


# Upper Lillooet Hydro Project

## Weekly Environmental Monitoring Report #25

Reporting Period: June 8<sup>th</sup> – June 14<sup>th</sup>, 2014

Upper Lillooet River Hydroelectric Facility (Water File No. 2002561, Water licence No. C130613),  
Boulder Creek Hydroelectric Facility (Water File No. 2003049, Water licence No. C129969) &  
Transmission Line (TX Line)

Distribution List		Prepared By
Name	Organization	
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### **Owner Construction Permits and Approvals**

*Environmental Assessment Certificate No.E13-01 (Amendment 1, 2, 3)  
Fisheries Act Subsection 35(2)(b) Authorization No. 09-HPAC-PA2-00303  
Letter of Advice for the Transmission Line No.09-HPAC0-PA2-00303  
Leave To Commence Construction (ULRHEF) File No. 2002561  
Leave To Commence Construction (BDRHEF) File No. 2002453  
Leave To Commence Construction (TX Line) File No. 2002561/2002453  
Conditional Water Licence (ULRHEF C130613) File No. 2002561  
Conditional Water Licence (BDRHEF C129969) File No. 2002453  
Conditional Water Licence (BDRHEF C131153) File No. 2003601  
Licence of Occupation (ULRHEF #232384) File No. 2409871  
Licence of Occupation (BDRHEF #232386) File No. 2409998  
Licence of Occupation (TX Line #2423386) File No. 2410654  
Occupant Licence to Cut (ULRHEF Amendments 1, 2, 3) No. L49717  
Occupant Licence to Cut (BDRHEF – km 38 laydown) No. L49698  
Occupant Licence to Cut (BDRHEF Amendments 1, 2) No. L49816  
Occupant Licence to Cut (TX Line Amendment 1) No. L49697  
General Wildlife Measure Exemption Approval Letter (TX Line & BDRHEF) File No. 78700-35/06 UWR and 39585-20 WHA  
Heritage Conservation Act – Alteration Permit (ULRHEF) File No. 11200-03/2014-0033  
Road Use Permit No. 6123-13-02 (Lillooet River FSR); 5673-13-01 (Rutherford Creek FSR); 7977-13-01 (Lillooet South FSR); 8015-13-01 (Ryan River); 8188-13-01 (Pemberton Creek FSR); and 9717-13-01 (Miller Bench FSR)  
Junction Permit (ULRHEF & BDRHEF) File No. 11250-32/6123  
Aeronautical Obstruction Approval (Tx Line - Lillooet River Crossing) File No. 2013-004  
Aeronautical Obstruction Approval (Tx Line - Ryan River) File No. 2013-005  
Aeronautical Obstruction Approval (Tx Line - North Miller) File No. 2013-006  
Aeronautical Obstruction Approval (Tx Line - South Miller) File No. 2013-007  
Aeronautical Obstruction Approval (Tx Line - Pemberton Creek) File No. 2013-008  
Aeronautical Obstruction Approval (Tx Line - Lillooet River near Pemberton) File No. 2013-009  
Aeronautical Obstruction Approval (Tx Line - Lillooet River near Meager Creek) File No. 2013-010  
Navigable Water Protection Act (ULRHEF) File No. 8200-2009-500434-001  
Navigable Water Protection Act (BDRHEF) File No. 8200-2012-501-032-001  
Navigable Water Protection Act (Tx Line – North Creek) File No. 8200-2013-500103-001  
Navigable Water Protection Act (Tx Line – Lillooet River) File No. 8200-2013-500101-001  
Navigable Water Protection Act (Tx Line – Lillooet River) File No. 8200-2013-500102-01  
Navigable Water Protection Act (Tx Line – Ryan River) File No. 8200-2013-500104-001  
Navigable Water Protection Act (Tx Line – South Miller River) File No. 8200-2013-500100-001  
Navigable Water Protection Act (Tx Line – Boulder Creek) File No. 8200-2013-500099-001  
Navigable Water Protection Act – Extension Approval (ULRHEF, BDRHEF, Tx Line)  
Navigable Water Protection Act (Bridge – Ryan River) File No. 8200-2013-500381  
Navigable Water Protection Act (Bridge – Upper Lillooet Side Channel; Extension Approval) File No. 8200-2013-500383  
Section 57 Authorization (ULRHEF) File No. 16660-20/REC202717  
Works Permit for Construction within FSR Right-of-Way No. 6123-14-01*

### **Contractor Construction Permits and Approvals**

*Magazine Licence File No. UL76018  
Section 8 Approval – Short Term Use of Water File (Lillooet River and Tributaries) No.A2006123  
Waste Discharge under the Code of Practice for the Concrete and Concrete Products Industry under the Environmental Management Act (Authorization No. 107204) Tracking No. 326969*

**ACRONYMS:**

AMBNS	Active Migratory Bird Nesting Survey
ASMP	Archaeological Sites Management Plan
BCEAO	British Columbia Environmental Assessment Office
BCWQG	British Columbia Water Quality Guidelines
BDRHEF	Boulder Creek Hydroelectric Facility
BG	Background
BKL	BKL Consultants Ltd.
CRT – ebc	CRT – ebc Construction Inc.
DFO	Fisheries and Oceans Canada
DS	Downstream
Ecofish	Ecofish Research Ltd.
Ecologic	Ecologic Consulting
EIR	Environmental Incident Report
ESC	Erosion and Sediment Control
FAM	Field Advice Memorandum
FSR	Forest Service Road
GWR	Mountain Goat Winter Range
Hedberg	Hedberg and Associates Ltd.
IE	Independent Engineer (True North Energy)
IEM	Independent Environmental Monitor
Innergex	Innergex Renewable Energy Inc.
ITM	Environmental Issue Tracking Matrix
JEM	JEM Energy Ltd. (Delegate Independent Engineer)
LTC	Leave to Construct
MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
MOE	Ministry of Environment
NCD	Non Classified Drainage
RVMA	Riparian Vegetation Management Area
SES	Sartori Environmental Services
TX Line	Transmission Line
ULRHEF	Upper Lillooet River Hydroelectric Facility
UWR	Ungulate Winter Range
VC	Valued Component
WQ	Water Quality
WEL	Westpark Electric Ltd.
WEMR	Weekly Environmental Monitoring Report

## 1.0 Summary of Site Inspections for Reporting Period

The table presented below summarizes the IEM team site presence, weather and monitoring locations by component:

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Sunday June 8	AA,DA, MS,VD	Overcast	<p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>• Portal face shotcrete installation</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>• Right bank diversion channel excavation; material hauled to the north and south spoil areas</li> <li>• Removal of vegetation from the north side intake footprint area</li> <li>• Installation continued on the spring fed tributary diversion channel</li> </ul> <p><b>Upper Lillooet River Trail</b></p> <ul style="list-style-type: none"> <li>• Grading of parking lot foundation completed</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Backfilling bridge approaches</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Segment 1 pole installation</li> <li>• Segment 2 – ground works</li> <li>• Segment 5 – clearing</li> </ul>
Monday June 9	AA,DA,ML, MS,TH,VD	Periods of rain	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>• Sewer and water line installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>• Excavation of the next bench in preparation for drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>• Right bank diversion channel excavation; material hauled to the north and south spoil areas</li> <li>• Removal of vegetation from the north side intake footprint area</li> <li>• Installation of the spring fed tributary diversion channel completed</li> </ul> <p><b>ULRHEF Downstream Portal</b></p> <ul style="list-style-type: none"> <li>• Falling trees within portal footprint and temporary haul road</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Bridge deck (pre-cast concrete sections) installation</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Segment 1 – pole installation</li> <li>• Segment 5 – clearing</li> <li>• Segment 6 – helicopter pad clearing</li> </ul>
Tuesday June 10	AA,MS,TH, VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>• Sewer and water line installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>• Excavation of the next bench in preparation for drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>• Right bank diversion channel excavation; material hauled to the north and south spoil areas</li> <li>• Diverted spring fed channel through the completed tributary diversion channel</li> </ul> <p><b>ULRHEF Downstream Portal</b></p> <ul style="list-style-type: none"> <li>• Falling trees within portal footprint and temporary haul road</li> </ul> <p><b>Upper Lillooet River Trail</b></p> <ul style="list-style-type: none"> <li>• Trail construction and preparation for the installation of a temporary pedestrian crossing over Truckwash Creek</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Bridge guardrail installation</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Segment 1 &amp; 2 pole installation</li> <li>• Segment 4 &amp; 5 clearing</li> <li>• Segment 6 helicopter pad clearing</li> </ul>

