

July 22, 2014

Project 6

Ministry of Environment
#401- 333 Victoria Street
Nelson BC V1L 4K3

**ATTENTION: Jolene Raggett, R.P.Bio.
Robyn Roome, Regional Director**

**REFERENCE: Technical Rationale for Proposed Modifications to the Lemon Creek
Environmental Monitoring Plan: Water/Sediment and Biological
Programs**

On behalf of Executive Flight Centre (EFC), the Environment & Water business unit of SNC-Lavalin Inc. (SNC-Lavalin) provides the following memorandum describing proposed modifications to the Environmental Monitoring Plan¹² (EMP) (Water/Sediment and Biological programs) including rationale supporting the requested modifications. This memorandum has been prepared based on the outcome of a meeting held July 14, 2014 and is aimed to satisfy the Ministry of Environment (MoE) request for information and supporting rationale for the proposed changes.

A. WATER/SEDIMENT EMP

As mentioned above, we are providing the following information in support of the proposed change to not continue/complete the fourth and final monitoring (sampling) event tentatively planned for Lemon Creek and the Slocan River at the end of July 2014, considering the freshet sampling analytical results show all surface water, sediment, porewater and drinking water samples contain non-detectable concentrations of hydrocarbons. On this basis, the endpoints have been achieved. Further to the information provided below, please refer to the attached tables and detailed analytical drawings.

Objectives and Work Program

The two primary objectives to monitoring water and sediment quality were to:

- 1) Assess surface water, sediment and porewater quality and identify the presence or any trends of the effects of residual jet fuel compounds in Lemon Creek, the Slocan River and potentially groundwater; and
- 2) Evaluate whether further remediation/removal is required and whether flushing/clean-up efforts were effective.

¹ Environmental Monitoring Plan (Water and Sediment Quality), prepared by SNC-Lavalin dated September 30, 2013.

² Environmental Monitoring Plan (Biological Program), prepared by SNC-Lavalin dated September 30, 2013.



The water and sediment sampling program of the approved EMP was developed to target various seasonal conditions to assess whether water and sediment quality at different water levels and environmental conditions remained the same. Three of the four proposed sampling events have been carried out to date, including:

- 1) Late August/early September 2013 - immediately after shoreline clean-up (SCAT). The stage level in Lemon Creek was 0.7 m compared to 0.8 m at the time of the spill.
- 2) November 2013 - an assessment at low water level conditions prior to winter. Note that it was proposed that the sampling be completed following a major rainfall event prior to winter (October/November) when any residual hydrocarbons may be flushed through the system. However, the month of November was relatively dry and a sustained fall rainfall event did not occur; instead, an assessment at low water level conditions was carried late November 2013. The stage level in Lemon Creek was 0.7 m.
- 3) Late May 2014 - during spring freshet (high water levels). Water stage level data was obtained from Environment Canada to determine when spring freshet occurred (refer to Figure 1, below). The stage level in Lemon Creek was 1.3 m, approximately 0.5 m above the creek levels at the time of the spill.

Table A, below provides a summary of the sampling events completed to date. The fourth sampling event, if required, was planned for near the end of July 2014 when water levels were expected to be similar to those during the time of the spill.

Table A: Summary of Water and Sediment Sampling Events

Sampling Dates	Observations and Sample Program
Aug. 29 to Sept. 13, 2013 – following Clean-up	Based on observations of the Site during this sampling event, residual hydrocarbon sheen was visible immediately downgradient of the accident site on Lemon Creek for approximately 200 m and sporadically downstream to the confluence of the Slocan River as well as hydrocarbon sheen was visible on Slocan River in a localized area downstream of Perry's Back Bridge. Surface water, sediment and porewater (limited to Slocan River only) sample locations targeted these hot spot locations as well as locations with historical exceedences, PODs and those locations at product collection points where booms directed materials towards shoreline product recovery sites. The August/September sampling included the collection of the following samples: • Lemon Creek: 9 sediment/surface water sample locations, including 1 background, 5 existing and 3 new locations. • Slocan River: 14 sediment/surface water sample locations, including 1 background, 9 existing and 4 new locations. • Slocan River: 6 porewater sample locations, including 1 background and 5 worst case sample locations. The total number of samples submitted for analysis included: • 25 sediment, including 2 duplicates; • 33 surface water (23) and deeper column (7) samples, including 3 duplicates; and • 6 porewater samples, including a duplicate collected from sample points along the Slocan River.



Table A (Cont'd): Summary of Water and Sediment Sampling Events

Sampling Dates	Observations and Sample Program
Nov. 26 to Nov. 28, 2013 – low water prior to winter freeze	Based on observations of the Site during this sampling event, it was difficult to view the sides of Lemon Creek as ice and snow had developed which also made sampling difficult. Although, despite Lemon Creek being mostly frozen, a hydrocarbon odour was noticed within Lemon Creek near the confluence with the Slocan. Furthermore, a hydrocarbon sheen was visible when rock and woody debris was disturbed along the Slocan River downstream of Lemon Creek. There was no sheen present downstream of Perry's Back Bridge. In addition, the west (main) side channel on the Slocan River was examined and no residual fuel or hydrocarbon odour was detected. Surface water, sediment and porewater (limited to the Slocan River only) sample locations targeted these hot spot locations as well as selected locations completed as part of the August/September sampling event. The November sampling included the collection of the following samples: • Lemon Creek: re-sample previous 6 sediment sample locations, including 1 background, 4 existing locations, sampled in August 2013, and 1 new location. • Lemon Creek: re-sample previous 7 surface water sample locations, including 1 background, 4 existing, sampled in August 2013, and 2 new locations. • Slocan River: re-sample 10 of the previous 14 sediment locations, including 1 background and 8 existing locations, sampled in August 2013, and 1 new location. • Slocan River: re-sample 8 of the previous 14 surface water locations, including 1 background and 7 existing locations. • Slocan River: re-sample 5 of the previous 7 porewater locations, including 1 background and 4 worst case locations. The total number of samples submitted for analysis includes: • 16 sediment, including 1 duplicate; • 21 surface water (15) and deeper column (3) samples, including 3 duplicates; and • 7 porewater samples collected from sample points along the Slocan River.
May 20 to May 22, 2014 – high water freshet	Based on observations of the Site during this sampling event, residual hydrocarbon sheen and odour was observed beneath boulders and cobbles within Lemon Creek near the confluence with the Slocan River as well as upstream of Mr. Hulbert's property. There was no hydrocarbon sheen observed downstream of Lemon Creek along the Slocan River, however, a faint hydrocarbon odour was detected downstream of Perry's Back Bridge. Surface water, sediment, porewater (limited to the Slocan River only) and drinking water (limited to Lemon Creek only, specifically Mr. Hulbert's drinking water well only) sample locations targeted these hot spot locations as well as selected locations completed as part of the August/September and November sampling events. The May sampling included the collection of the following samples: • Lemon Creek: re-sample previous 7 sediment sample locations, including 1 background, 4 existing locations, sampling in August and/or November 2013, and 1 new location. • Lemon Creek: re-sample previous 7 surface water sample locations, including 1 background and 6 existing locations, sampling in August and/or November 2014, and 1 new location. • Lemon Creek: Mr. Hulbert's shallow drinking water well. • Slocan River: re-sample 11 of the previous 14 sediment locations, including 1 background and 10 existing locations, sampled in August and/or November 2014, and 1 new location.



Table A (Cont'd): Summary of Water and Sediment Sampling Events

Sampling Dates	Observations and Sample Program
May 20 to May 22, 2014 – high water freshet (cont'd)	- Slocan River: re-sample 12 of the previous 17 surface water locations, including 1 background and 11 existing locations. - Slocan River: re-sample 6 of the previous 7 porewater locations, including 1 background and 5 worst case locations. The total number of samples submitted for analysis includes: 22 sediment, including 2 duplicates; 20 surface water, 3 deeper column samples and 2 duplicates; 6 porewater samples collected from sample points along the Slocan River; and 1 drinking water sample collected from Mr. Hulbert's shallow drinking water well.

