
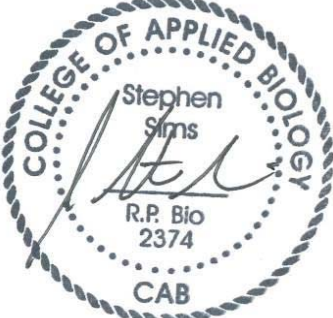


# Upper Lillooet Hydro Project

## Weekly Environmental Monitoring Report #38

Reporting Period: September 7 – September 13, 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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Danielle Cunningham	MFLNRO – Land and Resources	
Frank DeGagne	MFLNRO – Land and Resources	
Nathan Braun	BC Environmental Assessment Office	
George Steeves	True North Energy – Independent Engineer	
Jennifer McCash	True North Energy – Independent Engineer	
Thomas Hicks	Sartori Environmental Services	
Peter Ramsden	Innergex Renewable Energy Inc.	
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Jordan Gagne	CRT-ebc Construction Inc.	
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D'Arcy Soutar	Westpark Electric Ltd.	
Pontus Lindgren	Westpark Electric Ltd.	
Harriet VanWart	Lil'wat Nation	
		<b>Date Prepared:</b> October 3, 2014 <b>Date Submitted:</b> October 6, 2014

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## Owner Construction Permits and Approvals

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*Environmental Assessment Certificate No. E13-01 (Amendment 1, 2, 3 & 4)*  
*Fisheries Act Subsection 35(2)(b) Authorization No. 09-HPAC-PA2-000303 (Amendment 1)*  
*Letter of Advice for the Transmission Line No. 09-HPAC0-PA2-000303*  
*Leave To Commence Construction (ULRHEF) File No. 2002561*  
*Leave To Commence Construction (BDRHEF) File No. 2002453*  
*Leave To Commence Construction (TX Line) File No. 2002561/2002453*  
*Conditional Water Licence (ULRHEF C130613) File No. 2002561*  
*Conditional Water Licence (BDRHEF C129969) File No. 2002453*  
*Conditional Water Licence (BDRHEF C131153) File No. 2003601*  
*Licence of Occupation (ULRHEF #232384) File No. 2409871*  
*Licence of Occupation (BDRHEF #232386) File No. 2409998*  
*Licence of Occupation (TX Line #2423386) File No. 2410654*  
*Occupant Licence to Cut (ULRHEF Amendments 1, 2, 3, 4, 5) No. L49717*  
*Occupant Licence to Cut (BDRHEF – KM 38 laydown) No. L49698*  
*Occupant Licence to Cut (BDRHEF Amendments 1, 2, 3) No. L49816*  
*Occupant Licence to Cut (TX Line Amendment 1, 2, 3, 4) No. L49697*  
*General Wildlife Measure Exemption Approval Letter (TX Line & BDRHEF) File No. 78700-35/06 UWR and 39585-20 WHA*  
*Heritage Conservation Act – Alteration Permit (ULRHEF) File No. 11200-03/2014-0033*  
*Road Use Permit No. 6123-13-02 (Lillooet River FSR); 5673-13-01 (Rutherford Creek FSR); 7977-13-01 (Lillooet South FSR); 8015-13-01 (Ryan River); 8188-13-01 (Pemberton Creek FSR); and 9717-13-01 (Miller Bench FSR)*  
*Junction Permit (ULRHEF & BDRHEF) File No. 11250-32/6123 (Amendment 1)*  
*Aeronautical Obstruction Approval (Tx Line - Lillooet River Crossing) File No. 2013-004*  
*Aeronautical Obstruction Approval (Tx Line - Ryan River) File No. 2013-005*  
*Aeronautical Obstruction Approval (Tx Line - North Miller) File No. 2013-006*  
*Aeronautical Obstruction Approval (Tx Line - South Miller) File No. 2013-007*  
*Aeronautical Obstruction Approval (Tx Line - Pemberton Creek) File No. 2013-008*  
*Aeronautical Obstruction Approval (Tx Line - Lillooet River near Pemberton) File No. 2013-009*  
*Aeronautical Obstruction Approval (Tx Line - Lillooet River near Meager Creek) File No. 2013-010*  
*Navigable Water Protection Act (ULRHEF) File No. 8200-2009-500434-001*  
*Navigable Water Protection Act (BDRHEF) File No. 8200-2012-501-032-001*  
*Navigable Water Protection Act (Tx Line – North Creek) File No. 8200-2013-500103-001*  
*Navigable Water Protection Act (Tx Line – Lillooet River) File No. 8200-2013-500101-001*  
*Navigable Water Protection Act (Tx Line – Lillooet River) File No. 8200-2013-500102-01*  
*Navigable Water Protection Act (Tx Line – Ryan River) File No. 8200-2013-500104-001*  
*Navigable Water Protection Act (Tx Line – South Miller River) File No. 8200-2013-500100-001*  
*Navigable Water Protection Act (Tx Line – Boulder Creek) File No. 8200-2013-500099-001*  
*Navigable Water Protection Act – Extension Approval (ULRHEF, BDRHEF, Tx Line)*  
*Navigable Water Protection Act (Bridge – Ryan River) File No. 8200-2013-500381*  
*Navigable Water Protection Act (Bridge – Upper Lillooet Side Channel; Extension Approval) File No. 8200-2013-500383*  
*Section 57 Authorization (ULRHEF) File No. 16660-20/REC202717*  
*SLRD Temporary Use Permit No. 34 – Boulder Creek HEF*  
*SLRD Temporary Use Permit No. 35 – Upper Lillooet River HEF*  
*Works Permit for Construction within FSR Right-of-Way No. 6123-14-01*  
*Section 52(1)(b) FRPA Authorization for Ryan River Wet Crossing File No. FOR-19400-01/2014*  
*Special Use Permit (Road 197) S25854 – Transmission Line*

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**Contractor Construction Permits and Approvals**

*Magazine Licence File No. UL76018*  
*Section 8 Approval – Short Term Use of Water File (Lillooet River and Tributaries) No. A2006123 (Amendment 1)*  
*Waste Discharge under the Code of Practice for the Concrete and Concrete Products Industry under the Environmental Management Act (Authorization No. 107204) Tracking No. 326969*  
*Wildlife Act Permits – Pacific Tailed Frog Salvage Permit # SU14-95304 & SU13-90538, Fish Salvage Permit # SU14-95329*  
*Section 52 of the Fisheries (General) Regulations – Fish Salvage Licence # XR 139 2014*  
*BC Safety Authority – Temporary Construction Electrical Service Permit EL-140698-2014*  
*Municipal Wastewater Regulation - Authorization # 107032*  
*Water Supply System Construction Permits – VCH-14-613 for Main Camp*  
*Water Supply System Permit to Operate Issued July 30<sup>th</sup>, 2014 for Main Camp*  
*Section 6(3) and Schedule 3 Wildfire Regulations Fire Exemption for Ryan River Bridge File No. 14350-07*  
*SLRD Building Inspection Report dated August 13, 2014 - Construction Camp Building Permit No. 10830*  
*Lillooet River FSR Temporary Road Closures Approval File No. 11250-32/6123 (Amendment 1, 2)*  
*Lillooet South FSR Temporary Road Closures Approval File No. 11250-32/7977*

