



# Upper Lillooet Hydro Project

## Weekly Environmental Monitoring Report #21

**Reporting Period: May 11<sup>th</sup> – May 17<sup>th</sup>, 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
Name	Organization	
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### **Owner Construction Permits and Approvals**

*Environmental Assessment Certificate No.E13-01 (Amendment 1, 2, 3)  
 Fisheries Act Subsection 35(2)(b) Authorization No. 09-HPAC-PA2-00303  
 Letter of Advice for the Transmission Line No.09-HPAC0-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  
 Conditional Water Licence (ULRHEF C130613) File No. 2002561  
 Conditional Water Licence (BDRHEF C129969) File No. 2002453  
 Conditional Water Licence (BDRHEF C131153) File No. 2003601  
 Licence of Occupation (ULRHEF #232384) File No. 2409871  
 Licence of Occupation (BDRHEF #232386) File No. 2409998  
 Licence of Occupation (TX Line #2423386) File No. 2410654  
 Occupant Licence to Cut (ULRHEF Amendments 1, 2, 3) No. L49717  
 Occupant Licence to Cut (BDRHEF – km 38 laydown) No. L49698  
 Occupant Licence to Cut (BDRHEF Amendments 1, 2) No. L49816  
 Occupant Licence to Cut (TX Line Amendment 1) 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  
 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*

### **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  
 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*

**ACRONYMS:**

AMBNS	Active Migratory Bird Nesting Survey
ASMP	Archaeological Sites Management Plan
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
NCD	Non Classified Drainage
RVMA	Riparian Vegetation Management Area
SES	Sartori Environmental Services
TX Line	Transmission Line
ULRHEF	Upper Lillooet River Hydroelectric Facility
UWR	Ungulate Winter Range
VC	Valued Component
WQ	Water Quality
WEL	Westpark Electric Ltd.
WEMR	Weekly Environmental Monitoring Report

## 1.0 Summary of Site Inspections for Reporting Period

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

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Sunday May 11	MS	Sunny	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>Site grading and final capping material installation</li> </ul> <p><b>BDRHEF Intake Access Road</b></p> <ul style="list-style-type: none"> <li>Access road and roadside ditch repair complete to 3.8km</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>Stripping and grubbing of the powerhouse footprint</li> <li>Spoil area re-contouring</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>Bulk excavation and road works outside of the Mountain Goat Migration Corridor 200m buffer</li> </ul>
Monday May 12	MS,SS,TH,	Sunny	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>Site grading and final capping material installation</li> </ul> <p><b>BDRHEF Portal and Powerhouse Access Road</b></p> <ul style="list-style-type: none"> <li>Falling trees within approved OLTC boundary for access road and portal location</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>Bulk excavation and road works outside of the Mountain Goat Migration Corridor 200m buffer</li> </ul>
Tuesday May 13	MS,TH,TJ, VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>Site grading and final capping material installation completed</li> </ul> <p><b>BDRHEF Portal and Powerhouse Access Road</b></p> <ul style="list-style-type: none"> <li>Removing fallen trees from the portal location and access road</li> </ul> <p><b>Explosive Magazine Storage Area</b></p> <ul style="list-style-type: none"> <li>Log-box culvert re-enforcement over Stream 9</li> <li>Stripping and grubbing began</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>Bulk excavation and road works outside of the Mountain Goat Migration Corridor 200m buffer</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>Road and drainage repairs/upgrades begin along Pebble Creek Main Line road and branch roads beyond the CRT-ebc construction camp</li> </ul>

