Clearing Plan
Environmental Monitoring Plans	1) Technical Science **a. Physical Environment** b. Aquatic Effects **c. Terrestrial Effects** **d. Socio-Economic** **e. Resource Use** 2) Aboriginal Traditional Knowledge (ATK) a. Cree Nation Partners b. York Factory First Nation c. Fox Lake Cree Nation

Note: Bolded items are those sections that were not included in the April 2013 submission of the EPP. The asterisk denotes sections that are still absent.

Source: This table was compiled by the authors of this report.

Environmental Monitoring Plans

The Environmental Monitoring Plans (EMPs) submitted in June 2013 are limited in temporal scope, spatial scope and long-term objectives. Monitoring implies that information on important parameters will be routinely collected and analyzed for changes in function, ecosystem health, sustainability, etc. Ecological processes occur at larger temporal and spatial scales than used to study the individual VECs and Supporting Topics. Long-term temporal scales allow for observation of environmental changes that transpire slowly over time; years to decades. Collecting data on environmental change requires the establishment of study areas that are representative of the VEC, Supporting Topic or ecosystem under investigation. The study area(s) should also factor in control areas for purposes of comparison. Observing long-term environmental changes requires unbiased and routine data collection throughout the duration of the Keeyask Project, at locations that provide accurate and representative data.

The EMPs reviewed in this report include; Physical Environment, Terrestrial Effects, Aquatic Effects, Socio-Economic and Resource Use. The issues will be addressed as overarching concerns with the Keeyask Project EMPs, rather than specific problems associated with each EMP.

Temporal Scope of Monitoring Plans

Each EMP is accompanied with a monitoring schedule, which outlines the long-term monitoring schedule for VECs and Supporting Topics identified within the EIS materials. The EMP schedules are different between the five EMPs submitted; each having a different time frame for long-term monitoring activities. For example some monitoring schedules report monitoring activities based on calendar year, whereas others show monitoring activities according to year of the Keeyask Project. In essence there is no consistent long-term plan for monitoring of VECs and Supporting Topics outlined within the EMPs that uses the same observation period for investigation. This is problematic, as it results in monitoring activities for VECs and Supporting Topics that lack consistent and comparable data-point measurements.

Another important aspect to consider is that the full operation date of the Keeyask Generation station is 2021, based on the construction start date of 2014 as stated in the EIS materials. On average it can take up to 30 years for a reservoir to stabilize and expand, therefore initial monitoring of all VECs and Supporting Topics should at least be planned until the Keeyask reservoir has stabilized in 2044, in order evaluate and mitigate environmental impacts. As evidenced within the EMP schedules, the Physical Environment EMP only monitors up to calendar year 2030: roughly fifteen years short of the required 30 year period for reservoir stabilization. The remaining four EMPs are up to 30 years post construction period, which is the minimal amount of time to monitor for environmental impacts arising from reservoir stabilization.

Manitoba Hydro made a commitment the week of January 6, 2014 in the CEC hearings to continue its monitoring activites for the life of the project.

There is reference to the monitoring plans being reviewed periodically, however it is not clear what the scope of the EPP review process will entail.

Environmental Monitoring Plan Schedules:

- Physical Environment EMP – Calendar Years (attachment #1)
  - Year 2014 to 2019 - construction monitoring period
  - Year 2019 to 2030 for operation monitoring period

- Terrestrial Effects EMP – Years of Keeyask Project (attachment #2)
  - -1 year prior to Keeyask Project construction – pre-construction monitoring period
  - 1-5 years of Keeyask Project – construction monitoring period
  - 6-35 years of Keeyask Project – operation monitoring period

- Aquatic Effects EMP – Years of Keeyask Project (attachment #3)
  - 1-5 years of Keeyask Project – construction monitoring period
  - 6-35 years of Keeyask Project – operation monitoring period

- Socio-Economic EMP - Years of Keeyask Project (attachment #4)
  - 1-8 years of Keeyask Project – construction monitoring period
  - 9-35 years of Keeyask Project – operation monitoring period

- Resource Use - Years of Keeyask Project (attachment #5)
  - 1-8 years of Keeyask Project – construction monitoring period
  - 9-35 years of Keeyask Project – operation monitoring period

The EIS materials state that the Keeyask Project has a potential operational lifespan of 100 years. Yet as observed within the monitoring schedules, environmental monitoring for the Keeyask Project is only planned for up to the first 35 years of the Keeyask Project. Finally, monitoring activities appear to be more front-loaded during the construction and initial operation phases of the Keeyask Project.