**ACRONYMS:**

<b>AMBNS</b>	Active Migratory Bird Nesting Survey	<b>IEM</b>	Independent Environmental Monitor
<b>ASMP</b>	Archaeological Sites Management Plan	<b>INX</b>	Innergex Renewable Energy Inc.
<b>ARD/ML</b>	Acid Rock Drainage and Metal Leaching	<b>ISW</b>	Instream Works
<b>BCEAO</b>	British Columbia Environmental Assessment Office	<b>ITM</b>	Environmental Issue Tracking Matrix
<b>BCWQG</b>	British Columbia Water Quality Guidelines	<b>JEM</b>	JEM Energy Ltd. (Delegate Independent Engineer)
<b>BDRHEF</b>	Boulder Creek Hydroelectric Facility	<b>LTC</b>	Leave to Construct
<b>BG</b>	Background	<b>MFLNRO</b>	Ministry of Forests, Lands and Natural Resource Operations
<b>BKL</b>	BKL Consultants Ltd.	<b>MOE</b>	Ministry of Environment
<b>CE</b>	CRT-ebc Construction Inc.	<b>NCD</b>	Non Classified Drainage
<b>DFO</b>	Fisheries and Oceans Canada	<b>OLTC</b>	Occupational License to Cut
<b>DS</b>	Downstream	<b>PAG</b>	Potentially Acid Generating
<b>Ecofish</b>	Ecofish Research Ltd.	<b>RoW</b>	Right of Way
<b>Ecologic</b>	Ecologic Consulting	<b>RVMA</b>	Riparian Vegetation Management Area
<b>EDI</b>	Environmental Dynamics Inc.	<b>SES</b>	Sartori Environmental Services
<b>EIR</b>	Environmental Incident Report	<b>TX Line</b>	Transmission Line
<b>ESC</b>	Erosion and Sediment Control	<b>ULRHEF</b>	Upper Lillooet River Hydroelectric Facility
<b>FAM</b>	Field Advice Memorandum	<b>UWR</b>	Ungulate Winter Range
<b>FSR</b>	Forest Service Road	<b>VC</b>	Valued Component
<b>GWR</b>	Mountain Goat Winter Range	<b>WQ</b>	Water Quality
<b>Hedberg</b>	Hedberg and Associates Ltd.	<b>WEL</b>	Westpark Electric Ltd.
<b>IE</b>	Independent Engineer (True North Energy)	<b>WEMR</b>	Weekly Environmental Monitoring Report
		<b>WHA</b>	Wildlife Habitat Area

## 1.0 Summary of Site Inspections for Reporting Period

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

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
Sunday, September 7	ML, KM, DA	Sun, few clouds	<p><b>ULRHEF Intake Diversion Channel – South Side</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and excavating at the diversion channel</li> </ul> <p><b>ULRHEF Intake Open Cut – North Side</b></p> <ul style="list-style-type: none"> <li>• Continued bulk excavation to elevation 666m</li> </ul> <p><b>ULRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and stabilization of the tunnel</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued dewatering of excavation to settling ponds</li> <li>• Continued rebar installation and formwork</li> </ul> <p><b>Lillooet River FSR</b></p> <ul style="list-style-type: none"> <li>• Repair works on log box culvert at KM 47 commenced with site exclusion and fish/amphibian salvage</li> </ul> <p><b>BDRHEF Intake Access Road &amp; Crane Pad</b></p> <ul style="list-style-type: none"> <li>• Continued access road construction</li> <li>• Continued excavation on top level of crane pad</li> </ul> <p><b>BDRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and tunnel stabilization</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>BDRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued rebar installation and formwork</li> <li>• Drilling for anchor installations</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• <b>Segment 5</b> <ul style="list-style-type: none"> <li>➢ Ground works (including blasting) at structures 88-89, 94-95 and 108</li> </ul> </li> <li>• <b>Segment 6</b> <ul style="list-style-type: none"> <li>➢ Continued hand falling</li> </ul> </li> <li>• <b>Segment 8</b> <ul style="list-style-type: none"> <li>➢ Helipad construction and hand falling along road</li> </ul> </li> <li>• <b>Segment 14</b> <ul style="list-style-type: none"> <li>➢ Hand falling along road alignment</li> </ul> </li> </ul>
Monday, September 8	ML, KM, VD, AA	Sun, few clouds	<p><b>ULRHEF Intake Diversion Channel – South Side</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and excavating at the diversion channel</li> </ul> <p><b>ULRHEF Intake Open Cut – North Side</b></p> <ul style="list-style-type: none"> <li>• Continued bulk excavation to elevation 666m</li> </ul> <p><b>ULRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and stabilization of the tunnel</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued dewatering of excavation to settling ponds</li> <li>• Continued rebar installation and formwork</li> </ul> <p><b>Lillooet River FSR</b></p> <ul style="list-style-type: none"> <li>• Machine works at KM 47 log box culvert commenced with sandbag headwall installation, watercourse diversion and removal of broken</li> </ul>

