Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #94

Reporting Period: May 8 – May 21, 2016

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**	
Herbert Klassen	Fisheries and Oceans Canada	 **J. Alex Sartori, RPBio** *Independent Environmental Monitor (IEM)*  **J. Stephen Sims, RPBio** *Delegate IEM*
James Davies	MFLNRO – Water Allocation	
Danielle Cunningham	MFLNRO – Land and Resources	
Frank DeGagne	MFLNRO – Land and Resources	
Monica Perry	BC Environmental Assessment Office	
Sheldon Foote	BC Environmental Assessment Office	
George Steeves	True North Energy – Independent Engineer	
Jennifer McCash	JEM Energy Ltd. – Independent Engineer	
Thomas Hicks	Sartori Environmental Services	
Peter Ramsden	Innergex Renewable Energy Inc.	
Oliver Robson	Innergex Renewable Energy Inc.	
Grant Lindemulder	Innergex Renewable Energy Inc.	
Joshua Zandbergen	Innergex Renewable Energy Inc.	
Julia Mancinelli	Innergex Renewable Energy Inc.	
Liz Scroggins	Innergex Renewable Energy Inc.	
Colleen Giroux-Schmidt	Innergex Renewable Energy Inc.	
Matt Kennedy	Innergex Renewable Energy Inc.	
Renaud DeBatz	Innergex Renewable Energy Inc.	
Richard Blanchet	Innergex Renewable Energy Inc.	
Alex Yung	Innergex Renewable Energy Inc.	
Sarah Taschuk	Innergex Renewable Energy Inc.	
Serge Moalli	CRT-ebc Construction Inc.	
Jonathan Drapeau	CRT-ebc Construction Inc.	
Éric Ayotte	CRT-ebc Construction Inc.	
Jean Pelletier	CRT-ebc Construction Inc.	
Ian McKeachie	CRT-ebc Construction Inc.	
Matt Fallaise	CRT-ebc Construction Inc.	
Lianne Leblond	CRT-ebc Construction Inc.	**Date Prepared:** July 21, 2016
D'Arcy Soutar	Westpark Electric Ltd.	**Date Submitted:** July 28, 2016
Pontus Lindgren	Westpark Electric Ltd.	
Harriet VanWart	Lil'wat Nation	
Carrie Lester	Lil'wat Nation	

sartori environmental services
106-185 forester street, north vancouver, bc v7h 2m9 tel 987.5588 fax 987.7740 email info@sartorienv.com

Owner Construction Permits and Approvals

Environmental Assessment Certificate No. E13-01 (Amendment 1, 2, 3, 4, 5, 6, 7)
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)
Section 8 - Special Use Permit issued for the operation of an avalanche weather station on Crown land (File No. S25988)

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. 349424 (Renewal 2)
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
Water Sustainability Act Section 10(1) Use Approval dated March 24, 2016
Section 7 Explosives Act – Magazine Licence (U76018) Renewal April 30, 2016

ACRONYMS:

AMBNS	Active Migratory Bird Nesting Survey
Andritz	Andritz Hydro Canada Inc.
ANFO	Ammonia nitrate fuel oil (industrial explosive)
ARD M/L	Acid Rock Drainage and Metal Leaching
BCEAO	British Columbia Environmental Assessment Office
BCWQG	British Columbia Water Quality Guidelines
BDRHEF	Boulder Creek Hydroelectric Facility
BEBO	ULRHEF Intake Concrete Arch & Foundation Wall
BG	Background
BKL	BKL Consultants Ltd.
CE	CRT-ebc Construction Inc.
CEMP	Construction Environmental Management Plan
CTF	Coastal Tailed Frog
DFO	Fisheries and Oceans Canada
DS	Downstream
EPP	Environmental Protection Plan
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
Ecofish	Ecofish Research Ltd.
Ecologic	Ecologic Consulting
EIR	Environmental Incident Report
ESC	Erosion and Sediment Control
FAM	Field Advice Memorandum
FSR	Forest Service Road
Golder	Golder Associates
GWR	Mountain Goat Winter Range
Hedberg	Hedberg and Associates Ltd.
HWM	High water mark
IE	Independent Engineer (True North Energy)
IEM	Independent Environmental Monitor
INX	Innergex Renewable Energy Inc.
ISW	Instream Works
ITM	Environmental Issue Tracking Matrix
JEM	JEM Energy Ltd. (Delegate Independent Engineer)
LTC	Leave to Construct
MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
MOE	Ministry of Environment
MOTI	Ministry of Transportation and Infrastructure
OGMA	Old Growth Management Area
OLTC	Occupational License to Cut
PAG	Potentially Acid Generating
QP	Qualified Professional
ROW	Right of Way
RVMA	Riparian Vegetation Management Area
SES	Sartori Environmental Services
SLRD	Squamish-Lillooet Regional District
True North	True North Energy (Independent Engineer)
TX Line	Transmission Line
ULRHEF	Upper Lillooet Hydroelectric Facility
UWR	Ungulate Winter Range
VC	Valued Component
WEL	Westpark Electric Ltd.
WEMR	Weekly Environmental Monitoring Report
WHA	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	Key Monitoring Locations & Activities
May 8 – 14, 2016	MC, TH, SE, AS	***Construction Camp, Laydown Areas, and the Lillooet River FSR*** • Road maintenance on the Lillooet River FSR ***ULRHEF Intake & Upstream Tunnel Portal*** • Grout injection program • Rock hammering/excavation for concrete arch foundation wall (BEBO) • BEBO rebar, formwork, and concrete pour • ULHP intake formwork, rebar, and concrete ***ULHEF Downstream Tunnel Portal*** • Drilling, blasting and tunnel stabilization • Decommissioning of Truckwash settling ponds • Removal of portions of the deposited soil and snow within UWR replacement area ***ULRHEF Penstock*** • Welding, coating, and backfill of penstock east of Truckwash Creek • Stripping and grubbing in preparation for Truckwash Creek crossing excavation ***ULRHEF Powerhouse*** • Tailrace rebar and formwork • Installation of active water treatment system to support tailrace excavation and concrete works • Andritz working on manifold and mechanical installations ***BDRHEF Intake & Upstream Tunnel Portal*** • Rock face consolidation ***BDRHEF Downstream Tunnel Portal*** • Drilling, blasting and tunnel stabilization ***BDRHEF Powerhouse*** • Tailrace formwork and rebar • Electrical component installation ***TX-Line*** • Segment 11 – Bridge 272A Installation Prep • Segment 11 – Survey – Throughout • Segment 11 – Slashing near pole 270 • Segment 15 – Ground prep, including blasting – pole structures 382-381
May 15 – 24, 2016	SE, AS, MC	***Construction Camp, Laydown Areas, and the Lillooet River FSR*** • Road maintenance on the Lillooet River FSR ***ULRHEF Intake & Upstream Tunnel*** • Grout injection program • BEBO foundation formwork, rebar, and concrete works • ULHP Intake rebar and formwork • Sluiceway grouting of training wall anchors ***ULRHEF Downstream Tunnel Portal*** • Drilling, blasting and tunnel stabilization ***ULRHEF Penstock*** • Welding, coating, and backfill of penstock east of Truckwash Creek • Excavation within 30m of Truckwash creek (east bank) • ASTR-04 second replacement of access road culvert ***ULRHEF Powerhouse*** • Tailrace rebar, formwork, and concrete works. • Andritz hydro-mechanical equipment delivery • Commissioning of active water treatment system

Date	IEM Team Personnel	Key Monitoring Locations & Activities
		• Westpark switchyard work ***BDRHEF Intake & Upstream Tunnel Portal*** • Consolidation of rock slopes above intake and intake excavation • Active water treatment system installation ***BDRHEF Downstream Tunnel Portal*** • Drilling, blasting and tunnel stabilization ***BDRHEF Powerhouse*** • Andritz electrical works ***TX-Line*** • Segment 10 – Minor works on waterline in Vans Creek • Segment 11 – Bridge 272A Creek crossing • Segment 11 – Machine ground prep – 267-262 • Segment 15 – Ground prep, including blasting – Throughout (except 376); bucking trees – 381-382, 380

