


Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #79

Reporting Period: November 8 – November 14, 2015

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

Distribution List		Prepared By
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		Date Prepared: January 15, 2015 Date Submitted: January 24, 2015

Owner Construction Permits and Approvals

Environmental Assessment Certificate No. E13-01 (Amendment 1, 2, 3, 4, 5 & 6)
Fisheries Act Subsection 35(2)(b) Authorization No. 09-HPAC-PA2-000303 (Amendment 1, 2)
Letter of Advice for the Transmission Line No. 09-HPAC0-PA2-000303
Leave To Commence Construction (ULRHEF) File No. 2002561
Leave To Commence Construction (BDRHEF) File No. 2002453
Leave To Commence Construction (TX Line) File No. 2002561/2002453
Conditional Water Licence (ULRHEF C130613) File No. 2002561
Conditional Water Licence (BDRHEF C129969) File No. 2002453
Conditional Water Licence (BDRHEF C131153) File No. 2003601
Licence of Occupation (ULRHEF #232384) File No. 2409871
Licence of Occupation (BDRHEF #232386) File No. 2409998
Licence of Occupation (TX Line #2423386) File No. 2410654
Occupant Licence to Cut (ULRHEF) No. L49717(Amendments 1, 2, 3, 4, 5, 6, 7)
Occupant Licence to Cut (BDRHEF – KM 38 laydown) No. L49698
Occupant Licence to Cut (BDRHEF) No. L49816 (Amendments 1, 2, 3)
Occupant Licence to Cut (TX Line) No. L49697 (Amendments 1, 2, 3, 4, 5, 6, 7, 8, 9)
General Wildlife Measure Exemption Approval Letter (TX Line & BDRHEF) File No. 78700-35/06 UWR and 39585-20 WHA
Heritage Conservation Act – Alteration Permit (ULRHEF) File No. 11200-03/2014-0033
Road Use Permit No. 6123-13-02 (Lillooet River FSR); 5673-13-01 (Rutherford Creek FSR); 7977-13-01 (Lillooet South FSR); 8015-13-01 (Ryan River); 8188-13-01 (Pemberton Creek FSR); and 9717-13-01 (Miller Bench FSR)
Junction Permit (ULRHEF & BDRHEF) File No. 11250-32/6123 (Amendment 1)
Aeronautical Obstruction Approval (Tx Line - Lillooet River Crossing) File No. 2013-004
Aeronautical Obstruction Approval (Tx Line - Ryan River) File No. 2013-005
Aeronautical Obstruction Approval (Tx Line - North Miller) File No. 2013-006
Aeronautical Obstruction Approval (Tx Line - South Miller) File No. 2013-007
Aeronautical Obstruction Approval (Tx Line - Pemberton Creek) File No. 2013-008
Aeronautical Obstruction Approval (Tx Line - Lillooet River near Pemberton) File No. 2013-009
Aeronautical Obstruction Approval (Tx Line - Lillooet River near Meager Creek) File No. 2013-010
Navigable Water Protection Act (ULRHEF) File No. 8200-2009-500434-001
Navigable Water Protection Act (BDRHEF) File No. 8200-2012-501-032-001
Navigable Water Protection Act (Tx Line – North Creek) File No. 8200-2013-500103-001
Navigable Water Protection Act (Tx Line – Lillooet River) File No. 8200-2013-500101-001
Navigable Water Protection Act (Tx Line – Lillooet River) File No. 8200-2013-500102-01
Navigable Water Protection Act (Tx Line – Ryan River) File No. 8200-2013-500104-001
Navigable Water Protection Act (Tx Line – South Miller River) File No. 8200-2013-500100-001
Navigable Water Protection Act (Tx Line – Boulder Creek) File No. 8200-2013-500099-001
Navigable Water Protection Act – Extension Approval (ULRHEF, BDRHEF, Tx Line)
Navigable Water Protection Act (Bridge – Ryan River) File No. 8200-2013-500381
Navigable Water Protection Act (Bridge – Upper Lillooet Side Channel; Extension Approval) File No. 8200-2013-500383
Section 57 Authorization (ULRHEF) File No. 16660-20/REC202717
SLRD Temporary Use Permit No. 34 – Boulder Creek HEF
SLRD Temporary Use Permit No. 35 – Upper Lillooet River HEF
SLRD Building Permit (10864) – Upper Lillooet River HEF Powerhouse
SLRD Building Permit (10865) – Boulder Creek HEF Powerhouse
Works Permit for Construction within FSR Right-of-Way No. 6123-14-01
Works Permit for Construction within FSR Right-of-Way No. 7977-15-01
Section 52(1)(b) FRPA Authorization for Ryan River Wet Crossing File No. FOR-19400-01/2014
MOTI Permit to Construct, Use and Maintain Works Upon the Right-Of-Way of a Provincial Public Highway No. 2014-06099
Magazine Licence File No. UL76018 (Renewal 1)
Section 8 Approval – Short Term Use of Water File (Lillooet River and Tributaries) No. A2006123 (Amendment 1)

Contractor Construction Permits and Approvals

Waste Discharge under the Code of Practice for the Concrete and Concrete Products Industry under the Environmental Management Act (Authorization No. 107204) Tracking No. 326969 (Renewal 1)
Wildlife Act Permits – Pacific Tailed Frog Salvage Permit # SU15-164805; Fish Salvage Permit # SU15-174722
Fisheries and Oceans Canada – Anadromous Fish Salvage Permit #XR 178 2015
BC Safety Authority – Temporary Construction Electrical Service Permit EL-140698-2014
Municipal Wastewater Regulation - Authorization # 107032
Water Supply System Construction Permits – VCH-14-613 for Main Camp
Water Supply System Permit to Operate Issued July 30th, 2014 for Main Camp
Section 6(3) and Schedule 3 Wildfire Regulations Fire Exemption for Ryan River Bridge File No. 14350-07
SLRD Building Inspection Report dated August 13, 2014 - Construction Camp Building Permit No. 10830
Lillooet River FSR Temporary Road Closures Approval File No. 11250-32/6123 (Amendment 1, 2)
Lillooet South FSR Temporary Road Closures Approval File No. 11250-32/7977
SLRD Building Permits for Mechanic Shop (10862) and Carpentry Shop (10836) March 18, 2015
SLRD Building Permit Stages 1 - 4 – Boulder Powerhouse Architectural, Electrical and Mechanical (10865) October 8, 2015
SLRD Building Permit Stages 1 - 4 – Upper Lillooet Powerhouse Architectural and Mechanical (10864) October 6, 2015