LEMON CREEK ABOVE SOUTH LEMON CREEK [BC] (08NJ160)

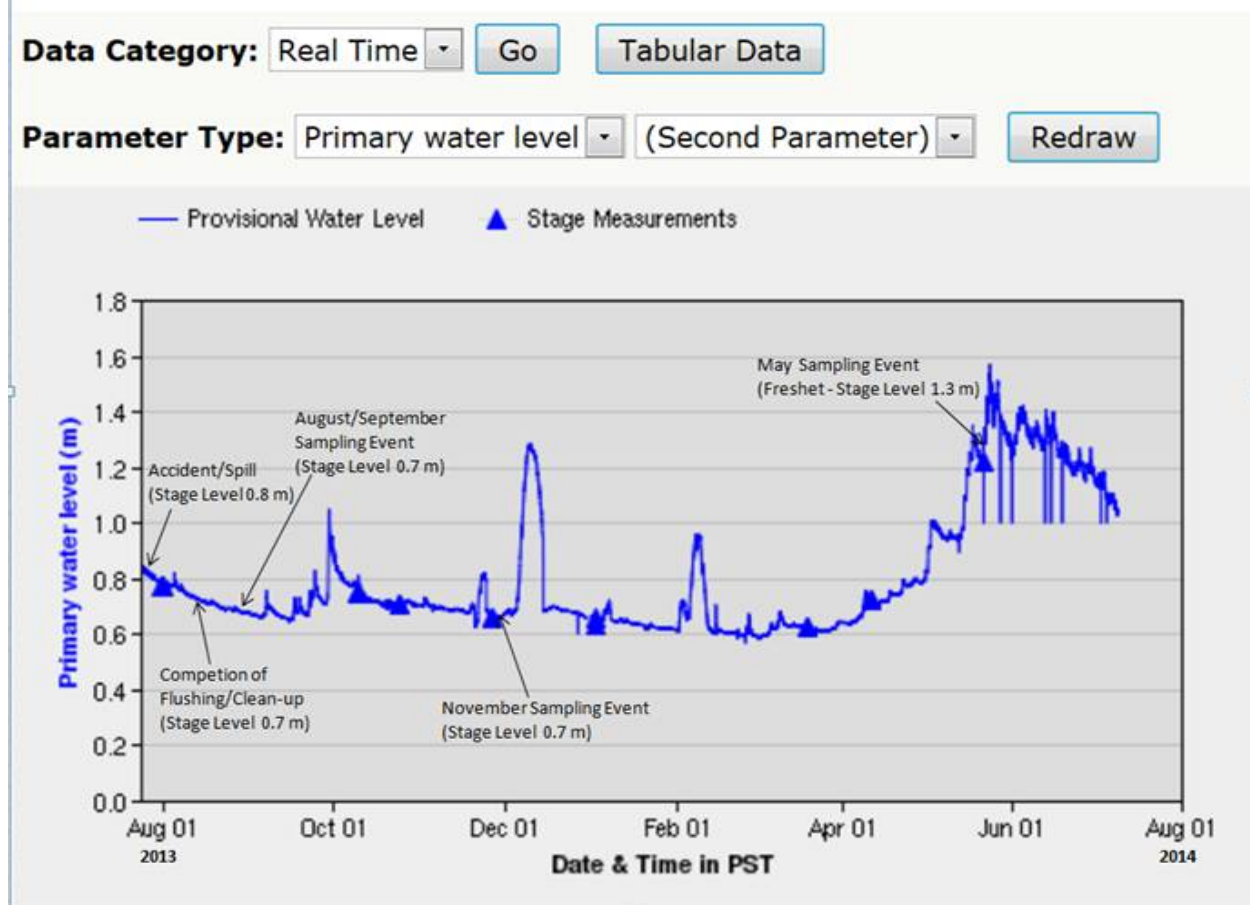


Figure 1: Stage Water Level – Lemon Creek



Summary of May 2014 Monitoring

Based on the most recent May 2014 freshet sampling, as summarized in Table A, above, there appears to be still a presence of trace sheen and hydrocarbon odour along Lemon Creek at the confluence with the Slocan River as well as upstream of Mr. Hulbert's property. This may be a result of the movement of boulders and cobbles within the creek during high water level conditions, thereby mobilizing trace residual hydrocarbon. Furthermore, there was a faint hydrocarbon odour downstream of Lemon Creek on the Slocan River, possibly as a result of the odour originating from Lemon Creek and moving downstream. It is noted that overall, based on the field observations, residual hydrocarbon sheen and odour appear to have improved along Lemon Creek and the Slocan River following clean-up in August 2013.

Summary of May 2014 Sampling Results

Based on the May 2014 analytical results (refer to attached Tables 1 through 4 and Drawings 615438-3.1, -3.2, -3.3 and -3.4), concentration of hydrocarbons were non-detectable in surface water and sediment samples collected from the two locations on Lemon Creek where residual sheen was observed as well as the water sample collected from Mr. Hulbert's shallow drinking water well. Furthermore, the remaining 18 locations, including 6 along Lemon Creek and 12 along Slocan River that were sampled and analyzed also contained non-detectable concentrations of hydrocarbons in surface water and sediment as well as porewater samples collected along the Slocan River.

Water/Sediment EMP Conclusions

Based on the May results, groundwater impacts along Lemon Creek and/or the Slocan River are not expected. As such, it appears that the flushing/clean-up efforts were effective in reducing the mass of Jet A1 fuel along Lemon Creek and the Slocan River, and spring freshet conditions appear to have aided in the flushing process which are inferred to mobilize residual jet fuel trapped beneath boulders and cobbles within Lemon Creek allowing for further attenuation of the product. Therefore, based on existing information, we recommend that no further remediation in Lemon Creek and the Slocan River is required at this time. In addition, considering all samples collected and analyzed as part of the May 2014 freshet sampling event contain non-detectable concentrations of hydrocarbons indicating that the end-points have been achieved, we proposed not to continue/complete the fourth and final monitoring and sampling event tentatively planned for Lemon Creek and the Slocan River for the end of July 2014. However, we propose to continue to observe and document the conditions along Lemon Creek and the Slocan River as part of the ongoing Biological EMP.



B. BIOLOGICAL EMP

Listed below are minor modifications to the Lemon Creek EMP as it relates to select biological programs (fish tissue, Lemon Creek fish community, and mark-recapture programs) as well as the reporting period. Supporting rationale for each program modification is included. Proposed biological changes (#1-3, below) have been discussed with Jeff Burrows (Senior Fisheries Biologist, MFLNRO) (email dated July 18, 2014) and he has concurred with what has been proposed herein.

Requested modifications to the Biological EMP are the following:

- 1) Fish tissue sampling: To summarize from the May 2014 interim monitoring report, tissue results indicate that PAH levels are similar between samples collected from Lemon pool and the Little Slokan/Slokan River confluence site located approximately 30km downstream.

Data generated from the fish tissues analyzed from whole samples collected in October 2013 indicate the PAH profile would not be considered similar to the released product, as most of the associated PAH compounds in Jet A1 fuel were non-detectable. Based on extensive scientific literature, teleost fish are capable of metabolizing PAHs readily and this can be supported by laboratory results that clearly show multiple non-detect and/or very low PAH levels in the fish tissues three months after the spill occurred. Furthermore, fish in the Slokan River system have been subjected to other 'historical' inputs, which are not associated with Jet A1 fuel. Even with historical inputs and the release of Jet A1 fuel, PAH levels remain negligible suggesting fish in the Slokan watershed are effective at metabolizing PAHs they encounter.

With respect to the observed presence of phenanthrene in sampled tissues, the noted presence is likely an artifact in the Slokan system. Phenanthrene is a compound that occurs naturally and levels recorded in Mountain Whitefish from the Slokan River are similar to natural levels documented in other systems with no industrial development or anthropogenic stressors (e.g., Taylor et al. 1998). Detected PAHs were well below those described by Alberta Environmental Protection as safe for human consumption, or risk to fish or wildlife species that consumed those fish (Sosiak 1998). Based on the lines of evidence discussed, the observed presence of phenanthrene does not appear to be a concern to fish health or human/wildlife consumption. Further, PAH levels found in Mountain Whitefish tissue from Lemon Pool are similar to the implied reference site, while the PAH profile in tissue is dissimilar to the released product. Consequently, the endpoint for this program has been reached.



While sensory assessment studies of tainting using a taste panel have not been conducted, available science clearly indicates that the low to non-detectable levels of PAHs present in the October tissue samples would not induce fish tainting. To date, SNC-Lavalin is not aware of any reports of potential fish tainting from the public from before the October sampling or after. As such, the endpoint of the spill resulting in no tainting of fish has been reached.

Given that the endpoints for fish tissue toxicity and tainting have been achieved, we recommend that no further fish tissue sampling in Lemon Creek and Slocan River is required at this time.

- 2) Fish Community Monitoring Program (Lemon Creek): The proposed April sampling event was postponed to late July to coincide with the spill anniversary date and to account for similar environmental conditions at the time of the spill. The purpose of the April sampling period was originally to characterize fish use of overwintering habitat in Lemon Creek. However, we have determined that overwintering habitat is fairly limited in Lemon Creek, and thus, sampling during this period would not add substantive value to understanding fish community abundance and distribution as well as effectively address the fish resource endpoint. We believe that data collected in late July under conditions similar to those experienced during the spill would be more useful. The plan is to conduct field sampling in late July 2014, depending on site conditions (e.g., flows in Lemon Creek) at the time. If sampling is not conducive, we would delay to early August until such time water levels had subsided to allow for more effective/safe sampling. The second sampling event is still proposed to occur in early September (as described in the approved EMP) during lower flows when fish have settled into their preferred summer rearing habitats.
- 3) Mark-Recapture Program: The aim of the program was to focus primarily on Mountain Whitefish inhabiting select backchannels on Slocan River, as this is where the majority of deceased fish were recovered during the emergency response phase last year. With a prolonged delay initiating the EMP, the mark/recapture program did not commence until October 2013. As a result of the late start, select backchannels were found to be dry where deceased fish were recovered. Thus, we modified the program at the time to focus the MR on Rainbow Trout. Rainbow Trout were the second most abundant species recorded deceased during the emergency response and thus provided justification for their inclusion in the MR program. Rainbow Trout data from the MR program was discussed in the EMP interim report dated May 7, 2014. No Mountain Whitefish were captured during the MR program completed in 2013, most likely due to a seasonal shift in habitat.



