

# **EAO's Assessment of an Application for Certificate Amendment**

*Site C Clean Energy Project*

*Amendment #4 – Use of Machines for  
Reservoir Clearing in Riparian Areas*

**Requested by:**

**British Columbia Hydro and Power Authority**

**February 12, 2019**

*Pursuant to Section 19 of the Environmental Assessment Act, S.B.C. 2002, c.43*



## Acronyms and Abbreviations

Agency	Canadian Environmental Assessment Agency
AB	Alberta
Application	Application to amend the Environmental Assessment Certificate
BC	British Columbia
BC Hydro	British Columbia Hydro and Power Authority
CEMP	Construction Environmental Management Plan
Certificate	Environmental Assessment Certificate
EAO	Environmental Assessment Office
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
EPP	Environmental Protection Plan
Indigenous Groups	Blueberry River First Nations (BC); Dene Tha' First Nation (AB); Doig River First Nation (BC); Duncan's First Nation (AB); Fort Nelson First Nation (BC); Halfway River First Nation (BC); Horse Lake First Nation (AB); McLeod Lake Indian Band (BC); West Moberly First Nations and Prophet River First Nation (BC), represented by Nun wa dee Stewardship Society; and Saulteau First Nations (BC)
km	kilometre
m	metres
QEP	Qualified Environmental Professional
Schedule A	Certified Project Description of the Environmental Assessment Certificate
Schedule B	Table of Conditions of the Environmental Assessment Certificate
Site C	Site C Clean Energy Project
WG	Advisory Working Group

## 1. OVERVIEW OF PROPOSED AMENDMENT

On October 14, 2014, Environmental Assessment Certificate #E14-02 (Certificate) was issued to British Columbia Hydro and Power Authority (BC Hydro) for the Site C Clean Energy Project (Site C). Site C is located on the Peace River, approximately seven kilometres (km) south-west of Fort St. John, British Columbia (BC). The project components include: an earthfill dam 1,050 metres (m) long and 60 m high; an up to 1,100-megawatt generating station and associated structures; an 83 km long reservoir; realignment of six sections of Highway 29; and two 77-km transmission lines along existing transmission line rights-of-way connecting Site C to BC Hydro's Peace Canyon Generating Station. Construction of Site C began in summer of 2015 and is anticipated to be completed in 2024.

The provincial Certificate includes the Project Description (Schedule A) that outlines the project components, and the Table of Conditions (Schedule B) that contains the 77 legally binding conditions enforceable throughout the life of the Project. On October 14, 2014, the federal Minister of Environment issued a decision statement to BC Hydro, with over 80 legally binding conditions.

The provincial Certificate and federal decision statement were issued following an assessment by a Joint Review Panel of the Site C Environmental Impact Statement (EIS). The Joint Review Panel was established by the federal Minister of the Environment and the British Columbia Minister of Environment, and mandated to assess the environmental, economic, social, health and heritage effects of Site C and their significance; to examine proposals for the mitigation of adverse effects; and to record assertions of Project effects on the Aboriginal rights and treaty rights of affected First Nations and Métis peoples. The Joint Review Panel's report contains their conclusions on the significance of the residual effects of Site C and concluded that the project would result in significant adverse effects to: fish and fish habitat; some wildlife species; rare plants and sensitive ecosystems; and the current use of land and resources for traditional purposes by Indigenous peoples.

On June 22, 2018, an amendment to the Certificate related to the design of the generating station and spillway (Amendment #1) was granted following a review by the Environmental Assessment Office (EAO). On October 26, 2018, the Certificate was amended to modify the Halfway River bridge design (Amendment #2). On November 14, 2018, a third amendment was granted to expand the use of aggregate material from West Pine Quarry construction (Amendment #3).

On November 27, 2018, BC Hydro applied for a fourth amendment to the Certificate (Application) to allow for the use of machines in riparian areas within the dam reservoir, which is currently prohibited by condition #4 and condition #13 of Schedule B of the Certificate.

