



Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #28

Reporting Period: June 29th – July 5th, 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)

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		Date Prepared: August 2, 2014 Date Submitted: August 6, 2014

Owner Construction Permits and Approvals

Environmental Assessment Certificate No.E13-01 (Amendment 1, 2, 3 & 4)
Fisheries Act Subsection 35(2)(b) Authorization No. 09-HPAC-PA2-000303 (Amendment 1)
Letter of Advice for the Transmission Line No. 09-HPAC0-PA2-000303
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, 2, 3) 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 (Amendment 1)
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
SLRD Temporary Use Permit No. 34 – Boulder Creek HEF
SLRD Temporary Use Permit No. 35 – Upper Lillooet River HEF
Works Permit for Construction within FSR Right-of-Way No. 6123-14-01
Section 52(1)(b) FRPA Authorization for Ryan River Wet Crossing File No. FOR-19400-01/2014

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 (Amendment 1)

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

Wildlife Act Permits – Pacific Tailed Frog Salvage Permit # SU14-95304 &SU13-90538, Fish Salvage Permit # SU14-95329

Section 52 of the Fisheries (General) Regulations – Fish Salvage Licence #XR 139 2014

BC Safety Authority – Temporary Construction Electrical Service Permit EL-140698-2014

Municipal Wastewater Regulation - Authorization # 107032

Water Supply System Construction Permits – VCH-14-600 For Temporary Camp & VCH-14-613 for Main Camp

Water Supply System Permit to Operate Issued May 9th, 2014 for Temporary Camp & July 30th, 2014 for Main Camp

ACRONYMS:

AMBNS	Active Migratory Bird Nesting Survey
ASMP	Archaeological Sites Management Plan
ARD/ML	Acid Rock Drainage and Metal Leaching
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
EDI	Environmental Dynamics Inc.
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
PAG	Potentially Acid Generating
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 29	TJ	Overcast	<p>Construction Camp</p> <ul style="list-style-type: none"> Sewer and water line installation Camp facility installation <p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> Sediment pond construction Installing shotcrete/rock bolt stabilization to blasted rock face Drilling and blasting <p>ULRHEF Intake</p> <ul style="list-style-type: none"> Right bank diversion channel excavation Drilling and blasting <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> Powerhouse excavation
Monday June 30	TH	Sun and Cloud	<p>Construction Camp</p> <ul style="list-style-type: none"> Sewer and water line installation, tree and brush clearing Camp facility installation <p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> Sediment pond construction Installing shotcrete/rock bolt stabilization to blasted rock face Drilling, blasting and stabilization of the tunnel entrance began <p>BDRHEF Intake Access Road</p> <ul style="list-style-type: none"> The construction of the new section of the access road began <p>ULRHEF Intake</p> <ul style="list-style-type: none"> Closed due to Landslide Hazard Level <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> Tunnel portal overburden excavation began <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> Powerhouse excavation
Tuesday July 1	TH	Sun and Cloud	<p>Construction Camp</p> <ul style="list-style-type: none"> Sewer and water line installation Camp facility installation <p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> Sediment pond construction Installing shotcrete/rock bolt stabilization to blasted rock face Drilling, blasting and stabilization of the tunnel entrance <p>BDRHEF Intake Access Road</p> <ul style="list-style-type: none"> The construction of the new section of the access road Hand-falling trees along road alignment <p>ULRHEF Intake</p> <ul style="list-style-type: none"> Closed due to Landslide Hazard Level <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> Tunnel portal overburden excavation continued Installation of wire mesh on rock slopes to protect against falling rocks <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> Powerhouse excavation