ACRONYMS:

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

1.0 Summary of Site Inspections for Reporting Period

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

Date	IEM Team Personnel	Weather Conditions	Key Monitoring Locations & Activities
Sunday, November 8	SE, AS	Clear	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Road maintenance on the Lillooet River FSR and site access roads <p>ULRHEF Intake & Upstream Tunnel Portal</p> <ul style="list-style-type: none"> • Rebar and formwork installation • Tunnelling works on hold pending results of probe hole drilling • Cement grouting probe holes • Dewatering to sediment basins <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Installation, welding, backfill and coating from 2+800 – 4+100 • ASTRO3 over-drain construction <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction • Manifold installation <p>BDRHEF Intake Access Ramp and Diversion Tunnel</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization (diversion tunnel) <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction • Rebar and formwork installation <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 12 <ul style="list-style-type: none"> ➤ Groundworks for pole foundations
Monday, November 9	SE, AS	Clear	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Road maintenance on the Lillooet River FSR and site access roads <p>ULRHEF Intake & Upstream Tunnel Portal</p> <ul style="list-style-type: none"> • Rebar and formwork installation • Tunnelling works on hold pending results of probe hole drilling • Dewatering to sediment basins <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Installation, welding, backfill and coating from 2+800 – 4+100 • ASTRO3 over-drain construction • ASTRO4 over-drain construction <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction • Manifold installation <p>BDRHEF Intake Access Ramp and Diversion Tunnel</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization (diversion tunnel) <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization

Date	IEM Team Personnel	Weather Conditions	Key Monitoring Locations & Activities
			<p><i>BDRHEF Powerhouse</i></p> <ul style="list-style-type: none"> • Superstructure construction • Rebar and formwork installation <p><i>TX-Line</i></p> <ul style="list-style-type: none"> • Segments 12 and 13 <ul style="list-style-type: none"> ➢ Road works (Road 305 and 306) • Segment 13 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations
<p style="text-align: center;">Tuesday, November 10</p>	<p style="text-align: center;">BA, AS</p>	<p style="text-align: center;">Clear</p>	<p><i>Construction Camp, Laydown Areas and the Lillooet River FSR</i></p> <ul style="list-style-type: none"> • Road maintenance on the Lillooet River FSR and site access roads <p><i>ULRHEF Intake & Upstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Rebar and formwork installation • Standpipe installation and grouting • Dewatering to sediment basins <p><i>ULRHEF Downstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p><i>ULRHEF Penstock</i></p> <ul style="list-style-type: none"> • Installation, welding, backfill and coating from 2+800 – 4+100 • ASTRO3 over-drain construction. <p><i>ULRHEF Powerhouse</i></p> <ul style="list-style-type: none"> • Superstructure construction • Manifold installation <p><i>BDRHEF Intake Access Ramp and Diversion Tunnel</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization (diversion tunnel) <p><i>BDRHEF Downstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p><i>BDRHEF Powerhouse</i></p> <ul style="list-style-type: none"> • Superstructure construction • Rebar and formwork installation <p><i>TX-Line</i></p> <ul style="list-style-type: none"> • Segments 12 and 13 <ul style="list-style-type: none"> ➢ Road works (Road 305 and 306) • Segment 13 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations
<p style="text-align: center;">Wednesday, November 11</p>	<p style="text-align: center;">BA, DA</p>	<p style="text-align: center;">Snow</p>	<p><i>Construction Camp, Laydown Areas and the Lillooet River FSR</i></p> <ul style="list-style-type: none"> • Road maintenance on the Lillooet River FSR and site access roads <p><i>ULRHEF Intake & Upstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Rebar and formwork installation • Standpipe installation and grouting • Dewatering to sediment basins <p><i>ULRHEF Downstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p><i>ULRHEF Penstock</i></p> <ul style="list-style-type: none"> • Installation, welding, backfill and coating from 2+800 – 4+100 • ASTRO3 over-drain construction. <p><i>ULRHEF Powerhouse</i></p> <ul style="list-style-type: none"> • Superstructure construction • Manifold installation <p><i>BDRHEF Intake Access Ramp and Diversion Tunnel</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization (diversion tunnel)

Date	IEM Team Personnel	Weather Conditions	Key Monitoring Locations & Activities
			<p><i>BDRHEF Downstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p><i>BDRHEF Powerhouse</i></p> <ul style="list-style-type: none"> • Superstructure construction • Rebar and formwork installation <p><i>TX-Line</i></p> <ul style="list-style-type: none"> • Segments 12 and 13 <ul style="list-style-type: none"> ➤ Road works (Road 305 and 306) • Segment 13 <ul style="list-style-type: none"> ➤ Groundworks for pole foundations
Thursday, November 12	BA, DA	Snow	<p><i>Construction Camp, Laydown Areas and the Lillooet River FSR</i></p> <ul style="list-style-type: none"> • Road maintenance on the Lillooet River FSR and site access roads <p><i>ULRHEF Intake & Upstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Rebar and formwork installation • Standpipe installation and grouting • Dewatering to sediment basins <p><i>ULRHEF Downstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p><i>ULRHEF Penstock</i></p> <ul style="list-style-type: none"> • Installation, welding, backfill and coating from 2+800 – 4+100 • ASTRO3 over-drain construction. <p><i>ULRHEF Powerhouse</i></p> <ul style="list-style-type: none"> • Superstructure construction • Manifold installation <p><i>BDRHEF Intake Access Ramp and Diversion Tunnel</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization (diversion tunnel) <p><i>BDRHEF Downstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p><i>BDRHEF Powerhouse</i></p> <ul style="list-style-type: none"> • Superstructure construction • Rebar and formwork installation <p><i>TX-Line</i></p> <ul style="list-style-type: none"> • Segments 12 and 13 <ul style="list-style-type: none"> ➤ Road works (Road 305 and 306) • Segment 13 <ul style="list-style-type: none"> ➤ Groundworks for pole foundations
Friday, November 13	BA, DA	Snow	<p><i>Construction Camp, Laydown Areas and the Lillooet River FSR</i></p> <ul style="list-style-type: none"> • Road maintenance on the Lillooet River FSR and site access roads <p><i>ULRHEF Intake & Upstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Rebar and formwork installation • Standpipe installation and grouting • Dewatering to sediment basins <p><i>ULRHEF Downstream Tunnel Portal</i></p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p><i>ULRHEF Penstock</i></p> <ul style="list-style-type: none"> • Installation, welding, backfill and coating from 2+800 – 4+100 • ASTRO3 over-drain construction. <p><i>ULRHEF Powerhouse</i></p> <ul style="list-style-type: none"> • Superstructure construction • Manifold installation

