


Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #53

Reporting Period: March 1 – March 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

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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 Amendments 1, 2, 3, 4, 5) No. L49717
Occupant Licence to Cut (BDRHEF – KM 38 laydown) No. L49698
Occupant Licence to Cut (BDRHEF Amendments 1, 2, 3) No. L49816
Occupant Licence to Cut (TX Line Amendment 1, 2, 3, 4, 5, 6, 7, 8) No. L49697
General Wildlife Measure Exemption Approval Letter (TX Line & BDRHEF) File No. 78700-35/06 UWR and 39585-20 WHA
Heritage Conservation Act – Alteration Permit (ULRHEF) File No. 11200-03/2014-0033
Road Use Permit No. 6123-13-02 (Lillooet River FSR); 5673-13-01 (Rutherford Creek FSR); 7977-13-01 (Lillooet South FSR); 8015-13-01 (Ryan River); 8188-13-01 (Pemberton Creek FSR); and 9717-13-01 (Miller Bench FSR)
Junction Permit (ULRHEF & BDRHEF) File No. 11250-32/6123 (Amendment 1)
Aeronautical Obstruction Approval (Tx Line - Lillooet River Crossing) File No. 2013-004
Aeronautical Obstruction Approval (Tx Line - Ryan River) File No. 2013-005
Aeronautical Obstruction Approval (Tx Line - North Miller) File No. 2013-006
Aeronautical Obstruction Approval (Tx Line - South Miller) File No. 2013-007
Aeronautical Obstruction Approval (Tx Line - Pemberton Creek) File No. 2013-008
Aeronautical Obstruction Approval (Tx Line - Lillooet River near Pemberton) File No. 2013-009
Aeronautical Obstruction Approval (Tx Line - Lillooet River near Meager Creek) File No. 2013-010
Navigable Water Protection Act (ULRHEF) File No. 8200-2009-500434-001
Navigable Water Protection Act (BDRHEF) File No. 8200-2012-501-032-001
Navigable Water Protection Act (Tx Line – North Creek) File No. 8200-2013-500103-001
Navigable Water Protection Act (Tx Line – Lillooet River) File No. 8200-2013-500101-001
Navigable Water Protection Act (Tx Line – Lillooet River) File No. 8200-2013-500102-01
Navigable Water Protection Act (Tx Line – Ryan River) File No. 8200-2013-500104-001
Navigable Water Protection Act (Tx Line – South Miller River) File No. 8200-2013-500100-001
Navigable Water Protection Act (Tx Line – Boulder Creek) File No. 8200-2013-500099-001
Navigable Water Protection Act – Extension Approval (ULRHEF, BDRHEF, Tx Line)
Navigable Water Protection Act (Bridge – Ryan River) File No. 8200-2013-500381
Navigable Water Protection Act (Bridge – Upper Lillooet Side Channel; Extension Approval) File No. 8200-2013-500383
Section 57 Authorization (ULRHEF) File No. 16660-20/REC202717
SLRD Temporary Use Permit No. 34 – Boulder Creek HEF
SLRD Temporary Use Permit No. 35 – Upper Lillooet River HEF
Works Permit for Construction within FSR Right-of-Way No. 6123-14-01
Section 52(1)(b) FRPA Authorization for Ryan River Wet Crossing File No. FOR-19400-01/2014
MOTI Permit to Construct, Use and Maintain Works Upon the Right-Of-Way of a Provincial Public Highway No. 2014-06099

Contractor Construction Permits and Approvals

Magazine Licence File No. UL76018

*Section 8 Approval – Short Term Use of Water File (Lillooet River and Tributaries) No. A2006123 (Amendment 1)
Waste Discharge under the Code of Practice for the Concrete and Concrete Products Industry under the Environmental
Management Act (Authorization No. 107204) Tracking No. 326969*

Wildlife Act Permits – Pacific Tailed Frog Salvage Permit # SU14-95304 & SU13-90538, Fish Salvage Permit #SU14-95329

Section 52 of the Fisheries (General) Regulations – Fish Salvage Licence # XR 139 2014

BC Safety Authority – Temporary Construction Electrical Service Permit EL-140698-2014

Municipal Wastewater Regulation - Authorization # 107032

Water Supply System Construction Permits – VCH-14-613 for Main Camp

Water Supply System Permit to Operate Issued July 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

ACRONYMS:

AMBNS	Active Migratory Bird Nesting Survey	ISW	Instream Works
ASMP	Archaeological Sites Management Plan	ITM	Environmental Issue Tracking Matrix
ARD M/L	Acid Rock Drainage and Metal Leaching	JEM	JEM Energy Ltd. (Delegate Independent Engineer)
BCEAO	British Columbia Environmental Assessment Office	LTC	Leave to Construct
BCWQG	British Columbia Water Quality Guidelines	MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
BDRHEF	Boulder Creek Hydroelectric Facility	MOE	Ministry of Environment
BG	Background	MOTI	Ministry of Transportation and Infrastructure
BKL	BKL Consultants Ltd.	NCD	Non Classified Drainage
CE	CRT-ebc Construction Inc.	OLTC	Occupational License to Cut
DFO	Fisheries and Oceans Canada	PAG	Potentially Acid Generating
DS	Downstream	RoW	Right of Way
EAC	Environmental Assessment Certificate	RVMA	Riparian Vegetation Management Area
EAO	Environmental Assessment Office	SES	Sartori Environmental Services
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.
GWR	Mountain Goat Winter Range	WEMR	Weekly Environmental Monitoring Report
Hedberg	Hedberg and Associates Ltd.	WHA	Wildlife Habitat Area
IE	Independent Engineer (True North Energy)	WQ	Water Quality
IEM	Independent Environmental Monitor		
INX	Innergex Renewable Energy Inc.		

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:

Dates	IEM Team Personnel	Weather Conditions	Key Monitoring Locations & Activities
March 1 – March 7	BA, TH	Mild and sunny conditions without any major rain events	<p>ULRHEF & BDRHEF Winter Operations</p> <ul style="list-style-type: none"> • Routine equipment maintenance and repairs completed at the 38km laydown shop location • Snow management at camp facilities and within the 38km Laydown (e.g., maintaining electric fence and gates, clearing roof tops, driving surfaces and access paths) <p>TX Line</p> <ul style="list-style-type: none"> • Segment 6 and 7 <ul style="list-style-type: none"> ➢ Snow removal was completed on the Lillooet South FSR to provide access for the TX Line Lillooet River crossing works ➢ IEM was onsite to monitor snow conditions on the Lillooet South FSR and attend kickoff meeting on March 6 • Segment 8 <ul style="list-style-type: none"> ➢ Road 197.2 upgrades began on March 3 ➢ The IEM was onsite to monitor five culvert installations on road 197.2 at 1+335, 1+400, 1+890 and 1+911 (two culverts at same location) • Segment 12 <ul style="list-style-type: none"> ➢ Miller Bench FSR temporary watercourse crossing and road upgrades continued. The IEM was onsite to monitor crossing works at MB59 (completed March 3), MB58 (completed March 4) and MB53 (completed March 6)
March 8 – March 14	BA, TH	Cloudy and overcast conditions without any major rain events	<p>ULRHEF & BDRHEF Winter Operations</p> <ul style="list-style-type: none"> • Routine equipment maintenance and repairs completed at the 38km laydown shop location • Snow management at camp facilities and within the 38km Laydown (e.g., maintaining electric fence and gates, clearing roof tops, driving surfaces and access paths) <p>TX Line</p> <ul style="list-style-type: none"> • Lillooet River TX Line Crossing <ul style="list-style-type: none"> ➢ Pole installation and conductor stringing from poles 136 – 141 were completed from March 8 – 13 according to conditions outlined in EAC amendment #6 • Segment 8 <ul style="list-style-type: none"> ➢ Road 197.2 road upgrades continued. The IEM was onsite to monitor a culvert installation at 2+700 on March 10 • Segment 12 <ul style="list-style-type: none"> ➢ Miller Bench FSR road upgrades continued. The IEM was onsite to monitor a culvert installation at MB48 on March 13

IEM Team Personnel: TH – Tom Hicks, BA – Blake Aleksich

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.
March 4, 2015	<i>Email</i>	INX, SES, JEM, WEL, Ecofish	INX distributed EAC amendment #6 issued by the EAO, to complete construction activities associated with the Lillooet River TX Line crossing.	-
March 6, 2015	<i>Pre-work meeting</i>	SES, Mumleqs, WEL	Reviewed the snow removal work plan for the Lillooet South FSR prior to commencement of snow clearing activities. Environmental mitigations associated with snow plowing within the Moose Winter Range Forage Management Zone and working near watercourses and wetlands were reviewed. As the FSR was passible to four-wheel drive vehicles prior to snow plowing the FSR will not be blocked to prevent public access as required by EAC amendment #6.	-
March 8, 2015	<i>Pre-work meeting</i>	SES, WEL, Blackcomb Aviation	A tail-board meeting was held to discuss the work plan and review the environmental constraints outlined in EAC amendment #6, which permits works associated with the Lillooet River TX Line crossing to proceed (See Section 3.0 for a detailed list of conditions).	-
March 9, 2015	<i>Pre-work meeting</i>	SES, Mumleqs	A meeting was held with field crews to review the prescriptions for the Miller Bench FSR upgrade and discuss environmental mitigation measures.	-
March 12, 2015	<i>2015 Construction Season kick-off meeting</i>	SES, JEM, INX, CE	INX provided a forum to discuss lessons learned during the 2014 construction season and identify opportunities to improve the ESC program, work planning processes, and communications protocols prior to the start of the 2015 construction season.	-
March 13, 2015	<i>Email</i>	INX, SES, JEM, WEL	INX distributed OLTC L49697 Amendment No. 8 issued by MFLNRO for TX Line clearing works associated with Segments 11A, Segment 12 (Miller Bench), and the road realignment in the Ryan South to cross the 261A stream.	-

