



Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #37

Reporting Period: August 31 – September 6, 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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		Date Prepared: September 27, 2014 Date Submitted: September 29, 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, 4) 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) 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 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

ACRONYMS:

AMBNS	Active Migratory Bird Nesting Survey	IEM	Independent Environmental Monitor
ASMP	Archaeological Sites Management Plan	INX	Innergex Renewable Energy Inc.
ARD/ML	Acid Rock Drainage and Metal Leaching	ISW	Instream Works
BCEAO	British Columbia Environmental Assessment Office	ITM	Environmental Issue Tracking Matrix
BCWQG	British Columbia Water Quality Guidelines	JEM	JEM Energy Ltd. (Delegate Independent Engineer)
BDRHEF	Boulder Creek Hydroelectric Facility	LTC	Leave to Construct
BG	Background	MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
BKL	BKL Consultants Ltd.	MOE	Ministry of Environment
CE	CRT-ebc Construction Inc.	NCD	Non Classified Drainage
DFO	Fisheries and Oceans Canada	OLTC	Occupational License to Cut
DS	Downstream	PAG	Potentially Acid Generating
Ecofish	Ecofish Research Ltd.	RoW	Right of Way
Ecologic	Ecologic Consulting	RVMA	Riparian Vegetation Management Area
EDI	Environmental Dynamics Inc.	SES	Sartori Environmental Services
EIR	Environmental Incident Report	TX Line	Transmission Line
ESC	Erosion and Sediment Control	ULRHEF	Upper Lillooet River Hydroelectric Facility
FAM	Field Advice Memorandum	UWR	Ungulate Winter Range
FSR	Forest Service Road	VC	Valued Component
GWR	Mountain Goat Winter Range	WQ	Water Quality
Hedberg	Hedberg and Associates Ltd.	WEL	Westpark Electric Ltd.
IE	Independent Engineer (True North Energy)	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 (on-site)	Weather Conditions	Key Monitoring Locations
Sunday, August 31	MF, AS, VD	Cloudy with light showers	<p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization • Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Continued rebar installation and formwork <p>BDRHEF Intake Access Road</p> <ul style="list-style-type: none"> • Continued access road construction (including drilling, blasting and removal of timber from toe of road slope) • Continued construction at crane pad (including tree removal, stripping, grubbing and drilling) <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and stabilization of the tunnel • Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Continued dewatering of excavation to settling ponds • Concrete works – two minor mud slab pours <p>ULRHEF Intake Diversion Channel – South Side</p> <ul style="list-style-type: none"> • Drilling, blasting and excavating at the diversion channel • Grouting of anchor bolt plates on vertical walls <p>ULRHEF Intake Open Cut – North Side</p> <ul style="list-style-type: none"> • Bulk excavation to elevation 666 m commenced <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 2 <ul style="list-style-type: none"> ➢ Continued pole dressing • Segment 3 <ul style="list-style-type: none"> ➢ Falling of snags near structures 44-47 • Segment 4 <ul style="list-style-type: none"> ➢ Continued pole dressing • Segment 5 <ul style="list-style-type: none"> ➢ Continued pole dressing ➢ Ground works (including blasting) at structures 81, 86-87 and 105
Monday September 1	MF, AS, DA, TJ	Cloudy with light showers	<p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization • Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Continued rebar installation and formwork <p>BDRHEF Intake Access Road</p> <ul style="list-style-type: none"> • Continued access road construction (included drilling, blasting and removal of boulders/woody debris from toe of road slope) • Continued construction at crane pad (including tree removal, stripping, grubbing, drilling and blasting) <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization • Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Continued dewatering to settling ponds

