ENVIRONMENTAL DIAGNOSTICS INC.

2016 SEWAGE TREATMENT PLANT ANNUAL REPORT

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1.0 INTRODUCTION

1.1 BACKGROUND

The following annual report for the Wastewater Treatment Plant at Kicking Horse Mountain Resort (KHMR) operated by Kicking Horse Mountain Utility Corporation (KHMUC) is compiled in accordance with the requirements of the Municipal Sewage Regulation (MSR). This report summarizes the calendar year 2016.

In January 2012 Resorts of the Canadian Rockies (RCR) took over the resort and the plant operations and formed KHMUC. KHMUC has made changes to the way the plant operates, mainly by using a spare tank as an equalization tank. There has been a noticeable difference in plant operations since RCR took over and KHMUC was formed.

The resort is an ongoing development currently consisting of a combination of a single family, multi-family, and rental pool/hotel style facilities. These contribute to the total loading of the site in addition to ski hill use and ancillary services.

1.2 RESORT CONSTRUCTION AND OCCUPANCY

Kicking Horse Mountain Resort is located approximately 13 km from Golden. The sewage treatment plant, which was constructed in 2000, is located adjacent to the resort. The treatment USBF (upflow sludge blanket filtration) technology employed is a modified conventional activated sludge process applying an up-flow sludge blanket filtration clarifier. There are two independent treatment trains that are operated in parallel during the peak season (December to April) and as a single train during the rest of the calendar year.

The system incorporates two treatment zones and one clarification zone that are interconnected with the flow been driven by the hydraulic pressure from the influent storage tank pumps.

The two treatment zones consist of an Anoxic Zone and Aeration Zone discharging into an effluent clarifier.

Each zone is triangular in shape. Two 10” underflow pipes on either side of the clarification zone join in the anoxic and aeration zones together. The aeration zone is connected to the clarifier by a slotted flow trough, approximately 18” above the clarifier bottom and the width of the clarifier wall. Each zone is approximately 15’ deep. Effluent clarification is enhanced by an up-flow sludge blanket in the clarifier that serves to filter the solids.

Clarified effluent flows over the clarifier weir into a dual micro filtration well, equipped with dual drum screens. Leaving the drum screens, the final effluent enters an open channel Trojan U.V. disinfection system to be discharged through a 4 km long gravity main to the outfall in the Columbia River.

Waste activated sludge used to be stored in a thickener and removed by vacuum tanker. In the fall of 2014, a 12 unit Teknofanghi (Model Number 12BCAVPK) supplied by Drycake was installed and was commissioned in mid December. The sludge was bagged and disposed of at the CSRD landfill located in Golden, BC.

2.0 REGISTRATION REQUIREMENTS

This section describes operating requirements as specified in the Kicking Horse Mountain Resort (KHMR) Registration Letter RE 15474. The registration describes parameters that must be tested for, operating conditions, sampling frequency, and sampling locations.

2.1 PARAMETERS

The following parameters are to be monitored:

pH	Field Sample
Temperature	Field Sample, measured in Celsius
Flow	Field Samples, measured as m^3 /d
BOD_5	Five day biochemical oxygen demand, measured in mg/l
TSS	Total suspended solids or non filterable residue, measured in mg/l
NH_3	Ammonia concentration, expressed as nitrogen in mg/l
NO_3	Nitrate concentration, expressed as nitrogen in mg/l
NO_2	Nitrite concentration, expressed as nitrogen in mg/l
Total-P	Total phosphorous concentration, measured in mg/l
Ortho-P	Orthophosphate concentration, measured in mg/l
Fecal coliform	Bacterial concentration, measured as colony forming units per 100ml
Enterococci	Bacterial concentration, measured as colony forming units per 100ml
E. Coli	Bacterial concentration, measured as colony forming units per 100ml
Toxicity Bioassay	96 hour toxicity test, recorded as pass or fail

2.2 REGISTRATION LETTER OPERATING CONDITIONS

The treatment plant is required to meet the effluent discharge conditions outlined in Table 1.

Table 1

Effluent Limits

Parameter	Limit	Unit
Flow	300	m^3/d
BOD_5	45	mg/l
TSS	45	mg/l
Total-P	1.0	mg/l
Ortho-P	0.5	mg/l
Fecal Coliforms*	200	CFU/100ml
E. Coli*	77	CFU/100ml
Enterococci*	20	CFU/100ml
Toxicity Bioassay	pass	n/a

*Limit for recreational waters only, not included in RCRI registration letter

Waste activated sludge use to be stored in a thickener and removed by a vacuum tanker. In the fall of 2014, a 12 unit Teknofanghi (Model Number 12BCAVPK) supplied by Drycake was installed and was commissioned in mid December. The sludge was bagged and disposed of at the CSRD landfill located in Golden, BC.

Operators at the plant are required to be certified in Accordance with section 22 of the MSR.

2.3 REPORTING REQUIREMENTS

An annual report demonstrating the performance of the facility is to be publicly posted on the Internet within 120 days of the end of the calendar year.

In addition the report must also include the following:

- Tabulated results of the Effluent and Environmental Monitoring Data with standards and criteria
- Interpretation of the monitoring data
- The total volume discharged over the year
- Total sludge wasted over the year and its final destination
- The state of compliance of the treatment facility/process
- Indicated the percentage of residential development, as defined in the regulation, that contributes to the effluent discharge
- Any additional relevant information the discharger wishes to provide

2.4 SAMPLING FREQUENCY

The MSR Registration requires KHMR and, as such, the contract operator KHMUC, to undertake the environmental testing program outlined in Table 2 below.

Columbia River testing requires that a minimum of 10 samples annually are taken from each of the upstream, the side channel and downstream river locations, relative to the outfall diffuser. The sampling locations were identified in Masse & Miller Consulting Ltd in their letter dated February 17th, 2005. Flow data is to be collected continuously.

The intent of the environmental testing procedure outlined in Table 2 is to collect weekly samples of effluent during the summer and winter seasons. Commencement of the winter weekly seasonal sampling (weekly samples for a period of 5 weeks) is when the river sampling sites open up and the summer monitoring usually commences during low water flow in the river, usually in September or October.

In addition to the program and tests listed above, other in-plant testing is needed to permit operational control of the process.

Table 2

Sampling Location/Frequency/Type

Parameter	Location				
	Columbia River Upstream at Bridge	**Columbia River ~200 d/s of outfall from east shore**	**Columbia River d/s of island from west shore ~1km d/s of outfall**	**Columbia River side channel ~350m d/s of outfall**	**Effluent**
EMS Number	E256694	E258898	E258899	E258897	E256696
	Winter/Summer	Winter/Summer	Winter	Summer	Winter/Summer
pH	WS/G	WS/G	WS/G	WS/G	W
Temp	WS/G	WS/G	WS/G	WS/G	W
Flow	/	/	/	/	W
BOD_5	/	/	/	/	W
TSS	WS/G	WS/G	WS/G	WS/G	WS/G+Q/G
NH_3-N	WS/G	WS/G	WS/G	WS/G	WS/G
NO_3-N	WS/G	WS/G	WS/G	WS/G	WS/G
NO_2-N	WS/G	WS/G	WS/G	WS/G	WS/G
Total-P	WS/G	WS/G	WS/G	WS/G	WS/G
Ortho-P	WS/G	WS/G	WS/G	WS/G	WS/G
Fecal Coliform	WS/G	WS/G	WS/G	WS/G	WS/G+Q/G
Enterococci	WS/G	WS/G	WS/G	WS/G	WS/G
E. Coli	WS/G	WS/G	WS/G	WS/G	WS/G
Toxicity Bioassay	/	/	/	/	1/3Y/G
Coordinates	11.500456 5684421	11.500288 5684880	N51 19.364 W 11700.218	11.500126 5684835	At sewage treatment plant

Where:

WS	Weekly seasonal (weekly samples for a period of 5 weeks)
Q	Quarterly
W	Weekly
G	Grab
1/3Y	Once every 3 years

3.0 SEWAGE FLOW RECORDS

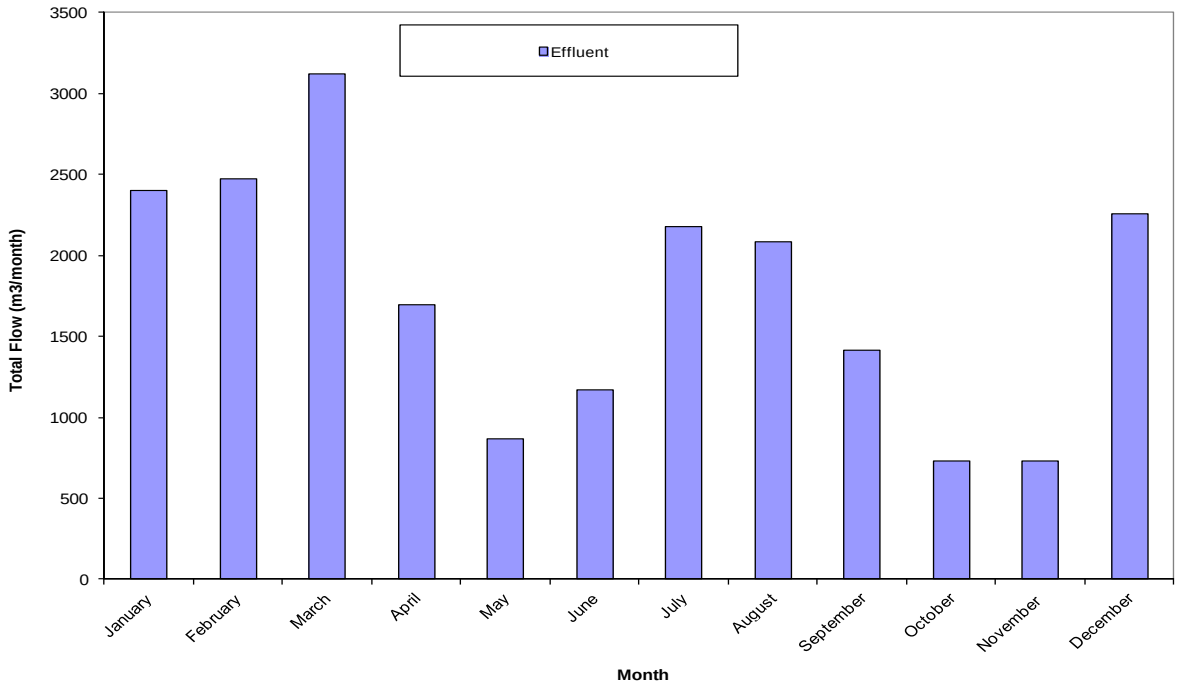
This section provides data and analysis regarding plant effluent flows, and compares 2016 data to the previous years.

Flow data is continuously monitored at the discharge to the outfall using a flow meter to be recorded on the SCADA system. Operators then transcribe the daily flows into a logbook.

The total effluent flow recorded for 2016 was 21,125.09 m^3 with an average of 58.9 m^3/day. Available monthly total effluent flow meter records for 2016 are provided in Figure 1. The SCADA failed to record flow for the entire day on several occasions; therefore flow was estimated on partial data.

Figure 1

Effluent Flow Meter Monthly Flow Totals



The ski resort operates with higher winter and late spring sewage flows than during any other period. Larger sewage flows are typically observed during January, February, March, April and December. The average daily plant flow through January to April and December of 2016 was 65.52 m^3/day compared to 81.79 m^3/day over the same period in 2015, 74.10 m^3/day in 2014, 47.73 m^3/day in 2013, 72.41 m^3/day in 2012, 165.2 m^3/day in 2011 (note that data for Dec was missing) and 108.5 m^3/day in 2010. Peak flow for the year reached 162.25 m^3/day, which is well below the allowable limit of 300 m^3/day limit. The peak flow is similar to previous years which were 137.32 m^3/day in 2015, 145.71 m^3/day in 2014,165.03 m^3/day in 2013, 159.05 m^3/day in 2012, 311.54 m^3/day in 2011 (again note that the data for one of the historically highest months, December was missing), 317.6 m^3/day in 2010 and 251.3 m^3/day in 2009. The peak flow day occurred during the heavy ski season, which is to be expected.

There is currently no method of measuring influent to the treatment plant.

A summary of sewage flow for years 2009 through 2016 is provided in Table 3 and Figures 2 and 3:

Table 3

2009 – 2016 Flow Comparisons

Year	Sewage Flow (m^3/day)			Days Over Limit
	Total	Average	Peak	
2009	25,093.9	69.4	251.3	0
2010	27,467.5	77.6	317.6	2
2011	27,771* (42,340)[1]	116	311.54**	2
2012	17,323.4	47.85	159.05	0
2013	16,089	44.73	165.03	0
2014	19,279[2]	52.88	145.71	0
2015	20,594	56.4	167.32	0
2016	21,125	58.9	162.25	0

*not including all of September, October, November or December
**the number does not reflect a true peak as all the data was not available during the high flow months
[1] (data) in bracket – estimate based on daily average
[2] The SCADA failed to record flow for the entire day on several occasions; therefore flow was estimated on partial data

2009 - 2015

Peak flows in **2009** coincided with the weekends, holidays, ski season and summer recreational activities. The highest daily flow was recorded on Feb 15th at 215.1 m^3/day and on December 31st at 251.3 m^3/day. At no time was the maximum allowed daily flow exceeded.

Peak flows in **2010** coincided with weekends, holidays, ski season and summer recreational activities. The highest daily flow was recorded on New Year's Day at 242.7 m^3/day, February 14th at 206.4 m^3/day, and on December 31st at 317.6 m^3/day. During the third week of July 2010 a lightning strike damaged the level sensors in the wastewater treatment plant resulting in inaccurate measurement of flows. The Ministry of Environment was notified. The operators indicated that during daily monitoring of the system, there was no time when the flows came close to exceeding the permit based on visual observation and process control monitoring.

Peak flows in **2011** also coincided with weekends, holidays, ski season and summer recreational activities. The highest daily flow was recorded on a weekend (March 26th) at 311.54 m^3/day and the second highest peak was observed on New Year's Day at 303.04 m^3/day. The daily flow limit was exceeded on both occasions. Please note the data was incomplete for September, October, November and December 2011.

Peak flows in **2012** also coincided with the peak season in January, February, March and December. There were no daily flow limit exceedances observed in 2012. The reduction in daily flows and reduction in peak flow is due to flow equalization which has now been implemented in the facility using the vacant tank that will one day be used for additional process trains. Flow equalization began in January 2012.

Peak flows in **2013** also coincided with the peak season in January, February, March and December. There were no daily flow limit exceedances observed in 2013. The highest daily flow was recorded on December 29th at 165.03 m^3/day.

Peak flows in **2014** coincided with the peak season in January, February, March and December. There were no daily flow limit exceedances observed in 2014. The highest daily flow was recorded on January 2nd at 145.71 m^3/day. The SCADA failed to record flow for the entire day on several occasions and partial data was used to estimate total flow. The failure was due to computer issues.

On January 9, 24, 25; February 4; March 3, 28, 29; May 23 to June 2, June 9, 14, 15, 23, 27; July 4, 6-10, 12, 13, 28; August 12, 13, 16, 17; September 5, 6; October 1, 3; November 21, 22, 25, 26; and December 7, 8, and 9 the flow was estimated.

Peak flows in **2015** coincided with the peak season in January, February, March and December. There were no daily flow limit exceedances observed in 2015. The highest daily flow was recorded on January 2nd at 167.32 m^3/day.

2016

Peak flows in 2016 coincided with the peak season in January, February, March and December. There were no daily flow limit exceedances observed in 2016. The highest daily flow was recorded on December 29th at 162.25 m^3/day.

Daily wastewater flows are strongly correlated to weather and the number of day-users at the resort with the peak ski season having the highest flows. Summer flow results from non-skiing related recreational activities, generally hiking or mountain biking events. The lowest plant flow is experienced in the shoulder season periods (April to June and September to November).

There are approximately 30 full time year round residents at the resort. In total, there are currently three lodges, three condominiums and 175 family residences. The breakdown is as follows:

Condos
- 3 Properties
- 155 rental units
- 310 rental rooms
- 952 Bed units

Lodge's
- 3 properties
- 30 rental rooms
- 296 Bed units

Family residences (both single and multi-family)
- 175 properties
- 504 rooms
- 1006 Bed units

Figure 2 provides monthly average and peak day sewage flows for January to December 2016.

Figure 2

Average and Peak Sewage Effluent Flow Comparison Graph

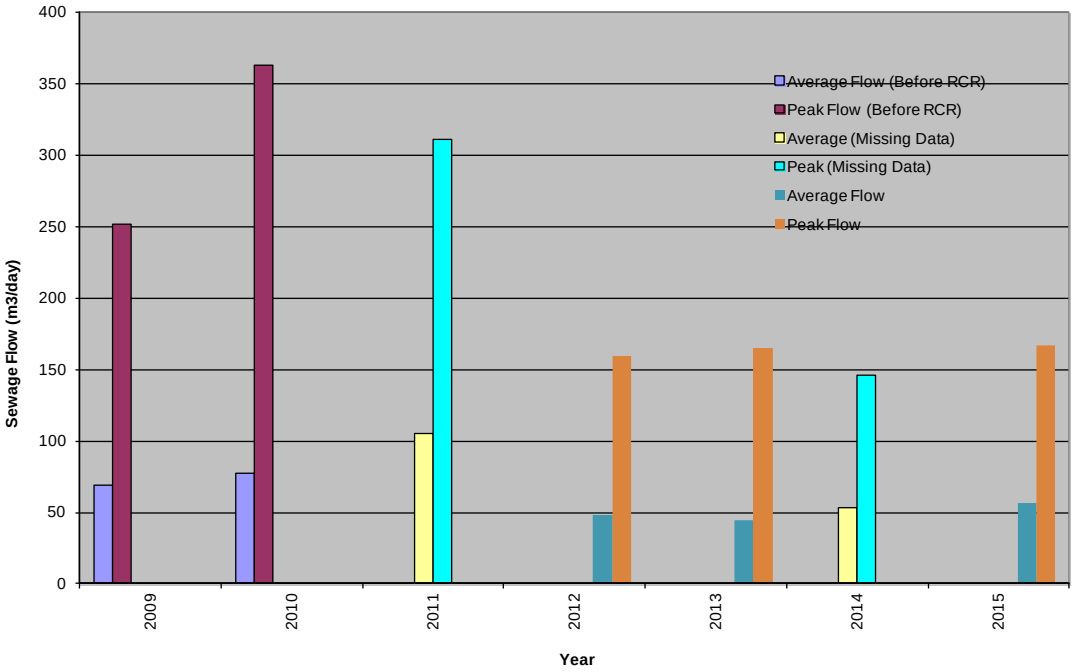


Figure 3

Total Sewage Effluent Flow Graph:

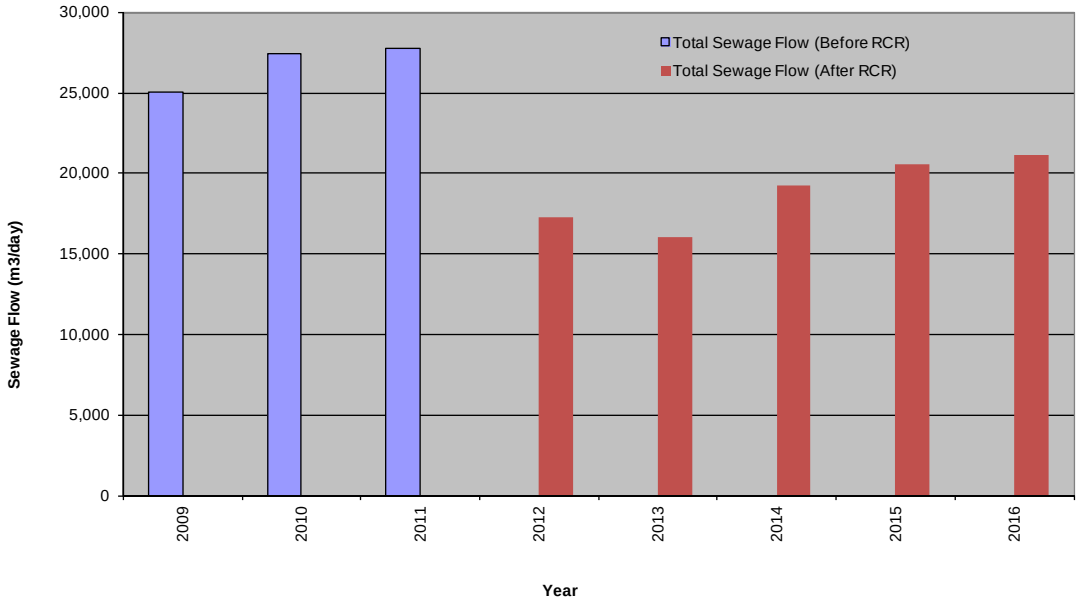
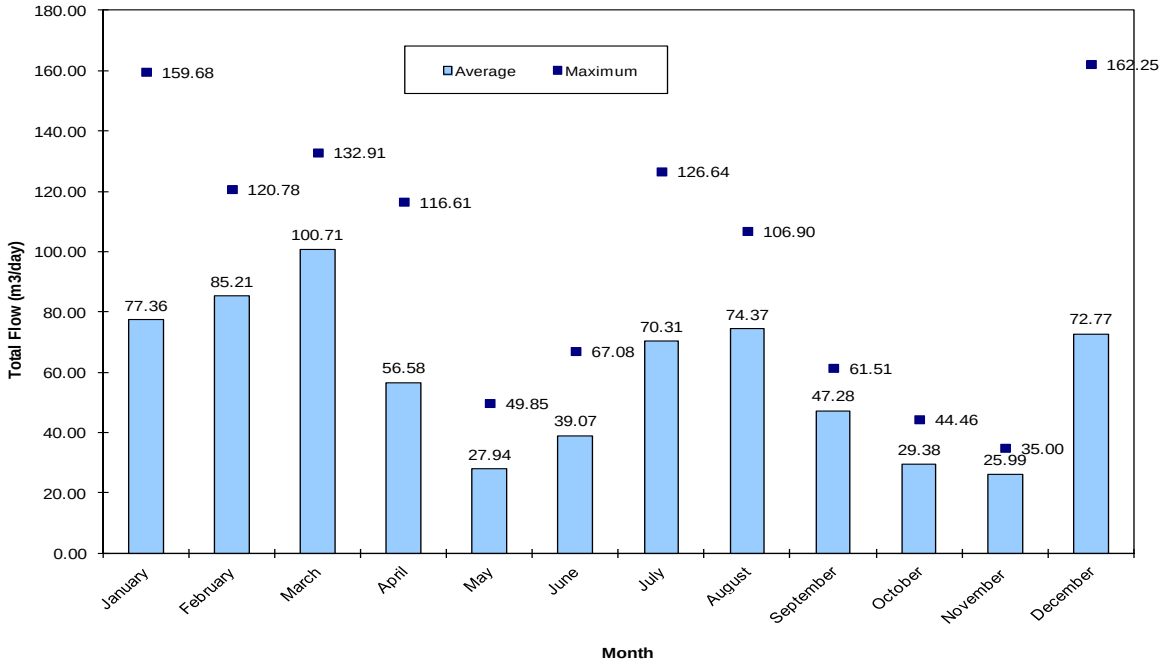


Figure 4

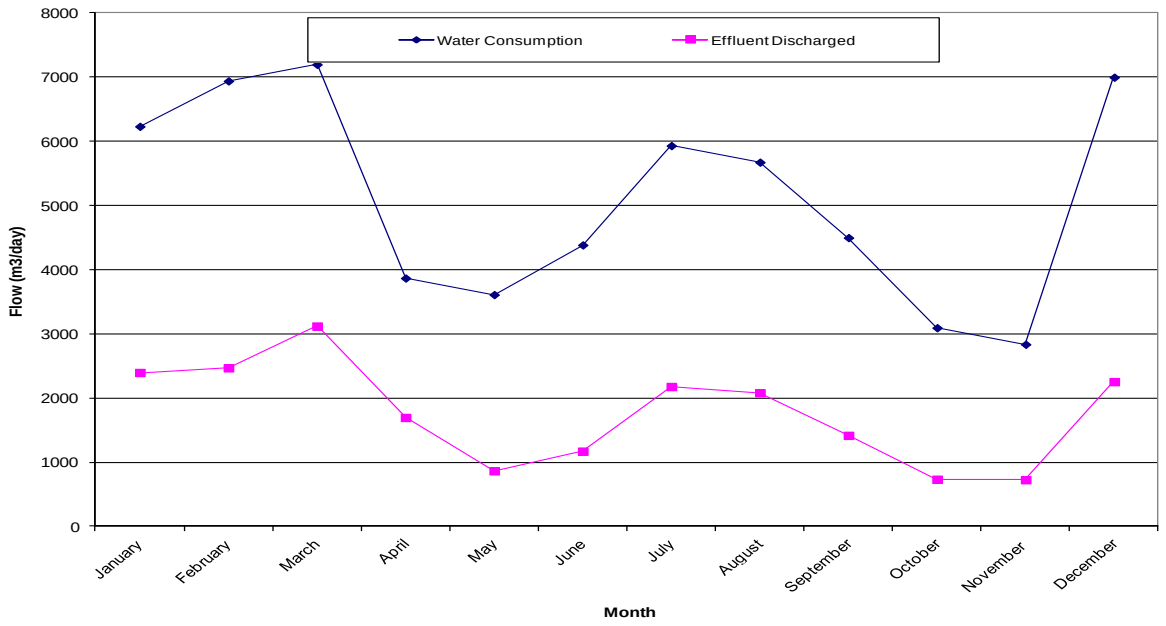
2016 Sewage Effluent Average and Peak Flows by Month



This year, the total effluent discharged was equal to 34.4% of the total water production. Water usage at the hill is compared to the amount of effluent discharged at the WWTP in Figure 5.