3.0 Current Work Restrictions and Timing Windows

The table presented below outlines work restrictions applicable during the reporting period for each active¹ Project component location:

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
TX Line	Segment 8 & 12	Within 150m of wetlands or 100m of Coastal Tailed-Frog Streams	IEM presence is required when clearing within 150m of wetlands or 100m of Coastal Tailed-Frog Streams, to ensure clearing area is 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 Surface Water Quality Protection Plan objectives.
	Lillooet River TX Line Crossing (Poles 136 – 141)	Moose Core Winter Range (MCWR) & 200m Buffer and Moose Winter Range Forage Management Zone (MWRFMZ)	<p>EAC amendment #6 allows works associated with the Lillooet River TX Line crossing to proceed under the following conditions:</p> <ol style="list-style-type: none"> 1. A qualified professional (QP) or independent environmental monitor (IEM) must oversee all construction works; 2. Helicopter flights must follow the pre-approved flight paths unless a deviation is required to ensure safety; 3. All construction works and road plowing must occur during daylight hours only; 4. All vehicles associated with construction works or road plowing must drive 30 km/hour or less along the Lillooet South FSR, including those bringing equipment and crews to the staging areas; and, 5. Construction noise must be monitored within the Moose Core Winter Range, adjacent to pole 136. Noise associated with construction works must be minimized to the satisfaction of the QP or IEM.

¹ CE did not perform construction activities in this reporting period; therefore timing restrictions related to the power generating components of the Project have been omitted from this table.

4.0 Upper Lillooet River Hydroelectric Facility & Boulder Creek Hydroelectric Facility – Monitoring Results

4.1 Construction Camp & 38 km Laydown

Winter Operations:

- The Lillooet River FSR was drivable by 4x4 to 38km during this reporting period.
- The electric fence was fully operational and clear of snow throughout the reporting period as identified in CE weekly reports provided to the IEM.
- All CE winter operations are restricted to the construction camp and 38 km laydown areas. Works included maintenance of the electric fence and gates, and routine maintenance of construction equipment within the mechanic shop at the 38 km laydown.

Environmental Summary:

- The IEM did not perform an inspection of the construction camp or 38km laydown area during this reporting period as no new activities occurred onsite and minimal snow fell during the reporting period.
- CE performed daily inspections of the electric fence and fuel storage areas and recorded results in a daily inspection logs. Weekly reports were prepared by CE to report activities and conditions onsite. These reports were provided to the IEM for review. No concerns were noted in the reports.
- Squamish Mills has started to the repair the FSR between 0-17km where they have active logging and road building operations (including drilling and blasting). A meeting is planned for March 17, 2015 to review conditions of the Lillooet River FSR with industrial users and identify the repairs required and road upgrade responsibilities prior to heavy equipment and material hauling by CE as part of the spring 2015 mobilization. No hauling of materials to the CE site has occurred in 2015. Minor travel has occurred to and from site via pick-up truck during this reporting period.

Photos:

- No site inspections were conducted during this reporting period due to the limited amount of work occurring and lack of snow management requirements.

4.2 Water Quality Results

The IEM has suspended the weekly WQ monitoring program for the remainder of the winter shutdown period. Weekly water quality monitoring will resume at the start of the 2015 construction season according to the conditions outlined in the Surface Water Quality Protection Plan.

4.3 Recommendations

IEM recommendations for the ULRHEF and BDRHEF are as follows:

- The IEM recommends that repairs to the drainage structures along the FSR from 0-38km be coordinated according to the road-use agreement as mobilization to site will likely begin in late March. The fording of drainages that connect to fish bearing waters has the potential to impact surface water quality in fish bearing streams, and is therefore not permitted according to conditions of the CEMP. A meeting has been planned for March 17, 2015 to determine which repairs are required prior to CE commencing their spring 2015 site mobilization.
- The IEM recommends that work sites are closely monitored during the spring melt period to verify the effectiveness of installed winterization and ESC measures, and ensure that regular maintenance is performed as needed.

4.4 Upcoming Works

Construction activities will resume during the next reporting period once repairs to the Lillooet River FSR are complete.