In order to increase the likelihood of encountering Mountain Whitefish as part of the MR program, we propose to sample in late July/early August 2014 when conditions are similar to those during the spill in 2013. By sampling near the spill anniversary date, we believe that we can obtain a better understanding of Mountain Whitefish relative abundance in those same backchannels where the majority of deceased specimens were collected. As mentioned above, the intent is to sample in late July 2014, but this will, again, entirely depend on site conditions at the time. If sampling is not conducive, we will delay field work to August when water levels have reasonably decreased allowing for effective sampling.

We also propose to collect additional Rainbow Trout data (and Mountain Whitefish if encountered) in October 2014 (coinciding with the timing of sampling in 2013) to allow for adequate comparisons between years (2013 and 2014) and among sites.

- 4) Reporting: Given little field data has been collected in 2014 to date, there is limited information to report on for the July 2014 interim reporting period. Further, given there are field programs scheduled for late July-October, we will not be in a position to develop a final report that includes 2013, and all 2014 data. Thus we propose the following dates, which is a shift from the dates originally agreed to in the Approved EMP (July 1 interim report; September 15 final report).
- a draft report deadline of February 15, 2014 and
 - a final report deadline of April 17th, 2015 subject to when comments are received by MOE.

This proposed revised reporting schedule should provide adequate time to receive data from labs, analyze all new fish and benthic invertebrate data, incorporate previous/historical data (where feasible), interpret results, evaluate those results against specified endpoints, and prepare the final report.

REFERENCES

- Sosiak, A. 1998. Changes in Contaminant Levels in the Bow River Following the Installation of a Containment System at the Canada Creosote Site. Water Sciences Branch Alberta Environmental Protection. 27p.
- Taylor, B.R., Sanderson, J. And C. Lafontaine. 1998. Liard River environmental quality monitoring program. Water Resources Division. Indian and Northern Affairs Canada. Yellowknife, NWT. 60pg.



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We trust this memo provides sufficient rationale for your needs. Should you have any questions or concerns, please do not hesitate to contact one of the undersigned.

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SNC-LAVALIN INC.

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TABLES:

- 1: Summary of Analytical Results for Lemon Creek – Surface Water – Hydrocarbons, PAHs, and VOCs
- 2: Summary of Analytical Results for Lemon Creek – Sediment – Hydrocarbons, and PAHs
- 3: Summary of Analytical Results for Lemon Creek – Porewater and Drinking Water – Hydrocarbons, PAH and VOCs
- 4: Summary of Analytical Results for Lemon Creek – Porewater – Inorganics

DRAWINGS:

- 615438-3.1 – Detailed Porewater, Surface Water and Sediment Analytical Results – Lemon Creek/Confluence
- 615438-3.2 – Detailed Porewater, Surface Water and Sediment Analytical Results – Slocan North/Perry's Back Bridge
- 615438-3.3 – Detailed Porewater, Surface Water and Sediment Analytical Results – Slocan Middle/Appledale
- 615438-3.4 – Detailed Porewater, Surface Water and Sediment Analytical Results – Slocan South/Winlaw

TABLES:

- 1: Summary of Analytical Results for Lemon Creek – Surface Water – Hydrocarbons, PAHs, and VOCs
- 2: Summary of Analytical Results for Lemon Creek – Sediment – Hydrocarbons, and PAHs
- 3: Summary of Analytical Results for Lemon Creek – Porewater and Drinking Water – Hydrocarbons, PAH and VOCs
- 4: Summary of Analytical Results for Lemon Creek – Porewater – Inorganics

TABLE 1: Summary of Analytical Results for Lemon Creek - Surface Water - Hydrocarbons, PAHs, and VOCs

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons				Gross Parameters								Polycyclic Aromatic Hydrocarbons																VOCs					
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	Methyl tert-butyl ether (µg/L)	F1-BTEX (µg/L)	F1 (C6-C10) (µg/L)	F2 (>C10-C16) (µg/L)	Naphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Acridine (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo(a)anthracene (µg/L)	Chrysene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Benzo(a)pyrene (µg/L)	Indeno(1,2,3-cd)pyrene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Benzo(g,h,i)perylene (µg/L)	Quinoline (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (µg/L)	
BC Standards/Guidelines																																				
CSR Aquatic Life (AW) ^d			4,000	2,000	390	n/a	15,000	1,500	5,000	500	n/a	34,000	n/a	n/a	n/a	10	n/a	60	120	3	1	0.5	2	0.2	1	1	n/a	n/a	0.1	n/a	n/a	n/a	34	n/a	n/a	
CSR Irrigation (IW)			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
CSR Livestock (LW)			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
CSR Drinking Water (DW)			5	2.4	24	300	15,000	n/a	5,000	n/a	n/a	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
BCWQG Aquatic Life (AW) ^{b,c}			40	200	0.5	30	n/a	150 ^e	n/a	50 ^e	n/a	3,400	n/a	n/a	n/a	1	n/a	6	12	0.3	0.1	0.05	0.2	0.02	0.1	n/a	n/a	n/a	0.01	n/a	n/a	n/a	3.4	n/a	n/a	
BCWQG Livestock (LW)			5	n/a	24	n/a	n/a	n/a	n/a	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
BCWQG Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	20	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a	
BCWQG Aquatic Life (30 day) (AW)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Lemon Creek																																				
SW13-01	SW13-01-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
	SW13-01-131127	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-01-140520	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
SW13-03	SW13-3-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
	SW13-03-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	160	160	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
SW13-05	SW13-03-140520	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-5-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
	SW13-05-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
SW13-05	SW13-05-140521	2014 05 21	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	SW13-23-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
SW13-23	SW13-23-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-23-140520	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-300-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
SW13-300	SW13-300-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-300-140520	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
SW13-305	SW13-305-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
SW13-351	SW13-351-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
	SW13-351-140520	2014 01																																		

TABLE 1 (Cont'd): Summary of Analytical Results for Lemon Creek - Surface Water - Hydrocarbons, PAHs, and VOCs

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons				Gross Parameters									Polycyclic Aromatic Hydrocarbons																			VOCs	
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	Methyl tert-butyl ether (µg/L)	F1-BTEX (µg/L)	F1 (C6-C10) (µg/L)	F2 (>C10-C16) (µg/L)	Naphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Acridine (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo(a)anthracene (µg/L)	Chrysene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Benzo(a)pyrene (µg/L)	Indeno(1,2,3-cd)pyrene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Benzo(g,h,i)perylene (µg/L)	Quinoline (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (µg/L)	
BC Standards/Guidelines																																				
CSR Aquatic Life (AW) ^d			4,000	2,000	390	n/a	15,000	1,500	5,000	500	n/a	34,000	n/a	n/a	n/a	10	n/a	60	120	3	1	0.5	2	0.2	1	1	n/a	n/a	0.1	n/a	n/a	n/a	34	n/a	n/a	
CSR Irrigation (IW)			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
CSR Livestock (LW)			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
CSR Drinking Water (DW)			5	2.4	24	300	15,000	n/a	5,000	n/a	n/a	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a	
BCWQG Aquatic Life (AW) ^{b,c}			40	200	0.5	30	n/a	150 ^e	n/a	50 ^e	n/a	3,400	n/a	n/a	n/a	1	n/a	6	12	0.3	0.1	0.05	0.2	0.02	0.1	n/a	n/a	n/a	0.01	n/a	n/a	n/a	3.4	n/a	n/a	
BCWQG Livestock (LW)			5	n/a	24	n/a	n/a	n/a	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
BCWQG Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	20	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BCWQG Aquatic Life (30 day) (AW)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Slocan River																																				
SW13-04	SW13-04-130913	2013 09 13	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	0.055	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	0.015	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-04-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-DUPA-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	QA/QC RPD %		*	*	*	*	*	*	*	*	*	*	-	-	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-	-
SW13-06	SW13-04	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1
	SW13-06-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
	SW13-06-01-131127	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-06-01-140522	2014 05 22	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-06-02-131127	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-06-02-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
	SW13-DUPB-131127	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.011	-	-	
QA/QC RPD %		*	*	*	*	*	*	*	*	*	*	-	-	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-	-	
SW13-12	SW13-06-02-140522	2014 05 22	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	SW13-12-130831	2013 08 31	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
	SW13-12-131127	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
SW13-113	SW13-12	2014 05 21	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-13-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	45,200	45,200	< 2,500	< 0.5	-	< 100	28,900	< 0.3	< 0.6	< 2	< 2	< 0.5 ^a	< 0.3 ^a	< 0.2 ^a	< 0.05	< 0.07 ^a	< 0.03	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.3	< 1	< 1	
	SW13-113-131127	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-113-01-140522	2014 05 22	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-113-02-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	
SW13-500	SW13-113-02-140522	2014 05 22	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-500-01-130805	2013 08 05	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-500-02-130805	2013 08 05	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-501-01-130805	2013 08 05	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
SW13-501	SW13-501-02-130805	2013 08 05	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
	SW13-502-01-130805	2013 08 05	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01																			

Associated ALS files: L1356408, L1356410, L1356415, L1357513, L1363011, L1397143, L1397222, L1397702, L1458873, L1459495, L1459894, L1344496, L1345905.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

BOLD	Concentration greater than Aquatic Life (AW) standard/guideline.
<u>UNDERLINE</u>	Concentration greater than Irrigation (IW) standard/guideline.
SHADOW	Concentration greater than Livestock (LW) standard/guideline.
SHADED	Concentration greater than Drinking Water (DW) standard/guideline.

