


Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #68

Reporting Period: June 28 – July 4, 2015

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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Owner Construction Permits and Approvals

Environmental Assessment Certificate No. E13-01 (Amendment 1, 2, 3, 4, 5 & 6)
 Fisheries Act Subsection 35(2)(b) Authorization No. 09-HPAC-PA2-000303 (Amendment 1, 2)
 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, 4, 5, 6, 7) No. L49717
 Occupant Licence to Cut (BDRHEF – KM 38 laydown) No. L49698
 Occupant Licence to Cut (BDRHEF Amendments 1, 2, 3) No. L49816
 Occupant Licence to Cut (TX Line Amendment 1, 2, 3, 4, 5, 6, 7, 8, 9) 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
 SLRD Building Permit (10864) – Upper Lillooet River HEF Powerhouse
 SLRD Building Permit (10865) – Boulder Creek HEF Powerhouse
 Works Permit for Construction within FSR Right-of-Way No. 6123-14-01
 Works Permit for Construction within FSR Right-of-Way No. 7977-15-01
 Section 52(1)(b) FRPA Authorization for Ryan River Wet Crossing File No. FOR-19400-01/2014
 MOTI Permit to Construct, Use and Maintain Works Upon the Right-Of-Way of a Provincial Public Highway No. 2014-06099

Contractor Construction Permits and Approvals

Magazine Licence File No. UL76018 (Renewal 1)
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 (Renewal 1)
Wildlife Act Permits – Pacific Tailed Frog Salvage Permit # SU15-164805
Fisheries and Oceans Canada – Anadromous Fish Salvage Permit #XR 178 2015
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 Main Camp
Water Supply System Permit to Operate Issued July 30th, 2014 for Main Camp
Section 6(3) and Schedule 3 Wildfire Regulations Fire Exemption for Ryan River Bridge File No. 14350-07
SLRD Building Inspection Report dated August 13, 2014 - Construction Camp Building Permit No. 10830
Lillooet River FSR Temporary Road Closures Approval File No. 11250-32/6123 (Amendment 1, 2)
Lillooet South FSR Temporary Road Closures Approval File No. 11250-32/7977
SLRD Building Permits for Mechanic Shop (10862) and Carpentry Shop (10836) dated March 18, 2015
SLRD Building Permit for Boulder Powerhouse Foundations and Stage 2 (10865) dated June 15, 2015

ACRONYMS:

AMBNS	Active Migratory Bird Nesting Survey	INX	Innergex Renewable Energy Inc.
Andritz	Andritz Hydro Canada Inc.	ISW	Instream Works
ANFO	Ammonia nitrate fuel oil (industrial explosive)	ITM	Environmental Issue Tracking Matrix
ASMP	Archaeological Sites Management Plan	JEM	JEM Energy Ltd. (Delegate Independent Engineer)
ARD M/L	Acid Rock Drainage and Metal Leaching	LTC	Leave to Construct
BCEAO	British Columbia Environmental Assessment Office	MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
BCWQG	British Columbia Water Quality Guidelines	MOE	Ministry of Environment
BDRHEF	Boulder Creek Hydroelectric Facility	MOTI	Ministry of Transportation and Infrastructure
BG	Background	NCD	Non Classified Drainage
BKL	BKL Consultants Ltd.	OLTC	Occupational License to Cut
CE	CRT-ebc Construction Inc.	PAG	Potentially Acid Generating
DFO	Fisheries and Oceans Canada	ROW	Right of Way
DS	Downstream	RVMA	Riparian Vegetation Management Area
EAC	Environmental Assessment Certificate	SES	Sartori Environmental Services
EAO	Environmental Assessment Office	SLRD	Squamish-Lillooet Regional District
Ecofish	Ecofish Research Ltd.	Stringer Line	Temporary Backfeed Transmission Line
Ecologic	Ecologic Consulting	TX Line	Transmission Line
EIR	Environmental Incident Report	ULRHEF	Upper Lillooet Hydroelectric Facility
ESC	Erosion and Sediment Control	UWR	Ungulate Winter Range
FAM	Field Advice Memorandum	VC	Valued Component
FSR	Forest Service Road	WEL	Westpark Electric Ltd.
GWR	Mountain Goat Winter Range	WEMR	Weekly Environmental Monitoring Report
Hedberg	Hedberg and Associates Ltd.	WHA	Wildlife Habitat Area
HWM	High water mark	WQ	Water Quality
IE	Independent Engineer (True North Energy)		
IEM	Independent Environmental Monitor		