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
			<ul style="list-style-type: none"> • Concrete works – Two minor pours ULRHEF Intake Diversion Channel – South Side • Drilling, blasting and excavating at the diversion channel • Grouting of anchor bolt plates on vertical walls ULRHEF Intake Open Cut – North Side • Continued bulk excavation to elevation 666 m TX-Line • Segment 2 <ul style="list-style-type: none"> ➢ Continued pole dressing • Segment 3 <ul style="list-style-type: none"> ➢ Falling of snags near structures 44-46 • Segment 4 <ul style="list-style-type: none"> ➢ Continued pole dressing • Segment 5 <ul style="list-style-type: none"> ➢ Continued pole dressing ➢ Ground works (including blasting) at structures 81 and 86-87
Tuesday, September 2	SS, BA, MF, DA, TK, VD	Cloudy with showers	<ul style="list-style-type: none"> BDRHEF Tunnel Portal • Drilling, blasting and tunnel stabilization • Seepage from tunnel pumped from sump at portal entrance into settling ponds BDRHEF Powerhouse • Continued rebar installation and formwork BDRHEF Intake Access Road & Crane Pad • Continued access road construction • Continued excavation at top level of crane pad ULRHEF Downstream Portal • Drilling, blasting and tunnel stabilization • Seepage from tunnel pumped from sump at portal entrance into settling ponds ULRHEF Powerhouse • Continued dewatering to settling ponds • Rebar installation and formworks commenced ULRHEF Intake Diversion Channel – South Side • Drilling, blasting and excavating at the diversion channel • Drilling and grouting of anchor bolt plates on vertical walls ULRHEF Intake Open Cut – North Side • Continued bulk excavation to elevation 666 m TX-Line • Segment 1 & 2 <ul style="list-style-type: none"> ➢ Helicopter pole setting throughout Tx Line from KM 23 to 42 on the Lillooet River FSR • Segment 3 <ul style="list-style-type: none"> ➢ Hand falling above KM 22 of the Lillooet FSR • Segment 5 <ul style="list-style-type: none"> ➢ Machine works (excavator and spider hoe) at structures 85 and 87 ➢ Ground works (including blasting) at structures 81-83 and 87 ➢ Yarding of felled timber starting at KM 23.3 of the Lillooet FSR and moving to KM 26.5 - 28 • Segment 6 <ul style="list-style-type: none"> ➢ Continued RoW clearing throughout segment ➢ Lillooet South FSR – Continued road works between KM 4-7 • Segment 8 <ul style="list-style-type: none"> ➢ Access construction along road 197.1 towards Blacks Creek • Segment 14 <ul style="list-style-type: none"> ➢ Road works along Pemberton Main (including brushing) continued ➢ Construction commenced along road 371.1 – Excavator grubbing

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
Wednesday, September 3	SS, MF, BA, AS, DA, TJ	Sunny	<p align="center">area for box culvert near dry creek bed</p> <p>Lillooet River FSR</p> <ul style="list-style-type: none"> Hydroseeding of slopes between KM 42.5 and 44 <p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> Drilling, blasting and tunnel stabilization Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> Continued rebar installation and formwork <p>BDRHEF Intake Access Road & Crane Pad</p> <ul style="list-style-type: none"> Continued access road construction (including the installation of a berm and removal of woody debris from toe of road slope near the KM 4 marker) Continued excavation at top level of crane pad <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> Drilling, blasting and tunnel stabilization Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> Continued dewatering to settling ponds Rebar installation and formworks <p>ULRHEF Intake Diversion Channel – South Side</p> <ul style="list-style-type: none"> Drilling, blasting and excavating at the diversion channel Drilling and grouting of anchor bolt plates on vertical walls <p>ULRHEF Intake Open Cut – North Side</p> <ul style="list-style-type: none"> Continued bulk excavation to elevation 666 m <p>TX-Line</p> <ul style="list-style-type: none"> Segment 1 <ul style="list-style-type: none"> Structure backfilling and framing Segment 2 <ul style="list-style-type: none"> Structure backfilling and framing Segment 3 <ul style="list-style-type: none"> Structure backfilling and framing Segment 5 <ul style="list-style-type: none"> Machine works (excavator and spider hoe) at structures 81 and 87 Yarding of felled timber in the vicinity of structures 81-83 Ground works (including blasting) continued at structures 81 and 85-91 Segment 6 <ul style="list-style-type: none"> Continued RoW clearing throughout segment Lillooet South FSR – Continued road works between KM 4-7 Segment 14 <ul style="list-style-type: none"> Road works and RoW clearing continued near structures 347-349
Thursday, September 4	MF, BA, MF, AS, AA, VD	Sunny	<p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> Drilling, blasting and tunnel stabilization Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> Continued rebar installation and formwork <p>BDRHEF Intake Access Road & Crane Pad</p> <ul style="list-style-type: none"> Continued access road construction (including berm installation, slope contouring and removal of woody debris from toes of road slope) Continued excavation at top level of crane pad <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> Drilling, blasting and stabilization of the tunnel Seepage from tunnel pumped from sump at portal entrance into