^a Laboratory detection limit exceeds regulatory standard/guideline.

^b British Columbia Approved Water Quality Guidelines 2006 Edition, updated 2012.

^c A Compendium of Working Water Quality Guidelines for British Columbia, updated August 2006.

^d Standard to protect freshwater aquatic life.

^e 1/10th of the CSR AW standard applied as per Technical Guidance 15.

TABLE 1 (Cont'd): Summary of Analytical Results for Lemon Creek - Surface Water - Hydrocarbons, PAHs, and VOCs

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons				Gross Parameters									Polycyclic Aromatic Hydrocarbons																				VOCs		
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	Methyl tert-butyl ether (µg/L)	F1-BTEX (µg/L)	F1 (C6-C10) (µg/L)	F2 (>C10-C16) (µg/L)	Naphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Acridine (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo(a)anthracene (µg/L)	Chrysene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Benzo(a)pyrene (µg/L)	Indeno(1,2,3-cd)pyrene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Benzo(g,h,i)perylene (µg/L)	Quinoline (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (µg/L)			
BC Standards/Guidelines																																						
CSR Aquatic Life (AW) ^d			4,000	2,000	390	n/a	15,000	1,500	5,000	500	n/a	34,000	n/a	n/a	n/a	10	n/a	60	120	3	1	0.5	2	0.2	1	1	n/a	n/a	0.1	n/a	n/a	n/a	n/a	34	n/a	n/a		
CSR Irrigation (IW)			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
CSR Livestock (LW)			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
CSR Drinking Water (DW)			5	2.4	24	300	15,000	n/a	5,000	n/a	n/a	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
BCWQG Aquatic Life (AW) ^{b,c}			40	200	0.5	30	n/a	150 ^e	n/a	50 ^e	n/a	3,400	n/a	n/a	n/a	1	n/a	6	12	0.3	0.1	0.05	0.2	0.02	0.1	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	3.4	n/a	n/a		
BCWQG Livestock (LW)			5	n/a	24	n/a	n/a	n/a	n/a	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
BCWQG Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	20	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a	n/a		
BCWQG Aquatic Life (30 day) (AW)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a			
Slocan River																																						
SW13-700	SW13-700-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1			
	SW13-700	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-			
SW13-702	SW13-702-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	SW13-702-131128	2013 11 28	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 100	< 100 ^b	< 100	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-			
SW13-704	SW13-704-130831	2014 05 21	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
	SW13-704-130831	2013 08 31	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	SW13-DUPB-130831	2013 08 31	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	QA/QC RPD %		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
SW13-A	SW13-704	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
	SW13-A-01-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	SW13-A-02-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	SW13-A-131128	2013 11 28	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 100	< 100 ^b	< 100	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
SW13-AA	SW13-A-140522	2014 05 22	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
	SW13-AA-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	SW13-AA-131127	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
	SW13-AA-01	2014 05 21	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
SW13-AA-02-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	0.221	< 0.01	0.105	0.073	0.252	0.023	< 0.01	0.113	0.088	0.019	0.013	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	SW13-AA-02	2014 05 21	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
SW13-BB	SW13-BB-130830	2013 08 30	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
SW13-II	SW13-II-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	SW13-II-02-130831	2013 08 31	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1		
	SW13-II-01-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-			
	SW13-II-02-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		
	SW13-II	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-		

Associated ALS files: L1356408, L1356410, L1356415, L1357513, L1363011, L1397143, L1397222, L1397702, L1458873, L1459495, L1459894, L1344496, L1345905.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

BOLD	Concentration greater than Aquatic Life (AW) standard/guideline.
<u>UNDERLINE</u>	Concentration greater than Irrigation (IW) standard/guideline.
SHADOW	Concentration greater than Livestock (LW) standard/guideline.
SHADED	Concentration greater than Drinking Water (DW) standard/guideline.

^a Laboratory detection limit exceeds regulatory standard/guideline.

^b British Columbia Approved Water Quality Guidelines 2006 Edition, updated 2012.

^c A Compendium of Working Water Quality Guidelines for British Columbia, updated August 2006.

^d Standard to protect freshwater aquatic life.

^e 1/10th of the CSR AW standard applied as per Technical Guidance 15.

TABLE 1 (Cont'd): Summary of Analytical Results for Lemon Creek - Surface Water - Hydrocarbons, PAHs, and VOCs

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons				Gross Parameters								Polycyclic Aromatic Hydrocarbons																	VOCs			
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	Methyl tert-butyl ether (µg/L)	F1-BTEX (µg/L)	F1 (C6-C10) (µg/L)	F2 (>C10-C16) (µg/L)	Naphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Acridine (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo(a)anthracene (µg/L)	Chrysene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Benzo(a)pyrene (µg/L)	Indeno(1,2,3-cd)pyrene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Benzo(g,h,i)perylene (µg/L)	Quinoline (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (µg/L)
BC Standards/Guidelines																																			
CSR Aquatic Life (AW) ^d			4,000	2,000	390	n/a	15,000	1,500	5,000	500	n/a	34,000	n/a	n/a	n/a	10	n/a	60	120	3	1	0.5	2	0.2	1	1	n/a	n/a	0.1	n/a	n/a	n/a	34	n/a	n/a
CSR Irrigation (IW)			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CSR Livestock (LW)			n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CSR Drinking Water (DW)			5	2.4	24	300	15,000	n/a	5,000	n/a	n/a	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a
BCWQG Aquatic Life (AW) ^{b,c}			40	200	0.5	30	n/a	150 ^e	n/a	50 ^e	n/a	3,400	n/a	n/a	n/a	1	n/a	6	12	0.3	0.1	0.05	0.2	0.02	0.1	n/a	n/a	n/a	0.01	n/a	n/a	n/a	3.4	n/a	n/a
BCWQG Livestock (LW)			5	n/a	24	n/a	n/a	n/a	n/a	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BCWQG Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	20	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a
BCWQG Aquatic Life (30 day) (AW)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Slocan River																																			
SW13-JJ	SW13-JJ-130808	2013 08 08	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	330	330	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.02	0.021	< 0.02	< 0.01	< 0.02	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.02	-	-
	SW13-N-130808	2013 08 08	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	QA/QC RPD %		*	*	*	*	*	*	*	*	*	*	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-	-
	SW13-JJ-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1
	SW13-JJ-01-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	SW13-JJ-02-131126	2013 11 26	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	SW13-JJ	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	SW14-DUPA-SR	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	QA/QC RPD %		*	*	*	*	*	*	*	*	*	*	-	-	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-	-
SW13-LL	SW13-LL-01-130805	2013 08 05	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	SW13-LL-02-130805	2013 08 05	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	< 100	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
	SW13-LL-01-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1
	SW13-LL-02-130829	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1
	SW13-LL	2014 05 20	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-
Travel Blank	ALS TRAVEL BLANK	2013 08 29	< 0.5	< 0.5	< 0.5	< 0.75	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	< 100	< 300	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 1	< 1	

Associated ALS files: L1356408, L1356410, L1356415, L1357513, L1363011, L1397143, L1397222, L1397702, L1458873, L1459495, L1459894, L1344496, L1345905.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

BOLD	Concentration greater than Aquatic Life (AW) standard/guideline.
<u>UNDERLINE</u>	Concentration greater than Irrigation (IW) standard/guideline.
SHADOW	Concentration greater than Livestock (LW) standard/guideline.
SHADED	Concentration greater than Drinking Water (DW) standard/guideline.

^a Laboratory detection limit exceeds regulatory standard/guideline.

^b British Columbia Approved Water Quality Guidelines 2006 Edition, updated 2012.

^c A Compendium of Working Water Quality Guidelines for British Columbia, updated August 2006.

^d Standard to protect freshwater aquatic life.

^e 1/10th of the CSR AW standard applied as per Technical Guidance 15.