5.0 Transmission Line – Monitoring Results

5.1 Transmission Line Construction Activities

Existing Road Upgrades and Access Road Construction:

- Culvert installations on road 197.2 and connecting access roads were completed from March 3-10. Culverts were installed on road 197.2 from 1+335 to 2+700 and on access roads at 1+400 and 1+890 (Photo 1, Photo 2, Photo 3, Photo 4 and Photo 5).
- Upgrade works continued on Miller Bench FSR. Three temporary crossing upgrades (MB53, MB58 & MB59) began on February 26 and were completed on March 6 (Photo 6 and Photo 7). Culvert installations and road resurfacing continued beyond MB53 during this reporting period.
- Snow clearing was completed on the Lillooet South FSR from KM 2.5-8 on March 6 to provide access for the transmission line crossing works (Photo 8).

Transmission Line Pole Installation, Line Stringing and Clipping:

- River crossing works were completed in Segment 5 and 6 from March 8-13. The crossing works included the installation of pole 140 and 141, framing, stringing and clipping (Photo 9 and Photo 10).

Environmental Summary:

- The IEM was present for culvert installations in non-fish bearing streams crossing transmission line access roads, road 197.2, and the Miller Bench FSR. For all culvert installations worksite isolation was achieved with dam/sump and pump methods and works were completed in the absence of flowing water. Crews took care to minimize downstream sedimentation by minimizing disturbance to surrounding soil and by releasing water

gradually to the installed culvert when possible. The IEM conducted water sampling during all culvert installations. See Section 5.2 Water Quality Results.

- On March 4, the diversion at 1+335 on road 197.2 (Segment 8) required the excavator dig a sump for the pump inlets due to subsurface flow and large amounts of coarse woody debris covering the watercourse (Photo 4). The sump excavation caused a temporary pulse of suspended sediment in watercourse 185A. The sump was excavated at 13:50 and the turbid pulse was observed at its peak ~100m downstream of works within stream 185A at 14:05 (192NTU). The IEM continued water quality monitoring 10m upstream of Black's water intake where peak turbidity was observed to be 18.3NTU and returned to within 8NTU of background within 20 minutes. Another turbid pulse was observed at 1+335 when water was released into the new culvert. Peak turbidity was measured 100m downstream of works in stream 185A to be 83.3NTU at 15:39. Monitoring continued 10m upstream of Black's water intake where peak turbidity was 10.9NTU at 16:10 and became 4.88NTU at 16:20. See Section 5.2 Water Quality Results.
- On March 5, the culvert installed on the access road at 1+890 on road 197.2 (Segment 8) required a new ditch to convey flow to the watercourse at 1+911. Turbid flows were anticipated due to the unconsolidated material in the new ditch. A settling pond was excavated to allow suspended sediment to settle prior to entering watercourse 186A (Photo 5). The flows conveyed by the new culvert slowly filled the settling pond and new ditch. The IEM was unable to stay onsite until flows reached the confluence with 186A. Due to low volume of water and settlement in pond there was little risk of impact to watercourse 186A. The IEM returned to site on the morning of March 6 and measured water quality below the culvert, and found turbidity levels to be similar to background conditions. See Section 5.2 Water Quality Results.
- The IEM was onsite to monitor the three temporary crossing upgrades on the Miller Bench FSR (Segment 12; Photo 6 and Photo 7). The high water mark was clearly flagged at all crossings and works were completed in the dry with no effect on the surrounding watercourse.
- The IEM was onsite to monitor the Lillooet River TX Line crossing works from March 8-13, 2015. The IEM monitored adherence to specified flight paths and conducted noise monitoring as per EAC amendment #6. Noise levels were monitored in real-time during the construction activities to ensure equipment (helicopters and conductor winch) were operating below the 75db Leq noise level threshold. The noise monitoring data observed in real-time indicated noise levels were below threshold levels for the majority of the work activities and all events were below the 75db Leq threshold limit (See appended report for further details). Noise monitoring data was collected by the IEM and analyzed and summarized by BKL (See appended report). All mitigations measures outlined in EAC amendment #6 were implemented and noise mitigation was performed to the satisfaction of the IEM. It is important to note that drilling and blasting operations associated with Squamish Mills logging operations were audible from the noise monitoring location and were recorded by the noise monitoring equipment as a ~10db raise in background noise levels.

Photos:



Photo 1 – Two pumps used to complete worksite isolation for culvert installation at 2+700 on road 197.2 (March 10, 2015).



Photo 2 – Culvert installation works at 1+911 on road 197.2 (March 3, 2015).



Photo 3 – A temporary pulse of suspended sediment was observed when water was released through new culvert at 1+911 on road 197.2 (March 3, 2015).



Photo 4 – Sump excavated to allow water to be pumped for worksite isolation during culvert installation at 1+335 on road 197.2 (March 4, 2015).



Photo 5 – Settling pond used to improve water quality following culvert installation on access road at 1+890 on road 197.2 (March 5, 2015).



Photo 6 – Bridge installation works at MB59 on the Miller Bench FSR (March 3, 2015).



Photo 7 – Bridge installation works at MB53 on the Miller Bench FSR (March 6, 2015).



