



# Upper Lillooet Hydro Project

## Weekly Environmental Monitoring Report #27

Reporting Period: June 22<sup>nd</sup> – June 28<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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D’Arcy Soutar	Westpark Electric Ltd.	
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Harriet VanWart	Lil’wat Nation	

### **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) 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*  
*Works Permit for Construction within FSR Right-of-Way No. 6123-14-01*

### **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 Permit – Pacific Tailed Frog Salvage Permit # SU14-95304*  
*Wildlife Act Permit – Fish Salvage Permit # SU14-95329*  
*Section 52 of the Fisheries (General) Regulations – Fish Salvage Licence #XR 139 2014*

**ACRONYMS:**

AMBNS	Active Migratory Bird Nesting Survey
ASMP	Archaeological Sites Management Plan
ARD/ML	Acid Rock Drainage and Metal Leaching
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
EDI	Environmental Dynamics Inc.
EIR	Environmental Incident Report
ESC	Erosion and Sediment Control
FAM	Field Advice Memorandum
FSR	Forest Service Road
GWR	Mountain Goat Winter Range
Hedberg	Hedberg and Associates Ltd.
IE	Independent Engineer (True North Energy)
IEM	Independent Environmental Monitor
Innergex	Innergex Renewable Energy Inc.
ITM	Environmental Issue Tracking Matrix
JEM	JEM Energy Ltd. (Delegate Independent Engineer)
LTC	Leave to Construct
MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
MOE	Ministry of Environment
NCD	Non Classified Drainage
PAG	Potentially Acid Generating
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 June 22	AA,ML,MS	Overcast	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>• Sewer and water line installation</li> <li>• Camp facility installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>• Sediment pond construction</li> <li>• Installing shotcrete/rock bolt stabilization to blasted rock face</li> <li>• Drilling and Blasting</li> <li>• Night shift began on tunnelling works</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>• Right bank diversion channel excavation</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Powerhouse excavation</li> <li>• Drilling and blasting boulders</li> </ul> <p><b>ULRHEF Downstream Portal</b></p> <ul style="list-style-type: none"> <li>• Grading of the lower spoil area</li> <li>• Stripping and grubbing of the upper spoil area</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Preliminary Coastal Tailed Frog isolation netting installation and salvage performed by Ecofish, in preparation for 3 culvert installations.</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Segment 4 - road upgrades and spur road construction</li> <li>• Segment 10 – Feller buncher clearing; merchantable timber management; road building</li> </ul>
Monday June 23	ML,MS,VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>• Sewer and water line installation</li> <li>• Camp facility installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>• Sediment pond construction</li> <li>• Installing shotcrete/rock bolt stabilization to blasted rock face</li> <li>• Drilling in preparation for blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>• Right bank diversion channel excavation</li> </ul> <p><b>ULRHEF Downstream Portal</b></p> <ul style="list-style-type: none"> <li>• Grading of the upper and lower spoil areas</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Powerhouse excavation</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• No activities</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Segment 2 – Pole framing and ground works</li> <li>• Segment 3 – Hand fallers clearing</li> <li>• Segment 10 – Feller buncher and hand fallers clearing; merchantable timber management; road building</li> </ul>

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Tuesday June 24	MS,VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>• Sewer and water line installation</li> <li>• Camp facility installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>• Sediment pond construction</li> <li>• Installing shotcrete/rock bolt stabilization to blasted rock face</li> <li>• Drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>• Right bank diversion channel excavation</li> </ul> <p><b>ULRHEF Downstream Portal</b></p> <ul style="list-style-type: none"> <li>• Grading of the upper and lower spoil areas</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Culvert replacement</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Segment 2 – Pole installation, framing and ground works</li> <li>• Segment 3 – Hand fallers clearing</li> <li>• Segment 10 – Feller buncher and hand fallers clearing; merchantable timber management; road building</li> </ul>
Wednesday June 25	MS,TJ,VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>• Sewer and water line installation</li> <li>• Camp facility installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>• Sediment pond construction</li> <li>• Installing shotcrete/rock bolt stabilization to blasted rock face</li> <li>• Drilling in preparation of blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>• Right bank diversion channel excavation</li> </ul> <p><b>ULRHEF Downstream Portal</b></p> <ul style="list-style-type: none"> <li>• Grading of the upper and lower spoil areas</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Replacement of two culverts</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Segment 2 – Pole installation, framing and ground works</li> <li>• Segment 3 – Hand fallers clearing</li> <li>• Segment 10 – Feller buncher and hand fallers clearing; merchantable timber management; road building</li> </ul>
Thursday June 26	MS,TH,TJ, VD	Sun and Cloud	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>• Sewer and water line installation</li> <li>• Camp facility installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>• Sediment pond construction</li> <li>• Installing shotcrete/rock bolt stabilization to blasted rock face</li> <li>• Drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>• Right bank diversion channel excavation</li> </ul> <p><b>ULRHEF Downstream Portal</b></p> <ul style="list-style-type: none"> <li>• Grading of the upper and lower spoil areas completed</li> </ul> <p><b>Truckwash Creek Bypass – FSR realignment</b></p> <ul style="list-style-type: none"> <li>• Replacement of two culverts</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• Segment 2 – ground works</li> <li>• Segment 10 – Feller buncher clearing; merchantable timber management; road building</li> </ul>

Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Friday June 27	TH,VD	Overcast, light rain	<p><b>Construction Camp</b></p> <ul style="list-style-type: none"> <li>Sewer and water line installation</li> <li>Camp facility installation</li> </ul> <p><b>BDRHEF Portal</b></p> <ul style="list-style-type: none"> <li>Sediment pond construction</li> <li>Installing shotcrete/rock bolt stabilization to blasted rock face</li> <li>Drilling and blasting</li> </ul> <p><b>ULRHEF Intake</b></p> <ul style="list-style-type: none"> <li>Right bank diversion channel excavation</li> <li>Hydro-seeding cut-slopes</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>Powerhouse excavation</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>Segment 10 – Hand fallers clearing; merchantable timber management; road building</li> </ul>
Saturday June 28	-	-	-

**IEM Team Personnel:** AA – Anthony Andrews; ML – Mackenzie Lee; MS – Mandala Smulders; 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.
June 22	Pre-work Meeting	SES, CRT-ebc, Innergex	<ul style="list-style-type: none"> <li>Reviewed the work plan for the BDRHEF downstream tunneling; highlighting the blasting procedures, use of water for drilling activities, ARD testing protocols and spoil management plan.</li> </ul>	N/A
June 24	Email	SES, WEL, Innergex	<ul style="list-style-type: none"> <li>The IEM was notified that work was completed within the Stream 30A RVMA prior to notifying the IEM and without a monitor onsite. Details of the incident are included in the appended <i>EIR#009</i>. The issue has been included in the ITM and the IEM now considered closed.</li> </ul>	Tx#1
June 27	Pre-work Meeting	SES, CRT-ebc, Innergex	<ul style="list-style-type: none"> <li>Reviewed the work plan for the ULRHEF downstream portal excavation; highlighting the traffic control plan and spoil management.</li> </ul>	N/A
	Pre-work Meeting	SES, CRT-ebc, Innergex	<ul style="list-style-type: none"> <li>Reviewed the work plan for the BDRHEF intake access road construction; highlighting results of clearing boundary flagging audit and requirement for IEM monitoring when clearing within a section of UWR.</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:

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
<i>ULRHEF, BDRHEF, and Tx Line</i>	<i>All ULRHEF BDRHEF, and Tx Line 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>Tx-Line</i>	<i>Segments 1 – 6, &amp; 10</i>	<i>Suitable Raptor Nesting Habitat</i>	<i>IEM presence is required when clearing within suitable Northern Goshawk (NOGO), Spotted Owl (SPOW), and Western Screech-Owl (WESO) nesting habitat during the breeding period. A nest survey is required by WEL QPs prior to clearing within 600m of suitable Peregrine Falcon (PEFA) nesting habitat.</i>