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	Key Monitoring Locations & Activities
Sunday, June 28	AA	Sunny	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Dust suppression on Lillooet River FSR from KM 37.5 to KM 42.5 • KM 38 laydown area closed due to landslide risk <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Penstock installation at 3+850 <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>BDRHEF Intake, Crane Pad and Access Road</p> <ul style="list-style-type: none"> • Blasting, rock hammering and excavation <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 11 <ul style="list-style-type: none"> ➢ Vans Creek bridge installation
Monday, June 29	TH	Sunny	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Dust suppression on Lillooet River FSR from KM 37.5 to KM 42.5 • KM 38 laydown area closed due to landslide risk <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Penstock installation at 3+900 <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>BDRHEF Intake, Crane Pad and Access Road</p> <ul style="list-style-type: none"> • Blasting, rock hammering and excavation <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 3 <ul style="list-style-type: none"> ➢ Pole stringing and clipping • Segment 9a & 10 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations • Segment 11, 12 & 14 <ul style="list-style-type: none"> ➢ Road construction

Date	IEM Team Personnel	Weather Conditions	Key Monitoring Locations & Activities
Tuesday, June 30	TH	Sunny	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Dust suppression on Lillooet River FSR from KM 37.5 to KM 42.5 <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Penstock installation at 3+900 <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Rebar installation and formwork • Manifold installation <p>BDRHEF Intake, Crane Pad and Access Road</p> <ul style="list-style-type: none"> • Blasting, rock hammering and excavation <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 3 <ul style="list-style-type: none"> ➢ Pole stringing and clipping • Segment 9a & 10 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations • Segment 11, 12 & 14 <ul style="list-style-type: none"> ➢ Road construction
Wednesday, July 1	BA	Sunny	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Dust suppression on Lillooet River FSR from KM 37.5 to KM 42.5 • KM 38 laydown area closed due to landslide risk <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Penstock installation at 3+900 <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Rebar installation and formwork • Manifold installation <p>BDRHEF Intake, Crane Pad and Access Road</p> <ul style="list-style-type: none"> • Blasting, rock hammering and excavation • Slope stabilization works <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction <p>TX-Line</p> <ul style="list-style-type: none"> • No activity
Thursday, July 2	BA	Sunny	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Dust suppression on Lillooet River FSR from KM 37.5 to KM 42.5 • KM 38 laydown area closed due to landslide risk <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Closed due to landslide risk

Date	IEM Team Personnel	Weather Conditions	Key Monitoring Locations & Activities
			<p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Penstock installation at 3+900 <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>BDRHEF Intake, Crane Pad and Access Road</p> <ul style="list-style-type: none"> • Blasting, rock hammering and excavation • Slope stabilization works <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 6 & 9a <ul style="list-style-type: none"> ➢ Groundworks for pole foundations • Segment 12 & 14 <ul style="list-style-type: none"> ➢ Road construction
Friday, July 3	BA	Sunny	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Dust suppression on Lillooet River FSR from KM 37.5 to KM 42.5 • KM 38 laydown area closed due to landslide risk <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Penstock installation at 3+900 <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Closed due to landslide risk <p>BDRHEF Intake, Crane Pad and Access Road</p> <ul style="list-style-type: none"> • Demobilization due to wildfire risk <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 10 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations
Saturday, July 4	-	Sunny	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Works suspended due to wildfire evacuation <p>ULRHEF Intake</p> <ul style="list-style-type: none"> • Works suspended due to wildfire evacuation <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Works suspended due to wildfire evacuation <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Works suspended due to wildfire evacuation <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Works suspended due to wildfire evacuation <p>BDRHEF Intake, Crane Pad and Access Road</p> <ul style="list-style-type: none"> • Works suspended due to wildfire evacuation