Photo 8 – Conditions at KM 2.5 on the South Lillooet FSR prior to snow clearing (March 6, 2015).



Photo 9 – A-Star B3 helicopter dropping equipment at pole 140 location (March 11, 2015).



Photo 10 – A-Star B3 helicopter flying pilot line at pole 136 (March 11, 2015).

5.2 Water Quality Results

The following table presents the results of water quality sampling collected during TX - Line water management activities according to the conditions outlined in the Surface Water Quality Protection Plan. Exceedances of in-situ water quality (turbidity) deemed to be caused by project-related activities are highlighted in bold font and are discussed above in Section 5.1.

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Cond (uS)	Temp (°C)
Segment 8 – Access road 197.2 culvert installation at 1+911						
March 3, 2015	11:10	BG above works in 186A	7.89	0.6	-	3.2
	11:34	BG in Hillaby Creek	7.82	0.75	-	2.5
	13:15	100m DS of works in 186A	7.89	19.7	-	3.0
	13:41	100m DS of works in 186A	7.84	83.3	-	3.1
	13:45	5m DS of Hillaby Creek confluence	7.87	22.9	-	3.1
	14:50	5m from drinking water intake in Hillaby Creek	7.94	10.9	-	3.2

	15:05	5m from Black's water intake in Hillaby Creek	7.89	4.88	-	3.1
	15:07	In Black's intake pond	7.81	6.75	-	3.1
Segment 8 – Access road 197.2 culvert installation at 1+335						
March 4, 2015	9:43	100m DS of works in 185A	7.93	9.07	-	4.6
	9:50	10m DS of works in 185A	7.82	1.86	-	4.6
	10:10	10m from Black's drinking water intake pond in 185A	7.91	1.06	-	4.6
	10:20	In Black's intake pond	7.85	2.14	-	4.6
	10:55	185A BG	7.8	2.06	-	4.6
	14:05	100m DS of works in 185A	8.02	192	-	5.4
	14:46	10m from Black's drinking water intake pond in 185A	7.95	18.3	-	5.4
	14:50	10m from Black's drinking water intake pond in 185A	7.9	11.8	-	5.4
	14:55	In Black's intake pond	7.89	5.65	-	5.4
	15:05	10m from Black's drinking water intake pond in 185A	7.89	10.52	-	5.3
	15:39	100m DS of works in 185A	7.84	83.3	-	5.2
	15:48	100m DS of works in 185A	7.98	22.9	-	5.2
	16:10	10m from Black's drinking water intake pond in 185A	7.94	10.9	-	5.2
	16:20	10m from Black's drinking water intake pond in 185A	7.79	4.88	-	5.2
16:35	10m from Black's drinking water intake pond in 185A	7.83	6.75	-	5.2	
Segment 8 – Access road 197.2 culvert installation on spur at 1+400						
March 5, 2015	10:30	BG in 185A	7.87	1.34	-	5.1
	10:35	100m DS of works in 185A	7.83	19.4	-	5.4
	10:45	100m DS of works in 185A	7.86	12.7	-	5.2
	11:15	5m to Black's water intake pond in 185A	7.91	8.86	-	5.6
	11:20	In Black's water intake pond	7.81	0.68	-	5.4
	11:35	5m to Black's water intake pond in 185A	7.79	2	-	5.3
Segment 8 – Access road 197.2 culvert installation on spur at 1+890 and ditch at culvert outlet to 1+911						
March 5, 2015	14:30	BG above works in unnamed watercourse	7.88	0.89	-	4.7
	14:40	BG above works in 186A	7.78	0.68	-	4.5
	15:25	5m downstream of confluence with 186A	7.86	0.81	-	4.5
	16:50	Water in settling pond	7.97	87	-	5.3
	Water conveyed through new culvert slowly filled sediment pond and new ditch. IEM was not able to stay on site until the water reached 186A on March 5.					
March 6, 2015	9:05	5m downstream of confluence with 186A	7.89	0.97	-	4.2