Figure 5

2016 Water Consumption and Sewage Effluent Generation



4.0 SEWAGE FLOW PROJECTION

This section shows projected wastewater flow for 2011 through 2016 based on current development plans and provides an estimate of remaining plant capacity.

Based on unit generation rates provided in the BC Health Act for various lodging types as well as the assumption that wastewater generation would have been similar in 2011 to that calculated in 2015, the estimated highest day wastewater generation for 2011 would have been 705.5 m^3/day. Using the actual peak flow of 312 m^3/day, a correction factor of 0.44 was calculated. Averaged correction factor for the last four years (2012, 2013, 2014 and 2015) was also calculated and multiplied by the future estimated flows to more accurately reflect potential resort sewage generation rates. In 2011, 2012, 2013, 2014 and 2015 the correction factors were 0.44, 0.22, 0.23, 0.21 and 0.24 respectively. The correction factor was 0.26 in 2016.

Projected daily peak wastewater flows from 2011 by year were provided in Table 4 for the Resort's planned expansions. The highest water generation for 2011, 2012, 2013, 2014, 2015, 2016 and 2017 was calculated based on the BC Health Act (refer to Table 10 enclosed at the end of this report). The future flows will be re-evaluated as further expansion occurs. The resort is committed to continuing the initiative on introducing a stormwater infiltration program, flow restrictive devices, and other water consumption measures.

Flow restrictive devices are intended to be utilized in all new construction and the infiltration/ rehabilitation program is expected to be ongoing. The intent is to reduce the amount of per unit sewage generation and to reduce the amount of ground and surface water infiltration into the sewer system. KHMUC will monitor sewage flows to determine the efficiency of the program.

Even with additional expansion, KHMUC may not require an increase to permit discharge above the current limit of 300 m^3/day if the flow restriction measures prove sustainable. Sewage discharge rates will be monitored and an application will be submitted to increase the maximum daily discharge when warranted.

Based on 2016 flow data, the plant has an unused capacity of 138 m^3/day (based on an operating limit of 300 m^3/day) due to the flow saving measures. This still needs to be closely monitored during 2017 and further considered when adding additional development.

Table 4

Projected Peak Flows: 2011-2017

	2011	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Estimated Wastewater Flow (m^3/day)	705.5*	705.5*	705.5*	705.5	705.5	705.5	705.5
Actual and Corrected (m^3/day)	312** (a)	159 (a)	165 (a)	146 (a)	167 (a)	162 (a)	183 (b)

*the number was calculated based on 2014 occupancy, which is likely overestimated
**the number does not reflect a true peak as all the data was not available during the high flow months

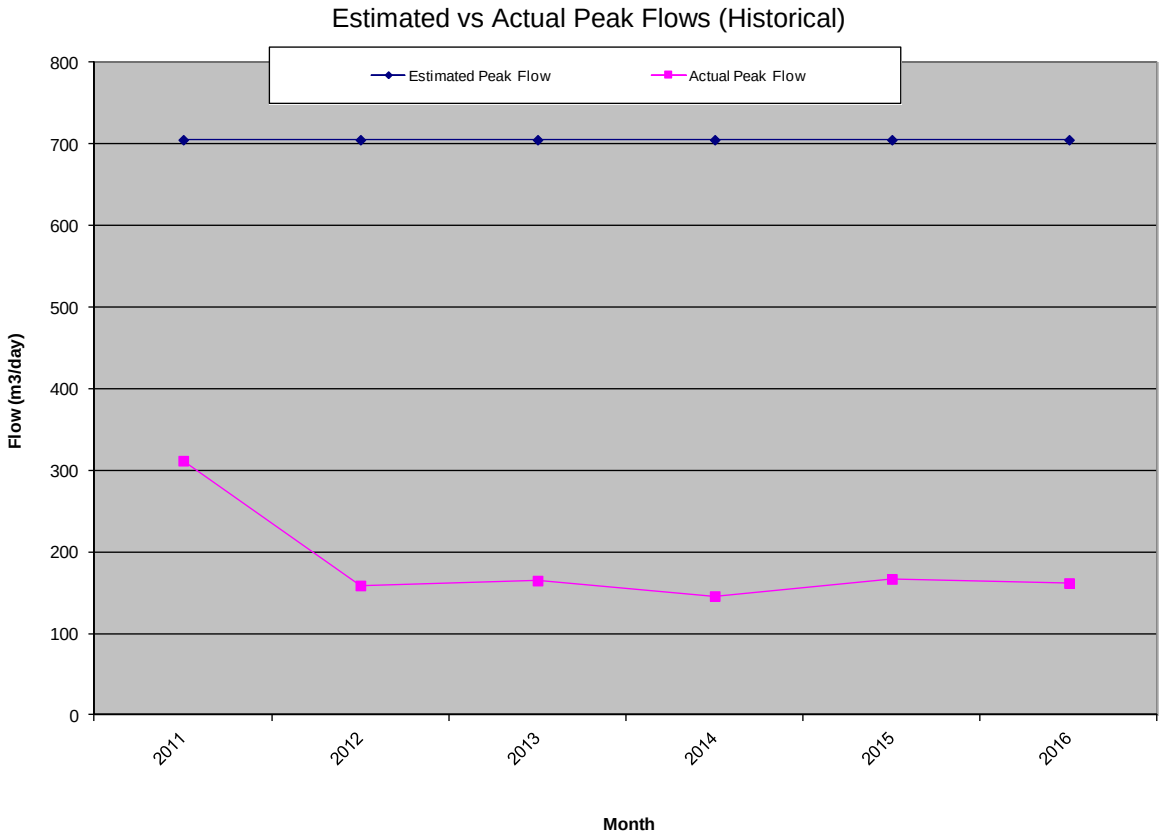
(a) actual peak flow

(b) corrected daily peak flows by the averaged correction faction for 2011, 2012, 2013, 2014, 2015 and 2016 correction factor:

2011	correction factor of	312*/705.5	= 0.44
2012	"	159/705.5	= 0.22
2013	"	165/705.5	= 0.23
2014	"	146/705.5	= 0.21
2015	"	167/705.5	= 0.24
2016	"	162/705.5	= 0.23
	AVERAGE		**= 0.26**

A graph showing estimated vs actual historical peak flows is shown below.

Figure 6



5.0 OVERVIEW OF COLUMBIA RIVER SAMPLE RESULTS

This section provides data and analysis for the Columbia River samples taken during 2016.

Table 4 provides a summary record of the Columbia River test results for the period April 18th, 2016 to October 17th, 2016.

Elevated fecal coliforms were observed in the upstream samples on September 21st and 26th and October 3rd. Elevated levels were also observed in the downstream sample on September 26th. The levels from the sidestream were somewhat elevated on September 21st; however the levels were low on September 26th and October 3rd. Elevated levels of coliforms were observed in the effluent on September 26th; however low levels were observed in the effluent on September 21st and October 3rd. High levels of coliforms (above discharge limits) were observed in the effluent on May 10th. Low levels were observed in the River on the same day.

Elevated levels of E. Coli were found in the upstream samples on September 21st and October 3rd and elevated levels were found in downstream sample on September 26th. Low levels were observed on September 21st and 26th and slightly elevated levels were observed the side stream on October 3rd. High levels of E. Coli (above discharge limits) were found in the effluent on May 10th. Low levels were observed in the River on the same day.

Elevated Enterococci was found in the upstream on October 3rd. All other levels in the upstream, downstream and side stream samples were low or below laboratory detection limits. High levels of Enterococci (above discharge limits) were found in the effluent on May 10th. Low levels were observed in the River on the same day.

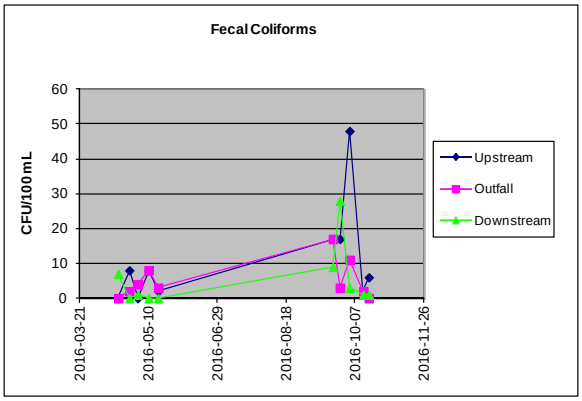
Generally, the levels of TSS were low in the river and effluent except for the side stream samples on April 26th and May 10th. The levels were 46.3 mg/L and 45.3 mg/L respectively. The levels of TSS in the effluent on the same days were <3.0 mg/L and 16.7 mg/L respectively. The levels in the effluent were significantly lower than in the side samples.

Although several spikes were observed for several parameters, the averages this year are comparable to previous years. There does not seem to be any correlation with the spikes in the river samples with the levels found in the effluent on the same days.

Overall, the analyzed concentrations remain constant between the upstream (UP) sampling zone and the downstream (DN) sampling zone. The data indicates that the plant's effluent appears not to have any adverse effect on background nutrient concentrations in the Columbia River.

Figure 7a & 7b

Fecal Coliform Levels in the Columbia River and the Effluent



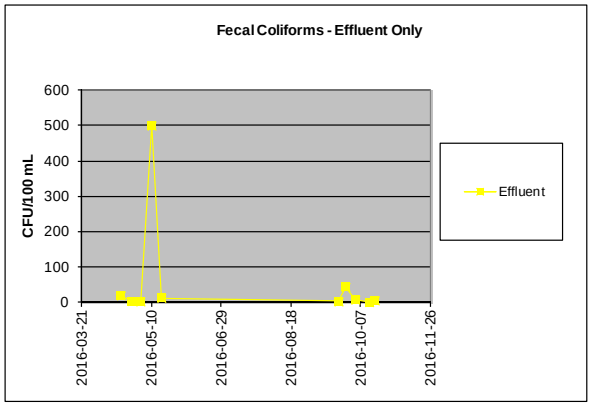
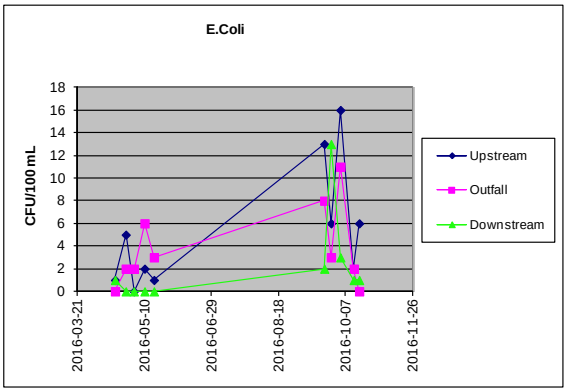


Figure 8a & 8b

E.Coli Levels in the Columbia River and the Effluent



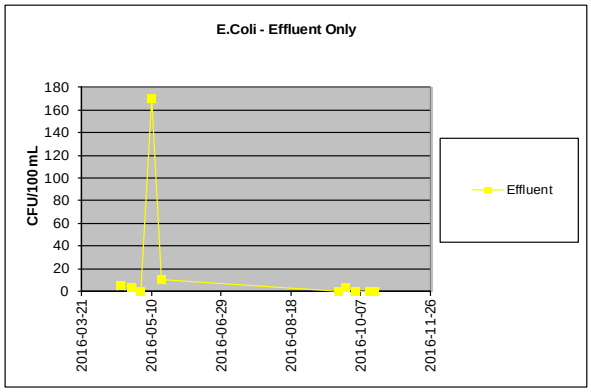
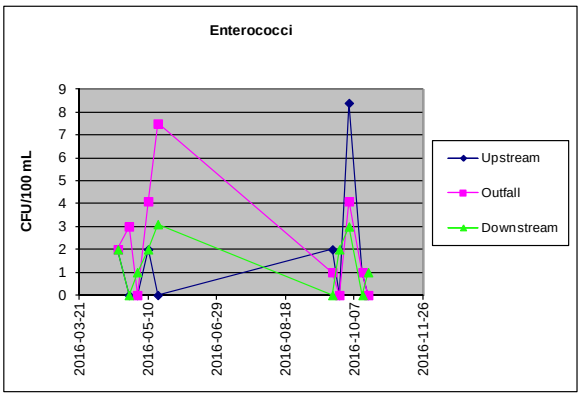


Figure 9a and 9b

Enterococci Levels in the Columbia River and the Effluent



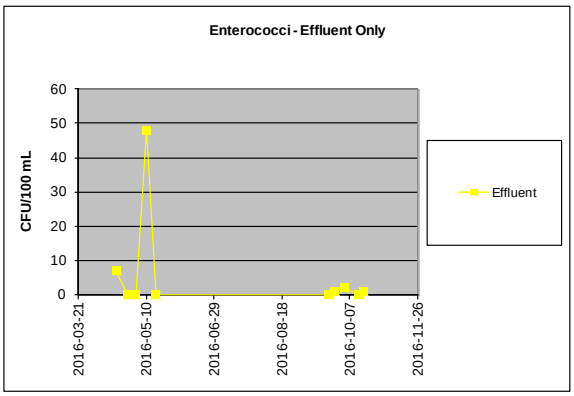


Table 5

2016 Columbia River Sample Results

Sample Date	NH_3			Ortho-P			Fecal Coliform			E.Coli			Total P mg/L		
yyyy/mm/dd	UP	SIDE	DN	UP	SIDE	DN	UP	SIDE	DN	UP	SIDE	DN	UP	SIDE	DN
2016-04-18	0.050	0.050	0.050	0.005	0.005	0.005	1	1	7	1	1	1	0.017	0.021	0.018
2016-04-26	0.050	0.050	0.050	0.005	0.005	0.005	8	2	1	5	2	1	0.024	0.046	0.029
2016-05-02	0.050	0.050	0.050	0.005	0.005	0.005	1	4	1	1	2	1	0.011	0.022	0.143
2016-05-10	0.050	0.050	0.050	0.005	0.005	0.012	8	8	2	2	6	1	0.026	0.023	0.059
2016-05-17	0.050	0.050	0.050	0.005	0.005	0.005	2	3	1	1	3	1	0.012	0.027	0.023
2016-09-21	0.050	0.050	0.050	0.005	0.005	0.005	17	17	9	13	8	2	0.016	0.024	0.008
2016-09-26	0.050	0.050	0.050	0.005	0.005	0.005	17	3	28	6	3	13	0.013	0.017	0.032
2016-10-03	0.050	0.050	0.050	0.005	0.005	0.005	48	11	3	16	11	3	0.013	0.015	0.022
2016-10-11	0.050	0.050	0.050	0.005	0.001	0.005	-	-	-	-	-	-	0.006	0.010	0.008
2016-10-13	-	-	-	-	-	-	2	2	1	2	2	1	-	-	-
2016-10-17	0.050	0.050	0.050	0.005	0.005	0.005	6	1	1	6	1	1	0.013	0	0
# Samples	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Average	0.050	0.050	0.050	0.01	0.00	0.01	11	5	5	5	4	3	0.02	0.02	0.04
Maximum	0.050	0.050	0.050	0.01	0.01	0.01	48	17	28	16	11	13	0.03	0.05	0.14
Minimum	0.050	0.050	0.050	0.01	0.00	0.01	1.0	1.0	1.0	1.0	1.0	1.0	0.01	0.01	0.01

Sample Date	pH			TSS			$N\text{-}NO_3$			$N\text{-}NO_2$			Enterococci		
yyyy/mm/dd	UP	SIDE	DN	UP	SIDE	DN	UP	SIDE	DN	UP	SIDE	DN	UP	SIDE	DN
2016-04-18	-	-	-	16.7	14.7	20.0	0.17	0.16	0.18	0.010	0.010	0.010	2	2	2
2016-04-26	-	-	-	25.7	46.3	53.7	0.25	0.28	0.26	0.010	0.010	0.010	1	3	1
2016-05-02	-	-	-	5.7	5.0	3.0	0.20	0.19	0.23	0.010	0.010	0.010	1	1	1
2016-05-10	-	-	-	24.0	45.3	36.0	0.24	0.14	0.27	0.010	0.010	0.010	2	4	2
2016-05-17	-	-	-	13.0	23.7	15.7	0.14	0.13	0.18	0.010	0.010	0.010	1	8	3
2016-09-21	-	-	-	4.3	4.3	3.0	0.07	0.05	0.97	0.010	0.010	0.010	2	1	1
2016-09-26	-	-	-	10.3	7.0	10.3	0.07	0.73	0.10	0.010	0.010	0.010	1	1	2
2016-10-03	-	-	-	18.0	10.7	11.3	0.08	0.09	0.08	0.010	0.010	0.010	8	4	3
2016-10-11	-	-	-	6.7	3.0	3.0	0.08	0.08	0.13	0.010	0.010	0.010	-	-	-
2016-10-13	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
2016-10-17	-	-	-	3.0	3.0	6.0	0.10	0.08	0.14	0.010	0.010	0.010	1	1	1
# Samples	0	0	0	10	10	10	10	10	10	10	10	10	10	10	10
Average	0.00	0.00	0.00	12.7	16.3	16.2	0.14	0.19	0.25	0.01	0.01	0.01	2	3	2
Maximum	0.00	0.00	0.00	25.7	46.3	53.7	0.25	0.73	0.97	0.01	0.01	0.01	8	8	3
Minimum	0.00	0.00	0.00	3.0	3.0	3.0	0.07	0.05	0.08	0.01	0.01	0.01	1.0	1.0	1.0

Green shaded squares show tests reported at less than the stated value, for calculations these are listed as equal to the value stated, ie; <0.05 is assumed to be 0.05
UP – Upstream
SIDE – 1 km downstream of outfall from west shore (winter) and river side channel 350 m downstream of outfall (summer)
DN – Downstream

6.0 OVERVIEW OF EFFLUENT RESULTS

This section provides data and analysis for the effluent (treated) samples and plant flows for 2016.

A total of 18 effluent samples were collected and analyzed. Table 6 summarizes effluent test results for 2016.

Table 6

2016 Effluent Results

Date	2016 Effluent Results Summary												
	Flow	Temp	pH	NH_3-N	BOD	P-OP04	Coliforms	E.Coli	Total P	TSS	NO_3-N	NO_2-N	Enterococci
yyyy/mm/dd	m^3/d	C		mg/L	mg/L	mg/L	cfu/100ml	cfu/100ml	mg/L	mg/L	mg/L	mg/L	cfu/100ml
2016-01-20	88.43	-	-	-	5.8	-	-	-	-	11.3	-	-	-
2016-02-15	78.78	-	-	-	4.8	-	-	-	-	5.3	-	-	-
2016-03-31	78.38	-	-	-	2	-	9	-	-	4	-	-	-
2016-04-18	48.44	10.0	7.4	0.05	2.0	0.48	19	5	0.64	6.0	15.3	0.036	7
2016-04-26	40.00	15.0	6.8	0.05	2.0	0.99	3	3	1.22	3	13.2	0.021	1
2016-05-02	36.42	10.0	7.1	0.084	2.0	1.17	2	1	1.44	6.3	20.1	0.112	1
2016-05-10	9.60	13.2	7.0	0.1	3.1	1.71	500	170	1.92	16.7	16.7	0.129	48
2016-05-17	19.58	12.8	6.3	0.06	2.0	0.83	12	10	1.03	8.3	14.1	0.055	1
2016-06-29	46.43	-	-	-	6.1	0.60	-	-	0.76	5.3	-	-	-
2016-07-28	49.40	-	-	-	2.0	1.97	1	-	2.41	3.0	-	-	-
2016-08-17	82.99	-	-	-	2.0	1.62	16	-	1.83	3.0	-	-	-
2016-09-21	45.60	18.0	6.6	0.065	2.0	0.81	2	1	0.93	4.3	16.9	0.026	1
2016-09-26	32.92	17.0	6.8	0.125	3.3	0.75	43	3	0.94	13	19.3	0.082	1
2016-10-03	23.82	18.0	7.0	0.061	2.0	0.27	7	1	0.43	6.7	27.9	<0.05	2
2016-10-11	30.09	18	7.2	0.05	2.0	0.27	-	-	0.36	3.0	24.9	0.075	
2016-10-13	21.49	-	-	-	-	-	1	1	-	-	-	-	1
2016-10-17	39.15	13.0	6.6	0.05	2.0	0.56	5	1	0.67	3.0	15.7	0.018	1
2016-11-30	28.99	-	-	-	2.0	0.23	1	-	0.37	3.3	-	-	-
# Samples	18	10	0	10	17	14	14	10	14	17	10	10	10
Average	44	0.0	0.00	0.070	2.8	0.88	44	20	1.07	6.2	18.4	0.06	6
High	88	18.0	7.20	0.125	6.1	1.97	500	170	2.41	16.7	27.9	0.13	48
Low	10	10.0	6.29	0.050	2	0.232	1	1	0.36	3.0	13.2	0.02	1
Limit	300	N/A	N/A	N/A	45	0.5	200	77	1	45	N/A	N/A	20
# Over Limit	0	N/A	N/A	N/A	0	10	1	1	6	0	N/A	N/A	1

Notes: 1. Green shaded squares show tests reported at less than the stated value, for calculations these are listed as equal to the value stated, ie. <0.05 is assumed to be 0.05
2. Geometric mean is used to coliform results

6.1 RESULTS ANALYSIS

The average BOD in the effluent was 2.8 mg/L, which is much lower compared to 2015 and lower than in previous years. BOD was below the MSR limits for all the samples. TSS samples averaged 6.2 mg/L with a maximum concentration of 16.7.0 mg/L, both which were slightly higher than in 2015 but still significantly lower than the 2014. TSS was below the MSR limits for all the samples.

Low levels of bacteria were observed in the effluent this year with only one day (May 10th) where high levels were observed. The levels May 10th were above discharge limits for fecal coliforms, E. Coli and Enterococci. Low levels of bacteria were observed in the River on the same day. In general, the levels in the River were low and inconsistent with the levels in the effluent indicating there was no adverse impact to the River from the effluent.

Effluent ammonia concentrations were low throughout the year. The results for ammonia nitrogen were comparable to those in previous years.

The bioassay toxicity testing was not completed this year as in only needs to be tested once every three years and it was tested two years ago. The results from 2014 showed that plant effluent was non-toxic. The results of the 2014 tests are shown below in Table 7.

Table 7

Toxicity Test Results

Sample Date	Result
2014/09/25	Pass

Ten samples out of fourteen for ortho phosphorus and six out of fourteen for total phosphorus were above MSR discharge limits, which is similar for ortho phosphorus from last year and lower for total phosphorus from last year. The average for total phosphorus for 2016 was 1.07 mg/L compared to 2.77 mg/L in 2015, 2.43 mg/L in 2014, 1.65 mg/L in 2013 and 0.97 mg/L in 2012. The average for ortho phosphorus for 2016 was 0.88 mg/L compared to 2.37 mg/L in 2015, 2.18 mg/L in 2014, 1.26 mg/L in 2013 and 0.67 mg/L in 2012. Ten samples out of ten for ortho phosphorus and nine out of ten samples for total phosphorus were over the limits in 2015. Ten samples for ortho phosphorus and eight samples for total phosphours were over the limits in 2014. Nine samples for ortho phosphorus and seven samples for total phosphorus were over the limits in 2013 and five samples for total and ortho phosphorus were over the limits in 2012. Only one sample for total phosphorus was over the limit in 2011. In 2009 and 2010, there were no exceedances for total phosphorus or ortho phosphorus. Phosphorus is further discussed in Section 11. Phosphorus levels are under review and KHMUC will continue to modify and adjust dosing of ClearPac until all the test results show levels within the allowable limits.

Nitrate and nitrite results were slightly lower from last year; however still comparable to previous years. The TSS and BOD levels were lower than last year but comparable to previous years.