IEM Team Personnel: *TH – Tom Hicks; SS – Stephen Sims; DA – Danita Abraham; SE – Stephanie Ellis; AS – Anne Sutherland; ML – McKenzie Lee; MC – Mike Champion; Tammie Jenkins*

2.0 Administrative Summary

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

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
May 9	*email*	SES, CE, INX	Re: High pH discharge to the Lillooet River from concrete arch support wall (BEBO) concrete pour. The IEM distributed an email to CE indicating that water discharged to the Lillooet River during the BEBO wall concrete pour temporarily exceeded BCWQG, and outlined immediate mitigations that were implemented to the satisfaction of the IEM. No instantaneous or long-term negative environmental impacts were caused by the 10 minutes of turbid/high pH discharge.	-
May 9	*email*	SES, CE, INX	Re: UL downstream portal pond sediment analysis. The IEM received the results of laboratory analysis for hydrocarbons in sediment sampled from the ULRHEF downstream portal sediment ponds. The results indicated that the samples did not exceed Industrial Land Use Standards, and CE informed the IEM and INX that the material would be disposed of at KM45 spoil area.	-
May 9 - 16	*emails*	WEL, SES, INX	Re: Communication between Mumleqs- WEL – Innergex. Email correspondence between INX and WEL regarding the damaged waterline of a nearby resident and the necessity to rectify the situation as soon as possible. WEL responded on May 10 indicating that works to fix the waterline would be completed by the end of the week (May 13). WEL provided an email on May 16 to the IEM/INX confirming that the repair was complete.	-
May 10	*email*	INX, MFLNRO, DFO, SES,	Notice of Incident: Upper Lillooet River HEF - Downstream Tunnel Water Treatment System	*EIR020*

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
		Lil'wat Nation, JEM	Outlet. INX submitted Upper Lillooet Hydro Project *EIR020* to regulatory agencies and Lil'wat Nation.	
May 10	*email, conference call*	INX, SES, Ecofish	Re: ULHP - BDR Goat Timing & CE Proposed Works - INFO Request to support discussion with MFLNRO. INX forwarded communications pertaining to helicopter use to facilitate conference call discussions in regards to mountain goat survey results.	-
May 10 - 16	*email*	WEL, SES, INX	Re: Bridge 272a kick-off. WEL confirmed that the kick-off meeting and CTF salvage had occurred, and that engineering assessment of water management concerns related to piping observed coming from the slope on the town side of the bridge would occur on May 13. INX provide an email indicating that material changes to Work Plan/Design may need to be submitted to the IE for review and LTC amendment. WEL confirmed that no changes requiring IE review were proposed.	-
May 10	*email*	INX, MFLNRO, DFO, SES, Lil'wat Nation, JEM	Notice of Incident: Upper Lillooet River HEF - Downstream Tunnel Water Treatment System Overflow due to power loss. INX submitted Upper Lillooet Hydro Project *EIR021* to regulatory agencies and Lil'wat Nation.	*EIR021*
May 10	*email*	INX, CE, SES, JEM	Re: ULHP Enviro. Coordination Bi-Weekly Call - Proposed Agenda. INX provided a proposed agenda for the first ULHP Environmental Coordination Bi-Weekly Meeting that coming Thursday. Topics to be discussed on a bi-weekly bases included: 1. Review of current Issue Tracking Matrix and to provide update on all ACTIVE items, action items and timelines. 2. Current Work Plan methodologies, areas of environmental concern and positive feedback on successful completions. 3. Environmental Incidents & Lessons Learned (as applicable). 4. Review of 3-week schedule to identify any upcoming environmentally sensitive works that will require additional monitoring support. 5. Communications.	-
May 11	*email*	SES, CE, INX, JEM	Re: INN-1515E - Notice of Activity - ULR Penstock Truckwash Creek excavation and penstock installation. IEM requested that concerns related to the following be addressed prior to the commencement of construction: 1. Confirmation by a QP that Condition 15 of the EAC certificate will be satisfied during this work activity (specifically, as it relates to the removal of the partial visual and auditory barrier constructed and vegetation in 2014), now that work activities will occur during the spring 2016 mountain goat migration period. 2. Confirmation that construction related noise will be minimized within the TWC corridor throughout the works (remain below 75dBA) as outlined in the Mountain Goat Management Plan.	-

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
			3. Confirmation that all activities will be conducted outside of the sunrise and sunset restricted hours. 4. Confirmation that unimpeded access for mountain goats will be possible through the TWC migration corridor during the migration period and how this will be achieved during all stages of the work. 5. Acknowledgement that all activities are to cease immediately and that CE will provide immediate notification to the IEM onsite if a mountain goat is observed from the TWC crossing work area. 6. Confirmation that the diversion of TWC through the work area, as proposed in the work plan prepared in 2015, will be feasible during the spring 2016 period. 7. Advance notification of any night works proposed as part of this work activity to arrange to have the IEM monitoring for the night shift. 8. At minimum, that CE provide 48hrs notice prior to the commencement of the TWC crossing associated works (given the notice of activity sent last night this would be 6pm May 12). CE responded to the satisfaction of the IEM.	
May 11	*emails*	CE, SES, INX	RE: Stand Watch at Truckwash 2. CE requested that the IEM perform a stand watch to ensure no active nests or nesting birds were observed prior to tree falling adjacent to Truckwash Creek. The IEM and INX responded requesting confirmation that no activity would occur within 30m of the trees during the AMBNS and that trees to be felled are located within the OLTC, and standard falling practices are followed.	-
May 11	*email*	INX, SES	Re: ULHP Hazardous Substance Disposal & Land Tenure. Communications included discussions about clauses in the License of Occupation pertaining to Hazardous Substances and storage/removal of material.	-
May 12	*email*	Ecofish, SES, INX, CE	Re: INN-1515E - Notice of Activity - ULR Penstock Truckwash Creek excavation and penstock installation. Ecofish provided an email to the IEM as the contractor's QP to address concerns pertaining to penstock clearing, excavation and installation within the mountain goat migration corridor during the spring 2016 migration periods (May 1 – June 15), and compliance with the Project's EAC Condition #15.	-
May 12	*email*	CE, SES, INX	Re: Coastal Fire Centre Restricting Category 2 Fires starting May 13, 2016. CE distributed and email indicating that Category 2 open fires would be prohibited as of May 13, 2016 and would be in effect unit October 21, 2016 to help prevent human-caused wildfire and protect public safety.	-
May 12	*conference call*	CE, SES, INX	Bi-weekly ULHP Environmental Coordination – Discussions included ongoing environmental items	-

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
			and the current ITM. This was the first of these regular meetings scheduled in an effort to increase the effectiveness of communications surrounding sensitive environmental works and the protection of VCs.	
May 13	*email*	INX, IEM, Hedberg	Re: Boulder Creek MG Helicopter Survey - Formal Reporting Commitments. INX distributed a memo prepared by Ecofish detailing the results of the helicopter survey conducted on May 1, 2016.	-
May 15 - 18	*emails*	CE, SES, INX	Re: Problem with the power generator – Water treatment system at Truckwash. CE distributed an email indicating that the pumps in the surge tanks at the Truckwash Creek WQ treatment facility had failed the morning of May 15, resulting in temporary spilling on the access road, and subsequent conveyance of sediment-laden water to ASTR-03. An additional pump failure occurred the night of May 15 due to unknown reasons. Actions items completed by CE included replacement of blown fuses, installation of a new and backup generator to replace the original rental unit, and the assignment of a night watch person to provide continual monitoring of treatment system function. CE issued *EIR022* detailing the incidents and corrective actions.	*ULR#55; EIR022*
May 17 & 20	*email*	SES, CE, INX, JEM	*FAM#12* - Sump pumping capacity at KM49. The IEM issued a FAM highlighting concerns associated with the pumping capacity of the first sump near KM48 (ULRHEF intake and upstream tunnel portal). CE responded to the FAM on May 20 with action items including adjusted pumping protocols, twice-daily engineer scheduling review, additional pump capacity and the installation of a new higher capacity water conveyance line from the sump to the treatment ponds.	*ULR#54*
May 18	*email*	CE, SES, INX	Re: Meeting with all foremen and workers - communication improvement. CE distributed an email confirming that all foremen and workers (day shift and night shift) attended a meeting informing them of environmental issues, their respective responsibilities, and new protocols that are being implemented to ensure adequate onsite communications. Staff were reminded that a verbal Stop Work Order issued in the field by the IEM must be enforced immediately.	*ULR#55*
May 18	*site visit and meeting*	CE, SES, INX, JEM, True North	ULHP IE/IEM Monthly Site Visit & Environmental/Communication Performance Meeting. Items discussed included onsite protocols with respect to the environment and communication processes. The IE placed emphasis on the importance of mitigating the potential for unnecessary environmental issues and incidents through diligent communications with the IEM and the implementation of Work Plans as approved.	*ULR#55*
May 19	*email*	SES, CE, INX	Re: ASTR-04 culvert. The IEM sent an email regarding the re-installation of the culvert along the penstock access road crossing on ASTR-04. Highlighted items include IEM monitoring, adherence to the original Work Plan, avoidance of culvert	-