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
			<ul style="list-style-type: none"> settling ponds ULRHEF Powerhouse <ul style="list-style-type: none"> • Continued dewatering to settling ponds • Rebar installation and formworks ULRHEF Intake Diversion Channel – South Side <ul style="list-style-type: none"> • Drilling, blasting and excavating at the diversion channel • Drilling and grouting of anchor bolt plates on vertical walls ULRHEF Intake Open Cut – North Side <ul style="list-style-type: none"> • Continued bulk excavation to elevation 666 m TX-Line <ul style="list-style-type: none"> • Segment 1 <ul style="list-style-type: none"> ➢ Structure backfilling and framing • Segment 2 <ul style="list-style-type: none"> ➢ Structure backfilling and framing • Segment 3 <ul style="list-style-type: none"> ➢ Structure backfilling and framing • Segment 5 <ul style="list-style-type: none"> ➢ Machine works (excavator and spider hoe) at structures 83 and 84 ➢ Ground works (including blasting) continued at structures 81 and 85-91 • Segment 6 <ul style="list-style-type: none"> ➢ Continued RoW clearing throughout segment ➢ Lillooet South FSR – Continued road works between KM 4-7 • Segment 8 <ul style="list-style-type: none"> ➢ Continued construction along access road 197.1 towards Blacks Creek • Segment 14 <ul style="list-style-type: none"> ➢ Road works and RoW clearing continued near structures 347-349
Friday, September 5	MF, BA, KM, VD, AA	Sunny	<ul style="list-style-type: none"> BDRHEF Tunnel Portal <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization • Seepage from tunnel pumped from sump at portal entrance into settling ponds BDRHEF Powerhouse <ul style="list-style-type: none"> • Continued rebar installation and formwork BDRHEF Intake Access Road & Crane Pad <ul style="list-style-type: none"> • Continued access road construction (including berm installation, slope contouring and removal of woody debris from toes of road slope) • Continued excavation at top level of crane pad ULRHEF Downstream Portal <ul style="list-style-type: none"> • Drilling, blasting and stabilization of the tunnel • Seepage from tunnel pumped from sump at portal entrance into settling ponds ULRHEF Powerhouse <ul style="list-style-type: none"> • Continued dewatering to settling ponds • Rebar installation and formworks ULRHEF Intake Diversion Channel – South Side <ul style="list-style-type: none"> • Drilling, blasting and excavating within the diversion channel ULRHEF Intake Open Cut – North Side <ul style="list-style-type: none"> • Continued bulk excavation to elevation 666 m Tx-Line <ul style="list-style-type: none"> • Segment 5 <ul style="list-style-type: none"> ➢ Ground works (including blasting) continued at structures 88-89, 94-95 and 108 • Segment 6