<b>Component</b>	<b>Location</b>	<b>Wildlife/Archeology Concern</b>	<b>Construction/Timing Restrictions &amp; Mitigations</b>
<i>Tx-Line (continued)</i>	<i>Segments 1 – 6, &amp; 10 (continued)</i>	<i>Within 150m of wetlands or 100m of Coastal Tailed-Frog Streams</i>	<i>IEM presence is required when clearing within 150m of wetlands or 100m of Coastal Tailed-Frog Streams, to ensure clearing area is minimized.</i>
		<i>Old Growth Management Areas (OGMAs)</i>	<i>IEM monitoring is required when clearing within legally designated OGMAs, to ensure clearing area is minimized.</i>
		<i>Ungulate Winter Range (UWR)</i>	<i>IEM monitoring is required when clearing within identified deer and moose UWR, to ensure clearing area is minimized.</i>
		<i>Suitable Class 1 &amp; 2 Grizzly Bear forage habitat</i>	<i>IEM monitoring is required when clearing within identified Class 1 &amp; 2 Grizzly Bear forage habitat, to ensure clearing area is minimized.</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>	<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.  Helicopter use within the Truckwash Creek migration corridor and 200m buffer is restricted until further notice.</i>

## 4.0 Hydroelectric Facilities

### 4.1 Ancillary Components – Monitoring Results

#### Construction Camp

- Hauling of trailers and equipment to the construction camp site continued.
- Camp sewer and water utility installation continued this week. No environmental concerns were noted.



### 38km Laydown

- A material crushing and screening plant operation continued this week. A watering hose was used effectively for dust control at the screening plant. No environmental concerns were noted.

## **4.2 Boulder Creek Hydroelectric Facility – Monitoring Results**

### BDRHEF Downstream Portal and Powerhouse Access Road

- The drilling/blasting of the boulder portal rock face continued this week.
- Shotcrete and rock bolt stabilization of the lower sections of the downstream tunnel portal rock face was completed and work began on stabilizing the tunnel portal entrance (Photo 2).
- Tunneling activities (including: drilling, blasting, excavation, rock bolts and shotcrete/mesh installation) began on June 22<sup>nd</sup>.
- Installation of a series of three settling ponds continued this week (Photo 1). The ponds are being constructed to manage water quality from potential seepages that may be encountered during tunnelling activities and to manage excess process water.

### BDRHEF Intake Access Road

- No construction activities were completed during this reporting period.
- A Terrain Stability Assessment has been completed by a QP and the clearing boundaries have been audited and confirmed. Clearing activities and road construction will begin next week..

### Environmental Summary:

- Instream acoustic pressure monitoring was completed during all blasts at the BDRHEF tunnel portal work area this week. None of the blasts exceeded the trigger level of 30kPa. The IEM will continue to perform instream acoustic pressure monitoring once blasting for the tunnel begins until the results are consistently below the 30kPa threshold and blast mitigations are deemed to be appropriate.
- 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 37.5km of the Lillooet River FSR and on active construction site access roads.
- The gravity fed water diversion system installed during the previous reporting period was used in tunneling and shotcrete process works in accordance with Short Term Water Use Approval (No.A2006123). No water quality or environmental concerns were noted.
- Dust suppression between 0-37.5km of the Lillooet River FSR remains an outstanding issue. The IEM recommends that the application of water by water truck or an alternative approved dust control product be applied in this area to ensure

adherence to the Air Quality and Dust Control Plan, the Road Use Permit, and to protect the health and safety of those traveling to and from site (*ULR#12 – open*).

Photos:



Photo 1. Installing the series of settling ponds at the BDRHEF downstream tunnel portal work area. (June 26, 2014).



Photo 2. Rock bolt stabilization and tunneling works at the tunnel portal entrance. (June 26, 2014).

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded at active BDRHEF work areas during this reporting period. Tunneling and sediment pond construction activities had no visual effect on WQ.					

**4.3 Upper Lillooet River Hydroelectric Facility – Monitoring Results**

ULRHEF Powerhouse and Access Road

- Excavation at the ULRHEF powerhouse continued outside of the Lillooet River riparian area this week. The excavated material was used as fill for a future laydown within the limits of the powerhouse spoil area and was hauled to the crushing/screening plant located at the 38km of the Lillooet River FSR. Two small blasts of exposed boulders occurred on June 22<sup>nd</sup>. Blasts mats were used and blasting occurred more than 50m from the Lillooet River. No environmental concerns were noted.

ULRHEF Intake and Access Roads

- The right bank diversion channel excavation continued this week. Hydro-seeding of the exposed cut-slopes with a legume free seed mix began on June 27<sup>th</sup> (Photo 3). No environmental concerns were noted.