Date	Communication Type	Participants	Issues Discussed	ITM ID No.
			perching, adequate inlet/outlet armouring, and peripheral drainage management.	
	email	INX, MFLNRO, DFO, SES, Lil'wat Nation, JEM	Notice of Incident: Upper Lillooet River HEF - Downstream Tunnel Water Treatment System Overflow due to power loss. INX submitted Upper Lillooet Hydro Project *EIR022* to regulatory agencies and Lil'wat Nation.	*EIR022; ULR#55*
May 20 & 21	*email*	JEM, CE, SES, INX.	Re: IE Concerns for 2016. Following the May 18 site visit and meetings, the IE sent an email acknowledging CE's efforts to improve onsite communication protocols to date. As a further action item, the IE requested that step-by-step work plans be prepared for all water quality treatment systems describing protocols in the event of system failure (*e.g.* shut off pumps, shut down tunnel works, etc.), and these protocols should be posted onsite for ease of reference during potential incidents. CE responded on May 21 indicating that work plans for each water quality treatment facility would be prepared for review in the coming days.	*ULR#55*

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
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	Daily construction equipment shutdowns occurred throughout the reporting period beginning one hour before and two hours after sunrise as well as two hours before and one hour after sunset. CE has guards stationed on either side of the migration corridor 15 minutes before and during the morning and evening shutdown periods to stop all project related travel through the migration corridor. This timing restriction is effective within the Migration Corridor and 200m buffer throughout the month of May. 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. 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. If a mountain goat is observed within 500m

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
			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.
BDRHEF intake	Portion of intake access road and intake structure within UWR u-2-002 UL 12	Mountain Goat UWR	Access to BDRHEF intake must be gated at least 500m from UWR to restrict public access within the UWR u-2-002 UL 12 from November 1 – June 15, unless otherwise directed by MFLNRO. If a mountain goat is observed within a 500m 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.
TX Line	Segment 15 & 16 UWRs	Mountain Goat UWRs SO-04 & SO-08	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 MFLNR within 48 hours.
		Moose, Deer, & Mountain Goat UWRs	Helicopter flight paths will avoid UWRs and landing locations will be located further than 500m away from the UWRs during the sensitive late winter period and natal period (March 1 – May 15; May 15 – June 15).

4.0 Upper Lillooet River HEF – Monitoring Results

4.1 *Construction Camp, KM38 Laydown, Access Roads & Lillooet River FSR*

Activities:

- Routine maintenance of construction equipment within the mechanic shop and fuel management continued at the KM38 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.
- CE began application of dust suppression (calcium chloride) in high traffic areas of the job site to minimize fugitive dust (Photo 1). Water was also applied to lower traffic areas to minimize fugitive dust production throughout the reporting period.

Environmental Summary:

- Following a pre-work meeting on May 17, Ecofish installed CTF exclusion fencing and performed a CTF salvage in ASTR-04 in preparation for the removal of the compromised woodbox culvert (Photo 2; ULR#50). Bypass pumps were installed following the CTF salvage and were tested during the day shift. The culvert work area was dewatered in the presence of CE's QP (Ecofish). The work to remove and replace the culvert was completed on night shift to maintain access to the penstock alignment throughout the day shift. As the

area was dewatered, the IEM determined that the work could proceed during the night shift without IEM supervision provided a member of the CE environment team was present and that the commissioning of the culvert (removal of the pumps and CTF exclusion fencing) was performed under IEM supervision the following morning. Upon arrival onsite on May 18, the IEM found the culvert was installed outside of the natural channel alignment (Photo 3). Furthermore, the inlet and outlet of the culvert was in the path of rooted vegetation. The IEM confirmed that no pre-existing vegetation was removed on night shift, and that bypass pumps continued to successfully dewater the work area. The IEM and IE discussed the culvert installation and it was determined that the culvert needed to be installed in the natural channel alignment and would be re-installed during the following night shift. On the night of May 19, the IEM monitored the re-installation of the culvert and the commissioning of the culvert, which occurred the morning of May 20. During commissioning of the culvert, turbidity levels reached 612 AU at 10:05am during removal of the sand bag berm (Photo 4), and were back within acceptable levels (1.21 NTU) less than an hour later (10:55am).

Photos:

Photo 1– Dust suppression applied to control fugitive dust (May 15, 2016).

Photo 2– Ecofish conducting a CTF salvage in ASTR-04 (May 17, 2016).

Photo 3 – ASTR-04 culvert installed outside of the natural channel alignment (May 18, 2016).

Photo 4– CE removing sand bags causing initial flush during commissioning of the new ASTR-04 culvert (May 20, 2016).

4.2 *Intake, Concrete Arch Foundation Walls, and Upstream Tunnel*

Construction Activities:

- Grout injection operations, canopy tube installation, and mechanical tunnel excavation within the ULRHEF upstream tunnel continued (Photo 5).
- Formwork, rebar, and concrete works at the BEBO foundation wall occurred throughout the monitoring period (Photo 6).
- Rebar, formwork, and concrete works continued on the intake structure and sluiceway throughout the monitoring period (Photo 7 & Photo 8).

Environmental Summary:

- On May 9 at the start of the concrete arch foundation wall pour, water discharged to the Lillooet River temporarily exceeded BCQWG for both turbidity and pH. The exceedance was caused when clean water flowing down the ramp, encountered concrete that was spilled from the first concrete mixer truck as it backed down the ramp. The water then flowed down the ramp and into the isolated clean water sump, which was discharging to the Lillooet River. CE immediately redirected this water to the water treatment system. Discharge of turbid and high pH water lasted approximately 10 minutes. Once water quality in the clean water sump was within BCQWG, the pumps were directed back to the Lillooet River and water quality was monitored by the IEM for the duration of the concrete pour. Due to the nature and short duration of this event, a mixing zone sample could not be taken until after the mitigation had been completed, at which time water quality at the mixing zone (Keyhole Bridge) was within BCQWG. However, it is unlikely that this discharge resulted in any instantaneous or long-term negative impacts.
- On May 17, the IEM issued FAM#12 (ITM ULR #54) highlighting concerns associated with the pumping capacity of the concrete lined sump at the intake. The issue first arose on May 2 during a concrete pour for the BEBO wall foundations and re-occurred on May 14, 2016 during a power failure that resulted in partial flooding of the tunnel and contamination of the clear water sump. The temporary discharge of elevated pH (pH ≤ 9.5) and turbid water (≤ 1112 AU) to the Lillooet River lasted for approximately three hours (13:40 – 16:30 when discharge ceased); however, it is unlikely that this discharge resulted in any instantaneous or long-term negative impacts.
- On May 20, CE responded to FAM#12 indicating that works would be staged to prevent exceeding the current capacity of the concrete sump, and that additional pumps and equipment had been ordered to upgrade the capacity of the water treatment system. This issue (ITM ULR#54) will continue to be tracked until the upgrades are complete.
- During grout injection and canopy tube installation within the ULRHEF upstream tunnel, all seepage water was directed to the ULRHEF intake sediment basins for treatment. CE's environmental management team ensured that the active treatment system was functioning and well maintained.
- Clean seepage water surrounding the intake structure was pumped directly back to the Lillooet River and water quality met BCWQGs during all daily inspections. Water quality sampling results are available upon request.

Photos:

Photo 5 – Drilling probe holes into the grouting tunnel face prior to beginning mechanical excavation (May 10, 2016).