Segment 8 – Access road 197.2 culvert installation on spur at 1+910						
March 6, 2015	10:30	BG in 186A	7.89	1.9	-	4.6
	11:30	BG in Hillaby Creek	7.88	0.28	-	4.6
	12:55	100m DS of works in 186A	7.86	29.7	-	4.5
	13:15	100m DS of works in 186A	7.81	22.9	-	4.5
	13:30	100m DS of works in 186A	7.85	9.42	-	4.8
	14:05	5m to Black's water intake pond in 186A	7.91	7.69	-	5.2
	14:15	5m to Black's water intake pond in 186A	7.92	0.47	-	5.3
Segment 8 – Access road 197.2 culvert installation at 2+700						
March 10, 2015	9:05	BG in Hillaby Creek	7.81	0.59	-	5.2
	9:35	200m DS in Hillaby Creek	7.83	0.21	-	5.3
	10:25	200m DS in Hillaby Creek	7.79	31.4	-	5.2
	10:35	200m DS in Hillaby Creek	7.85	25.7	-	5.3
	11:00	200m DS in Hillaby Creek	7.88	1.97	-	5.3
	11:45	200m DS in Hillaby Creek	7.81	8.33	-	5.1
	11:55	200m DS in Hillaby Creek	7.89	9.29	-	5.3
	12:05	200m DS in Hillaby Creek	7.82	6.56	-	5.4
	12:20	5m to Black's water intake pond in Hillaby Creek	7.89	1.78	-	5.2
	12:25	In Black's water intake pond	7.84	1.35	-	5.2
Segment 12 – Culvert Install on Miller Bench FSR at MB48						
March 13, 2015	10:30	BG in watercourse	-	0.83	-	-
	10:35	20m DS of works	-	84.7	-	-
	10:45	20m DS of works	-	65.6	-	-
	11:15	20m DS of works	-	57	-	-
	11:20	20m DS of works	-	1.38	-	-

5.3 Recommendations

- The IEM recommends all access roads be inspected to assess any slope failures or drainage/erosion concerns that have resulted from recent heavy rains and rain on snow events.

5.4 Upcoming Works

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

- Clearing of the Segment 8 RoW and road construction (including drainage structure installation) will continue.
- Road upgrades and repairs to the Miller Bench FSR are scheduled to continue.
- Clearing of the Segment 13 RoW will begin once the clearing plan is finalized.

6.0 Wildlife Sightings

As per the CEMP, a wildlife sightings record has been implemented and will be updated regularly by Project Personnel. It is mandatory for all personnel to report wildlife sightings including, but not limited to bears, cougars, mountain goats and deer. Wildlife sighting will be reported and recorded by the contractor(s) and will submitted to the IEM on a weekly basis. Observation or detection of the following species will trigger notification to identified parties according to the following table.

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

7.0 Mountain Goat Monitoring Program

Mountain Goat monitoring will resume in the spring of 2015, once construction activities resume.

8.0 Environmental Issues Tracking Matrix (ITM)

8.1 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
<i>next ITM – ULR#23</i>							

8.2 Transmission Line

ITM Tracking Legend:		Work Item Open					
		Work Item Complete					
		Issue Closed					
Issue Tracking		Environmental Issue		Mitigation Measures			
ID No.	Status	Location	Issue Description	Action Taken/Recommended	Date of Identification	Targeted Date for Completion	Date Completed
<i>next ITM – Tx#3</i>							



March 27, 2015

File: 3396-13A

Sartori Environmental Services
106 - 185 Forester Street
North Vancouver, BC
V7H 0A6

Attention: Tom Hicks

Dear Tom:

Re: EAC Amendment #6 Noise Monitoring Report

Helicopter Noise Monitoring in March, 2015

The noise monitoring equipment used and procedures followed were the same as those used for previous sessions. One 01dB DUO Smart Noise Monitor was used to continuously log noise data and to record audio files. This instrument has a wide dynamic measuring range, from 20 to 137 dBA, enabling it to capture both very low sound levels such as those which can occur in undisturbed wilderness areas as well as higher intensity close range helicopter noise levels.

Noise monitoring was conducted at the EAC Amendment#6 Noise Monitoring Location shown in the attached figure from 08:30 am on March 8th to 11:50 am on March 13th.

This noise monitor recorded data continuously and "triggers" were also set to identify all noise events with maximum levels exceeding 75 dBA. Whenever these trigger levels were exceeded, audio files were recorded to aid in identification of the noise sources during subsequent analysis.

Monitoring Results

Table 1 lists the times, durations, maximum levels and average levels (Leq) of all noise events with maximum levels exceeding 75 dBA at this monitoring site. A description of each noise event is also noted based on a review of the associated audio file.

Date	Time	Duration & Level >75 dBA			Description
		Duration	Max.	Leq	
March 8	8:34	6 sec.	75.6	71.6	Non-construction related *
"	8:36	14 sec	75.6	71.2	Helicopter
"	8:37	12 sec.	81.6	74.7	Helicopter
"	9:31	23 sec.	80.9	74.2	Non-construction related
"	13:31	89 sec.	76.6	70.6	Non-construction related
"	13:40	139 sec.	76.8	71.2	Non-construction related
"	13:46	89 sec.	75.9	70.8	Helicopter
"	13:50	103 sec.	79.1	72.2	Non-construction related
"	13:55	97 sec.	76.2	70.7	Non-construction related
"	14:23	94 sec.	75.7	71.3	Helicopter
March 9	14:43	23 sec.	75.6	71.4	Helicopter
"	15:29	106 sec.	77.0	70.8	Helicopter
"	15:34	96 sec.	75.5	69.7	Helicopter
"	15:50	96 sec.	75.1	70.6	Helicopter
"	15:54	44 sec.	75.2	71.2	Helicopter
"	15:57	60 sec.	75.3	71.1	Helicopter
"	15:59	62 sec.	75.4	71.0	Helicopter
"	16:18	133 sec.	77.6	72.0	Helicopter
"	16:22	48 sec.	77.9	72.4	Helicopter
"	16:44	146 sec.	80.6	73.0	Helicopter
"	16:49	95 sec.	76.4	71.1	Helicopter
"	16:52	62 sec.	75.7	71.4	Helicopter
March 10	8:36	69 sec.	75.9	71.3	Helicopter
"	8:44	30 sec.	78.3	71.4	Non-construction related
"	9:06	75 sec.	78.1	71.5	Helicopter