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
			<p style="text-align: center;">stringers and abutment logs</p> <p><b>BDRHEF Intake Access Road &amp; Crane Pad</b></p> <ul style="list-style-type: none"> <li>• Continued access road construction (including blasting)</li> <li>• Continued excavation on top level of crane pad</li> </ul> <p><b>BDRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and tunnel stabilization</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>BDRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued rebar installation and formwork</li> <li>• Drilling for anchor installations</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• <b>Segment 5</b> <ul style="list-style-type: none"> <li>➢ Machine works (excavator and spider hoe) at structure 84</li> <li>➢ Ground works (including blasting) at structures 94 and 95</li> </ul> </li> <li>• <b>Segment 6</b> <ul style="list-style-type: none"> <li>➢ Continued RoW clearing throughout segment</li> </ul> </li> <li>• <b>Segment 7</b> <ul style="list-style-type: none"> <li>➢ Clearing from structures 179 to the end of the segment</li> </ul> </li> <li>• <b>Segment 14</b> <ul style="list-style-type: none"> <li>➢ Road works continued in the vicinity of structure 350</li> </ul> </li> </ul>
<p style="text-align: center;">Tuesday, September 9</p>	<p style="text-align: center;">SS, ML, KM, VD, AA</p>	<p style="text-align: center;">Sun, few clouds</p>	<p><b>ULRHEF Intake Diversion Channel – South Side</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and excavating at the diversion channel</li> </ul> <p><b>ULRHEF Intake Open Cut – North Side</b></p> <ul style="list-style-type: none"> <li>• Continued bulk excavation to elevation 666m</li> </ul> <p><b>ULRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and stabilization of the tunnel</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued dewatering of excavation to settling ponds</li> <li>• Continued rebar installation and formwork</li> </ul> <p><b>Lillooet River FSR</b></p> <ul style="list-style-type: none"> <li>• Repair works of KM 47 log box culvert continued</li> </ul> <p><b>BDRHEF Intake Access Road &amp; Crane Pad</b></p> <ul style="list-style-type: none"> <li>• Continued access road construction</li> <li>• Continued excavation on top level of crane pad</li> </ul> <p><b>BDRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and tunnel stabilization</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>BDRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued rebar installation and formwork</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• <b>Segment 1</b> <ul style="list-style-type: none"> <li>➢ Stringing from structures 4 to 8</li> </ul> </li> <li>• <b>Segment 5</b> <ul style="list-style-type: none"> <li>➢ Ground works (including blasting) at structures 95 and 108</li> </ul> </li> <li>• <b>Segment 6</b> <ul style="list-style-type: none"> <li>➢ Continued RoW clearing throughout segment</li> <li>➢ Lillooet South FSR – Continued road works between KM 4-7</li> </ul> </li> <li>• <b>Segment 9</b> <ul style="list-style-type: none"> <li>➢ RoW clearing at the end of the Salmon Main FSR near structures 202 and 203</li> </ul> </li> <li>• <b>Segment 14</b> <ul style="list-style-type: none"> <li>➢ Road works continued in the area of structure 344 and Pemberton</li> </ul> </li> </ul>

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
Wednesday, September 10	SS, AS, VD, AA	Sun, few clouds	<p style="text-align: center;">Creek</p> <p><b>ULRHEF Intake Diversion Channel – South Side</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and excavating at the diversion channel</li> </ul> <p><b>ULRHEF Intake Open Cut – North Side</b></p> <ul style="list-style-type: none"> <li>• Continued bulk excavation to elevation 666m</li> </ul> <p><b>ULRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and stabilization of the tunnel</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued dewatering of excavation to settling ponds</li> <li>• Continued rebar installation and formwork</li> <li>• Concrete works – Foundation pour</li> </ul> <p><b>Lillooet River FSR</b></p> <ul style="list-style-type: none"> <li>• Repair works of KM 47 log box were completed and watercourse was partially rewatered</li> </ul> <p><b>BDRHEF Intake Access Road &amp; Crane Pad</b></p> <ul style="list-style-type: none"> <li>• Continued access road construction</li> <li>• Excavation and drilling on top level of crane pad</li> </ul> <p><b>BDRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and tunnel stabilization</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>BDRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued rebar installation and formwork</li> </ul> <p><b>TX-Line</b></p> <ul style="list-style-type: none"> <li>• <b>Segment 1</b> <ul style="list-style-type: none"> <li>➢ Stringing from structures 4 to 8</li> </ul> </li> <li>• <b>Segment 3</b> <ul style="list-style-type: none"> <li>➢ Ground works (including blasting) commenced at structures 47</li> </ul> </li> <li>• <b>Segment 5</b> <ul style="list-style-type: none"> <li>➢ Machine works (excavator and spider hoe) at structures 91 and 101</li> </ul> </li> <li>• <b>Segment 6</b> <ul style="list-style-type: none"> <li>➢ Continued RoW clearing throughout segment</li> <li>➢ Lillooet South FSR – Continued road works between KM 4-7</li> </ul> </li> <li>• <b>Segment 9</b> <ul style="list-style-type: none"> <li>➢ RoW clearing at the end of the Salmon Main FSR near structures 202 and 203</li> </ul> </li> <li>• <b>Segment 14</b> <ul style="list-style-type: none"> <li>➢ Road works and falling in the area of structure 344</li> </ul> </li> </ul>
Thursday, September 11	SS, MF, AS, DA, TJ	Sun	<p><b>ULRHEF Intake Diversion Channel – South Side</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and excavating at the diversion channel</li> </ul> <p><b>ULRHEF Intake Open Cut – North Side</b></p> <ul style="list-style-type: none"> <li>• Continued bulk excavation to elevation 666m</li> </ul> <p><b>ULRHEF Downstream Tunnel Portal</b></p> <ul style="list-style-type: none"> <li>• Drilling, blasting and stabilization of the tunnel</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <p><b>ULRHEF Powerhouse</b></p> <ul style="list-style-type: none"> <li>• Continued dewatering of excavation to settling ponds</li> <li>• Continued rebar installation and formwork</li> <li>• Concrete works – Foundation pour and cure using wetted membrane</li> </ul> <p><b>Lillooet River FSR</b></p> <ul style="list-style-type: none"> <li>• Isolation was removed and watercourse at KM 47 log box culvert was fully rewatered</li> </ul>

