Upper Lillooet Hydro Project

Weekly Environmental Monitoring Report #19

Reporting Period: April 27th – May 3rd, 2014

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

Environmental Assessment Certificate No.E13-01 (Amendment 3)
Fisheries Act Subsection 35(2)(b) Authorization No. 09-HPAC-PA2-00303
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
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) No. L49717
Occupant Licence to Cut (BDRHEF – km 38 laydown) No. L49698
Occupant Licence to Cut (BDRHEF& Construction Camp Amendment 2) No. L49816
Occupant Licence to Cut (TX Line S.1-S5, Heli Pads) No. L49697 (Amendment 1)
General Wildlife Measure Exemption Approval Letter (TX Line) File No. 78700-35/06 UWR and 39585-20 WHA
Road Use Permit No. 6123-13-02

Distribution List	
Name	**Organization**
Trevor Andrews	Fisheries and Oceans Canada
James Davies	MFLNRO – Water Allocation
Nathan Braun	BC Environmental Assessment Office
George Steeves	True North Energy – Independent Engineer
Jennifer McCash	True North Energy – Independent Engineer
Thomas Hicks	Sartori Environmental Services
Krys Muniak	Innergex Renewable Energy Inc.
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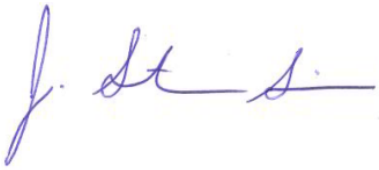
Prepared By
 **J. Alex Sartori, R. P. Bio.** Independent Environmental Monitor **&**  **J. Stephen Sims, R. P. Bio.** Delegated Environmental Monitor
Date Prepared: May 8, 2014 **Date Submitted:** May 9, 2014

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ACRONYMS:

ASMP	Archaeological Sites Management Plan
BCEAO	British Columbia Environmental Assessment Office
BCWQG	British Columbia Water Quality Guidelines
BDRHEF	Boulder Creek Hydroelectric Facility
BG	Background
BKL	BKL Consultants Ltd.
CRT-ebc	CRT-ebc Construction Inc.
DFO	Fisheries and Oceans Canada
DS	Downstream
Ecofish	Ecofish Research Ltd.
Ecologic	Ecologic Consulting
ESC	Erosion and Sediment Control
FSR	Forest Service Road
GWR	Mountain Goat Winter Range
Hedberg	Hedberg and Associates Ltd.
IEM	Independent Environmental Monitor
Innergex	Innergex Renewable Energy Inc.
ITM	Issue Tracking Matrix
LTC	Leave to Construct
MFLNRO	Ministry of Forests, Lands and Natural Resource Operations
MOE	Ministry of Environment
RVMA	Riparian Vegetation Management Area
SES	Sartori Environmental Services
TX Line	Transmission Line
ULRHEF	Upper Lillooet River Hydroelectric Facility
UWR	Ungulate Winter Range
VC	Valued Component
WQ	Water Quality
WEL	Westpark Electric Ltd.
WEMR	Weekly Environmental Monitoring Report

1.0 Summary of Site Inspections for Reporting Period

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

Day	Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Sunday	Apr 27	-	-	-
Monday	Apr 28	TH	Overcast/ light rain	***38km Laydown*** • Grading and benching continued at the 38km laydown • Screening material for road subgrade and capping ***Construction Camp*** • Grubbing of the camp and sorting/decking of merchantable timber ***Boulder Powerhouse and Intake Access Road*** • Hand falling of the Boulder intake access road completed. • Ditching and water management around the spoil area perimeter completed.
Tuesday	Apr 29	-	-	***38km Laydown*** • Grading and benching continued at the 38km laydown • Screening/sorting material from the laydown area for road surfacing and sub-grade repairs ***Construction Camp*** • Grubbing of the camp and sorting/decking of merchantable timber ***Boulder Powerhouse*** • Stripping and grubbing of the spoil area and powerhouse footprint
Wednesday	Apr 30	TH,SS	Sun and Cloud	***38km Laydown*** • Grading and benching complete at the 38km laydown ***Construction Camp*** • Grubbing of the camp and sorting/decking of merchantable timber ***Boulder Powerhouse*** • Stripping and grubbing of the spoil area and powerhouse footprint
Thursday	May 1	TH,MS	Overcast/ light rain	***Construction Camp*** • Grubbing of the camp and sorting/decking of merchantable timber ***Boulder Powerhouse*** • Stripping and grubbing of the spoil area and powerhouse footprint ***Upper Lillooet Powerhouse*** • Stripping and grubbing of the powerhouse footprint began