Monitoring Study Areas

Within the Manitoba Hydro Keeyask Project Study Areas Report, the breadth of study areas utilized throughout the Keeyask Project was presented, highlighting the variation between study areas from one component of the Keeyask Project and another. Despite the use of Local Study Areas (LSAs) and Regional Study Areas (RSAs) for many of the VECs and Supporting Topics, the study areas for monitoring activities *were not described* within the text.

In some instances, the study areas were defined as the LSA identified for the VEC or Supporting Topic within the EIS materials: However, this was not consistent

throughout the EMPs. There were also examples where the study area was not described within the text, and only presented visually on a map; see monitoring of green house gas (GHGs) emissions, study area at the Keeyask Generation Station (Physical Environment EMP, Map 5-1, page 5-3).

It is not clear whether the monitoring activities planned for VECs and Supporting Topics have study areas that are consistent with the study areas defined within the EIS materials and technical reports. However, it would be difficult for the EMP study areas to be consistent with the EIS materials and technical reports, as the study areas used within the EIS materials and technical reports are dissimilar (Refer to Keeyask Project Study Areas Report).

Monitoring of VECs and Supporting Topics

Aside from long-term monitoring activities, the time-points during which VECs and Supporting Topics are to be assessed are problematic. Only a small subset of VECs and Supporting Topics are monitored consistently on a yearly basis over the course of the initial 30 years of the Keeyask Project. Many VECs and Supporting Topics are monitored only every second year, or sporadically throughout the 30 year monitoring period or up to year 2030 depending on the draft EMP monitoring schedule.

Monitoring schedules within the EMPs are further categorized based on construction or operation phase of the project, whereby specific VECs and Supporting Topics are monitored differently depending on whether it is the construction or operation phase of the Keeyask Project.

Finally, it is difficult to determine if the monitoring plans were designed to include all VECs and Supporting Topics listed within the EIS materials. The Manitoba Wildlands report entitled "Keeyask VECs and Supporting Topics (January 2014, included within this package)", observed that EIS VECs and Supporting Topics were not presented in a comprehensive and consistent manner throughout all EIS and presentations materials.

Monitoring Methodology

The discussion of methodology used to monitor VECs and Supporting Topics is limited and inconsistent between EMPs. EMPs outline the methodology employed to take the measurements for specific VECs and Supporting Topics, however the level of detail provided in the methods section prohibits duplication of the monitoring activities by an outside party, due to lack of clarity and description. Furthermore, the study areas need to be clearly defined for each VEC and Supporting Topic under investigation, which are comparable to the study areas used to gather baseline information.

The Resource Use EMP describes a process whereby technical and ATK monitoring information from the other EMPs will be compiled to develop a picture concerning

resource use during the construction phase of the Keeyask Project. Attempts are being made to investigate resource use during only the construction phase of the Keeyask Project, based on monitoring information derived from EMPs that are not comparable.

Aboriginal Traditional Knowledge Monitoring Plans

Aboriginal Traditional Knowledge (ATK) monitoring plans were not included with the EPP. The November 21, 2013 EPP presentation entitled "Moving Forward as Partners on Environmental Matters" stated that environmental monitoring would use the two-track approach; ATK monitoring and technical science monitoring. It has not been clearly explained how the ATK and technical science monitoring plans will be combined, or if there is a process plan in place for the MAC to decide on such matters.

According to MBH (November 21, 2013 presentation - Moving Forward as Partners on Environmental Matters) the Keeyask Cree Nation (KCN) partners are in the process of developing community specific ATK monitoring programs, which accounts for the absence of those monitoring plans within the EPP.