Photo 6 – Concrete arch foundation wall (BEBO) concrete pour (May 11, 2016).

Photo 7 – Intake structure concrete pour (May 16, 2016).

Photo 8 – Sluiceway structure concrete pour (May 12, 2016).

4.3 *Downstream Tunnel*

Construction Activities:

- Drilling, blasting, mucking and stabilization works (shotcrete application) within the tunnel (Photo 9).
- The active water treatment system functioned as intended and discharged treated water to ASTR-03 within BCWQGs throughout the reporting period with the exception of May 15 when two failures of the water treatment system power supply occurred (Photo 10; EIR#022).

Environmental Summary:

- On May 15, the active water treatment system failed twice when pumps lost power, causing the system to overflow onto the access road and transport of an unknown volume/quantity of sediment-laden water/material to ASTR-03 (Photo 10; EIR#022). Remedial actions items completed by CE included replacement of blown fuses, installation of a new and backup

generator to replace the original rental unit, and the assignment of a night watch person to provide continual monitoring of treatment system function. Due to the multiple failures that occurred in the first week of operation of the active water treatment system, the IE requested that CE update their protocols surrounding shut-off procedures for all water treatment systems onsite in the event of a future problem or should water being treated exceed BCWQGs at the outlet. The IE's request will be tracked in the ITM list as ULR#54. In addition the IEM requested that CE prepare an environmental incident report (EIR) for both events for submission to agencies once complete. The completed report is appended to this environmental monitoring report. Additional water quality sampling results are available upon request.

Photos:

Photo 9 – Conditons and the lower tunnel portal entrance (May 18, 2016).

Photo 10 – Erosion and overland flow resulting from a power failure that caused the water treatment system to overflow and contribute elevated pH and turbid water to ASTR-03. The incident was reported as EIR#22 (May 15, 2016).

4.4 *Penstock and Truckwash Creek Penstock Crossing*

Construction Activities:

- Welding, coating, and backfill of penstock east of Truckwash Creek (Photo 11).
- Stripping and grubbing in preparation for Truckwash Creek crossing excavation (Photo 12).

Environmental Summary:

- On May 12, the IEM conducted a modified AMBNS to permit the grubbing of small shrubs on the right bank of Truckwash Creek and the removal of a few hazard trees on the left bank above the large cut slope. No nests or nesting activity was observed in the area to be cleared and grubbed or within a 30m buffer of the clearing area.
- Excavation within 30m of Truckwash Creek was completed with an excavator equipped with biodegradable hydraulic oil.

Photos:

Photo 11– Welding penstock near the ASTR-03 crossing (May 14, 2016).

Photo 12 – Removing trees at the top of the cut slope above the penstock alignment on the left bank of Truckwash Creek (May 12, 2016).

4.5 *Powerhouse, Tailrace & Access Road*

- Excavation with a rock hammer of tailrace footprint (Photo 14).
- Backfill and compaction for tailrace footing.
- Rebar, formwork, and concrete works for the tailrace riverside wall (Photo 13).
- Switchyard grounding and electrical works.
- Installation and commissioning of the active water treatment system designed to treat sediment laden and elevated pH water generated during tailrace construction (Photo 15 & Photo 16).
- Manifold sandblasting, delivery and installation of hydro-mechanical equipment in the powerhouse.

Environmental Summary:

- All excavation, backfill, formwork, rebar placement, and concrete pours for the tailrace structure occurred in isolation of seepage water until the water treatment system was fully installed and tested. When water quality was affected during the excavation works, the water was pumped to the water treatment system prior to discharging to the Lillooet River. Water quality from both the clean water sump and the water treatment system was monitored by the IEM throughout the monitoring period and no water quality exceedances were recorded.

Photos:

Photo 13– Formwork and rebar installation for the riverside wall of the ULRHEF tailrace (May 8, 2016).

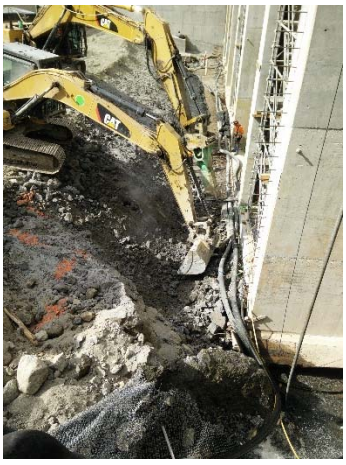

Photo 14 – Excavation and rock hammering the base of the tailrace (May 21, 2016).

Photo 15 – Installation of the water treatment system designed to treat water from the ULRHEF tailrace excavation (May 12, 2016).

Photo 16 – Discharge to the Lillooet River from the water treatment system (May 15, 2016).

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 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 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 (*). The table also presents the results of WQ sampling collected at both the ULRHEF intake and downstream tunnel portal water treatment systems.

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (*u*S)	Temp (°C)
Routine Water Quality						
May 14, 2016	16:12	ULR Background – ULRHEF Intake	7.77	18.8	48	8.6
	16:32	ULR #0.5 – Downstream of ULRHEF intake at Keyhole Bridge	7.36	21.2	52	9.2
	15:41	ULR # 1 – Upstream of ULRHEF Powerhouse	7.53	25.6	44	7.3
	15:25	ULR #2 – Downstream of ULRHEF Powerhouse between KM 40.5 and KM 41	7.59	20.5	75	7.4
	13:45	ULR #3 – Lillooet River FSR KM 38 Laydown – D/S of Boulder confluence	7.51	28.1	56	7.1
	19:30	ULR #4 – Lillooet River FSR KM 24 – D/S of all works and Meager confluence	6.94	14.4	65	6.5
May 21, 2016	10:15	ULR Background – ULRHEF Intake	10:15	7.54	19.9	-
	10:35	ULR #0.5 – Downstream of ULRHEF intake at Keyhole Bridge	7.54	19.9	-	5.9
	12:35	ULR # 1 – Upstream of ULRHEF Powerhouse	7.69	24.6	-	5.3
	13:41	ULR #2 – Downstream of ULRHEF Powerhouse between KM 40.5 and KM 41	7.8	21.7	-	7
	17:10	ULR #3 – Lillooet River FSR KM 38 Laydown – D/S of Boulder confluence	7.66	24.9	-	6
	18:45	ULR #4 – Lillooet River FSR KM 24 – D/S of all works and Meager confluence	7.79	21.4	-	9.4

4.7 *Recommendations*

IEM recommendations for the ULRHEF are as follows:

- All water from the ULRHEF upstream tunnel heading should be conveyed to the sediment basins for treatment. CE should perform regularly monitoring to ensure that the water treatment system is functioning as intended and that discharge to the Lillooet River continues to meet BCWQGs.
- CE should regularly monitor the new water treatment system installed to treat water emanating from the downstream tunnel to ensure the system is functioning as intended and that discharge into ASTR-03 continues to meet BCWQGs. The water treatment system capacity should be regularly assessed to ensure the system can handle the necessary volumes of water and to prevent discharging process water above BCWQGs offsite. An assessment of the Lillooet River Trail should be performed to determine the extent of erosion caused by water discharging offsite once the snow melts from the area.
- CE should continue to remove deposited material within the mountain goat UWR replacement area, as the snow melts. Once CE has removed as much of the deposited material as possible, and the snow is fully melted, the area should be inspected by a QP to determine what remedial actions are needed (ITM ULR#49; FAM#11).

4.8 *Upcoming Works*

The following new and/or environmentally sensitive construction activities are scheduled to occur at the ULRHEF:

- Canopy tube installation, umbrella lattice structure installation, grout injection, drilling, and blasting in class 4CT material will continue at the ULRHEF upstream tunnel portal.
- Drilling, blasting and tunnel stabilization at the ULRHEF downstream tunnel.
- Dewatering to the ULRHEF intake sediment basins and lower tunnel portal water treatment system will continue.
- Formwork, rebar and concrete pours at the tailrace, intake, and sluiceway structures will continue.
- Penstock installation crossing Truckwash Creek will continue.

5.0 Boulder Creek Hydroelectric Facility – Monitoring Results

5.1 *Access Road & Intake*

Construction Activities:

- Bulk excavation of the intake structure footprint (including blasting) occurred in isolation from Boulder Creek and above the water table throughout the reporting period (Photo 17 & Photo 20).
- CE began the installation of a water treatment system that will be used to treat any seepage water entering the intake excavation (Photo 18).
- Consolidation works including scaling, rock bolting, and mesh installation to stabilize the slopes surrounding the intake work area (Photo 19).