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Wednesday June 11	AA,AS,MS, SS,TH,VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>Sewer and water line installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>Excavation of the next bench in preparation for drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>Right bank diversion channel excavation; material hauled to the north and south spoil areas</li> <li>Removal and re-installation of road culvert at the outlet of the spring fed tributary diversion channel</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>Powerhouse excavation</li> </ul> <p><b>ULRHEF Downstream Portal</b></p> <ul style="list-style-type: none"> <li>Falling trees within portal footprint and temporary haul road</li> </ul> <p><b>Upper Lillooet River Trail</b></p> <ul style="list-style-type: none"> <li>Trail construction and preparation for the installation of a temporary pedestrian crossing over Truckwash Creek</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>Bridge guardrail installation completed</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>Segment 1 &amp; 2 – pole installation</li> <li>Segment 2 – RVMA topping</li> <li>Segment 4 – clearing</li> </ul>
Thursday June 12	DA,MS,TH, TJ,VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>Sewer and water line installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>Portal excavation; drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>Right bank diversion channel excavation</li> <li>Construction of haul road across newly installed spring fed tributary diversion channel culvert</li> <li>Stripping and grubbing of the north side intake area (EIR#008)</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>Powerhouse excavation</li> </ul> <p><b>Upper Lillooet River Trail</b></p> <ul style="list-style-type: none"> <li>Trail construction and preparation for the installation of a temporary pedestrian crossing over Truckwash Creek</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>Grouting of the bridge deck joints and Nelson stud anchors</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>Segment 2 – RVMA topping</li> <li>Segment 4 – skidding, decking timber &amp; road building</li> </ul>
Friday June 13	DA,TH,TJ	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>Sewer and water line installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>Portal excavation – drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>Right bank diversion channel excavation</li> <li>Construction of haul road across newly installed spring fed tributary diversion channel culvert</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>Powerhouse excavation</li> </ul> <p><b>Upper Lillooet River Trail</b></p> <ul style="list-style-type: none"> <li>Trail construction and preparation for the installation of a temporary pedestrian crossing over Truckwash Creek</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>Backfilling bridge approaching and installing rock delineators</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>Segment 2 – RVMA topping</li> <li>Segment 4 – skidding, decking timber &amp; road building</li> </ul>

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Saturday June 14	TH,TJ	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>Sewer and water line installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>Portal excavation; drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>Right bank diversion channel excavation</li> <li>Construction of haul road across newly installed spring fed tributary diversion channel culvert</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>Powerhouse excavation</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>Pre-cast bridge end cap installation, installing rock delineators and backfilling bridge approaches</li> </ul>

*IEM Team Personnel: AA – Anthony Andrews; AS – Alex Sartori; DA – Danita Abraham; ML – Mackenzie Lee; MS – Mandala Smulders; TH – Tom Hicks; TJ – Tammie Jenkins; SS – Stephen Sims; VD – Vanessa Dan*

## 2.0 Administrative Summary

Key communications and meetings the IEM team had with the licensees, contractors and/or environmental authorities:

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
June 9	Site Meeting	SES, CRT-ebc, Summit, Innergex	<ul style="list-style-type: none"> <li>Reviewed changes to the work plan for the installation of the construction camp facilities including; the sewer line, septic field treatment system, and the water line.</li> </ul>	N/A
	Pre-work Meeting	SES, CRT-ebc, Innergex	<ul style="list-style-type: none"> <li>Reviewed the work plan for the ULRHEF powerhouse excavation highlighting works within 30m of the Lillooet River and IEM and Archaeological monitoring requirements.</li> </ul>	N/A
June 10	Pre-work Meeting	SES, Hedberg, Innergex	<ul style="list-style-type: none"> <li>Reviewed the Upper Lillooet River Trial work plan, concentrating on the design and construction of the footbridge to be installed spanning Truckwash creek.</li> </ul>	N/A
	Site Meeting	SES, CRT-ebc	<ul style="list-style-type: none"> <li>Reviewed procedure prior to commissioning the newly constructed diversion channel for the spring feed watercourse located within the right bank intake diversion channel work area.</li> </ul>	N/A
June 11	Site Inspection and Tour	SES, Innergex, MFLNRO, IE, CRT-ebc	<ul style="list-style-type: none"> <li>Site tour to inspect construction activities and the condition of active work areas.</li> </ul>	N/A
	Email	Innergex, MFLNRO	<ul style="list-style-type: none"> <li>Grizzly bear hair snag stations in close proximity to the Project area have been suspended for the time being (<i>ULR#14 – Closed</i>)</li> </ul>	<i>ULR#14</i>
June 12	Pre-work Meeting	SES, CRT-ebc, Formula, Innergex	<ul style="list-style-type: none"> <li>Inspected grout forms and discussed grouting procedure for the Truckwash Creek bridge deck joints and Nelson stud anchors.</li> </ul>	N/A

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
	<i>Email</i>	<i>SES, CRT-ebc, Innergex</i>	<ul style="list-style-type: none"> <li>Slight (1.5kPa above 30kPa threshold) instream acoustic overpressure was recorded as a result of blasting at the BDRHEF portal location. If an overpressure is recorded again at this location the IEM will require that CRT-ebc submit an incident report and propose revised mitigation or corrective measures (in addition to those provided by email on May 28<sup>th</sup>, 2014)</li> </ul>	N/A
	<i>Phone, email</i>	<i>SES, CRT-ebc</i>	<ul style="list-style-type: none"> <li>The IEM informed CRT-ebc that stripping and grubbing occur on the north side of the ULRHEF intake without a work plan, IEM notification, or LTC. Details of the incident will be included in <i>EIR#008</i> and will be appended to the following weekly report. The issue has been added to the ITM which will be updated once results of the investigation are finalized.</li> </ul>	<i>ULR#15</i>
June 13	<i>Pre-work Meeting</i>	<i>SES, WEL, Mumleqs, Hedberg, Innergex</i>	<ul style="list-style-type: none"> <li>Reviewed the Segment 10 clearing plan and access road construction work plan; highlighting area of environmental sensitivity and need for IEM monitoring</li> </ul>	N/A

### 3.0 Current Work Restrictions and Timing Windows

The table presented below outlines work restrictions applicable during the reporting period for each active Project component location:

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
<i>ULRHEF, BDRHEF, and Tx Line</i>	<i>All ULRHEF BDRHEF, and Tx Line areas</i>	<i>Nesting Birds</i>	<i>Vegetation clearing must take place outside of the breeding bird season (May 1 – July 31) to prevent disturbance of bird nests. If not feasible, nest surveys must be conducted by qualified professionals following the Active Migratory Bird Nest Surveys prior to clearing and protective buffers surrounding discovered nests will be maintained until young are fledged and approval has been obtained from the IEM or designate.</i>
<i>Tx-Line</i>	<i>Segments 1 – 6, &amp; 10</i>	<i>Suitable Raptor Nesting Habitat</i>	<i>IEM presence is required when clearing within suitable Northern Goshawk (NOGO) and SPOW (Spotted Owl) nesting habitat during the breeding period. A nest survey is required by WEL QPs prior to clearing within 600m of suitable Peregrine Falcon (PEFA) nesting habitat.</i>

