

Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #15

Reporting Period: March 30th – April 5th, 2014

Upper Lillooet River Hydroelectric Facility (Water File No. 2002561, Water licence No. C130613),
Boulder Creek Hydroelectric Facility (Water File No. 2003049, Water licence No. C129969) &
Transmission Line (TX Line)

*Environmental Assessment Certificate No. E13-01 (Amendment 3)
Fisheries Act Subsection 35(2)(b) Authorization No. 09-HPAC-PA2-00303*

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

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) No. L49717

Occupant Licence to Cut (BDRHEF – km 38 laydown) No. L49698

Occupant Licence to Cut (BDRHEF& Construction Camp Amendment 1)) No. L49816

Occupant Licence to Cut (TX Line S.1-S5, Heli Pads) No. L49697 (Amendment 1)

*General Wildlife Measure Exemption Approval Letter (TX Line) File No. 78700-35/06 UWR and 39585-20 WHA
Road Use Permit No. 6123-13-02*

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ACRONYMS:

BCEAO	British Columbia Environmental Assessment Office
BCWQG	British Columbia Water Quality Guidelines
BDRHEF	Boulder Creek Hydroelectric Facility
BG	Background
BKL	BKL Consultants Ltd.
CRT-ebc	CRT-ebc Construction Inc.
DFO	Fisheries and Oceans Canada
DS	Downstream
Ecofish	Ecofish Research Ltd.
Ecologic	Ecologic Consulting
ESC	Erosion and Sediment Control
FSR	Forest Service Road
GWR	Mountain Goat Winter Range
Hedberg	Hedberg and Associates Ltd.
IEM	Independent Environmental Monitor
Innergex	Innergex Renewable Energy Inc.
ITM	Issue Tracking Matrix
LTC	Leave to Construct
MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
MOE	Ministry of Environment
RVMA	Riparian Vegetation Management Area
SES	Sartori Environmental Services
TX Line	Transmission Line
ULRHEF	Upper Lillooet River Hydroelectric Facility
UWR	Ungulate Winter Range
WQ	Water Quality
WEL	Westpark Electric Ltd.
WEMR	Weekly Environmental Monitoring Report

1.0 Summary of Site Inspections for Reporting Period

The table presented below summarizes the IEM team site presence, weather and monitoring locations by component:

Day	Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Sunday	Mar 30	-	-	Winter shutdown of all activities in effect
Monday	Mar 31	TH	Sunny	Snow Removal – Lillooet River FSR <ul style="list-style-type: none"> Snow removal by snow-blower began beyond 19km
Tuesday	Apr 1	-	-	Snow Removal – Lillooet River FSR <ul style="list-style-type: none"> Snow removal by snow-blower continued
Wednesday	Apr 2	-	-	Snow Removal – Lillooet River FSR <ul style="list-style-type: none"> Snow removal by snow-blower continued
Thursday	Apr 3	-	-	Snow Removal – Lillooet River FSR <ul style="list-style-type: none"> Snow removal by snow-blower continued
Friday	Apr 4	TH	Overcast	Snow Removal – Lillooet River FSR <ul style="list-style-type: none"> Snow removal by snow-blower completed to 38km Snow removal by snow-blower and plow began at the 38km laydown area
Saturday	Apr 5	-	-	Snow Removal – 38km Laydown <ul style="list-style-type: none"> Snow removal by snow-blower and plow continued at the 38km laydown area

IEM Team Personnel: TH – Tom Hicks

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.
March 31	<i>Pre-work meeting</i>	CRT-ebc, SES, Innergex, Snowline Safety	<ul style="list-style-type: none"> Reviewed snow removal work plan with crews to be performing the work. Verified that all personnel had received a CRT-ebc Environmental, Health and Safety Orientation. 	N/A
April 4 & 5	<i>Phone Conversation and follow up Email</i>	CRT-ebc, SES	<ul style="list-style-type: none"> Discussed road drainage concerns between 35.5km and 37.5km of the Lillooet River FSR. 	ULR#2

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
<i>Lillooet River FSR</i>	<i>Within identified Mule Deer and Moose UWR.</i>	<i>Mule Deer & Moose</i>	<i>When snow or earth berms exceed 50 cm in height, wildlife escape gaps will be created every 100m along both sides of roads utilized during winter construction.</i>

4.0 Upper Lillooet River and Boulder Creek Hydroelectric Facilities

This monitoring report signals the start of the 2014 construction season, and the end on the 2013/2014 winter shutdown period. Environmental monitoring and the submission of weekly environmental monitoring reports will continue on a weekly basis during the 2014 construction season.