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
			<ul style="list-style-type: none"> ➤ Continued RoW clearing throughout segment ➤ Lillooet South FSR – Continued road works between KM 4-7 • Segment 8 <ul style="list-style-type: none"> ➤ Continued construction along access road 197.1 towards Blacks Creek • Segment 14 <ul style="list-style-type: none"> ➤ Road works and RoW clearing continued near structures 347-349 and 351
Saturday, September 6	ML, MF, KM, DA, TJ	Sun and clouds	<p>BDRHEF Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization • Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Continued rebar installation and formwork • Concrete Works – Foundation pour <p>BDRHEF Intake Access Road & Crane Pad</p> <ul style="list-style-type: none"> • Drilling, blasting and road fill continued for access road between KM 4-4.25 <p>ULRHEF Downstream Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and stabilization of the tunnel • Seepage from tunnel pumped from sump at portal entrance into settling ponds <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Continued dewatering to settling ponds • Rebar installation and formworks <p>ULRHEF Intake Diversion Channel – South Side</p> <ul style="list-style-type: none"> • Drilling, blasting and excavating within the diversion channel <p>ULRHEF Intake Open Cut – North Side</p> <ul style="list-style-type: none"> • Continued bulk excavation to elevation 666 m <p>Tx-Line</p> <ul style="list-style-type: none"> • Segment 6 <ul style="list-style-type: none"> ➤ Continued RoW clearing throughout segment • Segment 8 <ul style="list-style-type: none"> ➤ Heli-pad clearing and construction completed below structure 200-201 • Segment 14 <ul style="list-style-type: none"> ➤ Road works and RoW clearing continued beyond structure 351

IEM Team Personnel: SS – Stephen Sims; TH – Tom Hicks; ML – McKenzie Lee; MF – Matt Fuller; BA – Blake Aleksich; KM – Kathy Mai; AS – Anne Sutherland; VD – Vanessa Dan; AA – Anthony Andrews; DA – Danita Abraham

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.
Tuesday, September 2	<i>Email</i>	Hedberg, WEL, INX, SES	Ryan River South Road upgrade prescriptions (Version 2) – Addition of wildlife constraints table.	-
Wednesday, September 3 & Thursday,	<i>Emails</i>	Hedberg, INX, WEL, SES, JEM	ULHP Stream Crossing tracking Sheet – Updated to include drainage structures on access roads within Segments 1-9 and 14, as well as the first 1,200m of the Ryan South Road. Updated tracking table	-

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
September 4			(Appendix A of the LTC application) was provided to the IE to update the ULHP Road Construction and Stream Crossing Work Plan.	
	<i>Emails and conference call</i>	WEL, INX, Ecofish, SES	Discussions included: <ul style="list-style-type: none"> • Construction mitigation in the vicinity of a grizzly bear Class 1 fall forage habitat polygon (ULH-GB-33) located in Segment 8 of the Tx Line. Issue discussed included construction activities (current state and timing), potential to displace foraging grizzly bears and proposed alternated mitigations. • Ryan South Road (Segment 11) grizzly bear watershed timing constraints. Discussed existing constraints, timing, proposed construction activities and the potential for QP confirmation of the Ryan River watershed boundary to match the intent of the Project's EPPs and permit conditions. 	-
Friday, September 5	<i>Pre-work meeting</i>	CE, INX, SES	ULRHEF intake diversion weir construction (anchor drilling and installation) – Discussed schedule, work site isolation for grouting activities, construction practices and applicable HOLD POINTS.	-
	<i>Pre-work meeting</i>	CE, INX, SES	Log box culvert replacements at KM 39.7 and 47 on Lillooet River FSR – Discussed schedule, road closures, work site isolation, salvage and diversion, as well as construction practices and applicable HOLD POINTS.	-
	<i>Emails</i>	Ecofish, WEL, INX, SES	Ryan River Watershed “Drainage” Delineation – Ecofish provided a modified Ryan River watershed grizzly bear habitat polygon (Segment 11) to reflect the intent of the EAC conditions and suitable grizzly bear foraging habitat. Additional items taking into consideration included: <ul style="list-style-type: none"> • The original intent of the EA to minimize impacts to grizzly bears upstream of the Ryan River Tx Line Crossing; • Field verification of suitable Class 1 & 2 grizzly bear forage habitat and the 500 m disturbance buffers; and, • The presence of private property along the Lower Ryan River which is not considered to be suitable grizzly bear habitat due to the potential for human bear conflict. 	-
	<i>Email</i>	INX, CE, SES	ULRHEF intake diversion PAG – Confirmation by Golder Associates that material previously identified as PAG was confirmed as non-PAG and no special storage or isolation is required.	-