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Wednesday July 2	MS,VD	Sun and Cloud	<p>Construction Camp</p> <ul style="list-style-type: none"> • Sewer and water line installation • Camp facility installation • Hydro-seeding of exposed slopes <p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> • Sediment pond construction complete • Hydro-seeding of slopes above the tunnel portal • Drilling, blasting and stabilization of the tunnel <p>BDRHEF Intake Access Road</p> <ul style="list-style-type: none"> • The construction of the new section of the access road • Hand-falling trees along road alignment <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Closed due to Landslide Hazard Level <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> • Tunnel portal overburden excavation <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Powerhouse excavation • Drilling and blasting of small boulders >30m from the Lillooet River <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 2 – Pole installation, framing and ground works • Segment 10 - Hand fallers clearing; merchantable timber management; road building
Thursday July 3	MS,VD	Sun and Cloud	<p>Construction Camp</p> <ul style="list-style-type: none"> • Sewer and water line installation • Camp facility installation • Hydro-seeding of exposed slopes <p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and stabilization of the tunnel <p>BDRHEF Intake Access Road</p> <ul style="list-style-type: none"> • The construction of the new section of the access road • Hand-falling trees along road alignment <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Right bank diversion channel excavation • Drilling and blasting <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> • Tunnel portal overburden excavation began <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Powerhouse excavation • Drilling and blasting of small boulders >30m from the Lillooet River <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 1 – ground works • Segment 5 – access road construction began following pre-work meeting • Segment 7 – Feller buncher clearing • Segment 10 – Hand falling

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Friday July 4	TH,MS,VD	Overcast, light rain	<p>Construction Camp</p> <ul style="list-style-type: none"> Sewer and water line installation; utility installation through the FSR Camp facility installation Hydro-seeding of terraced slopes <p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> Drilling, blasting and stabilization of the tunnel <p>BDRHEF Intake Access Road</p> <ul style="list-style-type: none"> The construction of the new section of the access road Hand-falling trees along road alignment <p>ULRHEF Intake</p> <ul style="list-style-type: none"> Right bank diversion channel excavation Drilling and blasting <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> Powerhouse excavation Drilling and Blasting of large boulders <p>TX-Line</p> <ul style="list-style-type: none"> Segment 2 – ground works on steep slopes with specialized excavator and with stream 30A RVMA. Segment 5 – access road construction Segment 7 – Feller buncher clearing Segment 10 – Hand falling
Saturday July 5	MS,TJ	-	<p>Construction Camp</p> <ul style="list-style-type: none"> Sewer and water line installation Camp facility installation <p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> Drilling, blasting and stabilization of the tunnel <p>BDRHEF Intake Access Road</p> <ul style="list-style-type: none"> The construction of the new section of the access road <p>ULRHEF Intake</p> <ul style="list-style-type: none"> Right bank diversion channel excavation Drilling and blasting <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> Powerhouse excavation Drilling and Blasting of large boulders <p>TX-Line</p> <ul style="list-style-type: none"> Segment 2 – ground works on steep slopes with specialized excavator and within stream 30A RVMA. Segment 4 – Feller buncher clearing Segment 5 – access road construction; ground works Segment 10 – Hand falling

IEM Team Personnel: MS – Mandala Smulders; TH – Tom Hicks; TJ – Tammie Jenkins; 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.
July 1	Site inspection	SES, CRT-ebc	<ul style="list-style-type: none"> Reviewed the need to remove 6 trees from within approved OLTC boundaries to achieve appropriate excavation slopes at the ULRHEF downstream portal. The IEM reviewed the boundary flagging, confirmed the trees to be within the OLTC and completed an AMBNS prior to providing permission to fall the 6 trees. 	N/A

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
July 3	Pre-work Meeting	SES, WEL, Innergex, Mumleqs	<ul style="list-style-type: none"> Reviewed the work plan for Segment 3 - 5 access road construction and pole installation; focusing on areas of environmental sensitivity where IEM monitoring was required, and areas where construction is likely to impact traffic on the FSR. 	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
ULRHEF, BDRHEF, and Tx Line	All ULRHEF BDRHEF, and Tx Line areas	Nesting Birds	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.
Tx-Line	Segments 1 – 6, & 10	Suitable Raptor Nesting Habitat	IEM presence is required when clearing within suitable Northern Goshawk (NOGO), Spotted Owl (SPOW), and Western Screech-Owl (WESO) 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.
Tx-Line (continued)	Segments 1 – 6, & 10 (continued)	Within 150m of wetlands or 100m of Coastal Tailed-Frog Streams	IEM presence is required when clearing within 150m of wetlands or 100m of Coastal Tailed-Frog Streams, to ensure clearing area is minimized.
		Old Growth Management Areas (OGMAs)	IEM monitoring is required when clearing within legally designated OGMAs, to ensure clearing area is minimized.
		Ungulate Winter Range (UWR)	IEM monitoring is required when clearing within identified deer and moose UWR, to ensure clearing area is minimized.
		Suitable Class 1 & 2 Grizzly Bear forage habitat	IEM monitoring is required when clearing within identified Class 1 & 2 Grizzly Bear forage habitat, to ensure clearing area is minimized.