Day	Date	IEM Team Personnel	Weather Conditions	Monitoring Locations & Key On-site Environmental Information
Friday	May 2	MS	Sun and Cloud	***Construction Camp*** • Grubbing of the camp and sorting/decking of merchantable timber complete, began grading site ***Boulder Powerhouse*** • Stripping and grubbing of the spoil area and powerhouse footprint ***Upper Lillooet Powerhouse*** • Stripping and grubbing of the powerhouse footprint
Saturday	May 3	MS	Overcast/ light rain	***Construction Camp*** • Site grading and sub-grade preparation ***Boulder Powerhouse*** • Stripping and grubbing of the spoil area and powerhouse footprint ***Upper Lillooet Powerhouse*** • Stripping and grubbing of the powerhouse footprint

IEM Team Personnel: *MS – Mandala Smulders; SS – Stephen Sims; TH – Tom Hicks*

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.
April 28	*Pre-work Meeting*	CRT- ebc, SES, Innergex	• Reviewed the ULRHEF powerhouse stripping and grubbing work plan, highlighting merchantable timber and woody debris management, presence of archeological monitor when working within 50m of the identified Archeological site. Presence of IEM when working within 30m of the Upper Lillooet River.	N/A
May 3	*Email*	CRT- ebc, SES, Innergex,	• Snow depths measured on May 3, 2014 resulted in the implementation of the 2 week spring shutdown as detailed in the Mountain Goat Management Plan.	N/A

3.0 Current Work Restrictions and Timing Windows

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

Component	Location	Wildlife/Archeology Concern	Construction/Timing Restrictions & Mitigations
BDRHEF intake access road	*At 3.8km of BDRHEF intake access road*	*Mountain Goat UWR and Wolverine den emergence period*	*Access to BDRHEF intake must be gated at least 500 m from the original UWR u-2-002 UL 12 to restrict motorized use within the UWR, unless otherwise directed by FLNR. A no-entry zone will be created and managed within 500 m of GWR adjacent to construction areas during winter months (November 1 – April 30). Construction activities will be suspended at the BDRHEF intake from March 1 – April 30 (Wolverine den emergence period).*
ULRHEF powerhouse	*Within 50m of identified archeologically significant area*	*Archaeologically significant site EdRu-3*	*The ASMP recommends that an archaeological technician from the Lil'wat Nation be present to monitor initial ground-disturbance activities within 50 m of the EdRu-3 site boundaries.*
	Within 30m of the Upper Lillooet River	*Riparian area*	*IEM presence is required when working within 30m of the Upper Lillooet River as outlined in the ULRHEF Powerhouse Stripping and Grubbing work plan.*

Lillooet River FSR; ULRHEF intake access; FSR realignment at Truckwash Creek	*Access roads above ULRHEF Powerhouse to the ULRHEF intake; including FSR realignment at Truckwash Creek*	*Mountain Goat UWR and Wolverine den emergence period*	*All construction-related activities above the Upper Lillooet River HEF powerhouse must be suspended from March 1 – April 30 (the period associated with wolverine den emergence). No construction activity occurred above the ULR powerhouse during this monitoring period. Additional information is provided in Section 7.0.* *Construction noise must be minimized within 500 m of* legally established *UWR during winter (November 1 – April 30) to the satisfaction of the IEM or designate.* *All drilling and construction associated activities will cease for a minimum of two consecutive week periods at the Upper Lillooet River HEF downstream portal near Truckwash Creek and at the intake after snow levels have begun to recede in the spring. Snow depths measured on May 3, 2014 resulted in the implementation of the 2 week spring shutdown as detailed in the Mountain Goat Management Plan. Additional information is provided in Section 7.0.* *If a goat is observed within 500 m of 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.*

4.0 Boulder Creek Hydroelectric Facilities

4.1 Monitoring Results

4.1.1 Active Construction Areas

38km Laydown Area

- CRT-ebc completed rough grading of the laydown area on April 30th, 2014 and began screening/sorting material for road subgrade repairs and capping of access roads. No water quality concerns were noted.