In the Application, BC Hydro noted that the current prohibition on machines in riparian areas for reservoir clearing in Schedule B was intended to protect water quality by preventing soil disturbance and potential erosion that can result from machine track operation. Following three seasons of manual (hand) falling of trees in riparian zones since the Certificate was issued, BC Hydro concluded that manual falling of leaning trees in riparian zones is unsafe for workers and can lead to riverbank damage and erosion greater than the potential effects that would be caused by machine falling. To enhance worker safety and minimize potential effects, BC Hydro requests an amendment to the Certificate to allow for the selective use of machines – specifically, tracked feller-buncher equipment – to safely remove timber

and vegetation that protrudes above 455 m elevation within 15 m of watercourses in the reservoir area. BC Hydro notes that, should the amendment be granted, the use of tracked feller-buncher equipment in riparian areas would be undertaken in site specific circumstances and as approved by a qualified environmental professional (QEP).

The Application proposes to add the following statement (in bold) to conditions #4 and #13 of Schedule B of the Certificate (the current conditions are summarized in Appendix A1):

- Maintain a 15 m machine free zone adjacent to watercourses during reservoir clearing (as measured from the Ordinary High-Water Mark) **except where worker safety prohibits manual tree falling and vegetation removal methods and as addressed in a site-specific prescription prepared and endorsed by a QEP. The rationale for the safety exemption must be documented in the prescription.**

At the request of the EAO, the Application outlined the criteria that would be used by a QEP to determine the site-specific prescription for clearing. BC Hydro committed that mechanical falling would only be prescribed by a QEP if:

1. Vegetation removal is required;
2. It is unsafe to do so using manual techniques;
3. The area to be cleared is relatively small and homogenous or may be divided into small and homogenous areas (e.g., each area will be smaller than 1 ha, have similar terrain, understory and tree species, and a consistent safety risk profile); and
4. The area is stable and suitable for a feller-buncher.

BC Hydro affirmed that the QEP would determine the suitability of mechanical falling using the above criteria and would prepare a site-specific prescription that would include Construction and Environmental Management Plan (CEMP) compliance requirements such as erosion control, spill containment, and demarcation of the area to be mechanically cleared. The QEP's prescription would be reviewed by applicable forestry contractors during daily pre-work meetings and submitted to the EAO for compliance monitoring in applicable weekly monitoring reports.

BC Hydro noted that, under a separate process, the CEMP, the Vegetation Clearing and Debris Management Plan, and the Fisheries and Aquatic Habitat Management Plan would be updated to include the requirement to have a QEP determine site-specific prescriptions using criteria outlined in Figure 3 of the Application<sup>1</sup> and as described in the list above.

## 2. AMENDMENT REVIEW PROCESS

Based on the Application details, the EAO determined it was a "typical amendment"<sup>2</sup> given that the proposed changes are unlikely to change the conclusions in the EIS and no material changes to the project components are being requested.

<sup>1</sup> <https://projects.eao.gov.bc.ca/p/site-c-clean-energy/docs?folder=1143>

<sup>2</sup> <http://www.eao.gov.bc.ca/files/EAO-Guidance-Certificate-Holder-Amendments.pdf>

The EAO reviewed the need for a public comment period on the Application. Because the mechanical clearing was not an issue raised by the public during the joint review panel for Site C; the proposal to permit machines in reservoir riparian areas under specific circumstances is unlikely to change the conclusions of the EIS; and that mechanical clearing of riparian areas in the reservoir is likely to improve worker safety, a public comment period on the Application was not necessary.

The EAO convened an advisory working group (WG) comprised of representatives from municipal governments, provincial and federal agencies, and Indigenous Groups to provide input into the EAO's review of the Application. The following Indigenous Groups in BC and Alberta (AB) were invited to participate on the WG:

- Blueberry River First Nations (BC)
- Dene Tha' First Nation (AB)
- Doig River First Nation (BC)
- Duncan's First Nation (AB)
- Fort Nelson First Nation (BC)
- Halfway River First Nation (BC)
- Horse Lake First Nation (AB)
- McLeod Lake Indian Band (BC)
- West Moberly First Nations and Prophet River First Nation (BC), represented by Nun wa dee Stewardship Society (Nun wa dee)
- Saulteau First Nations (BC)

The WG also included representatives from:

- Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD)
- Ministry of Energy, Mines, and Petroleum Resources
- Ministry of Agriculture
- Environment and Climate Change Canada (ECCC)
- Transport Canada
- Natural Resources Canada
- Department of Fisheries and Oceans Canada
- District of Chetwynd
- District of Hudson's Hope
- City of Fort St. John
- Peace River Regional District

On November 26, 2018, the final Application was accepted by the EAO and was provided to the WG for a three-week review and comment period. The EAO hosted an introductory WG teleconference meeting on December 6, 2018, to provide an overview of the amendment process to the WG, and for BC Hydro to provide an overview of the Application. During this review, FLNRORD, McLeod Lake Indian Band and ECCC submitted comments with respect to use of best practices in mechanical clearing and the appropriate reporting of QEP prescriptions. BC Hydro's responses were shared with the WG on January 4, 2019 and posted to the EAO's EPIC site. No WG members expressed an interest in a follow up meeting.

A draft of this Amendment Assessment Report was provided to the WG on January 21, 2019, for a two-week review period. Saulteau First Nations requested clarification on how compliance and enforcement would be undertaken on the amended condition should it be approved. McLeod Lake Indian Band, FLNRORD and ECCC noted they had no comments on the report. Halfway River provided

comments on the draft report, which are summarized in Section 4.

The Canadian Environmental Assessment Agency (the Agency) participated in the review of the Application, including participation in the WG meetings. The Agency was also available to participate in consultation meetings with Indigenous Groups, as requested.

### 3. SUMMARY OF ISSUES AND EFFECTS

BC Hydro assessed potential environmental effects in the Application in accordance with the information requirements utilized for the original EIS. The Application assessed potential impacts of using feller-bunchers for reservoir clearing in riparian areas to fish and fish habitat, vegetation and ecological communities, wildlife resources, harvest of fish and wildlife resources, and current use of lands and resources for traditional purposes.

In the Application, BC Hydro noted that there are safety concerns for workers involved in manual falling of trees in specific situations (for example, when trees overhang the Peace River), and concluded that mechanical falling in some instances would greatly improve worker safety. BC Hydro also noted that manual falling of trees that overhang the Peace River could result in these trees inadvertently falling into the river (where removal would be impractical or would result in riverbank damage). BC Hydro asserted that the site-specific mitigation measures that would be implemented during machine use are expected to result in reduced soil disturbance and erosion when falling trees that lean over the Peace River compared to manual falling methods. Overall, BC Hydro noted that effects of mechanical falling on the valued components are anticipated to be equivalent to the hand falling impacts described in the EIS.

BC Hydro concluded that because the use of feller-bunchers in specific scenarios does not change the extent of clearing that was described in the EIS, the proposed approach is not anticipated to cause adverse effects on valued components beyond the effects that were considered during the Environmental Assessment of the Project.

#### **Working Group Comments on the Application**

During the December 6, 2018 WG meeting, BC Hydro explained the criteria for determining whether mechanical falling in riparian areas would be appropriate.

In their comments on the Application, FLNRORD noted that they do not anticipate any new effects on wildlife because of the amendment and confirmed that, from FLNRORD's perspective, the broader reservoir clearing impacts were adequately assessed (and mitigated/offset) in the original EIS.

ECCC recommended that mechanical falling in riparian areas of the reservoir be subject to the CEMP requirements for monitoring, mitigation development, reporting and incident reporting requirements. ECCC also suggested that site-specific prescriptions be considered as Environmental Protections Plans (EPP) specific to mechanical tree and vegetation removal. BC Hydro confirmed that, if the amendment is granted, the site-specific prescriptions for feller-buncher use in riparian areas would be completed by a QEP in accordance with the CEMP. However, BC Hydro does not plan to amend the EPPs to include site-specific prescriptions as according to BC Hydro, doing so would have no bearing on the environmental protection measures implemented in the field.

ECCC also recommended that restoration of riparian areas as described in BC Hydro's CEMP be followed, and that site-specific restoration plans be developed for areas where machine use for tree and vegetation removal activities occur. In response, BC Hydro noted that the soil disturbance levels of machine clearing in riparian areas would be similar to that which would occur in manual clearing areas, where large trees are dragged out from the riparian areas after they are felled. Nevertheless, BC Hydro committed to apply a rapidly colonizing erosion-sediment-control seed-mix to riparian areas that are mechanically cleared<sup>3</sup>.

