

INSPECTION RECORD

Project Name:	Site C Clean Energy Project	Inspection Report Status:	FINAL
Certificate #:	E14-02	Inspection No:	FY17/18-15
Certificate Status:	Certified	Inspection Date:	2017-06-19 to 2017-06-23
Region:	Peace	Office:	Victoria
Trigger:	Planned	EAO Inspector(s):	Chris Parks, Senior Compliance and Enforcement Officer (C&E Parks)
Sector:	Energy	Location:	56°11'37.72"N, 120°54'26.66"W
Location Description:	The Site C Project is an up-to 1100 megawatt hydroelectric facility located approximately 7 km southwest of Fort St. John BC. The Project includes an approximately 77km transmission line consisting of two 500kV lines connecting the Project to the existing Peace Canyon Substation. The coordinates provided are for the Site C dam location.		
Incidents of Non-Compliance Observed	Yes		
Inspection Summary:	<p>C&E Parks inspected the Site C Clean Energy Project (Project) between June 19 and 23, 2017. The inspection focussed on the Dam Site Area, Highway 29 realignment works in the Cache Creek and Halfway River areas, the Portage Mountain Quarry access road, and the Trapper Main transmission line access road.</p> <p>C&E Parks completed a verbal debrief of inspection observations with BC Hydro representatives on the afternoon of June 23, 2017. BC Hydro was provided an opportunity to respond to this inspection record, and provided C&E Parks a written response on August 18, 2017 (Appendix J). That response was reviewed and the information provided considered prior to finalizing this record.</p> <p>After review of observations and information obtained during the inspections, and BC Hydro's response to the record, the following final compliance determinations have been made:</p> <ol style="list-style-type: none"> 1. BC Hydro is noncompliant with EAC conditions 2 and 69, with respect to erosion and sediment control and the Orders to Remedy issued April 7, 2016 and March 3, 2017 (Appendix A), however, significant improvements in erosion and sediment control management practices were noted during the inspection. 2. BC Hydro is compliant with EAC conditions 9 and 69, and an Order to Remedy issued March 22, 2017 (Appendix B), with respect to the control of invasive weeds on the Project. 		

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	<ol style="list-style-type: none"> 3. BC Hydro is compliant with EAC Condition 18, with respect to the requirement to store anthropogenic food sources that could act as wildlife attractants in verified bear-proof containers. 4. BC Hydro is compliant with EAC condition 30, with respect to the requirement to prepare individual farm mitigation plans. 5. BC Hydro is compliant with EAC Condition 69, with respect to the requirement to verify that equipment is inspected to ensure it is leak free. 6. BC Hydro is not compliant with EAC condition 69, with respect to adherence to requirements to maintain fish passage at the L3 culvert crossing of River Road. 7. BC Hydro is compliant with EAC condition 69 with respect to maintenance of a prescribed no activity buffers around raptor nests within the Dam Site Area. <p>Please see the individual findings and Actions Required by Certificate Holder sections for additional detail regarding these findings and information requests.</p>
Certificate or Act:	Environmental Assessment Certificate #E14-02
Activity:	On Site
Response:	Warnings issued for EAC Conditions 2 and 69

Certificate Holder's Name:	BC Hydro
Certificate Holder's Contact(s):	Greg SCARBOROUGH, Manager, Site C Environmental Compliance, Mitigation and Monitoring
In Attendance:	<p>CERTIFICATE HOLDER REPRESENTATIVES Greg SCARBOROUGH, BC Hydro (June 19 and 20) Steve ABBEY, BC Hydro Ingrid CORSON, Peace River Hydro Partners (PRHP) Jocelyn WHITE, McElhanny (June 20)</p> <p>INDEPENDENT ENVIRONMENTAL MONITOR Yonase GULBOT, EDI (June 19, 20, 21, and 23)</p> <p>REGULATORY Warren FEKETE, EAO C&E (June 22 and 23) Brenda BLACK, EAO C&E (June 23) Gillian GODFREY, EAO C&E (June 22 and 23) Chris EMSLIE, Forests, Lands, and Natural Resource Operations Compliance and Enforcement (FLNRO C&E) (June 19, 20, 21, and 22)</p>