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Wednesday May 14	MS,TH,TJ, VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>• Camp facilities begin being hauled to site, installation pending</li> </ul> <p><b>BDRHEF Portal and Powerhouse Access Road</b></p> <ul style="list-style-type: none"> <li>• Stripping and grubbing began</li> </ul> <p><b>Explosive Magazine Storage Area</b></p> <ul style="list-style-type: none"> <li>• Log-box culvert re-enforcement over stream 9</li> <li>• Stripping and grubbing began</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Bulk excavation and road works outside of the Mountain Goat Migration Corridor 200m buffer</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Road and drainage repairs/upgrades continue along Pebble Creek Main Line road and branch roads beyond the CRT-ebc construction camp</li> </ul>
Thursday May 15	ML,MS,TH, TJ, VD	Sun and Cloud	<p><b>BDRHEF Portal and Powerhouse Access Road</b></p> <ul style="list-style-type: none"> <li>• Stripping and grubbing was completed; bulk excavation began</li> </ul> <p><b>Explosive Magazine Storage Area</b></p> <ul style="list-style-type: none"> <li>• Stripping and grubbing completed</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Bulk excavation and road works outside of the Mountain Goat Migration Corridor 200m buffer</li> </ul>
Friday May 16	DA,ML,VD	Sun and Cloud	<p><b>BDRHEF Portal and Powerhouse Access Road</b></p> <ul style="list-style-type: none"> <li>• Bulk excavation continued</li> </ul> <p><b>Explosive Magazine Storage Area</b></p> <ul style="list-style-type: none"> <li>• Grading and import of surfacing material for the access road was completed and a magazine was installed</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Bulk excavation and road works outside of the Mountain Goat Migration Corridor 200m buffer</li> </ul> <p><b>ULRHEF Powerhouse and Access Road</b></p> <ul style="list-style-type: none"> <li>• Clearing of the intake access road and powerhouse bench excavation began</li> </ul>
Saturday May 17	DA,ML,TJ	Sun and Cloud	<p><b>BDRHEF Portal and Powerhouse Access Road</b></p> <ul style="list-style-type: none"> <li>• Rough grading of the access road completed; portal bulk excavation continued</li> </ul> <p><b>Explosive Magazine Storage Area</b></p> <ul style="list-style-type: none"> <li>• Grading and import of surfacing material for the access road as well as gate was completed</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Bulk excavation and road works outside of the Mountain Goat Migration Corridor 200m buffer</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Bench excavation continued</li> </ul>

**IEM Team Personnel:** DA – Danita Abraham; ML – Mackenzie Lee; MS – Mandala Smulders; SS – Stephen Sims; TH – Tom Hicks; TJ – Tammie Jenkins; VD – Vanessa Dan

## 2.0 Administrative Summary

Key communications and meetings the IEM team had with the licensees, contractors and/or environmental authorities:

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
May 12	<i>Pre-work Meeting</i>	WEL, Mumleqs, SES, Innergex	<ul style="list-style-type: none"> <li>Reviewed the TX - Line Access Road Construction and Stream Crossings work plan, highlighting Segment 1 &amp; 2 specific road drainage improvements &amp; permanent culvert locations. Water quality parameters and methods of isolating flows from the works area were discussed. No instream works in fish bearing or CTF habitat were proposed at part of Segment 1 &amp; 2 road works.</li> </ul>	N/A
May 13	<i>Pre-work Meeting</i>	CRT-ebc, SES, Innergex	<ul style="list-style-type: none"> <li>Reviewed the BDRHEF portal area stripping and grubbing, and excavation work plan, highlighting material sorting and spoil area management including sampling for ARD potential.</li> </ul>	N/A
	<i>Pre-work Meeting</i>	CRT-ebc, SES, Innergex, Ecofish	<ul style="list-style-type: none"> <li>Reviewed the Explosive Magazine Area work plan, highlighting reinforcement of the log box culvert over Stream 9 (fish bearing tributary of the Lillooet River), and the results of AMBNS.</li> </ul>	N/A
May 15	<i>Pre-work Meeting</i>	CRT-ebc, SES, Innergex, Ecofish	<ul style="list-style-type: none"> <li>Reviewed the ULRHEF powerhouse access road clearing and stripping and grubbing work plan, highlighting results of the AMBNS and clearing boundary flagging.</li> </ul>	N/A
May 16	<i>Site meeting</i>	CRT-ebc, SES, Ecofish	<ul style="list-style-type: none"> <li>Works were halted during clearing activities along the ULRHEF intake access road when a potentially archaeologically sensitive site was discovered. A 50m no disturbance buffer was flagged in the field pending discussions and a field visit with the Lil'wat Nation and Arrowstone Consulting.</li> </ul>	N/A

### 3.0 Current Work Restrictions and Timing Windows

The table presented below outlines work restrictions applicable during the reporting period for each active Project component location:

<b>Component</b>	<b>Location</b>	<b>Wildlife/Archeology Concern</b>	<b>Construction/Timing Restrictions &amp; Mitigations</b>
<i>All ULRHEF, BD RHEF, and Tx Lline areas</i>	<i>All ULRHEF and BDRHEF areas</i>	<i>Nesting Birds</i>	<i>Vegetation clearing must take place outside of the breeding bird season (May 1 – July 31) to prevent disturbance of bird nests. If not feasible, nest surveys must be conducted by qualified professionals following the Active Migratory Bird Nest Surveys prior to clearing and protective buffers surrounding discovered nests will be maintained until young are fledged and approval has been obtained from the IEM or designate.</i>
<i>ULRHEF powerhouse</i>	<i>Within 50m of identified archeologically significant area</i>	<i>Archaeologically significant site EdRu-3</i>	<i>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.</i>
	<i>Within 30m of the Upper Lillooet River</i>	<i>Riparian area</i>	<i>IEM presence is required when working within 30m of the Upper Lillooet River as outlined in the ULRHEF Powerhouse Stripping and Grubbing work plan.</i>
<i>Lillooet River FSR; ULRHEF intake access; FSR realignment at Truckwash Creek</i>	<i>Access roads above the lower limit of the 200m buffer Truckwash Creek Migration Corridor to the ULRHEF intake; including FSR realignment at Truckwash Creek</i>	<i>Mountain Goat UWR</i>	<p><i>Construction noise must be minimized within 500 m of legally established UWR during winter (November 1 – April 30) to the satisfaction of the IEM or designate.</i></p> <p><i>Snow depths measured on May 3, 2014 resulted in the implementation of the 2 week spring shutdown as detailed in the Mountain Goat Management Plan. Additional information is provided in <a href="#">Section 8.0</a>.</i></p> <p><i>If a goat is observed within 500 m of construction operations, construction must cease for at least 48 hours. The IEM must record and submit all goat observations to FLNR within 48 hours.</i></p> <p><i>In May, daily operational shutdowns within 200 m of GWR (u-2-002 UL 11, UL 19) and migration corridor will be implemented to allow migrating Mountain Goats to access valuable habitat. Shutdowns will occur 1 hour before and 2 hours after sunrise, and 2 hours before and 1 hour after sunset).</i></p>

## 4.0 Boulder Creek Hydroelectric Facility

### 4.1 Monitoring Results

#### 4.1.1 Active Construction Areas

##### Construction Camp

- Final road ditching and site capping was completed this week. Camp trailers began being hauled to site this week. Installation of the camp facilities is pending. No environmental concerns were noted.

##### BDRHEF Intake Access Road (i.e. Athel Main Line Road)

- Access road repair and drainage ditch installation was completed to 3.8km of the road alignment on May 11<sup>th</sup>. The road upgrade works occurred concurrently with the removal of trees that were previously hand felled. No environmental concerns were noted.

##### Explosive Magazine Area

- Clearing of the Explosive Magazine area began and was completed on May 13<sup>th</sup>, following a pre-work meeting and review of the results of the AMBNS. Re-enforcement of the log-box culvert over Stream 9 began and was completed prior to beginning stripping and grubbing activities, which involved hauling over the log-box culvert. The re-enforcement included installation of geo-textile fabric below steel road plates and placement and compaction of road surface fill. Stripping and grubbing spoil material was hauled to the nearby spoil area identified in the work plan. The road surfacing material was hauled to site and graded prior to the installation of the explosive magazine on May 16<sup>th</sup>. A lockable gate was installed prior to storing explosives and detonation materials onsite as per the Magazine Licence.

##### BDRHEF Downstream Portal and Powerhouse Access Road

- Remaining trees at the BDRHEF Portal location and along the Powerhouse Access Road within authorized areas were cleared on May 12<sup>th</sup> (OLTC L49816; Amendment 2) following the completion of a fourth AMBNS (performed by Ecofish, May 12<sup>th</sup>). Merchantable timber and woody debris was removed on May 13<sup>th</sup> and stripping and grubbing of newly cleared areas began. Bulk excavation began following stripping and grubbing of organic material, and continued for the remainder of the week at the portal location. Rough grading on the access road was completed in conjunction with the bulk excavation works and was completed on May 17<sup>th</sup>.