TABLE 2: Summary of Analytical Results for Lemon Creek - Sediment - Hydrocarbons, and PAHs

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Moisture (%)	TOC (%)	FOC (g/g)	Grain Size				Gross Parameters							Polycyclic Aromatic Hydrocarbons																				
							Gravel (%)	Sand (%)	Silt (%)	Clay (%)	VPH (C6-C10) (µg/g)	EPH (C10-C19) (µg/g)	LEPH (C10-C19) (µg/g)	EPH (C19-C32) (µg/g)	HEPH (C19-C32) (µg/g)	F1-BTEX (µg/g)	F1 (C6-C10) (µg/g)	F2 (>C10-C16) (µg/g)	Naphthalene (µg/g)	2-Methylnaphthalene (µg/g)	Acenaphthylene (µg/g)	Acenaphthene (µg/g)	Fluorene (µg/g)	Phenanthrene (µg/g)	Anthracene (µg/g)	Fluoranthene (µg/g)	Pyrene (µg/g)	Benzo(a)anthracene (µg/g)	Chrysene (µg/g)	Benzo(b)fluoranthene (µg/g)	Benzo(b+h+k)fluoranthene (µg/g)	Benzo(k)fluoranthene (µg/g)	Benzo(a)pyrene (µg/g)	Indeno(1,2,3-cd)pyrene (µg/g)	Dibenz(a,h)anthracene (µg/g)	Benzo(g,h,i)perylene (µg/g)		
BC Standards																																						
CSR Fresh Water Sediment (FW Sediment) - Sensitive																																						
CSR Fresh Water Sediment (FW Sediment) - Typical																																						
Lemon Creek																																						
SED13-01	SED13-01-130829	2013 08 29	0 - 0.1	15.8	1.02	0.0102	19.1	58.8	18.5	3.6	< 100	< 200	< 200	< 200	< 200	-	< 10	110	0.011	0.031	< 0.005	< 0.005	0.011	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-01-131127	2013 11 27	0 - 0.1	20.8	0.49	0.0049	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
SED13-03	SED13-01	2014 05 20	0 - 0.1	23.9	2.72	0.0272	1.02	77.6	20.1	1.28	-	< 200	< 200	< 200	< 200	-	-	-	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-3-130830	2013 08 30	0 - 0.1	16.4	< 0.1	< 0.001	52.9	45.3	1.8	< 0.1	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-03-131126	2013 11 26	0 - 0.1	25.5	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
SED13-05	SED13-03	2014 05 20	0 - 0.1	31.7	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-5-130830	2013 08 30	0 - 0.1	18.5	0.22	0.0022	55.3	43.7	0.9	< 0.1	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-05-131126	2013 11 26	0 - 0.1	14.7	< 0.1	< 0.001	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
SED13-23	SED13-05	2014 05 21	0 - 0.1	25.6	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-23-130830	2013 08 30	0 - 0.1	17.8	< 0.1	< 0.001	2.56	96.1	1.25	< 0.1	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-23-131126	2013 11 26	0 - 0.1	58.6	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
SED13-300	SED13-23	2014 05 20	0 - 0.1	41.8	2.68	0.0268	19.9	64.5	14.7	0.88	-	< 200	< 200	< 200	< 200	-	-	-	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-300-130829	2013 08 29	0 - 0.1	18.4	-	-	24.8	73.7	1.4	< 0.1	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-300-131126	2013 11 26	0 - 0.1	19	< 0.1	< 0.001	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	SED13-300	2014 05 20	0 - 0.1	28.3	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
SED13-305	SED13-305-130829	2013 08 29	0 - 0.1	19	-	-	39.4	59.3	1.31	< 0.1	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
SED13-351	SED13-351-130829	2013 08 29	0 - 0.1	21.6	-	-	2.12	96	1.87	< 0.1	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
SED13-352	SED13-351	2014 05 20	0 - 0.1	26.4	0.74	0.0074	3.43	90.3	5.95	0.37	-	< 200 ^a	< 200	< 200 ^a	< 200	-	-	-	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-352-130829	2013 08 29	0 - 0.1	15.7	-	-	53.2	45.1	1.66	0.12	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	SED13-352-131127	2013 11 27	0 - 0.1	20.2	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		
SED13-353	SED13-353-130830	2013 08 30	0 - 0.1	12.9	0.12	0.0012	70.2	29.4	0.39	< 0.1	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0						

TABLE 2 (Cont'd): Summary of Analytical Results for Lemon Creek - Sediment - Hydrocarbons, and PAHs

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Depth Interval (m)	Grain Size							Gross Parameters							Polycyclic Aromatic Hydrocarbons																			
				Moisture (%)	TOC (%)	FOC (g/g)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	VPH (C6-C10) (µg/g)	EPH (C10-C19) (µg/g)	LEPH (C10-C19) (µg/g)	EPH (C19-C32) (µg/g)	HEPH (C19-C32) (µg/g)	F1-BTEX (µg/g)	F1 (C6-C10) (µg/g)	F2 (>C10-C16) (µg/g)	Naphthalene (µg/g)	2-Methylnaphthalene (µg/g)	Acenaphthylene (µg/g)	Acenaphthene (µg/g)	Fluorene (µg/g)	Phenanthrene (µg/g)	Anthracene (µg/g)	Fluoranthene (µg/g)	Pyrene (µg/g)	Benzo(a)anthracene (µg/g)	Chrysene (µg/g)	Benzo(b)fluoranthene (µg/g)	Benzo(b+h+k)fluoranthene (µg/g)	Benzo(k)fluoranthene (µg/g)	Benzo(a)pyrene (µg/g)	Indeno(1,2,3-cd)pyrene (µg/g)	Dibenz(a,h)anthracene (µg/g)	Benzo(g,h,i)perylene (µg/g)	
BC Standards																																					
CSR Fresh Water Sediment (FW Sediment) - Sensitive				n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.24	0.12	0.08	0.055	0.089	0.32	0.15	1.5	0.54	0.24	0.53	n/a	n/a	n/a	0.48	n/a	0.084	n/a	
CSR Fresh Water Sediment (FW Sediment) - Typical				n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.47	0.24	0.15	0.11	0.17	0.62	0.29	2.8	1.1	0.46	1	n/a	n/a	n/a	0.94	n/a	0.16	n/a	
Slocan River																																					
SED13-102	SED13-102-130829	2013 08 29	0 - 0.1	35.3	-	-	5.02	80	14.4	0.56	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	SED13-102-131126	2013 11 26	0 - 0.1	38.6	0.35	0.0035	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05
	SED13-102	2014 05 20	0 - 0.1	20.7	0.38	0.0038	31.5	55.4	12.2	1.01	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05
	SED14-DUPA-SR	2014 05 20	0 - 0.1	25.1	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05
	QA/QC RPD %			19	*	*	*	*	*	*	-	*	*	*	*	-	-	-	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SED13-104	SED13-104-130829	2013 08 29	0 - 0.1	32.8	-	-	43.6	47.5	8.3	0.62	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	SED13-104	2014 05 20	0 - 0.1	29.1	0.79	0.0079	16.5	59.5	22.5	1.51	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	
SED13-113	SED13-113-130829	2013 08 29	0 - 0.1	42.2	0.61	0.0061	< 0.1	73.2	25.6	1.17	< 100	260	260	< 200	< 200	-	< 10	39	< 0.01	< 0.01	< 0.005	< 0.01	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	SED13-113-131127	2013 11 27	0 - 0.1	57.5	1.92	0.0192	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	
	SED13-113	2014 05 22	0 - 0.1	56.4	5.27	0.0527	< 0.1	43.6	52.2	4.19	-	< 220	< 220	< 220	< 220	-	-	-	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
SED13-700	SED13-700-130829	2013 08 29	0 - 0.1	32.3	-	-	< 0.1	63.1	34.7	2.21	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
SED13-702	SED13-702-130830	2013 08 30	0 - 0.1	24.2	-	-	< 0.1	98.4	1.56	< 0.1	< 100	< 200	< 200	< 200	< 200	< 10	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	SED13-702-A-131128	2013 11 28	0 - 0.1	19.9	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	
	SED13-702	2014 05 21	0 - 0.1	34	0.5	0.005	0.14	86.7	12.9	0.33	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05
SED13-703	SED13-703-130830	2013 08 30	0 - 0.1	29	-	-	< 0.1	94.3	5.65	< 0.1	< 100	< 200	< 200	< 200	< 200	< 10	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
SED13-704	SED13-704-130831	2013 08 31	0 - 0.1	36.6	0.5	0.005	< 0.1	76.6	22.3	1.11	< 100	< 200	< 200	< 200	< 200	< 10	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	SED13-DUPB-130831	2013 08 31	0 - 0.1	32.6	-	-	< 0.1	77.8	21.2	0.93	< 100	< 200	< 200	< 200	< 200	< 10	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01
	QA/QC RPD %			12	*	*	*	2	5	18	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
	SED13-704	2014 05 20	0 - 0.1	38.6	-	-	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	
BEACH6-01	BEACH6-01-130829	2013 08 29	0 - 0.1	21.1	0.16	0.0016	61.9	35.5	2.32	0.27	< 100	< 200	< 200	< 200	< 200	-	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	
	BEACH6-01-131127	2013 11 27	0 - 0.1	31.5	0.13	0.0013	-	-	-	-	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
	BEACH6-01	2014 05 21	0 - 0.1	27.2	0.13	0.0013	< 0.1	92.4	7.22	0.41	-	< 200	< 200	< 200	< 200	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	< 0.05	< 0.05	< 0.05	< 0.05	
BEACH7-01	BEACH7-01-130830	2013 08 30	0 - 0.1	43.9	-	-	< 0.1	67.8	31.3	0.99	< 100	< 200	< 200	< 200	< 200	< 10	< 10	< 30	< 0.01	< 0.01	< 0.005	< 0.005	< 0.01	< 0.01	< 0.004	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.015	< 0.01	< 0.01	< 0.01	< 0.005	< 0.01	

Associated ALS files: L1356410, L1356415, L1357513, L1397143, L1397222, L1397702, L1356408, L1458873, L1459495, L1459894, L1363011.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

SHADED Concentration greater than CSR Fresh Water Sediment (FW Sediment) standard (sensitive and typical).

^a Analyzed using the Silica Gel method for Extractable Petroleum Hydrocarbons.