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
			<ul style="list-style-type: none"> <li>• Repair works at KM 39.7 box culvert commenced Thursday afternoon with worksite isolation, amphibian/fish salvage, watercourse diversion and structure replacement</li> <li><b><i>BDRHEF Intake Access Road &amp; Crane Pad</i></b> <ul style="list-style-type: none"> <li>• Continued access road construction</li> <li>• Excavation and drilling on top level of crane pad</li> </ul> </li> <li><b><i>BDRHEF Downstream Tunnel Portal</i></b> <ul style="list-style-type: none"> <li>• Drilling, blasting and tunnel stabilization</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> </li> <li><b><i>BDRHEF Powerhouse</i></b> <ul style="list-style-type: none"> <li>• Continued rebar installation and formwork</li> </ul> </li> <li><b><i>TX-Line</i></b> <ul style="list-style-type: none"> <li>• <b>Segment 1</b> <ul style="list-style-type: none"> <li>➢ Stringing from structures 4 to 8</li> </ul> </li> <li>• <b>Segment 3</b> <ul style="list-style-type: none"> <li>➢ Ground works (including blasting) continued between structures 44 and 47</li> </ul> </li> <li>• <b>Segment 5</b> <ul style="list-style-type: none"> <li>➢ Machine works (excavator and spider hoe) at structures 91 and 101</li> </ul> </li> <li>• <b>Segment 6</b> <ul style="list-style-type: none"> <li>➢ Continued RoW clearing throughout segment</li> <li>➢ Lillooet South FSR – Road ballasting works from KM 4 to 7 were completed</li> </ul> </li> <li>• <b>Segment 7</b> <ul style="list-style-type: none"> <li>➢ Roadside decking of recently felled trees occurred along Branch S200 near structures 179 and 180</li> </ul> </li> <li>• <b>Segment 9</b> <ul style="list-style-type: none"> <li>➢ RoW clearing at the end of the Salmon Main FSR near structures 202 and 203</li> </ul> </li> <li>• <b>Segment 14</b> <ul style="list-style-type: none"> <li>➢ Falling continued along road on the opposite side of Pemberton Creek from the recently active road works near structure 340</li> </ul> </li> </ul> </li> </ul>
Friday, September 12	MF, AS, DA	Sun	<ul style="list-style-type: none"> <li><b><i>ULRHEF Intake Diversion Channel – South Side</i></b> <ul style="list-style-type: none"> <li>• Drilling, blasting and excavating at the diversion channel</li> </ul> </li> <li><b><i>ULRHEF Intake Open Cut – North Side</i></b> <ul style="list-style-type: none"> <li>• Continued bulk excavation to elevation 666m</li> </ul> </li> <li><b><i>ULRHEF Downstream Tunnel Portal</i></b> <ul style="list-style-type: none"> <li>• Drilling, blasting and stabilization of the tunnel</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> <li>• Test drilling for penstock geotechnical considerations commenced adjacent to Truckwash Creek</li> </ul> </li> <li><b><i>ULRHEF Powerhouse</i></b> <ul style="list-style-type: none"> <li>• Continued dewatering of excavation to settling ponds</li> <li>• Continued rebar installation and formwork</li> </ul> </li> <li><b><i>Lillooet River FSR</i></b> <ul style="list-style-type: none"> <li>• Repair works at KM 39.7 box culvert continued and were completed during nightshift operations</li> </ul> </li> <li><b><i>BDRHEF Intake Access Road &amp; Crane Pad</i></b> <ul style="list-style-type: none"> <li>• Continued access road construction</li> <li>• Excavation and drilling on top level of crane pad</li> </ul> </li> <li><b><i>BDRHEF Downstream Tunnel Portal</i></b> <ul style="list-style-type: none"> <li>• Drilling, blasting and tunnel stabilization</li> <li>• Seepage from tunnel pumped from sump at portal entrance into</li> </ul> </li> </ul>

Date	IEM Team Personnel (on-site)	Weather Conditions	Key Monitoring Locations
			settling ponds <b>BDRHEF Powerhouse</b> <ul style="list-style-type: none"> <li>• Continued rebar installation and formwork</li> </ul> <b>Tx-Line</b> <ul style="list-style-type: none"> <li>• <b>Segment 1</b> <ul style="list-style-type: none"> <li>➢ Stringing from structures 4 to 8</li> </ul> </li> <li>• <b>Segment 3</b> <ul style="list-style-type: none"> <li>➢ Ground works (including blasting) continued between structures 44 and 47</li> </ul> </li> <li>• <b>Segment 5</b> <ul style="list-style-type: none"> <li>➢ Excavator installing pole liners at structures 119 and 137-138</li> <li>➢ Ground works (including blasting) continued at structures 88-89, 94-95 and 108</li> </ul> </li> <li>• <b>Segment 6</b> <ul style="list-style-type: none"> <li>➢ Continued RoW clearing throughout segment</li> </ul> </li> <li>• <b>Segment 8 and 9</b> <ul style="list-style-type: none"> <li>➢ Hand falling near the boundary of Segment</li> </ul> </li> <li>• <b>Segment 14</b> <ul style="list-style-type: none"> <li>➢ Road works (including drilling) continued along road 343.1</li> <li>➢ Clearing near structure 340</li> </ul> </li> </ul>
Saturday, September 13	MF, AS, TJ	Sun, few clouds	<b>ULRHEF Intake Diversion Channel – South Side</b> <ul style="list-style-type: none"> <li>• Drilling, blasting and excavating at the diversion channel</li> <li>• Shotcrete works commenced at the Obermeyer weir</li> </ul> <b>ULRHEF Intake Open Cut – North Side</b> <ul style="list-style-type: none"> <li>• Continued bulk excavation to elevation 666m</li> </ul> <b>ULRHEF Downstream Tunnel Portal</b> <ul style="list-style-type: none"> <li>• Drilling, blasting and stabilization of the tunnel</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> <li>• Continued test drilling for penstock geotechnical considerations adjacent to Truckwash Creek</li> </ul> <b>ULRHEF Powerhouse</b> <ul style="list-style-type: none"> <li>• Continued dewatering of excavation to settling ponds</li> <li>• Continued rebar installation and formwork</li> </ul> <b>BDRHEF Intake Access Road &amp; Crane Pad</b> <ul style="list-style-type: none"> <li>• Continued access road construction</li> <li>• Excavation and drilling/blasting on top level of crane pad</li> </ul> <b>BDRHEF Downstream Tunnel Portal</b> <ul style="list-style-type: none"> <li>• Drilling, blasting and tunnel stabilization</li> <li>• Seepage from tunnel pumped from sump at portal entrance into settling ponds</li> </ul> <b>BDRHEF Powerhouse</b> <ul style="list-style-type: none"> <li>• Continued rebar installation and formwork</li> </ul> <b>Tx-Line</b> <ul style="list-style-type: none"> <li>• <b>Segment 1</b> <ul style="list-style-type: none"> <li>➢ Stringing from structures 15 to 23</li> </ul> </li> <li>• <b>Segment 3</b> <ul style="list-style-type: none"> <li>➢ Ground works (including blasting) continued between structures 44 and 47</li> </ul> </li> </ul>