Date	IEM Team Personnel	Weather Conditions	Key Monitoring Locations & Activities
			<p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Works suspended due to wildfire evacuation <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Works suspended due to wildfire evacuation <p>TX-Line</p> <ul style="list-style-type: none"> • No activity

IEM Team Personnel: TH – Tom Hicks; SS – Stephen Sims; BA – Blake Aleksich; VD – Vanessa Dan; AA – Anthony Andrews; AS—Anne Sutherland; DA – Danita Abraham; TJ – Tammie Jenkins; SE – Stephanie Ellis

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 30, 2015	<i>Email</i>	CE, SES, INX	CE distributed an email notifying the project team of a wildfire located upstream of the BDRHEF intake that appeared following a storm event. They have contacted the BC Wildfire Service to notify them of the situation.	-
June 30, 2015	<i>Site Inspection</i>	SES, JEM, INX, SES	The IE and IEM were onsite to conduct a joint monthly inspection (aerial and ground).	-
July 1, 2015	<i>Email</i>	CE, SES, INX	CE provided an update to the wildfire observed yesterday upstream of BDRHEF intake. BC Wildfire Service fire fighters arrived at the construction camp and began fighting the wildfire. The fire was reported to be approximately three KM upstream of the BDRHEF intake and approximately 0.5ha in size.	-
July 3, 2015	<i>Email</i>	CE, SES, INX, WEL	INX distributed an update on the Boulder Creek wildfire. INX informed recipients that the fire had grown to approximately 250 ha, fire retardant was being brought in, the on the ground BC Wildfire Service team had been reduced, and that the jobsite is on evacuation alert.	-
July 4, 2015	<i>Email</i>	CE, SES, INX, WEL	INX notified the Project team that a State of Local Emergency has been declared and an Evacuation Order issued by the SLRD as a result of the Boulder Creek fire. The Evacuation Order applies to two pumice mines (one of which is not currently operational) and the ULHP. No residential or agricultural properties are currently under Evacuation Order. The Upper Lillooet FSR is now closed at KM 9. The Hurley River FSR remains open at this time. Site evacuation was underway as of the end of this reporting period.	-

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
All Project Areas	TX Line, ULRHEF, & BDRHEF	Active Migratory Bird Nesting Period	AMBNS must occur prior to clearing vegetation in all Project areas according to the survey schedule and methods outlined in the Project's Active Migratory Bird Nest Survey Plan during the nesting period (May 1 – July 31). All nests identified as active must be protected by a minimum 30m no disturbance buffer until the nest is no longer deemed to be active by a QP (buffer distances vary by species; further details are provided in the AMBNS Plan).
TX Line	Segments 8 – 15	Within 150m of wetlands or 100m of Coastal Tailed Frog Streams	IEM presence is required when clearing within 150m of wetlands or 100m of CTF Streams, to ensure clearing areas are minimized.
		Riparian Vegetation Management Areas (RVMA)	IEM monitoring is required during clearing within RVMA's.
		Surface Water Quality	IEM monitoring is required during culvert installation activities in non-fish bearing waters to document adherence to the Surface Water Quality Protection Plan objectives.
		Suitable Raptor Nesting Habitat	IEM presence is required when clearing within suitable Northern Goshawk (NOGO), SPOW (Spotted Owl) and Western Screech-Owl (WESO) nesting habitat during the breeding period. A QP is to complete a nest survey if working within 600m of suitable Peregrine Falcon (PEFA) nesting habitat during the breeding period.
		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 areas are minimized.
		Wildlife Habitat Area (WHA) 2-399	Construction of the transmission line within the Grizzly Bear WHA 2-399 must be constructed outside of April 1 to June 15 and October 15 to December 31 to minimize disturbance to Grizzly Bears expected to use the WHA during spring and fall.
		Ryan River Drainage	Construction of the TX Line into and across the Ryan River drainage will occur during the less critical Grizzly Bear summer foraging period (June 1 – September 1).