<b>Component</b>	<b>Location</b>	<b>Wildlife/Archeology Concern</b>	<b>Construction/Timing Restrictions &amp; Mitigations</b>
<i>Tx-Line (continued)</i>	<i>Segments 1 – 6, &amp; 10 (continued)</i>	<i>Within 150m of wetlands or 100m of Coastal Tailed-Frog Streams</i>	<i>IEM presence is required when clearing within 150m of wetlands or 100m of Coastal Tailed-Frog Streams, to ensure clearing area is minimized.</i>
		<i>Old Growth Management Areas (OGMAs)</i>	<i>IEM monitoring is required when clearing within legally designated OGMAs, to ensure clearing area is minimized.</i>
		<i>Ungulate Winter Range (UWR)</i>	<i>IEM monitoring is required when clearing within identified deer and moose UWR, to ensure clearing area is minimized.</i>
		<i>Suitable Class 1 &amp; 2 Grizzly Bear forage habitat</i>	<i>IEM monitoring is required when clearing within identified Class 1 &amp; 2 Grizzly Bear forage habitat, to ensure clearing area is minimized.</i>
<i>ULRHEF powerhouse</i>	<i>Within 50m of identified archeologically significant area</i>	<i>Archaeologically significant site EdRu-3</i>	<i>The ASMP recommends that an archaeological technician from the Lil'wat Nation be present to monitor initial ground-disturbance activities within 50 m of the EdRu-3 site boundaries.</i>
	<i>Within 30m of the Upper Lillooet River</i>	<i>Riparian area</i>	<i>IEM presence is required when working within 30m of the Upper Lillooet River as outlined in the ULRHEF Powerhouse Stripping and Grubbing work plan.</i>
<i>Lillooet River FSR; ULRHEF intake access; FSR realignment at Truckwash Creek</i>	<i>Access roads above the lower limit of the 200m buffer Truckwash Creek Migration Corridor to the ULRHEF intake; including FSR realignment at Truckwash Creek</i>	<i>Mountain Goat UWR</i>	<i>Construction noise must be minimized within 500 m of legally established UWR during winter (November 1 – April 30) to the satisfaction of the IEM or designate.  If a goat is observed within 500 m of construction operations, construction must cease for at least 48 hours. The IEM must record and submit all goat observations to FLNR within 48 hours.</i>

## **4.0 Hydroelectric Facilities**

### **4.1 Ancillary Components – Monitoring Results**

#### Construction Camp

- Hauling of trailers and equipment to the construction camp site continued.
- Camp sewer and water utility installation continued this week. No environmental concerns were noted.



### 38km Laydown

- A material crushing and screening plant operation continued this week. A watering hose was used effectively for dust control at the screening plant.

### Upper Lillooet River Trail

- Construction of the Upper Lillooet River Trail began during this reporting period following a pre-work meeting. Trail work will include minor brushing, clearing a foot path with hand tools and the construction of a temporary footbridge over Truckwash Creek. No environmental concerns were noted.

## **4.2 Boulder Creek Hydroelectric Facility – Monitoring Results**

### BDRHEF Downstream Portal and Powerhouse Access Road

- Shotcrete installation over the exposed upper section of the downstream tunnel portal rock face was completed on June 8<sup>th</sup>.
- The excavation of the next bench began on June 9<sup>th</sup> and the drilling/blasting was completed June 12<sup>th</sup>- 14<sup>th</sup>.

### BDRHEF Intake Access Road

- On June 9<sup>th</sup> the IEM together with CRT-ebc inspected the flagged access road clearing boundary and the flagged UWR boundary. Clearing in the area proceeded following the flagging review, outside of the UWR boundary. Clearing was suspended when it was discovered that the fallers had advanced through a section of the alignment that had yet to receive a Terrain Hazard Assessment by a QP. Clearing was performed within flagged boundaries and no environmental concerns were noted.

### Environmental Summary:

- Instream acoustic pressure monitoring on June 12<sup>th</sup> recorded a slight overpressure (1.5kPa above 30kPa threshold) as a result of blasting at the BDRHEF portal location. If an overpressure is recorded again at this location the IEM will require that CRT-ebc submit an incident report and propose revised mitigation or corrective measures (in addition to those provided by email on May 28<sup>th</sup>). No fish mortality was observed as a result of the instream acoustic overpressure. Instream acoustic pressure monitoring performed during the blasts on June 13<sup>th</sup> & 14<sup>th</sup> did not exceed the trigger level of 30kPa. The IEM will continue to perform instream acoustic pressure monitoring at the tunnel portal location until the results are consistently below the 30kPa threshold and blast mitigations are deemed to be appropriate.
- Water from the Boulder Creek water withdrawal site authorized in the Short Term Water Use Approval (No.A2006123) was used effectively for dust suppression above 37.5km of the Lillooet River FSR and on active construction site access roads.
- No dust suppression occurred between 0-37.5km of the Lillooet River FSR this week. The IEM recommends that the application of water by water truck or an

alternative approved dust control product be applied in this area to ensure adherence to the Air Quality and Dust Control Plan, the Road Use Permit, and to protect the health and safety of those traveling to and from site (*ULR#12*).

Photos:



**Photo 1. Placing blast mats at the BDRHEF downstream portal location prior to blasting (June 12, 2014).**



**Photo 2. Utility installation at the construction camp. (June 8, 2014).**

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded at BDRHEF facility locations during this reporting period. Construction activities had no visual effect on WQ.					

**4.3 Upper Lillooet River Hydroelectric Facility – Monitoring Results**

ULRHEF Powerhouse and Access Road

- Excavation at the ULRHEF powerhouse continued outside of the Lillooet River riparian area this week. The excavated material was used as fill for a future laydown within the limits of the powerhouse spoil area.

ULRHEF Intake and Access Roads

- The right bank diversion channel excavation continued this week and no environmental concerns were noted.
- A fish salvage within the fish accessible portion of the spring fed tributary (65m from the confluence with the Lillooet River) was completed by SES at the request of Innergex and CRT-ebc on June 9<sup>th</sup> (Fish Collection Permit #SU14-94700). No fish were captured or observed during the salvage.
- Construction of the diversion ditch to redirect water around the right bank diversion channel excavation work area was completed on June 10<sup>th</sup>. The ditch was lined with

geotextile prior to rock riprap placement. A small settling pond was constructed at the inlet of culvert that will be used to pass water under the future haul road at this location once flows are diverted. The tributary was diverted through the newly completed ditch on June 10<sup>th</sup>. Prior to opening the diversion ditch, pumps were installed to capture sediment laden water and pump it to a nearby forested area until the water began to run clear in the diversion ditch. The three 3" trash pumps were temporarily overcome due to unexpected water volumes within the channel and turbid water was released downstream resulting in a temporary exceedance of water quality guidelines (see Water Quality Results below). Downstream turbidity within diversion ditch returned to within acceptable levels in less than 4h30m and no environmental incident occurred.

- During the commissioning of the diversion ditch, the IEM noticed undermining of the installed culverts. This was discussed with CRT-ebc and it was decided that the culvert would be replaced with an 800mm CSP. The culvert re-installation proceeded in the dry by using bypass pumps on the following day (June 11<sup>th</sup>) and a short term exceedance of water quality guidelines was recorded as a result of the culvert commissioning (see Water Quality Results below). Downstream turbidity returned to within acceptable levels in less than 1h00m and no environmental incident occurred.