Environmental Summary:

- The contractors QP (Ecofish) and the IEM conducted a second helicopter flight on May 21, 2016 to assess mountain goat presence within UWR UL-12, in accordance with the Survey Protocol attached to the spring timing amendment to the General Wildlife Measures Exemption letter. Once again, mountain goats were observed during the helicopter flight within 1500m but outside of 500m from the intake work area. Accordingly, blasting is permitted to continue at the BDRHEF intake (and has been since May 1), since mountain goats were outside of the 500m zone of influence. Helicopter work is still not permitted until June 15 or until occupancy of the UL-12 is confirmed to have changed and no mountain goats are within 1500m of the helicopter flight path. Occupancy changes will be determined via subsequent helicopter assessment flight(s), which must be spaced a minimum of six days apart. Formal reporting from the contractors QP will be submitted during the following reporting period.

Photos:

Photo 17 – Excavating rock following a blast at the BDRHEF intake (May 14, 2016).

Photo 18 – Installation of the water treatment system along the edge of the BDRHEF intake access road (May 18, 2016).

Photo 19 – Rock scaling and consolidation work above the future box canal location (May 18, 2016).

Photo 20 – Bulk excavation of the intake footprint (May 17, 2016).

5.2 *Downstream Tunnel Portal and Powerhouse*

Construction Activities:

- Drilling, blasting and tunnel stabilization in the downstream tunnel portal.
- Electrical component installation in the BDRHEF powerhouse.
- Tailrace construction including rebar, formwork, and concrete was completed greater than 15m from Boulder Creek during this reporting period (Photo 21 & Photo 22).
- Switchyard electrical and grounding installation.

Environmental Summary:

- All wastewater related to the BDRHEF tunnelling works continued to be contained and conveyed to the downstream portal settling ponds for treatment. The IEM and IE recommended that CE perform maintenance on the settling ponds during an inspection on May 18, 2016.

Photos:

Photo 21 – Rebar and formwork installed at the BDRHEF powerhouse tailrace (May 17, 2016).

Photo 22 – BDRHEF tailrace concrete pour (May 18, 2016).

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 Boulder Creek 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						
May 14, 2016	14:41	BDR BG – Upstream of BDRHEF intake	7.06	7.05	43	5.1
	14:51	BDR #1 – Downstream of BDRHEF intake	7.01	8.26	46	5.1
	14:12	BDR #2 – Upstream of BDRHEF Powerhouse	7.39	14.5	35	5.7
	14:00	BDR #3 – Downstream of BDRHEF Powerhouse at Pebble Creek Bridge	7.65	10.6	48	6.3
May 21, 2016	13:15	BDR BG – Upstream of BDRHEF intake	7.97	6.70	-	7.0
	13:20	BDR #1 – Downstream of BDRHEF intake	7.84	7.97	-	7.0

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (uS)	Temp (°C)
Routine Water Quality						
	16:45	BDR #2 – Upstream of BDRHEF Powerhouse	7.86	7.28	-	8.3
	17:00	BDR #3 – Downstream of BDRHEF Powerhouse at Pebble Creek Bridge	7.82	7.45	-	8.1

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 coming weeks:

- BDRHEF downstream portal tunnelling, switchyard subgrade and tailrace construction.
- Electrical component installation will continue at the BDRHEF powerhouse.
- Installation of the active water treatment system designed to treat water from the base of the intake structure excavation will continue.
- Slope protection measures will continue to be installed at the intake work area. Scaling, rock bolting, and mesh installation will occur between the upper and lower cofferdams.
- Excavation of the intake footprint will continue until the water table is reached, which will require that the water is treated by the active water treatment system currently being installed.

6.0 Transmission Line – Monitoring Results

6.1 *Transmission Line Construction Activities*

Construction Activities:

- Segment 15
  - Pole foundation preparation and excavation (including blasting) throughout Segment 15 except for structure 376, which is within sensitive grizzly bear forage habitat. Some bucking of previously felled trees was also performed surrounding structure locations when conditions required. (Photo 23 & Photo 24).
- Segment 11
  - Pole foundation and ground clearing from structures 267 - 262.
  - Slashing small brush surrounding structure 270.
  - Installation of the 272a Bridge began following a precautionary CTF salvage (Photo 25). Works required a one-time crossing of the watercourse that was performed under IEM supervision (Photo 26). Environmentally sensitive works completed during this reporting period included, approach and footing preparation, and riprap armouring.
- Segment 10
  - Repairs to the Vans Creek waterline were performed after it was accidently damaged during road reactivation works.

Environmental Summary:

- The IEM continued to perform mountain goat monitoring from the station on the Rutherford Creek FSR to monitor the UWRs during active construction and helicopter work in Segment 15 (Photo 23 & Photo 24). The monitoring was performed to ensure that no mountain goats moved into the area. No mountain goats were observed by the IEM on either UWRs during this reporting period.
- A precautionary salvage was completed by the contractors QP (Ecofish) prior to performing a one-time crossing of the watercourse and beginning construction on the approaches and bridge footings (Photo 25 & Photo 26).
- Instream works associated with the bridge installation was limited to a one-time wetted crossing of the watercourse to permit the construction of the woodside approach, footing, and placement of riprap armouring up to the wetted perimeter. Water quality sampling was performed during these works and two brief turbidity pulses were generated. The first pulse was generated when a bit of the bank collapsed under the excavator track during the crossing. The maximum turbidity generated was 1905 AU but it attenuated quickly and water quality returned to 8.62 NTU within 15 minutes. The second pulse occurred during riprap placement used to shore this section of the bank. A brief pulse with a maximum turbidity of 13.9 NTU was generated and returned to 5.80 NTU within five minutes.

Photos:

Photo 23 – Overview of UWRs SO-4 and SO-08 from the monitoring station (Segment 15; May 14, 2016).

Photo 24 – Worker observed thru the spotting scope and within 500m of UWR (Segment 15; May 13, 2016).

Photo 25 – Precautionary CTF salvage in stream 272a prior to performing a one-time crossing with an excavator equipped with bio-oil (Segment 11; May 10, 2016).

Photo 26 – Excavator performing one-time crossing of stream 272a (Segment 11; May 10, 2016).

6.2 *Recommendations*

IEM recommendations for the TX Line are as follows:

- With the return to site for the construction season, WEL and their sub-contractors are reminded of the need to appropriately manage wildlife attractants while onsite and to report all wildlife sightings.

6.3 *Upcoming Works*

The following new and/or environmentally sensitive construction activities are scheduled to occur along the TX Line in the coming weeks:

- Pole foundation construction within 500m of UWR in Segment 15.

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:

- As of May 1, CE successfully implemented the daily sunrise/sunset equipment shutdown periods within the Truckwash Creek mountain goat migration corridor as outlined in the Mountain Goat Management Plan. CE staff are assigned the responsibility for stopping Project related traffic at each end of the migration corridor during the shutdown periods, to prevent any accidental travel through the migration corridor.
- The BDRHEF intake access road was gated and manned by CE staff to restrict motorized public access to the UWR (UL-12). The gate will continue to be manned by CE until June 15, 2016.
- Noise level monitoring data continued to be collected at three monitoring locations (upper and lower Truckwash Creek and at Keyhole Falls) 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. Construction related noise at the BDRHEF intake was also monitored beginning on May 3, but ended on May 6 following communications between MFLNRO and INX concerning the requirements for ongoing mountain goat acoustic threshold monitoring given conflicts with other industrial users operating helicopters in the vicinity of the BDRHEF intake. The requirement to monitor construction related noise at the BDRHEF intake was rescinded by MFLNRO on May 6, due to conflicts with nearby heli-logging activities.
- 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) is/are observed moving towards the ULRHEF intake and/or if a goat(s) is/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.
- A pre-work helicopter flight was conducted on May 2, 2016 to assess mountain goat presence in UWRs SO-08 and SO-04 adjacent to the Segment 15 ROW. Both UWRs were unoccupied during the assessment. To mitigate potential impacts to any mountain goats moving into the UWRs or that were potentially missed during the pre-work assessment, the IEM monitored the UWRs via spotting scope from a monitoring station on the Rutherford Creek FSR. Monitoring occurred during active construction and helicopter work in Segment 15 to ensure no mountain goats were present within the UWRs. The helicopter pilots were reminded that no landing is permitted within 500m of mountain goats and that the observation of a mountain goat on the UWRs would trigger a halt in works and immediate IEM notification. No Mountain Goats were observed by the IEM from the monitoring station or during the helicopter flights on either UWRs during this reporting period.