Figure 10

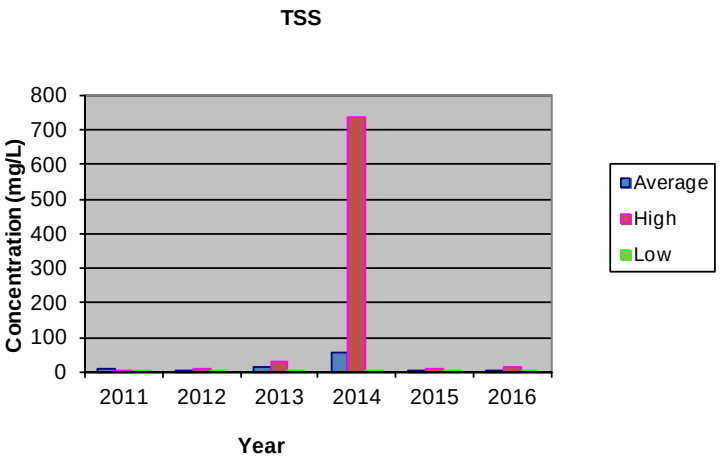


Figure 11

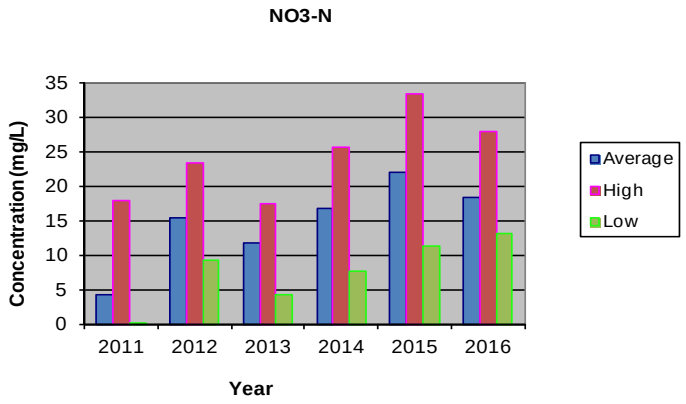
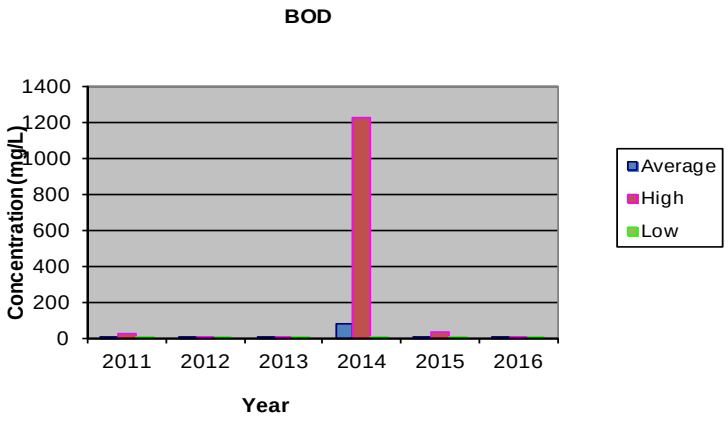


Figure 12



6.2 COMPLIANCE SUMMARY

Table 8 summarizes the number of days that samples exceeded MSR effluent requirements.

Table 8

2016 MSR Parameter Compliance

Parameter	Unit	MSR Limit	No. Of Samples	Average Value	Max. Value	Samples Over Limit
Flow	m^3/day	300	365	58.9	162.25	0
BOD_5	mg/l	45	17	2.8	6.1	0
TSS	mg/l	45	17	6.2	16.7	0
Total Phosphorous	mg/l	1	14	1.07	2.41	6
Ortho Phosphate	mg/l	0.5	14	0.88	1.97	10
Fecal Coliforms	cfu/100ml	200	14	44	500	1
Enterococci	cfu/100ml	20	10	6	48	1
E.Coli	cfu/100ml	77	11	20	170	1
96 hr LC_{50} Bioassay	/	Non-toxic	N/A	/	/	0

This year the test results indicated that out of the samples collected there were 6 exceedances for total phosphorus, 10 exceedances for ortho-phosphorus, 1 exceedance for fecal coliforms, 1 exceedance for E. Coli and 1 exceedance for Enterococci.

7.0 SLUDGE PRODUCTION AND DISPOSAL

This section provides data regarding the disposal of bio-solids (sludge) from the treatment facility in 2016.

Waste activated sludge used to be stored in a thickener and removed by vacuum tanker. In the fall of 2014, a 12 unit Teknofanghi (Model Number 12BCAVPK) supplied by Drycake was installed and was commissioned in mid December. The sludge was bagged and disposed of at the CSRD landfill located in Golden, BC.

Hauling data for pumped solids are in Table 9.

Table 9

2016 Pumped Solids Data

Month	Vol. Pumped (m^3)
January	331
February	288
March	273
April	149
May	45
June	71
July	131
August	113
September	121
October	51
November	7
December	115
Total	1692

Volumes of sludge are currently being estimated by counting the quantity of bags produced. Long range plans call for the installation of a flow meter to better measure the quantity of sludge bagged.

Please note, the calculations for bagged solids are being reviewed to ensure consistency.

8.0 PLANT IMPROVEMENTS & BYPASS EVENTS

The resort is committed to improvements to the phosphorus monitoring program and to implement further monitoring and increase dosage of clearpac. The resort will continue to address the phosphorus concern and bring phosphorus levels down.

KHMUC will undertake an assessment in the next year to determine the plant's capacity to accommodate additional growth.

There were no bypass events for 2016.

9.0 PHOSPHORUS REMOVAL

This section describes the phosphorus monitoring and removal strategy being implemented to bring the plant into compliance with effluent limits.

As seen in the graphs below, the levels of phosphorus were increasing from 2011 until 2015 and there has been a slight decrease since 2015. The average total phosphorus in 2011 was 0.36 mg/L, 0.97 mg/L in 2012, 1.65 mg/L in 2013, 2.43 mg/L in 2014, 2.77 in 2015 and lower in 2016 at 1.07 mg/L. The same trend was observed with ortho phosphorus. The average ortho phosphorus in 2011 was 0.07 mg/L, 0.67 mg/L in 2012, 1.26 mg/L in 2013, 2.18 mg/L in 2014, 2.37 in 2015 and lower in 2016 at 0.88 mg/L. The days over limit for othro phosphorus were increasing from 2011 to 2014 and have remained fairly consistent since (10 days over limit for 2014, 2015 and 2016) where the days over limit for total phosphorus increased from 2011 until 2015 and have decreased in 2016.

In the fall of 2015 KHMUC began injecting alum into the effluent to reduce the phosphorus levels in the plant effluent. There was a noticeable drop in the levels in the final EMS test run in 2015. The monitoring and management plan will continue into 2016. Alum will continue to be added to the plant effluent for the summer and fall. Beginning in December 2016, KHMUC will switch to ClearPac addition to control phosphorus. Phosphorus levels are under review and KHMUC will continue to modify and adjust dosing of ClearPac until all the test results show levels within the allowable limits.

Additionally, KHMUC will continue to test total phosphorus and ortho phosphorus with the monthly effluent sampling tested by ALS. This will help to monitor the levels on an ongoing basis and help to determine dosage levels.

Figure 13

Total Phosphorus Levels 2011-2016

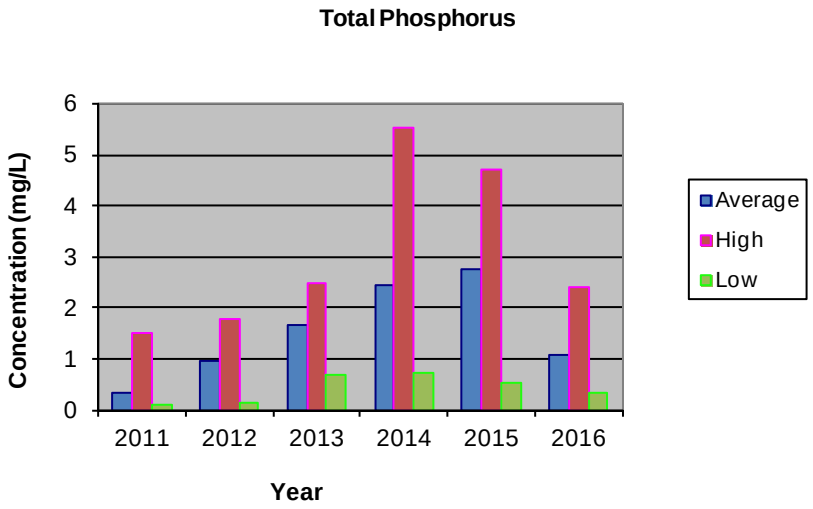


Figure 14

Ortho Phosphorus Levels 2011-2016

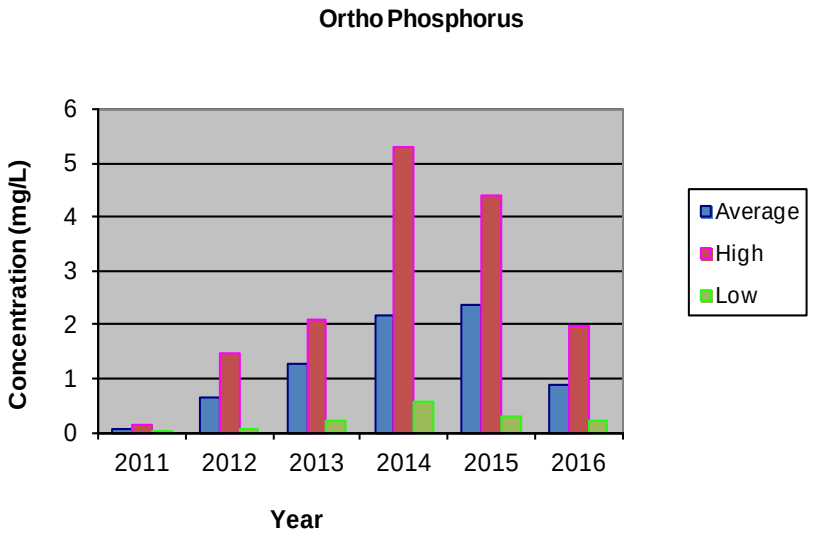
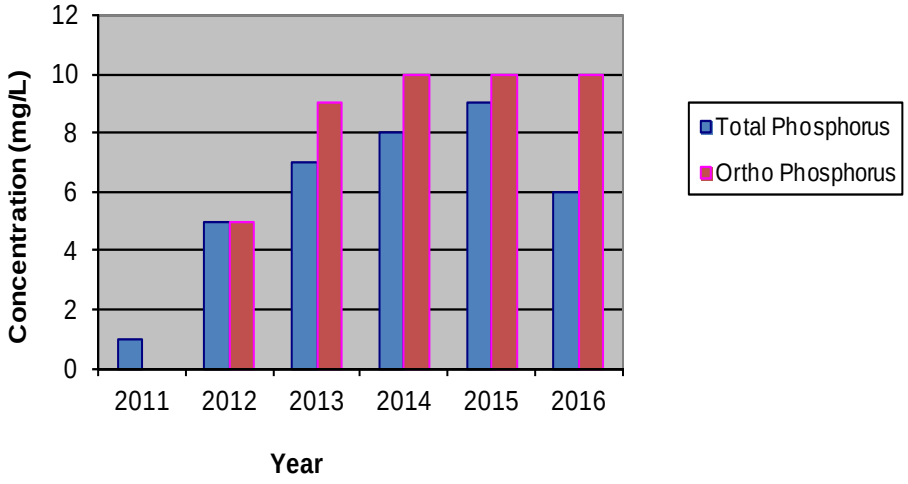


Figure 15

Days over Limit 2011-2016



10.0 ASSESSMENT SUMMARY

The total effluent flow recorded for 2016 was 21,125.09 m^3 with an average of 58.9 m^3/day. There were no days where the flow was over the allowable limit.

The average BOD in the effluent was 2.8 mg/L, which is much lower compared to 2015 and lower than in previous years. BOD was below the MSR limits for all the samples. TSS samples averaged 6.2 mg/L with a maximum concentration of 16.7.0 mg/L, both which were slightly higher than in 2015 but still significantly lower than the 2014. TSS was below the MSR limits for all the samples.

Low levels of bacteria were observed in the effluent this year with only one day (May 10th) where high levels were observed. The levels May 10th were above discharge limits for fecal coliforms, E. Coli and Enterococci. Low levels of bacteria were observed in the River on the same day. In general, the levels in the River were low and inconsistent with the levels in the effluent indicating there was no adverse impact to the River from the effluent.

Effluent ammonia concentrations were low throughout the year. The results for ammonia nitrogen were comparable to those in previous years.

Ten samples out of fourteen for ortho phosphorus and six out of fourteen for total phosphorus were above MSR discharge limits, which is a slight decrease from last year. Phosphorus has shown as a general decreasing trend since 2014.

Nitrate and nitrite results were slightly lower from last year; however still comparable to previous years. The TSS and BOD levels were lower than last year but comparable to previous years.

A small 26 unit subdivision was proposed and construction started in 2014. Two duplex units were started and construction continued in 2015. Of the 26 approved units, Phase 1 (eight units) has been completed. Phase 2 (eight more units) is set to move forward. Currently, with measures implemented the plant runs at approximately 55% capacity. Flows should be monitored closely and additional improvements may be required as growth at the resort continues.

11.0 AUTHORITIZATION AND CLOSING

This report, titled *2016 Sewage Treatment Plant Annual Report,* was prepared for KHMUC by Environmental Diagnostics Inc. The material in this report reflects the best judgement of Environmental Diagnostics Inc. based on the information available at the time of preparation. Any use that a third party makes of this report, or reliance on or decisions based on it, is the responsibility of the third party. Environmental Diagnostics Inc. accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions taken based on this report.

ENVIRONMENTAL DIAGNOSTICS INC.

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PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. ZVERINA
30366

J:comm/water/2017/-/W2012-003-Kicking Horse

Table 10 - Kicking Horse Resort Estimated Sewage Generation (m3/day)

Single Family Sub-Division	Flow* (l/unit/day)	Bed Units	Units	2011	2012	2013	2014	2015	2016	2017
Purcell Woods	1363	174	29	39.5	39.5	39.5	39.5	39.5	39.5	39.5
Cache Estates	1363	104	15	20.4	20.4	20.4	20.4	20.4	20.4	20.4
Cache Residences	1363	184	19	25.9	25.9	25.9	25.9	25.9	25.9	25.9
Dogtooth Properties	1363	150	16	21.8	21.8	21.8	21.8	21.8	21.8	21.8
Cedar Creek Estates	1363	222	19	25.9	25.9	25.9	25.9	25.9	25.9	25.9
	Subtotal	**834**	**98**	**133.6**	**133.6**	**133.6**	**133.6**	**133.6**	**133.6**	**133.6**

Multi-Family Units	Flow* (l/unit/day)	Bed Units	Units	2011	2012	2013	2014	2015	2016	2017
Whispering Pines (2 & 3 Bedroom Townhouse)	1363	116	22	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Glacier Lodge (1,2,3 bedroom condo + Health Spa)**	1628	262	56	91.2	91.2	91.2	91.2	91.2	91.2	91.2
Selkirk resort Homes Ph1 (3+4 bedroom Townhouse)	1700	116	18	30.6	30.6	30.6	30.6	30.6	30.6	30.6
Mountaineer Lodge (1,2,3 bedroom condo + Health Spa)**	1628	238	53	86.3	86.3	86.3	86.3	86.3	86.3	86.3
Palliser Lodge (1,2,3 bedroom condo + Health Spa)**	1628	214	46	74.9	74.9	74.9	74.9	74.9	74.9	74.9
Aspens (1,2 Bedroom Condo)	1136	216	60	68.2	68.2	68.2	68.2	68.2	68.2	68.2
Selkirk Resort Homes Ph2 (3,4 Bedroom)	1700	62	10	17.0	17.0	17.0	17.0	17.0	17.0	17.0
The Cedars	1363	12	2	2.7	2.7	2.7	2.7	2.7	2.7	2.7
	Subtotal	**1236**	**267**	**400.8**	**400.8**	**400.8**	**400.8**	**400.8**	**400.8**	**400.8**

Day Users	Flow* (l/unit/day)	Population (each)	2011	2012	2013	2014	2015	2016	2017
Skiers	36	1000	36.0	36.0	36.0	36.0	36.0	36.0	36.0
	Subtotal	**1000**	**36.0**	**36.0**	**36.0**	**36.0**	**36.0**	**36.0**	**36.0**

Commercial Lodges	Flow* (l/unit/day)	Bed Units	Units	2011	2012	2013	2014	2015	2016	2017
Copperhorse Lodge (10 Bedroom B&B)	366	28	10	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Vagabond Lodge (10 Bedroom B&B)	366	28	10	3.7	3.7	3.7	3.7	3.7	3.7	3.7
The Winston Lodge (10 Bedroom B&B)	366	28	10	3.7	3.7	3.7	3.7	3.7	3.7	3.7
	Subtotal	**84**	**30**	**11.0**	**11.0**	**11.0**	**11.0**	**11.0**	**11.0**	**11.0**

Dining Facilites/Bars	Flow* ($l/m^2/day$)	Area (m2)	2011	2012	2013	2014	2015	2016	2017
Peaks Bar & Grill	145	256	37.1	37.1	37.1	37.1	37.1	37.1	37.1
KHMR Day Lodge	97	300	29.1	29.1	29.1	29.1	29.1	29.1	29.1
Corks (Vagabond Lodge)	97	120	11.6	11.6	11.6	11.6	11.6	11.6	11.6
Kicking Horse Saloon (The Winston lodge)	97	287	27.8	27.8	27.8	27.8	27.8	27.8	27.8
Double Black Coffee shop	97	190	18.4	18.4	18.4	18.4	18.4	18.4	18.4
	Subtotal	**1153**	**124.1**	**124.1**	**124.1**	**124.1**	**124.1**	**124.0**	**124.1**

Daily Wastewater Flow (m3/day)*	705.5	705.5	705.5	705.5	705.5	705.5	705.5
Corrected Daily Peak Flow Projections	312*** (actual)	159 (actual)	165 (actual)	146 (actual)	164 (actual)	162 (actual)	183 (estimated)

*Estimated Wastewater flows from BC Health Act, Sewage Disposal Regulation

** Number reflects hot tub

*** Note that the number does not reflect a true peak as all the data were not available during high flow months

BRITISH COLUMBIA

2010 VANCOUVER

April 28, 2005

File: RE-15474

REGISTERED MAIL

Kicking Horse Mountain Sanitary Sewer Services Ltd.
2100- 1075 W. Georgia Street
Vancouver, BC V6E 3G2

Attn: Arijan van Vuure

Dear Mr. van Vuure:

Re: Letter of Transmittal for Registration under the *Municipal Sewage Regulation* of the discharge to Columbia River from the Kicking Horse Mountain Resort located at Unsurveyed Crown land in the vicinity of Section 9, together with those parts of the Northwest ¼ of Section 14 and 15, all of Township 27, R22 West of 5th Meridian, and Unsurveyed Crown Foreshore, being part of the Columbia River, Kootenay District

Enclosed herewith is a copy of the registration letter RE-15474 in the name of the Kicking Horse Mountain Sanitary Sewer Services Ltd. Your attention is respectfully directed to the conditions outlined in the registration letter.

In addition to the registration letter and the terms and conditions of the Environmental Impact Study, dated November 20, 2000, you are directed to comply with the following requirements:

A. Outfall

The outfall shall consist of a permanent outfall with diffusers.

The permittee shall have the outfall inspected once each five years by independent qualified personnel to ensure it is in good working condition. An inspection report shall be submitted to the Regional Manager, Environmental Protection within 30 days after the inspection date. The first report shall be submitted by January 2006.

. . . 2

Ministry of Water, Land and Air Protection
Environmental Protection
Kootenay Region
Mailing/Location Address:
205 Industrial Rd. G
Cranbrook, BC V1C 7G5
Telephone: (250) 489-8540
Facsimile: (250) 489-8506
http://www.gov.bc.ca/
http://www.gov.bc.ca/wlap/

B. Environmental Monitoring

In accordance with Part 7, Section 26 and 27 and applicable conditions of Schedule 6 of the *Regulation*, the discharger shall undertake the discharge and receiving environment monitoring programs established by Masse & Miller Consulting Ltd., in their letter dated February 17, 2005.

The person collecting samples shall be properly trained in sample collection and handling.

C. Reporting non-compliances

The discharger is required to report instances of non-compliance within 15 days of the date of discovery. The discharger is required to provide a report of actions taken to remediate non-compliance within 30 days from the start of non-compliance.

D. Financial Security requirements

The discharger is required to notify the Ministry and to set up either a capital replacement fund or financial security or assurance plan when the residential development content, as defined by the *regulation*, exceeds 10%.

The administration of this registration, including periodic inspections and audits shall be carried out by staff from our sub-regional office located at 205 Industrial Road G, Cranbrook, BC, V1C 7G5. Any required information may be submitted to the Regional Manager, Environmental Protection at this address in lieu of the Director.

Yours truly,

Kathy Eichenberger, P.Eng.
for Director, *Environmental Management Act*
Kootenay and Okanagan Regions

AMT/KE:lkm

cc: Environment Canada
Kicking Horse Mountain Sanitary Sewer Services Ltd., 1500 Kicking Horse Trail, PO Box 839, Golden, BC V0A 1H0, Attn: John Urie
Ecofluid, #101-334 E. Kent Ave. South, Vancouver, BC V5X 4N5 Attn: Rolf Loker, VP & Manager of Operations
Ana C. May Tsui, MWLAP-Environment Protection, Cranbrook

BRITISH COLUMBIA

April 28, 2005

File: RE-15474

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Vancouver, BC V6E 3G2

Attn: Arijan van Vuure

Dear Mr. van Vuure:

Re: Registration under the Municipal Sewage Regulation of the discharge to Columbia River from the Kicking Horse Mountain Resort located at Unsurveyed Crown land in the vicinity of Section 9, together with those parts of the Northwest ¼ of Section 14 and 15, all of Township 27, R22 West of 5th Meridian, and Unsurveyed Crown Foreshore, being part of the Columbia River, Kootenay District

Receipt of the completed Municipal Sewage Regulation registration form for the subject discharge is acknowledged. Pursuant to Part 2, section 3 of the Municipal Sewage Regulation, the effective date of registration of this discharge is November 24, 2000. The ministry file number for this discharge is RE-15474. Please indicate this number on all future correspondence regarding this discharge.

An annual registration fee will be determined according to the Waste Management Permit Fees Regulation and you will be receiving an annual invoice from the ministry for payment of this fee. Payment of all fees due is necessary to comply with the Municipal Sewage Regulation. Fees will be calculated using a maximum daily effluent discharge of 300 m^3/day, a maximum BOD_5 of 45 mg/L and a maximum TSS of 45 mg/L.

Acceptance of this registration under the Regulation is based on the following documents:

1. Kicking Horse Mountain Resort Ltd. Partnership, Registration Form dated November 24, 2000 and submitted by McElhanney Consulting Services Ltd.
2. Environmental Impact Study entitled Kicking Horse Mountain Resort – Environmental Impact Study for Sewage Treatment and Disposal, dated November 20, 2000, prepared by Western BioResources Consulting Ltd. and signed by Christopher Bullock, P.Eng.

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Ministry of Water, Land and Air Protection
Environmental Protection
Kootenay and Okanagan Regions
Mailing/Location Address:
401 - 333 Victoria Street
Nelson BC V1L 4K3
Telephone: 250 354-6355
Facsimile: 250 354-6332

Pursuant to Part 2, Section 3 (2) (k) of the Municipal Sewage Regulation, more stringent standards or requirements may be specified by the Director. Accordingly, in addition to the terms and conditions of the regulation, for this discharge the following standards and requirements apply. The following information related to RE-15474 must be submitted within 30 days:

1. Tables that summarize the Discharge Monitoring Program and the Environment Monitoring Sampling Programs. Tables should indicate sampling sites/locations and short description of the locations, parameters, sampling frequency, reporting frequency and standards and criteria to be met.
2. GPS coordinates for all sampling sites. Specify in decimal degrees to 4 decimal places using NAD83 Datum.

The discharger shall **report monitoring data** in accordance with Part 7, Section 28 of the *Regulation* and in accordance with the following requirements. Monitoring data shall be submitted to the Ministry (EMS) database quarterly within 30 days of the end of each quarter. Instances of non-compliances are to be notified and reported to the Manager in writing, with an explanation and action taken to remediate non-compliance.

In accordance with Part 7, Section 28 (3) of the *Regulation*, the discharger shall submit an annual report and do so in accordance with the annual report requirements of Section 28 of the *Regulation*. The annual report shall be prepared by a suitably qualified professional and shall include the following:

- Tabulated results of the Effluent and Environmental Monitoring Data with standards and criteria
- Interpretation of the monitoring data
- The total volume discharged over the year
- Total sludge wasted over the year and its final destination
- The state of compliance of the treatment facility/process
- Indicate the percentage of residential development, as defined in the *Regulation*, that contributes to the effluent discharge
- Any additional relevant information the discharger wishes to provide

The annual report shall contain recommendations of a qualified professional regarding changes (additions, deletions, modifications) to the monitoring program. Electronic and hard copies of the annual report submission is due within 120 days of the end of each calendar year.