*ULRHEF Downstream Portal*

- The upper and lower spoil areas were graded and are now prepared to accept spoil from the tunnel portal excavation which began on June 28<sup>th</sup>.

*Truckwash Creek Bypass Road - FSR Re-alignment*

- Three culverts along the east heading were replaced following isolation of the work areas and Coastal Tailed Frog salvages. Coastal Tailed Frogs were salvaged by Ecofish according to conditions of the Wildlife Act Permit (SU14-95304). All works were completed under IEM supervision on June 22<sup>nd</sup>, 24<sup>th</sup>, and 25<sup>th</sup> (Photo 4).

*Environmental Summary:*

- On June 16<sup>th</sup>, Innergex informed the IEM that a stockpile containing ~2270m<sup>2</sup> of rock at the Truckwash west heading was tested according to the ARD/ML management plan and found to be potentially acid generating (PAG). The IEM will monitor run-off emanating from this stockpile and submit water quality samples for lab analysis as soon as run-off from the pile is observed. Sampling will continue on a monthly basis according to the ARD/ML management plan. No seepage or surface run-off from this stockpile has been observed to date.
- Water quality was monitored full-time during culvert installation works along the east heading of the Truckwash Creek Bypass road (See Water Quality Results Section). All works occurred in the dry by diverting water around the work area with pumps following Coastal Tailed Frog salvages. Short term turbidity exceedances were recorded during culvert commissioning works; however levels returned to within acceptable levels shortly after commissioning and no environmental incident occurred.

*Photos:*



**Photo 3. Excavation activities and hydro-seeding works at the ULRHEF intake diversion (June 27, 2014).**



**Photo 4. Culvert installation works at the Truckwash Creek east heading (June 25, 2014).**

Water Quality Results

Date	Culvert Location	Time	Sample Location Description	Turbidity (NTU)
June 24	3 <sup>rd</sup> culvert heading toward Truckwash Creek from the start of the east heading	11:05	Background	0.7
		11:30	Downstream – during culvert installation works	1.7
		14:15	Downstream – culvert commissioning	80
		14:44	Downstream – following culvert commissioning	4.6
June 25	2 <sup>nd</sup> culvert heading toward Truckwash Creek from the start of the east heading	9:20	Background	0.2
		10:10	Downstream – during culvert installation works	0.5
		11:50	Downstream – culvert commissioning	90
		15:48	Downstream – following culvert commissioning	0.3
	1 <sup>st</sup> culvert heading toward Truckwash Creek from the start of the east heading	14:05	Background	1.7
		16:05	Downstream – during culvert installation works	8.6
		17:40	Downstream – culvert commissioning	90
		18:30	Downstream – following culvert commissioning	7.0

#### 4.4 Hydroelectric Facilities – Recommendations

Dust suppression between 0 and 37.5km on the Lillooet River FSR continues to be an issue. The IEM recommends that CRT-ebc develop a FSR-specific dust suppression plan to supplement the Air Quality and Dust Control EPP and mitigate potential environmental effects (*ULR#12 – Open*)

CRT-ebc should continue to employ blasting mitigation measures during all future blasts at the BDRHEF tunnel portal work area. Instream acoustic pressure monitoring will continue during tunnelling blasts until readings are shown to be consistently below 30kPa.

#### 4.5 Hydroelectric Facilities – Upcoming Works

Excavation of the intake diversion channel is scheduled to continue next week at the ULRHEF intake. Excavation of ULRHEF downstream tunnel portal began this week and will continue for the next 3-4 weeks. Bench excavation at the ULRHEF powerhouse will continue next week. Installation of the sediment ponds and drilling and blasting of the BDRHEF tunnel portal will continue with revised blasting procedures. Clearing and construction of the BDRHEF intake access road will continue on Monday June 30<sup>th</sup> following the completion of AMBNS.

## 5.0 Transmission Line

### 5.1 Monitoring Results

#### Segment 1 & 2

- Pole installation and dressing continued in Segments 1 and 2 this week (Photo 6). Temporary access tracks to the pole locations were constructed. No environmental concerns were noted.