Date	IEM Team Personnel	Weather Conditions	Key Monitoring Locations & Activities
			<p>BDRHEF Intake Access Ramp and Diversion Tunnel</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization (diversion tunnel) <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction • Rebar and formwork installation <p>TX-Line</p> <ul style="list-style-type: none"> • Segments 12 and 13 <ul style="list-style-type: none"> ➢ Road works (Road 305 and 306) • Segment 13 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations
Saturday, November 14	BA, DA	Overcast	<p>Construction Camp, Laydown Areas and the Lillooet River FSR</p> <ul style="list-style-type: none"> • Road maintenance on the Lillooet River FSR and site access roads <p>ULRHEF Intake & Upstream Tunnel Portal</p> <ul style="list-style-type: none"> • Rebar and formwork installation • Standpipe installation and grouting • Dewatering to sediment basins <p>ULRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>ULRHEF Penstock</p> <ul style="list-style-type: none"> • Installation, welding, backfill and coating from 2+800 – 4+100 • ASTRO3 over-drain construction. <p>ULRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction • Manifold installation <p>BDRHEF Intake Access Ramp and Diversion Tunnel</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization (diversion tunnel) <p>BDRHEF Downstream Tunnel Portal</p> <ul style="list-style-type: none"> • Drilling, blasting and tunnel stabilization <p>BDRHEF Powerhouse</p> <ul style="list-style-type: none"> • Superstructure construction • Rebar and formwork installation <p>TX-Line</p> <ul style="list-style-type: none"> • Segment 13 <ul style="list-style-type: none"> ➢ Groundworks for pole foundations

IEM Team Personnel: TH – Tom Hicks; SS – Stephen Sims; BA – Blake Aleksich; DA – Danita Abraham; SE – Stephanie Ellis; AS – Anne Sutherland

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.
November 9	Email	SES, CE, INX	CE distributed a second and final report concerning the pumice truck accident at KM 45.25 on the Lillooet River FSR. The report summarized the truck removal activities and stated that a post-removal site inspection revealed no evidence of spilled material on the ground.	-

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
	<i>Email</i>	SES, CE, INX	SES informed CE's engineering department of noise exceedances recorded from Nov. 1 - 5 at the BDRHEF intake noise monitoring station. SES requested confirmation that noise events were attributed to diversion tunnel blasting.	-
November 10	<i>Email</i>	SES, INX, JEM	INX sent out a request for an on-site meeting to discuss environmental issues. INX summarized recent environmental concerns and requested a meeting with SES, JEM and CE representatives to prevent future issues and ensure the project remains in compliance with project regulations and restrictions.	-
November 12	<i>On-site meeting</i>	SES, INX, CE	A meeting was held to discuss project environmental issues. Recent environmental incidents, restriction amendments, water treatment and the impending two-week mountain goat shutdown were key issues discussed during the meeting.	-
November 13	<i>Email</i>	Ecofish, SES, CE, INX	Ecofish distributed an email outlining the restrictions associated with the two-week Mountain Goat migration corridor shutdown. Ecofish reminded recipients that all activities will cease at the ULRHEF downstream tunnel portal and summarized the restrictions associated with travel and snow removal in the Mountain Goat corridor.	-
	<i>Email</i>	SES, CE, INX, Ecofish	SES distributed the daily snow depth monitoring form and informed CE that the measurements recorded in the afternoon had triggered the enactment of the Two-week Mountain Goat Shutdown Period. CE responded and confirmed that all works would cease at the downstream tunnel portal and that snow removal and travel restrictions would be enforced within 24 hours of receiving the enactment notification.	-
	<i>Email</i>	INX, CE, SES, Ecofish, JEM	INX distributed the amendment to the General Wildlife Measure Exemption approval for the BDRHEF intake works. The amendment specifically allows the following activities to occur beyond November 15, 2015. <ul style="list-style-type: none"> • Helicopter activity can occur up until December 15. • Blasting activity, including avalanche control, can occur up until December 15. • All other construction related activities can occur up until December 21. 	-
November 14	<i>Email</i>	INX, SES, CE	SES distributed an updated version of the Environmental Issues Tracking Matrix.	All items

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 7 – 16	Within 150m of wetlands or 100m of Coastal Tailed Frog Streams	IEM presence is required when clearing within 150m of wetlands or 100m of CTF Streams, to ensure clearing areas are minimized.
		Riparian Vegetation Management Areas (RVMA)	IEM monitoring is required during clearing within RVMAs.
		Surface Water Quality	IEM monitoring is required during culvert installation activities in non-fish bearing waters to document adherence to the Surface Water Quality Protection Plan objectives.
		Suitable 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.
Lillooet River FSR & ULRHEF	Access roads above the lower limit of the 200m buffer Truckwash Creek Migration Corridor to the ULRHEF intake	Mountain Goat UWR & Migration Corridor	<p>IEM was onsite to oversee daily construction equipment shutdowns (November 1 - 30) beginning one hour before and two hours after sunrise as well as two hours before and one hour after sunset.</p> <p>Noise monitoring equipment is in place to monitor background noise levels and exceedances of the 75dbA noise level maximum resulting from blasting activities. Adaptive drilling/blasting noise mitigation strategies will be developed and implemented should activities show persistent exceedances of the noise level threshold.</p> <p>Daily snow depth monitoring within the Truckwash Creek Migration Corridor will occur once snowfall accumulations persist according to the Project's Mountain Goat Management Plan. A two-week shutdown of work activities will occur once a significant snowfall is recorded (average snow depth of 10cm in forested habitat or 30cm in open terrain).</p> <p>Mountain Goat monitoring activities will occur daily throughout the winter and spring (November 1 – June 15) when construction activities are occurring at the ULRHEF lower tunnel portal and/or the ULRHEF intake.</p> <p>If a mountain goat is observed within 500m line of sight 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.</p>