This decision to specify more stringent standards or requirements under the Municipal Sewage Regulation may be appealed to the Environmental Appeal Board in accordance with Part 8 of the *Environmental Management Act*. An appeal must be delivered within 30 days from the date that notice of this decision is given, in accordance with the practices, procedures and forms prescribed by regulation under the *Environment Management Act*. For further information, please contact the Environmental Appeal Board at (250) 387-3464.

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The ministry uses a reference number to track monitoring data associated with discharges. The following are the EMS site numbers assigned to the monitoring sites listed above. These numbers are to be used when entering data directly into the Ministry EMS database in accordance with Part 7, Section 28 (2) of the *Regulation*.

SAMPLING SITE/LOCATION	EMS NUMBER	DESCRIPTION
Columbia River UP IDZ	E256694	Upstream at the bridge
Columbia River 100m DN, main stem	E256695	~ 100 m downstream of outfall, at main stem from island
Columbia River 100m DN, side channel	E258897	~ 100 m downstream of outfall, at side channel
Columbia River 200m DN, east shore	E258898	~ 200 m downstream of outfall, from east shore
Columbia River 1km DN, west shore	E258899	~ 1 km downstream of outfall, downstream of island from west shore
Plant Effluent	E256696	Sample prior to the discharge outfall

For information on the use of EMS and the electronic data transfer utility, please refer to the following website: http://wlapwww.gov.bc.ca/epd/ems_edt.html

Your attention is respectfully directed to the terms and conditions outlined in the Municipal Sewage Regulation. Compliance with all the terms and conditions of the regulation is required. Contravention of any of the conditions of the regulation is a violation of the *Environmental Management Act* and may result in prosecution.

Registration under the Municipal Sewage Regulation should not be construed as a representation that the works are adequately designed or will satisfy all the requirements of the regulation. It is the responsibility of the discharger to ensure that the works are adequately designed, constructed and operated and that the discharge quality complies with the regulation. Registration under the regulation is without prejudice to any additional works that may be required or any additional requirements that may be specified by the Director. The Director may also issue Orders under the *Environmental Management Act*.

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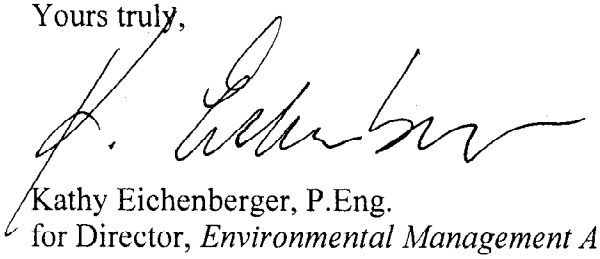
Registration under the Municipal Sewage Regulation does not authorise entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorised by the owner of such lands or works. The responsibility for obtaining such authority shall rest with the discharger. It is also the responsibility of the discharger to ensure that all activities conducted under this registration are carried out with regard to the rights of third parties and comply with other applicable legislation that may be in force. The discharger must also obtain any necessary approvals from other agencies.

Administration of the Municipal Sewage Regulation will be carried out by staff from our Sub-regional office located at 205 Industrial Road G, Cranbrook, British Columbia, V1C 7G5 (Telephone 250-489-8540). Plans, data and reports pertinent to the regulation are to be submitted to the Regional Manager, Environmental Protection, at this address. If you have any questions concerning this registration, please contact our Cranbrook Sub-Regional Office at 250-489-8540

Yours truly,



Kathy Eichenberger, P.Eng.
for Director, *Environmental Management Act*
Kootenay and Okanagan Regions

cc:	Environment Canada
	Kicking Horse Mountain Sanitary Sewer Services Ltd., 1500 Kicking Horse Trail, PO Box 839, Golden, BC V0A 1H0, Attn: John Urie
	Ecofluid, #101-334 E. Kent Ave. South, Vancouver, BC V5X 4N5 Attn: Rolf Loker, VP & Manager of Operations
	Ana C. May Tsui, MWLAP- Environmental Protection, Cranbrook

AMT/KE:lkm

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 21-JAN-16
Report Date: 28-JAN-16 08:46 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1725859

Project P.O. #: NOT SUBMITTED
Job Reference: WASTEWATER - RCR - KICKING HORSE MOUNTAIN RES
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1725859-1 UV TROUGH							
Sampled By: TJ on 20-JAN-16 @ 12:00							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	5.8	BODP	2.0	mg/L		21-JAN-16	R3385050
Total Suspended Solids	11.3		3.0	mg/L		25-JAN-16	R3385779
L1725859-2 EQ TANK							
Sampled By: TJ on 20-JAN-16 @ 12:00							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	190	DLHC	75	mg/L		21-JAN-16	R3385050
Total Suspended Solids	355	DLHC	23	mg/L		25-JAN-16	R3385779
L1725859-3 INFLUENT							
Sampled By: TJ on 20-JAN-16 @ 12:00							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	350	BODP	300	mg/L		21-JAN-16	R3385050
Total Suspended Solids	393	DLHC	30	mg/L		25-JAN-16	R3385779

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
BODP	BOD dilution results differed by more than 30% RPD. Precision of reported BOD result may be less than usual.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1725859 Report Date: 28-JAN-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3385050								
WG2250940-6 DUP		**L1725219-4**						
Biochemical Oxygen Demand		20.1	22.9		mg/L	13	20	21-JAN-16
WG2250940-4 LCS								
Biochemical Oxygen Demand			90.8		%		85-115	21-JAN-16
WG2250940-2 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	21-JAN-16
TSS-CL	**Water**							
Batch R3385779								
WG2251245-3 DUP		**L1725455-1**						
Total Suspended Solids		<3.0	4.0	RPD-NA	mg/L	N/A	20	25-JAN-16
WG2251245-2 LCS								
Total Suspended Solids			87.1		%		85-115	25-JAN-16
WG2251245-1 MB								
Total Suspended Solids			<3.0		mg/L		3	25-JAN-16

Quality Control Report

Workorder: L1725859 Report Date: 28-JAN-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Enviro

L1725859-COFC

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Water Utility Co. Ltd.	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1:	tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-6003 Fax:	Email 3:	mskyring@kickinghorseresort.com	**Analysis Request**
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Please Indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Wastewater - RGR - Kicking Horse Mountain Resc	
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:	Q33059 - WASTEWATER	
Lab Work Order # (lab use only)		ALS Contact:	LS	Sampler: TJ

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	TSS	Fecal Coliform	Total Coliform							Number of Containers
	UV Trough	Jan 20 2016	12pm	Water	X	X									2
	EQ Tank	Jan 20 2016	12pm	Water	X	X									2
	Influent	Jan 20 2016	12pm	Water	X	X									2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No? If Yes add SIF
	JAN 20, 2016	1645	MM	21-Jan-16	8:20	2 °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 16-FEB-16
Report Date: 23-FEB-16 09:31 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1734424

Project P.O. #: NOT SUBMITTED
Job Reference: RCR - KICKING HORSE MOUNTAIN RESORT
C of C Numbers: 14-518766
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1734424-1 UV TROUGH							
Sampled By: CLIENT on 15-FEB-16 @ 19:00							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	4.8		2.0	mg/L		16-FEB-16	R3405229
Total Suspended Solids	5.3		3.0	mg/L		17-FEB-16	R3403859

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

14-518766

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1734424 Report Date: 23-FEB-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3405229								
WG2264376-2 LCS								
Biochemical Oxygen Demand			89.5		%		85-115	16-FEB-16
WG2264376-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	16-FEB-16
TSS-CL	**Water**							
Batch R3403859								
WG2262930-3 DUP		**L1734559-1**						
Total Suspended Solids		6.0	6.0		mg/L	0.0	20	17-FEB-16
WG2262930-2 LCS								
Total Suspended Solids			90.7		%		85-115	17-FEB-16
WG2262930-1 MB								
Total Suspended Solids			<3.0		mg/L		3	17-FEB-16

Quality Control Report

Workorder: L1734424 Report Date: 23-FEB-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

L1734424-COFC

COC # _____

Page 1 of 1

ALS Environmental

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Water Utility Co Ltd	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-6003 Fax:	Email 3: mskyring@kickinghorseresort.com	**Analysis Request**
Invoice To	Same as Report ? ☐ Yes ☑ No	**Client / Project Information**	Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: RCR - Kicking Horse Mountain Resort	
Company:	Resorts of the Canadian Rockies	PO / AFE:	
Contact:	Patrick Majer	LSD:	
Address:	1505 - 17th Ave SW Calgary AB		
Phone:	Fax:	Quote #: Q33059	
Lab Work Order # (lab use only)		ALS Contact: LS	Sampler: TJ

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	TSS	Fecal Coliform	Total Coliform								Number of Containers
	UV TROUGH	FEB 17,16		Water	X	X										2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			SR	16/02	16:02	4 °C				

8:15 am

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 01-APR-16
Report Date: 07-APR-16 15:44 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1750809

Project P.O. #: NOT SUBMITTED
Job Reference: RCR - KICKING HORSE MOUNTAIN RESORT
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1750809-1 UV TROUGH							
Sampled By: TJ on 31-MAR-16 @ 16:00							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	2.0		2.0	mg/L		01-APR-16	R3431033
Total Suspended Solids	3.7		3.0	mg/L		06-APR-16	R3433994

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1750809 Report Date: 07-APR-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3431033								
WG2286661-7 DUP		**L1750741-2**						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	01-APR-16
WG2286661-4 LCS								
Biochemical Oxygen Demand			95.7		%		85-115	01-APR-16
WG2286661-2 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	01-APR-16
TSS-CL	**Water**							
Batch R3433994								
WG2287676-3 DUP		**L1750809-1**						
Total Suspended Solids		3.7	5.0	J	mg/L	1.3	6	06-APR-16
WG2287676-2 LCS								
Total Suspended Solids			94.4		%		85-115	06-APR-16
WG2287676-1 MB								
Total Suspended Solids			<3.0		mg/L		3	06-APR-16

Quality Control Report

Workorder: L1750809 Report Date: 07-APR-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

L1750809-COFC

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Water Utility Co. Ltd.	☑ Standard ☐ Other:		◉ Regular (Standard Turnaround Times - Business Days).
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: pmajer@skircr.com		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-6003 Fax:	Email 3: mskyring@kickinghorseresort.com		Analysis Request
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: RCR - Kicking Horse Mountain Resort		
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #: Q33059		

Lab Work Order # (lab use only): L1750809

ALS Contact: LS | Sampler: TJ

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	TSS	Fecal Coliform	Total Coliform	Number of Containers
[redacted]	UV trough	MAR 31, 15	1600	Water	X	X			1
[redacted]									
[redacted]									
[redacted]									
[redacted]									
[redacted]									
[redacted]									
[redacted]									
[redacted]									
[redacted]									
[redacted]									

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			JR	04/01	8:30am	7 °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 19-APR-16
Report Date: 02-MAY-16 18:55 (MT)
Version: FINAL

Client Phone: 250-344-8442

Certificate of Analysis

Lab Work Order #: L1757067

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK 1 - 2016 SPRING EMS PROGRAM -WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1757067-1 WWTP EFFLUENT UV TROUGH							
Sampled By: TJ/MS on 18-APR-16 @ 13:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		19-APR-16	R3441270
Biochemical Oxygen Demand	<2.0		2.0	mg/L		19-APR-16	R3443748
Orthophosphate-Dissolved (as P)	0.484	DLA	0.025	mg/L		19-APR-16	R3441656
Coliform Bacteria - Fecal	19	OCR	1	CFU/100mL		19-APR-16	R3441927
MPN - E. coli	5	OCR	1	MPN/100mL		19-APR-16	R3441922
Special Request	See Attached					19-APR-16	R3450022
Phosphorus (P)-Total	0.635	DLA	0.050	mg/L		20-APR-16	R3442053
Total Suspended Solids	6.0		3.0	mg/L		22-APR-16	R3443798
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	15.3		0.020	mg/L		19-APR-16	R3443953
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	15.3		0.050	mg/L		25-APR-16	
Nitrite in Water by IC							
Nitrite (as N)	0.036		0.010	mg/L		19-APR-16	R3443953
L1757067-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 18-APR-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		19-APR-16	R3441270
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		19-APR-16	R3441656
Coliform Bacteria - Fecal	<1		1	CFU/100mL		19-APR-16	R3441927
MPN - E. coli	1	OCR	1	MPN/100mL		19-APR-16	R3441922
Special Request	See Attached					19-APR-16	R3450022
Phosphorus (P)-Total	0.0174		0.0050	mg/L		20-APR-16	R3442053
Total Suspended Solids	16.7		3.0	mg/L		22-APR-16	R3443798
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.174		0.020	mg/L		19-APR-16	R3443953
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.174		0.050	mg/L		25-APR-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		19-APR-16	R3443953
L1757067-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 18-APR-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		19-APR-16	R3441270
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		19-APR-16	R3441656
Coliform Bacteria - Fecal	7	OCR	1	CFU/100mL		19-APR-16	R3441927
MPN - E. coli	1	OCR	1	MPN/100mL		19-APR-16	R3441922
Special Request	See Attached					19-APR-16	R3450022
Phosphorus (P)-Total	0.0181		0.0050	mg/L		20-APR-16	R3442053
Total Suspended Solids	20.0		3.0	mg/L		22-APR-16	R3443798
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.180		0.020	mg/L		19-APR-16	R3443953
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.180		0.050	mg/L		25-APR-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1757067-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 18-APR-16 @ 15:00							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		19-APR-16	R3443953
L1757067-4 COLUMBIA RIVER SITE CHANNEL							
Sampled By: TJ/MS on 18-APR-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		19-APR-16	R3441270
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		19-APR-16	R3441656
Coliform Bacteria - Fecal	<1		1	CFU/100mL		19-APR-16	R3441927
MPN - E. coli	<1		1	MPN/100mL		19-APR-16	R3441922
Special Request	See Attached					19-APR-16	R3450022
Phosphorus (P)-Total	0.0212		0.0050	mg/L		20-APR-16	R3442053
Total Suspended Solids	14.7		3.0	mg/L		22-APR-16	R3443798
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.161		0.020	mg/L		19-APR-16	R3443953
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.161		0.050	mg/L		25-APR-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		19-APR-16	R3443953

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH4-CL	Water	Ammonia-N	APHA 4500 NH3F-Colorimetry

Ammonia is determined using the Phenate colorimetric method. Result includes both ionized (NH4+) and un-ionized (NH3) ammonia present in the sample.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SPECIAL REQUEST-HQ	Misc.	Special Request HydroQual	SEE SUBLET LAB RESULTS
TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
HQ	NAUTILUS ENVIRONMENTAL COMPANY INC. - CALGARY, AB, CANADA
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1757067 Report Date: 02-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3443748								
WG2296237-5 DUP		**L1756990-1**						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	19-APR-16
WG2296237-2 LCS								
Biochemical Oxygen Demand			98.7		%		85-115	19-APR-16
WG2296237-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	19-APR-16
EC-MPN-CL	**Water**							
Batch R3441922								
WG2294376-1 MB								
MPN - E. coli			<1		MPN/100mL		1	19-APR-16
FCC-MF-CL	**Water**							
Batch R3441927								
WG2294387-2 DUP		**L1757067-1**						
Coliform Bacteria - Fecal		19	16		CFU/100mL	17	65	19-APR-16
WG2294387-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	19-APR-16
NH4-CL	**Water**							
Batch R3441270								
WG2293647-3 DUP		**L1756963-1**						
Ammonia, Total (as N)		0.200	0.199		mg/L	0.6	20	19-APR-16
WG2293647-2 LCS								
Ammonia, Total (as N)			102.6		%		85-115	19-APR-16
WG2293647-1 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	19-APR-16
WG2293647-5 MS		**L1757067-1**						
Ammonia, Total (as N)			103.7		%		75-125	19-APR-16
NO2-IC-N-CL	**Water**							
Batch R3443953								
WG2296479-3 DUP		**L1757115-14**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	19-APR-16
WG2296479-2 LCS								
Nitrite (as N)			104.3		%		90-110	19-APR-16
WG2296479-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	19-APR-16
WG2296479-4 MS		**L1757115-17**						
Nitrite (as N)			104.5		%		75-125	19-APR-16

Quality Control Report

Workorder: L1757067 Report Date: 02-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-CL	**Water**							
Batch R3443953								
WG2296479-3 DUP		**L1757115-14**						
Nitrate (as N)		0.025	0.025		mg/L	1.2	20	19-APR-16
WG2296479-2 LCS								
Nitrate (as N)			101.1		%		90-110	19-APR-16
WG2296479-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	19-APR-16
WG2296479-4 MS		**L1757115-17**						
Nitrate (as N)			100.7		%		75-125	19-APR-16
P-T-COL-CL	**Water**							
Batch R3442053								
WG2294246-3 DUP		**L1757067-4**						
Phosphorus (P)-Total		0.0212	0.0227		mg/L	6.7	20	20-APR-16
WG2294246-2 LCS								
Phosphorus (P)-Total			103.7		%		80-120	20-APR-16
WG2294246-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	20-APR-16
WG2294246-4 MS		**L1757067-4**						
Phosphorus (P)-Total			81.9		%		70-130	20-APR-16
PO4-DO-COL-CL	**Water**							
Batch R3441656								
WG2293731-7 DUP		**L1757067-2**						
Orthophosphate-Dissolved (as P)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	19-APR-16
WG2293731-2 LCS								
Orthophosphate-Dissolved (as P)			101.4		%		80-120	19-APR-16
WG2293731-6 LCS								
Orthophosphate-Dissolved (as P)			103.0		%		80-120	19-APR-16
WG2293731-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	19-APR-16
WG2293731-5 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	19-APR-16
WG2293731-8 MS		**L1757115-10**						
Orthophosphate-Dissolved (as P)			99.9		%		70-130	19-APR-16
TSS-CL	**Water**							
Batch R3443798								
WG2296291-3 DUP		**L1757572-1**						
Total Suspended Solids		108	99.0		mg/L	8.7	20	22-APR-16
WG2296291-2 LCS								

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-CL	**Water**							
Batch R3443798								
WG2296291-2 LCS								
Total Suspended Solids			97.8		%		85-115	22-APR-16
WG2296291-1 MB								
Total Suspended Solids			<3.0		mg/L		3	22-APR-16

Quality Control Report

Workorder: L1757067 Report Date: 02-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

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Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

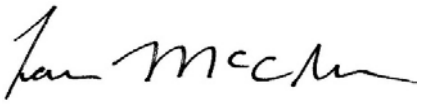
Nautilus Environmental

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/04/19, 0945
Report Date: 2016/04/27
Version: FINAL

Test Report

Client: ALS106
Reference: 16-0457
Billing: L1757067



Senior Verifier

Nautilus Environmental

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 16-0457

Client: ALS Laboratory Group; operation Calgary

Sample: L1757067-1 WWTP EFFLUENT UV TROUGH, L1757067-2 COLUMBIA RIVER UPSTREAM, L1757067-3 COLUMBIA RIVER DOWNSTREAM, L1757067-4 COLUMBIA RIVER SITE

Collection: collected on 2016/04/18 at 1300 -1500
Receipt: received on 2016/04/19 at 0945 by MC
Containers: received 4 x 125 mL bottle at 12 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/04/19 by HS; ended on 2016/04/20 by HS

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1757067-1 WWTP EFFLUENT UV TROUGH	7
02	L1757067-2 COLUMBIA RIVER UPSTREAM	2
03	L1757067-3 COLUMBIA RIVER DOWNSTREAM	2
04	L1757067-4 COLUMBIA RIVER SITE CHANNEL	2

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated into and form part of the Chain of Custody between HydroQual Laboratories Ltd. ("HydroQual") and the party named in the Chain of Custody (the "Client").

1. **Definitions:** Capitalized terms shall have the definition ascribed as such in these General Terms and Conditions and the Chain of Custody.
2. **The Services:** HydroQual will provide the Services to the Client as listed and described in the Chain of Custody.
3. **Prices:** HydroQual may review and change all prices, fees, surcharges or other charges as set out in proposals and/or price quotations if there are changes to HydroQual's cost beyond HydroQual's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding condition 3, all quotations are reviewed and updated on a yearly basis.
4. **Payment Terms:** The Client shall pay HydroQual within 30 days of the invoice date as provided by HydroQual. HydroQual may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. **Quotation Numbers:** The Client shall provide the proposal and/or price quotation number to HydroQual (where applicable) to ensure correct pricing.
6. **Taxes:** Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. **No Guarantee of Results:** The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
8. **Standard of Care:** HydroQual will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested, subject to that level of care and skill ordinarily exercised by other laboratories currently practicing under similar conditions in the same locality, subject to the time limits and financial, physical or other constraints applicable to the Services. No warranty, express or implied, is made.
9. **Storage:** Where possible, HydroQual will store samples until a final report is issued to the Client, after which time HydroQual may discard the sample.
10. **Holds:** If the Client requests a sample be placed on hold, HydroQual will store the sample for the mutually agreed upon written time and price, after which HydroQual will invoice the Client and discard the sample.
11. **Archives:** If the Client requests a sample be archived, HydroQual will store the sample for a mutually agreed upon written time frame and price, after which HydroQual will invoice the Client and discard the sample.
12. **Handling Protocol:** Legal sample handling protocol must be arranged, and provided in writing, before samples are collected. HydroQual will provide a price quotation for legal sample protocol. Samples processed under legal protocol are stored indefinitely, subject to a storage charge as advised by HydroQual.
13. **Samples:** The quality, condition, content and source of samples stored and tested are not known to HydroQual except as declared and described on the Chain of Custody completed and submitted by the Client and accompanying the sample.
14. **Risk of Loss:** HydroQual will use reasonable care to protect samples during storage, however, all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the client forever releases HydroQual from any and all claims the Client may have for any loss or damage to the sample.
15. **Environmental:** the Client must comply with all applicable environmental legislation, including labeling all hazardous samples to comply with Canada's *Workplace Hazardous Materials Information System* and the Alberta *Transfer of Dangerous Goods* regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client shall defend, indemnify and hold harmless HydroQual for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
16. **Hazardous Materials Disposal:** HydroQual may return, at the Client's cost, hazardous material to the Client for disposal.
17. **Hazardous Materials Surcharge:** HydroQual may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials ("NORM"), such as and including without limitation, H_2S and CN.
18. **Sample Containers:** HydroQual may ship sample containers to the Client's location by the most cost effective means using HydroQual's preferred courier suppliers, within the specified project timeline. Shipping will be charged back to the Client.
19. **Additional Charges:** HydroQual may charge the Client:
    (a) for pick-up and delivery services when provided subject in each instance to a minimum charge of $50.00; and,
    (b) for rush service (processing samples and/or reporting).
20. **Large Bottle Orders:** The Client shall provide HydroQual with not less than 24 hours' notice for large bottle orders.
21. **Re-Tests:** HydroQual reserves the right to re-test any samples that remain in HydroQual's possession. Re-tests requested by the Client may be charged to Client and Client agrees to pay for such charges.
22. **Waiver:** The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any and all claims against HydroQual that the Client may have against HydroQual as a result of the interpretation of the results provided to the Client. The Client shall defend, indemnify and save harmless HydroQual for any and all claims made by any third party against HydroQual in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. **LIMITATION OF LIABILITY:** IN NO EVENT SHALL HYDROQUAL BE RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES, WHETHER FORESEEABLE OR UNFORESEEABLE (INCLUDING CLAIMS FOR LOSS OF PROFITS OR REVENUE OR LOSSES CAUSED BY STOPPAGE OF OTHER WORK OR IMPAIRMENT OF OTHER ASSETS) INCURRED BY THE CLIENT ARISING OUT OF BREACH OR FAILURE OF EXPRESS OF IMPLIED WARRANTY, BREACH OF CONTRACT, BREACH OF WARRANTY, MISREPRESENTATION, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE. IN ANY EVENT, THE LIABILITY OF HYDROQUAL TO THE CLIENT SHALL BE LIMITED TO THE COST OF TESTING THE SAMPLE AS REQUESTED IN THE CHAIN OF CUSTODY UNDER WHICH THE SAMPLE WAS ORIGINALLY DEPOSITED. FOR THE PURPOSES OF THIS PARAGRAPH AND PARAGRAPHS 7, 14, 15, 22, AND 24, AS APPLICABLE, "HYDROQUAL" INCLUDES WITHOUT LIMITATIONS ITS DIRECTORS, OFFICERS, EMPLOYEES AND AFFILIATES AND THE "CLIENT" INCLUDES WITHOUT LIMITATION ANY THIRD PARTY THAT MAY HAVE A CLAIM AGAINST HYDROQUAL THROUGH THE CLIENT.
24. **Notice of Liability:** Notwithstanding paragraph 23, HydroQual shall not be liable to the Client unless the Client provides notice in writing to HydroQual of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk between the Client and HydroQual, and the fees to be paid by the Client to HydroQual reflect this allocation of any such risks and the limitations of liability in these General Terms and Conditions.
25. **Entire Agreement:** These General Terms and Conditions, the Chain of Custody and price quotations constitute the entire agreement between the parties and supersede and take precedence over any terms and conditions contained in any documentation provided by the Client. HydroQual's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein unless expressly stipulated otherwise by HydroQual. If there is a conflict between these General Terms and Conditions and any other document, these General Terms and Conditions prevail.