Based on the review of BC Hydro's Application, as well as input from the WG and Indigenous Groups, the EAO's view is that the proposed amendment is unlikely to change the residual effects identified in the EIS, and is likely to improve worker safety compared to manual falling of leaning trees in riparian areas of the reservoir.

#### 4. CONSULTATION WITH INDIGENOUS GROUPS

Site C is located within Treaty 8 territory, and all the Indigenous Groups consulted are signatories or adherents to Treaty 8. In reviewing the Application, the EAO sought to consult with those Treaty 8 nations identified in Schedule B of the Certificate as the Indigenous Groups in closest proximity to project activities and that may be affected by Site C, to identify potential impacts on Aboriginal Interests<sup>4</sup>.

The EAO extended invitations to Indigenous Groups via email for consultation on the Application. The EAO received a reply from McLeod Lake Indian Band and engaged with them via teleconference. Acknowledging the risks posed to workers, McLeod Lake Indian Band supported the use of machines in riparian areas on the condition that the site-specific prescriptions are followed and best management practices applied. Sauteau First Nations inquired how the EAO will ensure compliance by BC Hydro with the proposed amendment to allow feller-bunchers to clear riparian areas. The EAO noted that the QEP prescriptions for feller-buncher use would be a requirement of the CEMP and therefore included in reports to the EAO and that the EAO's Compliance and Enforcement Division would oversee the feller-buncher prescriptions through their inspection activities as applicable.

Halfway River First Nation submitted four comments on the EAO's draft report related to documentation of prescriptions and monitoring reports, and requested that the documentation be shared with Halfway River First Nation. Halfway River First Nation also noted the breeding bird window, and the requirement to undertake breeding bird surveys prior to any clearing, and also the requirement for BC Hydro to follow the measures outlined in the Site C Vegetation and Wildlife Mitigation and Monitoring Plan. BC Hydro indicated that any prescriptions developed by a QEP for the purposes of using machinery in the riparian zones would be attached to the contractor's QEP weekly monitoring reports that are submitted to BC Hydro, and that these reports could be shared with Halfway River First Nation (and other Indigenous Groups, as requested). BC Hydro also noted that they provide monthly monitoring reports, and that any riparian clearing works will be included in these reports, which are sent out to Indigenous Groups. The EAO spoke with Halfway River First Nation regarding the

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<sup>3</sup> BC Hydro noted that a native-only seed mix intended for long term succession is not appropriate given the inundation of the reservoir area in 2023.

<sup>4</sup> Treaty rights or asserted or established Aboriginal rights and title

documentation identified by BC Hydro, and Halfway River First Nation indicated that they were satisfied with the response since it appeared that the activities would be documented and monitored.

Following the EAO's engagement with Indigenous Groups, the EAO accepts BC Hydro's conclusion that the changes outlined in the Application would not change the conclusions in the EIS with respect to the residual effects of Site C on valued components. The EAO also considers that the Application would not change the conclusions in the Joint Review Panel's report. As such, the EAO is satisfied that there would be no incremental or additional impacts to the Aboriginal Interests of Indigenous Groups should the amendment be granted.

## 5. CONCLUSIONS

Based on:

- The information contained in BC Hydro's Application and supplemental information provided during the amendment Application review;
- BC Hydro and the EAO's consultation with members of the WG, including Indigenous Groups;
- Comments on the Application from the WG, including Indigenous Groups, and BC Hydro's responses to those comments; and
- BC Hydro's commitment to amend the CEMP, the Vegetation Clearing and Debris Management Plan, and the Fisheries and Aquatic Habitat Management Plan, to require the QEP to determine site-specific prescriptions of machine use using the criteria from the Application.