#### Truckwash Creek Bypass Road - FSR Re-alignment

- The pre-cast concrete bridge abutment end caps were installed and backfilled during this reporting period. Deck panels and guard rails were subsequently installed. Prior to grouting the bridge panel joints and the Nelson stud anchors, the IEM inspected the form work and discussed the emergency response procedures to be implemented in the event of a spill to Truckwash Creek. The grouting was monitored for the complete duration of works and no leaks or spills were observed. No environmental concerns were noted for any of the activities during this reporting period.

#### Environmental Summary:

- Noise monitoring stations remained operational during this reporting period; however the results have yet to be analyzed. No Mountain Goat disturbance was noted as a result of construction noise within the Migration Corridor this week.

Photos:



**Photo 4. Conditions following the diversion of the spring fed creek through the newly constructed diversion channel (June 12, 2014).**



**Photo 5. The Truckwash Creek bridge during curing of the grout installed on June 12<sup>th</sup> (June 14, 2014).**

Water Quality Results

	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
June 10	11:45	Background – Exit of logbox culvert	-	4.7	-
	12:05	Downstream – at the falls	-	7.2	-
	12:20	Downstream – at the falls	-	315	-
	12:22	Downstream – at the culvert outlet	-	700	-
	12:45	Downstream – at the falls	-	201	-
	13:40	Downstream – at the falls	-	65.3	-
	14:34	Downstream – at the falls	-	26.5	-
	15:35	Downstream – at the falls	-	19.4	-
June 11	16:45	Downstream – at the falls	-	12.2	-
	10:25	Background – Exit of log box culvert	-	3.4	-
	10:31	Downstream – at the falls	-	5.6	-
	14:00	Downstream – at the falls	-	8.6	-
	14:04	Downstream – at the falls	-	89.7	-
	14:10	Downstream – at the falls	-	161	-
	14:20	Downstream – at the falls	-	136	-
	15:00	Downstream – at the falls	-	13.1	-
June 12	15:40	Downstream – at the falls	-	7.6	-
	9:40	Background – Exit of log box culvert	-	5.2	-
	9:48	Downstream – at the falls	-	4.9	-

**4.4 Hydroelectric Facilities – Recommendations**

Drainage patterns should be inspected following the next rain event at the BDRHEF powerhouse access road to assess the new site flow paths and ensure adequate surface water management.

Dust suppression between 0 and 37.5km on the Lillooet River FSR continues to be an issue. The IEM recommends that CRT-ebc develop a FSR-specific dust suppression

plan to supplement the Air Quality and Dust Control EPP and mitigate potential environmental effects (*ULR#12 – Open*)

CRT-ebc should continue to employ blasting mitigation measures during all future blasts at the BDRHEF portal work area.

## 4.5 Hydroelectric Facilities – Upcoming Works

Excavation of the intake diversion channel is scheduled to continue next week at the ULRHEF intake. Bench excavation at the ULRHEF powerhouse will continue next week. Excavation, drilling and blasting of the second bench at the BDRHEF portal will continue with revised blasting procedures. Clearing and construction of the BDRHEF intake access road will continue once a Terrain Stability Assessment has been completed by a QP and the clearing boundaries are confirmed.

## 5.0 Transmission Line

### 5.1 Monitoring Results

#### Segment 1 & 2

- Pole installation and dressing continued in Segments 1 and 2 this week. Temporary access tracks to the pole locations were constructed. No environmental concerns were noted.

#### Segment 3-6 & 10

- Clearing occurred in Segment 3, 4 (outside the UWR constraint), 5, and 10 following the completion of AMBNS.
- Access roads branching from the Lillooet River FSR were conducted in Segment 4 & 5 this week.
- Clearing of helicopter access pads continued in Segment 6 during this reporting period. Due to the steep terrain and access limitation, the IEM conducted raptor monitoring from the north side of the Lillooet River from a good vantage point located at 17km of the Lillooet River FSR. The monitoring was conducted via spotting scope and no raptor activity was observed in the vicinity of the clearing areas. Clearing within identified Grizzly Bear habitat in Segment 6 was minimized by the nature of the work as a minimal amount of trees necessary for safe landing of a helicopter landing were cleared.

#### Environmental Summary:

- The IEM was present during clearing activities within 150m of wetlands, 100m of Coastal Tailed Frog Streams, Class 1 & 2 suitable Grizzly Bear forage habitat, moose and deer UWR, legally designated Old Growth Management Areas, and within NOGO and SPOW suitable nesting habitat. No raptors were observed during the monitoring of clearing activities and all flagged boundaries were respected. No water quality concerns were noted.

- AMBNS were completed prior to all vegetation clearing along the Tx-line alignment during this reporting period.

Photos:



Photo 6. RVMA topping in Segment 2 (June 12, 2014).



Photo 7. Pole installation work in Segment 1 (June 11, 2014).

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded at active Tx-line work areas during this reporting period. Construction and clearing activities had no visual effect on WQ.					

**5.2 Transmission Line – Recommendations**

No recommendations are provided for this reporting period.

**5.3 Transmission Line – Upcoming Works**

Transmission line access road upgrades will continue next week and pole installation and dressing is scheduled to continue in Segment 1 and 2 next week. Clearing is scheduled to continue in Segment 3 – 6 and in Segment 10 following the results of AMBNS. Upcoming transmission line works will be focused on road construction, pole installation, and completing the clearing within the Segments 3-5 and 10.

## 6.0 Wildlife Sightings

As per the CEMP, a wildlife sightings record has been implemented and will be updated regularly by Project Personnel. It is mandatory for all personnel to report wildlife sightings including, but not limited to bears, cougars, mountain goats and deer. Wildlife sighting will be reported and recorded by the contractor(s) and will be submitted to the IEM on a weekly basis. Wildlife Observation forms will be summarized on a monthly basis and appended to the first WEMR of the following month. Observation or detection of the following species will trigger notification to identified parties according to the following table.

Species Observed or Detected	Notification Period	Agencies to be Notified
Northern Rubber Boa	Immediately	IEM, Owner
Grizzly Bear	24hrs	IEM, Safety Officer, Conservation Officer, Owner
Wolverine Den	24hrs	IEM, MFLNRO, Owner
Spotted Owls	24hrs	IEM, MOE, Owner
Mountain Goats	48hrs	IEM, MFLNRO, Owner

One Grizzly Bear sighting was reported during this monitoring period (June 9, 2014). All parties identified in the above table were notified within 24hr of the sighting log submission to the IEM. The sighting logs are appended to this report.

All parties identified in the above table were notified within 48hr of the Mountain Goat monitoring form submission. *Please refer to the attached Mountain Goat Monitoring Daily Observation Forms for a summary of observations from this reporting period.*

## 7.0 Mountain Goat Monitoring Program

The following mitigation measures were implemented for work activity within the Migration Corridor during this monitoring period;

1. Mountain Goat monitoring when works are occurring within 500m of Mountain Goat habitats and migration routes.
2. Noise level monitoring to ensure that the 75db noise level threshold is not exceeded as outlined in the Mountain Goat Management Plan.
3. Works must be immediately suspended and the IEM notified if Mountain Goats are observed within 500m of the line of sight of work activities. Works will resume in consultation with the IEM.

As of May 19<sup>th</sup>, the IEM reinitiated a Mountain Goat Monitoring program as works resumed within the Mountain Goat Migration Corridor at Truckwash creek and near the ULRHEF intake. The IEM or designate was on site to monitor Mountain Goat activity within 500 m of construction activities at the Truckwash Creek Bypass road, and Keyhole bridge reinforcement works. Mountain Goats were monitored from three sites:

- Truckwash Creek viewing river right of the Migration Corridor– MG-OBS01 (10U 467955 5612773);
- Keyhole Falls viewing the south side u-2-002 UL11 – MG-OBS02 (10U 466593 5613988); and
- Garibaldi Pumice mine site viewing u-2-002 UL 19 – MG-OBS03 (10U 467388 561408).