ALS Environmental

Chain of Custody / Al
Canada Toll Fre
www.alsc

L1757067-COFC

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: pmajer@skircr.com		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3: mskyring@kickinghorseresort.com		Analysis Request
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Week 1- 2016 Spring EMS program - WW	
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact: LS	Sampler: TJ/MS	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 10 pH: 7.36	18-Apr-16	13:00	Water	X	X	X	X	X	X	X	X	X	X			5
	Columbia River Upstream Temp: 11.9 pH: 8.4	18-Apr-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 11.9 pH: 8.4	18-Apr-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 11.9 pH: 8.4	18-Apr-16	15:00	Water		X	X	X	X	X	X	X	X	X			4

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AE Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? if Yes add SIF
				Apr 19	8:17	5 °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 27-APR-16
Report Date: 03-MAY-16 15:47 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1760595

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK 2 - 2016 SPRING EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1760595-1 WWTP EFFLUENT- UV TROUGH							
Sampled By: TJ on 26-APR-16 @ 13:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		28-APR-16	R3447642
Biochemical Oxygen Demand	<2.0		2.0	mg/L		27-APR-16	R3449554
Orthophosphate-Dissolved (as P)	0.990	DLA	0.050	mg/L		27-APR-16	R3446553
Coliform Bacteria - Fecal	3	OCR	1	CFU/100mL		27-APR-16	R3447905
MPN - E. coli	3	OCR	1	MPN/100mL		27-APR-16	R3447897
Special Request	See Attached					27-APR-16	R3449613
Phosphorus (P)-Total	1.22	DLA	0.10	mg/L		29-APR-16	R3448104
Total Suspended Solids	<3.0		3.0	mg/L		02-MAY-16	R3450322
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	13.2		0.020	mg/L		27-APR-16	R3449855
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	13.2		0.050	mg/L		02-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	0.021		0.010	mg/L		27-APR-16	R3449855
L1760595-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ on 26-APR-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		28-APR-16	R3447642
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		27-APR-16	R3446553
Coliform Bacteria - Fecal	8	OCR	1	CFU/100mL		27-APR-16	R3447905
MPN - E. coli	5	OCR	1	MPN/100mL		27-APR-16	R3447897
Special Request	See Attached					27-APR-16	R3449613
Phosphorus (P)-Total	0.0243		0.0050	mg/L		29-APR-16	R3448104
Total Suspended Solids	25.7		3.0	mg/L		02-MAY-16	R3450322
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.252		0.020	mg/L		27-APR-16	R3449855
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.252		0.050	mg/L		02-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		27-APR-16	R3449855
L1760595-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ on 26-APR-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		28-APR-16	R3447642
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		27-APR-16	R3446553
Coliform Bacteria - Fecal	<1		1	CFU/100mL		27-APR-16	R3447905
MPN - E. coli	<1		1	MPN/100mL		27-APR-16	R3447897
Special Request	See Attached					27-APR-16	R3449613
Phosphorus (P)-Total	0.0291		0.0050	mg/L		29-APR-16	R3448104
Total Suspended Solids	53.7		3.0	mg/L		02-MAY-16	R3450322
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.259		0.020	mg/L		27-APR-16	R3449855
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.259		0.050	mg/L		02-MAY-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1760595-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ on 26-APR-16 @ 14:00							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		27-APR-16	R3449855
L1760595-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ on 26-APR-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		28-APR-16	R3447642
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		27-APR-16	R3446553
Coliform Bacteria - Fecal	2	OCR	1	CFU/100mL		27-APR-16	R3447905
MPN - E. coli	2	OCR	1	MPN/100mL		27-APR-16	R3447897
Special Request	See Attached					27-APR-16	R3449613
Phosphorus (P)-Total	0.0455		0.0050	mg/L		29-APR-16	R3448104
Total Suspended Solids	46.3		3.0	mg/L		02-MAY-16	R3450322
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.277		0.020	mg/L		27-APR-16	R3449855
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.277		0.050	mg/L		02-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		27-APR-16	R3449855

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH4-CL	Water	Ammonia-N	APHA 4500 NH3F-Colorimetry

Ammonia is determined using the Phenate colorimetric method. Result includes both ionized (NH4+) and un-ionized (NH3) ammonia present in the sample.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SPECIAL REQUEST-HQ	Misc.	Special Request HydroQual	SEE SUBLET LAB RESULTS
TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
HQ	NAUTILUS ENVIRONMENTAL COMPANY INC. - CALGARY, AB, CANADA
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1760595 Report Date: 03-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3449554								
WG2300705-10 DUP		**L1760750-1**						
Biochemical Oxygen Demand		2.3	2.4		mg/L	4.3	20	27-APR-16
WG2300705-9 DUP		**L1760595-1**						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	27-APR-16
WG2300705-5 LCS								
Biochemical Oxygen Demand			94.1		%		85-115	27-APR-16
WG2300705-6 LCS								
Biochemical Oxygen Demand			93.1		%		85-115	27-APR-16
WG2300705-2 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	27-APR-16
WG2300705-3 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	27-APR-16
EC-MPN-CL	**Water**							
Batch R3447897								
WG2299567-1 MB								
MPN - E. coli			<1		MPN/100mL		1	27-APR-16
FCC-MF-CL	**Water**							
Batch R3447905								
WG2299577-2 DUP		**L1760408-3**						
Coliform Bacteria - Fecal		11	9		CFU/100mL	20	65	27-APR-16
WG2299577-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	27-APR-16
NH4-CL	**Water**							
Batch R3447642								
WG2299142-15 DUP		**L1760326-1**						
Ammonia, Total (as N)		0.094	0.094		mg/L	0.4	20	28-APR-16
WG2299142-14 LCS								
Ammonia, Total (as N)			102.1		%		85-115	28-APR-16
WG2299142-13 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	28-APR-16
WG2299142-16 MS		**L1760595-4**						
Ammonia, Total (as N)			105.0		%		75-125	28-APR-16
NO2-IC-N-CL	**Water**							

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-CL	**Water**							
Batch R3449855								
WG2300874-3 DUP		**L1760869-1**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	27-APR-16
WG2300874-2 LCS								
Nitrite (as N)			105.5		%		90-110	27-APR-16
WG2300874-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	27-APR-16
WG2300874-4 MS		**L1760869-1**						
Nitrite (as N)			104.5		%		75-125	27-APR-16
NO3-IC-N-CL	**Water**							
Batch R3449855								
WG2300874-3 DUP		**L1760869-1**						
Nitrate (as N)		0.043	0.044		mg/L	1.1	20	27-APR-16
WG2300874-2 LCS								
Nitrate (as N)			101.9		%		90-110	27-APR-16
WG2300874-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	27-APR-16
WG2300874-4 MS		**L1760869-1**						
Nitrate (as N)			101.6		%		75-125	27-APR-16
P-T-COL-CL	**Water**							
Batch R3448104								
WG2299760-3 DUP		**L1761015-1**						
Phosphorus (P)-Total		0.0495	0.0480		mg/L	3.2	20	29-APR-16
WG2299760-7 DUP		**L1760595-4**						
Phosphorus (P)-Total		0.0455	0.0414		mg/L	9.3	20	29-APR-16
WG2299760-2 LCS								
Phosphorus (P)-Total			106.5		%		80-120	29-APR-16
WG2299760-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	29-APR-16
WG2299760-4 MS		**L1761015-1**						
Phosphorus (P)-Total			102.0		%		70-130	29-APR-16
WG2299760-8 MS		**L1760595-4**						
Phosphorus (P)-Total			105.5		%		70-130	29-APR-16
PO4-DO-COL-CL	**Water**							
Batch R3446553								
WG2298073-3 DUP		**L1760326-7**						
Orthophosphate-Dissolved (as P)		0.0795	0.0792		mg/L	0.4	20	27-APR-16
WG2298073-2 LCS								

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-CL	**Water**							
Batch R3446553								
WG2298073-2 LCS								
Orthophosphate-Dissolved (as P)			92.6		%		80-120	27-APR-16
WG2298073-6 LCS								
Orthophosphate-Dissolved (as P)			92.6		%		80-120	27-APR-16
WG2298073-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	27-APR-16
WG2298073-5 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	27-APR-16
WG2298073-4 MS		**L1760595-4**						
Orthophosphate-Dissolved (as P)			102.4		%		70-130	27-APR-16
TSS-CL	**Water**							
Batch R3450322								
WG2301407-3 DUP		**L1760431-1**						
Total Suspended Solids		9.7	9.7		mg/L	0.0	20	02-MAY-16
WG2301407-2 LCS								
Total Suspended Solids			92.7		%		85-115	02-MAY-16
WG2301407-1 MB								
Total Suspended Solids			<3.0		mg/L		3	02-MAY-16

Quality Control Report

Workorder: L1760595 Report Date: 03-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

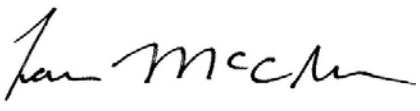
Nautilus Environmental

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/04/27, 1000
Report Date: 2016/05/02
Version: FINAL

Test Report

Client: ALS106
Reference: 16-0492
Billing: L1760595



Senior Verifier

Nautilus Environmental

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 16-0492

Client: ALS Laboratory Group; operation Calgary

Sample: L1760595-1 WWTP EFFLUENT- UV TROUGH, L1760595-2 COLUMBIA RIVER UPSTREAM, L1760595-3 COLUMBIA RIVER DOWNSTREAM, L1760595-4 COLUMBIA RIVER SIDE

Collection: collected on 2016/04/26 at 1300-1400
Receipt: received on 2016/04/27 at 1000 by MC
Containers: received 4 x 250 mL bottle at 8 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/04/27 by TM; ended on 2016/04/28 by HS

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1760595-1 WWTP EFFLUENT- UV TROUGH	<1
02	L1760595-2 COLUMBIA RIVER UPSTREAM	<1
03	L1760595-3 COLUMBIA RIVER DOWNSTREAM	<1
04	L1760595-4 COLUMBIA RIVER SIDE CHANNEL	3

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated into and form part of the Chain of Custody between HydroQual Laboratories Ltd. ("HydroQual") and the party named in the Chain of Custody (the "Client").

1. **Definitions:** Capitalized terms shall have the definition ascribed as such in these General Terms and Conditions and the Chain of Custody.
2. **The Services:** HydroQual will provide the Services to the Client as listed and described in the Chain of Custody.
3. **Prices:** HydroQual may review and change all prices, fees, surcharges or other charges as set out in proposals and/or price quotations if there are changes to HydroQual's cost beyond HydroQual's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding condition 3, all quotations are reviewed and updated on a yearly basis.
4. **Payment Terms:** The Client shall pay HydroQual within 30 days of the invoice date as provided by HydroQual. HydroQual may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. **Quotation Numbers:** The Client shall provide the proposal and/or price quotation number to HydroQual (where applicable) to ensure correct pricing.
6. **Taxes:** Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. **No Guarantee of Results:** The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
8. **Standard of Care:** HydroQual will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested, subject to that level of care and skill ordinarily exercised by other laboratories currently practicing under similar conditions in the same locality, subject to the time limits and financial, physical or other constraints applicable to the Services. No warranty, express or implied, is made.
9. **Storage:** Where possible, HydroQual will store samples until a final report is issued to the Client, after which time HydroQual may discard the sample.
10. **Holds:** If the Client requests a sample be placed on hold, HydroQual will store the sample for the mutually agreed upon written time and price, after which HydroQual will invoice the Client and discard the sample.
11. **Archives:** If the Client requests a sample be archived, HydroQual will store the sample for a mutually agreed upon written time frame and price, after which HydroQual will invoice the Client and discard the sample.
12. **Handling Protocol:** Legal sample handling protocol must be arranged, and provided in writing, before samples are collected. HydroQual will provide a price quotation for legal sample protocol. Samples processed under legal protocol are stored indefinitely, subject to a storage charge as advised by HydroQual.
13. **Samples:** The quality, condition, content and source of samples stored and tested are not known to HydroQual except as declared and described on the Chain of Custody completed and submitted by the Client and accompanying the sample.
14. **Risk of Loss:** HydroQual will use reasonable care to protect samples during storage, however, all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the client forever releases HydroQual from any and all claims the Client may have for any loss or damage to the sample.
15. **Environmental:** the Client must comply with all applicable environmental legislation, including labeling all hazardous samples to comply with Canada's *Workplace Hazardous Materials Information System* and the Alberta *Transfer of Dangerous Goods* regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client shall defend, indemnify and hold harmless HydroQual for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
16. **Hazardous Materials Disposal:** HydroQual may return, at the Client's cost, hazardous material to the Client for disposal.
17. **Hazardous Materials Surcharge:** HydroQual may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials ("NORM"), such as and including without limitation, H_2S and CN.
18. **Sample Containers:** HydroQual may ship sample containers to the Client's location by the most cost effective means using HydroQual's preferred courier suppliers, within the specified project timeline. Shipping will be charged back to the Client.
19. **Additional Charges:** HydroQual may charge the Client:
    (a) for pick-up and delivery services when provided subject in each instance to a minimum charge of $50.00; and,
    (b) for rush service (processing samples and/or reporting).
20. **Large Bottle Orders:** The Client shall provide HydroQual with not less than 24 hours' notice for large bottle orders.
21. **Re-Tests:** HydroQual reserves the right to re-test any samples that remain in HydroQual's possession. Re-tests requested by the Client may be charged to Client and Client agrees to pay for such charges.
22. **Waiver:** The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any and all claims against HydroQual that the Client may have against HydroQual as a result of the interpretation of the results provided to the Client. The Client shall defend, indemnify and save harmless HydroQual for any and all claims made by any third party against HydroQual in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. **LIMITATION OF LIABILITY:** IN NO EVENT SHALL HYDROQUAL BE RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES, WHETHER FORESEEABLE OR UNFORESEEABLE (INCLUDING CLAIMS FOR LOSS OF PROFITS OR REVENUE OR LOSSES CAUSED BY STOPPAGE OF OTHER WORK OR IMPAIRMENT OF OTHER ASSETS) INCURRED BY THE CLIENT ARISING OUT OF BREACH OR FAILURE OF EXPRESS OF IMPLIED WARRANTY, BREACH OF CONTRACT, BREACH OF WARRANTY, MISREPRESENTATION, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE. IN ANY EVENT, THE LIABILITY OF HYDROQUAL TO THE CLIENT SHALL BE LIMITED TO THE COST OF TESTING THE SAMPLE AS REQUESTED IN THE CHAIN OF CUSTODY UNDER WHICH THE SAMPLE WAS ORIGINALLY DEPOSITED. FOR THE PURPOSES OF THIS PARAGRAPH AND PARAGRAPHS 7, 14, 15, 22, AND 24, AS APPLICABLE, "HYDROQUAL" INCLUDES WITHOUT LIMITATIONS ITS DIRECTORS, OFFICERS, EMPLOYEES AND AFFILIATES AND THE "CLIENT" INCLUDES WITHOUT LIMITATION ANY THIRD PARTY THAT MAY HAVE A CLAIM AGAINST HYDROQUAL THROUGH THE CLIENT.
24. **Notice of Liability:** Notwithstanding paragraph 23, HydroQual shall not be liable to the Client unless the Client provides notice in writing to HydroQual of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk between the Client and HydroQual, and the fees to be paid by the Client to HydroQual reflect this allocation of any such risks and the limitations of liability in these General Terms and Conditions.
25. **Entire Agreement:** These General Terms and Conditions, the Chain of Custody and price quotations constitute the entire agreement between the parties and supersede and take precedence over any terms and conditions contained in any documentation provided by the Client. HydroQual's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein unless expressly stipulated otherwise by HydroQual. If there is a conflict between these General Terms and Conditions and any other document, these General Terms and Conditions prevail.

ALS Environmental

Chai

L1760595-COFC

COC # _____

Page 1 of 1

Report To		Report Fo		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		☐ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		☐ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1:	tjobin@kickinghorseresort.com	☐ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	pmajer@skircr.com	☐ Same Day, or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3:	mskyring@kickinghorseresort.com	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Week 2- 2016 Spring EMS program - WW	Please indicate below Filtered, Preserved or both (F, P, or/P)
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact:	LS	Sampler: TJ

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 15 pH: 6.84	18-Apr-16	13:00	Water	X	X	X	X	X	X	X	X	X	X			5
	Columbia River Upstream Temp: 12 pH: 8.3	18-Apr-16	14:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 12 pH: 8.3	18-Apr-16	14:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 12 pH: 8.3	18-Apr-16	14:00	Water		X	X	X	X	X	X	X	X	X			4

as per client label, Jr 04/27

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			JR	04/27	8:40am	9 °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 03-MAY-16
Report Date: 10-MAY-16 16:28 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1762882

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK 3 - 2016 SPRING EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1762882-1 WWTP EFFLUENT - UV TROUGH							
Sampled By: TJ/MS on 02-MAY-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.084		0.050	mg/L		04-MAY-16	R3451458
Biochemical Oxygen Demand	<2.0		2.0	mg/L		03-MAY-16	R3453340
Orthophosphate-Dissolved (as P)	1.17	DLA	0.10	mg/L		03-MAY-16	R3450505
Coliform Bacteria - Fecal	2	OCR	1	CFU/100mL		03-MAY-16	R3451130
MPN - E. coli	<1		1	MPN/100mL		03-MAY-16	R3451119
Special Request	See Attached					03-MAY-16	R3455105
Phosphorus (P)-Total	1.44	DLA	0.10	mg/L		04-MAY-16	R3451846
Total Suspended Solids	6.3		3.0	mg/L		04-MAY-16	R3451750
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	20.0		0.10	mg/L		03-MAY-16	R3451373
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	20.1		0.11	mg/L		05-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	0.112		0.050	mg/L		03-MAY-16	R3451373
L1762882-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 02-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		04-MAY-16	R3451458
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		03-MAY-16	R3450505
Coliform Bacteria - Fecal	<1		1	CFU/100mL		03-MAY-16	R3451130
MPN - E. coli	<1		1	MPN/100mL		03-MAY-16	R3451119
Special Request	See Attached					03-MAY-16	R3455105
Phosphorus (P)-Total	0.0108		0.0050	mg/L		05-MAY-16	R3451846
Total Suspended Solids	5.7		3.0	mg/L		04-MAY-16	R3451750
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.197		0.020	mg/L		03-MAY-16	R3451373
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.197		0.050	mg/L		05-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		03-MAY-16	R3451373
L1762882-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 02-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		04-MAY-16	R3451458
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		03-MAY-16	R3450505
Coliform Bacteria - Fecal	1	OCR	1	CFU/100mL		03-MAY-16	R3451130
MPN - E. coli	<1		1	MPN/100mL		03-MAY-16	R3451119
Special Request	See Attached					03-MAY-16	R3455105
Phosphorus (P)-Total	0.0143		0.0050	mg/L		05-MAY-16	R3451846
Total Suspended Solids	<3.0		3.0	mg/L		04-MAY-16	R3451750
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.232		0.020	mg/L		03-MAY-16	R3451373
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.232		0.050	mg/L		05-MAY-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1762882-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 02-MAY-16 @ 15:00							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		03-MAY-16	R3451373
L1762882-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 02-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		04-MAY-16	R3451458
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		03-MAY-16	R3450505
Coliform Bacteria - Fecal	4	OCR	1	CFU/100mL		03-MAY-16	R3451130
MPN - E. coli	2	OCR	1	MPN/100mL		03-MAY-16	R3451119
Special Request	See Attached					03-MAY-16	R3455105
Phosphorus (P)-Total	0.0217		0.0050	mg/L		05-MAY-16	R3451846
Total Suspended Solids	5.0		3.0	mg/L		04-MAY-16	R3451750
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.188		0.020	mg/L		03-MAY-16	R3451373
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.188		0.050	mg/L		05-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		03-MAY-16	R3451373

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH4-CL	Water	Ammonia-N	APHA 4500 NH3F-Colorimetry

Ammonia is determined using the Phenate colorimetric method. Result includes both ionized (NH4+) and un-ionized (NH3) ammonia present in the sample.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SPECIAL REQUEST-HQ	Misc.	Special Request HydroQual	SEE SUBLET LAB RESULTS
TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
HQ	NAUTILUS ENVIRONMENTAL COMPANY INC. - CALGARY, AB, CANADA
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1762882 Report Date: 10-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3453340								
WG2304291-6 DUP		**L1762882-1**						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	03-MAY-16
WG2304291-4 LCS								
Biochemical Oxygen Demand			92.0		%		85-115	03-MAY-16
WG2304291-2 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	03-MAY-16
EC-MPN-CL	**Water**							
Batch R3451119								
WG2302346-1 MB								
MPN - E. coli			<1		MPN/100mL		1	03-MAY-16
FCC-MF-CL	**Water**							
Batch R3451130								
WG2302358-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	03-MAY-16
NH4-CL	**Water**							
Batch R3451458								
WG2302815-3 DUP		**L1762882-1**						
Ammonia, Total (as N)		0.084	0.083		mg/L	1.9	20	04-MAY-16
WG2302815-2 LCS								
Ammonia, Total (as N)			99.8		%		85-115	04-MAY-16
WG2302815-1 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	04-MAY-16
WG2302815-4 MS		**L1762882-2**						
Ammonia, Total (as N)			98.5		%		75-125	04-MAY-16
NO2-IC-N-CL	**Water**							
Batch R3451373								
WG2302742-3 DUP		**L1762959-1**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	03-MAY-16
WG2302742-2 LCS								
Nitrite (as N)			103.0		%		90-110	03-MAY-16
WG2302742-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	03-MAY-16
WG2302742-4 MS		**L1762959-1**						
Nitrite (as N)			108.7		%		75-125	03-MAY-16
NO3-IC-N-CL	**Water**							

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-CL	**Water**							
Batch R3451373								
WG2302742-3 DUP		**L1762959-1**						
Nitrate (as N)		0.117	0.116		mg/L	0.9	20	03-MAY-16
WG2302742-2 LCS								
Nitrate (as N)			101.1		%		90-110	03-MAY-16
WG2302742-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	03-MAY-16
WG2302742-4 MS		**L1762959-1**						
Nitrate (as N)			106.5		%		75-125	03-MAY-16
P-T-COL-CL	**Water**							
Batch R3451846								
WG2303158-2 LCS								
Phosphorus (P)-Total			103.9		%		80-120	04-MAY-16
WG2303158-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	04-MAY-16
PO4-DO-COL-CL	**Water**							
Batch R3450505								
WG2300664-2 LCS								
Orthophosphate-Dissolved (as P)			94.2		%		80-120	03-MAY-16
WG2300664-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	03-MAY-16
WG2300664-5 MS		**L1762959-1**						
Orthophosphate-Dissolved (as P)			100.1		%		70-130	03-MAY-16
TSS-CL	**Water**							
Batch R3451750								
WG2303059-3 DUP		**L1761994-4**						
Total Suspended Solids		6.3	5.0	J	mg/L	1.3	6	04-MAY-16
WG2303059-2 LCS								
Total Suspended Solids			93.1		%		85-115	04-MAY-16
WG2303059-1 MB								
Total Suspended Solids			<3.0		mg/L		3	04-MAY-16

Quality Control Report

Workorder: L1762882 Report Date: 10-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

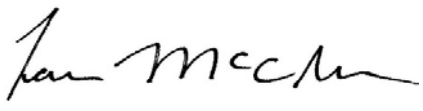
Nautilus Environmental

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/05/03, 1000
Report Date: 2016/05/10
Version: FINAL

Test Report

Client: ALS106
Reference: 16-0516
Billing: L1762882



Senior Verifier

Nautilus Environmental

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 16-0516

Client: ALS Laboratory Group; operation Calgary

Sample: L1762882-1 WWTP EFFLUENT - UV TROUGH, L1762882-2 COLUMBIA RIVER UPSTREAM, L1762882-3 COLUMBIA RIVER DOWNSTREAM, L1762882-4 COLUMBIA RIVER SIDE CHANNEL

Collection: collected on 2016/05/02 at 1400-1500
Receipt: received on 2016/05/03 at 1000 by MC
Containers: received 4 x 125 mL bottle at 9 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/05/03 by HS/JN; ended on 2016/05/04 by HS

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1762882-1 WWTP EFFLUENT - UV TROUGH	<1
02	L1762882-2 COLUMBIA RIVER UPSTREAM	<1
03	L1762882-3 COLUMBIA RIVER DOWNSTREAM	1
04	L1762882-4 COLUMBIA RIVER SIDE CHANNEL	<1

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated into and form part of the Chain of Custody between HydroQual Laboratories Ltd. ("HydroQual") and the party named in the Chain of Custody (the "Client").