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	Chris MILLER, FLNRO C&E (June 20, 21, and 22) Jeff COX, FLNRO C&E (June 20, 21, and 22)
Mailing Address:	BC Hydro Four Bentall Centre 600-1055 Dunsmuir Street Vancouver, B.C. V7X 1V5
Phone No:	604.695.5234
Fax No:	604.695.5290
Contact Email:	Greg.Scarborough@bchydro.com

INSPECTION DETAILS

Phase:	Construction
Requirement Description:	<p>Conditions 2 and 69, Erosion Control and Sediment Transport.</p> <p>Erosion and sediment control measures are required to be implemented during construction in accordance with DFO's Land Development Guidelines for the Protection of Aquatic Habitat and MoE's Standards and Best Practices for Instream Works to prevent the erosion of soils and the entry of sediment into watercourses. Spoil piles are required to be covered or vegetated. Runoff is required to be directed away from construction areas where excavation, spoil placement, and staging activities occur. See appendices C (Table of Conditions) and D (Construction Environmental Management Plan (CEMP)) for detailed requirements.</p>
Findings:	<p>C&E Parks noted a significant improvement in water management, erosion control, and sediment control mitigation implementation and maintenance on the Project over observations from previous inspections. Improvements include new rock lining and effective check dams along River Road and Left Bank Road, surface roughening and hydroseeding noted in the upper L3 ravine and within Area 25, the completion of sediment ponds and/or sumps at Area 25, Area A, the right bank excavation, and RSEM locations on the right bank (RESEM R5a and B, RSEM R6). C&E Parks also notes the ongoing documentation and monitoring of water management, erosion control, and sediment control measures in an effort to ensure measures remain effective. See photos 1 through 3 for examples.</p> <p>However, noncompliance with ESC requirements was noted on Monday June 19th at a location on the right slope of the L3 ravine, as identified to BC Hydro on April 26, 2017. In response C&E Parks issued a Notice of Noncompliance to BC Hydro, which stated that the noncompliance at this location was required to be addressed by end of day Friday June 23 (Appendix E). BC Hydro subsequently addressed the noncompliance as required. See photo 4.</p>

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C&E Parks noted further noncompliance at the right bank of the L3 ravine, between the location noted above and the Right Bank Haul Road crossing of L3. ABBEY noted that BC Hydro was aware of this issue and was working with a Qualified Professional to prepare and implement a geotechnical prescription at this location to address slope instability and ESC. This location will be inspected on the subsequent inspection to ensure this prescription has been implemented and ESC noncompliance addressed.

C&E Parks noted additional noncompliance with ESC requirements. Examples include the Moberly River causeway (road down-drains), Trapper Main FSR (roadside ditches leading to Robert James Creek), and the headpond of the Garbage Creek diversion. However, these observations were isolated as opposed to site-wide issues, were associated with maintenance, and works were either underway or were planned to be implemented shortly. EAO C&E will inspect these locations on a subsequent inspection to ensure these issues are addressed.

August 18, 2017 update: BC Hydro provided additional information regarding the L3 slope prescription in their response to this inspection record (Appendix X).

Date & Time: Wed Jun 21 09:34:17 MST 2017
Position: 10 N 631378 6230271
Altitude: 543m
Datum: WGS-84
Azimuth/Bearing: 250° S70W 4444mils (True)
Elevation Grade: -003%
Horizon Grade: +002%
Zoom: 1X
area 25



Photo 1: Example of surface roughening implemented in Area 25 and the upper L3 watershed.

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Photo 2: Area 25 sediment pond. Note sediment curtains.



Photo 3: Hydroseeding and surface treatment implemented to reduce erosion and sediment transport, top of bank, L3 ravine.