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
BDRHEF intake	Portion of intake access road and crane pad within UWR	Mountain Goat UWR	<p>During winter months (November 1 – April 30), access to BDRHEF intake must be gated at least 500 m from UWR to restrict motorized use within the UWR, unless otherwise directed by MFLNRO.</p> <p>If a mountain goat is observed within a 500 m line of site of a construction activity within UWR u-2-002 UL 12, construction activities will cease for at least 48 hours. Approval from the IEM must be obtained prior to recommencing construction activities.</p>

4.0 Upper Lillooet River HEF – Monitoring Results

4.1 Construction Camp, KM 38 Laydown, Access Roads & Lillooet River FSR

Activities:

- Routine maintenance of construction equipment within the mechanic shop and fuel management continued at the KM 38 laydown. All hazardous substance materials (waste oil, contaminated soil, used oil/hydraulic fluid containers, etc.) were stored temporarily for off-site disposal in a designated area at the laydown. The materials were all well contained and protected from the weather.
- The electric fences surrounding the construction camp were maintained and operational throughout this reporting period.
- Road maintenance and snow removal on the Lillooet River FSR and site access roads (Photo 1).

Environmental Summary:

- On November 10, a culvert was installed at the bottom of the KM 45 spoil area access road and ditching was completed below the culvert to KM 44.9 on the Lillooet River FSR (Photo 2 and Photo 3). The maintenance works mark the completion of recommended mitigation measures for ITM item *ULR#35* (see Section 9.0).
- On November 13, the haul road (Truckwash 2 access road) crossing at ASTRO4 was lifted and re-graded (Photo 4). Following works, CE reinstalled silt fencing along the road edge. The IEM inspected the area on November 14 and observed that the works had caused some road-building material to fall towards the downstream side of the culvert crossing; however, an inspection of lower slope was not possible at the time due to poor access. The IEM determined that the road maintenance works have improved road drainage and mark the completion of recommended mitigation measures for ITM item *ULR#30* (see Section 9.0). The IEM has requested that CE attend a follow-up inspection of the area to verify that material used to raise the haul road are stable and have not contributed sediment to ASTRO4 (ITM item *ULR#39*; see Section 9.0).

Photos:



Photo 1 – Snow plowing on the Lillooet River FSR (November 11, 2015).



Photo 2 – Ditching completed and culvert installed at KM 45 on the Lillooet River FSR (November 11, 2015).



Photo 3 – Ditching completed at KM 45 on the Lillooet River FSR (November 11, 2015).



Photo 4 – Road lifted and silt fence re-installed on the haul road ASTR04 crossing (November 14, 2015).

4.2 Intake (North & South Sides), and Upstream Tunnel Portal

Construction Activities:

- Standpipe installation and grouting began at the ULRHEF upstream tunnel portal. The standpipes will be used to inject cementitious grout into a layer of poorly consolidated material behind the current tunnel face in order to increase its stability. Tunnelling activities will proceed once the grout cures and stabilizes the poorly consolidated material.
- Rebar and formwork installation.
- Concrete pours for intake structure (Photo 5 and Photo 6).
- Dewatering to ULRHEF intake sediment basins (Photo 7 and Photo 8).

Environmental Summary:

- All turbid or alkaline water resulting from activities at the ULRHEF intake or upstream tunnel portal is pumped to the ULRHEF intake sediment basins (Photo 7 and Photo 8). A dedicated CE crewmember is present to monitor the pumps within the intake work area and tunnel portal during active construction works. This person has the responsibility of directing all turbid or alkaline water to the sediment ponds and must verify with CE environmental staff or the IEM prior to directing any water to the Lillooet River.
- The flocculant injection system at the intake sediment basins was observed to be operational during this reporting period and CE's environmental management team regularly maintained the system (Photo 9). The IEM conducted regular water quality sampling at the ULRHEF intake sediment basin discharge location. Please see Section 4.6 Water Quality Results for this reporting period's data.
- On November 8, the IEM was at the ULRHEF intake to conduct water quality monitoring following probe-hole grouting in the upstream tunnel. Upon arriving at the intake, the IEM observed that the sediment basins were at capacity (Photo 10) and that tunnel seepage water was being pumped directly to the Lillooet River without pH mitigation (CO₂ injection). The IEM took samples of the direct discharge to the river and the discharge from the sediment basins. Both samples did not meet project water quality guidelines (>pH 9). The IEM informed the pump operator and the tunnel water was diverted to the sediment basins. The IEM contacted CE's environmental management team and they immediately travelled to the intake and ensured that the pH injection system was operating and that water discharging from the ponds was within project guidelines. The discharged elevated pH water ranged from a pH of 9.1 – 9.7 and was unlikely to have any impact on aquatic organisms in the Lillooet River due to the small volume of discharge in relation to flows in the Lillooet River. Despite this, the discharge of elevated pH water is in direct violation of the CEMP and Surface Water Quality Management Plan and is therefore considered a project related environmental incident. On November 9, the IEM requested that CE prepare an Environmental Incident Report (2015-11-08-EIR-017). Please see Section 4.6 Water Quality Results for water quality data related to the incident.

Photos:



Photo 5 – Concrete pour at the ULRHEF intake (November 11, 2015).



Photo 6 – Concrete pour at the ULRHEF intake (November 13, 2015).