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
ULR#50	*CLOSED*	*ASTR04 Woodbox Culvert at penstock access road crossing*	*A failure of the outside edge of the road has occurred and the whole woodbox structure appears to be compromised. Water is now ponding on the upstream side of the crossing.*	*Assess the culvert and develop a plan to replace the woodbox culvert with an appropriately sized crossing structure. Reminder that appropriate CTF isolation and salvage will be required.*	*April 7, 2016*	*April 21, 2016*	*May 20, 2016*
ULR#51	*OPEN*	*Woodbox Culvert at KM41.2 if the Lillooet River FSR*	*The watercourse over topped the woodbox culvert requiring emergency works to install an additional culvert next to the woodbox to handle the additional flow. The woodbox culvert may have been compromised by the additional flows and the temporary culvert installed as an emergency measure may need to be extended.*	*1. Assess the woodbox culvert and develop a plan to replace it with QP designed crossing structure during the instream work window or according to the recommendations of a QP if it has been compromised. Update April 18 – CE indicated that they will be reviewing the permanent drainage plan in this area and will distribute the plan to the IE, IEM, and INX for approval once the permanent drainage and crossing structure designs are finalized.*	*April 8, 2016*	*April 22, 2016*	-

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#54	*OPEN*	*ULRHEF intake concrete sump pumping capacity & pumping shutdown*	*The IEM issued FAM#12 as untreated water that did not meet BCWQGs was discharged directly to the Lillooet River to prevent overtopping of the concrete sump.*	*1. Upgrade the pumping capacity in the concrete sump to ensure all water from the BEBO wall excavation, intake and upstream tunnel can be directed to the treatment ponds simultaneously when water quality conditions require. Update May 20 – CE has ordered pumps and will upgrade the pumping capacity once the material arrive.*	*May 17, 2016*	*May 24, 2016*	
				2. Stage work activities at the intake, sluiceway, tunnel and BEBO wall to ensure that all water not meeting BCWQGs can be pumped to the treatment ponds through the concrete sump. This may require that some work activities remain on hold until the pumping capacity of the system is increased. Update May 20 – CE confirmed that works will be staged to prevent exceeding the existing pumping capacity.			*May 20, 2016*
ULR#55	*OPEN*	*Water treatment facilities at the ULRHEF intake, downstream tunnel, powerhouse and BDRHEF intake*	*In response to FAM#12 and EIRs #20, #21, & #22 , on May 19 the IE requested updates to all work plans involving water treatment system*	*Provide a step-by-step work plan outlining:* *1. Contact information for personnel to be reached if a problem with each of the systems is observed.* *2. The step-by-step procedure for stopping water feeding the treatment systems, or other measures to be implemented if the systems overflow or if water quality discharging from the system does not meet the intent of the Surface Water Quality Protection Plan.* *3. A step-by-step procedure should be outlined for all active onsite treatment systems (ULRHEF intake, downstream tunnel, powerhouse, and BDRHEF intake. The contact information and shut-off procedures should be posted as a reference near all of the treatment systems.*	*May 19, 2016*	*May 26, 2016*	
No outstanding environmental issues (next ITM – BDR#28 & ULR#56)							

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
No outstanding environmental issues (next ITM – Tx#3)							

FIELD ADVICE MEMO (FAM)

Project:	Upper Lillooet Hydro Project	**FAM Number:** *(yyyy-mm-dd_FAM##)*	2016-05-17_FAM#12
FAM Author:	Tom Hicks, Lead Monitor Sartori Environmental Services	**Date of FAM Issuance:**	May 17, 2016
Distribution List: *(Name - Company)*	To: Jean Pellitier, Ian McKeachie, Lianne Leblond, Matt Fallaise - CRT-ebc CC: Julia Mancinelli - Innergex, Stephen Sims - Sartori Environmental Services		
Environmental Incident Reports (EIR): *(If applicable)*	This FAM is not associated with an environmental incident; however, the IEM considers that there is a high likelihood of a repeat occurrence of this event which is considered medium to high impact to fish (high pH water discharged to the Lillooet River without prior treatment). This would trigger notification to MFLNRO within 24 hours and an EIR.		

Identified Environmental Issue(s):

This FAM has been prepared to outline water management concerns with respect to the concrete sump at the ULRHEF Intake and Upstream Tunnel Portal.

The pumps in the concrete sump no longer have the capacity to handle the volume of water entering the system, which causes the sump to fill up and overflow if water is not re-directed to the Lillooet River. The current sump and dewatering system takes seepage water connected with the excavation for the concrete wall for the arc structure that connects the intake structure to the tunnel portal (BEBO) and from the ULRHEF intake excavation seepage; but overflows when water from the ULRHEF tunnel portal ditch is added.

The issue first arose on May 2, 2016 during a concrete pour for the BEBO wall foundations and re-occurred recently on May 14, 2016. In both instances untreated water exceeding BCWQGs was discharged directly to the Lillooet River. As the pumps in the concrete sump no longer have the capacity to keep up with the water volumes from all work areas, untreated water with elevated pH and high turbidity was sent directly to the Lillooet River to avoid overflowing the sump. Flooding of the sump may cause the ULRHEF intake laydown area to flood/erode or may erode the slope on the river side of the sump and cause it to fail.

CE has communicated that they are aware of the issue and working on a mitigation plan.

Requested Outcome(s)

The IEM requests that CE provide an updated plan to deal with this concern to prevent the discharge of untreated water from the work area directly to the Lillooet River. The IEM recommends that either the pumping capacity from the concrete sump to the settling ponds is increased, or that works are staged to prevent degrading water quality in all ULRHEF intake and tunnel work areas simultaneously.

The IEM requires that no untreated water be temporarily directed to the Lillooet River. A third event of this nature will require notification to MFLNRO within 24hrs and will be treated as an environmental incident.

Environmental Incident Reporting Form

General Information

Project Name: Upper Lillooet Hydro Project	**Project Component**: ULRHEF penstock crossing at ASTR-03
Time/Date of Incident Start: 2016-05-04, around 10:00 PM	**Time/Date Incident Stopped**: 2016-05-05 around 12:05 AM
Date of Report: 2016-05-05	**Project Incident Report Number**: 2015-11-25 CE-EIR-020
Report Prepared By: Jean M. Pelletier	
Contractors Environmental Manager: Jean M. Pelletier	
Independent Environmental Monitor: Tom Hicks	
Licensee's Environmental Coordinator: Julia Mancinelli	

Contact Information for Company Involved in Incident

Company: CRT-ebc, s. e. n. c.	**Address**: PO Box 585, Pemberton BC – V0N 2L0
Phone #: 604-*894-5002	**Email**: jdrapeau@crtconstruction.ca
Contact Person: Jonathan Drapeau	**Position**: Ass. Project Manager

Incident Type *(check all that apply)*

Encroachment of an Environmentally Sensitive Area (*e.g.* Riparian/Wildlife Buffer) **Please provide details in "Description" section below.**	☐	**Adverse Impacts to Fish/Wildlife** **(*e.g.* Mortality/Injury)** **Please provide details in "Description" section below.**	☐
Water Quality/Quantity **Please provide details in "Description" section below.**	☑	**Hazardous Material Spills (to ground or water)** **Please provide details in description section in regards to:** • Perceives extent of damage • Type, quantity and area of the spill • Containment Procedures • Environmental features in close proximity to the spill	☐
Disturbance of known or unknown archeological /heritage site **Please provide details in "Description" section below.**	☐	**Air Quality** **Please provide details in "Description" section below.**	☐
Spill reported to external agencies **If yes, describe the receiving environment and substance/quantity spilled.**	☐	**Other** **Please provide details in "Description" section below.**	☑

Incident Profile

Weather at time of incident	 ☑ Clear	 ☐ Partly Cloudy/ Variable	 ☐ Cloudy	 ☐ Showers/ Periods of Rain	 ☐ Rain	 ☐ Heavy Rain *(>25mm in 24hr)*	 ☐ Storm *(Heavy rain and high winds)*	 ☐ Snow

Specific Location: On the penstock, near Astr-03

Description and Cause of Incident:

Description: A large rock was initially used to anchor the discharge hose in the riprap. After multiple pumping cycles the anchoring rock was dislodged and the hose pulled out of the riprap and redirected to the road and penstock fill. Discharging water eroded the penstock fill and conveyed large quantities of sediment to ASTR03. A large volume of sediment was directly conveyed to Astr-03 and washed down stream. It is unknown if turbid water was discharged to the Lillooet.