TABLE 3 (Cont'd): Summary of Analytical Results for Lemon Creek - Porewater and Drinking Water - Hydrocarbons, PAH and VOCs

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Monocyclic Aromatic Hydrocarbons					Gross Parameters								Polycyclic Aromatic Hydrocarbons																		VOCs				
			Benzene (µg/L)	Ethyl-benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	Styrene (µg/L)	VHw6-10 (µg/L)	VPHw (C6-C10) (µg/L)	EPHw10-19 (µg/L)	LEPHw (C10-C19) (µg/L)	EPHw19-32 (µg/L)	Methyl tert-butyl ether (µg/L)	F1-BTEX (µg/L)	F1 (C6-C10) (µg/L)	F2 (>C10-C16) (µg/L)	Naphthalene (µg/L)	Acenaphthylene (µg/L)	Acenaphthene (µg/L)	Fluorene (µg/L)	Phenanthrene (µg/L)	Anthracene (µg/L)	Acridine (µg/L)	Fluoranthene (µg/L)	Pyrene (µg/L)	Benzo(a)anthracene (µg/L)	Chrysene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Benzo(a)pyrene (µg/L)	Indeno(1,2,3-cd)pyrene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Benzo(g,h,i)perylene (µg/L)	Quinoline (µg/L)	1,2,4-Trimethylbenzene (µg/L)	1,3,5-Trimethylbenzene (µg/L)		
BC Standards/Guidelines																																						
CSR Aquatic Life (AW) ^d			4,000	2,000	390	n/a	720	15,000	1,500	5,000	500	n/a	34,000	n/a	n/a	n/a	10	n/a	60	120	3	1	0.5	2	0.2	1	1	n/a	n/a	0.1	n/a	n/a	n/a	n/a	34	n/a	n/a	
CSR Irrigation (IW)			n/a	n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
CSR Livestock (LW)			n/a	n/a	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
CSR Drinking Water (DW)			5	2.4	24	300	n/a	15,000	n/a	5,000	n/a	n/a	15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
BCWQG Aquatic Life (AW) ^{b,c}			40	200	0.5	30	72	n/a	150 ^e	n/a	50 ^e	n/a	3,400	n/a	n/a	n/a	1	n/a	6	12	0.3	0.1	0.05	0.2	0.02	0.1	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	3.4	n/a	n/a	
BCWQG Livestock (LW)			5	n/a	24	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
BCWQG Drinking Water (DW)			5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	n/a	20	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.01	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
BCWQG Aquatic Life (30 day) (AW)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Travel Blank	TRAVEL BLANK	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 0.5	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-	
	PW14-DUPD-SR	2014 05 21	< 0.5	< 0.5	< 0.5	< 0.75	< 0.5	< 100	< 100	< 100	< 100 ^a	< 100	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	
Equipment Blank	EQUIPMENT BLANK	2013 11 27	< 0.5	< 0.5	< 0.5	< 0.75	< 0.5	< 100	< 100	< 250	< 250 ^a	< 250	< 0.5	-	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05 ^a	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	-	-
	PW14-DUPC-SR	2014 05 21	< 0.5	< 0.5	< 0.5	< 0.75	< 0.5	< 100	< 100	< 50	< 50	< 50	< 0.5	-	-	-	< 0.05	< 0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	-	-	

Associated ALS files: L1361059, L1362480, L1363011, L1397143, L1397702, L1458873, L1459495, L1459894.

All terms defined within the body of SNC-Lavalin's report.

< Denotes concentration less than indicated detection limit.

- Denotes analysis not conducted.

n/a Denotes no applicable standard.

BOLD	Concentration greater than Aquatic Life (AW) standard/guideline.
<u>UNDERLINE</u>	Concentration greater than Irrigation (IW) standard/guideline.
SHADOW	Concentration greater than Livestock (LW) standard/guideline.
SHADED	Concentration greater than Drinking Water (DW) standard/guideline.

^a Laboratory detection limit exceeds regulatory standard/guideline.
^b British Columbia Approved Water Quality Guidelines 2006 Edition, updated 2012.
^c A Compendium of Working Water Quality Guidelines for British Columbia, updated August 2006.
^d Standard to protect freshwater aquatic life.
^e 1/10th of the CSR AW standard applied as per Technical Guidance 15.

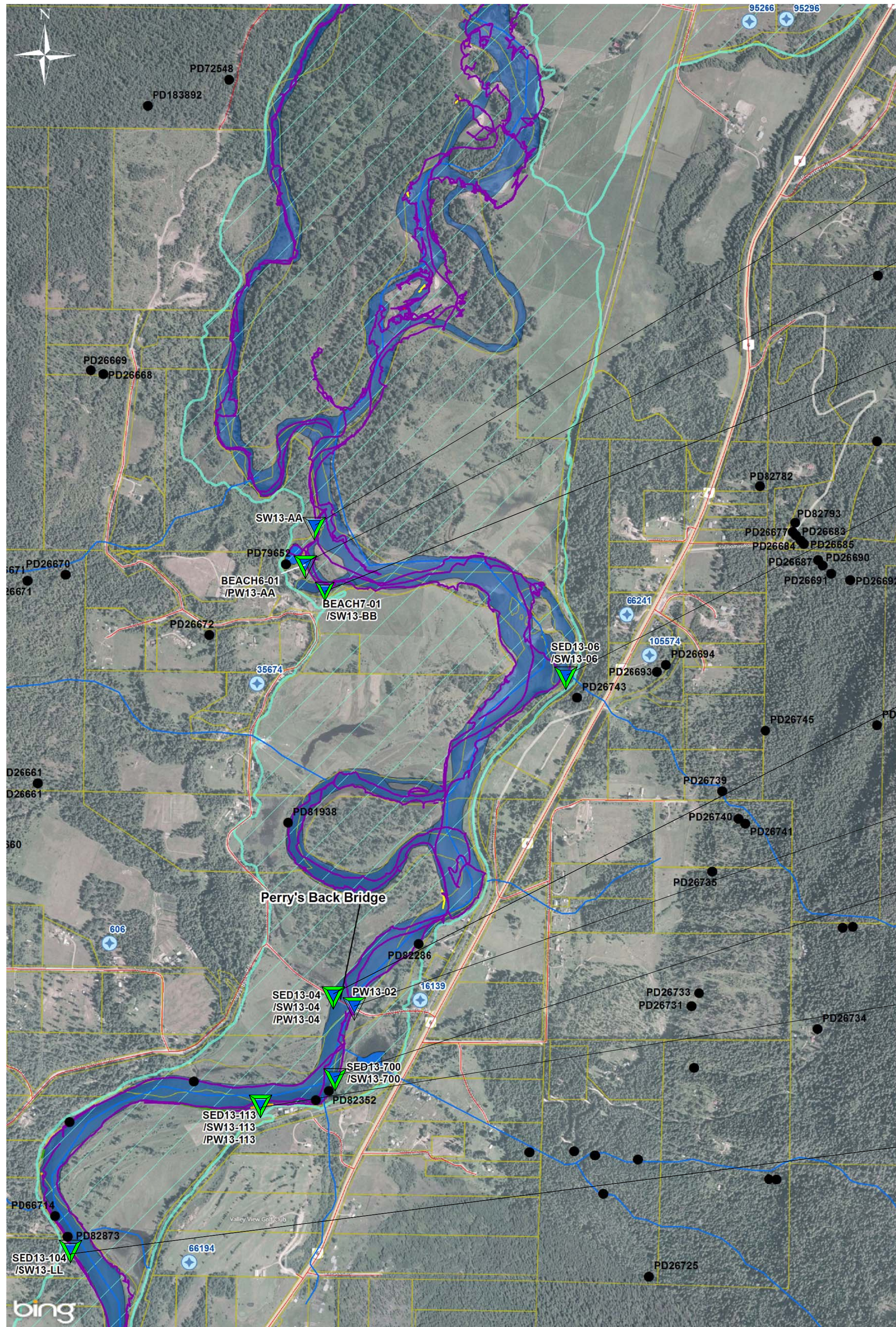
TABLE 4: Summary of Analytical Results for Lemon Creek - Porewater - Inorganics

Sample Location	Sample ID	Sample Date (yyyy mm dd)	Physical		Dissolved Inorganics								Dissolved Metals																								Total Metals																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
			Hardness (mg/L)	Total Suspended Solids (mg/L)	Nitrate Nitrogen (µg/L)	Nitrite Nitrogen (µg/L)	Chloride (mg/L)	Fluoride (µg/L)	Sulphate (mg/L)	Total Alkalinity (as CaCO3) (mg/L)	Bromide (mg/L)	Total Acidity (mg/L)	Dissolved Aluminum (µg/L)	Dissolved Calcium (mg/L)	Dissolved Iron (µg/L)	Dissolved Magnesium (mg/L)	Dissolved Manganese (µg/L)	Dissolved Potassium (mg/L)	Dissolved Sodium (mg/L)	Antimony (µg/L)	Arsenic (µg/L)	Barium (µg/L)	Beryllium (µg/L)	Boron (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Cobalt (µg/L)	Copper (µg/L)	Lead (µg/L)	Lithium (µg/L)	Mercury (µg/L)	Molybdenum (µg/L)	Nickel (µg/L)	Selenium (µg/L)	Silver (µg/L)	Thallium (µg/L)	Tin (µg/L)	Titanium (µg/L)	Uranium (µg/L)	Vanadium (µg/L)	Zinc (µg/L)	Total Iron (µg/L)	Total Manganese (µg/L)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Associated ALS files: L1361059, L1362480, L1363011, L1397143, L1397702, L1458873, L1459495, L1459894.
All terms defined within the body of SNC-Lavalin's report.
< Denotes concentration less than indicated detection limit or RPD less than indicated value.
- Denotes analysis not conducted.
n/a