Construction Camp

- Sorting/decking of merchantable timber continued this week and was completed on May 2nd, concurrently with stripping and grubbing activities. Site grading and sub-grade construction began this week and will continue during the next monitoring period. Final road ditching will be installed once the access road grade is achieved. No environmental concerns were noted.

BDRHEF Intake Access Road

- Hand-falling of trees was completed along the access road alignment up to 3.8km of the pre-existing access road on April 28th. Access beyond 3.8km is restricted until May 1st due to Wolverine and Mountain Goat sensitivity and the boundary was clearly marked in the field. All tree falling was completed within approved OLTC boundaries and outside of the 500 m UWR buffer and identified sensitive Wolverine den emergence area.

BDRHEF Powerhouse

- Prior to beginning clearing and grubbing of the powerhouse footprint and spoil area, all site drainage features were installed and were inspected by the IEM. All site drainage is now conveyed through installed ditches and temporary road culverts. All powerhouse site drainages infiltrate to ground prior to connecting to Boulder Creek or its tributaries. The initial stripping and grubbing of the powerhouse and spoil area is scheduled to be completed next week.

Environmental Summary:

- The IEM was onsite to monitor all drainage work and verified that bio-degradable hydraulic oil was used in excavators involved in drainage ditch construction. No spill or leaks were observed and no surface water connection to Boulder Creek or its tributaries was located. No water quality concerns were noted.

Photos:

Photo 1. Stockpiling stripping and grubbing material from the Construction Camp work area. Note the separation of woody debris and organic soils (May 1, 2014).

Photo 2. Stripping and grubbing activity at the BDRHEF powerhouse location. (May 3, 2014).

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded during this reporting period. Stripping, Grubbing, Grading and hand falling activities had no visual effect on WQ.					

5.0 Upper Lillooet River Hydroelectric Facilities

5.1 Monitoring Results

5.1.1 Active Construction Areas

ULRHEF Powerhouse

- A pre-work kick-off meeting was conducted on April 28th to review the work plan with the CRT-EBC's, field engineer and environmental lead prior to beginning clearing and grubbing of the powerhouse footprint and performing haul road upgrades. All organic soils were hauled and stockpiled at the base of the fill slope at the east heading of the Truckwash creek realignment, according to methods outlined in the approved work plan.

Environmental Summary:

- An archaeological technician from the Lil'wat Nation was onsite to oversee clearing within 50m of archaeologically significant site adjacent to the powerhouse location (EdRu-3) on May 1st and 2nd during initial ground disturbance. No chance finds were discovered. No activities occurred within 30m of the Lillooet River during this reporting period.

Photos:

Photo 3. Stripping and grubbing material from the ULRHEF powerhouse work area. (May 3, 2014).

Photo 4. Stockpiling of organic material from the ULRHEF powerhouse at the base fill slope at the east heading of the Truckwash Creek realignment. (May 3, 2014).

Water Quality Results

Date	Time	Sample Location Description	pH	Turbidity (NTU)	Temperature (°C)
No WQ measurements were recorded during this reporting period. Stripping, Grubbing, Grading and hand falling activities had no visual effect on WQ.					

5.2 Recommendations

Spring has arrived at Upper Lillooet Hydro Project site as evidenced by an increase in wildlife sightings and wildlife activity. At this time of year an increased level of vigilance while driving and adherence the speed limits is critical to preventing wildlife collisions. All wildlife sightings, encounters, and collisions should continue to be reported to the IEM.

5.3 Upcoming Works

All construction activities are now suspended for a minimum two week period within the 200m buffer surrounding the Mountain Goat migration corridor at Truckwash creek and at the ULRHEF intake. Site grading and subgrade construction at the Construction Camp location and stripping and grubbing of the BDRHEF and ULRHEF powerhouse is scheduled to continue next week. Additional clearing at the BDRHEF portal, powerhouse, intake access road (new section), and magazine storage location will be completed as authorized in the OLTC amendment dated May 6, 2014 (L49816 - A2). No transmission line construction activities are scheduled to occur next week.

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

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

Please refer to the Wildlife Observation Form appended to this report for a summary of April 2014 wildlife sightings.

7.0 Wolverine Den Emergence Period & Mountain Goat Monitoring Program

No activities occurred above the ULRHEF Powerhouse prior to May 1st during the sensitive Wolverine den emergence period as outlined in the Human-Wildlife Interaction Management Plan. No construction activities occurred within or beyond the 200m buffer to the Mountain Goat Migration corridor at Truckwash Creek; therefore no noise monitoring or Mountain Goat monitoring was required during this reporting period.