The incident was identified by the Stormtec technician who immediately called for assistance. This was around 10:00 PM. Joshua Zandbergen, from Innergex, heard the call and went on site. He asked our CSO Angel Orejas to get someone from the environment team on site asap. Jean M. Pelletier, Sr Env. Manager was on site at 10:45 PM. The night foreman assisted by 2 labors managed to re anchor the hose. J. Pelletier and J. Zandbergen watched the pump being turned on again and the situation was resolved. It was about midnight. Alex, from Stormtec, confirmed that the water being discharged was very clean, turbidity reading at 1.4 NTU

Cause: The root cause of the incident was that the discharge hose was not properly anchored.

Incident Witness: J. Zanbergen, A. Orejas, J. M. Pelletier

Were there any Potential Environmental impacts as a result of the incident? (e.g., surface contamination, storm sewers, or fish/wildlife mortalities)	**Yes** ☑	**None Observed** ☐

If Yes, please describe: An unknown volume of sediment and turbid water was inadvertently discharged to the ASTR-03 watercourse. ASTR-03 is non-fish bearing/non-coastal tailed frog (CTF) bearing but has a downstream connection to fish habitat.

Has Wildlife Salvage Protocol been followed?	**Yes** ☐	**No** ☐	**N/A** ☑

If No, please explain:

Water Quality Samples Collected?	**Yes** ☐	**No** ☑	**N/A** ☑

If yes, attach results of water quality analysis to report in table format. Include Laboratory analysis if completed.
If No please explain:

Have applicable photos and/or drawings been attached to the incident report?	**Yes** ☑	**No** ☐	**N/A** ☐

Incident Response Measures

1. Response by CRT-EBC was rapid: workers and supervisor were on site within 45 minutes
2. This rapid response helped mitigate further damage.

Actions to Prevent Incident Recurrence

1. The hose has been temporarily anchored to rock and was tested to ensure it will not dislodge again.
2. On Friday, during day time, the outlet of the water treatment system was relocated and is now released in an existing culvert, just above current location. This new setup will allow a better dissipation of energy, and the water will fall in a riprap location designed for this purpose.

Notification Record

Agency Reported to	Contact Information	Agency Contacted		Date and Time Reported	Reported By	Method of Reporting
		Yes	No			
External						
Authority	Justin Carlson, BCEAO	☐	☐			
	James Davies, MFLNRO	☐	☐			
Lil'wat Nation	Harriet VanWart					
PEP	1-800-663-3456	☐	☐			
MOE Staff		☐	☐			
DFO		☐	☐			
Environment Canada	604-666-6100	☐	☐			
Canadian Coast Guard	604-666-6011	☐	☐			
Local Fire Rescue	911	☐	☐			
Internal						
EC	Julia Mancinelli	☑	☐	May 5th 2016	J M. Pelletier	Phone call and Email
IEM	Tom Hicks	☑	☐	May 5th 2016	J. M. Pelletier	Phone call and Email
		☐	☐			
		☐	☐			
		☐	☐			
		☐	☐			

Independent Environmental Monitor:

Print Name	Position and Company	Signature	Date
Tom Hicks	Lead Monitor - SES		2016-05-05

Contractor's Manager:

Print Name	Position and Company	Signature	Date
Jonathan Drapeau	Project Manager – CRT-ebc		2016-05-05

1. Water spraying on the night of the incident

2. Water spraying on the night of the incident

3. Extend of the erosion as seen daytime the next day.

4. Another view of the erosion on site.

Environmental Incident Reporting Form

General Information

Project Name: Upper Lillooet Hydro Project	**Project Component**: ULRHEF penstock crossing at ASTR-03
Time/Date of Incident Start: 2016-05-06, around 9:20 PM	**Time/Date Incident Stopped**: 2016-05-06 around 10:30 PM
Date of Report: 2016-05-08	**Project Incident Report Number**: 2016-05-06CE-EIR-021
Report Prepared By: Jean M. Pelletier	
Contractors Environmental Manager: Jean M. Pelletier	
Independent Environmental Monitor: Tom Hicks	
Licensee's Environmental Coordinator: Julia Mancinelli	

Contact Information for Company Involved in Incident

Company: CRT-ebc, s. e. n. c.	**Address**: PO Box 585, Pemberton BC – V0N 2L0
Phone #: 604-894-5002	**Email**: jdrapeau@crtconstruction.ca
Contact Person: Jonathan Drapeau	**Position**: Ass. Project Manager

Incident Type *(check all that apply)*

Encroachment of an Environmentally Sensitive Area (*e.g.* Riparian/Wildlife Buffer) **Please provide details in "Description" section below.**	☐	**Adverse Impacts to Fish/Wildlife** **(*e.g.* Mortality/Injury)** **Please provide details in "Description" section below.**	☐
Water Quality/Quantity **Please provide details in "Description" section below.**	☑	**Hazardous Material Spills (to ground or water)** **Please provide details in description section in regards to:** • Perceives extent of damage • Type, quantity and area of the spill • Containment Procedures • Environmental features in close proximity to the spill	☐
Disturbance of known or unknown archeological /heritage site **Please provide details in "Description" section below.**	☐	**Air Quality** **Please provide details in "Description" section below.**	☐
Spill reported to external agencies **If yes, describe the receiving environment and substance/quantity spilled.**	☐	**Other** **Please provide details in "Description" section below.**	☑

Incident Profile

Weather at time of incident	 ☑ Clear	 ☐ Partly Cloudy/ Variable	 ☐ Cloudy	 ☐ Showers/ Periods of Rain	 ☐ Rain	 ☐ Heavy Rain *(>25mm in 24hr)*	 ☐ Storm *(Heavy rain and high winds)*	 ☐ Snow

Specific Location: On the penstock, near Astr-03

Description and Cause of Incident:

Description: Around 9:20 PM on the night of May 6th, one of our workers noted that water was overflowing from the Stormtec Water Treatment System (SWTS) near 42.5 km. The generator for the WTS had stopped. He immediately called for a mechanic and an electrician. The generator was started again and the situation was resolved within the hour.

Cause: The root cause of the incident was that the generator stopped working. However, we do not know why the generator stopped working. A service call has been made to the manufacturer.

Incident Witness: A. Orejas.

Were there any Potential Environmental impacts as a result of the incident? (e.g., surface contamination, storm sewers, or fish/wildlife mortalities)	**Yes** ☑	**None Observed** ☐

If Yes, please describe: An unknown volume of sediment, turbid water and potentially high pH water was inadvertently discharged to the ASTR-03 watercourse. ASTR-03 is non-fish bearing/non-coastal tailed frog (CTF) bearing but has a downstream connection to fish habitat.

Has Wildlife Salvage Protocol been followed?	**Yes** ☐	**No** ☐	**N/A** ☑

If No, please explain:

Water Quality Samples Collected?	**Yes** ☐	**No** ☑	**N/A** ☐

If yes, attach results of water quality analysis to report in table format. Include Laboratory analysis if completed.
If No please explain:

Have applicable photos and/or drawings been attached to the incident report?	**Yes** ☑	**No** ☐	**N/A** ☐

Incident Response Measures

1. CRT-EBC responded rapidly to assess and repair the generator. Once the water quality issue was identified, the situation was resolved within the hour
2. This rapid response helped mitigate further damage to the road surface and prevent additional turbid/high pH water inputs to watercourse ASTR-03.