Photo 7 – First cell of ULRHEF intake sediment basins (November 11, 2015).



Photo 8 – ULRHEF intake sediment basin outlet pipe at Lillooet River (November 11, 2015).



Photo 9 – Flocculant injection system refilled by CE's environmental management team at ULRHEF intake sediment basins (November 11, 2015).



Photo 10 – Last cell of ULRHEF intake sediment basins full and discharging to Lillooet River following grouting in tunnel (November 8, 2015).



Photo 11 – pH sampling at ULRHEF intake sediment basins following grouting in tunnel (November 8, 2015).

4.3 *Downstream Tunnel Portal*

Construction Activities:

- Drilling, blasting, mucking and stabilization works within the tunnel (Photo 12).
- Dewatering to oil water separator and the downstream tunnel portal settling ponds (Photo 13).
- Ditch maintenance on downstream portal access road (Photo 14 and Photo 15).

Environmental Summary:

- All tunnel seepage water was pumped to the downstream tunnel portal infiltration ponds. The ponds were observed to be slowly filling throughout the reporting period with no discharge to the surrounding environment.
- On November 8, CE completed ditch maintenance at the bottom of the downstream portal access road (Photo 14 and Photo 15). The maintenance works will prevent runoff from entering the laydown area and satisfies completion of the recommended mitigation measures for ITM item *ULR#31* (see Section 9.0).

Photos:



Photo 12 – Current conditions at the ULRHEF downstream tunnel portal (November 14, 2015).



Photo 13 – Oil-water separator at ULRHEF downstream portal (November 14, 2015).



Photo 14 – Ditch maintenance and rock lining completed on downstream portal access road (November 8, 2015).



Photo 15 – Ditch maintenance and rock lining completed on downstream portal access road (November 14, 2015).

4.4 **Penstock**

Construction Activities:

- Penstock excavation, installation and backfill continued from 2+800 to 3+900.
- Penstock welding continued from 2+900 to 3+700.
- ASTR03 over-drain and penstock crossing construction (Photo 16 to Photo 21).
- ASTR04 culvert removal and diversion installation (Photo 24 and Photo 25).
- ASTR04 over-drain construction (Photo 26 and Photo 27).

Environmental Summary:

- On November 8, the IEM was present to monitor over-drain construction at ASTR03 (Photo 16 to Photo 21). CE installed an active diversion utilizing two 4” pumps and one 6” pump to

divert the watercourse and allow for the construction of a berm to direct flows into the installed over-drain culverts. During works, sediment was introduced to the watercourse due to water piping through the over-drain bedding material and unforeseen erosion of the slope at the outlet of the culverts. CE will assess the long-term stability of this slope in the spring; however, it is currently no longer eroding and considered stable. The IEM conducted water quality sampling and remained in close contact with the site superintendent throughout works. The IEM requested that crews slow the pace of works when high ranges of turbidity were measured downstream of the work area. Please see Section 4.6 Water Quality Results for over-drain construction water quality data.

- On November 9, the IEM was present for the removal of the culvert at ASTR04 and installation of an active diversion (sump and 6" pump) to prepare the site for over-drain construction and final watercourse reclamation works. ASTR04 is an identified CTF watercourse. An Ecofish crew conducted an amphibian salvage prior to works and during dewatering (Photo 22 and Photo 23). Three CTF tadpoles were captured, held in sanitized buckets of cold creek-water and relocated outside of the active work-area. The IEM was onsite to monitor works and conduct water quality sampling during the culvert removal and diversion installation. During the excavation of an upstream sump and pump installation, a pulse of suspended sediment was recorded downstream of the works which temporarily exceeded BCWQGs. The water was measured at over 1000 NTU 45m downstream and was observed to quickly (<5 minutes) clear to within ~25 NTU over background. Downstream water quality returned to within 8 NTU of background within 25 minutes. Please see Section 4.6 for water quality sampling results.

Photos:



Photo 16 – Pump installation for active diversion at ASTR03 overdrain construction (November 8, 2015).



Photo 17 – Berm constructed to introduce flows to over-drain culverts (November 8, 2015).



Photo 18 – Turbid flows through over-drain culverts following construction of ASTR03 over-drain berm (November 8, 2015).



Photo 19 – Flows clearing of sediment following completion of over-drain works (November 8, 2015).



Photo 20 – ASTR03 over-drain with penstock crossing construction in background (November 10, 2015).



Photo 21 – ASTR03 penstock crossing construction (November 10, 2015).



Photo 22 – Ecofish conducts CTF salvage upstream of ASTR04 culvert (November 9, 2015).

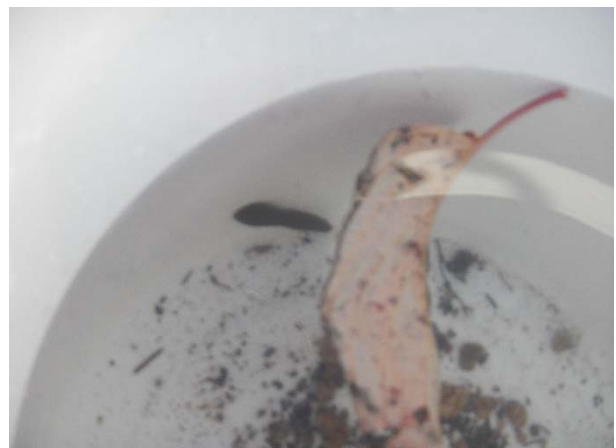


Photo 23 – CTF tadpole captured in ASTR04 and relocated outside of the active work area (November 9, 2015).



Photo 24 – 6” pump installed for ASTRO4 diversion (November 9, 2015).



Photo 25 – Culvert removal at ASTRO4 with active diversion in place (November 9, 2015).



Photo 26 – ASTRO4 overdrain construction with active diversion in place (November 10, 2015).



Photo 27 – ASTRO4 overdrain construction with active diversion in place (November 14, 2015).

4.5 Powerhouse & Access Road

Construction Activities:

- Superstructure construction (Photo 28).
- Dewatering to Lillooet River (Photo 29).

Environmental Summary:

- No environmental issues were observed or reported at the ULRHEF powerhouse during this reporting period.