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
Tx-Line	Segments 1 –11, & 14	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.
Lillooet River FSR; ULRHEF 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 500m 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 Upper Lillooet River HEF – Monitoring Results

4.1 Intake (North & South Sides) and Access Roads

Construction Activities:

- Drilling, blasting and excavation works continued during day and night shift within the intake diversion channel (Photo 1) on the south side of the Lillooet River throughout this reporting period. Rock anchoring and grouting of anchor plates was completed as necessary for stabilization (Photo 2).

- Bulk excavation activities for the ULRHEF upstream tunnel portal commenced on the north side (Photo 3 and Photo 4) of the Lillooet River on August 31st following issuance of the LTC for ULRHEF Intake Bulk Excavation to elevation 666m. A pre-work meeting for this activity was completed during the previous reporting period.
- A gravity fed water extraction system was used for drilling activities according to the conditions of the Short Term Water Use Approval (No.A2006123).

Environmental Summary:

- The IEM was onsite full-time for all construction activities occurring on both the north and south sides of the river during day and night shift. On the south side within and adjacent to the intake diversion channel, the IEM documented occurrences of non-deleterious materials (large boulders) entering the watercourse and confirmed that all efforts to prevent rocks from entering the Lillooet River were taken.
- All cleaning and washing of grout mixing equipment and tools was emptied into the lined wash pit located at the south side spoil area (Photo 5). No overtopping of the wash pit occurred during this reporting period.
- No environmental issues were observed on the north side of the Lillooet River during bulk excavation works.

Photos:



Photo 1 – Drilling and blasting at ULRHEF intake diversion channel (September 1, 2014).



Photo 2 – ULRHEF intake diversion channel, vertical slope anchoring (August 31, 2014)



Photo 3 – Commencement of bulk excavation at the ULRHEF intake open cut on the north side of the Lillooet River (August 31, 2014)



Photo 4 – Continued bulk excavation at the ULRHEF intake open cut on the north side of the Lillooet River (September 3, 2014).



Photo 5 – Concrete wash out pit in spoil area on south side of Lillooet River at ULRHEF intake (September 4, 2014).

4.2 Downstream Tunnel Portal

Construction Activities:

- Drilling, blasting, mucking and stabilization (anchoring and shotcrete application) continued within the tunnel. Seepage water from the tunnel portal was conveyed effectively to the settling ponds for treatment and storage.

Environmental Summary:

- The sediment ponds installed adjacent to Truckwash Creek were used to treat the seepage and process water emanating from the tunnel. No surface discharge from the sediment ponds was observed this week; therefore no WQ measurements were taken by the IEM.

- Blast rock was hauled to the lower spoil area and managed according to the ULRHEF ARD/ML Monitoring and Control Plan.

Photos:

- No new photos.

4.3 Powerhouse & Access Road

Construction Activities:

- Rebar installation and form works for the powerhouse foundation began on September 2, following the mud slab pours (Photo 6).
- Concrete mud slab were poured on August 31 & September 1, and a portion of the foundation was poured on September 6.
- Two pumps (6" and 10") previously installed in the sump draining seepage waters in the powerhouse excavation continued to convey water to the existing settling ponds. No flowing surface water was observed within the excavation and pump capacity appears to be adequate to maintain isolation from active work areas.

Environmental Summary:

- Turbidity was visually monitored during periodic visits to the ULRHEF powerhouse by the IEM. Water entering the Lillooet River from the discharge (through vegetation) of the settling ponds remained within water quality guidelines during each inspection and concrete poured for the mud slabs and powerhouse foundation did not come in contact with the seepage water during this reporting period, as no leak in the form work were observed. Future opportunistic WQ sampling will be conducted at the discretion of the IEM.