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
Lillooet River FSR & ULRHEF	Access roads above the lower limit of the 200m buffer Truckwash Creek Migration Corridor to the ULRHEF intake	Mountain Goat UWR & Migration Corridor	If a goat observation occurs within 500 m line-of-sight of construction activities, construction must cease for at least 48 hours. The IEM must record and submit all goat observations to FLNR within 48 hours.

4.0 Upper Lillooet River HEF – Monitoring Results

4.1 Construction Camp, KM 38 Laydown, Access Roads & Lillooet River FSR

Activities:

- Water trucks applied water for dust suppression along Project access roads and the Lillooet River FSR from KM 37.5 to KM 42.5 throughout the reporting period.
- Routine maintenance of construction equipment within the mechanic shop and fuel management continued at the 38 km laydown. The 38 km laydown area was shutdown due to landslide risk for the majority of the reporting period (Photo 1).
- The electric fences surrounding the construction camp were maintained and operational throughout this reporting period.

Environmental Summary:

- No environmental issues were observed during this reporting period at the construction camp, KM 38 laydown or along the Lillooet River FSR.

Photos:



Photo 1 – 38 km laydown shutdown due to landslide risk (July 2, 2015).

4.2 Intake (North & South Sides), and Upstream Tunnel Portal

Construction Activities:

- No construction activity due to landslide risk (Photo 2).
- Dewatering of portal excavation to the intake dewatering and wastewater treatment system.

Environmental Summary:

- Elevated landslide risk forced closure of the ULRHEF intake work site.
- All seepage water conforming to BCWQGs was directed to the Lillooet River.

Photos:



Photo 2 – Aerial photo ULRHEF intake works area
(June 30, 2015).

4.3 Downstream Tunnel Portal

Construction Activities:

- Drilling, blasting, mucking and stabilization works within the tunnel (Photo 3).
- Dewatering to downstream portal settling ponds (Photo 4).

Environmental Summary:

- Tunnelling works and dewatering to the downstream tunnel portal settling ponds continued during this reporting period (Photo 4). On June 30, the IEM and CE's environmental management team observed the settling pond water emerging from the ground approximately 15m west of the existing ponds (Photo 5). The emerging water flowed on the surface for approximately 15m into a vegetated area, and infiltrated to ground within Project boundaries. The IEM and CE's environmental management team will continue to monitor the downstream portal settling ponds to ensure turbid/alkaline water is not discharged to the surrounding environment. CE is in the process of establishing new

downstream tunnel portal settling ponds, and once operational existing ponds near Truckwash Creek will be deactivated.

Photos:



Photo 3 – Current conditions at the ULRHEF downstream tunnel portal (July 1, 2015).



Photo 4 – ULRHEF downstream tunnel portal settling ponds (July 1, 2015).



Photo 5 – Surface flow emerging west of downstream tunnel portal settling ponds (July 1, 2015).

4.4 Penstock

Construction Activities:

- Penstock installation continued at 3+850 (Photo 6).

Environmental Summary:

- No environmental issues were observed during this reporting period. Refer to Section 4.7 below for recommendations pertaining to the sediment/infiltration ponds currently in construction.

Photos:



**Photo 6 – Penstock installation at 3+850
(June 30, 2015).**

4.5 Powerhouse & Access Road

Construction Activities:

- Continued rebar installation and formwork for the powerhouse structure (Photo 7).
- Dewatering from the powerhouse sump to the Lillooet River continued (Photo 8).

Environmental Summary:

- Dewatering of the ULRHEF powerhouse continued without environmental concern throughout the reporting period. The IEM will continue to monitor the works area to confirm that future concrete pours are adequately isolated from flowing water and protected from precipitation during curing.

Photos:



Photo 7 – Rebar installation and formwork at the ULRHEF powerhouse (July 1, 2015).