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



## 2.0 Administrative Summary

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

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
September 7	<i>email/telephone</i>	CE, SES	ULRHEF south side intake diversion channel – Discussed river elevation, site backwatering and planned mitigations. Contractor has confirmed that works area is and will continue to be isolated from the Upper Lillooet River.	
September 7 – September 8	<i>emails</i>	INX, CE, SES, JEM	ULRHEF LTC issued for Obermeyer Weir Construction – INX reminded the contractor to ensure that the authorization is reviewed during the pre-work meeting to ensure personnel are aware of conditions and Hold Points outlined by the IE, as well as the information outlined in the approved Work Plan.	-
September 7 – September 11	<i>emails</i>	WEL, INX, Ecofish, SES	Discussions continued in regards to construction mitigation in the vicinity of a grizzly bear Class 1 fall forage habitat polygon (ULH-GB-33) located in Segment 8 of the Tx Line. Items discussed included habitat assessment methodologies and results. Further direction is pending discussion with MFLNRO biologist scheduled to occur in the next reporting period.	-
September 8	<i>email</i>	INX, CE, SES	Test hole drilling adjacent to Truckwash Creek for the purpose of penstock related geotechnical investigations. INX confirmed that the Licencee and IEM were satisfied with the proposed construction methodologies and associated environmental mitigations.	-
September 8 – September 12	<i>emails</i>	WEL, Hedberg, INX, SES	Miller Bench FSR bridges and FSR upgrade prescriptions – Items discussed included timing, dust control, road works, CTF salvage, ISW and a potential ISW window extension.	-
September 9	<i>email</i>	INX, CE, SES	ULHP Truckwash Creek Slope Stability Analysis Report – INX sent an email to the contractor to remind them of the requirement to submit the report to MFLNRO by September 15, 2014.	-
	<i>email</i>	INX, CE, SES	KM 39.7 box culvert repair – INX provided CE with MFLNRO road closure approval and a request for confirmation that their prescribed repair requirements would be met.	<i>ULR#8</i>
September 10	<i>email</i>	INX, WEL, SES	Temporary bridge at Blacks Creek – INX provided confirmation to the contractor that the Licencee and IEM were satisfied with the Work Plan. A pre-work meeting is scheduled for early next week.	-
	<i>onsite meeting</i>	SES, CE	ULRHEF intake north and south side spoil piles – Issues around ESC and changing weather conditions were discussed.	-
September 11	<i>email</i>	INX, WEL, SES	ULHP Tx Line AMBNS Summary Report – It was agreed by the contractor that report would be prepared and finalized by mid-October, 2014.	-

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
September 12	<i>emails</i>	INX, WEL, SES	South Lillooet FSR road upgrades – Further information was requested by MFLNRO in regards to discrepancies between culvert installations completed and those initially proposed. Contractor response is pending.	-
	<i>email</i>	INX, MFLNRO, EAO, DFO, JEM, SES, Lil'Wat	ULHP Instream Work Window Extension – A notice of intent to request an ISW extension for the ULRHEF intake cofferdam installation and river diversion was submitted to MFLNRO, EAO and DFO.	-
	<i>email</i>	INX, WEL, Hedberg, SES, JEM	ULHP Tx Line Special Use Permit for Road 197 in Segment 8 – Document circulated.	-
	<i>email</i>	INX, CE, SES, JEM	ULHP BDR HEF OLTC L49816 Amendment #3 Spoil, Portal Extension and Powerhouse Berm – document circulated.	-
September 13	<i>email</i>	INX, CE, SES, JEM	ULRHEF LTC issued for Intake North Side Bulk Excavation below Elev. 666m	-

### 3.0 Current Work Restrictions and Timing Windows

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

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
Tx-Line	Segments 1 –11, & 14	Within 150m of wetlands or 100m of Coastal Tailed-Frog Streams	IEM presence is required when clearing within 150m of wetlands or 100m of Coastal Tailed-Frog Streams, to ensure clearing areas are minimized.
		Riparian Vegetation Management Areas (RVMA)	IEM monitoring is required during clearing within RVMAs.
		Old Growth Management Areas (OGMAs)	IEM monitoring is required when clearing within legally designated OGMAs, to ensure clearing areas are minimized.
		Ungulate Winter Range (UWR)	IEM monitoring is required when clearing within identified deer and moose UWR, to ensure clearing areas are minimized.
		Suitable Class 1 & 2 Grizzly Bear forage habitat	IEM monitoring is required when clearing within identified Class 1 & 2 Grizzly Bear forage habitat, to ensure clearing areas are minimized.
ULRHEF powerhouse, and Intake diversion channel	Within 50m of identified archeologically significant area	Archaeologically significant site EdRu-3	The ASMP recommends that an archaeological technician from the Lil'wat Nation be present to monitor initial ground-disturbance activities within 50 m of the EdRu-3 site boundaries.
	Within 30m of the Upper Lillooet River	Riparian area and fish bearing streams	IEM presence is required when working within 30m of the Upper Lillooet River. Instream acoustic pressure monitoring required when blasting within 30m of the Upper Lillooet River.

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
Lillooet River FSR; ULRHEF intake access; FSR realignment at Truckwash Creek	Access roads above the lower limit of the 200m buffer Truckwash Creek Migration Corridor to the ULRHEF intake; including FSR realignment at Truckwash Creek	Mountain Goat UWR	If a goat is observed within 500m of construction operations, construction must cease for at least 48 hours. The IEM must record and submit all goat observations to MFLNRO within 48 hours.
BDRHEF intake	Portion of intake access road and crane pad within UWR	Mountain Goat UWR	IEM monitoring is required when clearing within UWR to ensure that clearing areas are minimized.  If a goat is observed within 500m of construction operations, construction must cease for at least 48 hours. The IEM must record and submit all goat observations to MFLNRO within 48 hours.

## 4.0 Upper Lillooet River HEF – Monitoring Results

### 4.1 Intake (North & South Sides) and Access Roads

#### Construction Activities:

- Drilling, blasting and excavation works continued during day and night shift within the intake diversion channel (Photo 1 and Photo 2) on the south side of the Lillooet River throughout this reporting period. Shotcrete works commenced on vertical slopes above the Obermeyer weir on September 13, 2014.
- Bulk excavation activities for the ULRHEF upstream tunnel portal continued throughout this reporting period on the north side (Photo 4) of the Lillooet River.
- A gravity fed water extraction system was used for drilling activities according to the conditions of the Short Term Water Use Approval (No.A2006123).

#### Environmental Summary:

- On September 7, following subsequent days of warm weather and lower overnight temperatures typical of the fall season, river elevations at the downstream end the ULRHEF intake diversion channel were observed to be rising steadily throughout the day and peaking around midnight (Photo 2, 18:43). Due the backwatering effects into the works area, the contractor suspended works until such a time that river elevations dropped sufficiently to isolate the area. As marked on the redline in the photo, backwatering effect was isolated to the bottom quarter of the diversion channel and the pools observed above were a result of seepage from anchor drilling locations. On September 8, the IEM recommended that the seepage water be conveyed back to the river via a dewatering bag (Photo 3). As of September 10, water levels appeared to have stabilized below the downstream diversion channel elevation and works area remains adequately isolated. No environmental issues were observed. The IEM continued to be onsite full-time to monitor construction activities within 30m of the Lillooet River during day and night shifts.