Date	Time	Duration & Level >75 dBA			Description
		Duration	Max.	Leq	
March 10	11:56	76 sec.	75.4	69.9	Helicopter
"	12:03	129 sec.	77.4	69.5	Helicopter
March 11	13:42	540 sec.	78.8	73.0	Helicopter
"	15:25	594 sec.	77.8	73.5	Helicopter
"	15:43	104 sec.	75.9	72.4	Helicopter
"	16:18	481 sec.	79.0	73.2	Helicopter
March 12	15:09	125 sec.	79.1	73.0	Helicopter
"	17:16	78 sec.	79.1	74.2	Helicopter
Total		3938 sec.			0.65% of 7 days monitoring period
Total Helicopter		3451 sec.			0.57% of 7 days monitoring period

* "non-construction" events included aircraft, hikers/campers, environmental and indiscernible noise events.

Table 1: EAC Amendment Site #6 Noise Monitoring Results

Both Lmax and Leq values are listed above. The Lmax is the maximum A-weighted noise level occurred during an entire helicopter event. The Equivalent Sound Level, abbreviated Leq, is used to indicate the average sound level over a helicopter event. The Leq represents the steady level of sound which would contain the same amount of sound energy as the actual time-varying sound level. Although the Leq is an average, it is strongly influenced by the loudest events occurring during the time period, because these loudest events contain most of the sound energy.

The non-construction events that occurred at 8:34 am on March 8th and 8:44 am on March 10th were due to staff checking the equipment. Other non-construction related events could not be positively identified. They were indiscernible sound sources that likely triggered the monitor only because they occurred very close to the microphones. All other events were due to helicopter activities on site.

Tom Hicks

- 4 -

March 27, 2015

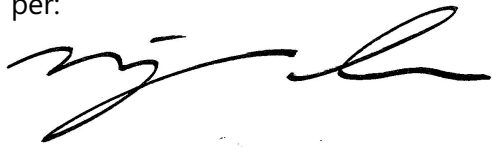
Conclusions

All helicopter noise events recorded during the five day measurement period were below the project criteria of 75 dBA (Leq level).

Sincerely,

BKL Consultants Ltd.

per:

A handwritten signature in black ink, appearing to read 'Eric Gu', written over a light blue horizontal line.

Eric Gu, M.Eng., E.I.T.

Atts.

Wildlife Constraints Ungulate Winter Range

- Intake, Powerhouse, Tunnel Portal, Transmission Line and Poles (P13 Design)
- Penstock
- Tunnel
- Helipad
- Falling Body
- Existing Road
- Proposed Access
- Forest Service Road
- Paved Road
- Highway
- Kilometre Sign
- Access Road Type**
- Proposed Facility Road
- Proposed Tower Road
- Upgrade Existing Road
- LIDAR (10m)
- TRIM Index Contour
- TRIM Intermediate Contour
- River, Stream
- Lake, River
- Wetland