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
<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>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. Helicopter use within the Truckwash Creek migration corridor and 200m buffer is restricted until further notice.</i>

4.0 Hydroelectric Facilities

4.1 Ancillary Components – Monitoring Results

Construction Camp

- Camp facility installation, electric fence installation, and utility installation continued.
- Hand falling of the sewer and water lines was completed following AMBNS, and utility culverts were installed through the Lillooet River FSR and Pebble Main road. 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. No environmental concerns were noted.

4.2 Boulder Creek Hydroelectric Facility – Monitoring Results

BDRHEF Downstream Portal and Powerhouse Access Road

- Tunneling activities (including: drilling, blasting, excavation, rock bolts and shotcrete/mesh installation) continued (Photo 2).
- Installation of a series of three settling ponds was completed on July 2 (Photo 1). The ponds are being used to manage water quality from seepages encountered during tunnelling activities and to manage excess process water. Once the

powerhouse excavation begins these ponds will also be used to manage seepage from the base of the excavation.

BDRHEF Intake Access Road

- Clearing of the road alignment was completed this week. Prior to clearing within UWR the IEM confirmed that clearing boundaries and UWR boundaries were clearly delineated with flagging tape. Boundaries within the UWR were reviewed with the fallers prior to clearing to ensure that falling boundaries were respected and minimized to the extent necessary to construct the new portion of the access road.
- Construction of the new section of the access road began during this reporting period once trees were felled.

Environmental Summary:

- Blasting within the tunnel was greater than 30m from Boulder Creek this week; therefore, the IEM has ceased to conduct hydrophone monitoring at the BDR downstream tunnel portal. Instream acoustic pressure monitoring will resume once blasting for the powerhouse foundation begins within 30m of Boulder Creek until the results are consistently below the 30kPa threshold and blast mitigations are deemed to be appropriate.
- Hydro-seeding of exposed slopes at the downstream tunnel portal face and at the construction camp was completed during this reporting period. Should the seed fail to germinate, additional applications during appropriate weather conditions or other slope stabilization measures (poly sheeting) may be required to ensure slopes are protected prior to fall rain events.
- No discharge from the sediment ponds was noted this week. The pH is being monitored daily by CRT-ebc and is managed with CO₂ diffusers to ensure discharge water is within surface water quality guidelines (pH = 6.5 – 9.0).
- 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.
- The gravity fed water diversion system was used in tunneling and shotcrete process works in accordance with Short Term Water Use Approval (*No.A2006123*). No water quality or environmental concerns were noted.
- Dust suppression between 0-37.5km of the Lillooet River FSR remains an outstanding issue. 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 – open*).

Photos:



Photo 1. Series of three settling ponds at the BDRHEF downstream tunnel portal work area. (July 4, 2014).



Photo 2. Tunneling works at the tunnel portal entrance. (July 4, 2014).

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded at active BDRHEF work areas during this reporting period. Tunneling dewatering was directed to the sediment ponds; however no discharge from the ponds was noted. 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 dumped within the limits of the powerhouse spoil area and suitable material was separated and hauled to the crushing/screening plant located at the 38km of the Lillooet River FSR. Blasting of exposed boulders occurred on July 4th and 5th. Blast mats were used and instream acoustic pressure monitoring was performed. The blasts did not result in instream over pressure within the Lillooet River. No environmental concerns were noted.