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	<p>Date & Time: Fri Jun 23 14:31:43 MST 2017 Position: 10 N 631348 6220516 Altitude: 541m Datum: WGS-84 Azimuth Bearing: 316° N44W 5618mils (True) Elevation Grade: -002% Horizon Grade: -001% Zoom: 1X L3</p>  <p>Photo 4: Slope contouring, tracking, and straw wattles installed in response to Notice of Noncompliance, L3 Ravine.</p>
Compliance:	OUT - Warning


Types of Compliance:	Construction
Requirement Description:	<p>EAC Condition 9 and 69: Vegetation and Invasive Plant Management Plan</p> <p>Condition 9 states that BC Hydro's Vegetation and Invasive Plant Management Plan must include surveys of existing invasive species populations prior to construction, and outline control measures to manage established invasive species populations and prevent invasive species establishment.</p> <p>In response to noncompliance with EAC Condition 9 and 69, C&E Parks issued an Order to Remedy on March 22, 2017 (Appendix B). That Order requires BC Hydro to prepare an Invasive Weed Mitigation and Monitoring Plan (IWMAMP).</p>
Findings:	<p>On April 21, 2017, BC Hydro provided C&E Parks with a draft of the IWMAMP. On May 25, 2017, C&E Parks provided BC Hydro with comments on the draft plan (Appendix F). As of the date of this inspection record BC Hydro continues to work with EAO and invasive weed specialists at FLNRO to finalize the plan to the satisfaction of EAO C&E, as required by the March 22, 2017 Order.</p>

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	<p>During the course of the inspection C&E Parks met with BC Hydro's invasive weed Qualified Professional Rick MATTHE, retained by BC Hydro in response to the Order. MATTHE was onsite to oversee the construction of vehicle wash stations at A Gate and B Gate. See Photo 5.</p> <p>Ingrid CORSON, PRHP provided C&E Parks a series of maps and reports detailing invasive species surveys conducted by PRHP between 13 May 2017 and 28 May 2017.</p> <p>August 18, 2017 Update: BC Hydro responded to C&E Parks providing an updated version of the IWMAMP, which had integrated comments from the FLNRORD Invasive Plants Specialist.</p> <p>November 27, 2017 Update: EAO C&E has accepted the revised IWMAMP (Appendix K). The revised document included revisions to address additional comments made by C&E Parks. Additional revisions to the plan may be required if the mitigations identified in the document are not effective in addressing invasive weed introduction and proliferation on the Project.</p> <div> <p>Date & Time: Fri Jun 23 14:01:42 MST 2017 Position: 10 N 632698 6230387 Altitude: 470m Datum: WGS-84 Azimuth/Bearing: 113° S67E 2009mils (True) Elevation Grade: -004% Horizon Grade: -000% Zoom: 1X hpws</p>  </div> <p>Photo 5: Vehicle wash station under construction on River Road, near B Gate.</p>
Compliance:	IN – with respect to preparation of IWMAMP and conduct of invasive plant surveys as required by the Plan

Types of Compliance:	Construction
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Requirement Description:	<p>Condition 18, Human-Wildlife Conflict.</p> <p>Condition 18 requires that all construction areas be clean and free of discarded anthropogenic food sources and that garbage be securely stored in verified bear-proof containers or removed from site. See Appendix C for the specific wording of Condition 18.</p>
Findings:	<p>C&E Parks observed that the Site C Project continues to manage anthropogenic food waste wildlife attractants very well. Issues noted on this inspection were limited to one instance of anthropogenic food waste disposed of in a non bearproof container observed at the Doig/PetroWest laydown, and three locations on the right bank where waste receptacles that would otherwise be bear proof had damaged lids and could not be closed properly. This is exemplary practice for a project the size and complexity of Site C, and C&E Parks acknowledges the ongoing work BC Hydro and their contractors are undertaking to ensure the protection of wildlife and workers by reducing the potential for avoidable wildlife conflict on the Project.</p> <div> <p>Date & Time: Thu Jun 22 14:54:18 MST 2017 Position: 10 N 629987 6228986 Altitude: 420m Datum: WGS-84 Azimuth/Bearing: 247 567W 4361mils (True) Elevation Grade: -021% Horizon Grade: -001% Zoom: 1X portal</p>  </div> <p>Photo 6: Waste receptacle with damaged lid preventing proper closure to prevent wildlife access.</p>
Compliance:	In

Types of Compliance:	Construction
Requirement Description:	Condition 30, Individual farm Mitigation Plans