Photo 28 – Current conditions at the ULRHEF powerhouse (November 14, 2015).



Photo 29 – Dewatering seepage water from the ULRHEF powerhouse sump to the Lillooet River (November 14, 2015).

4.6 Water Quality Results

The following table presents the results of the routine WQ 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 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* WQ (turbidity and/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)	Con d (µS)	Temp (°C)
Routine Water Quality						
November 14, 2015	10:36	ULR Background – ULRHEF Intake	7.5	9.9	123	2.8
	10:48	ULR #0.5 – Downstream of ULRHEF intake at Keyhole Bridge	7.4	12.6	142	2.9
	11:44	ULR # 1 – Upstream of ULRHEF Powerhouse	7.4	13.6	138	2.8
	-	ULR #2 – Downstream of ULRHEF Powerhouse between KM 40.5 and KM 41 (sampling not conducted due to avalanche risk)	-	-	-	-
	15:23	ULR #3 – Lillooet River FSR KM 38 Laydown – D/S of Boulder confluence	7.4	13.7	130	2.8
	9:21	ULR #4 – Lillooet River FSR KM 24 – D/S of all works and Meager confluence	7.5	23.1	145	2.9
ULRHEF Intake sediment basins following probe-hole grouting in tunnel						
November 8,	20:40	Tunnel portal sump discharging to Lillooet River	9.7	-	-	-

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Con d (uS)	Temp (°C)
2015	20:45	Tunnel sump water diverted to sediment basins				
	20:55	Sediment basin discharge to Lillooet River	9.2	-	-	-
	21:00	CE's environmental management team activates CO2 injection system in last sediment basin cell				
	21:10	Sediment basin discharge to Lillooet River	7.2	-	-	-
ULRHEF Intake sediment basins						
November 10, 2015	10:26	Background in Lillooet River	7.3	12.8	-	-
	10:22	Sediment basin discharge to Lillooet River	7.5	19.3	-	-
	14:07	Sediment basin discharge to Lillooet River	7.4	20.2	-	-
November 11, 2015	11:01	Background in Lillooet River	7.2	11.8	-	-
	10:55	Sediment basin discharge to Lillooet River	7.3	6.12	-	-
November 12, 2015	10:05	Background in Lillooet River	7.3	10.05	-	-
	10:37	Sediment basin discharge to Lillooet River	7.4	15.7	-	-
	11:02	Sediment basin discharge to Lillooet River	7.3	13.8	-	-
November 13, 2015	Background sample not accessible due to heavy snowfall and unsafe conditions					
	12:51	Sediment basin discharge to Lillooet River	7.3	73	-	-
	13:12	Keyhole Falls Bridge	7.4	14.5	-	-
	13:35	Second cell of sediment basins	7.4	20.8	-	-
November 14, 2015	10:36	Background in Lillooet River	7.3	9.88	-	-
	10:39	Sediment basin discharge to Lillooet River	7.4	4.72	-	-
ASTR03 over-drain culvert installation and berm construction						
November 8, 2015	13:00	Background in ASTR03	7.7	0.67	-	-
	13:15	150m downstream of ASTR03 crossing	-	68	-	-
	13:25	150m downstream of ASTR03 crossing	-	8.6	-	-
	14:30	150m downstream of ASTR03 crossing	-	0.74	-	-
	15:10	150m downstream of ASTR03 crossing	-	Over-range	-	-
	15:25	150m downstream of ASTR03 crossing	-	120	-	-
	15:40	150m downstream of ASTR03 crossing	-	1145	-	-
	16:00	150m downstream of ASTR03 crossing	-	718	-	-
	16:15	150m downstream of ASTR03 crossing	-	78	-	-

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Con d (uS)	Temp (°C)
	16:30	150m downstream of ASTR03 crossing	-	6	-	-
	16:45	150m downstream of ASTR03 crossing	-	44.3	-	-
	17:10	150m downstream of ASTR03 crossing	-	1648	-	-
	17:30	150m downstream of ASTR03 crossing	-	Over-range	-	-
	17:50	150m downstream of ASTR03 crossing	-	4528	-	-
	18:20	150m downstream of ASTR03 crossing	-	83	-	-
	18:40	150m downstream of ASTR03 crossing	-	7	-	-
	18:45	ASTR03 culvert outlet	-	0.5	-	-
ASTR04 culvert removal and diversion installation for over-drain construction						
November 9, 2015	10:22	Background in ASTR04	-	1.17	-	-
	10:35	40m downstream of ASTR04 crossing	-	2.55	-	-
	11:46	40m downstream of ASTR04 crossing	-	Over-range	-	-
	11:55	40m downstream of ASTR04 crossing	-	1066	-	-
	12:10	40m downstream of ASTR04 crossing	-	11.95	-	-
	12:25	40m downstream of ASTR04 crossing	-	7.1	-	-

4.7 Recommendations

IEM recommendations for the ULRHEF are as follows:

- All seepage water in the intake excavation and portal should be conveyed to the sediment basins unless approved for discharge directly to the Lillooet River by the IEM or CE environmental manager.
- The IEM recommends that the access roads and tributaries on the penstock alignment be monitored regularly to ensure that no ESC issues develop with the continued installation works and traffic.
- The pumps and generator at ASTR04 should be monitored regularly to ensure that the active diversion remains in place until crossing works are complete.
- The ULRHEF powerhouse sump water should be monitored regularly. Alkaline or turbid water should be pumped to the settling ponds for treatment.

4.8 Upcoming Works

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

- Standpipe installation and grouting activities will continue at the ULRHEF upstream tunnel

portal.

- Dewatering to the ULRHEF intake sediment basins will continue.
- Penstock installation will continue.
- ASTR04 over-drain construction will continue in the dry with the creek diversion in place.
- Superstructure construction will continue at the ULRHEF powerhouse.

5.0 Boulder Creek Hydroelectric Facility – Monitoring Results

5.1 Intake Access Ramp & Diversion Tunnel

Construction Activities:

- Drilling, blasting and excavation for BDRHEF intake diversion tunnel (Photo 30 and Photo 31).
- Dewatering diversion tunnel seepage to active water treatment system (Photo 32).
- Road capping and ditching on BDRHEF intake access ramp (Photo 33 and Photo 34).