ULRHEF Intake and Access Roads

- Access to the work area was closed from June 30 – July 2 due to elevated risk of a landslide.
- Blasting of the right bank diversion channel and mucking of the blasted material occurred on June 29th, July 4th, and July 5th. Blast mats were used for all blasts and instream acoustic pressure monitoring was conducted during blasts within 30m of

the Lillooet River. No instream overpressures were recorded and no environmental concerns were noted.

- The hydro-seeding of the exposed cut-slopes does not appear to have successfully re-vegetated the slope. This slope may need to be hydro-seeded again once suitable weather conditions are forecast or other interim mitigation measures will need to be employed prior to the rainy season (e.g. poly sheeting) (Photo 3).

ULRHEF Downstream Portal

- Excavation of the ULRHEF portal continued throughout the week (Photo 4). Once bedrock was exposed, hand scaling and the installation of chain link mesh was completed to protect workers from falling rock. Spoil material were hauled to the lower spoil area. No environmental concerns were noted.

Environmental Summary:

- On July 1st, the IEM met with CRT-ebc superintendent and field engineers to discuss the need to cut 6 trees within the OLTC area where an AMBNS had not yet been completed. The additional falling was required to allow the slopes of the ULRHEF downstream portal to be cut to the prescribed slope angle. The IEM conducted an AMBNS between 9:30 and 10:00am. Based on the small size of the area and the high detectability of nests within the habitat, the IEM permitted a one day survey variation to the approved AMBNS protocol, and gave permission to CRT-ebc to fall the remaining 6 trees as no nests or nesting activity was observed during the AMBNS.
- The IEM will continue to monitor run-off emanating from the PAG stockpile located at the Truckwash west heading and submit water quality samples for lab analysis as soon as run-off from the pile is observed. Sampling will continue on a monthly basis according to the ARD/ML management plan. No seepage or surface run-off from this stockpile has been observed to date.

Photos:



Photo 3. Excavation activities and hydro-seeding that has not successfully germinated at the ULRHEF intake diversion (July 4, 2014).



Photo 4. Excavation of the ULRHEF downstream portal (July 5, 2014).

Water Quality Results

Date	Culvert Location	Time	Sample Location Description	Turbidity (NTU)
No WQ measurements were recorded at active ULRHEF work areas during this reporting period. Construction activities had no visual effect on WQ.				

4.4 Hydroelectric Facilities – Recommendations

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 ULRHEF and BDRHEF work areas. Instream acoustic pressure monitoring will continue during blasts at the ULRHEF intake diversion channel and the ULRHEF powerhouse until readings are shown to be consistently below 30kPa.

4.5 Hydroelectric Facilities – Upcoming Works

Excavation of the intake diversion channel is scheduled to continue next week at the ULRHEF intake provided the landslide hazard rating is at suitable levels to permit works to continue. Excavation of ULRHEF downstream tunnel portal will continue for the next 2-3 weeks. Bench excavation at the ULRHEF powerhouse and construction of the BDRHEF intake access road will continue next week.

5.0 Transmission Line

5.1 Monitoring Results

Segment 1 & 2

- Pole installation and dressing continued in Segments 1 and 2 this week (Photo 6). Temporary access tracks to the pole locations were constructed and pole foundations were installed on steep slopes using a specialized excavator (i.e. a spider hoe). No environmental concerns were noted.

Segment 3-6 & 10

- Clearing occurred in Segment 4, 7, and 10 following the completion of AMBNS (Photo 5).
- Access roads branching from the Lillooet River FSR were upgraded/constructed in Segments 5 & 10 this week.

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, SPOW, and WESO, 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 5. Pole foundation installation in Segment 2 with an excavator capable of working on steep slopes (July 5, 2014).



Photo 6. Pole dressing work in Segment 2 (July 4, 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 – 7 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 3-10.

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

Two Grizzly Bear sightings were reported during this monitoring period (July 2 & July 3, 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.

Please refer to the attached Wildlife Observation Form for a summary of observations recorded in June 2014.