Monitoring effort will be split between all three sites between sunrise and sunset, unless safety concerns precluding from doing so. The order of site visits will rotate daily. Construction activities will cease if a goat(s) are observed moving towards the ULRHEF intake and/or if a goat(s) are observed within a 500m line of site of a construction activity. No goats were observed within 500m line of sight of construction activities and no work stoppages were required.



## 8.0 Environmental Issues Tracking Matrix (ITM)

### 8.1 Hydroelectric Facilities (ULRHEF & BDRHEF)

Issue Tracking		Environmental Issue		Mitigation Measures						
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Completed			
ITM Tracking Legend:		<table border="1"> <tr> <td style="background-color: yellow;">Work Item Open</td> </tr> <tr> <td style="background-color: green;">Work Item Complete</td> </tr> <tr> <td style="background-color: lightblue;">Issue Closed</td> </tr> </table>						Work Item Open	Work Item Complete	Issue Closed
Work Item Open										
Work Item Complete										
Issue Closed										
ULR#4	Open	47km – Lillooet River FSR	A log box structure failed while being crossed by an excavator (see appended <b>EIR002</b> ).	<ol style="list-style-type: none"> <li>CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.</li> <li>IEM to review and approved the EIR.</li> <li>CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.</li> <li>CRT-ebc to confirm that load ratings of equipment adhere to maximum crossing structure load ratings.</li> </ol>	May 23, 2014	May 26, 2014.	-			
				<ol style="list-style-type: none"> <li>Complete FSR and temporary access road crossing assessment by a Qualified Professional.</li> <li>Determine the requirements for crossing structure remediation or replacement and execute according to the appropriate work planning protocols.</li> </ol>		Completion of action item 5 and 6 to be determined				
ULR#5	Open	39.9km – Lillooet River FSR	Rock truck rollover and spill (see appended <b>EIR003</b> ).	<ol style="list-style-type: none"> <li>CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.</li> <li>IEM to review and approved the EIR.</li> <li>CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.</li> <li>Road shoulder delineation (where applicable).</li> <li>CRT-ebc to develop and implement communication protocols for environmental incident response.</li> </ol>	May 27, 2014	June 3, 2014	-			
				<ol style="list-style-type: none"> <li>Road stability assessment to be completed on Lillooet River FSR and temporary roads.</li> </ol>		To be determined				

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Completed
ULR#7	Open	34.9km – Lillooet River FSR	Silva Creek log structure failed while being crossed by a Megaton Truck (see appended <b>EIRO05</b> ).	<ol style="list-style-type: none"> <li>1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.</li> <li>2. IEM to review and approved the EIR.</li> <li>3. CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.</li> <li>4. CRT-ebc to confirm that load ratings of equipment adhere to maximum crossing structure load ratings.</li> </ol>	May 27, 2014	June 3, 2014	-
				<ol style="list-style-type: none"> <li>5. Complete FSR and temporary access road crossing assessment by a Qualified Professional.</li> <li>6. Complete repairs of the crossing structure as per MFLNRO recommendations (May 30, 2014) in accordance with appropriate work planning protocols and construction procedures.</li> </ol>		Completion of action items 5 and 6 to be determined	
ULR#8	Open	39.7km – Lillooet River FSR	Stream 9 – log box structure failure (see appended <b>EIRO04</b> ).	<ol style="list-style-type: none"> <li>1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.</li> <li>2. IEM to review and approved the EIR.</li> <li>3. CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.</li> <li>4. CRT-ebc to confirm that load ratings of equipment adhere to maximum crossing structure load ratings.</li> </ol>	May 28, 2014	June 3, 2014	-
				<ol style="list-style-type: none"> <li>5. Complete FSR and temporary access road crossing assessment by a Qualified Professional.</li> <li>6. Determine the requirements for crossing structure remediation or replacement and execute according to the appropriate work planning protocols and construction procedures.</li> </ol>		Completion of action items 5 and 6 to be determined	

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Completed
ULR#10	Closed	Lillooet River FSR	Innergex issued stop work order for heavy hauling on Lillooet River FSR	1. CRT-ebc to confirm load ratings of equipment adhere to maximum crossing structure load ratings.	May 28, 2014	May 30, 2014	-
				2. Conditional Rescission of the Stop Work Order for Heavy Hauling on the Lillooet River FSR was issued on June 1 <sup>st</sup> , 2014 subject to the following: <ul style="list-style-type: none"> <li>a. CRT-ebc obtaining approval from MFLNRO for the temporary steel plate modifications.</li> <li>b. Crossing assessments completed by a QP and recommendations submitted to MFLNRO for review and approval.</li> <li>c. Hauling above 38km of the Lillooet River FSR to be restricted to BCL-625 until modifications are approved by MFLNRO.</li> </ul>		To be determined	
ULR#12	Open	Lillooet River FSR	Inadequate dust suppression between 0-37.5km of the Lillooet River FSR	1. The IEM recommends that the application of water by water truck or an alternative approved dust control product be applied in this area to ensure adherence to the Air Quality and Dust Control Plan, the Road-Use Permit, and to protect the health and safety of those traveling to and from site.	May 31, 2014	June 14, 2014	-
ULR#14	Closed	Near 43 KM – Lillooet River FSR	MOE is maintaining and baiting a non-reward hair bait station located within the core construction zone to collect Grizzly Bear hair samples as part of the long-term monitoring.	1. Innergex contacted the province to request exact location of the bait station and to address concerns regarding potential human-bear conflict. 2. Innergex requesting to immediately stop baiting the station located near 43 km Lillooet River FSR.	June 3, 2014	June 13, 2014	June 11, 2014

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Completed
ULR#15	Open	North side (left bank) of the ULRHEF intake	Stripping and grubbing proceeded without an approved work plan or LTC ( <i>EIR008 – further information will be included in the EIR once finalized</i> )	1. The IEM reported the incident to CRT-ebc environmental personnel. No further unauthorized construction activities occurred after the initial detection of the incident.	June 12, 2014	June 12, 2014	-
				2. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.		June 16, 2014	
				3. IEM to review and approved the EIR.			
<i>next ITM – ULR#16</i>							

## 8.2 Transmission Line

ITM Tracking Legend:	Work Item Open
	Work Item Complete
	Issue Closed

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Completed
<i>No outstanding environmental issues (next ITM – Tx#1)</i>							



## Environmental Incident Reporting Form









<b>General Information</b>	
<b>Project Name:</b> Upper Lillooet Hydro Project	<b>Project Component:</b> ULR HEF – Intake (North; River Left)
<b>Time/Date of Incident Start:</b> June 12 <sup>th</sup> – 2014 at 12:30PM	<b>Time/Date Incident Stopped:</b> June 12 <sup>th</sup> – 2014
<b>Date of Report:</b> Draft Submitted: 2014-06-14 Final Submitted: 2014-06-15	<b>Project Incident Report Number:</b> 2014-06-15 CE-EIR-008 <b>Incident Description:</b> ULR HEF – Intake (North; River Left) grubbing & stripping
<b>Report Prepared By:</b> Jordan Gagné/Ian McKeachie	
<b>Contractors Environmental Manager:</b> Jordan Gagné / Ian McKeachie	
<b>Independent Environmental Monitor (Sartori Environmental Services):</b> Stephen Sims/ Tom Hicks	
<b>Initial IEM Contact:</b> 2014-06-12, IEM identified the non-compliance on site and informed CRT-ebc the same night via phone at 7:30PM	
<b>Licensee’s Environmental Manager:</b> Julia Mancinelli	