1. **Definitions:** Capitalized terms shall have the definition ascribed as such in these General Terms and Conditions and the Chain of Custody.
2. **The Services:** HydroQual will provide the Services to the Client as listed and described in the Chain of Custody.
3. **Prices:** HydroQual may review and change all prices, fees, surcharges or other charges as set out in proposals and/or price quotations if there are changes to HydroQual's cost beyond HydroQual's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding condition 3, all quotations are reviewed and updated on a yearly basis.
4. **Payment Terms:** The Client shall pay HydroQual within 30 days of the invoice date as provided by HydroQual. HydroQual may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. **Quotation Numbers:** The Client shall provide the proposal and/or price quotation number to HydroQual (where applicable) to ensure correct pricing.
6. **Taxes:** Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. **No Guarantee of Results:** The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
8. **Standard of Care:** HydroQual will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested, subject to that level of care and skill ordinarily exercised by other laboratories currently practicing under similar conditions in the same locality, subject to the time limits and financial, physical or other constraints applicable to the Services. No warranty, express or implied, is made.
9. **Storage:** Where possible, HydroQual will store samples until a final report is issued to the Client, after which time HydroQual may discard the sample.
10. **Holds:** If the Client requests a sample be placed on hold, HydroQual will store the sample for the mutually agreed upon written time and price, after which HydroQual will invoice the Client and discard the sample.
11. **Archives:** If the Client requests a sample be archived, HydroQual will store the sample for a mutually agreed upon written time frame and price, after which HydroQual will invoice the Client and discard the sample.
12. **Handling Protocol:** Legal sample handling protocol must be arranged, and provided in writing, before samples are collected. HydroQual will provide a price quotation for legal sample protocol. Samples processed under legal protocol are stored indefinitely, subject to a storage charge as advised by HydroQual.
13. **Samples:** The quality, condition, content and source of samples stored and tested are not known to HydroQual except as declared and described on the Chain of Custody completed and submitted by the Client and accompanying the sample.
14. **Risk of Loss:** HydroQual will use reasonable care to protect samples during storage, however, all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the client forever releases HydroQual from any and all claims the Client may have for any loss or damage to the sample.
15. **Environmental:** the Client must comply with all applicable environmental legislation, including labeling all hazardous samples to comply with Canada's *Workplace Hazardous Materials Information System* and the Alberta *Transfer of Dangerous Goods* regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client shall defend, indemnify and hold harmless HydroQual for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
16. **Hazardous Materials Disposal:** HydroQual may return, at the Client's cost, hazardous material to the Client for disposal.
17. **Hazardous Materials Surcharge:** HydroQual may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials ("NORM"), such as and including without limitation, H_2S and CN.
18. **Sample Containers:** HydroQual may ship sample containers to the Client's location by the most cost effective means using HydroQual's preferred courier suppliers, within the specified project timeline. Shipping will be charged back to the Client.
19. **Additional Charges:** HydroQual may charge the Client:
    (a) for pick-up and delivery services when provided subject in each instance to a minimum charge of $50.00; and,
    (b) for rush service (processing samples and/or reporting).
20. **Large Bottle Orders:** The Client shall provide HydroQual with not less than 24 hours' notice for large bottle orders.
21. **Re-Tests:** HydroQual reserves the right to re-test any samples that remain in HydroQual's possession. Re-tests requested by the Client may be charged to Client and Client agrees to pay for such charges.
22. **Waiver:** The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any and all claims against HydroQual that the Client may have against HydroQual as a result of the interpretation of the results provided to the Client. The Client shall defend, indemnify and save harmless HydroQual for any and all claims made by any third party against HydroQual in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. **LIMITATION OF LIABILITY:** IN NO EVENT SHALL HYDROQUAL BE RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES, WHETHER FORESEEABLE OR UNFORESEEABLE (INCLUDING CLAIMS FOR LOSS OF PROFITS OR REVENUE OR LOSSES CAUSED BY STOPPAGE OF OTHER WORK OR IMPAIRMENT OF OTHER ASSETS) INCURRED BY THE CLIENT ARISING OUT OF BREACH OR FAILURE OF EXPRESS OF IMPLIED WARRANTY, BREACH OF CONTRACT, BREACH OF WARRANTY, MISREPRESENTATION, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE. IN ANY EVENT, THE LIABILITY OF HYDROQUAL TO THE CLIENT SHALL BE LIMITED TO THE COST OF TESTING THE SAMPLE AS REQUESTED IN THE CHAIN OF CUSTODY UNDER WHICH THE SAMPLE WAS ORIGINALLY DEPOSITED. FOR THE PURPOSES OF THIS PARAGRAPH AND PARAGRAPHS 7, 14, 15, 22, AND 24, AS APPLICABLE, "HYDROQUAL" INCLUDES WITHOUT LIMITATIONS ITS DIRECTORS, OFFICERS, EMPLOYEES AND AFFILIATES AND THE "CLIENT" INCLUDES WITHOUT LIMITATION ANY THIRD PARTY THAT MAY HAVE A CLAIM AGAINST HYDROQUAL THROUGH THE CLIENT.
24. **Notice of Liability:** Notwithstanding paragraph 23, HydroQual shall not be liable to the Client unless the Client provides notice in writing to HydroQual of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk between the Client and HydroQual, and the fees to be paid by the Client to HydroQual reflect this allocation of any such risks and the limitations of liability in these General Terms and Conditions.
25. **Entire Agreement:** These General Terms and Conditions, the Chain of Custody and price quotations constitute the entire agreement between the parties and supersede and take precedence over any terms and conditions contained in any documentation provided by the Client. HydroQual's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein unless expressly stipulated otherwise by HydroQual. If there is a conflict between these General Terms and Conditions and any other document, these General Terms and Conditions prevail.

ALS Environmental

L1762882

L1762882-COFC

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1:	tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3:	mskyring@kickinghorseresort.com	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Week 3- 2016 Spring EMS program - WW	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)	[redacted]	ALS Contact:	LS	Sampler: TJ/MS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
[redacted]	WWTP Effluent - UV trough Temp: 10°C pH: 7.08	02-May-16	14:00	Water	X	X	X	X	X	X	X	X	X	X			5
[redacted]	Columbia River Upstream Temp: 10.6 pH: 7.10	02-May-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
[redacted]	Columbia River Down stream Temp: 10.6 pH: 7.10	02-May-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
[redacted]	Columbia River Side Channel Temp: 10.6 pH: 7.10	02-May-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	
[redacted]																	

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / (No) If Yes add SIF
Mark Skyring	02-05-16	1530	MM	3 May 16	8:15	8° °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 11-MAY-16
Report Date: 20-MAY-16 20:58 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1766728

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK 4 -2016 SPRING EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1766728-1 WWTP EFFLUENT - UV TROUGH							
Sampled By: TJ/MS on 10-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.100		0.050	mg/L		15-MAY-16	R3457861
Biochemical Oxygen Demand	3.1		2.0	mg/L		11-MAY-16	R3458533
Orthophosphate-Dissolved (as P)	1.71	DLA	0.10	mg/L		11-MAY-16	R3455822
Coliform Bacteria - Fecal	500	DLA	100	CFU/100mL		11-MAY-16	R3456855
MPN - E. coli	170	OCR	1	MPN/100mL		11-MAY-16	R3456841
Special Request	See Attached					11-MAY-16	R3462484
Phosphorus (P)-Total	1.92		0.0050	mg/L		11-MAY-16	R3456225
Total Suspended Solids	16.7		3.0	mg/L		13-MAY-16	R3458538
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	16.7		0.020	mg/L		11-MAY-16	R3457065
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	16.8		0.050	mg/L		13-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	0.129		0.010	mg/L		11-MAY-16	R3457065
L1766728-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 10-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		15-MAY-16	R3457861
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		11-MAY-16	R3455822
Coliform Bacteria - Fecal	8	DLM	2	CFU/100mL		11-MAY-16	R3456855
MPN - E. coli	2	OCR	1	MPN/100mL		11-MAY-16	R3456841
Special Request	See Attached					11-MAY-16	R3462484
Phosphorus (P)-Total	0.0258		0.0050	mg/L		11-MAY-16	R3456225
Total Suspended Solids	24.0		3.0	mg/L		13-MAY-16	R3458538
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.239		0.020	mg/L		11-MAY-16	R3457065
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.239		0.050	mg/L		13-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-MAY-16	R3457065
L1766728-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 10-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		15-MAY-16	R3457861
Orthophosphate-Dissolved (as P)	0.0117		0.0050	mg/L		11-MAY-16	R3455822
Coliform Bacteria - Fecal	<2	DLM	2	CFU/100mL		11-MAY-16	R3456855
MPN - E. coli	<1		1	MPN/100mL		11-MAY-16	R3456841
Special Request	See Attached					11-MAY-16	R3462484
Phosphorus (P)-Total	0.0588		0.0050	mg/L		11-MAY-16	R3456225
Total Suspended Solids	36.0		3.0	mg/L		13-MAY-16	R3458538
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.271		0.020	mg/L		11-MAY-16	R3457065
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.271		0.050	mg/L		13-MAY-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1766728-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 10-MAY-16 @ 15:00							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-MAY-16	R3457065
L1766728-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 10-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		15-MAY-16	R3457861
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		11-MAY-16	R3455822
Coliform Bacteria - Fecal	8	DLM	2	CFU/100mL		11-MAY-16	R3456855
MPN - E. coli	6	OCR	1	MPN/100mL		11-MAY-16	R3456841
Special Request	See Attached					11-MAY-16	R3462484
Phosphorus (P)-Total	0.0228		0.0050	mg/L		11-MAY-16	R3456225
Total Suspended Solids	45.3		3.0	mg/L		13-MAY-16	R3458538
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.137		0.020	mg/L		11-MAY-16	R3457065
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.137		0.050	mg/L		13-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		11-MAY-16	R3457065

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH4-CL	Water	Ammonia-N	APHA 4500 NH3F-Colorimetry

Ammonia is determined using the Phenate colorimetric method. Result includes both ionized (NH4+) and un-ionized (NH3) ammonia present in the sample.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SPECIAL REQUEST-HQ	Misc.	Special Request HydroQual	SEE SUBLET LAB RESULTS
TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
HQ	NAUTILUS ENVIRONMENTAL COMPANY INC. - CALGARY, AB, CANADA
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1766728 Report Date: 20-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3458533								
WG2309003-4 LCS								
Biochemical Oxygen Demand			99.3		%		85-115	11-MAY-16
WG2309003-2 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	11-MAY-16
EC-MPN-CL	**Water**							
Batch R3456841								
WG2307687-1 MB								
MPN - E. coli			<1		MPN/100mL		1	11-MAY-16
FCC-MF-CL	**Water**							
Batch R3456855								
WG2307750-2 DUP		**L1766745-2**						
Coliform Bacteria - Fecal		210	185		CFU/100mL	13	65	11-MAY-16
WG2307750-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	11-MAY-16
NH4-CL	**Water**							
Batch R3457861								
WG2308759-11 DUP		**L1767407-4**						
Ammonia, Total (as N)		0.117	0.114		mg/L	2.8	20	15-MAY-16
WG2308759-10 LCS								
Ammonia, Total (as N)			104.3		%		85-115	15-MAY-16
WG2308759-9 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	15-MAY-16
WG2308759-12 MS		**L1766728-4**						
Ammonia, Total (as N)			102.2		%		75-125	15-MAY-16
NO2-IC-N-CL	**Water**							
Batch R3457065								
WG2307952-3 DUP		**L1766835-2**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	11-MAY-16
WG2307952-6 DUP		**L1766728-4**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	11-MAY-16
WG2307952-2 LCS								
Nitrite (as N)			102.3		%		90-110	11-MAY-16
WG2307952-5 LCS								
Nitrite (as N)			102.2		%		90-110	11-MAY-16
WG2307952-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	11-MAY-16

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-CL	**Water**							
Batch R3457065								
WG2307952-4 MB								
Nitrite (as N)			<0.010		mg/L		0.01	11-MAY-16
NO3-IC-N-CL	**Water**							
Batch R3457065								
WG2307952-3 DUP		**L1766835-2**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	11-MAY-16
WG2307952-6 DUP		**L1766728-4**						
Nitrate (as N)		0.137	0.137		mg/L	0.4	20	11-MAY-16
WG2307952-2 LCS								
Nitrate (as N)			101.7		%		90-110	11-MAY-16
WG2307952-5 LCS								
Nitrate (as N)			101.8		%		90-110	11-MAY-16
WG2307952-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	11-MAY-16
WG2307952-4 MB								
Nitrate (as N)			<0.020		mg/L		0.02	11-MAY-16
P-T-COL-CL	**Water**							
Batch R3456225								
WG2307038-3 DUP		**L1766830-7**						
Phosphorus (P)-Total		0.0228	0.0215		mg/L	6.0	20	11-MAY-16
WG2307038-7 DUP		**L1766728-4**						
Phosphorus (P)-Total		0.0228	0.0236		mg/L	3.6	20	11-MAY-16
WG2307038-2 LCS								
Phosphorus (P)-Total			110.1		%		80-120	11-MAY-16
WG2307038-6 LCS								
Phosphorus (P)-Total			108.3		%		80-120	11-MAY-16
WG2307038-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	11-MAY-16
WG2307038-5 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	11-MAY-16
WG2307038-4 MS		**L1766830-7**						
Phosphorus (P)-Total			97.3		%		70-130	11-MAY-16
WG2307038-8 MS		**L1766728-4**						
Phosphorus (P)-Total			103.9		%		70-130	11-MAY-16
PO4-DO-COL-CL	**Water**							

Quality Control Report

Workorder: L1766728 Report Date: 20-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PO4-DO-COL-CL	**Water**							
Batch R3455822								
WG2306483-9 DUP		**L1766728-3**						
Orthophosphate-Dissolved (as P)		0.0117	0.0116		mg/L	1.0	20	11-MAY-16
WG2306483-2 LCS								
Orthophosphate-Dissolved (as P)			106.7		%		80-120	11-MAY-16
WG2306483-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	11-MAY-16
WG2306483-4 MS		**L1766830-2**						
Orthophosphate-Dissolved (as P)			109.4		%		70-130	11-MAY-16
TSS-CL	**Water**							
Batch R3458538								
WG2308967-3 DUP		**L1766808-8**						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	13-MAY-16
WG2308967-2 LCS								
Total Suspended Solids			92.9		%		85-115	13-MAY-16
WG2308967-1 MB								
Total Suspended Solids			<3.0		mg/L		3	13-MAY-16

Quality Control Report

Workorder: L1766728 Report Date: 20-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Nautilus Environmental

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/05/11, 0940
Report Date: 2016/05/19
Version: FINAL

Test Report

Client: ALS106
Reference: 16-0562
Billing: L1766728

Senior Verifier

Nautilus Environmental

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 16-0562

Client: ALS Laboratory Group; operation Calgary

Sample: L1766728-1 WWTP EFFLUENT - UV TROUGH, L1766728-2 COLUMBIA RIVER UPSTREAM, L1766728-3 COLUMBIA RIVER DOWNSTREAM, L1766728-4 COLUMBIA RIVER SIDE CHANNEL
Collection: collected on 2016/05/10 at 1500
Receipt: received on 2016/05/11 at 0940 by MC
Containers: received 4 x 250 mL bottle at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/05/11 by JN; ended on 2016/05/12 by JN

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1766728-1 WWTP EFFLUENT - UV TROUGH	48.0
02	L1766728-2 COLUMBIA RIVER UPSTREAM	2.0
03	L1766728-3 COLUMBIA RIVER DOWNSTREAM	2.0
04	L1766728-4 COLUMBIA RIVER SIDE CHANNEL	4.1

Notes: MPN, most probable number

Comments: Test incubation was 28 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated into and form part of the Chain of Custody between HydroQual Laboratories Ltd. ("HydroQual") and the party named in the Chain of Custody (the "Client").

1. **Definitions:** Capitalized terms shall have the definition ascribed as such in these General Terms and Conditions and the Chain of Custody.
2. **The Services:** HydroQual will provide the Services to the Client as listed and described in the Chain of Custody.
3. **Prices:** HydroQual may review and change all prices, fees, surcharges or other charges as set out in proposals and/or price quotations if there are changes to HydroQual's cost beyond HydroQual's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding condition 3, all quotations are reviewed and updated on a yearly basis.
4. **Payment Terms:** The Client shall pay HydroQual within 30 days of the invoice date as provided by HydroQual. HydroQual may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. **Quotation Numbers:** The Client shall provide the proposal and/or price quotation number to HydroQual (where applicable) to ensure correct pricing.
6. **Taxes:** Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. **No Guarantee of Results:** The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
8. **Standard of Care:** HydroQual will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested, subject to that level of care and skill ordinarily exercised by other laboratories currently practicing under similar conditions in the same locality, subject to the time limits and financial, physical or other constraints applicable to the Services. No warranty, express or implied, is made.
9. **Storage:** Where possible, HydroQual will store samples until a final report is issued to the Client, after which time HydroQual may discard the sample.
10. **Holds:** If the Client requests a sample be placed on hold, HydroQual will store the sample for the mutually agreed upon written time and price, after which HydroQual will invoice the Client and discard the sample.
11. **Archives:** If the Client requests a sample be archived, HydroQual will store the sample for a mutually agreed upon written time frame and price, after which HydroQual will invoice the Client and discard the sample.
12. **Handling Protocol:** Legal sample handling protocol must be arranged, and provided in writing, before samples are collected. HydroQual will provide a price quotation for legal sample protocol. Samples processed under legal protocol are stored indefinitely, subject to a storage charge as advised by HydroQual.
13. **Samples:** The quality, condition, content and source of samples stored and tested are not known to HydroQual except as declared and described on the Chain of Custody completed and submitted by the Client and accompanying the sample.
14. **Risk of Loss:** HydroQual will use reasonable care to protect samples during storage, however, all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the client forever releases HydroQual from any and all claims the Client may have for any loss or damage to the sample.
15. **Environmental:** the Client must comply with all applicable environmental legislation, including labeling all hazardous samples to comply with Canada's *Workplace Hazardous Materials Information System* and the Alberta *Transfer of Dangerous Goods* regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client shall defend, indemnify and hold harmless HydroQual for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
16. **Hazardous Materials Disposal:** HydroQual may return, at the Client's cost, hazardous material to the Client for disposal.
17. **Hazardous Materials Surcharge:** HydroQual may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials ("NORM"), such as and including without limitation, H_2S and CN.
18. **Sample Containers:** HydroQual may ship sample containers to the Client's location by the most cost effective means using HydroQual's preferred courier suppliers, within the specified project timeline. Shipping will be charged back to the Client.
19. **Additional Charges:** HydroQual may charge the Client:
    (a) for pick-up and delivery services when provided subject in each instance to a minimum charge of $50.00; and,
    (b) for rush service (processing samples and/or reporting).
20. **Large Bottle Orders:** The Client shall provide HydroQual with not less than 24 hours' notice for large bottle orders.
21. **Re-Tests:** HydroQual reserves the right to re-test any samples that remain in HydroQual's possession. Re-tests requested by the Client may be charged to Client and Client agrees to pay for such charges.
22. **Waiver:** The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any and all claims against HydroQual that the Client may have against HydroQual as a result of the interpretation of the results provided to the Client. The Client shall defend, indemnify and save harmless HydroQual for any and all claims made by any third party against HydroQual in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. **LIMITATION OF LIABILITY:** IN NO EVENT SHALL HYDROQUAL BE RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES, WHETHER FORESEEABLE OR UNFORESEEABLE (INCLUDING CLAIMS FOR LOSS OF PROFITS OR REVENUE OR LOSSES CAUSED BY STOPPAGE OF OTHER WORK OR IMPAIRMENT OF OTHER ASSETS) INCURRED BY THE CLIENT ARISING OUT OF BREACH OR FAILURE OF EXPRESS OF IMPLIED WARRANTY, BREACH OF CONTRACT, BREACH OF WARRANTY, MISREPRESENTATION, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE. IN ANY EVENT, THE LIABILITY OF HYDROQUAL TO THE CLIENT SHALL BE LIMITED TO THE COST OF TESTING THE SAMPLE AS REQUESTED IN THE CHAIN OF CUSTODY UNDER WHICH THE SAMPLE WAS ORIGINALLY DEPOSITED. FOR THE PURPOSES OF THIS PARAGRAPH AND PARAGRAPHS 7, 14, 15, 22, AND 24, AS APPLICABLE, "HYDROQUAL" INCLUDES WITHOUT LIMITATIONS ITS DIRECTORS, OFFICERS, EMPLOYEES AND AFFILIATES AND THE "CLIENT" INCLUDES WITHOUT LIMITATION ANY THIRD PARTY THAT MAY HAVE A CLAIM AGAINST HYDROQUAL THROUGH THE CLIENT.
24. **Notice of Liability:** Notwithstanding paragraph 23, HydroQual shall not be liable to the Client unless the Client provides notice in writing to HydroQual of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk between the Client and HydroQual, and the fees to be paid by the Client to HydroQual reflect this allocation of any such risks and the limitations of liability in these General Terms and Conditions.
25. **Entire Agreement:** These General Terms and Conditions, the Chain of Custody and price quotations constitute the entire agreement between the parties and supersede and take precedence over any terms and conditions contained in any documentation provided by the Client. HydroQual's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein unless expressly stipulated otherwise by HydroQual. If there is a conflict between these General Terms and Conditions and any other document, these General Terms and Conditions prevail.

ALS Environmental

Chain of Custody / Analytical Re
Canada Toll Free: 1 800 66
www.alsglobal.com

L1766728-COFC

COC #

Page 1 of 1

Report To		Report Format / Distribution		Turn analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: pmajer@skircr.com		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3: mskyring@kickinghorseresort.com		Analysis Request
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Week 4- 2016 Spring EMS program - WW		
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		
Lab Work Order (lab use only)		ALS Contact: LS	Sampler: TJ/MS	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 13.2 pH: 6.96	10-May-16	15:00	Water	X	X	X	X	X	X	X	X	X	X			5
	Columbia River Upstream Temp: 14°c pH: 7.56	10-May-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 14°c pH: 7.56	10-May-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 14°c pH: 7.56	10-May-16	15:00	Water		X	X	X	X	X	X	X	X	X			4

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations Yes / No ? If Yes add SIF
	10 May 2016	1600		05/11	8:00	°C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 18-MAY-16
Report Date: 26-MAY-16 16:46 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1770197

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK 5 - 2016 SPRING EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1770197-1 WWTP EFFLUENT - UV TROUGH TEMP: 12.8 PH: 6.79							
Sampled By: TJ/MS on 17-MAY-16 @ 13:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.064		0.050	mg/L		25-MAY-16	R3464861
Biochemical Oxygen Demand	<2.0		2.0	mg/L		18-MAY-16	R3462928
Orthophosphate-Dissolved (as P)	0.834	DLA	0.050	mg/L		18-MAY-16	R3460426
Coliform Bacteria - Fecal	12		1	CFU/100mL		18-MAY-16	R3461853
MPN - E. coli	10	OCR	1	MPN/100mL		18-MAY-16	R3461566
Special Request	See Attached					18-MAY-16	R3465713
Phosphorus (P)-Total	1.03	DLA	0.050	mg/L		24-MAY-16	R3463478
Total Suspended Solids	8.3		3.0	mg/L		24-MAY-16	R3464671
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	14.1		0.020	mg/L		18-MAY-16	R3461469
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	14.1		0.050	mg/L		19-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	0.055		0.010	mg/L		18-MAY-16	R3461469
L1770197-2 COLUMBIA RIVER UPSTREAM TEMP: 13.8 PH: 6.56							
Sampled By: TJ/MS on 17-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		25-MAY-16	R3464861
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		18-MAY-16	R3460426
Coliform Bacteria - Fecal	2		1	CFU/100mL		18-MAY-16	R3461853
MPN - E. coli	1	OCR	1	MPN/100mL		18-MAY-16	R3461566
Special Request	See Attached					18-MAY-16	R3465713
Phosphorus (P)-Total	0.0115		0.0050	mg/L		24-MAY-16	R3463478
Total Suspended Solids	13.0		3.0	mg/L		24-MAY-16	R3464671
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.141		0.020	mg/L		18-MAY-16	R3461469
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.141		0.050	mg/L		19-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		18-MAY-16	R3461469
L1770197-3 COLUMBIA RIVER DOWNSTREAM TEMP: 13.8 PH: 6.56							
Sampled By: TJ/MS on 17-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		25-MAY-16	R3464861
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		18-MAY-16	R3460426
Coliform Bacteria - Fecal	<1		1	CFU/100mL		18-MAY-16	R3461853
MPN - E. coli	<1		1	MPN/100mL		18-MAY-16	R3461566
Special Request	See Attached					18-MAY-16	R3465713
Phosphorus (P)-Total	0.0228		0.0050	mg/L		24-MAY-16	R3463478
Total Suspended Solids	15.7		3.0	mg/L		24-MAY-16	R3464671
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.178		0.020	mg/L		18-MAY-16	R3461469
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.178		0.050	mg/L		19-MAY-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1770197-3 COLUMBIA RIVER DOWNSTREAM TEMP: 13.8 PH: 6.56							
Sampled By: TJ/MS on 17-MAY-16 @ 15:00							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		18-MAY-16	R3461469
L1770197-4 COLUMBIA RIVER SIDE CHANNEL TEMP: 13.8 PH: 6.56							
Sampled By: TJ/MS on 17-MAY-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		25-MAY-16	R3464861
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		18-MAY-16	R3460426
Coliform Bacteria - Fecal	3	OCR	1	CFU/100mL		18-MAY-16	R3461853
MPN - E. coli	3	OCR	1	MPN/100mL		18-MAY-16	R3461566
Special Request	See Attached					18-MAY-16	R3465713
Phosphorus (P)-Total	0.0270		0.0050	mg/L		24-MAY-16	R3463478
Total Suspended Solids	23.7		3.0	mg/L		24-MAY-16	R3464671
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.128		0.020	mg/L		18-MAY-16	R3461469
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.128		0.050	mg/L		19-MAY-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		18-MAY-16	R3461469