With regards to the development and execution of ATK monitoring plans, there are a variety of issues that require greater clarification. For example; 1) Will the KCN communities work jointly to conduct ATK monitoring? 2) What are the study areas for the ATK monitoring plans (will they be limited to the Resource Management Areas)? 3) How frequently will ATK be conducted? 4) Will ATK monitor the same VECs and Supporting Topics identified in the EIS? 5) Will the ATK monitoring activities involve other First Nation and Metis communities with Traditional or Treaty/Rights Based traditional activties impacted by the Keeyask Project and, 6) What is the reporting schedule and method for ATK?

As with the technical science EMPs, it is important to establish ATK monitoring study areas that are consistent with those used to collect baseline ATK data for the EIS VECS and supporting topics.

Monitoring Advisory Committee

The role of the Monitoring Advisory Committee (MAC) is to manage the EPP and coordinate the technical science and ATK two-track approach for monitoring – and to report to the KHLP and Manitoba Hydro.

The committee is comprised of MBH and KCN members. However, the exact number and ratio of MBH to KCN members was not disclosed, nor whether independent experts would be on the committee to provide objective feedback and analysis.

In addition to committee composition, the governance structure of MAC greatly determines committee functionality. To date a governance plan outlining

governance structure, terms of reference, reporting methods, sub-committees, governance policies and objectives are absent. It is critical that guidelines are established for this committee, in order for it to function effectively.

Adherence to EIS Guidelines

This section is intended to highlight the areas of the Keeyask Generation Project EIS Guidelines that reference an EPP, application of the program to the Keeyask Project, compliance, policies and auditing. The EIS Guidelines state that an environmental protection plan and its environmental management system are required as part of the EIS materials. However the EPP was only submitted in June and August 2013, one year after the EIS materials were released. This highlights the fact that the EIS materials submitted in July 2012 are not compliant with the EIS Guidelines due to lack of an EPP.

Canadian Environmental Assessment Agency: Keeyask Generation Station Environmental Impact Statement Guidelines;

9.2 Mitigation Measures, pg 27

- "*The proponent shall describe the technically and economically feasible mitigation measures and that will be applied throughout the implementation of the Project.* ***The proponent shall describe its environmental protection plan and its environmental management system, through which it will deliver the plan.*** *This section of the EIS describes how potentially adverse environmental effects would be minimized and managed over time. As well, the proponent shall describe its commitments, policies and arrangements directed at promoting beneficial or mitigating adverse socio-economic effects.* ***The proponent shall discuss the mechanisms it would use to require its contractors and sub-contractors to comply with these commitments and policies and with auditing and enforcement programs*****".**

Summary

Environmental protection and monitoring are important components of any large-scale project, particularly one that imposes significant environmental, economic, social and cultural alteration, spanning over 100 years or more of operation. In this report we conducted a preliminary review of the Environmental Protection Program (EPP) with a focus on the five Environmental Monitoring Plans (EMPs) contained within it.

The Keeyask Project EIS Guidelines clearly state that an environmental protection plan and management system is required as a component of the EIS materials. The EIS materials submitted in July 2012 did not contain the EPP, but made reference to the program. The first set of Keeyask Project EPP documents were submitted in June

2013 and the remaining components in August 2013. The To date the EPP is still incomplete, and may be finalized after licensing of the Keeyask Project. Overall the Keeyask EPP takes a minimalistic approach to environmental protection, lacking consistent and reproducible methodology, long-term vision, cohesion, overarching goals and objectives, plans for environmental improvement initiatives, a guiding outline and clear governance policies: Thus rendering it a poor attempt at an EPP. Finally, it is evident that the EPP was not drafted with the life-span of the Keeyask Project in mind, but rather to satisfy the minimal requirements for an environmental protection program. This approach does not fulfill Manitoba's sustainable development principles and guidelines.

EMPs provide a means to gather project specific environmental data throughout the life of a project, which can then be compared to baseline data, and data gathered for lifeline of the project. By comparing long-term monitoring data to baseline values, it is possible to observe changes, predict and potentially mitigate adverse effects and/or make improvements to the project that will ultimately enhance the environment.