The EAO is satisfied that:

- The assessment has adequately identified and assessed the potential changes to the adverse effects of the project resulting from the proposed amendment;
- Consultation with the WG members, including Indigenous Groups, regarding the proposed amendment have been adequately carried out by BC Hydro and will, as necessary, be ongoing;
- The clarifications requested by WG members, including Indigenous Groups, were adequately and reasonably addressed by BC Hydro;
- The proposed amendment is unlikely to change the residual effects predicted in the original assessment;
- The proposed amendment is unlikely to cause impact to the Aboriginal Interests of Indigenous Groups; and
- The provincial Crown has fulfilled its obligations for consultation and accommodation to Indigenous Groups relating to the issuance of an amendment to Certificate #E14-02.

The EAO recommends that the Executive Director of the Environmental Assessment Office, upon consideration of the conclusions in this report and any other relevant factors, issue an Amended Certificate under Section 19 of the *Environmental Assessment Act* to allow the requested amendment of the Environmental Assessment Certificate #E14-02 for the Site C Clean Energy Project.

APPENDIX A

Table A1. Proposed modifications to Schedule B of the Certificate.

Schedule B Condition	Statement Text from EAC Schedule B Table of Conditions	Proposed Modification to Schedule B Table of Conditions
3	<p>The EAC Holder must manage harmful Project effects on fish and fish habitats during the construction and operation phases by implementing mitigation measures detailed in a Fisheries and Aquatic Habitat Management Plan. The Fisheries and Aquatic Habitat Management Plan must be developed by a QEP.</p> <p>The Fisheries and Aquatic Habitat Management Plan must include at least the following ...</p> <ul style="list-style-type: none"> <li>Maintain a 15 m machine free zone adjacent to watercourses during reservoir clearing (as measured from the Ordinary High Water Mark).</li> </ul>	<p>The EAC Holder must manage harmful Project effects on fish and fish habitats during the construction and operation phases by implementing mitigation measures detailed in a Fisheries and Aquatic Habitat Management Plan. The Fisheries and Aquatic Habitat Management Plan must be developed by a QEP.</p> <p>The Fisheries and Aquatic Habitat Management Plan must include at least the following ...</p> <ul style="list-style-type: none"> <li>Maintain a 15 m machine free zone adjacent to watercourses during reservoir clearing (as measured from the Ordinary High Water Mark) <b>except where worker safety prohibits manual tree falling and vegetation removal methods and as addressed in a site-specific prescription prepared and endorsed by a QEP. The rationale for the safety exemption must be documented in the prescription.</b></li> </ul>
14	<p>The EAC Holder must develop the Vegetation Clearing and Debris Management Plan. The Vegetation Clearing and Debris Management Plan must be developed by a QEP. The Vegetation Clearing and Debris Management Plan must ensure that clearing would be conducted in the approved Project Activity Zone only, and construction would be monitored by the QEP to prevent any unnecessary clearing ...</p> <p>To reduce erosion along steep or unstable slopes, the EAC Holder must apply best management practices for reservoir clearing along riparian areas and watercourses. Practices must include but not limited to the following ...</p>	<p>The EAC Holder must develop the Vegetation Clearing and Debris Management Plan. The Vegetation Clearing and Debris Management Plan must be developed by a QEP. The Vegetation Clearing and Debris Management Plan must ensure that clearing would be conducted in the approved Project Activity Zone only, and construction would be monitored by the QEP to prevent any unnecessary clearing ...</p> <p>To reduce erosion along steep or unstable slopes, the EAC Holder must apply best management practices for reservoir clearing along riparian areas and watercourses. Practices must include but not limited to the following ...</p>

	<p>Retention of non-merchantable trees and vegetation in riparian areas within a 15 m buffer from the Ordinary High Water Mark. Merchantable trees and trees that may protrude above 455 m elevation may still be removed using clearing practices to maintain a 15 m machine-free zone from the OHWM.</p>	<p>Retention of non-merchantable trees and vegetation in riparian areas within a 15 m buffer from the Ordinary High Water Mark. Merchantable trees and <b>vegetation</b> that may protrude above 455 m elevation may still be removed using clearing practices to maintain a 15 m machine-free zone from the OHWM, <b>except where worker safety prohibits manual tree falling and vegetation removal methods and as addressed in a site-specific prescription prepared and endorsed by a QEP. The rationale for the safety exemption must be documented in the prescription.</b></p>
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