##### Environmental Summary:

- The IEM was onsite to monitor all drainage and road repair work along the BDRHEF intake access road between 0-3.8km and verified that bio-degradable hydraulic oil was used in excavators involved in drainage ditch construction. No spills or leaks



were observed. The re-enforcement of the log-box culvert over Stream 9 was completed by an excavator equipped with bio-degradable hydraulic oil and the work plan was reviewed with the IEM prior to the start of works. No water quality concerns were noted.

Photos:



Photo 1. Rough grading of the BDRHEF powerhouse access road works. The stripped and grubbed portal location can be seen in the background (May 17, 2014).



Photo 2. Upgraded section of the access road (01/2.1) to the Explosive magazine area. (May 16, 2014).

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded at BDRHEF facility locations during this reporting period. Construction activities had no visual effect on WQ. The reinforcement of the Stream 9 box culvert was completed under IEM supervision.					

**5.0 Upper Lillooet River Hydroelectric Facility**

**5.1 Monitoring Results**

**5.1.1 Active Construction Areas**

ULRHEF Powerhouse and Access Road

- Stripping and grubbing of the powerhouse footprint was completed on May 11<sup>th</sup>. All organic soils were hauled and stockpiled at the base of the fill slope at the east heading of the realignment of the Lillooet River FSR, according to methods outlined in the approved work plan. Following an assessment by CRT- EBC of the base and side slope of the spoil area it was determined that stabilization measures were required. Stabilization of the fill slope proceeded by excavation at the base of the fill slope and placement of oversized rock. Rock armouring then continued upslope as waste inorganic materials replaced and compacted in ~1m lifts.

- A pre-work meeting for clearing of the Powerhouse Access Road and bench excavation at the Powerhouse site occurred concurrently on May 15<sup>th</sup> and clearing began following a final AMBNS on May 16<sup>th</sup>. During the morning tailboard meeting May 16<sup>th</sup> Ecofish AMBNS crew indicated that they suspected they had discovered an archaeologically sensitive site during their AMBNS surveys. Subsequently, a 50m no disturbance buffer around the suspected site was established until discussions and field visit with the Lil'wat Nation and Arrowstone Consulting can be performed. The site visit is scheduled to be performed during the next reporting period. Hand falling on May 16<sup>th</sup> successfully avoided the 50m no disturbance buffer and will continue during the next reporting period following the site visit with the Lil'wat Nation and Arrowstone Consulting.
- Bench excavation at the ULRHEF began outside of 30m from the Lillooet River on May 15<sup>th</sup>. Material from the excavation was used on road surfaces of the FSR, and the Explosive Magazine Access Road. No environmental concerns were noted.

*Truckwash Creek Bypass Road - FSR Re-alignment*

- Bulk excavation and road works occurred throughout the reporting period on the eastern portion of the road alignment, outside of the Mountain Goat Migration Corridor 200m buffer. Drainage ditch installation occurred in the dry, and no additional vegetation clearing occurred as part of the works. Work within the Mountain Goat Migration Corridor and 200m buffer will begin once the minimum 2-week spring shutdown is lifted. No environmental concerns were noted.

*Environmental Summary:*

- The IEM was present to oversee all clearing activities within 30m of the Lillooet River. No environmental concerns were noted.

*Photos:*



**Photo 3. Bench excavation at the ULRHEF powerhouse area. (May 17, 2014).**



**Photo 4. Road construction along the Truckwash Creek Bypass road. (May 17, 2014).**

Water Quality Results

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

**5.2 Recommendations**

Grizzly Bear sightings have been reported within the vicinity of work areas at the intake that are soon to become active and near active works at the Truckwash Creek bypass road. Please ensure continued diligence with respect to eliminating bear attractants from active work areas to prevent bear habituation and to protect the safety of site personnel.

**5.3 Upcoming Works**

All construction activities are currently suspended for a minimum two week period within the 200m buffer surrounding the Mountain Goat migration corridor at Truckwash creek and at the ULRHEF intake. Additional clearing at the BDRHEF intake access road (beyond 3.8km) will be completed as authorized in the OLTC L49816; Amendment 2 dated May 6, 2014 following completion of AMBNS. Bench excavation at the ULRHEF powerhouse and clearing of the access road is scheduled to continue next week.