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH4-CL	Water	Ammonia-N	APHA 4500 NH3F-Colorimetry

Ammonia is determined using the Phenate colorimetric method. Result includes both ionized (NH4+) and un-ionized (NH3) ammonia present in the sample.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

SPECIAL REQUEST-HQ	Misc.	Special Request HydroQual	SEE SUBLET LAB RESULTS
TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
HQ	NAUTILUS ENVIRONMENTAL COMPANY INC. - CALGARY, AB, CANADA

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CL		ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA	

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1770197 Report Date: 26-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3462928								
WG2313294-2 LCS								
Biochemical Oxygen Demand			88.6		%		85-115	18-MAY-16
WG2313294-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	18-MAY-16
EC-MPN-CL	**Water**							
Batch R3461566								
WG2311822-3 MB								
MPN - E. coli			<1		MPN/100mL		1	18-MAY-16
FCC-MF-CL	**Water**							
Batch R3461853								
WG2312196-2 DUP		**L1770019-1**						
Coliform Bacteria - Fecal		<1	<1	RPD-NA	CFU/100mL	N/A	65	18-MAY-16
WG2312196-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	18-MAY-16
NH4-CL	**Water**							
Batch R3464861								
WG2314602-15 DUP		**L1770197-1**						
Ammonia, Total (as N)		0.064	0.070		mg/L	9.3	20	25-MAY-16
WG2314602-14 LCS								
Ammonia, Total (as N)			108.8		%		85-115	25-MAY-16
WG2314602-13 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	25-MAY-16
WG2314602-16 MS		**L1770197-2**						
Ammonia, Total (as N)			103.8		%		75-125	25-MAY-16
NO2-IC-N-CL	**Water**							
Batch R3461469								
WG2311768-3 DUP		**L1769891-1**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	18-MAY-16
WG2311768-7 DUP		**L1770240-10**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	18-MAY-16
WG2311768-2 LCS								
Nitrite (as N)			99.3		%		90-110	18-MAY-16
WG2311768-6 LCS								
Nitrite (as N)			100.6		%		90-110	18-MAY-16
WG2311768-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	18-MAY-16

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-CL	**Water**							
Batch R3461469								
WG2311768-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	18-MAY-16
WG2311768-4 MS		**L1769891-1**						
Nitrite (as N)			105.0		%		75-125	18-MAY-16
WG2311768-8 MS		**L1770240-10**						
Nitrite (as N)			103.4		%		75-125	18-MAY-16
NO3-IC-N-CL	**Water**							
Batch R3461469								
WG2311768-3 DUP		**L1769891-1**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	18-MAY-16
WG2311768-7 DUP		**L1770240-10**						
Nitrate (as N)		0.021	0.030	J	mg/L	0.009	0.04	18-MAY-16
WG2311768-2 LCS								
Nitrate (as N)			99.0		%		90-110	18-MAY-16
WG2311768-6 LCS								
Nitrate (as N)			99.6		%		90-110	18-MAY-16
WG2311768-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	18-MAY-16
WG2311768-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	18-MAY-16
WG2311768-4 MS		**L1769891-1**						
Nitrate (as N)			104.8		%		75-125	18-MAY-16
WG2311768-8 MS		**L1770240-10**						
Nitrate (as N)			101.4		%		75-125	18-MAY-16
P-T-COL-CL	**Water**							
Batch R3463478								
WG2313911-11 DUP		**L1768824-22**						
Phosphorus (P)-Total		0.126	0.127		mg/L	1.0	20	24-MAY-16
WG2313911-13 DUP		**L1771039-1**						
Phosphorus (P)-Total		1.44	1.44		mg/L	0.3	20	24-MAY-16
WG2313911-5 DUP		**L1770197-2**						
Phosphorus (P)-Total		0.0115	0.0140		mg/L	19	20	24-MAY-16
WG2313911-9 DUP		**L1768677-32**						
Phosphorus (P)-Total		0.12	0.120		mg/L	3.7	20	24-MAY-16
WG2313911-2 LCS								
Phosphorus (P)-Total			100.8		%		80-120	24-MAY-16
WG2313911-4 LCS								
Phosphorus (P)-Total			104.4		%		80-120	24-MAY-16

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-CL	**Water**							
Batch R3463478								
WG2313911-8 LCS								
Phosphorus (P)-Total			110.6		%		80-120	24-MAY-16
WG2313911-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	24-MAY-16
WG2313911-3 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	24-MAY-16
WG2313911-7 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	24-MAY-16
WG2313911-10 MS		**L1768677-32**						
Phosphorus (P)-Total			N/A	MS-B	%		-	24-MAY-16
WG2313911-12 MS		**L1768824-22**						
Phosphorus (P)-Total			N/A	MS-B	%		-	24-MAY-16
PO4-DO-COL-CL	**Water**							
Batch R3460426								
WG2310815-7 DUP		**L1769891-5**						
Orthophosphate-Dissolved (as P)		0.0267	0.0269		mg/L	0.6	20	18-MAY-16
WG2310815-6 LCS								
Orthophosphate-Dissolved (as P)			99.7		%		80-120	18-MAY-16
WG2310815-5 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	18-MAY-16
WG2310815-8 MS		**L1769723-6**						
Orthophosphate-Dissolved (as P)			101.7		%		70-130	18-MAY-16
TSS-CL	**Water**							
Batch R3464671								
WG2314340-3 DUP		**L1770562-4**						
Total Suspended Solids		6.3	6.3		mg/L	0.0	20	24-MAY-16
WG2314340-2 LCS								
Total Suspended Solids			89.6		%		85-115	24-MAY-16
WG2314340-1 MB								
Total Suspended Solids			<3.0		mg/L		3	24-MAY-16

Quality Control Report

Workorder: L1770197 Report Date: 26-MAY-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Nautilus Environmental

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/05/18, 1050
Report Date: 2016/05/26
Version: FINAL

Test Report

Client: ALS106
Reference: 16-0588
Billing: L1770197

Senior Verifier

Nautilus Environmental

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 16-0588

Client: ALS Laboratory Group; operation Calgary

Sample: L1770197-1 WWTP EFFLUENT - UV- TROUGH TEMP: 12.8 PH: 6.79, L1770197-2 COLUMBIA RIVER UPSTREAM TEMP: 13.8 PH: 6.56, L1770197-3 COLUMBIA RIVER DOWNSTREAM TEMP: 13.8 PH: 6.56, L1770197-4 COLUMBIA RIVER SIDE CHANNEL TEMP: 13.8 PH:6.56
Collection: collected on 2016/05/17 at 1400, 1500
Receipt: received on 2016/05/18 at 1050 by MC
Containers: received 4 x 250 mL bottle at 11 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/05/18 by JN; ended on 2016/05/19 by HS

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1770197-1 WWTP EFFLUENT - UV- TROUGH TEMP: 12.8 PH: 6.79	<1
02	L1770197-2 COLUMBIA RIVER UPSTREAM TEMP: 13.8 PH: 6.56	<1
03	L1770197-3 COLUMBIA RIVER DOWNSTREAM TEMP: 13.8 PH: 6.56	3.1
04	L1770197-4 COLUMBIA RIVER SIDE CHANNEL TEMP: 13.8 PH:6.56	7.5

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

GENERAL TERMS AND CONDITIONS:

These terms and conditions are incorporated into and form part of the Chain of Custody between HydroQual Laboratories Ltd. ("HydroQual") and the party named in the Chain of Custody (the "Client").

1. **Definitions:** Capitalized terms shall have the definition ascribed as such in these General Terms and Conditions and the Chain of Custody.
2. **The Services:** HydroQual will provide the Services to the Client as listed and described in the Chain of Custody.
3. **Prices:** HydroQual may review and change all prices, fees, surcharges or other charges as set out in proposals and/or price quotations if there are changes to HydroQual's cost beyond HydroQual's control, including changes in legislative requirements, Client variations of sample numbers and Client requests for changes to standard reporting requirements. Notwithstanding condition 3, all quotations are reviewed and updated on a yearly basis.
4. **Payment Terms:** The Client shall pay HydroQual within 30 days of the invoice date as provided by HydroQual. HydroQual may, for reasonable business reasons, require the Client to arrange for payment in advance.
5. **Quotation Numbers:** The Client shall provide the proposal and/or price quotation number to HydroQual (where applicable) to ensure correct pricing.
6. **Taxes:** Applicable taxes are not included in prices, surcharges and additional fees and will be added at the time of invoicing.
7. **No Guarantee of Results:** The Client is responsible for informing itself on the limitation of the results and acknowledges that the results are not guaranteed.
8. **Standard of Care:** HydroQual will use reasonable care and diligence as required by the laws of the province or territory where the sample is tested, subject to that level of care and skill ordinarily exercised by other laboratories currently practicing under similar conditions in the same locality, subject to the time limits and financial, physical or other constraints applicable to the Services. No warranty, express or implied, is made.
9. **Storage:** Where possible, HydroQual will store samples until a final report is issued to the Client, after which time HydroQual may discard the sample.
10. **Holds:** If the Client requests a sample be placed on hold, HydroQual will store the sample for the mutually agreed upon written time and price, after which HydroQual will invoice the Client and discard the sample.
11. **Archives:** If the Client requests a sample be archived, HydroQual will store the sample for a mutually agreed upon written time frame and price, after which HydroQual will invoice the Client and discard the sample.
12. **Handling Protocol:** Legal sample handling protocol must be arranged, and provided in writing, before samples are collected. HydroQual will provide a price quotation for legal sample protocol. Samples processed under legal protocol are stored indefinitely, subject to a storage charge as advised by HydroQual.
13. **Samples:** The quality, condition, content and source of samples stored and tested are not known to HydroQual except as declared and described on the Chain of Custody completed and submitted by the Client and accompanying the sample.
14. **Risk of Loss:** HydroQual will use reasonable care to protect samples during storage, however, all samples are stored at the Client's risk and the Client is responsible for obtaining appropriate insurance, if desired. The Client acknowledges that during the performance of the Services samples may be altered, lost, damaged or destroyed and the client forever releases HydroQual from any and all claims the Client may have for any loss or damage to the sample.
15. **Environmental:** the Client must comply with all applicable environmental legislation, including labeling all hazardous samples to comply with Canada's *Workplace Hazardous Materials Information System* and the Alberta *Transfer of Dangerous Goods* regulations, and must provide appropriate material safety data sheets that include the nature of the hazard and a contact name and phone number to call for information. The Client shall defend, indemnify and hold harmless HydroQual for all loss or damages, including any fine or cost of complying with an order of any government authority, resulting from the Client's breach of this paragraph.
16. **Hazardous Materials Disposal:** HydroQual may return, at the Client's cost, hazardous material to the Client for disposal.
17. **Hazardous Materials Surcharge:** HydroQual may apply an additional surcharge for handling of hazardous samples or samples with Naturally Occurring Radioactive Materials ("NORM"), such as and including without limitation, H_2S and CN.
18. **Sample Containers:** HydroQual may ship sample containers to the Client's location by the most cost effective means using HydroQual's preferred courier suppliers, within the specified project timeline. Shipping will be charged back to the Client.
19. **Additional Charges:** HydroQual may charge the Client:
    (a) for pick-up and delivery services when provided subject in each instance to a minimum charge of $50.00; and,
    (b) for rush service (processing samples and/or reporting).
20. **Large Bottle Orders:** The Client shall provide HydroQual with not less than 24 hours' notice for large bottle orders.
21. **Re-Tests:** HydroQual reserves the right to re-test any samples that remain in HydroQual's possession. Re-tests requested by the Client may be charged to Client and Client agrees to pay for such charges.
22. **Waiver:** The Client is responsible for making any assessment regarding the suitability of the Services and the intended results for the Client's purposes and waives any and all claims against HydroQual that the Client may have against HydroQual as a result of the interpretation of the results provided to the Client. The Client shall defend, indemnify and save harmless HydroQual for any and all claims made by any third party against HydroQual in respect of all losses however arising from the performance of the Services or the use of any report provided in the performance of the Services.
23. **LIMITATION OF LIABILITY:** IN NO EVENT SHALL HYDROQUAL BE RESPONSIBLE FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES, WHETHER FORESEEABLE OR UNFORESEEABLE (INCLUDING CLAIMS FOR LOSS OF PROFITS OR REVENUE OR LOSSES CAUSED BY STOPPAGE OF OTHER WORK OR IMPAIRMENT OF OTHER ASSETS) INCURRED BY THE CLIENT ARISING OUT OF BREACH OR FAILURE OF EXPRESS OF IMPLIED WARRANTY, BREACH OF CONTRACT, BREACH OF WARRANTY, MISREPRESENTATION, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE. IN ANY EVENT, THE LIABILITY OF HYDROQUAL TO THE CLIENT SHALL BE LIMITED TO THE COST OF TESTING THE SAMPLE AS REQUESTED IN THE CHAIN OF CUSTODY UNDER WHICH THE SAMPLE WAS ORIGINALLY DEPOSITED. FOR THE PURPOSES OF THIS PARAGRAPH AND PARAGRAPHS 7, 14, 15, 22, AND 24, AS APPLICABLE, "HYDROQUAL" INCLUDES WITHOUT LIMITATIONS ITS DIRECTORS, OFFICERS, EMPLOYEES AND AFFILIATES AND THE "CLIENT" INCLUDES WITHOUT LIMITATION ANY THIRD PARTY THAT MAY HAVE A CLAIM AGAINST HYDROQUAL THROUGH THE CLIENT.
24. **Notice of Liability:** Notwithstanding paragraph 23, HydroQual shall not be liable to the Client unless the Client provides notice in writing to HydroQual of such loss or damage, together with full particulars thereof, within 30 days of the Client's receipt of the report of the analysis of the sample giving rise to such liability. The provisions of this paragraph allocate the risk between the Client and HydroQual, and the fees to be paid by the Client to HydroQual reflect this allocation of any such risks and the limitations of liability in these General Terms and Conditions.
25. **Entire Agreement:** These General Terms and Conditions, the Chain of Custody and price quotations constitute the entire agreement between the parties and supersede and take precedence over any terms and conditions contained in any documentation provided by the Client. HydroQual's execution of any subsequent documentation from the Client only acknowledges receipt and not acceptance of any terms or conditions therein unless expressly stipulated otherwise by HydroQual. If there is a conflict between these General Terms and Conditions and any other document, these General Terms and Conditions prevail.

ALS Enuli

L1770197-COFC

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1:	tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3:	mskyring@kickinghorseresort.com	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Week 5- 2016 Spring EMS program - WW	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact:	LS	Sampler: TJ/MS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 12.8 pH: 6.71	18-Apr-16	13:00	Water	X	X	X	X	X	X	X	X	X	X			6
	Columbia River Upstream Temp: 13.8 pH: 6.56	18-Apr-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 13.8 pH: 6.56	18-Apr-16	15:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 13.8 pH: 6.56	18-Apr-16	15:00	Water		X	X	X	X	X	X	X	X	X			4

* Bottles indicate 17-May-16 sample date - mm 18-May-16

Special instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No? If Yes add SIF
Mark Skyring	17 May 16	1600	MM.	18-may-16	8:50.	8 °C				

GEN- 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 30-JUN-16
Report Date: 07-JUL-16 16:13 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1791503

Project P.O. #: NOT SUBMITTED
Job Reference: RCR - KICKING HORSE MOUNTAIN RESORT
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1791503-1 UV TROUGH							
Sampled By: TJ on 29-JUN-16 @ 10:00							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	6.1		2.0	mg/L		30-JUN-16	R3496820
Orthophosphate-Dissolved (as P)	0.600	DLA	0.050	mg/L		30-JUN-16	R3493464
Phosphorus (P)-Total	0.758	DLA	0.050	mg/L		07-JUL-16	R3498001
Total Suspended Solids	5.3		3.0	mg/L		05-JUL-16	R3497398

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
SPL	P-TOTAL - Sample was Preserved at the laboratory

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1791503 Report Date: 07-JUL-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3496820								
WG2341702-2 LCS								
Biochemical Oxygen Demand			85.9		%		85-115	30-JUN-16
WG2341702-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	30-JUN-16
P-T-COL-CL	**Water**							
Batch R3498001								
WG2342950-3 DUP		**L1789643-1**						
Phosphorus (P)-Total		0.0479	0.0510		mg/L	6.3	20	07-JUL-16
WG2342950-2 LCS								
Phosphorus (P)-Total			109.1		%		80-120	07-JUL-16
WG2342950-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	07-JUL-16
WG2342950-4 MS		**L1789643-1**						
Phosphorus (P)-Total			82.0		%		70-130	07-JUL-16
PO4-DO-COL-CL	**Water**							
Batch R3493464								
WG2339159-4 DUP		**L1791503-1**						
Orthophosphate-Dissolved (as P)		0.600	0.594		mg/L	1.0	20	30-JUN-16
WG2339159-2 LCS								
Orthophosphate-Dissolved (as P)			100.8		%		80-120	30-JUN-16
WG2339159-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	30-JUN-16
TSS-CL	**Water**							
Batch R3497398								
WG2342187-3 DUP		**L1791200-8**						
Total Suspended Solids		7.3	10.0	J	mg/L	2.7	6	05-JUL-16
WG2342187-2 LCS								
Total Suspended Solids			95.6		%		85-115	05-JUL-16
WG2342187-1 MB								
Total Suspended Solids			<3.0		mg/L		3	05-JUL-16

Quality Control Report

Workorder: L1791503 Report Date: 07-JUL-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

L1791503-COFC

Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC #

Report To		/ Distribution				Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Water Utility Co. Ltd.	☑ Standard	☐ Other			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF	☐ Excel	☐ Digital	☑ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1:	tjobin@kickinghorseresort.com			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	pmajer@skircr.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250 344-6003 Fax:	Email 3:	mskyring@kickinghorseresort.com			Analysis Request
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information				Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	RCR - Kicking Horse Mountain Resort			
Company:	Resorts of the Canadian Rockies	PO / AFE:				
Contact:	Patrick Majer	LSD:				
Address:	1505 - 17th Ave SW Calgary AB					
Phone:	Fax:	Quote #:	Q33059			
Lab Work Order # (lab use only)	L1791503	ALS Contact:	LS	Sampler:	TJ	

Sample # (lab use only)	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	TSS	~~Fecal Coliform~~	~~Total Coliform~~	TOTAL P	ORTHO PHOSPHATE						Number of Containers
	UV trough	~~22-Mar-16~~ JUNE 29	1000am	Water	X											1
	UV trough	~~22-Mar-16~~ JUNE 29	1000am	Water		X			X	X						1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			MM	30-Jun-16	8:30	13 °C				

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 29-JUL-16
Report Date: 05-AUG-16 12:27 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1805893

Project P.O. #: NOT SUBMITTED
Job Reference: RCR-KICKING HORSE MOUNTAIN RESORT
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1805893-1 UV THROUGH							
Sampled By: TJ on 28-JUL-16 @ 15:30							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	<2.0	BODQ	2.0	mg/L		29-JUL-16	R3517630
Orthophosphate-Dissolved (as P)	1.97	DLA	0.25	mg/L		29-JUL-16	R3515277
Coliform Bacteria - Fecal	<1		1	CFU/100mL		29-JUL-16	R3515833
Phosphorus (P)-Total	2.41	DLA	0.25	mg/L		02-AUG-16	R3516861
Total Suspended Solids	<3.0		3.0	mg/L		03-AUG-16	R3518054

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
EXTEMP	17C - Samples Received with temperature >15 Degrees C
SPL	TP - Sample was Preserved at the laboratory

Sample Parameter Qualifier Key:

Qualifier	Description
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1805893 Report Date: 05-AUG-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3517630								
WG2359898-4 DUP		**L1805893-1**						
Biochemical Oxygen Demand		<2.0	2.4	RPD-NA	mg/L	N/A	20	29-JUL-16
WG2359898-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	29-JUL-16
FCC-MF-CL	**Water**							
Batch R3515833								
WG2358624-2 DUP		**L1805812-1**						
Coliform Bacteria - Fecal		<1	<1	RPD-NA	CFU/100mL	N/A	65	29-JUL-16
WG2358624-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	29-JUL-16
P-T-COL-CL	**Water**							
Batch R3516861								
WG2359175-23 DUP		**L1805730-8**						
Phosphorus (P)-Total		0.0615	0.0660		mg/L	7.1	20	02-AUG-16
WG2359175-22 LCS								
Phosphorus (P)-Total			109.2		%		80-120	02-AUG-16
WG2359175-21 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	02-AUG-16
WG2359175-24 MS		**L1805730-8**						
Phosphorus (P)-Total			N/A	MS-B	%		-	02-AUG-16
PO4-DO-COL-CL	**Water**							
Batch R3515277								
WG2358015-3 DUP		**L1805730-3**						
Orthophosphate-Dissolved (as P)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	29-JUL-16
WG2358015-2 LCS								
Orthophosphate-Dissolved (as P)			100.7		%		80-120	29-JUL-16
WG2358015-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	29-JUL-16
WG2358015-4 MS		**L1805730-5**						
Orthophosphate-Dissolved (as P)			81.7		%		70-130	29-JUL-16
TSS-CL	**Water**							
Batch R3518054								
WG2360314-18 DUP		**L1805893-1**						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	03-AUG-16
WG2360314-6 LCS								
Total Suspended Solids			92.2		%		85-115	03-AUG-16
WG2360314-5 MB								

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-CL	**Water**							
Batch R3518054								
WG2360314-5 MB								
Total Suspended Solids			<3.0		mg/L		3	03-AUG-16

Quality Control Report

Workorder: L1805893 Report Date: 05-AUG-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

Chain of Custody / Analytical Request Form

L1805893-COFC

COC # _____

Report To			
Company:	Kicking Horse Mountain Water Utility Co. Ltd.		
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax	
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com	
		Email 2: pmajer@skircr.com	
Phone:	250-344-6003 Fax:	Email 3: mskyring@kickinghorseresort.com	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information	
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: RCR - Kicking Horse Mountain Resort	
Company:	Resorts of the Canadian Rockies	PO / AFE:	
Contact:	Patrick Majer	LSD:	
Address:	1505 - 17th Ave SW Calgary AB		
Phone:	Fax:	Quote #: Q33009	
Lab Work Order # (lab use only)		ALS Contact: LS	Sampler: TJ

Service Requested (Rush for routine analysis subject to availability)

- ◉ Regular (Standard Turnaround Times - Business Days)
- ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	TSS	Fecal Coliform	Ortho P	Total P	Number of Containers
[redacted]	UV trough	26-Jul-16	330pm	Water	X	X	X	X	X	3
[redacted]										
[redacted]										
[redacted]										
[redacted]										
[redacted]										
[redacted]										
[redacted]										
[redacted]										
[redacted]										
[redacted]										
[redacted]										

Special instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AP Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			[redacted]	7/29	8:25	17 °C				

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 18-AUG-16
Report Date: 25-AUG-16 08:12 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1815266

Project P.O. #: NOT SUBMITTED
Job Reference: RCR - KICKING HORSE MOUNTAIN RESORT
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1815266-1 UV TROUGH							
Sampled By: TJ on 17-AUG-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	2.0		2.0	mg/L		19-AUG-16	R3532984
Orthophosphate-Dissolved (as P)	1.62	DLA	0.10	mg/L		18-AUG-16	R3528638
Coliform Bacteria - Fecal	16	OCR	1	CFU/100mL		18-AUG-16	R3529693
Phosphorus (P)-Total	1.83	DLA	0.10	mg/L		22-AUG-16	R3530728
Total Suspended Solids	<3.0		3.0	mg/L		23-AUG-16	R3532908