Environmental Summary:

- All wastewater related to diversion tunneling activities was pumped to an active treatment system installed at the bottom of the intake access ramp (Photo 32). The IEM and CE's environmental management team routinely sampled the system discharge to Boulder Creek. Please see Section 5.3 for water quality data.
- On November 9, CE completed road capping and ditch installation on the BDRHEF intake access ramp (Photo 33 and Photo 34). The maintenance works will prevent runoff from entering the work area and mark the completion of recommended mitigation measures for ITM item *BDR#27* (see Section 9.0).

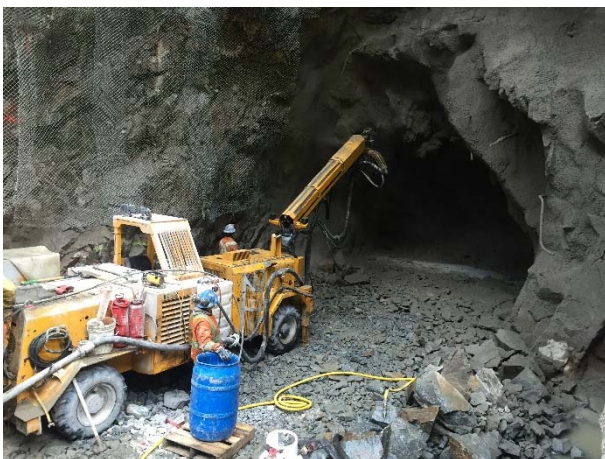


Photo 30 – Drilling at BDRHEF intake diversion tunnel (November 10, 2015).

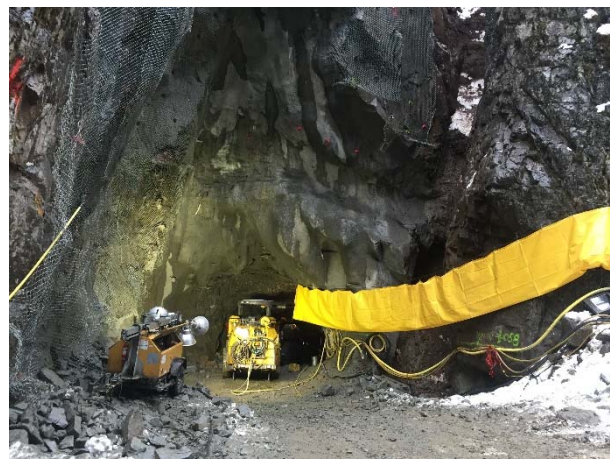


Photo 31 – Drilling at BDRHEF intake diversion tunnel (November 14, 2015).



Photo 32 – Active water treatment system at BDRHEF intake (November 10, 2015).



Photo 33 – Road capping and ditching installed on BDRHEF intake access ramp (November 10, 2015).



Photo 34 – Road capping and ditching installed on BDRHEF intake access ramp (November 10, 2015).

5.2 Downstream Tunnel Portal and Powerhouse

Construction Activities:

- Drilling, blasting, mucking and stabilization works within the tunnel (Photo 35).
- Dewatering of the tunnel and powerhouse to the oil water separator and settling ponds continued (Photo 36).

Environmental Summary:

- All wastewater related to the BDRHEF tunnelling works continued to be contained and conveyed to the downstream portal settling ponds for treatment (Photo 36).

Photos:



Photo 35 – BDRHEF tunnel portal and powerhouse structure (November 14, 2015).



Photo 36 – BDRHEF tunnel portal settling ponds (November 14, 2015).

5.3 Water Quality Results

The following table presents the results of the routine WQ 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* WQ (turbidity and/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 (uS)	Temp (°C)
Routine Water Quality						
November 14, 2015	14:02	BDR BG – Upstream of BDRHEF intake	7.6	6.0	88	1.8
	-	BDR #1 – Downstream of BDRHEF intake	-	-	-	-
	14:48	BDR #2 – Upstream of BDRHEF Powerhouse	7.5	4.5	84	1.8
	15:01	BDR #3 – Downstream of BDRHEF Powerhouse at Pebble Creek Bridge	7.6	4.1	81	1.7

5.4 Recommendations

IEM recommendations for the BDRHEF are as follows:

- All wastewater related to the BDRHEF tunnelling works should continue to be contained and conveyed to the downstream portal settling ponds for treatment. Regular inspections of the treatment ponds should be performed to ensure the necessary maintenance activities outlined in the work plan are performed.

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):

- Drilling, blasting and mucking will continue for the BDRHEF intake diversion tunnel.
- BDRHEF intake cofferdam construction will commence.
- BDRHEF downstream portal tunnelling works will continue.
- Superstructure construction will continue at the BDRHEF powerhouse.

6.0 **Transmission Line – Monitoring Results**

6.1 *Transmission Line Construction Activities*

Right-of-Way Clearing:

- No activity.

Existing Road Upgrades and Access Road Construction

- Road construction on Road 305 in Segment 12.
- Road construction on Road 306 in Segment 13.

Transmission Line Pole Installation, Line Stringing and Clipping

- Groundworks for pole foundations in Segment 13.

Environmental Summary:

- The IEM was present as required when clearing activities occurred within 150m of wetlands, 15m RVMAs (30m for CTF streams), 100m of Coastal Tailed Frog Streams, Class 1 & 2 suitable Grizzly Bear WHA and/or suitable forage habitat, moose and deer UWR, legally designated Old Growth Management Areas (OGMAs) or within Northern Goshawk, Spotted Owl or Western Screech-Owl nesting habitat (during breeding season). All flagged boundaries were respected during clearing activities. No environmental issues were observed.

6.2 *Water Quality Results*

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (uS)	Temp (°C)
No construction activities involving water management were conducted during this reporting period.						

6.3 *Recommendations*

- The IEM has no recommendations at this time.

6.4 Upcoming Works

- Road maintenance in Segments 12 and 13.
- Groundworks for pole foundations in Segment 13.