4.1 Monitoring Results

4.1.1 Snow Removal – Lillooet River FSR & 38km Laydown

Snow Removal Activities

- CRT-ebc began snow removal activities at 19km during this reporting period. Snow removal from 0km-19km was completed previously by Squamish Mills (forest licensee and the primary Road Use Permit holder for the Lillooet River FSR) for access to their forest harvesting blocks and not as part of the Upper Lillooet Hydro Project. Snow removal was completed by snow blower to minimize the creation of snow berms between 19km and 38km.
- CRT-ebc began clearing snow at the 38km laydown area on April 4th. Snow was pushed to the perimeter of the laydown area. No water quality concerns were noted.

Environmental Summary:

- Minimal snow berms were created during snow blowing activities. Escape gaps were installed in areas where snow berms exceeded 50cm above natural snow level.
- On April 4th, the IEM noted drainage concerns on the Lillooet River FSR between 35.5km – 37.5km (ITM – ULR#2). Surface flows and ponding on the FSR were generating sediment laden water and a potential for impacting water quality in Alena Creek. The water management concerns were discussed with CRT-ebc’s Environmental Manager and the installation of water bars/cross ditching was agreed upon and installed the following morning (April 5th). No water quality exceedances were noted as no sediment laden water reached Alena Creek prior to the installation of water bars.

Photos:



Photo 1. Overview of the results of snow blowing and surface runoff and ponding concerns. Notice there are no snow berms resulting from snow removal works. (April 4, 2013).

Photo 2. Conditions of the FSR following the installation of shallow ditching and water bars to control surface runoff and direct water to vegetated areas for infiltration. (April 5th, 2013).

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded during this reporting period. Grubbing, grading and berm construction activities had no visual effect on WQ.					

4.2 Recommendations

Surface water management on the FSR should continue throughout the spring melt period to protect water quality in adjacent watercourses by directing sediment laden water to adjacent vegetated areas and/or road side ditches.

4.3 Upcoming Works

CRT-ebc will continue snow removal activities next week in preparation for the clearing of the Construction Camp (middle) location (EAC amendment #3), access roads, and facility footprints.

5.0 Wildlife Sightings

As per the CEMP, a wildlife sightings record has been implemented and will be updated regularly by Project Personnel. It is mandatory for all personnel to report wildlife sightings including, but not limited to bears, cougars, mountain goats and deer. Wildlife sighting will be reported and recorded by the contractor(s) and will submitted to the IEM on a weekly basis. Wildlife Observation forms will be summarized on a monthly basis and appended to the first WEMR of the following month. Observation or detection of the following species will trigger notification to identified parties according to the following table.

Species Observed or Detected	Notification Period	Agencies to be Notified
Northern Rubber Boa	Immediately	IEM, Owner
Grizzly Bear	24hrs	IEM, Safety Officer, Conservation Officer, Owner
Wolverine Den	24hrs	IEM, MFLNRO, Owner
Spotted Owls	24hrs	IEM, MOE, Owner
Mountain Goats	48hrs	IEM, MFLNRO, Owner

Please refer to the *Wildlife Observation Form* below for a summary of **March 2014** wildlife sightings.

Upper Lillooet Hydro Project - Wildlife Observation Form					
Required Data					
Date	Time	Observer (Company)	Species or Description	Location	Comments
11-Mar-14	2:00:00 PM	Gaétan Turgeon – (CRT-ebc)	Moose calves	FSR Road km 19	None
31-Mar-14	2:30:00 PM	Jordan Gagné (CRT-ebc)	Moose	FSR Road km 33	None

6.0 Environmental Issues Tracking Matrix (ITM)

6.1 Hydroelectric Facilities (ULRHEF & BDRHEF)

ITM Tracking Legend:

Work Item Open
Work Item Complete
Issue Closed

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted/Completion Date	Date Completed
ULR#2	Closed	35.5km – 37.5km Lillooet River FSR	Snow melt/runoff travelling over road surface and ponding creating erosion and potential for sediment introduction to Alena Creek. No water quality concerns were noted.	Installation of water bars/cross ditching completed at regular intervals to direct runoff into vegetated areas along the FSR and prevent sediment laden water from reaching Alena Creek.	April 4 th , 2014	April 5 th , 2014	April 5 th , 2014

6.2 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 Completion Date	Date Completed
No outstanding environmental issues.							