


Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #69

Reporting Period: July 5 – August 1, 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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Harriet VanWart	Lil'wat Nation	Date Prepared: August 12, 2015 Date Submitted: August 14, 2015

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; Fish Salvage Permit # SU15-174722
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
July 5 - 11	No onsite presence	Active wildfire	<p>All ULRHEF and BDHEF Project areas</p> <ul style="list-style-type: none"> • Closed due to active wildfire <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 12 and 14 <ul style="list-style-type: none"> ➢ Road construction • All Segments <ul style="list-style-type: none"> ➢ All activities suspended on July 5, 2015 due to wildfire risk
July 12 - 18	No onsite presence	Active wildfire	<p>All ULRHEF and BDHEF Project areas</p> <ul style="list-style-type: none"> • Closed due to active wildfire <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 10 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations • Segment 12 and 14 <ul style="list-style-type: none"> ➢ Road construction
July 19 - 25	BA, SS	Active wildfire	<p>All ULRHEF and BDHEF Project areas</p> <ul style="list-style-type: none"> • Closed due to active wildfire <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 9a and 10 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations ➢ Blasting pole foundation at 258 • Segment 14 <ul style="list-style-type: none"> ➢ Road construction
July 26 – August 1	VD	Active wildfire	<p>All ULRHEF and BDHEF Project areas</p> <ul style="list-style-type: none"> • Closed due to active wildfire <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 10 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations and conductor stringing • Segment 9b <ul style="list-style-type: none"> ➢ Falling from structure 219 – 228.5 ➢ Helipad construction • Segment 11 <ul style="list-style-type: none"> ➢ Falling from structure 261.5 – 263 • Segment 14 <ul style="list-style-type: none"> ➢ Road construction

IEM Team Personnel: TH – Tom Hicks; SS – Stephen Sims; BA – Blake Aleksich; VD – Vanessa Dan; AA – Anthony Andrews; 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.
July 6, 2015	<i>Email</i>	BKL, SES	BKL analyses and tabulated the results of the Boulder Creek Intake Noise Monitoring Report. The results presented in this report will be reviewed and incorporated into the Spring 2015 Mountain Goat Monitoring Report.	-
July 7, 2015	<i>Email</i>	SES, JEM, MFLNRO, BC EAO, MOE, DFO, INX	INX provided an update on the status of the Boulder Creek wildfire that was ignited by lightning on June 30, 2015 (~3 km upstream of our Boulder Creek HEF intake area) and provided a copy of Innergex's Press Release.	-
July 10, 2015	<i>Email</i>	SES, JEM, INX, Ecofish, Hedberg,	INX provided an update on the status of the Boulder Creek wildfire. The site evacuation order issued by SLRD remains in place. Daily status updates are available on the SLRD Wildfire website and the BC Wildfire Service website	-
July 13, 2015	<i>Email</i>	Ecofish, CE, SES, INX	Ecofish distributed their MFLNRO approved 2015 Fish Salvage permit for the Project site (# SU15-174722)	-
July 14, 2015	<i>Email</i>	BKL, SES	BKL analyses and tabulated the results of the ULRHEF Noise Monitoring Report. The results presented in this report will be reviewed and incorporated into the Spring 2015 Mountain Goat Monitoring Report.	-
July 17, 2015	<i>Email</i>	CE, SES, INX	CE distributed an email to begin the discussion on how best to assess the effects of the Boulder Creek wildfire on the Project site and develop a plan to address potential environmental concerns as quickly and efficiently as possible upon return to site.	-
July 20, 2015	<i>Conference Call</i>	JEM, SES, INX	INX held a conference call to update the IEM and IE teams on the status of the Boulder Creek wildfire and to discuss the potential for returning to site following the evacuation order.	-
July 22, 2015	<i>Site inspection</i>	CE, WEL, Andritz, SES, INX	Under the supervision of the BC Wildfire Services, a site inspection was completed to assess the preliminary damage to the Project from the Boulder Creek Wildfire.	-
	<i>Site inspection</i>	SES, WEL	SES conducted instream acoustic monitoring during blasting for pole foundation 258 in Segment 10. The blasting location was within 30m of the Ryan River. No exceedance of the 30kPa threshold was recorded during the blast and no impacts to fisheries resources were observed.	-
	<i>Email</i>	INX, CE, WEL, SES, JEM	INX distributed the following project update notice: Excerpt from BC Wildfire Service Website Effective July 22, 2015, at 1330, the Squamish-Lillooet Regional District rescinded the Evacuation Order that had applied to people and property within the area on both sides of the Lillooet River Forest Service Road (FSR) from 9km mark to the top of the Pemberton Valley. However, effective	-