- No environmental issues were observed on the north side of the Lillooet River during bulk excavation works.
- Hydroseeding was completed on final slope Lillooet River FSR slopes (Photo 5).
- Dust control along the ULRHEF intake access roads and Lillooet River FSR continued as necessary (Photo 6).

Photos:



**Photo 1 – Continued excavation of ULRHEF intake diversion channel, river levels dropped (September 9, 2014).**



**Photo 2 – ULRHEF intake diversion channel, backwatering due to elevated river flows (September 7, 2014)**



**Photo 3 – ULRHEF intake diversion channel, dewatering bag for seepage control (September 8, 2014).**



**Photo 4 – Continued bulk excavation at ULRHEF north side open cut (September 12, 2014).**



**Photo 5 – Hydroseeding on final slopes adjacent to ULRHEF intake north side open cut bulk excavation (September 12, 2014)**



**Photo 6 – ULRHEF north side, dust control (September 8, 2014).**

## **4.2 Downstream Tunnel Portal**

### Construction Activities:

- Drilling, blasting, mucking and stabilization (anchoring and shotcrete application) continued within the tunnel (Photo 7). Seepage water from the tunnel portal was conveyed effectively to the settling ponds for treatment and storage.
- Following approval of the contractors' methodology, geotechnical drilling for the purposes of penstock design were completed adjacent to Truckwash Creek (Photo 8).

### Environmental Summary:

- No environmental issues were observed during geotechnical drilling adjacent to Truckwash Creek as adequate mitigation was in place. Sediment laden water created during drilling activities was isolated from the watercourse and conveyed to the settling ponds.
- Exposed cut slopes adjacent to the ULRHEF downstream tunnel portal were identified as requiring additional ESC protection (Photo 9).
- The settling ponds (Photo 10) installed adjacent to Truckwash Creek were used to treat the seepage and process water emanating from the tunnel. No surface discharge from the sediment ponds was observed this week; therefore no WQ measurements were taken by the IEM.
- Blast rock was hauled to the lower spoil area and managed according to the ULRHEF ARD/ML Monitoring and Control Plan.

Photos:



**Photo 7 – ULRHEF downstream tunnel portal (September 9, 2014).**



**Photo 8 – Geotechnical drilling adjacent to Truckwash Creek, sandbag berm and secondary containment (September 12, 2014).**



**Photo 9 – ULRHEF downstream tunnel portal cut slopes requiring hydroseeding or other erosion mitigation (September 9, 2014).**



**Photo 10 – ULRHEF settling ponds, no discharge observed (September 8, 2014).**

### **4.3 Powerhouse & Access Road**

Construction Activities:

- Rebar installation and form works for the powerhouse foundation continued throughout the reporting period (Photo 11).
- A concrete pour for the ULRHEF powerhouse foundation occurred on September 10 (Photo 12).
- Two pumps (6" and 10") previously installed in the sump draining seepage waters in the powerhouse excavation continued to convey water to the existing settling ponds

(Photo 13). No flowing surface water was observed within the excavation and pump capacity appears to be adequate to maintain isolation from active work areas.

*Environmental Summary:*

- A lined concrete wash out pit (Photo 14) was established along the ULRHEF powerhouse access road.
- No environmental issues were observed at the ULRHEF powerhouse during this reporting period.

*Photos:*



**Photo 11 – ULRHEF powerhouse rebar and formworks (September 8, 2014).**



**Photo 12 – Concrete pour for ULRHEF powerhouse foundation (September 10, 2014)**



**Photo 13 – Settling ponds at ULRHEF powerhouse, dewatering from excavation remains isolated from concrete works (September 10, 2014).**



**Photo 14 – Concrete washout pit along access road to ULRHEF powerhouse (September 10, 2014)**

#### **4.4 Lillooet River FSR and KM 38 Laydown**

##### Construction Activities:

- Log box culvert repair works along the Lillooet River FSR at KM 47 (Photo 15 to Photo 18) was completed September 7 – 10, and at KM 39.7 (Photo 20 and Photo 21) in the evening and morning of September 11 and 12, respectively. Both works areas were isolated, salvaged and dewatered prior to the installation of new abutment timbers and stringer logs.
- Material crushing and screening plant operation continued throughout this reporting period. A watering hose was used effectively for dust control at the screening plant.

##### Environmental Summary:

- Log box culvert repair works are KM 47 (*ULR#4 – Closed*) and KM 39.7 (*ULR#8 – Closed*), were completed in an appropriate manner as to mitigate the potential effects on fish both within the affected stream and downstream within the Lillooet River. Following netted exclusion, fish/amphibian salvage efforts were undertaken by Ecofish and capture information will be included in a summary report as part of Provincial Scientific Fish Collection permit requirements. Diversion pumps at both stream locations were fitted with fish screens and downstream discharge locations were protected with rock armouring and geotextile. The IEM was onsite to monitor construction activities and water quality (see below) and no environmental issues were observed. Peak turbidity associated with channel rewatering at KM 47 log box culvert was 143NTU (background 0.29NTU) with levels returning to within allowable limits within 1h45m. Peak turbidity associated with channel rewatering at KM 39.7 log box culvert was 107NTU (background 0.39NTU) with turbidity returning to allowable levels within two hours. Sandbags were in stages to allow slow rewatering of channel. The closing of *ULR#4* and *ULR#08* satisfy the required action items of *ULR#10 (Closed)*.

##### Photos:



**Photo 15 – KM 47 log box culvert prior to repair works (September 7, 2014)**



**Photo 16 – Sandbag diversion berm and two 6” pumps fitted with fish screens at KM 47 log box culvert repair (September 9, 2014).**





**Photo 17 – Lillooet River FSR KM 47 log box culvert repair, placement of abutment timbers in isolated works area (September 9, 2014).**



**Photo 18 – Lillooet River FSR KM 47 log box culvert repair, partial rewatering occurred once ISW were completed (September 10, 2014).**



**Photo 19 – Lillooet River FSR KM 39.7 box culvert repair, sand bag diversion installation of two 6" pumps fitted with fish screens (September 11, 2014).**



**Photo 20 – Lillooet River FSR KM 39.7 box culvert repair, removal temporary road plates (September 11, 2014).**



**Photo 21 – Lillooet River FSR KM 39.7 box culvert repair, abutment logs and stringer placement within isolated works area (September 12, 2014).**

## 4.5 Water Quality Results

The following table presents the results of the routine water quality sampling program for the ULRHEF. The IEM is undertaking a weekly monitoring program according to the conditions outlined in the Surface Water Quality Protection Plan. The regular monitoring sites have been selected to quantify WQ conditions within the Lillooet River upstream and downstream of active construction areas. The IEM acknowledges the natural variability of instream WQ conditions in the Lillooet River due to seasonal melt fluctuations and large tributary inputs. In the event that an exceedance of *in-situ* water quality (turbidity or pH) is deemed to be caused by project-related activities, the IEM will highlight the exceedance, discuss the cause, and outline measures undertaken by the Contractor to correct the issue. When an exceedance cannot be attributed to project related activities, the exceedance will be marked by an asterisk (\*).