#### Segment 3-6 & 10

- Clearing occurred in Segment 3, 4, 5, and 10 following the completion of AMBNS (Photo 5).
- Access roads branching from the Lillooet River FSR were conducted in Segments 4, 5, & 10 this week.
- Clearing of helicopter access pads in Segment 6 has been completed; clearing of the Segment 6 right-of-way is currently on hold. Due to the steep terrain and access limitation, the IEM will conduct raptor monitoring from the north side of the Lillooet River from a good vantage point located at 17km of the Lillooet River FSR, when work resumes.

#### Environmental Summary:

- The IEM was present during clearing activities within 150m of wetlands, 100m of Coastal Tailed Frog Streams, Class 1 & 2 suitable Grizzly Bear forage habitat, moose and deer UWR, legally designated Old Growth Management Areas, and within NOGO, SPOW, and WESO, suitable nesting habitat. No raptors were observed during the monitoring of clearing activities and all flagged boundaries were respected. No water quality concerns were noted.
- AMBNS were completed prior to all vegetation clearing along the TX-Line alignment during this reporting period.

Photos:



**Photo 5. Decking merchantable timber roadside in Segment 10 (June 23, 2014).**



**Photo 6. Pole installation work in Segment 1 (June 26, 2014).**

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.					

**5.2 Transmission Line – Recommendations**

No recommendations are provided for this reporting period.

**5.3 Transmission Line – Upcoming Works**

Transmission line access road upgrades will continue next week and pole installation and dressing is scheduled to continue in Segment 1 and 2 next week. Clearing is scheduled to continue in Segment 3 – 6 and in Segment 10 following the results of AMBNS. Upcoming transmission line works will be focused on road construction, pole installation, and completing the clearing within the Segments 3-10. Clearing in Segment 7 is scheduled to begin next week following a pre-work meeting.

## 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) 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

## 7.0 Mountain Goat Monitoring Program

The following summarizes Mountain Goat mitigation measures for work activity within the Migration Corridor during this monitoring period;

1. Mountain Goat monitoring was completed this week focusing on the Truckwash Creek and Keyhole falls monitoring sites as works were occurring within 500m of Mountain Goat habitats and migration routes. Mountain goat monitoring will continue to occur periodically, but daily monitoring is no longer required as the project identified critical winter and kidding period (Nov. 1 – June 15) has ended.
2. Noise level monitoring equipment was removed on June 16<sup>th</sup> as the project identified critical winter and kidding period (Nov. 1 – June 15) has ended and noise monitoring is no longer required.
3. Works must be immediately suspended and the IEM notified if Mountain Goats are observed within 500m of the line of sight of work activities. Works will resume in consultation with the IEM.

As of June 15<sup>th</sup>, the IEM will continue periodic Mountain Goat Monitoring as works continue within the Mountain Goat Migration Corridor at Truckwash creek (ULRHEF downstream tunnel portal) and near the ULRHEF intake. The IEM or designate will focus on monitoring Mountain Goat activity within 500 m of construction activities at the Truckwash Creek Bypass road, and right bank intake diversion works. Mountain Goat monitoring effort will be shifted to the monitoring sites closest to active construction including:

- Truckwash Creek viewing river right of the Migration Corridor– MG-OBS01 (10U 467955 5612773);

- Keyhole Falls viewing the south side u-2-002 UL11 – MG-OBS02 (10U 466593 5613988); and

Monitoring effort will be split between these two sites during early morning hours and during construction activities that have a higher potential to cause disturbance (blasting), unless safety concerns preclude from doing so. Construction activities will cease if a goat(s) are observed within a 500m line of site of a construction activity. No goats were observed within 500m line of sight of construction activities and no work stoppages were required during this reporting period.