Photos:



Photo 6 – ULRHEF powerhouse rebar installation and formworks (September 4, 2014)

4.4 Lillooet River FSR and KM 38 Laydown

Construction Activities:

- Hydroseeding slopes adjacent to new Lillooet River FSR switchback alignment over Truckwash Creek (Photo 7)
- Material crushing and screening plant operation continued throughout this reporting period. A watering hose was used effectively for dust control at the screening plant.

Environmental Summary:

- No environmental issue were observed.

Photos:



Photo 7 – Hydroseeding near KM 43 on Lillooet River FSR (September 3, 2014)

4.5 Water Quality Results

The following table presents the results of the routine water quality 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 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 the Lillooet River due to seasonal melt fluctuations and large tributary inputs. In the event that an exceedance of *in-situ* water quality (turbidity 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						
Sept. 5, 2014	12:50	ULR Background – ULRHEF Intake	7.8	32.7	57	8.9
	13:42	ULR # 1 – Upstream of ULRHEF Powerhouse	7.6	33.9	58	9.2
	14:10	ULR #2 – Downstream of ULRHEF Powerhouse between 40.5k and 41k	7.5	36.2	53	12.8
	15:15	ULR #3 – Lillooet River FSR KM 38 Laydown – D/S of Boulder confluence	7.4	44.5*	47	12.5
	Not available	ULR #4 – Lillooet River FSR 24km – D/S of all works and Meager confluence	Not available	Not available	Not available	Not available

4.6 Recommendations

IEM recommendations for the ULRHEF are as follows:

- Settling ponds at the downstream portal should be continually monitored to ensure appropriate treatment of seepage from tunnelling activities is occurring. Although dry weather persists, rain events typical of the changing season may result in increased water volumes and current infiltration rates may result in discharge from the ponds. The IEM will continue to monitor the effectiveness of the treatment systems to ensure water meets the approved guidelines prior to discharge.

4.7 Upcoming Works

The following new and/or environmentally sensitive construction activities are scheduled to occur at the ULRHEF in the upcoming reporting period(s):

- Further hydroseeding will be completed on cut slopes adjacent to the ULRHEF intake diversion channel to reduce the risk of developing rills during heavy rain events. Hydroseeding will also be completed on slopes adjacent to the ULRHEF downstream tunnel portal and powerhouse.
- A pre-work meeting was held on September 5 to review and discuss the approved work plans for the replacement of the failed crossing at 39.7km (*ULR#8*), and the failed culvert at 47km (*ULR#4*). These works will be completed during the next two weeks within the 2014 ISW window.
- Excavation (drill/blast) of the intake diversion channel is nearing completion. Once excavation and wall stabilization is complete, construction activities for the Obermeyer weir will commence.

5.0 Boulder Creek Hydroelectric Facility – Monitoring Results

5.1 Intake Access Road & Crane Pad

Construction Activities:

- Intake access road construction, including the removal of timber from the toe of slope; slope contouring (Photo 8); drilling and blasting; and road fill/grading continued throughout the reporting period. A berm and access to the spoil area near the KM 4 mark was constructed at the toe of slope to protect OLTC boundary against falling debris.
- Grubbing, stripping and removal of merchantable timber continued at the crane pad (Photo 9). Once grubbing and merchantable timber removal was completed, drilling and blasting and blast rock excavation began on the top bench of the crane pad footprint.

Environmental Summary:

- Construction activities occurred along the BDRHEF intake access road and crane pad with the IEM onsite for construction activities within 30m of Boulder Creek.

Photos:



Photo 8 – BDRHEF Intake access road construction including slope contouring and LWD/boulder removal from toe of slope (August 31, 2014)



Photo 9 – BDRHEF crane pad within 30 m of Boulder Creek (August 31, 2014)

5.2 Downstream Tunnel Portal and Powerhouse

Construction Activities:

- Rebar installation and formworks (Photo 10) at the powerhouse continued throughout the reporting period.
- Concrete works – Powerhouse foundation pour occurred on September 6, 2014.

- Drilling, blasting, mucking and stabilization (anchoring and shotcrete application) continued within the tunnel.