Snow depths measured on May 3rd, 2014 resulted in the implementation of the 2 week spring shutdown as detailed in the Mountain Goat Management Plan. All drilling and construction associated activities will now cease for a minimum of two consecutive week periods at the Upper Lillooet River HEF downstream portal near Truckwash Creek and at the ULRHEF intake. The IEM team will conduct Mountain Goat monitoring at the identified observations stations during the minimum 2-week shutdown prior to May 18th, 2014, to detect the presence and observe behaviours of Mountain Goats within UL-11 (keyhole falls habitat) and UL-19. The monitoring results will be used to adaptively manage the spring shutdown period based on behaviours and conditions observed.

Please refer to the attached and snow depth monitoring forms for a summary of snow depth observations from this reporting period.

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/ Completion Date	Date Completed
No outstanding environmental issues.							

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 Completion Date	Date Completed
No outstanding environmental issues.							

Upper Lillooet Hydro Project - Wildlife Observation Form

Required Data					
Date	Time	Observer (Compa	Species or Description	Location	Comments
16/04/2014	3:15:00 PM	John Wilson	Moose	km 13.5, Lill.FSR	
18/04/2014		Tom Lafond	Moose	km 30, Lill. FSR	
20/04/2014		David Gagnon	Mountain Goat	km 5, Lill. FSR	
20/04/2014		David Gagnon	Mule Deer	km 9, Lill. FSR	
20/04/2014		David Gagnon	Partridge	km 22, Lill. FSR	
23/04/2014	10:00:00 A	Jordan Gagné	Mule Deer	km 3, Lill. FSR	
19/04/2014		Tom Lafond	Lynx	km 22, Lill. FSR	
20/04/2014		Tom Lafond	Lynx	km 22, Lill. FSR	
20/04/2014		Tom Lafond	Moose	km 30, Lill. FSR	
22/04/2014		Tom Lafond	Moose	km 30, Lill. FSR	
22/04/2014		Ian McKeachie	Peregrine Falcon	km 25, Lill. FSR	
23/04/2014	12:50:00 I	Shea Irving	Mountain Goat	N. of 31 km, Lill. FS	High on cliffs above
24/04/2014	7:00:00 AI	Roger Pelletier	Moose	km 31, Lill. FSR	
24/04/2014		Veronica Woodr	Mountain Goat	km 31, Lill. FSR	High on cliffs above
24/04/2014		Veronica Woodr	Mountain Goat	km 5, Lill. FSR	High on cliffs above
26/04/2014	12:00:00 I	Jordan Gagné	Mule Deer	km 30, Lill. FSR	
26/04/2014	2:20:00 PI	Fanny Seminard	Mule Deer	km 22, Lill. FSR	
25/04/2014	3:10:00 PI	Ian McKeachie	Ruffed Grouse	km 42, Lill. FSR	On road
25/04/2014	5:43:00 PI	Ian McKeachie	Ruffed Grouse	km 16, Lill. FSR	on road
25/04/2014	5:45:00 PI	Ian McKeachie	Ruffed Grouse	km 14, Lill. FSR	on road
28/04/2014	11:20:00 A	Ian McKeachie	Mule Deer	km 8.5, Lill. FSR	on side of road
27/04/2014		Roger Pelletier	Mule Deer	km 6, Lill. FSR	
30/04/2014	10:00:00 A	Ian McKeachie	Mule Deer	km 29.5, Lill. FSR	
30/04/2014		Alain Labeouf	Moose	km 38, Laydown	In laydown site

Two-Week Mountain Goat Shutdown Form (Spring)

UPPER LILLOOET HYDRO PROJECT

sartori environmental services

106-185 forester street, north vancouver, bc v7h 2m9
office tel 604.987.5588 fax 604.987.7740

Monitor's Name(s): Mandala Smulders

Date (YYYY-MM-DD): 2014-05-01 Time (24hr Clock): 14:25 and14:50

Weather (*cloud cover*, precipitation *and temperature*): 22 degrees, sunny.

Spring Shutdown

Trigger **–**All drilling and drilling associated activities at the Upper Lillooet River HEF downstream portal near Truckwash Creek will cease for a minimum of two consecutive week periods when the snow begins to recede to 250 m above the portal drill site in spring.