## 8.0 Environmental Issues Tracking Matrix (ITM)

### 8.1 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			
ITM Tracking Legend:		<table border="1"> <tr> <td style="background-color: yellow;">Work Item Open</td> </tr> <tr> <td style="background-color: green;">Work Item Complete</td> </tr> <tr> <td style="background-color: lightblue;">Issue Closed</td> </tr> </table>						Work Item Open	Work Item Complete	Issue Closed
Work Item Open										
Work Item Complete										
Issue Closed										
ULR#4	Open	47km – Lillooet River FSR	A log box structure failed while being crossed by an excavator ( <i>EIRO02</i> ).	<ol style="list-style-type: none"> <li>CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.</li> <li>IEM to review and approved the EIR.</li> <li>CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.</li> <li>CRT-ebc to confirm that load ratings of equipment adhere to maximum crossing structure load ratings.</li> <li>Complete FSR and temporary access road crossing assessment by a Qualified Professional.</li> <li>Determine the requirements for crossing structure remediation or replacement and execute according to the appropriate work planning protocols.</li> </ol>	May 23, 2014	May 26, 2014.	-			
ULR#5	Open	39.9km – Lillooet River FSR	Rock truck rollover and spill ( <i>EIRO03</i> ).	<ol style="list-style-type: none"> <li>CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.</li> <li>IEM to review and approved the EIR.</li> <li>CRT-ebc employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.</li> <li>Road shoulder delineation (where applicable).</li> <li>CRT-ebc to develop and implement communication protocols for environmental incident response.</li> <li>Road stability assessment to be completed on Lillooet River FSR and temporary roads.</li> </ol>	May 27, 2014	June 3, 2014	-			

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#7	Open	34.9km – Lillooet River FSR	Silva Creek log structure failed while being crossed by a Megaton Truck (EIR005).	1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.	May 27, 2014	June 3, 2014	-
				2. IEM to review and approved the EIR.			
				3. CRT-ebc 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.		Completion of action items 5 and 6 to be determined	
				6. Complete repairs of the crossing structure as per MFLNRO recommendations (May 30, 2014) in accordance with appropriate work planning protocols and construction procedures <sup>1</sup> .			
ULR#8	Open	39.7km – Lillooet River FSR	Stream 9 – log box structure failure (EIR004).	1. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident.	May 28, 2014	June 3, 2014	-
				2. IEM to review and approved the EIR.			
				3. CRT-ebc 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.		Completion of action items 5 and 6 to be determined	
				6. Determine the requirements for crossing structure remediation or replacement and execute according to the appropriate work planning protocols and construction procedures.			

<sup>1</sup> <sup>1</sup> The Lillooet River FSR Primary Road Use Permit holder (Squamish Mills) will be completing crossing structure repair.

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#10	Open	Lillooet River FSR	Innergex issued stop work order for heavy hauling on Lillooet River FSR	1. CRT-ebc to confirm load ratings of equipment adhere to maximum crossing structure load ratings.	May 28, 2014	May 30, 2014	-
				2. Conditional Rescission of the Stop Work Order for Heavy Hauling on the Lillooet River FSR was issued on June 1 <sup>st</sup> , 2014 subject to the following: <ul style="list-style-type: none"> <li>a. CRT-ebc obtaining approval from MFLNRO for the temporary steel plate</li> <li>b. Crossing assessments completed by a QP and recommendations submitted to MFLNRO for review and approval.</li> <li>c. Hauling above 38km of the Lillooet River FSR to be restricted to BCL-625 until modifications are approved by MFLNRO.</li> </ul>		June 1, 2014	
ULR#12	Open	Lillooet River FSR	Inadequate dust suppression between 0-37.5km of the Lillooet River FSR	1. The IEM recommends that the application of water by water truck or an alternative approved dust control product be applied in this area to ensure adherence to the Air Quality and Dust Control Plan, the Road–Use Permit, and to protect the health and safety of those traveling to and from site.	May 31, 2014	June 14, 2014	-
ULR#15	Open	North side (left bank) of the ULRHEF intake	Stripping and grubbing proceeded without an approved work plan or LTC (EIRO08)	1. The IEM reported the incident to CRT-ebc environmental personnel. No further unauthorized construction activities occurred after the initial detection of the incident.	June 12, 2014	June 15, 2014	-
				2. CRT-ebc to prepare an EIR detailing the cause, description and actions items related to the incident. 3. IEM to review and approved the EIR.		Completion of action items 4 and 5 to be determined	
				4. CRT-ebc to prepare and submit a work plan for bulk excavation of the left bank for review and approval prior to resuming work on the left bank. 5. Issuance of LTC prior to resuming work on the left bank.			