7.0 Mountain Goat Monitoring Program

The following summarizes Mountain Goat mitigation measures for work activity within the Migration Corridor during this monitoring period;

1. Mountain Goat monitoring was completed periodically this week focusing on the Truckwash Creek and Keyhole falls monitoring sites as works were occurring within 500m of Mountain Goat habitats and migration routes. Mountain goat monitoring will continue to occur periodically, but daily monitoring is no longer required as the project identified critical winter and kidding period (Nov. 1 – June 15) has ended. No Mountain Goats were observed from the observation points during this reporting period.
2. Noise level monitoring equipment was removed on June 16th as the project identified critical winter and kidding period (Nov. 1 – June 15) has ended and noise monitoring is no longer required.
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 June 15th, the IEM will continue periodic Mountain Goat Monitoring as works continue within the Mountain Goat Migration Corridor at Truckwash creek (ULRHEF

downstream tunnel portal) and near the ULRHEF intake. The IEM or designate will focus on monitoring Mountain Goat activity within 500 m of construction activities at these locations. Mountain Goat monitoring effort will be shifted to the monitoring sites closest to active construction including:

- 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

Monitoring effort will be split between these two sites during early morning hours and during construction activities that have a higher potential to cause disturbance (blasting), unless safety concerns preclude from doing so. Construction activities will cease 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 during this reporting period.

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
ULR#4	Open	47km – Lillooet River FSR	A log box structure failed while being crossed by an excavator (<i>EIRO02</i>).	1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.	May 23, 2014	May 26, 2014.	-
				2. IEM to review and approved the EIR.			
				3. CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.			
				4. CRT-ebc to confirm that load ratings of equipment adhere to maximum crossing structure load ratings.			
				5. Complete FSR and temporary access road crossing assessment by a Qualified Professional.			
				6. Determine the requirements for crossing structure remediation or replacement			
				7. Develop a work plan to remediate the failed log box structure and execute the approved plan during the 2014 instream works window.			
					June 26, 2014 Transmitted to IEM on July 15, 2014		
					August 1 – September 15		

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Issue Closed
ULR#5	Closed	39.9km – Lillooet River FSR	Rock truck rollover and spill (EIR003).	1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.	May 27, 2014	June 3, 2014	Considered closed June 26th, 2014 Date on the Cailber Engineering report
				2. IEM to review and approved the EIR.			
				3. CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.			
				4. Road shoulder delineation (where applicable).			
				5. CRT-ebc to develop and implement communication protocols for environmental incident response.			
				6. Road stability assessment to be completed on Lillooet River FSR and temporary roads.		Transmitted to IEM on July 15, 2014	
ULR#7	Open	34.9km – Lillooet River FSR	Silva Creek log structure failed while being crossed by a Megaton Truck (EIR005).	1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.	May 27, 2014	June 3, 2014	-
				2. IEM to review and approved the EIR.			
				3. CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.			
				4. CRT-ebc to confirm that load ratings of equipment adhere to maximum crossing structure load ratings.			
				5. Complete FSR and temporary access road crossing assessment by a Qualified Professional.		June 26 th , 2014	
				6. Complete repairs of the crossing structure as per MFLNRO recommendations (May 30, 2014) in accordance with appropriate work planning protocols and construction procedures.		Pending confirmation form MFLNRO	

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Issue Closed
ULR#8	Open	39.7km – Lillooet River FSR	Stream 9 – log box structure failure (EIR004).	1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.	May 28, 2014	June 3, 2014	
				2. IEM to review and approved the EIR.			
				3. CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.			
				4. CRT-ebc to confirm that load ratings of equipment adhere to maximum crossing structure load ratings.			
				5. Complete FSR and temporary access road crossing assessment by a Qualified Professional.		June 26, 2014	-
				6. Determine the requirements for crossing structure remediation or replacement and execute according to the appropriate work planning protocols and construction procedures.		Transmitted to IEM on July 15, 2014	
				7. Develop a work plan to remediate the failed log box structure and execute during the 2014 instream works window.		2014 instream work window (August 1 – September 15)	
ULR#10	Open	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 st , 2014 subject to the following:		June 1, 2014	
				a. CRT-ebc obtaining approval from MFLNRO for the temporary steel plates		June 4, 2014	

