Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #29

Reporting Period: July 6th – July 12th, 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
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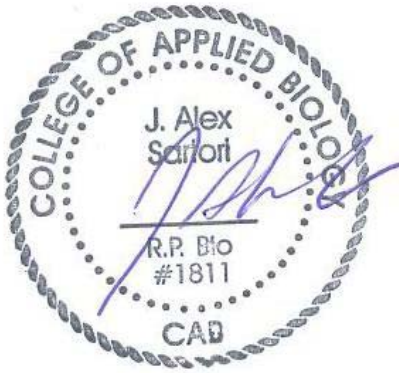
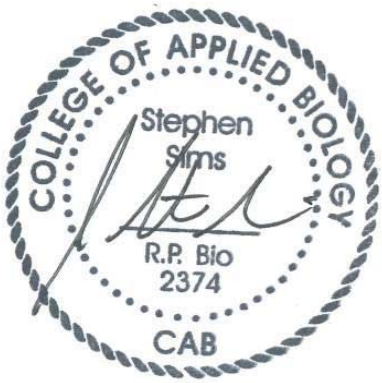
Trevor Andrews	Fisheries and Oceans Canada	 **J. Alex Sartori, RPBio** Independent Environmental Monitor (IEM)  **J. Stephen Sims, RPBio** Delegated IEM
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Danielle Cunningham	MFLNRO – Land and Resources	
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Pontus Lindgren	Westpark Electric Ltd.	
Harriet VanWart	Lil'wat Nation	
		Date Prepared: August 11, 2014 **Date Submitted:** August 15, 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-14-613 for Construction Camp
Water Supply System Permit to Operate for Construction 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 July 6	MS	Overcast, light rain	***Construction Camp*** • Sewer and water line installation • Camp facility installation ***BDRHEF Tunnel Portal*** • Drilling, blasting and stabilization of the tunnel **BDRHEF Intake Access Road** • Hand falling along the access road alignment • Construction of the new section of the access road ***ULRHEF Intake*** • Right bank diversion channel excavation • Drilling and blasting • Construction of access road to connect the upstream diversion channel plug and the spoil area ***ULRHEF Downstream Portal*** • Tunnel portal overburden excavation ***ULRHEF Powerhouse*** • Powerhouse excavation • Drilling and Blasting of large boulders ***TX-Line*** • Segment 2 – ground works on steep slopes with specialized excavator Segment 4 – feller buncher clearing • Segment 5 – ground works
Monday July 7	MS,VD	Sun and Cloud	***Construction Camp*** • Sewer and water line installation • Camp facility installation ***BDRHEF Tunnel Portal*** • Drilling, blasting and stabilization of the tunnel **BDRHEF Intake Access Road** • Hand falling along the access road alignment completed with the exception of the active nest buffer areas • Construction of the new section of the access road ***ULRHEF Intake*** • Right bank diversion channel excavation • Drilling and blasting • Construction access road to connect the upstream diversion channel plug and the spoil area • Hand falling at north side spoil area completed within confirmed inactive nest buffer. ***ULRHEF Downstream Portal*** • Tunnel portal overburden excavation ***ULRHEF Powerhouse*** • Powerhouse excavation • Drilling and Blasting of large boulders ***TX-Line*** • Segment 2 – ground works on steep slopes with specialized excavator Segment 4 – feller buncher clearing • Segment 5 – ground works • Segment 10 – hand falling