next ITM – ULR#16

## 8.2 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 Completed
Tx#1	Closed	Segment 2 – Stream 30A RVMA	Work was completed within the Stream 30A RVMA prior to notifying the IEM and without a monitor onsite. (EIR009)	<ol style="list-style-type: none"> <li>The IEM was informed by WEL’s environmental manager that all works have been ceased. Work activities within Stream 30 RVMA will resume once the IEM is available to monitor the works.</li> <li>WEL to prepare an EIR detailing the cause, description and actions items related to the incident.</li> <li>IEM to review and approved the EIR.</li> <li>WEL employees were reminded of the need for IEM presence for all activities located within RVMAs and the need for 48hr notification prior to working within RVMAs</li> </ol>	June 25, 2014	June 28, 2014	June 28, 2014
<i>No outstanding environmental issues (next ITM – Tx#2)</i>							

## Environmental Incident Reporting Form

<b>General Information</b>	
<b>Project Name:</b> Upper Lillooet Hydro Project	<b>Project Component:</b> Transmission Line
<b>Time/Date of Incident Start:</b> June 24, 2014	<b>Time/Date Incident Stopped:</b> June 25, 2014
<b>Date of Report:</b> Draft Submitted: June 26, 2014 Final Submitted: June 28, 2014	<b>Project Incident Report Number:</b> 2014-06-28_Westpark-EIR-009 <b>Incident Location:</b> ROW, Segment 2, Structure 30 <b>Incident Description:</b> IEM not given notice for works carried out within an RVMA.
<b>Report Prepared By:</b> Pontus Lindgren	
<b>Contractor's Environmental Manager :</b> Pontus Lindgren	
<b>Independent Environmental Monitor (Sartori Environmental Services):</b> Tom Hicks	
<b>Initial IEM Contact:</b> email to Tom Hicks on June 25, 2014 at 15:35	
<b>Licensee's Environmental Manager:</b> Julia Mancinelli	

<b>Contact Information for Company Involved in Incident</b>	
<b>Company:</b> Westpark Electric Ltd.	<b>Address:</b> #534-6388 Unsworth Rd., Chilliwack, V2R 5M3
<b>Phone #:</b> (604) 846-0039	<b>Email:</b> plindgren@westparkelectric.com
<b>Contact Person:</b> Pontus Lindgren	<b>Position:</b> Environmental Manager

<b>Incident Type (check all that apply)</b>			
<b>Encroachment of an Environmentally Sensitive Area (e.g. Riparian/Wildlife Buffer)</b> Please provide details in "Description" section below.	<input checked="" type="checkbox"/>	<b>Potential Adverse Impacts to Fish/Wildlife (e.g. Mortality/Injury)</b> Please provide details in "Description" section below.	<input type="checkbox"/>
<b>Water Quality/Quantity</b> Please provide details in "Description" section below.	<input type="checkbox"/>	<b>Hazardous Material Spills (to ground or water)</b> Please provide details in description section in regards to: <ul style="list-style-type: none"> <li>Perceives extent of damage</li> <li>Type, quantity and area of the spill</li> <li>Containment Procedures</li> <li>Environmental features in close proximity to the spill</li> </ul>	<input type="checkbox"/>
<b>Disturbance of known or unknown archeological /heritage site</b> Please provide details in "Description" section below.	<input type="checkbox"/>	<b>Air Quality</b> Please provide details in "Description" section below.	<input type="checkbox"/>
<b>Spill reported to external agencies</b> If yes, describe the receiving environment and substance/quantity spilled.	<input type="checkbox"/>	<b>Other</b> Please provide details in "Description" section below.	<input checked="" type="checkbox"/>