Environmental Summary:

- Concrete works occurring for the powerhouse foundation were completed in the dry and fully isolated from seepage water. No environmental issues were observed.
- 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 WQ or environmental concerns were noted within Boulder Creek.
- Seepage flowing out of the tunnel continues to be collected at the portal tunnel entrance in a sump and this water is 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 CO₂ 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 (Photo 11); therefore, the IEM did not collect WQ results.
- 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 KM 37.5 of the Lillooet River FSR and on active construction site access roads.

Photos:



Photo 10 – Continued formworks at BDRHEF powerhouse (September 4, 2014)



Photo 11 – Settling ponds and pH treatment at BDRHEF tunnel portal (September 6, 2014)

5.3 Water Quality Results

The following table presents the results of the routine water quality 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* water quality (turbidity 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						
Sept. 5, 2014	NA	BDR Background –Upstream of BDRHEF intake *not currently accessible*	NA	NA	NA	NA
Sept. 5, 2014	NA	BDR #1 – Downstream of BDRHEF intake *not currently accessible*	NA	NA	NA	NA
Sept. 5, 2014	14:45	BDR #2 – Upstream of BDRHEF Powerhouse	7.5	36.7	45	10.5
Sept. 5, 2014	14:30	BDR #3 – Downstream of BDRHEF Powerhouse at Pebble Creek Bridge	7.5	32.2	50	10.6

5.4 Recommendations

IEM recommendations for the BDRHEF are as follows:

- Settling ponds at the downstream portal should be continually monitored to ensure appropriate treatment of seepage from tunnelling activities is occurring. Although dry weather persists, rain events typical of the changing season may result in increased water volumes and current infiltration rates may result in discharge from the ponds. The IEM will continue to monitor the effectiveness of the treatment systems to ensure water meets the approved guidelines prior to discharge.

5.5 Upcoming Works

The following new and/or environmentally sensitive construction activities are scheduled to occur at the BDRHEF in the upcoming reporting period(s):

- Further hydroseeding will be completed on cut slopes adjacent to the BDRHEF tunnel portal to reduce the risk of developing rills during heavy rain events.
- Construction is scheduled to continue on the intake access road and crane pad a portion of which extends within the 30m riparian buffer and UWR.

6.0 Transmission Line – Monitoring Results

6.1 *Transmission Line by Segment*

Construction Activities:

Segment 1

- Pole structure backfilling and framing was completed.

Segment 2

- Pole dressing in preparation for stringing.

Segment 3

- Pole structure backfilling and framing.
- Falling danger tree in the vicinity of structures 44-47.

Segment 4

- Pole dressing in preparation for stringing.

Segment 5

- Machine works on steep slopes to construct pole foundation (Photo 12).
- Pole structure placement and associated groundwork (including blasting). Structure 81 is in close proximity to the RVMA associated with stream 80b.
- Merchantable timber yarding and decking in the vicinity of structures 81-83.

Segment 6

- Continued RoW clearing.
- Road ballasting continued along the Lillooet South FSR (Photo 13) during this reporting period. The purpose of the road upgrades was to improve construction vehicle access along the FSR through the low lying wetland areas and gain access to pole structures locations near the Lillooet River Tx line crossing, without fording fish bearing waters or introducing sediment to adjacent wetlands.

Segment 8

- Access road (branch 197.1) construction towards the Blacks Creek crossing location.
- Helicopter pad clearing below structures 200-201.

Segment 14

- Continued RoW clearing (hand-falling) and road works.
- Construction commenced along road 371.1 and at the first of the proposed box culverts over stream 347a which is currently dry (Photo 15).

Environmental Summary:

- Road ballasting works along the Lillooet South FSR adjacent to wetlands on either side of the road were completed in the dry during this reporting period. A beaver exclusion fence surrounding the inlet of the two 1000mm culverts (Photo 14) at approximately 6km of the FSR, remains to be installed and will be completed prior to September 15, 2014. Contractors were completing road works in an appropriate manner and sufficiently isolated from the adjacent wetlands to the satisfaction of the IEM. No environmental issues were observed.
- 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, and within legally designated Old Growth Management Areas (OGMAs). All flagged boundaries were respected during clearing activities. No environmental issues were observed.