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Tuesday July 8	MS	Sun and Cloud	***Construction Camp*** • Sewer and water line installation • Camp facility installation ***BDRHEF Tunnel Portal*** • Drilling, blasting and stabilization of the tunnel **BDRHEF Intake Access Road** • Construction of the new section of the access road ***ULRHEF Intake*** • Closed due to landslide risk; no construction ***ULRHEF Downstream Portal*** • Tunnel portal overburden excavation ***ULRHEF Powerhouse*** • Powerhouse excavation • Drilling and Blasting of large boulders ***TX-Line*** • Segment 2 – ground works on steep slopes with specialized excavator, grinding waste wood and brush piles • Segment 3 – helipad clearing, slashing crew brushing • Segment 5 – ground works
Wednesday July 9	MS,TH,VD	Sun and Cloud	***Construction Camp*** • Sewer and water line installation • Camp facility installation ***BDRHEF Tunnel Portal*** • Drilling, blasting and stabilization of the tunnel • First encounter of seepage from tunnel; pumped from sump at portal entrance into sediment ponds **BDRHEF Intake Access Road** • Construction of the new section of the access road ***ULRHEF Intake*** • Closed due to landslide risk; no construction ***ULRHEF Downstream Portal*** • Tunnel portal overburden excavation ***ULRHEF Powerhouse*** • Powerhouse excavation • Drilling and blasting of large boulders ***TX-Line*** • Segment 2 – ground works on steep slopes with specialized excavator, grinding waste wood and brush piles • Segment 5 – ground works • Segment 9 – brushing with feller buncher began following pre-work meeting • Segment 10 – hand falling, timber management and road upgrades

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Thursday July 10	VD	Sun and Cloud	***Construction Camp*** • Sewer and water line installation • Camp facility installation ***BDRHEF Tunnel Portal*** • Drilling, blasting and stabilization of the tunnel • Seepage from tunnel pumped from sump at portal entrance into sediment ponds **BDRHEF Intake Access Road** • Construction of the new section of the access road ***ULRHEF Intake*** • Closed due to landslide risk; no construction ***ULRHEF Downstream Portal*** • Tunnel portal overburden excavation ***ULRHEF Powerhouse*** • Powerhouse excavation • Drilling and blasting of large boulders ***TX-Line*** • Segment 1 – collection of previously felled timber from slopes above 41km of the Lillooet River FSR with a helicopter • Segment 2 – ground works on steep slopes with specialized excavator • Segment 3 – ground works • Segment 5 – ground works, slashing previously felled timber • Segment 9 – spur road construction • Segment 10 – hand falling, timber management and road upgrades
Friday July 11	TH, VD	Overcast, light rain	***Construction Camp*** • Sewer and water line installation • Camp facility installation ***BDRHEF Tunnel Portal*** • Drilling, blasting and stabilization of the tunnel • Seepage from tunnel pumped from sump at portal entrance into sediment ponds **BDRHEF Intake Access Road** • Bulk excavation, drilling, and blasting along new section of the access road ***ULRHEF Intake*** • Closed due to landslide risk; no construction ***ULRHEF Downstream Portal*** • Tunnel portal overburden excavation ***ULRHEF Powerhouse*** • Powerhouse excavation • Drilling and Blasting of large boulders ***TX-Line*** • Segment 3 – hand falling within Stream 80A RVMA • Segment 5 – ground works, slashing previously felled timber • Segment 9 – spur road construction • Segment 10 – timber management and road upgrades
Saturday July 12	-	-	-

IEM Team Personnel: *MS – Mandala Smulders; TH – Tom Hicks; 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 9	*Site inspection/tour*	*SES, CRT-ebc, Innergex, Lil'wat Nation*	• Site tour with Lil'wat nation council members to discuss current and future site conditions, construction schedule, staffing needs, and local participation.	*N/A*
	Pre-work Meeting	*SES, WEL, Innergex, Mumleqs*	• Reviewed the work plan for Segment 9 access road upgrade works, focusing on areas of environmental sensitivity where IEM monitoring was required, and areas where drainage upgrades or culvert installation are required.	*N/A*
July 10	*Email correspondence*	*SES, CRT-ebc, Innergex*	• Confirmed that blasting at the ULRHEF powerhouse and intake diversion channel are no longer at risk of causing instream acoustic overpressure (>30kPa), provided that the mitigations employed during monitored blasts are also employed at all future blasts at these locations. This decision was based on the instream acoustic pressure monitoring results collected during recent blasting activities at both locations from July 4 - July 8th (inclusive; 16 separate events). No instances of instream overpressure were recorded during any of the 16 blasts monitored.	*N/A*
July 11	*Email correspondence*	*SES, CRT-ebc, Innergex*	• Discussed the need to employ blasting mitigations for the BDR intake access road blasting, as slopes were too steep to permit the use of blast mats. As an alternative to blast mats, CRT-ebc proposed to protect avian and mountain goat VC's by minimizing fly rock and noise through the use of minimal charge weights, blast hole stemming and having a single charge per delay. The proposed alternative approach was approved by the IEM.	*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 – 7, & 9-10*	*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 – 7, & 9-10 (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.*
ULRHEF powerhouse, and Intake diversion channel	*Within 50m of identified archeologically significant area*	*Archaeologically significant site EdRu-3*	*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.*
	Within 30m of the Upper Lillooet River	*Riparian area and fish bearing streams*	*IEM presence is required when working within 30m of the Upper Lillooet River. Instream acoustic pressure monitoring required when blasting within 30m of the Upper Lillooet River.*