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	Condition 30 requires that BC Hydro develop, jointly with agricultural land owners and tenure holders, individual farm mitigation plans (IFMPs) throughout the construction phase for all farms directly affected by the Project.
Findings:	<p>On April 19, 2017, BC Hydro provided C&E Parks with information regarding consultation efforts with farmers as a component of preparing IFMPs (Appendix G). That submission stated that IFMPs would be developed through the summer of 2017.</p> <p>August 18, 2017 Update: BC Hydro provided C&E Parks with materials summarizing the efforts to date to prepare IFMPs. Those materials include:</p> <ul style="list-style-type: none"> • IFMP Compliance Status Schedule (Appendix L) • IFMP Checklist (Appendix M) • IFMP Summary Status (Appendix N) • IFMP Agricultural Assessment Study (Appendix O) • IFMP Agrologist Progress Report (Appendix P) • IFMP Agricultural Memo Summary (Appendix Q) • Agrologist Work Plan (Appendix R) <p>After review of these documents, C&E Parks has determined that they demonstrate that BC Hydro is actively developing IFMPs with agricultural land owners and tenure holders. EAO C&E will continue to inspect against Condition 30 to ensure that the IFMPs are developed throughout the construction phase, as required.</p>
Compliance:	IN

Types of Compliance:	Construction
Requirement Description:	<p>Condition 69 CEMP, section 4.6, Fuel Handling and Storage Management.</p> <p>Section 4.6, Fuel Handling and Storage Management, requires that all vehicles and equipment, including hydraulic fittings, be inspected daily to verify that they are in good condition and free of leaks. See Appendix D for the specific requirement wording.</p>
Findings:	Through the conduct of the inspection C&E Parks inspected 22 pieces of equipment on the right bank, left bank, and on the Trapper Main, including excavators, rock trucks, and generators. No leaks to ground were observed. Although the lack of leaks to ground does not conclusively prove that equipment is being inspected on a daily basis, maintenance of all equipment subject to random inspection in a leak free condition would be highly unlikely without diligent inspection and maintenance.
Compliance:	IN

Types of Compliance:	
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	Construction
Requirement Description:	<p>Condition 69 CEMP, section 4.5, Fisheries and Aquatic Habitat Management.</p> <p>Section 4.5 requires that, unless otherwise authorized in a permit or approval, stream crossings be installed in accordance with design and construct watercourse crossings in accordance with referenced documents, including the Fish-stream Crossing Guidebook (Ministry of Forests, Lands and Natural Resource Operations et al, 2012) (Appendix H).</p>
Findings:	<p>C&E Parks observed that the culvert installed under River Road at the L3 watercourse is a closed-bottom, unembedded culvert and that the crossing may pose a barrier to upstream fish passage. The L3 watercourse is classified as an S3 fish-bearing stream. Potential concerns are that the lower end of the culvert is perched by approximately 30 centimetres; that the pool below the culvert may not be of sufficient depth to allow fish to access the perched culvert; and that baffles within the culvert meant to facilitate fish passage have filled with coarse sediment. See photos 7 and 8.</p> <p>The Fish-stream Crossing Guidebook identifies a process to determine whether an open bottom (ie bridge or box culvert) or embedded closed bottom structure may be installed, based on habitat values, gradient, and stream channel width, under the guidance of a Qualified Professional. The guidebook does not identify the type of crossing that has been installed at this location.</p> <p>August 18, 2017 Update: BC Hydro confirmed that the L3 culvert at River Road was subject to permits and approvals under the provincial Water Act and an Authorization under the federal Fisheries Act. However, the Fisheries Act Authorization states that the culvert will be set “below the creek bed”. The culvert is installed above the grade of the creek bed, and therefore appears to be not compliant with the requirements of the authorization.</p> <p>Further, note that the perched culvert is not installed in accordance with the “Fish Stream Crossing Guidebook”, which is listed as a requirement of the Water Act permit issued for this location (Appendix S).</p>

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Photo 7: Culver under River Road at the L3 watercourse. Looking upstream from downstream end. Note downstream end of culvert is perched and limited plunge pool depth.