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (µS)	Temp (°C)
<b>Routine Water Quality</b>						
September 13, 2014	12:50	<b>ULR Background</b> – ULRHEF Intake	7.8	32.7	57	8.9
	-	<b>ULR #0.5</b> – Downstream of ULRHEF intake at Keyhole Bridge (new site)	-	-	-	-
	13:42	<b>ULR # 1</b> – Upstream of ULRHEF Powerhouse	7.6	33.9	58	9.2
	14:10	<b>ULR #2</b> – Downstream of ULRHEF Powerhouse between 40.5k and 41k	7.5	36.2	53	12.8
	15:15	<b>ULR #3</b> – Lillooet River FSR KM 38 Laydown – D/S of Boulder confluence	7.4	44.5*	47	12.5
	-	<b>ULR #4</b> – Lillooet River FSR 24km – D/S of all works and Meager confluence	-	-	-	-
September 10, 2014	7:30	<b>KM 47 log box culvert Repair</b> – Background	-	0.29	-	-
	12:45	<b>KM 47 log box culvert Repair</b> – Downstream	-	71.6	-	-
	13:30	<b>KM 47 log box culvert Repair</b> – Downstream	-	143	-	-
	14:30	<b>KM 47 log box culvert Repair</b> – Downstream	-	1.36	-	-
September 12, 2014	7:40	<b>KM 39.7 log box culvert Repair</b> – Background	-	0.39	-	-
	7:55	<b>KM 39.7 log box culvert Repair</b> – Downstream	-	54	-	-
	8:13	<b>KM 39.7 log box culvert Repair</b> – Downstream	-	107	-	-
	9:47	<b>KM 39.7 log box culvert Repair</b> – Downstream	-	1.0	-	-

## 4.6 Recommendations

IEM recommendations for the ULRHEF are as follows:

- On September 10, the IEM met with the contractor’s Environmental Manager at the ULRHEF intake to discuss ESC concerns and stabilization options at the north and south side spoil areas in preparation for increased precipitation events

and subsequent winter conditions. It was agreed that the Environmental Manager would discuss potential ESC options and communicate back to the IEM.

- Settling ponds at the downstream portal should be continually monitored to ensure appropriate treatment of seepage from tunnelling activities is occurring. Although dry weather persists, rain events typical of the changing season may result in increased water volumes and current infiltration rates may result in discharge from the ponds. Further discussions were had with the contractor's Environmental Manager this week and it was agreed that pH treatment measures (in addition to those in place) would be explored in preparation for potential pond overflow conditions.
- Cut slopes directly adjacent to the ULRHEF intake have been identified by the IEM as requiring additional ESC protection. The contractor is aware and will be implementing measures in the coming reporting periods.

#### **4.7 Upcoming Works**

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

- Construction of the Obermeyer weir structure within the ULRHEF intake diversion channel is to commence in the next reporting period.
- Bulk excavation at the north side ULRHEF intake open cut below elevation 666m is to start early in the next reporting period.

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

#### **5.1 Intake Access Road & Crane Pad**

##### Construction Activities:

- Intake access road construction including drilling/blasting continued (Photo 22).
- Excavation and drilling/blasting continued on the upper bench of the crane pad (Photo 23).

##### Environmental Summary:

- Construction activities occurred along the BDRHEF intake access road and crane pad with the IEM onsite for construction activities within 30m of Boulder Creek. No Environmental issues were observed.

Photos:



**Photo 22 – BDRHEF Intake access road construction (September 7, 2014)**



**Photo 23 – BDRHEF crane pad drilling and excavation at upper bench (September 9, 2014)**

## **5.2 Downstream Tunnel Portal and Powerhouse**

Construction Activities:

- Rebar installation and formworks (Photo 24) at the powerhouse continued throughout the reporting period.
- Drilling, blasting, mucking and stabilization (anchoring and shotcrete application) continued within the tunnel (Photo 24).

Environmental Summary:

- The gravity fed water diversion system was used in tunneling and shotcrete process works in accordance with Short Term Water Use Approval (No.A2006123). No WQ or environmental concerns were noted within Boulder Creek.
- Seepage flowing out of the tunnel continues to be collected at the portal tunnel entrance in a sump and this water is then pumped from the sump to the oil/water separator, pH adjustment holding tank, and settlement ponds for treatment. The pH was monitored daily by the contractor and a CO<sub>2</sub> diffuser was used as necessary to ensure pH was within acceptable surface water quality guidelines (pH 6.5 – 9). No discharge from the treatment ponds occurred during this reporting period (Photo 25); therefore, the IEM did not collect WQ results.
- Water from the Boulder Creek water withdrawal site authorized in the Short Term Water Use Approval (No.A2006123) was used effectively for dust suppression above KM 37.5 of the Lillooet River FSR and on active construction site access roads.

Photos:



**Photo 24 – BDRHEF downstream tunnel portal and powerhouse rebar/formworks (September 7, 2014)**



**Photo 25 – BDRHEF powerhouse settling pond, no discharge observed (September 7, 2014)**

**5.3 Water Quality Results**

The following table presents the results of the routine water quality sampling program for the BDRHEF. The IEM is undertaking a weekly monitoring program according to the conditions outlined in the Surface Water Quality Protection Plan. The regular monitoring sites have been selected to quantify WQ conditions within the Lillooet River upstream and downstream of active construction areas. The IEM acknowledges the natural variability of instream WQ conditions in Boulder Creek due to seasonal fluctuations in snowmelt. In the event that an exceedance of *in-situ* water quality (turbidity or pH) is deemed to be caused by project-related activities, the IEM will highlight the exceedance, discuss the cause, and outline measures undertaken by the Contractor to correct the issue. When an exceedance cannot be attributed to project related activities, the exceedance will be marked by an asterisk (\*).

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (µS)	Temp (°C)
<b>Routine Water Quality</b>						
-	NA	<b>BDR Background</b> –Upstream of BDRHEF intake *not currently accessible*	-	-	-	-
-	NA	<b>BDR #1</b> – Downstream of BDRHEF intake *not currently accessible*	-	-	-	-
14:45	14:45	<b>BDR #2</b> – Upstream of BDRHEF Powerhouse	7.5	36.7	45	10.5
14:30	14:30	<b>BDR #3</b> – Downstream of BDRHEF Powerhouse at Pebble Creek Bridge	7.5	32.2	50	10.6

**5.4 Recommendations**

IEM recommendations for the BDRHEF are as follows:

- Settling ponds at the downstream portal should be continually monitored to ensure appropriate treatment of seepage from tunnelling activities is occurring.