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
Lillooet River FSR; ULRHEF intake access; BDR intake access; FSR realignment at Truckwash Creek	*Access roads above the lower limit of the 200m buffer Truckwash Creek Migration Corridor to the ULRHEF intake; including FSR realignment at Truckwash Creek*	*Mountain Goat UWR*	*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.*

4.0 Hydroelectric Facilities

4.1 Ancillary Components – Monitoring Results

Construction Camp

- Camp facility installation, electric fence installation, and utility installation continued. No environmental concerns were noted.

38km Laydown

- 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 1).
- The settling ponds installed during the previous monitoring period were effectively used to manage water from seepages encountered during tunnelling activities and to manage excess process water this week. No discharge from the sediment ponds occurred this week, therefore no water quality samples were collected. Once the powerhouse excavation begins these ponds will also be used to manage seepage from the base of the excavation in addition to the seepage/process water from the tunneling operations.

BDRHEF Intake Access Road

- Clearing of the road alignment continued this week, the remaining area along the road alignment to be cleared is within an active bird nest buffer and will only be cleared following confirmation from the contractor's QP.
- Following tree falling, construction of the new section of the access road continued for the first 200m during this reporting period (Photo 2).
- Blasting of bedrock within the road alignment was completed using revised blasting mitigations as the use of blast mats was not feasible due to the steepness of the terrain.

Environmental Summary:

- Tunneling activities encountered seepage water during this monitoring period. The water flowed out of the tunnel, and was collected at the portal tunnel entrance in a sump. The water was then pumped from the sump to the oil/water separator, pH adjustment holding tank, and settlement ponds for treatment. The pH was monitored daily by the contractor and a CO_2 diffuser was used as necessary to ensure pH was within acceptable surface water quality guidelines (pH 6.5 – 9). No discharge from the treatment ponds occurred during this reporting period; therefore the IEM did not collect water quality results.
- Hydro-seeding of exposed slopes at the downstream tunnel portal face has not resulted in vegetation growth that will help to stabilize the slope. Should the seed fail to germinate, additional applications during appropriate weather conditions or other slope stabilization measures (*e.g.* poly sheeting, coco matting, etc.) may be required to ensure slopes are protected prior to fall rain events.
- 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:

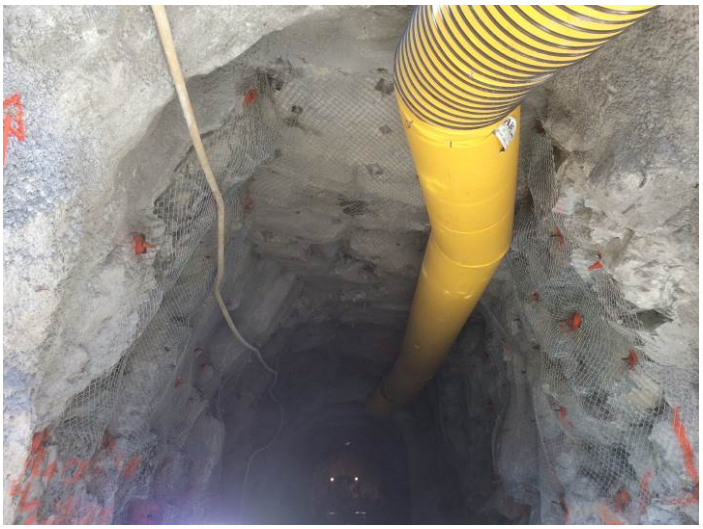

Photo 1. Tunneling works at the tunnel portal entrance. (July 9, 2014).