Actions to Prevent Incident Recurrence

1. The generator is now closely watched.
2. Actually, 2 solutions are been analysed: The first solution is to connect the WTS to BC Hydro grid with a generator back up in case of power outage. The second solution is to connect the WTS to a new generator with a second generator ready to start if the first one fails. Both solutions require transformers. The transformers should be delivered shortly. The set-up will be done as soon as we get the generator.

Notification Record

Agency Reported to	Contact Information	Agency Contacted		Date Reported	Reported By	Method of Reporting
		Yes	No			
External						
MFLNRO	James Davies	☑	☐	May 10, 2016	Julia Mancinelli	Email
BCEAO	Justin Carlson	☑	☐	May 10, 2016	Julia Mancinelli	Email
Lil'wat Nation	Harriet VanWart	☑	☐	May 10, 2016	Julia Mancinelli	Email
PEP	1-800-663-3456	☐	☑			
DFO	Herb Klassen	☑	☐	May 10, 2016	Julia Mancinelli	Email
Environment Canada	604-666-6100	☐	☑			
Canadian Coast Guard	604-666-6011	☐	☑			
Local Fire Rescue	911	☐	☑			
Internal						
EC	Julia Mancinelli	☑	☐	May 7th 2016	J M. Pelletier	Phone call and Email
IEM	Tom Hicks	☑	☐	May 7th 2016	J. M. Pelletier	Phone call and Email

Independent Environmental Monitor:

Print Name	Position and Company	Signature	Date
Tom Hicks	Lead Monitor - SES	*Tom Hicks*	2016-05-10

Contractor's Manager:

Print Name	Position and Company	Signature	Date
Jonathan Drapeau	Project Manager – CRT-ebc		2016-05-10

1. Flooded area near the sand filters

2. Water treatment tank overflowing

3. Water flowing down Truckwash access road

4. The generator at fault

Environmental Incident Reporting Form

General Information

Project Name: Upper Lillooet Hydro Project	**Project Component**: ULRHEF penstock crossing at ASTR-03
Time/Date of Incident Start: **Incident # 1** 2016-05-15, around 10:30 PM **Incident # 2** 2016-05-16, around 11:30 PM	**Time/Date Incident Stopped**: **Incident # 1** 2016-05-15 around 11:30 PM **Incident # 2** 2016-06-16, around 11:50 PM
Date of Report: 2016-05-17	**Project Incident Report Number**: 2016-05-15 CE-EIR-022
Report Prepared By: Jean M. Pelletier	
Contractors Environmental Manager: Jean M. Pelletier	
Independent Environmental Monitor: Tom Hicks	
Licensee's Environmental Coordinator: Julia Mancinelli	

Contact Information for Company Involved in Incident

Company: CRT-ebc, s. e. n. c.	**Address**: PO Box 585, Pemberton BC – V0N 2L0
Phone #: 604-894-5002	**Email**: serge.moalli@ebcinc.com
Contact Person: Serge Moalli	**Position**: Project Director

Incident Type *(check all that apply)*

Encroachment of an Environmentally Sensitive Area (*e.g.* Riparian/Wildlife Buffer) **Please provide details in "Description" section below.**	☐	**Adverse Impacts to Fish/Wildlife** **(*e.g.* Mortality/Injury)** **Please provide details in "Description" section below.**	☐
Water Quality/Quantity **Please provide details in "Description" section below.**	☑	**Hazardous Material Spills (to ground or water)** **Please provide details in description section in regards to:** • Perceives extent of damage • Type, quantity and area of the spill • Containment Procedures • Environmental features in close proximity to the spill	☐
Disturbance of known or unknown archeological /heritage site **Please provide details in "Description" section below.**	☐	**Air Quality** **Please provide details in "Description" section below.**	☐
Spill reported to external agencies **If yes, describe the receiving environment and substance/quantity spilled.**	☐	**Other** **Please provide details in "Description" section below.**	☐

Incident Profile

Weather at time of incident	 Clear	 Partly Cloudy/ Variable	 Cloudy	 Showers/ Periods of Rain	 Rain	 Heavy Rain *(>25mm in 24hr)*	 Storm *(Heavy rain and high winds)*	 Snow
	☑	☐	☐	☐	☐	☐	☐	☐

Specific Location: ULRHEF penstock, near Astr-03

Description and Cause of Incident:

Incident # 1

Description: On the evening of May 15th, while doing a general site inspection, a worker found the Water Treatment System (WTS) overflowing on Truckwash access road. The generator was not running. Some of the water was overflowing into the slope leading toward ASTR-03. Sediment laden water is expected to have entered the stream. At the time of the incident, pH was not measured (there was no shotcrete being done at the time of both incidents). The worker called for electrician and mechanic. The generator restarted: the pumps started again and the WTS resumed operation. The night superintendent then assigned a worker to watch over the generator for the remainder of the night shift.

Cause: The root cause of the incident was that the generator stopped working. This is the second generator installed for this WTS. It was decided to install a new generator during day time. It was done on May 16th.

Incident # 2

Description: Early evening of May 16th, the latest installed generator stopped because of a lack of fuel. The day time refuelling operation was not completed for still unknown reason and it ran out of fuel before the night refuelling operation got underway. Water overflowed, but this time it followed a ditch line and did not run off toward the stream.

Cause: Lack of fuel.

Incident Witness:

Incident # 1 Claude Côté(EBC), Mario Chartrand
Incident # 2 Claude Côté

Were there any Potential Environmental impacts as a result of the incident? (e.g., surface contamination, storm sewers, or fish/wildlife mortalities) **For incident # 1 only**	**Yes**	**None Observed**
	☑	☐

If Yes, please describe: An unknown volume of sediment, turbid water and potentially high pH water was inadvertently discharged to the ASTR-03 watercourse. ASTR-03 is non-fish bearing/non-coastal tailed frog (CTF) bearing but has a downstream connection to fish habitat.

Has Wildlife Salvage Protocol been followed?	**Yes**	**No**	**N/A**
	☐	☐	☑

If No, please explain:

Water Quality Samples Collected?	**Yes**	**No**	**N/A**
	☐	☑	☐

If yes, attach results of water quality analysis to report in table format. Include Laboratory analysis if completed. If No please explain:			
Have applicable photos and/or drawings been attached to the incident report?	**Yes** ☐	**No** ☑	**N/A** ☐

Incident Response Measures

For incident # 1

1. CRT-EBC responded rapidly to assess and repair the generator.
2. As an additional measure to make sure it would keep running, CRT-EBC assigned a watchman to the generator until a new one was set-up the next day
3. CRT-Ebc dug a small ditch around the tank that overflows if the generator fails to direct water away from the stream and into a ditch along the access road.
4. This measure helped mitigate further damage to the road surface and prevent additional turbid/high pH water inputs to watercourse ASTR-03 during the second incident.

For incident # 2

1. Overflow was directed toward the ditch and erosion was mitigated.

Actions to Prevent Incident Recurrence

1. The current generator is linked to a backup generator: if the first one fails, the second one starts over and the WTS keeps operating

Notification Record

Agency Reported to	Contact Information	Agency Contacted Yes	Agency Contacted No	Date Reported	Reported By	Method of Reporting
External						
MFLNRO	James Davies	☑	☐	May 17, 2016	Julia Mancinelli	Email
BCEAO	Justin Carlson	☑	☐	May 17, 2016	Julia Mancinelli	Email
Lil'wat Nation	Harriet VanWart	☑	☐	May 17, 2016	Julia Mancinelli	Email
PEP	1-800-663-3456	☐	☑			
DFO	Herb Klassen	☑	☐	May 17, 2016	Julia Mancinelli	Email
Environment Canada	604-666-6100	☐	☑			
Canadian Coast Guard	604-666-6011	☐	☑			
Local Fire Rescue	911	☐	☑			
Internal						
EC	Julia Mancinelli	☑	☐	May 16th 2016	J M. Pelletier	Email
IEM	Tom Hicks	☑	☐	May 16th 2016	J. M. Pelletier	Email

Independent Environmental Monitor:

Print Name	Position and Company	Signature	Date
Tom Hicks	Lead Monitor - SES	*Tom Hicks*	2016-05-17

Contractor's Manager:

Print Name	Position and Company	Signature	Date
Serge Moalli	Project Director – CRT-ebc		2016-05-17