<b>Contact Information for Company Involved in Incident</b>	
<b>Company:</b> CRT-ebc	<b>Address:</b> 11-7339 Old Mill Road, PO Box 585, Pemberton, BC, V0N 2L0
<b>Phone #:</b> 604-894-5002	<b>Email:</b> <a href="mailto:jgagne@crtconstruction.ca">jgagne@crtconstruction.ca</a> / <a href="mailto:imckeachie@crtconstruction.ca">imckeachie@crtconstruction.ca</a> / <a href="mailto:smunneke@crtconstruction.ca">smunneke@crtconstruction.ca</a>
<b>Contact Person:</b> Jordan Gagné/Ian McKeachie/Simon Munneke	<b>Position:</b> Environmental Manager/Field Engineer

<b>Incident Type (check all that apply)</b>			
<b>Encroachment of an Environmentally Sensitive Area (e.g. Riparian/Wildlife Buffer)</b> Please provide details in “Description” section below.	<input checked="" type="checkbox"/>	<b>Potential Adverse Impacts to Fish/Wildlife (e.g. Mortality/Injury)</b> Please provide details in “Description” section below.	<input type="checkbox"/>
<b>Water Quality/Quantity</b> Please provide details in “Description” section below.	<input type="checkbox"/>	<b>Hazardous Material Spills (to ground or water)</b> Please provide details in description section in regards to: <ul style="list-style-type: none"> <li>Perceives extent of damage</li> <li>Type, quantity and area of the spill</li> <li>Containment Procedures</li> <li>Environmental features in close proximity to the spill</li> </ul>	<input type="checkbox"/>
<b>Disturbance of known or unknown archeological</b>	<input type="checkbox"/>	<b>Air Quality</b>	<input type="checkbox"/>

<b>/heritage site</b> Please provide details in "Description" section below.		Please provide details in "Description" section below.	
<b>Spill reported to external agencies</b> If yes, describe the receiving environment and substance/quantity spilled.	<input type="checkbox"/>	<b>Other</b> Please provide details in "Description" section below.	<input checked="" type="checkbox"/>

### Incident Profile

<b>Weather at time of incident</b>	 <input checked="" type="checkbox"/> <b>Clear</b>	 <input type="checkbox"/> <b>Partly Cloudy/ Variable</b>	 <input type="checkbox"/> <b>Cloudy</b>	 <input type="checkbox"/> <b>Showers/ Periods of Rain</b>	 <input type="checkbox"/> <b>Rain</b>	 <input type="checkbox"/> <b>Heavy Rain (&gt;25mm in 24hr)</b>	 <input type="checkbox"/> <b>Storm (Heavy rain and high winds)</b>	 <input type="checkbox"/> <b>Snow</b>
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**Specific Location:**  
 ULR HEF – Intake (North; River Left)

**Description and Cause of Incident:**  
Description:

- On June 12<sup>th</sup>, grubbing & stripping of the ULR HEF intake (North; River Left) was carried out by CRT-ebc Superintendent (Roger Pelletier) and Foreman (Nicholas Grondin) without an approved workplan/LTC, without a kick-off meeting, and without notifying the IEM of works within the riparian area.
- On the same day at the end of shift (4:30pm), the IEM (Tom Hicks) observed the non-compliance and reported it to CRT-ebc (Ian McKeachie) via phone that night. There were no observed environmental impacts associated with the grubbing works, but CRT-ebc is aware that in this case the approval process and IEM notification protocol were improperly followed, and this has the potential to have environmental impacts.

Cause:

- The cause is two-fold.
  - 1) The Provincial process overseen by the IE on behalf of MFLNRO was not followed, and
  - 2) The IEM was not notified of work occurring within the riparian area and was therefore not on site. No approved work plan was in place prior to the initiation of works by the Superintendent (Roger Pelletier) and Foremen (Nicholas Grondin), resulting in grubbing being completed prior to receiving formal approval.

**Incident Witness:** CRT-ebc environmental team and the IEM (Tom Hicks)

<b>Were there any Potential Environmental impacts as a result of the incident?</b> (e.g., surface contamination, storm sewers, or fish/wildlife mortalities)	<b>Yes</b> <input type="checkbox"/>	<b>None Observed</b> <input checked="" type="checkbox"/>
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**If Yes, please describe:**

<b>Has Wildlife Salvage Protocol been followed?</b>	<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	<b>N/A</b> <input checked="" type="checkbox"/>
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**If No, please explain:**



<b>Water Quality Samples Collected?</b>				<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	<b>N/A</b> <input checked="" type="checkbox"/>
<b>If yes, attach results of water quality analysis to report in table format. Include Laboratory analysis if completed. If No please explain:</b>						
<b>Have applicable photos and/or drawings been attached to the incident report?</b>				<b>Yes</b> <input checked="" type="checkbox"/>	<b>No</b> <input type="checkbox"/>	<b>N/A</b> <input type="checkbox"/>
<b>Incident Response Measures</b>						
When CRT-ebc was made aware of the potential incident by the IEM (Tom Hicks) on June 12 <sup>th</sup> the following response measures were taken: <ul style="list-style-type: none"><li>On June 13<sup>th</sup> 7:00AM CRT-ebc managing team advised the superintendent on site (Roger Pelletier) to stop all work activities on north side/river left of the ULR HEF intake.</li><li>On the morning of June 13<sup>th</sup>, CRT-ebc environmental manager (Ian McKeachie) went on site to assess the situation.</li><li>On the morning of June 13<sup>th</sup>, CRT-ebc environmental team (Jordan Gagné) communicated with the superintendent on site (Roger Pelletier) to make sure no work activities were performed at the ULR HEF intake (north; river left).</li><li>On the same morning at 9:05AM, CRT-ebc reported the potential incident to Innergex and the IEM.</li><li>CRT-ebc environmental manager (Ian McKeachie) conducted a site investigation to collect information on the incident.</li><li>At 1:59PM, CRT-ebc confirmed the incident to Innergex after being in contact with the IEM (Tom Hicks) and Ian McKeachie via satellite phone.</li><li>At 5:33PM, Claude Denault, CRT-ebc Project Manager, sent an official Stop Work order at ULR HEF intake (North; River left) to all staff members, superintendents, owner and IEM via email (copy forwarded to the IE via Innergex). The stop work order will be lifted following review and approval of the work plan by the IEM and LTC issuance by the IE for the next phase of work at this location.</li></ul>						
<b>Actions to Prevent Incident Recurrence</b>						
Before the incident the mitigation measures in place were: <ul style="list-style-type: none"><li>Work plans are being reviewed during kick-off meetings and include the presence of CRT-EBC Superintendents, Foreman, Field Engineer and Environmental Manager; the IEM; and the Owner.</li><li>The work plans are referenced on site by foremen and superintendents during construction activities.</li><li>All steps and hold points were highlighted during kick-off meetings.</li></ul>						
After the incident, additional mitigation measures were put in place:						



- Superintendents and foremen will review work plans daily with CRT-ebc field engineers and environmental managers prior to commencing any new steps in construction.
- All foremen, field engineers and superintendents will be provided with a copy of the LTC authorization (and the associated work plan).
- Additionally, all foremen, field engineers and superintendents need to have their work plan with them at all times. Foreman, field engineers and superintendents are responsible for understanding the site and task-specific work plans, identifying the limits to the work areas, implementing the prescribed Hold Points, and ensuring adherence to the required environmental mitigations/constraints.
- CRT-ebc's environmental management team will determine necessity for IEM presence on site when construction works require it. As discussed with the owner, a 3-week schedule highlighting the tentative dates for kick-off meetings and IEM requirements will be provided every week.
- The IEM will also be notified 48h prior to any construction activity within a sensitive area, which requires their presence.