Photo 8 – ULRHEF powerhouse sump dewatering to Lillooet River (July 1, 2015).

4.6 Water Quality Results

The following table presents the results of the routine WQ sampling program for the ULRHEF. The IEM is undertaking a weekly monitoring program according to the conditions outlined in the Surface Water Quality Protection Plan. The regular monitoring sites quantify WQ conditions within the Lillooet River upstream and downstream of active construction areas. The IEM acknowledges the natural variability of instream WQ conditions in the Lillooet River due to seasonal melt fluctuations and large tributary inputs. In the event that an exceedance of *in-situ* WQ (turbidity and/or pH) is deemed to be caused by project-related activities, the IEM will highlight the exceedance, discuss the cause, and outline measures undertaken by the Contractor to correct the issue. When an exceedance cannot be attributed to project related activities, the exceedance will be marked by an asterisk (*).

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (µS)	Temp (°C)
Routine Water Quality						
July 3, 2015	-	ULR Background – ULRHEF Intake	-	-	-	-
	-	ULR #0.5 – Downstream of ULRHEF intake at Keyhole Bridge	-	-	-	-
	-	ULR # 1 – Upstream of ULRHEF Powerhouse	-	-	-	-
	8:55	ULR #2 – Downstream of ULRHEF Powerhouse between KM 40.5 and KM 41	6.8	66	22	10.8
	9:43	ULR #3 – Lillooet River FSR KM 38 Laydown – D/S of Boulder confluence	6.8	71	26	10.9
	10:30	ULR #4 – Lillooet River FSR KM 24 – D/S of all works and Meager confluence	6.7	106	49	11.0

Note: ULRHEF Intake and Powerhouse sites not accessible due to landslide risk

4.7 Recommendations

IEM recommendations for the ULRHEF are as follows:

- All seepage water in the intake portal excavation should be conveyed to the sediment basins unless approved for discharge directly to the Lillooet River by the IEM or CE environmental manager.
- The ULRHEF powerhouse sump water should be monitored regularly. Alkaline or turbid water should be pumped to the remaining settling ponds for treatment.
- The IEM continued to recommend that CE review the gradient and elevations of the new infiltration ponds under construction at penstock chainage 2+800. Water velocity through the ponds should be minimized to the extent possible to improve suspended particulate settling ability and promote infiltration. The IEM reminded CE’s environmental management team to review and implement the recommendations prior to the commissioning of the ponds

4.8 *Upcoming Works*

As of July 4, 2015, all work activities on the ULHP are temporarily suspended due to the Evacuation Order issued by the SLRD. CE will continue to support the BC Wildfire Service at their request and under their direction.

5.0 **Boulder Creek Hydroelectric Facility – Monitoring Results**

5.1 *Intake Access Road & Crane Pad*

Construction Activities:

- Rock hammering, excavation and blasting continued at the BDRHEF intake and crane pad (Photo 9, Photo 10 and Photo 11).
- Slope stabilization works continued at the BDRHEF intake and crane pad (Photo 12).

Environmental Summary:

- CE continues to exercise caution when excavating at the BDRHEF crane pad to prevent material from falling next to and within Boulder Creek. WQ remained visually unaffected during these works.

Photos:



Photo 9 – Drilling at BDRHEF crane pad (June 30, 2015).



Photo 10 – BDRHEF crane pad area following blast (June 30, 2015).



Photo 11 – Excavation of blast material near crane pad (July 1, 2015).



Photo 12 – Scaling works above BDRHEF diversion tunnel (July 1, 2015).

5.2 *Downstream Tunnel Portal and Powerhouse*

Construction Activities:

- Construction of superstructure (Photo 13).
- Drilling, blasting, mucking and stabilization works continued within the tunnel (Photo 14).
- Dewatering of the tunnel and powerhouse to the oil water separator and settling ponds continued (Photo 15).

Environmental Summary:

- No environmental issues were observed during this reporting period at the BDRHEF downstream tunnel portal and powerhouse.

Photos:



Photo 13 – Construction of BDRHEF powerhouse superstructure (June 30, 2015).