DRAWINGS:

- 615438-3.1 – Detailed Porewater, Surface Water and Sediment Analytical Results – Lemon Creek/Confluence
- 615438-3.2 – Detailed Porewater, Surface Water and Sediment Analytical Results – Slocan North/Perry's Back Bridge
- 615438-3.3 – Detailed Porewater, Surface Water and Sediment Analytical Results – Slocan Middle/Appledale
- 615438-3.4 – Detailed Porewater, Surface Water and Sediment Analytical Results – Slocan South/Winlaw



SW13-AA	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1
2013 08 30 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	0.211	0.252	0.008	<1	<1
2013 11 27	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 21 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 21 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

BEACH6-01	Depth	VRH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	<200	<200	<10
2013 11 27	0.0 - 0.1	—	<200	<200	<10
2014 05 21	0.0 - 0.1	—	<200	<200	<10

PW13-AA	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 11 27	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2013 09 11	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.04	<0.01	—	—
DUP. OF ABOVE	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.04	<0.01	—	—
2014 05 21	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

BEACH7-01	Depth	VRH	LEPH	HEPH	PAH
2013 08 30	0.0 - 0.1	<100	<200	<200	<10

SW13-BB	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 30	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1

SED13-06	Depth	VRH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	<200	<200	<10
2013 11 27	0.0 - 0.1	—	<200	<200	<10
2014 05 22	0.0 - 0.1	—	<200	<200	<10

SW13-06	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1
2013 08 30	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1
2013 11 27 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2013 11 27 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
DUP. OF ABOVE	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 22 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 22 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

SED13-04	Depth	VRH	LEPH	HEPH	PAH
2013 09 13	0.0 - 0.1	<100	<200	<200	<10
2013 11 26	0.0 - 0.1	—	<200	<200	<10
DUP. OF ABOVE	0.0 - 0.1	—	<200	<200	<10
2014 05 20	0.0 - 0.1	—	<200	<200	<10

SW13-04	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 09 13	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	0.055	<0.02	0.015	—	—
2013 11 26	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
DUP. OF ABOVE	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

PW13-04	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 09 13	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	0.069	<0.02	<0.01	—	—
2013 11 26	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
DUP. OF ABOVE	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

PW13-02	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 09 09	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1

SED13-700	Depth	VRH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	<200	<200	<10

SW13-700	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1
2014 09 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

SED13-113	Depth	VRH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	280	<200	<10
2013 11 27	0.0 - 0.1	—	<200	<200	<10
2014 05 22	0.0 - 0.1	—	<220	<220	<10

SW13-113	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.3	<0.5 ^g	<0.02 ^g	<1	<1
2013 08 30 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1
2013 11 27	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 22 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 22 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

PW13-113	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 09 13	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	—	—
2013 11 27	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 22	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

SED13-104	Depth	VRH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	<200	<200	<10
2014 05 20	0.0 - 0.1	—	<200	<200	<10

SW13-LL	B	E	T	X	VHwE-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PVR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1
2013 08 29 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^g	<0.05	<0.02	<0.01	<1	<1
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

		SEDIMENT			
LOCATION					
SED13-703	Depth	VPH	LEPH	HEPH	PAH
2013 08 30	0.0 - 0.1	<100	<200	<200	<STD

SAMPLE DATE	
RED = CONCENTRATION GREATER THAN THE APPLICABLE STANDARDS	
GREEN = CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS	

LOCATION							S
SW13-03	B	E	T	X	WH6-10	VPHw	
2013 11 26	<0.5	<0.5	<0.5	<0.75	<100	<100	

DEPTH	VRH	LEPH	HEPH	PAH								
2013 11 26	<0.5	<0.5	<0.5	<0.75	<100	<100	160	<0.05	<0.02	<0.01	—	—

TO THE APPLICABLE STANDARDS AND/OR GUIDELINES	
NOTES	
ORIGINAL DRAWING IN COLOUR.	

LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED PRIOR TO INTRUSIVE WORK. NOT ALL UTILITIES MAY BE SHOWN.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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	No.
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DEPTH	VRH	LEPH	HEPH	PAH								
2013 11 26	<0.5	<0.5	<0.5	<0.75	<100	<100	160	<0.05	<0.02	<0.01	—	—

NOTES

1. ORIGINAL DRAWING IN COLOUR.
2. LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED PRIOR TO INTRODUCTIVE WORK. NOT ALL UTILITIES MAY BE SHOWN.

REFERENCE DRAWINGS

REVISIONS



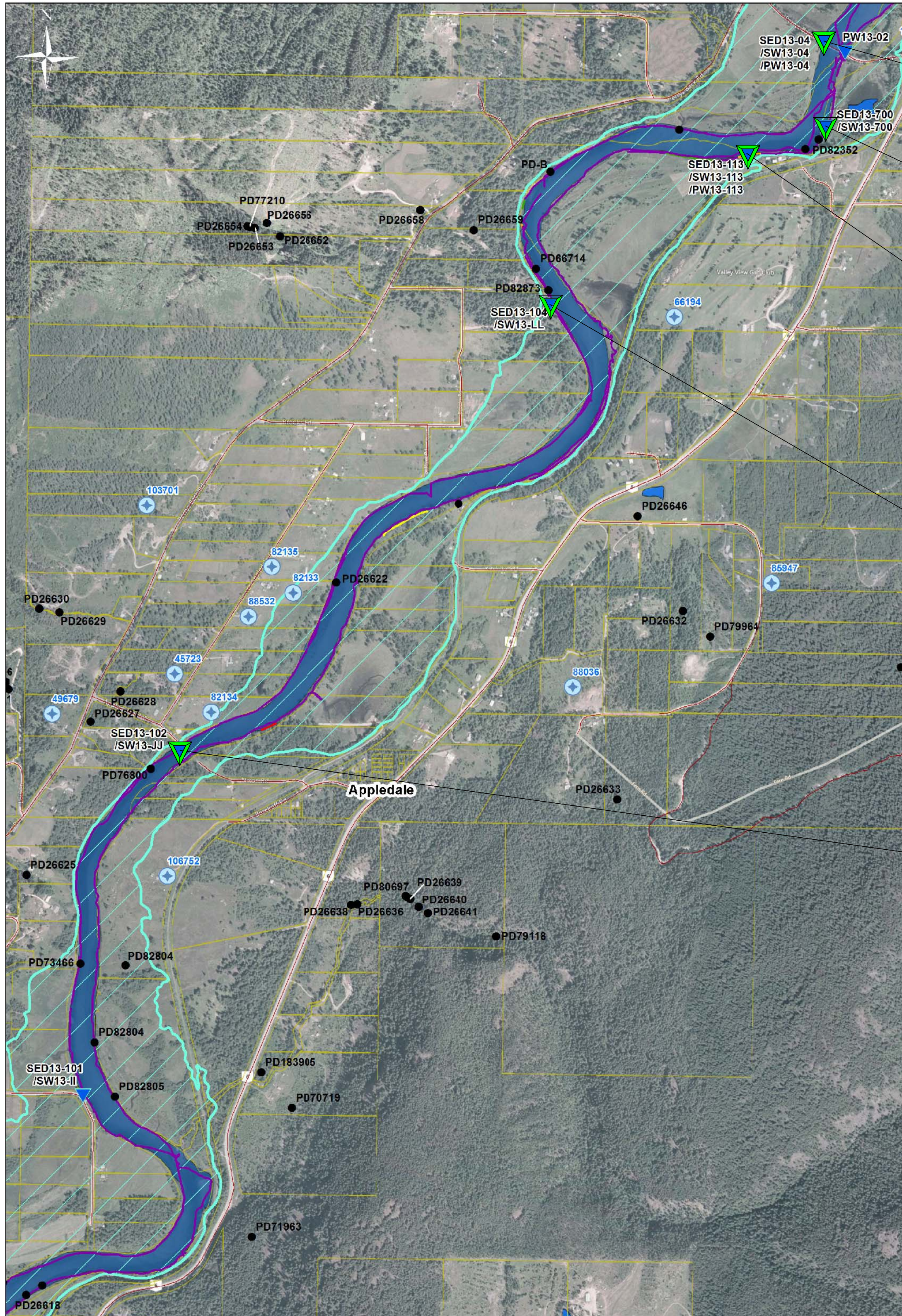
CLIENT NAME: EXECUTIVE FLIGHT CENTER	PROJECT LOCATION: LEMON CREEK, LEMON CREEK, BC
TITLE: DETAILED POREWATER, SURFACE WATER AND SEDIMENT ANALYTICAL RESULTS - SLOCAN NORTH/PERRY'S BACK BRIDGE	
OWN BY: DMB	SCALE: 1:10,000
DATE: 2013-09-23	DWG No: 615438-3.2