**Notification Record**

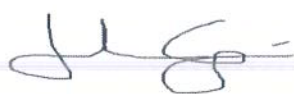
Agency Reported to	Contact Information	Agency Contacted		Date and Time Reported	Reported By	Method of Reporting
		Yes	No			
<b>External Notifications</b>						
MFLNRO	Andrea Cowgill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-16	Julia Mancinelli	Submission of EIR 008 via email.
BC EAO	Chris Parks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-16	Julia Mancinelli	Submission of EIR 008 via email.
PEP	1-800-663-3456	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
MOE Staff		<input type="checkbox"/>	<input type="checkbox"/>			
DFO		<input type="checkbox"/>	<input type="checkbox"/>			
DFO		<input type="checkbox"/>	<input type="checkbox"/>			
Environment Canada	604-666-6100	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Canadian Coast Guard	604-666-6011	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Local Fire Rescue	911	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Reported to	Contact Information	Contacted		Date and Time Reported	Reported By	Method of Reporting
		Yes	No			
<b>Internal Notifications</b>						
CRT-ebc	Ian McKeachie 250.516.9427	x		2014-06-12 7:30PM	Tom Hicks	Phone






Notification Record						
Agency Reported to	Contact Information	Agency Contacted		Date and Time Reported	Reported By	Method of Reporting
		Yes	No			
Owner Innergex	Krys Muniak KMuniak@innergex.com	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-13 9:05AM	Jordan Gagné	Email
Owner Innergex	Julia Mancinelli <a href="mailto:jmancinelli@innergex.com">jmancinelli@innergex.com</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-13 9:05AM	Jordan Gagné	Email
IEM Sartori Environmental	Stephen Sims <a href="mailto:steve@sartorienv.com">steve@sartorienv.com</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-13 9:05AM	Jordan Gagné	Email
Owner Innergex	Krys Muniak KMuniak@innergex.com	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-13 1:59PM	Jordan Gagné	Email
Owner Innergex	Julia Mancinelli <a href="mailto:jmancinelli@innergex.com">jmancinelli@innergex.com</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-13 1:59PM	Jordan Gagné	Email
IEM Sartori Environmental	Stephen Sims <a href="mailto:steve@sartorienv.com">steve@sartorienv.com</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-13 1:59PM	Jordan Gagné	Email
Owner Innergex	Julia Mancinelli 604.633.9990	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2014-06-13 2:30PM	Jordan Gagné	Phone
IE True North Energy	Jenn McCash			2014-06-13 2:45 PM	Julia Mancinelli	Phone (2:45 PM) and follow up email confirming discussion and incident reporting requirements (4:15 PM)

**Contractor's Environmental Manager:**

Jordan Gagné	Environmental Manager, CRT-ebc		2014-06-15
Print Name	Position and Company	Signature	Date

**Contractor's Environmental Manager:**

Ian McKeachie	Environmental Manager, CRT-ebc		2014-06-15
Print Name	Position and Company	Signature	Date

**Reviewed by:**



J. Stephen Sims	Independent Environmental Monitor, Sartori Environmental Services		2014-06-15
Print Name	Position and Company	Signature	Date



Photo 1: Grubbed and stripped area at  
Upper Lillooet River HEF Intake (North; River  
Left)

Appendix B. Bear sighting log.

**BEAR OBSERVATION CARD**  
Return to: Local BC Parks Office

BC 9587  

YYMMDD: 14/06/09 Time (24 hr): 1645 District:   Name of Protected Area: \*Upper Lillooet, Pemberton, BC

Observer Name, Address and Phone Number: Mandala Smulders, 282 Lambert Ave, Nanaimo, 250 522 1269

Location in protected area (i.e., name of campground, campsite, dayuse area, trail name, lake, stream, nearest geographic feature, etc.): Truckwash Road #1, Upper Lillooet, BC Elevation (metres or feet): 50m Observer Distance (metres or feet): 50m

UTM Zone:       Easting or Longitude:       Northing or Latitude

Weather: Rain  Overcast  Cloudy  Clear Map Datum: NAD27  NAD83  GPS

Bear Species: Grizzly bear Black bear  Unknown  ID Confidence: High  Medium  Low

Colour code: Reddish-brown  Black  Grey  Dark brown Light brown  Blond  Other: None

Distinguishing features (tag, collar, scars): None

Abundance: Common  Frequent  Occasional Rare

Observation Type: sighting track  scat  digging  hair  foraging sign  rub tree  bed  den

Number Observed: Adult male  Adult fem.  Young of yr.  Sub-Adult  Unclassified

Food association: none odour  unattended garbage  vehicle  cache

Was the bear aware of your presence? Yes No  N/A

Bear(s) activity: a) feeding b) hunting c) fishing d) scavenging e) drinking f) travelling g) bedded h) courtship/mating i) playing j) call k) fighting Other: \_\_\_\_\_

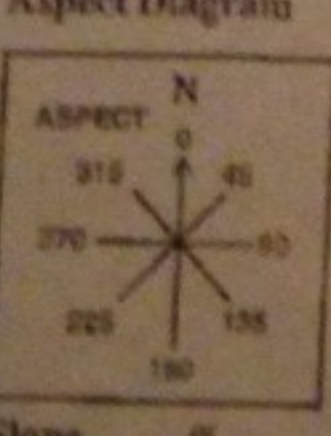
Reaction: a) indifferent b) flee c) curious d) food seeking e) illegally fed f) threatening g) charge h) rut i) fight j) play k) travel Other: \_\_\_\_\_

Estimated level of habituation: a) sighting or sign b) normal behaviour - avoids people c) reacts defensively after surprise or provocation d) tolerates but ignores people e) shows repeated interest in people f) habituated to people and their food g) displays aggressive behaviour threat to humans h) unknown

Repeat offender: Yes No

If yes, provide background information (i.e., complaint/occurrence report): This grizzly appears on site quite frequently, around the same location. Still seems fearful of humans.

Photographs: Yes  No



Notes: Saw grizzly on the road heading up Truckwash #1 just past 42.5 km mark Lillooet FSR. He saw the truck, looked at me for a second and then bolted into the woods.

Slope: \_\_\_\_\_ %

N.B. Ensure complaint / occurrence report and BC problem wildlife form (if required) are completed, if there was property damage or if further action required in dealing with bear sighting, i.e., destroy, relocation or aversive conditioning.

# MOUNTAIN GOAT DAILY OBSERVATION FORM

UPPER LILLOOET HYDRO PROJECT

Goat Monitor's Name(s):

Date (YYYY-MM-DD):



106-185 forester street, north vancouver, bc v7h 2m9  
office tel 987.5588 fax 987.7740

Weather (cloud cover, precipitation and temperature):

Please submit **Mountain Goat Daily Observation Form** in person to a representative of Sartori Environmental Services (**Tom Hicks** or **Stephen Sims**) or by email to [steve@sartorienv.com](mailto:steve@sartorienv.com) following each day of monitoring.