Photo 14 – BDRHEF downstream tunnel portal (June 30, 2015).



Photo 15 – BDRHEF powerhouse and downstream tunnel portal settling ponds (June 30, 2015).

5.3 Water Quality Results

The following table presents the results of the routine WQ sampling program for the BDRHEF. The IEM is undertaking a weekly monitoring program according to the conditions outlined in the Surface Water Quality Protection Plan. The regular monitoring sites have been selected to quantify WQ conditions within the Lillooet River upstream and downstream of active construction areas. The IEM acknowledges the natural variability of instream WQ conditions in Boulder Creek due to seasonal fluctuations in snowmelt. In the event that an exceedance of *in-situ* WQ (turbidity and/or pH) is deemed to be caused by project-related activities, the IEM will highlight the exceedance, discuss the cause, and outline measures undertaken by the Contractor to correct the issue. When an exceedance cannot be attributed to project related activities, the exceedance will be marked by an asterisk (*).

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (uS)	Temp (°C)
Routine Water Quality						
July 3, 2015	-	BDR BG – Upstream of BDRHEF intake *not currently accessible*	-	-	-	-
	-	BDR #1 – Downstream of BDRHEF intake *not currently accessible*	-	-	-	-
	9:15	BDR #2 – Upstream of BDRHEF Powerhouse	6.7	37.6	32	11.6
	9:24	BDR #3 – Downstream of BDRHEF Powerhouse at Pebble Creek Bridge	6.8	39.9	34	11.2

5.4 Recommendations

IEM recommendations for the BDRHEF are as follows:

- All wastewater related to the BDRHEF tunnelling works should continue to be contained and conveyed to the downstream portal settling ponds for treatment. Regular inspections of the treatment ponds should be performed to ensure the necessary maintenance activities outlined in the work plan are performed.

- CE should continue to exercise caution when working at the BDRHEF crane pad and on slope consolidation to prevent excessive rock fall into Boulder Creek.

5.5 *Upcoming Works*

As of July 4, 2015, all work activities on the ULHP are temporarily suspended due to the Evacuation Order issued by the SLRD. CE will continue to support the BC Wildfire Service at their request and under their direction.

6.0 **Transmission Line – Monitoring Results**

6.1 *Transmission Line Construction Activities*

Right-of-Way Clearing:

- No activity.

Existing Road Upgrades and Access Road Construction

- Vans Creek bridge installation in Segment 11.
- Road construction in Segment 11, 12 and 14.

Transmission Line Pole Installation, Line Stringing and Clipping

- Stringing, pulling and clipping conductors in Segment 3 (Photo 16).
- Groundworks for pole foundations in Segment 6, 9a and 10.

Environmental Summary:

- Vans Creek bridge installation works were completed above the HWM and had no visual effect of WQ in Vans Creek.
- The IEM was present as required when clearing activities occurred within 150m of wetlands, 15m RVMAs (30m for CTF streams), 100m of Coastal Tailed Frog Streams, Class 1 & 2 suitable Grizzly Bear WHA and/or suitable forage habitat, moose and deer UWR, legally designated Old Growth Management Areas (OGMAs) or within Northern Goshawk, Spotted Owl or Western Screech-Owl nesting habitat (during breeding season). All flagged boundaries were respected during clearing activities. No environmental issues were observed.

Photos:



**Photo 16 – Clipping conductors in Segment 3
(June 30, 2015).**

6.2 *Water Quality Results*

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (uS)	Temp (°C)
No construction activities involving water management were conducted during this reporting period.						

6.3 *Recommendations*

- The IEM has no recommendations at this time.

6.4 *Upcoming Works*

WEL has suspended all work activities due to wildfire risk. The Evacuation Order issued by SLRD for the ULHP affects work in Segments 1 – 7 of the TX Line.

7.0 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). Wildlife Observation forms will be included in first reporting period following month end. 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

Wildlife sightings reported in June 2015 by the Owner, contractors, and IEM team, are included in the following table.