**6.0 Transmission Line**

**6.1 Monitoring Results**

**6.1.1 Active Construction Areas**

Pebble Main and Branch Road D.1 Upgrades

- Road upgrade work began on May 13<sup>th</sup> following a pre-work site meeting on May 12<sup>th</sup>. The pre-work meeting was conducted to review work methods for drainage upgrades (cross drains and ditch improvements) verses culvert installations within identified watercourses. Cross drains and ditch upgrades were performed within NCDs to eliminate surface flows over the access roads. One permanent culvert was installed on May 14<sup>th</sup> to convey Stream 35B (non-fish bearing) through the access road (Pebble Branch D.1).

Environmental Summary:

- Culvert installation works (Stream 35b) were performed in the dry by using a pump to divert water around the work area. The IEM was onsite for the duration of the culvert installation works to monitor activities and document adherence to water quality guidelines. Water quality results are summarized below. No water quality concerns were noted

Photos:



**Photo 5. Intake hose installed to divert stream 35b around the active work area during the culvert installation (May 14, 2014).**



**Photo 6. Pebble Branch D.1 access road following access road upgrades (May 14, 2014).**

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
May 14	13:05	Background – Stream 35b upstream	-	0.65	-
	13:10	Downstream – during pump install	-	0.88	-
	13:30	Downstream – during culvert install	-	2.16	-
	14:25	Downstream – during culvert install	-	4.10	-
	14:35	Downstream – culvert commissioning	-	1.97	-

**6.2 Recommendations**

No recommendations are provided for this reporting period.

**6.3 Upcoming Works**

Transmission line access road upgrades will continue next week and construction activities, including pole installation is scheduled to begin next week in Segment 1 and 2. Clearing is scheduled to begin in Segment 3 following the results of AMBNS. Upcoming transmission line works will be focused on road construction, pole installation, and completing the clearing within the Segments 1-5.

**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

One Grizzly Bear sighting was reported during this monitoring period (May 14<sup>th</sup>). All parties identified in the above table were notified within 24hr of the sighting log submission. The sighting log is appended to this report.

### **8.0 Mountain Goat Monitoring Program**

No construction activities occurred within or beyond the 200m buffer to the Mountain Goat Migration corridor at Truckwash Creek; therefore no noise monitoring or Mountain Goat monitoring was required during this reporting period.

Snow depths measured on May 3<sup>rd</sup>, 2014 resulted in the implementation of the 2 week spring shutdown as detailed in the Mountain Goat Management Plan. All drilling and construction associated activities have currently ceased for a minimum of two consecutive week periods at the Upper Lillooet River HEF downstream portal near Truckwash Creek and at the ULRHEF intake.

The IEM team resumed the Mountain Goat monitoring program this week to detect the presence and observe behaviours of Mountain Goats within UL-11 (keyhole falls habitat) and UL-19. The observed behaviours and snow conditions will be reviewed and used to adaptively manage the spring shutdown period which is currently scheduled to end on May 18<sup>th</sup>, 2014. All parties identified in the above table were notified within 48hr of the sighting log submission. Mountain goat monitoring forms are appended to this report.

## 9.0 Environmental Issues Tracking Matrix (ITM)

### 9.1 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
<i>No outstanding environmental issues.</i>							

### 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 Completion Date	Date Completed
<i>No outstanding environmental issues.</i>							

Appendix B. Bear sighting log.

**BEAR OBSERVATION CARD**  
Return to: Local BC Parks Office

BC 9587 

YY/MM/DD: 14/05/14 Time (24 hrs): 10:30 District:      Name of Protected Area:     

Observer Name, Address and Phone Number: Mandala Smulders, Tammie Jenkins, Vanessa Dan

Location in protected area (i.e., name of campground, campsite, day use area, trail name, lake, stream, nearest geographic feature, etc.): Below keyhole falls along Lilloet River 70m 300m

Elevation (metres or feet):      Observer Distance (metres or feet):     

UTM Zone:      Easting or Longitude:      Northing or Latitude:     

Weather: Rain, Overcast, Cloudy, Clear Map Datum: NAD27  NAD83  GPS

Bear Species: Grizzly bear  Black bear  Unknown  ID Confidence: High  Medium  Low

Colour code: Reddish-brown, Black, Grey, Dark brown, Light brown, Blond, Other:     