Criteria **–** An average snow depth of <20 cm at the 5 road transects located above the new Truckwash Creek bridge (n=15, i.e. 3 per transect) and/or an average snow depth <10 cm at the 5 road transects located near the lower Truckwash Creek crossing (n=15, i.e. 3 per transect).

Upstream work at ULR HEF **–** Construction works at the Upper Lillooet River HEF intake will cease

Please fill-out and complete calculations of **Two-Week Mountain Goat Shutdown Form** on a daily basis (ideally between the hours of **12:00 to 17:00**). If the above criteria are exceeded, please contact a representative of Sartori Environmental Services (**Tom Hicks** or **Stephen Sims**) by radio, satellite phone or in person **AS SOON AS POSSIBLE.** In the event you are unable to contact a a representative of Sartori Environmental Services, please contact the INNERGEX office by satellite phone at 604.894.6862 or Liz Scroggins on her mobile phone at 604.966.4594.

Upper Road Sites

(5 transects, each site 10m apart - 3 samples per site across road)

Snow Level Transects	Sample 1 Depth (cm)	Sample 2 Depth (cm)	Sample 3 Depth (cm)
Upper-ROAD01	56	58	45
Upper-ROAD02	58	60	60
Upper-ROAD03	55	60	61
Upper-ROAD04	64	65	60
Upper-ROAD05	57	71	32
Total of All Measurements (cm)			862
Average Snow Depth (cm)			57.5

** If average snow level depth is < 20cm at upper road sites, please contact a representative of Sartori Environmental Services **ASAP**.*

Lower Road Sites

(5 transects, each site 10m apart - 3 samples per site across road)

Snow Level Transects	Sample 1 Depth (cm)	Sample 2 Depth (cm)	Sample 3 Depth (cm)
Lower-ROAD01	16	15	20
Lower-ROAD02	42	23	18
Lower-ROAD03	17	21	25
Lower-ROAD04	23	26	15
Lower-ROAD05	30	29	17
Total of All Measurements (cm)			337
Average Snow Depth (cm)			22.4

** If average snow level depth is < 10cm at lower road sites, please contact a representative of Sartori Environmental Services **ASAP**.*

In the event snow levels along the road cannot be measured due to recent traffic or snow plowing, a nearby spur road or clearing at similar elevation should be located and used for measurements.

Please indicate the approximate location of road monitoring sites:

43km and 44km

Two-Week Mountain Goat Shutdown Form (Spring)

UPPER LILLOOET HYDRO PROJECT

sartori environmental services

106-185 forester street, north vancouver, bc v7h 2m9
office tel 604.987.5588 fax 604.987.7740

Monitor's Name(s): Mandala Smulders

Date (YYYY-MM-DD): 2014-05-02 Time (24hr Clock): 12:00

Weather (*cloud cover*, precipitation *and temperature*): Sunny, overcast 14'C

Spring Shutdown

Trigger **–**All drilling and drilling associated activities at the Upper Lillooet River HEF downstream portal near Truckwash Creek will cease for a minimum of two consecutive week periods when the snow begins to recede to 250 m above the portal drill site in spring.

Criteria **–** An average snow depth of <20 cm at the 5 road transects located above the new Truckwash Creek bridge (n=15, i.e. 3 per transect) and/or an average snow depth <10 cm at the 5 road transects located near the lower Truckwash Creek crossing (n=15, i.e. 3 per transect).

Upstream work at ULR HEF **–** Construction works at the Upper Lillooet River HEF intake will cease

Please fill-out and complete calculations of **Two-Week Mountain Goat Shutdown Form** on a daily basis (ideally between the hours of **12:00 to 17:00**). If the above criteria are exceeded, please contact a representative of Sartori Environmental Services (**Tom Hicks** or **Stephen Sims**) by radio, satellite phone or in person **AS SOON AS POSSIBLE.** In the event you are unable to contact a a representative of Sartori Environmental Services, please contact the INNERGEX office by satellite phone at 604.894.6862 or Liz Scroggins on her mobile phone at 604.966.4594.