Mountain Goat Observation Site	UWR/Migration Corridor - Location	UTM Coordinates <i>(approximate center of observation area)</i>	Daily Start Time <i>(24hr clock)</i>	Daily End Time <i>(24hr clock)</i>	Daily form #	1	of	1
MG - OBS01	Migration Corridor - East side of Truckwash Creek	10U 467898 5612845	09:40	11:40	If more space is needed in the below table, please fill out additional daily forms and indicate total number of forms above.			
MG - OBS02	UWR u-2-002 UL 11 - Keyhole Falls	10U 466760 5613967	12:00	2:00				
MG - OBS03	UWR u-2-002 UL 19 - Garibaldi Pumice	10U 469155 5614960	07:30	09:30				

Observation Site <i>(indicate if location other than OBS site)</i>	Time <i>(use 24hr clock)</i>	UTM Coordinates or Waypoint <i>(10U)</i>	Species Observed <i>(indicate Mountain Goat or other species)</i>	Observations <i>(be specific - visual sign, track, other sign)</i>	# of Animals	Age <i>(if known - refer to attached info sheet)</i>	Sex <i>(if known - refer to attached info sheet)</i>	Description of Activities <i>(feeding, moving, etc.)</i>	Comments <i>(habitat, snow conditions, etc.)</i>	Photo #s
MG-OBS03	8:20	10U 469155 5614960	Mountain Goat	Visual	2	Adult	Unknown	Feeding and resting on rocks and behind trees.	Rocky mound surrounded by green. Above usual spot to the right.	886-891
MG-OBS01	9:45	10U 467898 5612845	None	None	0	0	0	N/A	N/A	0
MG-OBS02	13:07	10U 466760 5613967	Mountain Goat	Visual	3	Nanny, kid, yearling	Nanny, unknown, unknown	Licking minerals	Came out briefly from behind ridge, couldn't get picture in time.	0

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MG - OBS01	Migration Corridor - East side of Truckwash Creek	10U 467898 5612845	12:00	2:00	If more space is needed in the below table, please fill out additional daily forms and indicate total number of forms above.			
MG - OBS02	UWR u-2-002 UL 11 - Keyhole Falls	10U 466760 5613967	07:45	09:45				
MG - OBS03	UWR u-2-002 UL 19 - Garibaldi Pumice	10U 469155 5614960	09:55	11:55				

Observation Site <i>(indicate if location other than OBS site)</i>	Time <i>(use 24hr clock)</i>	UTM Coordinates or Waypoint <i>(10U)</i>	Species Observed <i>(indicate Mountain Goat or other species)</i>	Observations <i>(be specific - visual sign, track, other sign)</i>	# of Animals	Age <i>(if known - refer to attached info sheet)</i>	Sex <i>(if known - refer to attached info sheet)</i>	Description of Activities <i>(feeding, moving, etc.)</i>	Comments <i>(habitat, snow conditions, etc.)</i>	Photo #s
MG-OBS02	8:00	10U 466760 5613967	Mountain Goat	Visual	2	Nanny and Kid	Nanny, unknown	Feeding on shrubbery	Fed for about 15 minutes	890-906
MG-OBS02	9:10	10U 466760 5613397	Mountain Goat	Visual	1	Yearling	Unknown	Nap time	Came From cliff above nanny to bedding spot closer to obs point.	0
MG-OBS03	12:30	10U 469155 5614960	None	N/A	0	N/A	N/A	N/A	No sightings	0



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MG - OBS01	Migration Corridor - East side of Truckwash Creek	10U 467898 5612845	11:30	13:30				
MG - OBS02	UWR u-2-002 UL 11 - Keyhole Falls	10U 466760 5613967	09:25	11:25				
MG - OBS03	UWR u-2-002 UL 19 - Garibaldi Pumice	10U 469155 5614960	07:15	09:15				

If more space is needed in the below table, please fill out additional daily forms and indicate total number of forms above.

Observation Site <i>(indicate if location other than OBS site)</i>	Time <i>(use 24hr clock)</i>	UTM Coordinates or Waypoint <i>(10U)</i>	Species Observed <i>(indicate Mountain Goat or other species)</i>	Observations <i>(be specific - visual sign, track, other sign)</i>	# of Animals	Age <i>(if known - refer to attached info sheet)</i>	Sex <i>(if known - refer to attached info sheet)</i>	Description of Activities <i>(feeding, moving, etc.)</i>	Comments <i>(habitat, snow conditions, etc.)</i>	Photo #s
MG-obs03	08:15	10U46915 5 5614960	Mg	Visual	01	Adult	Male	Laying down south side of the middle valley, at the bottom of tree line	No snow	
MG-obs02	09:35	10U46676 0 5613967	Mg	Visual	02	Adult and kid	Nanny (kid)	Nanny laying down just inside the tree line kid cuddled close to her	No snow, a little bit chilly	
MG-obs02	09:40	10U46676 0 5613967	Mg	Visual	01	Adult	Billy	Laying down above nanny 30m or so outside the tree line	No snow. Camera is dead now	





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MG - OBS01	Migration Corridor - East side of Truckwash Creek	10U 467898 5612845	11:40	13:40	If more space is needed in the below table, please fill out additional daily forms and indicate total number of forms above.			
MG - OBS02	UWR u-2-002 UL 11 - Keyhole Falls	10U 466760 5613967	07:30	09:30				
MG - OBS03	UWR u-2-002 UL 19 - Garibaldi Pumice	10U 469155 5614960	09:40	11:40				

Observation Site <i>(indicate if location other than OBS site)</i>	Time <i>(use 24hr clock)</i>	UTM Coordinates or Waypoint <i>(10U)</i>	Species Observed <i>(indicate Mountain Goat or other species)</i>	Observations <i>(be specific - visual sign, track, other sign)</i>	# of Animals	Age <i>(if known - refer to attached info sheet)</i>	Sex <i>(if known - refer to attached info sheet)</i>	Description of Activities <i>(feeding, moving, etc.)</i>	Comments <i>(habitat, snow conditions, etc.)</i>	Photo #s
MG-obs02	9:30	10U466760 5613967	Mg	Scat	1	Unk	Unk	Some scat present on trail (photos on iPad)	High cloud cover, little breezy. Can hear trucks moving.	0
MG-obs03	0	10U469155 5614960	Mg	0	0	N/A	N/A	Took pictures of tracks at pumice on the road ( iPad )	No goats. A feller buncher working around the base of the mountain	0
MG-obs01	0	10U467898 5612845	Mg	0	0	N/A	N/A	No goats present.	No snow, lots of new leaves on vegetation.	0

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MG - OBS01	Migration Corridor - East side of Truckwash Creek	10U 467898 5612845	7:05	9:05	If more space is needed in the below table, please fill out additional daily forms and indicate total number of forms above.			
MG - OBS02	UWR u-2-002 UL 11 - Keyhole Falls	10U 466760 5613967	9:30	11:30				
MG - OBS03	UWR u-2-002 UL 19 - Garibaldi Pumice	10U 469155 5614960	11:50	1:50				

Observation Site <i>(indicate if location other than OBS site)</i>	Time <i>(use 24hr clock)</i>	UTM Coordinates or Waypoint <i>(10U)</i>	Species Observed <i>(indicate Mountain Goat or other species)</i>	Observations <i>(be specific - visual sign, track, other sign)</i>	# of Animals	Age <i>(if known - refer to attached info sheet)</i>	Sex <i>(if known - refer to attached info sheet)</i>	Description of Activities <i>(feeding, moving, etc.)</i>	Comments <i>(habitat, snow conditions, etc.)</i>	Photo #s
MG-obs01	0	467898 5612845	0	0	0	0	0	0	No Goats observed On south side of river	0
MG-obs02	0	466760 5613967	0	0	0	0	0	0	Avalanche went on for 3min Very windy	832-8 33
MG-obs03	12:30	469155 5614960	Mg	Visual	1	Unk	Billy	Climbing around cliffs	Decided to bed down on bluffs below snow	834 838



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MG - OBS03	UWR u-2-002 UL 19 - Garibaldi Pumice	10U 469155 5614960	7:20	9:20				

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MG-obs03	0	469155 5614960	Blk bear	Tracks	1	Unk	Unk	Walking in at pumas mine road	Also observed raptor Up to the left of goat observation site (1 eagle)	846-8 48
MG-obs01	10:00	467898 5612845	Mg	Visual	4	2adult 2kidds	Billy Nanny Twins	Feeding halfway up mt. from birth site Bedding dwn at 11:15	1kid with billy 1kid with nanny Close together S. side of river	849-8 70
MG-obs02	0	466760 5614960	0	0	0	0	0	0	1red tailed hawk	0