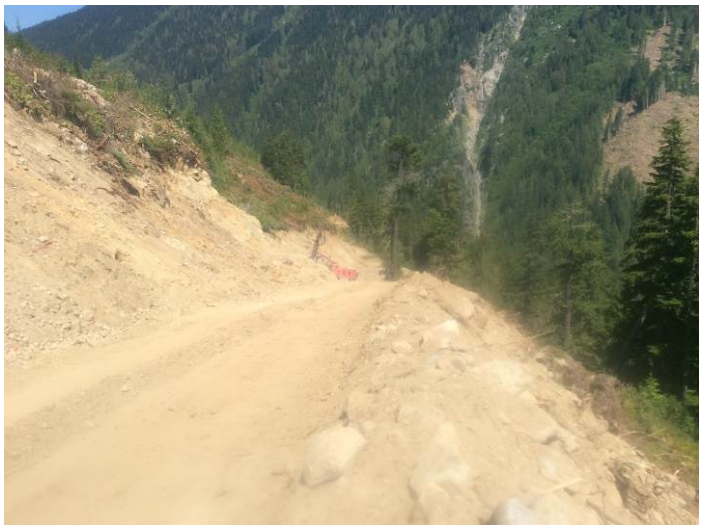

Photo 2. Construction of the BDR intake access road. (July 11, 2014).

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. Seepage water from tunneling activities was directed to the sediment ponds; however no discharge from the ponds occurred 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 this week (Photo 3). 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 km 38 laydown. Blasting of exposed boulders occurred on July 6th-8th. Blasts mats were used and instream acoustic pressure monitoring was performed. The blasts did not result in instream overpressure within the Lillooet River. No environmental concerns were noted.

ULRHEF Intake and Access Roads

- Access to the work area was closed from July 8th - July12th due to elevated risk of a landslide.
- Blasting of the right bank diversion channel and mucking of the blasted material occurred on July 6th and 7th. 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.

- Construction of a haul road to access the south spoil area from the diversion channel excavation commenced this week. The location and plan for the haul road was discussed onsite with the IEM prior to commencing construction of this temporary road. The haul road will eventually be used to access and remove the upstream diversion channel plug during the commissioning of the diversion channel (Photo 4)
- 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, coco matting, etc.) (Photo 4).

ULRHEF Downstream Portal

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

Environmental Summary:

- The IEM has determined that instream acoustic pressure monitoring during blasting at the ULRHEF powerhouse and intake diversion channel are no longer at risk of causing instream acoustic overpressure (>30kPa) provided that the mitigations employed during monitored blasts are also employed at all future blasts at these locations. This decision was based on the instream acoustic pressure monitoring results collected during recent blasting activities at both locations from July 4th - July 8th (inclusive; 16 separate events). No instances of instream overpressure were recorded during any of the 16 blasts monitored.
- The IEM will continue to monitor run-off emanating from the PAG stockpile located at the Truckwash west heading and submitted 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:

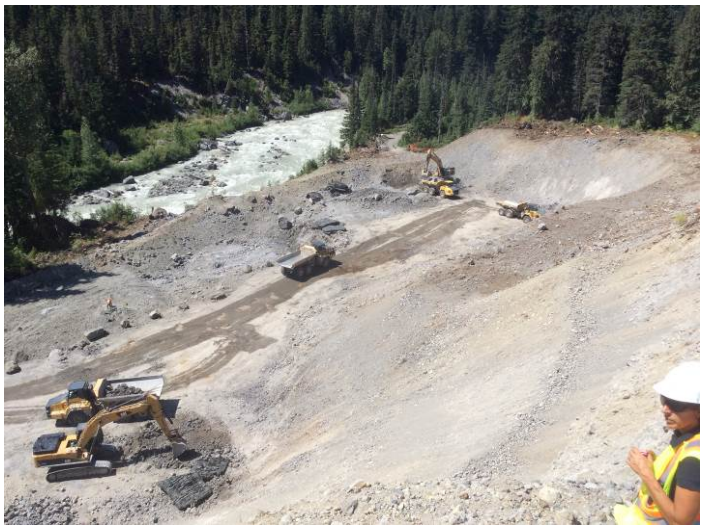

Photo 3. Excavation of the ULRHEF powerhouse footprint (July 9, 2014).

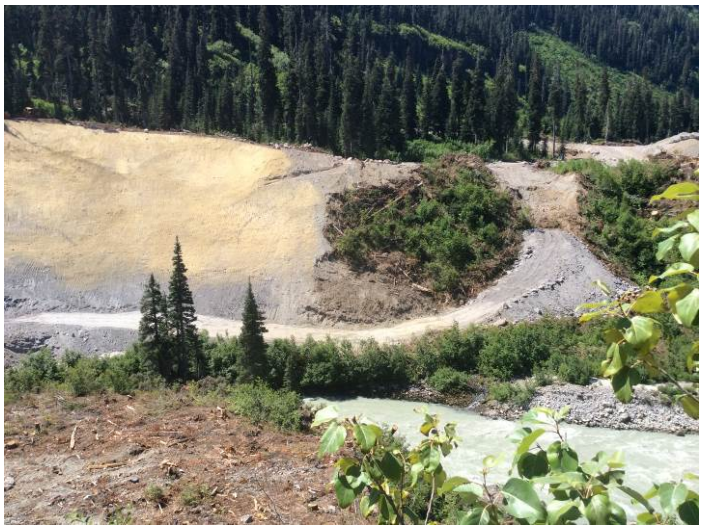

Photo 4. Construction underway for temporary haul road. Hydro-seeding has not successfully germinated at the ULRHEF intake diversion (July 9, 2014).

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*)

Instream acoustic pressure monitoring results have been consistently below 30kPa; therefore monitoring has been deemed to longer be required by the IEM. CRT-ebc must continue to employ the current blasting mitigation measures during all future blasts at the ULRHEF and BDRHEF work areas. Should changes to the mitigation measure be required, the IEM will resume instream acoustic pressure monitoring.

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 two to three 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 1-7 & 9-10

- Felled timber was removed from the steep slopes in Segment 1 (above 41km of the Lillooet River FSR) by helicopter. All merchantable timber was decked roadside and at 40.5km of the Lillooet River FSR.
- Pole installation and dressing continued in Segments 2 and began in Segment 5 this week. Temporary access tracks to the pole locations were constructed and pole foundations were installed on steep slopes in Segment 2 using a specialized spider hoe excavator (Photo 5).
- Clearing occurred in Segment 3, 4, and 10 following the completion of AMBNS.
- Access roads were upgraded/constructed in Segments 7, 9, & 10 this week (Photo 6).

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 (OGMAs), 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 environmental issues were observed.
- AMBNS were completed prior to all vegetation clearing along the TX-Line alignment during this reporting period.

Photos:

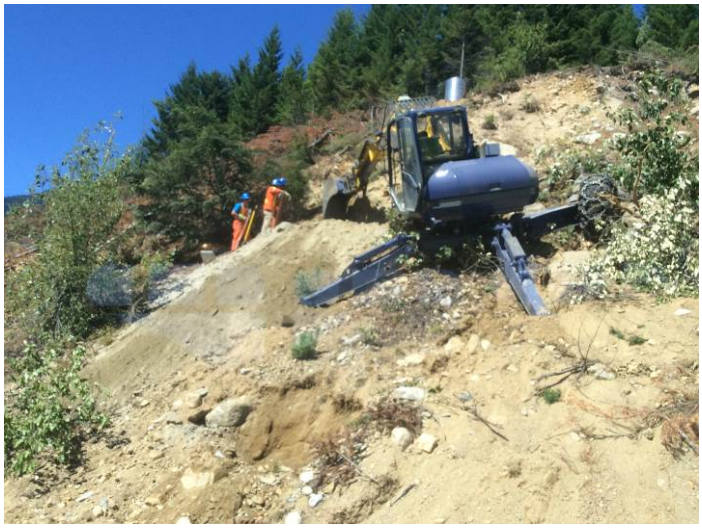

Photo 5. Pole foundation installation in Segment 2 with an excavator capable of working on steep slopes (July 9, 2014).

Photo 6. Clearing and access track construction in Segment 7 (July 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, 4, & 7 and in Segment 9 and 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 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

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.. 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.

The last Mountain Goat sighting at the keyhole falls monitoring site (OBS02) occurred on June 19th, 2014 and the last sighting on the south side of the Lillooet River from the Truckwash Creek site (OBS-01) occurred on June 17th, 2014. As it has been more than three weeks since the last observation of Mountain Goats in the Truckwash Creek area, the helicopter use within the Truckwash Creek migration corridor and 200m is permitted within the late summer period, provided flights occur according to the mitigation measures outlined in the Mountain Goat Management Plan. If Mountain goats are observed in the area during a helicopter flight, a 2000-m horizontal and 400 m vertical separation must be maintained at all times as outlined in the Management Plan for the Mountain Goat (*Oreamnos americanus*) in British Columbia[1].

[1] Mountain Goat Management Team. 2010. Management Plan for the Mountain Goat (*Oreamnos americanus*) in British Columbia. Prepared for the BC Ministry of Environment, Victoria, BC. 65-66 pgs. Available online at: http://www.env.gov.bc.ca/wld/documents/recovery/management_plans/MtGoat_MP_Final_28May2010.pdf. Accessed on August 12, 2014.

8.0 Environmental Issues Tracking Matrix (ITM)

8.1 Hydroelectric Facilities (ULRHEF & BDRHEF)

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
ULR#4	**Open**	47km – Lillooet River FSR	A log box structure failed while being crossed by an excavator (***EIR002***).	1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident. 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.	May 23, 2014	May 26, 2014.	-
				5. Complete FSR and temporary access road crossing assessment by a Qualified Professional. 6. Determine the requirements for crossing structure remediation or replacement		June 26, 2014 Transmitted to IEM on July 15, 2014	
				7. Develop a work plan to remediate the failed log box structure and execute the approved plan during the 2014 instream works window.		*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#7	**Closed**	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. 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.	*May 27, 2014*	*June 3, 2014*	*July 7th, 2014-*
				5. Complete FSR and temporary access road crossing assessment by a Qualified Professional.		*June 26th, 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.		*July 7th, 2014*	
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. 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.	*May 28, 2014*	*June 3, 2014*	-
				5. Complete FSR and temporary access road crossing assessment by a Qualified Professional. 6. Determine the requirements for crossing structure remediation or replacement and execute according to the appropriate work planning protocols and construction procedures.		June 26, 2014 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)*	

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#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 1st, 2014 subject to the following:		*June 1, 2014*	
				a. CRT-ebc obtaining approval from MFLNRO for the temporary steel plates		*June 4, 2014*	
				b. Crossing assessments completed by a QP.		June 26, 2014 Transmitted to IEM on July 15, 2014	
				c. Recommendations submitted to MFLNRO for review and approval. Work plan submission and repairs to be completed prior to September 15		*September 15, 2014*	
				d. Hauling above 38km of the Lillooet River FSR to be restricted to BCL-625 until modifications are approved by MFLNRO.		May 31, 2014 Transmitted to IEM on July 15, 2014	
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*	-
							next ITM – ULR#16

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
No outstanding environmental issues (next ITM – Tx#2)							