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
			1200 noon, July 23, 2015, BC Wildfire Service has issued an Area Restriction Order for the Boulder Creek Fire. The Lillooet River FSR remains closed commencing at the 9km mark. There is a security check point on the Lillooet River FSR 9km west of the junction with the Hurley FSR. This area restriction is necessary to address public safety concerns. Public and crew safety is the top priority of the BC Wildfire Service.	
July 30, 2015	Site inspection	MFLNRO, CE, Squamish Mills, INX	A preliminary danger tree assessment site inspection occurred to review the danger tree removal that the BC Wildfire Services completed to date for the safety of the firefighting traveling along the roads and areas in which they were fighting the fire as well as next steps for completing Project specific danger tree falling to make the Project work areas safe for construction crews.	-
	Email	INX, CE, SES, JEM	INX informed the Project team that the BC Wildfire Service Coastal Fire Centre has temporarily rescinding all exemptions for the Area Restriction Order. This requires that no one enter the site and that all works be suspended until further notice due to recent fire activity.	-
July 31, 2015	Emails	SES, WEL, INX, CE	SES reminded CE and discussed with WEL that although July 31, 2015 marks the end of the AMBNS window, care and attention to bird presence in areas slated for clearing should continue to prevent the accidental destruction of a nest or its eggs during clearing activities.	-

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 RVMAs.

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
		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.
		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).
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 and Boulder Creek HEF – Monitoring Results

On July 4, 2015, the Squamish Lillooet Regional District (SLRD) at the recommendation of the BC Wildfire Services issued an Evacuation Order due to the “Boulder Creek” fire (V30241) that was ignited by lightning on June 30, 2015 (i.e. ~ 3km upstream of our Boulder Creek Intake area). All personnel were safely evacuated from the ULHP construction site on July 4, prior to the fire sweeping through the Project area on July 5, 2015.

On July 22, 2015 the SLRD Evacuation Order was lifted and replaced with a BC Wildfire Services Area Restriction Order that took effect on July 23, 2015.

All construction activities areas have been temporarily suspended within the Order area. CE will continue to support the BC Wildfire Service at their request and under their direction until they deem that works are safe to resume.

5.0 Transmission Line – Monitoring Results

5.1 Transmission Line Construction Activities

Right-of-Way Clearing:

- Hand falling in Segment 11 from 261.5 – 263, including within the stream 261A RVMA
- Helicopter supported hand falling and helipad construction in Segment 9b.

Existing Road Upgrades and Access Road Construction

- Road construction in Segments 12 and 14.

Transmission Line Pole Installation, Line Stringing and Clipping

- Stringing conductors in Segment 10.
- Groundworks for pole foundations in Segment 9a and 10, including blasting within 30m of the Ryan River.

Environmental Summary:

- Instream acoustic monitoring (via hydrophone) was completed by the IEM during blasting at pole 258 (Photo 1 and 2). The instream acoustic pressure measured within the Ryan River during the blast did not exceed the 15 kPa set trigger level and therefore maintained compliance with the 30 kPa maximum threshold outlined in the CEMP. No water quality concerns or impacts to fish were observed as a result of the single blast event.
- 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 1 – Hydrophone and seismograph installed to monitor instream acoustic pressure during the blast at future pole 258 location (July 22, 2015).



Photo 2 – Site condition at future pole 258 location post blast. (July 22, 2015)

5.2 *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.						

5.3 *Recommendations*

- The IEM has no recommendations at this time.

5.4 *Upcoming Works*

WEL will continue to work on road construction in Segments 11, 12, and 14, and will continue with clearing and TX Line construction activities in Segments 9a, 9b, 10 and 11. Potential damages to the TX Line as a result of the Boulder Creek Wildfire will be assessed once conditions permit. The Area Restriction Order issued by the BC Wildfire Service continues to affect work in Segments 1 – 7.

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). 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

The Owner, Contractors, and IEM team reported no wildlife sightings in July 2015.

7.0 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.

8.0 Environmental Issues Tracking Matrix (ITM)

8.1 Hydroelectric Facilities (ULRHEF & BDRHEF)

ITM Tracking Legend:		<i>Work Item Open</i>					
		<i>Work Item Complete</i>					
		<i>Issue Closed</i>					
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>							

8.2 Transmission Line

ITM Tracking Legend:		<i>Work Item Open</i>					
		<i>Work Item Complete</i>					
		<i>Issue Closed</i>					
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>							