				<p>b. Crossing assessments completed by a QP.</p> <p>c. Recommendations submitted to MFLNRO for review and approval. Work plan submission and repairs to be completed prior to September 15</p> <p>d. Hauling above 38km of the Lillooet River FSR to be restricted to BCL-625 until modifications are approved by MFLNRO.</p>		<p>June 26, 2014 Transmitted to IEM on July 15, 2014</p> <p>September 15, 2014</p> <p>May 31, 2014 Transmitted to IEM on July 15, 2014</p>	
ULR#12	Open	Lillooet River FSR	Inadequate dust suppression between 0-37.5km of the Lillooet River FSR	<ol style="list-style-type: none"> 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#15	Closed	North side (left bank) of the ULRHEF intake	Stripping and grubbing proceeded without an approved work plan or LTC (<i>EIR008</i>)	<ol style="list-style-type: none"> The IEM reported the incident to CRT-ebc environmental personnel. No further unauthorized construction activities occurred after the initial detection of the incident. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident. IEM to review and approved the EIR. CRT-ebc has committed to preparing and submitting a work plan for bulk excavation of the left bank for review and LTC issuance prior to resuming work on the left bank. 	June 12, 2014	<p>June 15, 2014</p> <p>July 5, 2014</p>	July 5, 2014
<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 Issue Closed
<i>No outstanding environmental issues (next ITM – Tx#2)</i>							

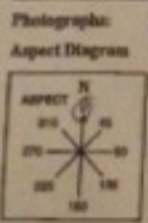
Appendix B. Bear sighting log.

BC 9587  **BEAR OBSERVATION CARD** 
 Return to: Local BC Parks Office
 494 Albert Chelaine
 District Name of Provincial Park

YYMMDDC 12/07 Date (dd mo) 494 District
 Observer Name, Address and Phone Number: _____
 Location in provincial area (i.e., name of campground, campsite, day-use area, trail name, lake, stream, nearest geographic feature, etc.) Upper Lillooet 48km
 Elevation (metres or feet) _____ Observer Distance (metres or feet) _____

UTM Zone _____ Bearing or Longitude _____ Northing or Latitude _____
 Weather: Rain Overcast Cloudy Sun Map Datum: NAD83 NAD83 GPS
 Bear Species: Grizzly bear Black bear Unknown ID Confidence: High Medium Low
 Colour code: Brownish-brown, Black, Grey, Dark brown, Light brown, Blood, Other: _____
 Distinguishing features (tag, collar, scars): _____
 Abundance: Common Frequent Occasional Rare
 Observation Type: Sighting, track, scat, digging, hole, foraging sign, rub tree, bed, den
 Number Observed: _____
 Adult male Adult female Young of yr. Sub-Adult Unclassified Was the bear aware of your presence? Yes No N/A
 Food association: none, alder, grateded, garbage, vehicle, cache

Bear(s) activity: a) feeding b) foraging c) fishing d) scavenging e) drinking f) wallowing 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) denouncing g) charge h) retreat i) fight j) play k) travel
 Other: _____
 Estimated level of habituation: a) sighting or sign b) normal behavior c) avoids people d) reacts defensively after suspicion or provocation e) tolerates but ignores people f) shows repeated interest in people g) habituated to people and their food h) displays aggressive behavior, threat to humans k) unknown
 Repeat offender: Yes No
 If yes, provide background information (i.e., complaint/occurrence report): _____




Notes: Mother and baby cub walking on North side of river at 48km. Potentially hunting as there was also a moose walking through the river nearby.



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 resulted in dealing with bear sighting, i.e., destroy, relocation or aversive conditioning.

Appendix B. Bear sighting log.