LEGEND



- ▲ Sediment and/or Surface Water Sample Location
- Groundwater Wells
- Point of Diversion Licence
- Floodplains
- Roads
- Cadastral Boundaries
- SCAT RESIDUAL JET FUEL OBSERVATIONS
- HEAVY
- MODERATE
- LIGHT
- TRACE
- VERY LIGHT
- NO OBSERVED JET FUEL
- ▲ SURFACE WATER CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS AND/OR GUIDELINES
- ▲ SEDIMENT CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS
- ▲ FOREWATER CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS AND/OR GUIDELINES
- ▲ SURFACE WATER CONCENTRATION(S) GREATER THAN THE APPLICABLE STANDARDS AND/OR GUIDELINES
- ▲ SEDIMENT CONCENTRATION(S) GREATER THAN THE APPLICABLE STANDARDS
- ▲ FOREWATER CONCENTRATION(S) GREATER THAN THE APPLICABLE STANDARDS AND/OR GUIDELINES

- B BENZENE
- E ETHYLBENZENE
- T TOLUENE
- X XYLENES
- VHwE-10 VOLATILE HYDROCARBONS
- VPHw VOLATILE PETROLEUM HYDROCARBONS (C6-C10)
- EPHw10-19 EXTRACTABLE PETROLEUM HYDROCARBONS
- LEPHw LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS (C10-C19)
- NAP NAPHthalene
- PHE PHENANTHRENE
- PVR PYRENE
- VRH VOLATILE PETROLEUM HYDROCARBONS
- LEPHw LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS
- HEPHw HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS
- PAH POLYCYCLIC AROMATIC HYDROCARBONS
- < DENOTES CONCENTRATION LESS THAN INDICATED DETECTION LIMIT
- NOT ANALYSED FOR



SED13-04	Depth	VPH	LEPH	HEPH	PAH
2013 09 13	0.0 - 0.1	<100	<200	<200	<10
2013 11 26	0.0 - 0.1	—	<200	<200	<10
DUP. OF ABOVE	0.0 - 0.1	—	<200	<200	<10
2014 05 20	0.0 - 0.1	—	<200	<200	<10

SW13-04	B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 09 13	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	0.055	<0.02	0.015	—	—
2013 11 26	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
DUP. OF ABOVE	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

PW13-04	B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 09 13	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	0.055	<0.02	<0.01	—	—
2013 11 26	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
DUP. OF ABOVE	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

SED13-700	Depth	VPH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	<200	<200	<10

SW13-700	B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	<0.05	<0.02	<0.01	<1	<1
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

SED13-113	Depth	VPH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	260	<200	<10
2013 11 27	0.0 - 0.1	—	<200	<200	<10
2014 05 22	0.0 - 0.1	—	<200	<200	<10

SW13-113	B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	<0.3	<0.02	<0.01	<1	<1
2013 08 30 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	<0.05	<0.02	<0.01	<1	<1
2013 11 27	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 22 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 22 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

PW13-113	B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 09 13	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	<0.05	<0.02	<0.01	—	—
2013 11 27	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 22	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

SED13-104	Depth	VPH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	<200	<200	<10
2014 05 20	0.0 - 0.1	—	<200	<200	<10

SW13-LL	B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	<0.05	<0.02	<0.01	<1	<1
2013 08 29 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	<0.05	<0.02	<0.01	<1	<1
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

SED13-102	Depth	VPH	LEPH	HEPH	PAH
2013 08 29	0.0 - 0.1	<100	<200	<200	<10
2013 11 26	0.0 - 0.1	—	<200	<200	<10
2014 05 20	0.0 - 0.1	—	<200	<200	<10
DUP. OF ABOVE	0.0 - 0.1	—	<200	<200	<10

SW13-JJ	B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 08 29	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^a	<0.05	<0.02	<0.01	<1	<1
2013 11 26 (surface)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2013 11 26 (column)	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—
DUP. OF ABOVE	<0.5	<0.5	<0.5	<0.75	<100	<100	<50	<50	<0.05	<0.02	<0.01	—	—

LOCATION		SEDIMENT				
SED13-703	Depth	VPH	LEPH	HEPH	PAH	
2013 08 30	0.0 - 0.1	<100	<200	<200	<10	
SAMPLE DATE: —						

RED - CONCENTRATION GREATER THAN THE APPLICABLE STANDARDS
GREEN - CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS

LOCATION		SURFACE WATER/POREWATER												
SW13-03		B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 11 26		<0.5	<0.5	<0.5	<0.75	<100	<100	160	160	<0.05	<0.02	<0.01	--	--
SAMPLE DATE														

RED - CONCENTRATION GREATER THAN THE APPLICABLE STANDARDS AND/OR GUIDELINES
GREEN - CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS AND/OR GUIDELINES

SEDIMENT STANDARDS			
VPH	LEPH	HEPH	PAH
n/a	n/a	n/a	SEE TABLES

CSR FW Sediment STANDARDS (µg/g)

B	E	T	X	VHw6-10	VPHw	EPHw10-19	LEPHw	NAP	PHE	PYR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
4,000	2,000	390	n/a	15,000	1,500	5,000	500	10	3	0.2	n/a	n/a
CSR AW STANDARDS (µg/L)	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a	n/a	n/a	n/a
CSR W STANDARDS (µg/L)	n/a	n/a	n/a	15,000	n/a	5,000	n/a	n/a	n/a	n/a	n/a	n/a
CSR LW STANDARDS (µg/L)	5	2.4	24	300	15,000	n/a	5,000	n/a	n/a	n/a	n/a	n/a
BOWGO AW STANDARDS (µg/L)	40	200	0.5	30	—	150 (per TG 15)	n/a	50 (per TG 15)	1	0.3	0.02	n/a
2013 11 26	n/a	24	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
BOWGO LW STANDARDS (µg/L)	5	2.4	24	300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

^a Denotes MDL is greater than the regulatory standard.

LEGEND



- ▼ Sediment and/or Surface Water Sample Location
- Groundwater Wells
- Point of Diversion Licence
- Roads
- Cadastral Boundaries
- SCAT RESIDUAL JET FUEL OBSERVATIONS
- HEAVY
- MODERATE
- LIGHT
- TRACE
- VERY LIGHT
- NO OBSERVED JET FUEL
- ▲ SURFACE WATER CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS AND/OR GUIDELINES
- ▲ SEDIMENT CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS
- ▲ FOREWATER CONCENTRATION(S) LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS AND/OR GUIDELINES
- ▲ SURFACE WATER CONCENTRATION(S) GREATER THAN THE APPLICABLE STANDARDS AND/OR GUIDELINES
- ▲ SEDIMENT CONCENTRATION(S) GREATER THAN THE APPLICABLE STANDARDS
- ▲ FOREWATER CONCENTRATION(S) GREATER THAN THE APPLICABLE STANDARDS AND/OR GUIDELINES
- B BENZENE
- E ETHYLBENZENE
- T TOLUENE
- X XYLENES
- VHw6-10 VOLATILE HYDROCARBONS
- VPHw VOLATILE PETROLEUM HYDROCARBONS (C6-C10)
| EPHw10-19 | EXTRACTABLE PETROLEUM HYDROCARBONS (C10-C19) |
| LEPHw | LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS |
| NAP | NAPHTHALENE |
| PHE | PHENANTHRENE |
| PYR | PYRENE |
| VPH | VOLATILE PETROLEUM HYDROCARBONS |
| LEPH | LIGHT EXTRACTABLE PETROLEUM HYDROCARBONS |
| HEPH | HEAVY EXTRACTABLE PETROLEUM HYDROCARBONS |
| PAH | POLYCYCLIC AROMATIC HYDROCARBONS |
| < | CONCENTRATION LESS THAN INDICATED DETECTION LIMIT |
| — | NOT ANALYZED FOR |

NOTES

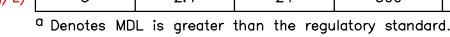
1. ORIGINAL DRAWING IN COLOUR.
2. LOCATION OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED PRIOR TO INTRUSIVE WORK. NOT ALL UTILITIES MAY BE SHOWN.

REFERENCE DRAWINGS

REVISIONS



CLIENT NAME: EXECUTIVE FLIGHT CENTER
PROJECT LOCATION: LEMON CREEK, BC
TITLE: DETAILED POREWATER, SURFACE WATER AND SEDIMENT ANALYTICAL RESULTS - SLOCAN MIDDLE/APPLEDALE
DWG. No: 615438-3.3
REV: 1



PW13-704	B	E	T	X	Vfhw-6-10	VPHw	EPHw10-19	LEPHw	NAP	PhE	PyR	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
2013 09 09	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<250 ^d	<0.05	<0.02	<0.01	<1	<1
2014 05 20	<0.5	<0.5	<0.5	<0.75	<100	<100	<250	<50	<0.05	<0.02	<0.01	—	—

RED - CONCENTRATION GREATER THAN THE APPLICABLE STANDARDS AND/OR GUIDELINES

GREEN - CONCENTRATION LESS THAN OR EQUAL TO THE APPLICABLE STANDARDS AND/OR GUIDELINES

SURFACE AND POREWATER STANDARD:

^a Denotes MDL is greater than the regulatory standard.

PATH: P:\LOB\EIAM-BC\CURRENT PROJECTS\EXECUTIVE FLIGHT CENTRE\615438 (EMP)\GIS\CAD\615438_R0.DWG