Although dry weather persists, rain events typical of the changing season may result in increased water volumes and current infiltration rates may result in discharge from the ponds. Further discussions were had with the contractor's Environmental Manager on September 9 and it was agreed that pH treatment measures (in addition to those in place) would be explored in preparation for potential pond overflow conditions. Discussion also included a verbal commitment from the contractor's Environmental Manager to characterize the seepage slurry that is settling in the treatment ponds.

### **5.5 Upcoming Works**

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

- Construction is scheduled to continue on the intake access road and crane pad a portion of which extends within the 30m riparian buffer and UWR.

## **6.0 Transmission Line – Monitoring Results**

### **6.1 Transmission Line by Segment**

#### Construction Activities:

#### **Segment 1**

- Line stringing between poles 4-8 and 15 to 23.

#### **Segment 3**

- Ground works at structures 44-47.

#### **Segment 5**

- Ground and machine works continued throughout the segment at poles 88-89, 91, 94-95, 101, 108.
- Pole liner installation occurred at structures 119 and 137-138.

#### **Segment 6**

- Continued RoW clearing.
- Road works along the Lillooet South FSR were completed on September 11.

#### **Segment 7**

- Roadside decking of timber along S200 Branch near structures 179 and 180 was completed.

#### **Segment 8**

- Hand falling along RoW near Segment 8/9 boundary.

**Segment 8**

- Hand falling along RoW near Segment 8/9 boundary and at the end of Salmon Main FSR near structures 202 and 203.

**Segment 14**

- Continued RoW clearing (hand-falling, Photo 26) and road works.

Environmental Summary:

- Road ballasting works along the Lillooet South FSR adjacent to wetlands on either side of the road were completed during this reporting period. A beaver exclusion fence surrounding the inlet of the two 1000mm culverts at approximately 6km of the Lillooet South FSR, remains to be installed and will be completed prior to September 15, 2014. Contractors were completing road works in an appropriate manner and sufficiently isolated from the adjacent wetlands to the satisfaction of the IEM. No environmental issues were observed.
- The IEM was present as required when clearing activities occurred within 150m of wetlands, 15m RVMAs (30m for CTF streams, Photo 27), 100m of Coastal Tailed Frog Streams (Photo 26), Class 1 & 2 suitable Grizzly Bear WHA and/or suitable forage habitat, moose and deer UWR, and within legally designated Old Growth Management Areas (OGMAs). All flagged boundaries were respected during clearing activities. No environmental issues were observed.

Photos:



Photo 26 – Segment 14, hand falling within 100m CTF buffer near structure 340 (September 1, 2014).



Photo 27 – Segment 14, 30m RVMA flagging on CTF stream (September 11, 2014).

## 6.2 Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded at active Tx-line work areas during this reporting period. Construction and clearing activities had no visual effect on WQ.					

## 6.3 Recommendations

- As road ballasting works are completed along the Lillooet South FSR, contractor should ensure that beaver exclusion fencing is installed prior to end of day on September 15 (end of ISW window).

## 6.4 Upcoming Works

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

- The majority of works described in the construction activities section described above will continue. Construction activities are tentatively scheduled to occur within RVMAs (Segment 4, 5, 6, 8 and 14) and CTF buffer (Segment 5).
- Custom clearing of grizzly bear screens are also scheduled to occur in Segment 4 and Segment 6 (grizzly bear WHA)].
- Temporary bridge installation at Blacks Creek is scheduled to commence following Work plan approval and a pre-work meeting to discuss proposed mitigations.

## 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 submitted to the IEM on a weekly basis. Wildlife Observation forms will be summarized on a monthly basis and appended to the first WEMR of the following month. Observation or detection of the following species will trigger notification to identified parties according to the following table.

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



## **8.0 Mountain Goat Monitoring Program**

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

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

## 9.0 Environmental Issues Tracking Matrix (ITM)

### 9.1 Hydroelectric Facilities (ULRHEF & BDRHEF)

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Completed
ULR#4	Closed	47km – Lillooet River FSR	A log box structure failed while being crossed by an excavator (EIR002).	1. CE to prepare an EIR detailing the cause, description and actions items related to the incident.	May 23, 2014	May 26, 2014	September 11, 2014
				2. IEM to review and approve the EIR.			
				3. CE employees will be reminded of spill response procedures and how to use the spill kits in a potential future event.			
4. CRT-ebc to confirm that load ratings of equipment adhere to maximum crossing structure load ratings.	5. Complete FSR and temporary access road crossing assessment by a Qualified Professional.	6. Determine the requirements for crossing structure remediation or replacement.	7. Develop a work plan to remediate the failed log box structure and execute the approved plan during the 2014 instream works window.	8. Complete box culvert repair.	June 26, 2014	September 15, 2014	
ULR#8	Closed	39.7km – Lillooet River FSR	Stream 9 – log box structure failure (EIR004).	Develop a work plan to remediate the failed log box structure and execute during the 2014 instream works window. On July 19, 2014 CRT-ebc confirmed that this crossing structure will be repaired or replaced during the 2014 instream works window following MFLNRO approval.	May 28, 2014	September 15, 2014	September 13, 2014

Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Issue Closed
ULR#10	Closed	Lillooet River FSR	Innergex issued stop work order for heavy hauling on Lillooet River FSR	Recommendations have been submitted to MFLNRO for review and approval. Work plan submission and repairs to be completed prior to September 15 for crossing structures at 39.7km and 47km of the Lillooet River FSR.	May 28, 2014	September 15, 2014	September 13, 2014
ULR#17	Open	BDR Intake Access Road	Damage to standing timber and impacts outside of minimized clearing boundary & approved OLTC limit (both within and adjacent to UWR)	1. Prepare and submit EIR#011 outlining the root cause of the incident and how it will be avoided in future.	July 25, 2014	July 30, 2014	August 1, 2014
				2. Assess damage to standing timber and impacts outside of the minimized clearing boundaries and approved OLTC (both within and adjacent to UWR). Preliminary information has been provided to satisfy the requirements of ULR#18, however detailed survey is necessary to confirm impacted areas and access is currently not available due to slope stability issues.	Confirmed in Hedberg report July 25, 2014	Pending safe work access – mid-September, 2014	-
<i>next ITM – ULR#20</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 Date for Completion	Date Issue Closed
<i>No outstanding environmental issues (next ITM – Tx#2)</i>							