Below Manitoba Wildlands has listed the key areas where the EMPs fail to address critical components for environmental monitoring;

- The temporal scope of the EMPs are only for the first 15 – 30 years of the Keeyask Project;
- The study areas for the EMPs are not well defined, and it is unclear whether the study areas will coincide with those used within the EIS materials;
- The time points for monitoring of VECs and Supporting Topics is erratic, not consistent throughout the construction and operation phases of the Keeyask Project, and for many VECs and Supporting Topics is limited to only a few years for monitoring;
- Monitoring methodologies are not clearly defined, thus preventing reproduction by an objective party;
- ATK monitoring activities not described;
- ATK acts as stand alone information and is not used as a platform to guide technical science monitoring activities;
- Governance structure, committee guidelines, terms reference and committee need to be defined for the MAC.
- Objective scientific and ATK experts should be members of the MAC to provide unbiased analysis of monitoring results and feedback to help foster informed decision-making.
- Experts and participants during the hearings consistently have pointed out that Aboriginal Knowledge must be part of environmental management and protected, as do the EIS Guidelines.

In the context of environmental sustainability and the precautionary approach, developing an EPP after the EIS materials, seems like an obvious step towards only

mitigating environmental impacts rather than striving for improvement versus remediation. In the case of the Keeyask Project, the EIS materials claim environmental sustainability and fierce adherence to the precautionary principle/approach, however what is present on paper, including from the hearings, is not echoed through the EIS materials.

Conclusion

An EPP should reassure the public and affected communities about a public utility that prides itself on sustainable development and environmental stewardship, by putting those values into practice. A public utility is obligated to disclose information to the public in a manner and on a timeline that facilitate input and analysis of project activities and goals of the utility.

Based on our review of the preliminary EPP, MWL concludes that the EPP and EMPs contain significant deficiencies that render the program ineffectual at achieving long-term environmental protection objectives. MBH needs to develop an EPP using the founding principles and knowledge of ATK combined with technical science methods, which involves the public in EPP review and execution.

Furthermore, monitoring plans need to adopt an ecosystem approach to monitoring, that adhere to long-term sustainability objectives through increased monitoring frequency that spans the life of the project. Finally, monitoring activities are meaningless unless the data collected is used to make improvements to the Keeyask Project, with the intent of reducing or abolishing environmental, social and cultural impacts, while moving to improvement in both social and environmental conditions.

Sources

1) Keeyask Generation Station Project Environmental Impact Statement: Preliminary Environmental Protection Program, June 2013.
2) Keeyask Generation Station Project Environmental Impact Statement: Preliminary Environmental Protection Program, August 2013.

Appendix

1) **Attachment #1:** Keeyask Generation Project Physical Environment Monitoring Plan, Figure A1-1 – Summary of Proposed Monitoring Schedule, pg A1

2) **Attachment #2:** Keeyask Generation Project Terrestrial Environment Monitoring Plan, Table 1-1 – Summary of program planned for the Keeyask Terrestrial Effects Monitoring Plan, pg 1-8

3) **Attachment #3:** Aquatic Effects Monitoring Plan, Table 2 – Summary of field studies planned for the Keeyask Aquatic Effects Monitoring Plan, pg 12

4) **Attachment #4**: Keeyask Generation Project Socio-Economic Monitoring Plan, Table 1 – Summary of socio-economic monitoring activities planned for the Keeyask Socio-Economic Monitoring Plan, pg 5-3 and 5-4

5) **Attachment #5**: Keeyask Generation Project Resource use Monitoring Plan, Table 2 – Summary of resource use monitoring activities and reporting intervals planned for the Keeyask Resource Use Monitoring Plan, pg 3-2

6) **Attachment #6:** National Energy Board – Environmental Protection Plan Guidelines, March 31 2011. Accessed January 8, 2014: http://www.neb-one.gc.ca/clf-nsi/rpblctn/ctsndrgltn/rgltnsndgdlnsprsntthrct/drllngprdctnrgltn/nvrnmntplngdln-eng.html

7) **Attachment #7:** BC Hydro Engineering. 2006. Environmental Management Plan 230 kV Submarine Cable Supply and Installation Draft. Accessed January 12, 2014: http://transmission.bchydro.com/nr/rdonlyres/f09a41f9-1c4a-4c18-8b82-045B25aaccd11/0/vitreacapplicationappendixomarineemp.pdf