Distinguishing features (tag, collar, scars): Nothing

Abundance: Common, Frequent, Occasional, Rare

Observation Type: sighting, track, scat, digging, hair, foraging sign, rub tree, hed, den

Number Observed: Adult male  Adult fem.  1 Young of yr. 2 Sub-Adult  Unclassified

Food association: none odour unattended garbage vehicle cache Was the bear aware of your presence? Yes  No  N/A

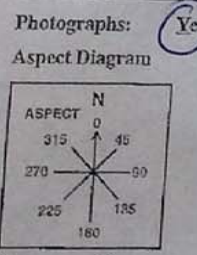
Bear(s) activity: a feeding b hunting c fishing d scavenging e drinking f travelling g bedded h courtship/mating i playing j call k fighting Other:     

Reaction: a indifferent b flee c curious d food seeking e illegally fed f threatening g charge h rut i fight j play k travel Other:     

Estimated level of habituation: a sighting or sign b normal behaviour - avoids people c reacts defensively after surprise or provocation d tolerates but ignores people e shows repeated interest in people f habituated to people and their food g displays aggressive behaviour, threat to humans h unknown

Repeat offender: Yes  No

If yes, provide background information (i.e., complaint/occurrence report)     



Notes: mum Grizzly with two baby cubs, appears to be living in this area. Bear den present near where they were foraging and playing. Right below known Mountain Goat habitat. Mountain Goat carcass present for ~~1.5 weeks~~ prior to Grizzly sighting, on day of sighting

with fur still intact still  
1.5 week  
appeared to be mostly removed from the cliff edge.  
Very little remains

N.B. Ensure complaint / occurrence report and BC problem wildlife form (if required) are completed, if there was property damage or if further action required in dealing with bear sighting, i.e., destroy, relocation or aversive conditioning.

FM 602









# Mountain Goat Daily Observation Form

UPPER LILLOOET HYDRO PROJECT



Goat Monitor's Name(s):

Date (YYYY-MM-DD):

106-185 forester street, north vancouver, bc v7h 2m9  
office 604.987.5588 fax 604.987.7740

Weather (cloud cover, precipitation and temperature):

Submit completed **Mountain Goat Daily Observation Form** to by email to [goats@sartorienv.com](mailto:goats@sartorienv.com) following each day of monitoring. Please ensure forms are complete and saved in the appropriate format (YYYY-MM-DD\_Goat Monitoring Daily Observation Form (Observers Initials))

Mountain Goat Observation Site	UWR/Migration Corridor - Location	UTM Coordinates (approx. center of area)	Daily Start Time (24hr clock)	Daily End Time (24hr clock)	Daily form #	1	of	2
MG - OBS01	Migration Corridor - East side of Truckwash Creek	10U 467898 5612845	12:10	13:10				
MG - OBS02	UWR u-2-002 UL 11 - Keyhole Falls	10U 466760 5613967	7:40	9:40				
MG - OBS03	UWR u-2-002 UL 19 - Garibaldi Pumice	10U 469155 5614960	10:00	12:00				

If more space is needed in the below table, please fill out additional daily forms and indicate total number of forms above.

Observation Site (indicate if location other than OBS site)	Time (use 24hr clock)	UTM Coordinates or Waypoint (10U)	Species Observed (indicate Mountain Goat or other species)	Observations (be specific - visual sign, track, other sign)	# of Animals	Age (if known - refer to attached info sheet)	Sex (if known - refer to attached info sheet)	Description of Activities (feeding, moving, etc.)	Comments (habitat, snow conditions, etc.)	Photo #s
MG-obs02	7:40	10u4667605613967	MG-Nanny-yea	Visua	3	Adult-yearling	Female-year	Laying down watching us	Yearling has yellow so might be male yearling	392-394
MG-obs02	8:05	10u1396705613967	MG-Billy	Visual	1	Adult Billy	Male	Walked across ledg to see what we where doing	Big guy, appeared to notice grizzly below cliff	395/396
MG-obs-02	8:07	10u1396705613967	Mamma grizzly-2 cub	Visual	3	New mom 2 cubs	Momma 2cubs	Eating and playing close together	New mom hides to Feds her cubs	397-400
MG-obs03	10	10u4691555614960	Mg	Visual	2	1xAdult 1xyearling	Nanny yearling	Laying down	Below snow line	