Photo 8: L3 culvert under River Road. Note culvert baffles filled with coarse sediment

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	creating a potential barrier to fish passage at low flows.
Compliance:	OUT - warning

Types of Compliance:	Construction
Requirement Description:	<p>Condition 69 CEMP, section 4.7, Wildlife Management.</p> <p>Section 4.6, Wildlife Management requires that the Project adhere to prescribed buffers for raptor and other nests types during construction. See Appendix D for the specific wording of this requirement.</p>
Findings:	<p>Through the conduct of the inspection C&E Parks observed active nest buffers implemented throughout the Dam Site Area. C&E Parks also observed a wildlife biologist contracted to Peace River Hydro partners conducting bird nest surveys in the Septimus Siding area on June 23, 2017. See Appendix I for examples of bird buffer maps prepared by PRHP. See also photograph 9 for documentation of a 100m raptor nest buffer implemented at the RSEM R5 clean water diversion ditch. Excavation of the ditch had halted in this location as per the requirements of the CEMP given the presence of the active raptor nest.</p> <div> <p>Date & Time: Thu Jun 22 12:20:01 MST 2017 Position: 10 N 627704 6230881 Altitude: 468m Datum: WGS-84 Azimuth/Bearing: 131° S49E 2329mils (True) Elevation Grade: +002% Horizon Grade: +002% Zoom: 1X R5a non-contact rth buffer</p>  </div> <p>Photo 9: Flagging delineating red-tailed hawk buffer implemented on the RESEM R5a non-contact water ditch.</p>
Compliance:	IN

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Actions Required by Certificate Holder & Additional Comments:	
BC HYDRO IS HEREBY WARNED THAT THE PROJECT IS NOT COMPLIANT WITH CONDITIONS 2 AND 69 OF EAC#E14-02. EAO C&E WILL INSPECT TO DETERMINE IF THE SITE C CLEAN ENERGY PROJECT HAS BEEN BROUGHT BACK INTO COMPLIANCE WITH THESE REQUIREMENTS. CONTINUED NON COMPLIANCE WITH THESE REQUIREMENTS MAY RESULT IN ADDITIONAL ENFORCEMENT UNDER THE <i>ENVIRONMENTAL ASSESSMENT ACT</i> .	
Inspection Conducted by:	
Signature: Chris Parks	Date Signed: 2017-11-28
Enclosure(s) to Proponent(s) & Description:	
<p>Appendix A: Orders to Remedy under section 34 of the <i>EA Act</i>, issued April 7 2016 and March 3, 2017.</p> <p>Appendix B: Order to Remedy under section 34 of the <i>EA Act</i>, issued March 22, 2017.</p> <p>Appendix C: Table of Conditions</p> <p>Appendix D: Site C Construction Environmental Management Plan</p> <p>Appendix E: June 21, 2017 Notice of Noncompliance regarding L3 ravine</p> <p>Appendix F: C&E Parks comments on draft IWMAMP</p> <p>Appendix G: BC Hydro submission regarding IFMPs</p> <p>Appendix H: Fish Stream Crossing Guidebook</p> <p>Appendix I: PRHP bird nest buffer mapping</p> <p>Appendix J: BC Hydro August 18, 2017 response to inspection record</p> <p>Appendix K: Revised IWMAMP</p> <p>Appendix L: IFMP Compliance Status Schedule</p> <p>Appendix M: IFMP Checklist</p> <p>Appendix N: IFMP Summary Status</p> <p>Appendix O: IFMP Agricultural Assessment Study</p> <p>Appendix P: IFMP Agrologist Progress Report</p> <p>Appendix Q: IFMP Agricultural Memo Summary</p> <p>Appendix R: Agrologist Work Plan</p> <p>Appendix S: Approval under section 9 of the <i>Water Act</i></p>	
Regulatory Considerations:	
None at this time.	

Environmental Assessment Office	Mailing Address: PO Box 9426 Stn Prov Govt Victoria BC V8W 9V1	Telephone: 250 387-0131 Fax: 250 387-2208 Email: eao.compliance@gov.bc.ca Website: http://www.eao.gov.bc.ca
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