Upper Road Sites

(5 transects, each site 10m apart - 3 samples per site across road)

Snow Level Transects	Sample 1 Depth (cm)	Sample 2 Depth (cm)	Sample 3 Depth (cm)
Upper-ROAD01	48	49	43
Upper-ROAD02	44	44	52
Upper-ROAD03	49	54	53
Upper-ROAD04	50	50	58
Upper-ROAD05	59	55	44
Total of All Measurements (cm)			752
Average Snow Depth (cm)			50.1

** If average snow level depth is < 20cm at upper road sites, please contact a representative of Sartori Environmental Services **ASAP**.*

Lower Road Sites

(5 transects, each site 10m apart - 3 samples per site across road)

Snow Level Transects	Sample 1 Depth (cm)	Sample 2 Depth (cm)	Sample 3 Depth (cm)
Lower-ROAD01	18	9	15
Lower-ROAD02	14	9	16
Lower-ROAD03	13	16	35
Lower-ROAD04	18	15	18
Lower-ROAD05	11	16	11
Total of All Measurements (cm)			234
Average Snow Depth (cm)			15.6

** If average snow level depth is < 10cm at lower road sites, please contact a representative of Sartori Environmental Services **ASAP**.*

In the event snow levels along the road cannot be measured due to recent traffic or snow plowing, a nearby spur road or clearing at similar elevation should be located and used for measurements.

Please indicate the approximate location of road monitoring sites:

43km and 44km

Two-Week Mountain Goat Shutdown Form (Spring)

UPPER LILLOOET HYDRO PROJECT

sartori environmental services

106-185 forester street, north vancouver, bc v7h 2m9
office tel 604.987.5588 fax 604.987.7740

Monitor's Name(s): Mandala Smulders

Date (YYYY-MM-DD): 2014-05-03 Time (24hr Clock): 13:20 and 13:40

Weather (*cloud cover*, precipitation *and temperature*): Mostly cloudy, 13'C

Spring Shutdown

Trigger **–**All drilling and drilling associated activities at the Upper Lillooet River HEF downstream portal near Truckwash Creek will cease for a minimum of two consecutive week periods when the snow begins to recede to 250 m above the portal drill site in spring.

Criteria **–** An average snow depth of <20 cm at the 5 road transects located above the new Truckwash Creek bridge (n=15, i.e. 3 per transect) and/or an average snow depth <10 cm at the 5 road transects located near the lower Truckwash Creek crossing (n=15, i.e. 3 per transect).

Upstream work at ULR HEF **–** Construction works at the Upper Lillooet River HEF intake will cease

Please fill-out and complete calculations of **Two-Week Mountain Goat Shutdown Form** on a daily basis (ideally between the hours of **12:00 to 17:00**). If the above criteria are exceeded, please contact a representative of Sartori Environmental Services (**Tom Hicks** or **Stephen Sims**) by radio, satellite phone or in person **AS SOON AS POSSIBLE.** In the event you are unable to contact a a representative of Sartori Environmental Services, please contact the INNERGEX office by satellite phone at 604.894.6862 or Liz Scroggins on her mobile phone at 604.966.4594.

Upper Road Sites

(5 transects, each site 10m apart - 3 samples per site across road)

Snow Level Transects	Sample 1 Depth (cm)	Sample 2 Depth (cm)	Sample 3 Depth (cm)
Upper-ROAD01	36	36	47
Upper-ROAD02	38	36	39
Upper-ROAD03	46	43	49
Upper-ROAD04	46	40	48
Upper-ROAD05	55	43	48
Total of All Measurements (cm)			650
Average Snow Depth (cm)			43.3

** If average snow level depth is < 20cm at upper road sites, please contact a representative of Sartori Environmental Services **ASAP**.*

Lower Road Sites

(5 transects, each site 10m apart - 3 samples per site across road)

Snow Level Transects	Sample 1 Depth (cm)	Sample 2 Depth (cm)	Sample 3 Depth (cm)
Lower-ROAD01	20	0	8
Lower-ROAD02	8	0	16
Lower-ROAD03	0	0	7
Lower-ROAD04	10	0	0
Lower-ROAD05	15	0	20
Total of All Measurements (cm)			104
Average Snow Depth (cm)			6.9

** If average snow level depth is < 10cm at lower road sites, please contact a representative of Sartori Environmental Services **ASAP**.*

In the event snow levels along the road cannot be measured due to recent traffic or snow plowing, a nearby spur road or clearing at similar elevation should be located and used for measurements.

Please indicate the approximate location of road monitoring sites:

43km and 44km