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). Wildlife Observation forms will be included in first reporting period following month end. Observation or detection of the following species will trigger notification to identified parties according to the following table.

Species Observed or Detected	Notification Period	Agencies to be Notified
Northern rubber boa	Immediately	IEM, Owner
Grizzly bear	24hrs	IEM, Safety Officer, Conservation Officer, Owner
Wolverine den	24hrs	IEM, MFLNRO, Owner
Spotted owls	24hrs	IEM, MOE, Owner
Mountain goats	48hrs	IEM, MFLNRO, Owner

8.0 Mountain Goat Monitoring Program

The following mitigation measures related to mountain goats were implemented during this monitoring period:

- On November 13, the IEM conducted snow depth measurements at the monitoring stations located at the KM 45 spoil area (road sites) and the area upslope from KM 45.25 on the Lillooet River FSR (forested sites). The road sites were measured to have an average depth of 41.9 cm and the forested sites 14.8 cm. Both average measurements exceeded the shutdown trigger as outlined in the Mountain Goat Management Plan. The IEM notified CE’s environmental management team and the Two-week Mountain Goat Shutdown Period was enacted. CE’s environmental management team ensured that Mountain Goat corridor travel restrictions, snow removal guidelines and shutdown of all works at the ULRHEF downstream tunnel portal were enforced within 24 hours of the notification from the IEM as per the Mountain Goat Management Plan.
- Access to the BDRHEF intake is gated and locked or guarded fulltime to restrict motorized use within the UWR from November 1 – April 30.
- IEM was onsite to audit daily construction equipment shutdowns (November 1 - 30) beginning one hour before and two hours after sunrise as well as two hours before and one hour after sunset.
- Noise level monitoring data continued to be collected and used to adaptively manage construction noise and ensure that the 75db noise level threshold is not exceeded as outlined in the Mountain Goat Management Plan.

- The IEM or designate was on site to monitor Mountain Goat activity within 500m of construction activities at the ULRHEF intake and the ULRHEF downstream tunnel portal. Mountain goats were monitored from four sites:
 - 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,
 - Garibaldi Pumice mine site viewing u-2-002 UL 19 – MG-OBS03 (10U 467388 561408); and,
 - Salal Creek monitoring site viewing u-2-002 UL 8 – MG-OBS04 (10U 466133 5613991).

Monitoring effort was split between all sites during daylight hours, unless safety concerns or weather conditions interfered. The order of site visits rotated daily. Construction activities must cease if a goat(s) are observed moving towards the ULRHEF intake and/or 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.

9.0 Environmental Issues Tracking Matrix (ITM)

9.1 Hydroelectric Facilities (ULRHEF & BDRHEF)

ITM Tracking Legend:		Work Item Open		Work Item Complete		Issue Closed	
Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Completed
BDR #27	CLOSED	Boulder Intake Access Ramp	Ditches outlined in the work plan have not been installed and the haul path is conveying sediment and sediment laden water along the length of the ramp	Install ditches on either side of the access ramp and crown/cap road to ensure runoff is conveyed in the ditch lines and not along the running surface	October 26, 2015	November 7, 2015	November 13, 2015
ULR #30	CLOSED	ASTR04 – Haul road crossing	The silt fence on the downstream side of the WBC/road has failed. Runoff from the surface of the haul road is not conveyed in a ditch. As a result flows concentrate in this location, which led to the silt fence failure.	<ol style="list-style-type: none"> 1. Repair the haul road drainage to direct water away from ASTR04 2. Remove failed silt fence ensuring material does not enter ASTR04, and replace it. 	October 26, 2015	November 7, 2015	November 13, 2015
ULR #31	CLOSED	ULRHEF- Downstream Tunnel Portal access road drainage ditches	Ditches are not collecting and transporting road runoff as intended due to the road grading along the lower ULRHEF tunnel portal access road and infilling of the ditch line.	<ol style="list-style-type: none"> 1. Clean out ditch line and re-grade road to convey water to the ditch line 2. Ensure water from the laydown area is drained/conveyed into the re-established ditch line. 	October 26, 2015	November 7, 2015	November 13, 2015
ULR #35	CLOSED	Lillooet River FSR – KM45	Stockpiles along the edge of the FSR at ~KM45 of the Lillooet River FSR near the crushing/screening plant are not protected according to the ESC Plan.	<ol style="list-style-type: none"> 1. Install a ditch line along the forested edge of the stockpile (edge of the FSR) and install silt fencing to prevent the migration of sediment into the ditch line and/or the Mountain Goat replacement area immediately adjacent to the stockpile. Closed November 2, 2015 2. Remove accumulated sediment that has infilled the existing ditch line between the new spoil pile access road and the stockpiled material. 3. Clean out blocked culvert at the entrance to the active KM45 spoil area. (Identified October 30, 2015) 	October 27, 2015	November 7, 2015	November 10, 2015

ULR #36	OPEN	Covered Stockpiles at KM44.5 of the Lillooet River FSR	The stockpile tarp coverings are deteriorating and are no longer serving their original intent as a potential PAG rock temporary storage measure.	<ol style="list-style-type: none"> Remove the tarps if they are no longer required. Update November 6, 2015 – The IEM has been provided with verbal confirmation that the stockpiles are non-PAG and do not require a tarp covering to protect the material from contact with water/snow. This item will be closed once this is confirmed by a QP. <p>OR</p> <ol style="list-style-type: none"> Repair the tarps if they are still required (pending clarification on PAG vs non-PAG status) 	October 27, 2015	November 30, 2015	-
ULR #39	OPEN	ASTR04 – Downstream side of Haul road crossing	Material placed on the embankment surrounding the culvert outlet is unconsolidated and requires armoring or other form of ESC stabilization.	<ol style="list-style-type: none"> Assess the material place around the culvert outlet, determine the appropriate form of ESC stabilization, and installed stabilization measures with the IEM present to monitor the work. 	November 14, 2015	November 16, 2015	-
<i>(next ITM – ULR/BDR#40)</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 Completed
<i>No outstanding environmental issues (next ITM – Tx#3)</i>							