Date	Time	Observer (Company)	Species or Description	Location
2015-06-01	6:30	Eric Ayotte	Black bear	4.5 KM Lillooet River FSR
2015-06-01	6:40	Eric Ayotte	Moose	14.5 KM Lillooet River FSR
2015-06-01	17:06	Sheena Wallace	Black bear	37.5 KM Lillooet River FSR
2015-06-03	17:55	Eric Ayotte	Black bear	17 KM Lillooet River FSR
2015-06-04	11:55	Étienne Turgeon	Black bear	0.2 KM Camp Road
2015-06-04	16:45	Danny Dugas	Black bear	42.5 KM Lillooet River FSR
2015-06-06	7:45	Angel Orejas	Black bear	20 KM Lillooet River FSR
2015-06-08	13:15	Hubert	Possible wolverine	KM 38 Laydown Area
2015-06-09	13:00	Stephanie Ellis	Black bear	4 KM Boulder Intake Road
2015-06-10	11:00	Roger Pelletier	Black bear	3.5 KM Boulder Intake Road
2015-06-13	11:45	Stephanie Ellis	Coyote	39 KM Lillooet River FSR
2015-06-14	5:25	Sebastien Lafontaine	Black bear	37 KM Lillooet River FSR
2015-06-14	13:00	Jimmy Zaar	Black bear	29 KM Lillooet River FSR
2015-06-14	11:00	Ian McKeachie	Black bear	44 KM Lillooet River FSR
2015-06-14	11:05	Ian McKeachie	Black bear	46 KM Lillooet River FSR
2015-06-15	20:00	Stephanie Ellis	Black bear	31 KM Lillooet River FSR
2015-06-15	15:30	Carole Decarie	Black bear	40 KM Lillooet River FSR
2015-06-17	7:15	Kelly Dan	Coyote	48.5 KM Lillooet River FSR
2015-06-17	15:00	Michel Gauthier	Coyote	41.5 KM Lillooet River FSR

Date	Time	Observer (Company)	Species or Description	Location
2015-06-19	10:26	Blake Aleksich (SES)	Black bear	45 KM Lillooet River FSR
2015-06-20	16:30	Jamie Zarr	Wolverine	39 KM Lillooet River FSR
2015-06-21	13:10	Greg Davis	Black bear	46.5 KM Lillooet River FSR
2015-06-22	8:45	Greg Davis	Moose	13 KM Lillooet River FSR
2015-06-23	-	Shea Irving	Black bear	Salmon Main
2015-06-23	-	Shea Irving	Black bear	Ryan River FSR
2015-06-23	18:00	Emily Harper	Black bear	31 KM Lillooet River FSR
2015-06-23	7:05	Ian McKeachie	Black bear	37.5 KM Lillooet River FSR
2015-06-24	10:00	Stephanie Ellis	Moose	11 KM Lillooet River FSR
2015-06-25	15:00	Ken Astrope	Wolverine	27 KM Lillooet River FSR
2015-06-25	13:30	M. Gagnon	Black bear	38.4 KM Lillooet River FSR

8.0 Mountain Goat Monitoring Program

The spring 2015 Mountain Goat Monitoring Program is complete as of June 15, 2015 according to conditions of the Mountain Goat Management Plan. Noise monitoring and daily mountain goat monitoring will resume in November 2015.

To mitigate potential impacts to mountain goats during the summer months, Construction activities will cease if a mountain goat(s) is (are) observed moving towards the ULRHEF intake and/or if a mountain goat(s) are observed within a 500m line of site of a construction activity. No mountain goats were observed within 500m line of sight of construction activities and no work stoppages were required during this monitoring period.

9.0 Environmental Issues Tracking Matrix (ITM)

9.1 Hydroelectric Facilities (ULRHEF & BDRHEF)

ITM Tracking Legend:		Work Item Open		Mitigation Measures			
		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 – ULR#25)</i>							

9.2 Transmission Line

ITM Tracking Legend:		Work Item Open		Mitigation Measures			
		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#3)</i>							