BEAR OBSERVATION CARD

Return to: Local BC Parks Office

BC 9587 

14/07/02  04:45  311 Upper Lillooet River (SLRD)
 YY/MM/DD Time (24 hrs) District Name of Protected Area

Observer Name, Address and Phone Number: Albert Chateleine, 604-894-5002

Location in protected area (i.e., name of campground, campsite, dayuse area, trail name, lake, stream, nearest geographic feature, etc.): Km 24 Lillooet River BR 30 m
 Elevation (metres or feet) Observer Distance (metres or feet)

U.T.M. 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:

Distinguishing features (tag, collar, scars):

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

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

Food association: none odour unattended garbage vehicle cache

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:

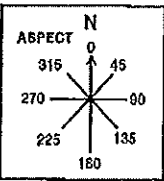
Estimated level of habituation: a) sighting or sign b) normal behaviour - avoids people c) reacts defensively after surprise or provocation
 d) tolerates but ignores people e) shows repeated interest in people f) habituated to people and their food g) displays aggressive behaviour, threat to humans h)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

Repeat offender: Yes No

If yes, provide background information (i.e., complaint/occurrence report)

Photographs: Yes No

Aspect Diagram Notes: Observed crossing road and fleeing into trees.



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.

FM 602

Upper Lillooet Hydro Project - Wildlife Observation Form

Date	Time	Observer (Company)	Species or Description	Location	Comments
6/1/2014	4:30:00 PM	Etienne Turgeon	Harlequin Duck	17km Lill. FSR	
6/3/2014	10:30:00 AM	Cindi McPherson	Black Bear	41.3km Lill. FSR	
6/3/2014	4:10:00 PM	Greg Davis	Blacktail Deer	44 km Lill. FSR	
6/3/2014	5:20:00 PM	Greg Davis	Grizzly Bear	41 km Lill. FSR	
6/3/2014	6:00:00 PM	Greg Davis	Blacktail Deer	17 km Lill. FSR	
6/3/2014	10:30:00 AM	Cindi McPherson	Grizzly Bear	Near 42.5km Lill. FSR	
6/4/2014		Liz & Greg	Blacktail Deer	46 km	
6/4/2014		Liz & Greg	Blacktail Deer	47.5 km	
6/4/2014		Liz & Greg	Blacktail Deer	26 km	
6/4/2014		Liz & Greg	Blacktail Deer	45 km	
6/4/2014		Liz & Greg	Blacktail Deer	44 km	Crossing Truckwash
6/4/2014		Liz & Greg	Blacktail Deer	20.5 km	
6/4/2014		Liz & Greg	Blacktail Deer	17.5 km	
6/6/2014	5:30:00 PM	Greg Davis	Blacktail Deer	44.5 km	
6/6/2014		Leah Ballin (ecofish)	Black bear	BDR intake access road	
6/7/2014	1:05:00 PM	Greg Davis	Blacktail Deer	46.5 km	
6/7/2014	2:00:00 PM	Greg Davis	Blacktail Deer	26 km	
6/7/2014	9:20:00 AM	Greg Davis	Blacktail Deer	43 km	
6/9/2014	10:10:00 AM	Greg Davis	Blacktail Deer	46.5 km	
6/10/2014	12:00:00 PM	Liz & Greg	Blacktail Deer	Pebble Main 0 km	
6/16/2014	7:30:00 AM	Tom Hicks	Moose	11km	crossing FSR
6/16/2014		Daniel Beaupré	Wolfe	42.5km	
6/17/2014	7:00:00 AM	Greg Davis	Black Bear	3 km	
6/17/2014	12:00:00 PM	Greg Davis	Blacktail Deer	46.5 km	
6/17/2014	5:45:00 AM	Jordan Gagné	Black Bear	10.5km	crossing FSR
6/21/2014	2:25:00 PM	Greg Davis	Bear	31.5 km	Very small
6/22/2014	9:30:00 AM	Cindi McPherson	Black Bear	16 km	
6/22/2014	5:30:00 PM	Lydia Foss	Black Bear	10km	
6/27/2014	2:15:00 PM	Ian McKeachie	Mule Deer	2km Camp Road	
6/29/2014	5:50:00 AM	Lydia Foss	Cougar	20km Lill. FSR	Crossing road
6/29/2014	7:15:00 PM	Etienne Turgeon	Black Bear	35km Lill. FSR	Crossing road
6/29/2014	7:45:00 PM	Etienne Turgeon	Black Bear	5km Lill. FSR	2 baby bears