Photos:



Photo 12 – Segment 5 machine works (spider hoe) at structure locations (August 31, 2014).



Photo 13 – Lillooet South FSR road ballasting near KM 7 (September 3, 2014).



Photo 14 – Two 1000 mm culverts installed at 6km on the Lillooet South FSR (September 3, 2014).



Photo 15 – Construction commenced along access road 371.1, excavator grubbing area for box culvert near dry creek bed (September 2, 2014)

6.2 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.					

6.3 Recommendations

No recommendations are provided for this reporting period.

6.4 Upcoming Works

The following new and/or environmentally sensitive construction activities are scheduled to occur along the Tx line in the upcoming reporting period(s):

- Continued road works (approximately one week remaining) along the Lillooet South FSR. Beaver exclusion fencing will be installed on culvert inlets prior to the end of the ISW window.
- The majority of works described in the construction activities section described above will continue. Construction activities are tentatively scheduled to continue within RVMAs (Segment 5 & 14), as well as within 100m CTF (Segment 5) and 150m western toad breeding pond (Segment 3 & 5) buffers.
- Road upgrades in Segment 8 will continue towards Blacks Creek at the beginning of road 197.1.

- Road upgrades will continue in Segment 14 past the end of Pemberton Main FSR along road 371.1 including continued box culvert construction in dry stream bed (stream 347a).

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) 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

8.0 Mountain Goat Monitoring Program

The critical early summer forage period for Mountain Goats ended; therefore Mountain Goat Monitoring has been temporarily suspended until the fall monitoring period as outlined in the Mountain Goat Management Plan.

No Mountain Goats were observed within 500m line of sight of construction activities during this reporting period; therefore no work stoppages were required.

9.0 Environmental Issues Tracking Matrix (ITM)

9.1 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>EIR002</i>).	1. CE 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 approve the EIR.			
				3. CE 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			
				7. Develop a work plan to remediate the failed log box structure and execute the approved plan during the 2014 instream works window.			
				On July 19 th , 2014 CRT-ebc confirmed that the failed crossing structure [at 47km of the Lillooet River FSR; a fish bearing stream] will be remediated by cleaning debris and material from the stream and banks. A work plan will be submitted and mitigation measures prescribed by a QP will be implemented. This work must occur during the instream works window.		September 15, 2014	

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 (<i>EIR004</i>).	Develop a work plan to remediate the failed log box structure and execute during the 2014 instream works window. On July 19 th , 2014 CRT-ebc confirmed that this crossing structure will be repaired or replaced during the 2014 instream works window following MFLNRO approval.	May 28, 2014	September 15, 2014	
ULR#10	Open	Lillooet River FSR	Innergex issued stop work order for heavy hauling on Lillooet River FSR	Recommendations have been submitted to MFLNRO for review and approval. Work plan submission and repairs to be completed prior to September 15 for crossing structures at 39.7km and 47km of the Lillooet River FSR.	May 28, 2014	September 15, 2014	-
ULR#17	Open	BDR Intake Access Road	Damage to standing timber and impacts outside of minimized clearing boundary & approved OLTC limit (both within and adjacent to UWR)	1. Prepare and submit EIR#011 outlining the root cause of the incident and how it will be avoided in future.	July 25, 2014	July 30, 2014	August 1, 2014
				2. Assess damage to standing timber and impacts outside of the minimized clearing boundaries and approved OLTC (both within and adjacent to UWR). Preliminary information has been provided to satisfy the requirements of <i>ULR#18</i> , however detailed survey is necessary to confirm impacted areas and access is currently not available due to slope stability issues.	Confirmed in Hedberg report July 25 th , 2014	Pending safe work access – mid-September, 2014	-

next ITM – ULR#20

9.2 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>							