Incident Profile									
<b>Weather at time of incident</b>	 <input checked="" type="checkbox"/> Clear	 <input type="checkbox"/> Partly Cloudy/ Variable	 <input type="checkbox"/> Cloudy	 <input type="checkbox"/> Showers/ Periods of Rain	 <input type="checkbox"/> Rain	 <input type="checkbox"/> Heavy Rain (>25mm in 24hr)	 <input type="checkbox"/> Storm (Heavy rain and high winds)	 <input type="checkbox"/> Snow	
<b>Specific Incident Location:</b> Structure 30, located off of Pebble Main.									
<b>Description and Cause of Incident:</b>									
<u>Description:</u>									
<ul style="list-style-type: none"> <li>The Independent Environmental Monitor (IEM) was not given notice for works carried out within the Riparian Vegetation Management Area (RVMA) associated with stream 30A. As a result, works within this RVMA were carried out without IEM monitoring.</li> </ul>									
<u>Cause:</u>									
<ul style="list-style-type: none"> <li>Line crews mistakenly interpreted an email sent on June 23 describing mitigation measures required when working close to, or within, an RVMA as indicating that it was OK to begin works, as long as mitigation steps were followed. Ultimately, the required process of providing notice to the IEM prior to any works within an RVMA was not followed.</li> </ul>									
<b>Incident Witness:</b> Brad Henderson and Kevin Solmundson									
<b>Were there any Potential Environmental impacts as a result of the incident?</b> (e.g., surface contamination, storm sewers, or fish/wildlife mortalities)							<b>Yes</b> <input type="checkbox"/>	<b>None Observed</b> <input checked="" type="checkbox"/>	
<b>If Yes, please describe:</b>									
<b>Has Wildlife Salvage Protocol been followed?</b>							<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	<b>N/A</b> <input checked="" type="checkbox"/>
<b>If No, please explain:</b>									
<b>Water Quality Samples Collected?</b>							<b>Yes</b> <input type="checkbox"/>	<b>No</b> <input type="checkbox"/>	<b>N/A</b> <input checked="" type="checkbox"/>
<b>If yes, attach results of water quality analysis to report in table format. Include Laboratory analysis if completed.</b> <b>If No please explain:</b>									

Have applicable photos and/or drawings been attached to the incident report?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
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**Incident Response Measures**

- Westpark's Environmental Manager instructed the line crew to cease all works at structure 30 until such time as IEM monitoring can be arranged.

**Actions to Prevent Incident Recurrence**


- As per standard protocol, the IEM was included in the initial email communication of the mitigation measures associated with the RVMA works from WEL's Environmental Manager to the line crews and was satisfied with the prescriptions. Work planning communications have been sufficient to this point and no alteration to current protocol is recommended.
- All Westpark field personnel have been reminded of the strict requirement to provide a minimum of 48 hour notice prior to any works impacting an RVMA.

**Notification Record**

Agency Reported to	Contact Information	Agency Contacted		Date and Time Reported	Reported By	Method of Reporting
		Yes	No			
<b>External Notifications</b>						
MFLNRO BC EAO	Andrea Cowgill	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
	Chris Parks	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
PEP	1-800-663-3456	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
MOE Staff		<input type="checkbox"/>	<input checked="" type="checkbox"/>			
DFO		<input type="checkbox"/>	<input checked="" type="checkbox"/>			
DFO		<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Environment Canada	604-666-6100	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Canadian Coast Guard	604-666-6011	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Local Fire Rescue	911	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

Reported to	Contact Information	Contacted		Date and Time Reported	Reported By	Method of Reporting
		Yes	No			
<b>Internal Notifications (Provide in chronological order)</b>						
VP Westpark Electric	D'Arcy Soutar <a href="mailto:dsoutar@westparkelectric.com">dsoutar@westparkelectric.com</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25/06/14 @ 15:45	Pontus Lindgren	email
Owner Innergex	Julia Mancinelli <a href="mailto:jmancinelli@innergex.com">jmancinelli@innergex.com</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25/06/14 @ 15:45	Pontus Lindgren	email
IEM Sartori Environmental	Stephen Sims <a href="mailto:steve@sartorienv.com">steve@sartorienv.com</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25/06/14 @ 15:45	Pontus Lindgren	email
IEM Sartori Environmental	Tom Hicks <a href="mailto:steve@sartorienv.com">steve@sartorienv.com</a>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	25/06/14 @ 15:45	Pontus Lindgren	email
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			
		<input type="checkbox"/>	<input type="checkbox"/>			

**Contractor's Environmental Manager:**

Pontus Lindgren	Environmental Manager Westpark Electric		June 26, 2014
Print Name	Position and Company	Signature	Date

**Reviewed by:**

J. Stephen Sims	Independent Environmental Monitor, Sartori Environmental Services		June 28, 2014
Print Name	Position and Company	Signature	Date



**Photo documentation (if applicable):**



**Photo 1.** Taken on June 10, 2014, from within RVMA, showing future locations of poles (indicated by wooden stakes with blue flagging) located near and within the RVMA boundary (indicated with pink and blue flagging hanging on vegetation).



**Photo 2.** Taken on June 25, 2014, from outside of the RVMA, showing culvert liners installed along the edge and within the RVMA.