Time and Activity Restrictions

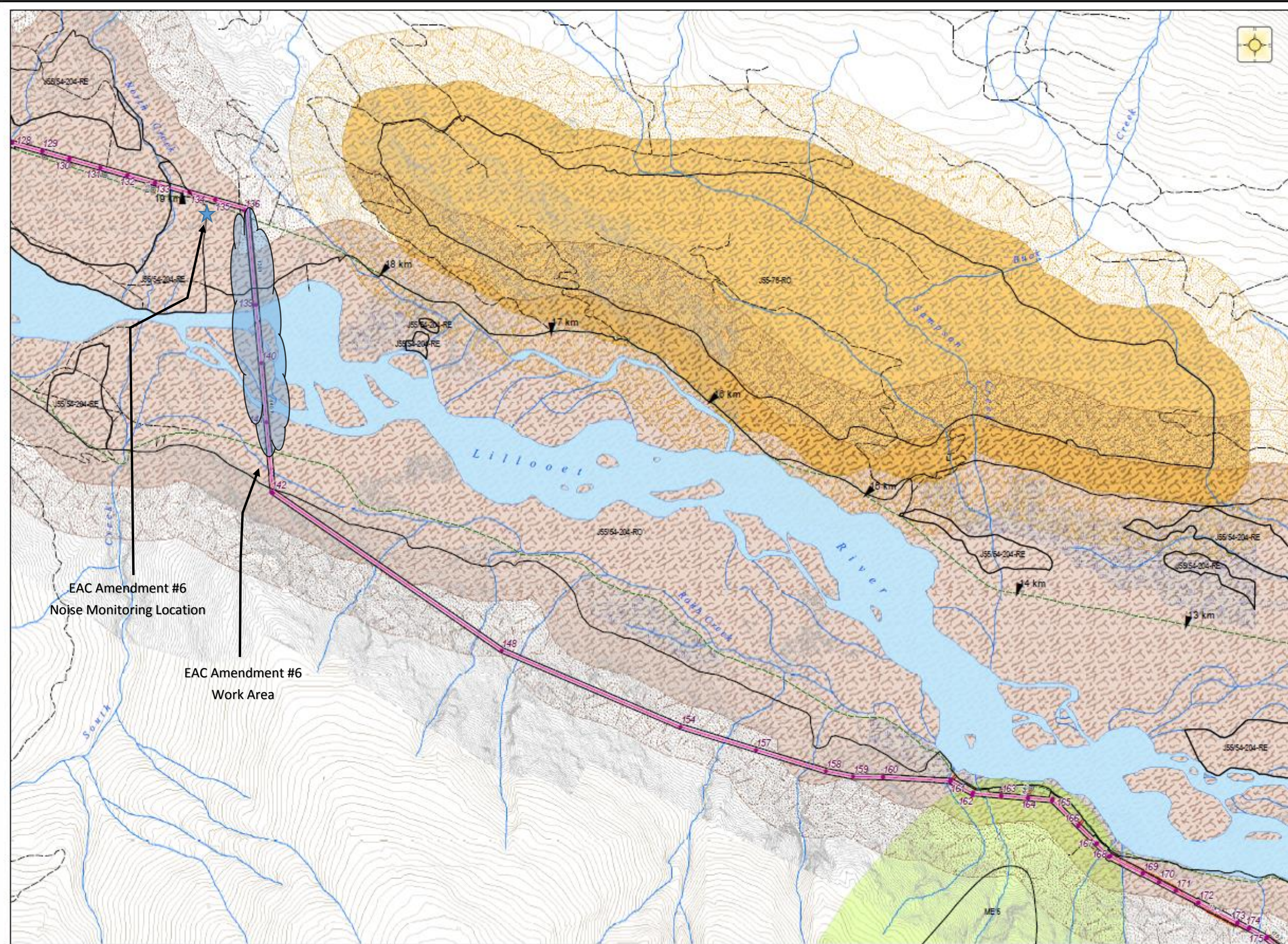
- Moose UWR with 200m Buffer
(Monitoring Required within UWR;
No Construction Nov 1 - May 15)
- Moose UWR 500m Buffer
(No Avalanche Blasting,
Minimize Noise Nov1 - May15)
- Deer UWR with 200m Buffer
(Monitoring Required within UWR;
No Construction Nov 1 - May 15)
- Deer UWR 500m Buffer
(Avoid Avalanche Blasting,
Minimize Noise Nov1 - May15)
- Mtn Goat UWR - Wintering w/ 500m buffer
(Monitoring Required within UWR
No Construction Nov 1 - Apr 30; extend to
Jun 15 if kidding suspected; see EPP;
No Avalanche Blasting Nov1-Apr30;
extend to June if kidding suspected)
- Mtn Goat UWR - Kidding w/ 500m buffer
(Monitoring Required within UWR;
No Construction Nov 1 - Jun 15 or earlier;
see EPP; No Aval. Blasting Nov 1 - Jun 15)
- Mtn Goat UWR - UL12 / RY14
with 500m buffer
(Monitoring Required within UWR;
No Construction Nov 15 - Apr 30;
No Blasting Nov 15 - June 15;
No Avalanche Blasting Nov 1 - Jun 15)
- Mtn Goat UWR - UL11 / UL19
No Construction
- Mtn Goat UWR UL11, UL19 and
Migration Corridor: 200m Buffer
(Nov and May daily operational
shutdowns (sunrise/sunset); see EPP)
- Mtn Goat UWR UL11, UL19 and
Migration Corridor: 500m Buffer
(Implement noise reduction methods,
esp. Nov 1 - Jun 15;
Goat Sighting - Shutdowns;
Monitoring required, No avalanche
blasting Nov 1 - Jun 15; See EPP)

Replacement Areas - No Disturbance

- Mtn Goat UWR Replacement
- Moose CWR Replacement
- Deer UWR Replacement



Projection: NAD 1983 UTM Zone 10
Scale: 1:20,000
Contour Interval: 10 m LIDAR; 20m TRIM



EAC Amendment #6
Noise Monitoring Location

EAC Amendment #6
Work Area