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1815266 Report Date: 25-AUG-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3532984								
WG2374873-3 DUP		**L1814020-1**						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	19-AUG-16
WG2374873-2 LCS								
Biochemical Oxygen Demand			96.3		%		85-115	19-AUG-16
WG2374873-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	19-AUG-16
FCC-MF-CL	**Water**							
Batch R3529693								
WG2371913-2 DUP		**L1815266-1**						
Coliform Bacteria - Fecal		16	14		CFU/100mL	13	65	18-AUG-16
WG2371913-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	18-AUG-16
P-T-COL-CL	**Water**							
Batch R3530728								
WG2372674-3 DUP		**L1814754-13**						
Phosphorus (P)-Total		0.0260	0.0254		mg/L	2.5	20	22-AUG-16
WG2372674-2 LCS								
Phosphorus (P)-Total			110.3		%		80-120	22-AUG-16
WG2372674-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	22-AUG-16
WG2372674-4 MS		**L1814754-13**						
Phosphorus (P)-Total			100.6		%		70-130	22-AUG-16
PO4-DO-COL-CL	**Water**							
Batch R3528638								
WG2370721-3 DUP		**L1815266-1**						
Orthophosphate-Dissolved (as P)		1.62	1.61		mg/L	0.3	20	18-AUG-16
WG2370721-2 LCS								
Orthophosphate-Dissolved (as P)			102.0		%		80-120	18-AUG-16
WG2370721-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	18-AUG-16
WG2370721-4 MS		**L1815377-6**						
Orthophosphate-Dissolved (as P)			102.7		%		70-130	18-AUG-16
TSS-CL	**Water**							
Batch R3532908								
WG2374774-3 DUP		**L1814860-1**						
Total Suspended Solids		4.7	4.7		mg/L	0.0	20	23-AUG-16
WG2374774-2 LCS								

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-CL	**Water**							
Batch R3532908								
WG2374774-2 LCS								
Total Suspended Solids			90.2		%		85-115	23-AUG-16
WG2374774-1 MB								
Total Suspended Solids			<3.0		mg/L		3	23-AUG-16

Quality Control Report

Workorder: L1815266 Report Date: 25-AUG-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

L1815266-COFC

ALS Enviro

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Water Utility Co. Ltd.	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: pmajer@skircr.com		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-6003 Fax:	Email 3: mskyring@kickinghorseresort.com		Analysis Request
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: RCR - Kicking Horse Mountain Resort		
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #: Q33059		
Lab Work Order # (lab use only)	L1815266	ALS Contact: LS	Sampler: TJ	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	TSS	Fecal Coliform	Total Coliform	ORTHO PHOSPHATE	TOTAL PHOSPHATE	Number of Containers
	UV trough	AUG 17	2PM	Water	X	X	✓		X	X	3
	~~UV trough~~			~~Water~~		✓					

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh:mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes, add SIF
				AUG 17	8:57	6 °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 22-SEP-16
Report Date: 28-SEP-16 17:26 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1832572

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK 1 - 2016 SPRING EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1832572-1 WWTP EFFLUENT - UV TROUGH							
Sampled By: TJ/MS on 21-SEP-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.065		0.050	mg/L		22-SEP-16	R3555266
Biochemical Oxygen Demand	<2.0		2.0	mg/L		22-SEP-16	R3558077
Orthophosphate-Dissolved (as P)	0.810	DLA	0.050	mg/L		22-SEP-16	R3555455
Enterococcus	See Attached					22-SEP-16	R3558822
Coliform Bacteria - Fecal	2	OCR	1	CFU/100mL		22-SEP-16	R3555571
MPN - E. coli	<1		1	MPN/100mL		22-SEP-16	R3555403
Phosphorus (P)-Total	0.925	DLA	0.050	mg/L		23-SEP-16	R3555161
Total Suspended Solids	4.3		3.0	mg/L		26-SEP-16	R3558266
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	16.9		0.020	mg/L		22-SEP-16	R3555336
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	16.9		0.050	mg/L		23-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	0.026		0.010	mg/L		22-SEP-16	R3555336
L1832572-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 21-SEP-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		22-SEP-16	R3555266
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		22-SEP-16	R3555455
Enterococcus	See Attached					22-SEP-16	R3558822
Coliform Bacteria - Fecal	17	OCR	1	CFU/100mL		22-SEP-16	R3555571
MPN - E. coli	13	OCR	1	MPN/100mL		22-SEP-16	R3555403
Phosphorus (P)-Total	0.0160		0.0050	mg/L		23-SEP-16	R3555161
Total Suspended Solids	4.3		3.0	mg/L		26-SEP-16	R3558266
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.071		0.020	mg/L		22-SEP-16	R3555336
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.071		0.050	mg/L		23-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-SEP-16	R3555336
L1832572-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 21-SEP-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		22-SEP-16	R3555266
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		22-SEP-16	R3555455
Enterococcus	See Attached					22-SEP-16	R3558822
Coliform Bacteria - Fecal	9	OCR	1	CFU/100mL		22-SEP-16	R3555571
MPN - E. coli	2	OCR	1	MPN/100mL		22-SEP-16	R3555403
Phosphorus (P)-Total	0.0079		0.0050	mg/L		23-SEP-16	R3555161
Total Suspended Solids	<3.0		3.0	mg/L		26-SEP-16	R3558266
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.097		0.020	mg/L		22-SEP-16	R3555336
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.097		0.050	mg/L		23-SEP-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1832572-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 21-SEP-16 @ 14:00							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-SEP-16	R3555336
L1832572-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 21-SEP-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		22-SEP-16	R3555266
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		22-SEP-16	R3555455
Enterococcus	See Attached					22-SEP-16	R3558822
Coliform Bacteria - Fecal	17	OCR	1	CFU/100mL		22-SEP-16	R3555571
MPN - E. coli	8	OCR	1	MPN/100mL		22-SEP-16	R3555403
Phosphorus (P)-Total	0.0241		0.0050	mg/L		23-SEP-16	R3555161
Total Suspended Solids	4.3		3.0	mg/L		26-SEP-16	R3558266
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.052		0.020	mg/L		22-SEP-16	R3555336
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.052		0.050	mg/L		23-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		22-SEP-16	R3555336

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH3-COL-CL	Water	Ammonia, Total (as N)	APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the phenate colourimetric method.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1832572 Report Date: 28-SEP-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3558077								
WG2397707-3 DUP		**L1832572-1**						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	22-SEP-16
WG2397707-2 LCS								
Biochemical Oxygen Demand			97.9		%		85-115	22-SEP-16
WG2397707-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	22-SEP-16
EC-MPN-CL	**Water**							
Batch R3555403								
WG2395606-1 MB								
MPN - E. coli			<1		MPN/100mL		1	22-SEP-16
FCC-MF-CL	**Water**							
Batch R3555571								
WG2395745-2 DUP		**L1832781-1**						
Coliform Bacteria - Fecal		68	62		CFU/100mL	9.2	65	22-SEP-16
WG2395745-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	22-SEP-16
NH3-COL-CL	**Water**							
Batch R3555266								
WG2394852-11 DUP		**L1830363-14**						
Ammonia, Total (as N)		0.076	0.078		mg/L	2.0	20	22-SEP-16
WG2394852-7 DUP		**L1832917-1**						
Ammonia, Total (as N)		0.175	0.171		mg/L	1.9	20	22-SEP-16
WG2394852-10 LCS								
Ammonia, Total (as N)			98.8		%		85-115	22-SEP-16
WG2394852-6 LCS								
Ammonia, Total (as N)			99.8		%		85-115	22-SEP-16
WG2394852-5 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	22-SEP-16
WG2394852-9 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	22-SEP-16
WG2394852-12 MS		**L1832572-2**						
Ammonia, Total (as N)			107.6		%		75-125	22-SEP-16
WG2394852-8 MS		**L1831752-1**						
Ammonia, Total (as N)			105.2		%		75-125	22-SEP-16
NO2-IC-N-CL	**Water**							

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-CL	**Water**							
Batch R3555336								
WG2395539-2 LCS								
Nitrite (as N)			102.6		%		90-110	22-SEP-16
WG2395539-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	22-SEP-16
WG2395539-4 MS		**L1832438-1**						
Nitrite (as N)			123.5		%		75-125	22-SEP-16
NO3-IC-N-CL	**Water**							
Batch R3555336								
WG2395539-2 LCS								
Nitrate (as N)			100.9		%		90-110	22-SEP-16
WG2395539-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	22-SEP-16
WG2395539-4 MS		**L1832438-1**						
Nitrate (as N)			121.3		%		75-125	22-SEP-16
P-T-COL-CL	**Water**							
Batch R3555161								
WG2395367-7 DUP		**L1832572-2**						
Phosphorus (P)-Total		0.0160	0.0167		mg/L	4.3	20	23-SEP-16
WG2395367-4 LCS								
Phosphorus (P)-Total			100.9		%		80-120	23-SEP-16
WG2395367-8 LCS								
Phosphorus (P)-Total			98.4		%		80-120	23-SEP-16
WG2395367-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	23-SEP-16
WG2395367-5 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	23-SEP-16
WG2395367-6 MS		**L1832572-2**						
Phosphorus (P)-Total			82.0		%		70-130	23-SEP-16
PO4-DO-COL-CL	**Water**							
Batch R3555455								
WG2394675-2 LCS								
Orthophosphate-Dissolved (as P)			100.8		%		80-120	22-SEP-16
WG2394675-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	22-SEP-16
TSS-CL	**Water**							

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-CL	**Water**							
Batch R3558266								
WG2398084-6 DUP		**L1832222-1**						
Total Suspended Solids		6.3	8.3	J	mg/L	2.0	6	26-SEP-16
WG2398084-5 LCS								
Total Suspended Solids			96.2		%		85-115	26-SEP-16
WG2398084-4 MB								
Total Suspended Solids			<3.0		mg/L		3	26-SEP-16

Quality Control Report

Workorder: L1832572 Report Date: 28-SEP-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

NAUTILUS ENVIRONMENTAL

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/09/22, 1345
Report Date: 2016/09/27
Version: FINAL

Test Report

Client: ALS106
Reference: 1617-0124
Billing: L1832572

Senior Verifier

NAUTILUS ENVIRONMENTAL

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 1617-0124

Client: ALS Laboratory Group; operation Calgary

Sample: L1832572-1 WWTP EFFLUENT - UV TROUGH, L1832572-2 COLUMBIA RIVER UPSTREAM, L1832572-3 COLUMBIA RIVER DOWNSTREAM, L1832572-4 COLUMBIA RIVER SIDE CHANNEL
Collection: collected on 2016/09/21 at 1400 by not givrn
Receipt: received on 2016/09/22 at 1345 by MC
Containers: received 4 x 125 mL bottles at 8 °C, in good condition with no seals and no initials
Description: type: water, collection method: not givrn

Analysis: started on 2016/09/22 by HS; ended on 2016/09/23 by HS

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1832572-1 WWTP EFFLUENT - UV TROUGH	<1
02	L1832572-2 COLUMBIA RIVER UPSTREAM	2
03	L1832572-3 COLUMBIA RIVER DOWNSTREAM	<1
04	L1832572-4 COLUMBIA RIVER SIDE CHANNEL	1

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

ALS Enviro

L1832572-COFC

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1:	tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3:	mskyring@kickinghorseresort.com	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Week 1- 2016 Spring EMS program - WW	
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)		ALS Contact:	LS	Sampler: TJ/MS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 18 pH: 6.6	SEPT 21	2PM	Water	X	X	X	X	X	X	X	X	X	X			5
	Columbia River Upstream Temp: 12 pH: 8.3	"	2PM	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 12 pH: 8.3	"	2PM	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 12 pH: 8.3	"	2PM	Water		X	X	X	X	X	X	X	X	X			4

Analysis Request — Please indicate below Filtered, Preserved or both (F, P, F/P)

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	SEPT 21	1645		9/22	8:15	9 °C				

GENF 20.00-Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 27-SEP-16
Report Date: 05-OCT-16 16:44 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1834580

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK 2 - 2016 FALL EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1834580-1 WWTP EFFLUENT - UV TROUGH							
Sampled By: TJ/MS on 26-SEP-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.125		0.050	mg/L		29-SEP-16	R3559828
Biochemical Oxygen Demand	3.3		2.0	mg/L		27-SEP-16	R3561673
Orthophosphate-Dissolved (as P)	0.746	DLA	0.050	mg/L		27-SEP-16	R3558378
Enterococcus	See Attached					27-SEP-16	R3564716
Coliform Bacteria - Fecal	43	OCR	1	CFU/100mL		27-SEP-16	R3559588
MPN - E. coli	3	OCR	1	MPN/100mL		27-SEP-16	R3559005
Phosphorus (P)-Total	0.937	DLA	0.050	mg/L		28-SEP-16	R3558809
Total Suspended Solids	13.0		3.0	mg/L		28-SEP-16	R3560240
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	19.3		0.020	mg/L		27-SEP-16	R3560186
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	19.4		0.050	mg/L		29-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	0.082		0.010	mg/L		27-SEP-16	R3560186
L1834580-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 26-SEP-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		29-SEP-16	R3559828
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		27-SEP-16	R3558378
Enterococcus	See Attached					27-SEP-16	R3564716
Coliform Bacteria - Fecal	17	OCR	1	CFU/100mL		27-SEP-16	R3559588
MPN - E. coli	6	OCR	1	MPN/100mL		27-SEP-16	R3559005
Phosphorus (P)-Total	0.0130		0.0050	mg/L		28-SEP-16	R3558809
Total Suspended Solids	10.3		3.0	mg/L		28-SEP-16	R3560240
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.073		0.020	mg/L		27-SEP-16	R3560186
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.073		0.050	mg/L		29-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		27-SEP-16	R3560186
L1834580-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 26-SEP-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		29-SEP-16	R3559828
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		27-SEP-16	R3558378
Enterococcus	See Attached					27-SEP-16	R3564716
Coliform Bacteria - Fecal	28	OCR	1	CFU/100mL		27-SEP-16	R3559588
MPN - E. coli	13	OCR	1	MPN/100mL		27-SEP-16	R3559005
Phosphorus (P)-Total	0.0318		0.0050	mg/L		28-SEP-16	R3558809
Total Suspended Solids	10.3		3.0	mg/L		28-SEP-16	R3560240
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.099		0.020	mg/L		27-SEP-16	R3560186
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.099		0.050	mg/L		29-SEP-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1834580-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 26-SEP-16 @ 15:00							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		27-SEP-16	R3560186
L1834580-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 26-SEP-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		29-SEP-16	R3559828
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		27-SEP-16	R3558378
Enterococcus	See Attached					27-SEP-16	R3564716
Coliform Bacteria - Fecal	3	OCR	1	CFU/100mL		27-SEP-16	R3559588
MPN - E. coli	3	OCR	1	MPN/100mL		27-SEP-16	R3559005
Phosphorus (P)-Total	0.0167		0.0050	mg/L		28-SEP-16	R3558809
Total Suspended Solids	7.0		3.0	mg/L		28-SEP-16	R3560240
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.073		0.020	mg/L		27-SEP-16	R3560186
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.073		0.050	mg/L		29-SEP-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		27-SEP-16	R3560186

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH3-COL-CL	Water	Ammonia, Total (as N)	APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the phenate colourimetric method.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1834580 Report Date: 05-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3561673								
WG2401828-3 DUP		**L1834580-1**						
Biochemical Oxygen Demand		3.3	3.6		mg/L	8.7	20	27-SEP-16
WG2401828-2 LCS								
Biochemical Oxygen Demand			86.4		%		85-115	27-SEP-16
WG2401828-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	27-SEP-16
EC-MPN-CL	**Water**							
Batch R3559005								
WG2398992-1 MB								
MPN - E. coli			<1		MPN/100mL		1	27-SEP-16
FCC-MF-CL	**Water**							
Batch R3559588								
WG2399618-2 DUP		**L1834095-1**						
Coliform Bacteria - Fecal		1300	900		CFU/100mL	36	65	27-SEP-16
WG2399618-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	27-SEP-16
NH3-COL-CL	**Water**							
Batch R3559828								
WG2399931-8 DUP		**L1833920-3**						
Ammonia, Total (as N)		0.472	0.471		mg/L	0.3	20	29-SEP-16
WG2399931-6 LCS								
Ammonia, Total (as N)			102.0		%		85-115	29-SEP-16
WG2399931-5 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	29-SEP-16
WG2399931-7 MS		**L1833920-2**						
Ammonia, Total (as N)			105.6		%		75-125	29-SEP-16
NO2-IC-N-CL	**Water**							
Batch R3560186								
WG2400274-2 LCS								
Nitrite (as N)			102.0		%		90-110	27-SEP-16
WG2400274-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	27-SEP-16
NO3-IC-N-CL	**Water**							

Quality Control Report

Workorder: L1834580 Report Date: 05-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-CL	**Water**							
Batch R3560186								
WG2400274-2 LCS								
Nitrate (as N)			100.9		%		90-110	27-SEP-16
WG2400274-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	27-SEP-16
P-T-COL-CL	**Water**							
Batch R3558809								
WG2398801-2 LCS								
Phosphorus (P)-Total			102.0		%		80-120	28-SEP-16
WG2398801-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	28-SEP-16
PO4-DO-COL-CL	**Water**							
Batch R3558378								
WG2398274-10 DUP		**L1834580-2**						
Orthophosphate-Dissolved (as P)		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	27-SEP-16
WG2398274-2 LCS								
Orthophosphate-Dissolved (as P)			102.0		%		80-120	27-SEP-16
WG2398274-8 LCS								
Orthophosphate-Dissolved (as P)			104.4		%		80-120	27-SEP-16
WG2398274-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	27-SEP-16
WG2398274-7 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	27-SEP-16
WG2398274-9 MS		**L1834580-2**						
Orthophosphate-Dissolved (as P)			102.6		%		70-130	27-SEP-16
TSS-CL	**Water**							
Batch R3560240								
WG2400343-3 DUP		**L1835643-1**						
Total Suspended Solids		3.0	<3.0	RPD-NA	mg/L	N/A	20	28-SEP-16
WG2400343-2 LCS								
Total Suspended Solids			106.0		%		85-115	28-SEP-16
WG2400343-1 MB								
Total Suspended Solids			<3.0		mg/L		3	28-SEP-16

Quality Control Report

Workorder: L1834580 Report Date: 05-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

NAUTILUS ENVIRONMENTAL

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/09/27, 1055
Report Date: 2016/09/30
Version: FINAL

Test Report

Client: ALS106
Reference: 1617-0143
Billing: L1834580

Senior Verifier

NAUTILUS ENVIRONMENTAL

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 1617-0143

Client: ALS Laboratory Group; operation Calgary
Sample: L1834580-1 WWTP EFFLUENT - UV TROUGH, L1834580-2 COLUMBIA RIVER UPSTREAM, L1834580-3 COLUMBIA RIVER DOWNSTREAM, L1834580-4 COLUMBIA RIVER SIDE CHANNEL

Collection: collected on 2016/09/26 at 1500
Receipt: received on 2016/09/27 at 1055 by MC
Containers: received 4 x 250 mL bottles at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/09/27 by LC/JN; ended on 2016/09/28 by LC

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1834580-1 WWTP EFFLUENT - UV TROUGH	1
02	L1834580-2 COLUMBIA RIVER UPSTREAM	<1
03	L1834580-3 COLUMBIA RIVER DOWNSTREAM	2
04	L1834580-4 COLUMBIA RIVER SIDE CHANNEL	<1

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

ALS Environm

L1834580-COFC

ain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1:	tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3:	mskyring@kickinghorseresort.com	**Analysis Request**
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Week 2 - 2016 ~~Spring~~ EMS program - WW	
Company:	Resorts of the Canadian Rockies	PO / AFE:	FALL	
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		

Lab Work Order # (lab use only): L1834580 | ALS Contact: LS | Sampler: TJ/MS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 17 pH: 6.8	SEPT 26	3PM	Water	X	X	X	X	X	X	X	X	X	X			5
	Columbia River Upstream Temp: 8. pH: 6.2	SEPT 26	3PM	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 15 pH: 8.0	SEP 26	3PM	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 13 pH: 8.0	SEP 26	3PM	Water		X	X	X	X	X	X	X	X	X			4

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
				9/27	8:10am	9 °C				

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 04-OCT-16
Report Date: 12-OCT-16 14:31 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1838067

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK - 2016 SPRING EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1838067-1 WWTP EFFLUENT - UV TROUGH							
Sampled By: TJ/MS on 03-OCT-16 @ 14:15							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	0.061		0.050	mg/L		06-OCT-16	R3566328
Biochemical Oxygen Demand	<2.0		2.0	mg/L		04-OCT-16	R3567313
Orthophosphate-Dissolved (as P)	0.270	DLA	0.025	mg/L		05-OCT-16	R3564414
Enterococcus	See Attached					04-OCT-16	R3569285
Coliform Bacteria - Fecal	7	OCR	1	CFU/100mL		04-OCT-16	R3566097
MPN - E. coli	<1		1	MPN/100mL		04-OCT-16	R3564404
Phosphorus (P)-Total	0.433	DLA	0.025	mg/L		05-OCT-16	R3564437
Total Suspended Solids	6.7		3.0	mg/L		06-OCT-16	R3566496
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	27.9	DLHC	0.10	mg/L		04-OCT-16	R3564330
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	27.9		0.11	mg/L		05-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.050	DLHC	0.050	mg/L		04-OCT-16	R3564330
L1838067-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 03-OCT-16 @ 15:30							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		06-OCT-16	R3566328
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		05-OCT-16	R3564414
Enterococcus	See Attached					04-OCT-16	R3569285
Coliform Bacteria - Fecal	48	OCR	1	CFU/100mL		04-OCT-16	R3566097
MPN - E. coli	16	OCR	1	MPN/100mL		04-OCT-16	R3564404
Phosphorus (P)-Total	0.0133		0.0050	mg/L		05-OCT-16	R3564437
Total Suspended Solids	18.0		3.0	mg/L		06-OCT-16	R3566496
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.075		0.020	mg/L		04-OCT-16	R3564330
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.075		0.050	mg/L		05-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		04-OCT-16	R3564330
L1838067-3 COLUMBIA RIVER DOWN STREAM							
Sampled By: TJ/MS on 03-OCT-16 @ 15:45							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		06-OCT-16	R3566328
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		05-OCT-16	R3564414
Enterococcus	See Attached					04-OCT-16	R3569285
Coliform Bacteria - Fecal	3	OCR	1	CFU/100mL		04-OCT-16	R3566097
MPN - E. coli	3	OCR	1	MPN/100mL		04-OCT-16	R3564404
Phosphorus (P)-Total	0.0216		0.0050	mg/L		05-OCT-16	R3564437
Total Suspended Solids	11.3		3.0	mg/L		06-OCT-16	R3566496
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.082		0.020	mg/L		04-OCT-16	R3564330
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.082		0.050	mg/L		05-OCT-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1838067-3 COLUMBIA RIVER DOWN STREAM							
Sampled By: TJ/MS on 03-OCT-16 @ 15:45							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		04-OCT-16	R3564330
L1838067-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 03-OCT-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		06-OCT-16	R3566328
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		05-OCT-16	R3564414
Enterococcus	See Attached					04-OCT-16	R3569285
Coliform Bacteria - Fecal	11	OCR	1	CFU/100mL		04-OCT-16	R3566097
MPN - E. coli	11	OCR	1	MPN/100mL		04-OCT-16	R3564404
Phosphorus (P)-Total	0.0145		0.0050	mg/L		05-OCT-16	R3564437
Total Suspended Solids	10.7		3.0	mg/L		06-OCT-16	R3566496
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.085		0.020	mg/L		04-OCT-16	R3564330
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.085		0.050	mg/L		05-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		04-OCT-16	R3564330

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH3-COL-CL	Water	Ammonia, Total (as N)	APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the phenate colourimetric method.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1838067 Report Date: 12-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3567313								
WG2407163-2 LCS								
Biochemical Oxygen Demand			88.2		%		85-115	04-OCT-16
WG2407163-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	04-OCT-16
EC-MPN-CL	**Water**							
Batch R3564404								
WG2404282-1 MB								
MPN - E. coli			<1		MPN/100mL		1	04-OCT-16
FCC-MF-CL	**Water**							
Batch R3566097								
WG2406002-2 DUP		**L1838561-1**						
Coliform Bacteria - Fecal		<2	<2	RPD-NA	CFU/100mL	N/A	65	04-OCT-16
WG2406002-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	04-OCT-16
NH3-COL-CL	**Water**							
Batch R3566328								
WG2406260-7 DUP		**L1837068-2**						
Ammonia, Total (as N)		0.115	0.118		mg/L	2.3	20	06-OCT-16
WG2406260-6 LCS								
Ammonia, Total (as N)			103.6		%		85-115	06-OCT-16
WG2406260-5 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	06-OCT-16
WG2406260-8 MS		**L1840225-1**						
Ammonia, Total (as N)			104.4		%		75-125	06-OCT-16
NO2-IC-N-CL	**Water**							
Batch R3564330								
WG2404216-2 LCS								
Nitrite (as N)			102.8		%		90-110	04-OCT-16
WG2404216-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	04-OCT-16
WG2404216-4 MS		**L1838282-6**						
Nitrite (as N)			107.7		%		75-125	04-OCT-16
NO3-IC-N-CL	**Water**							

Quality Control Report

Workorder: L1838067 Report Date: 12-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-CL	**Water**							
Batch R3564330								
WG2404216-2 LCS								
Nitrate (as N)			101.3		%		90-110	04-OCT-16
WG2404216-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	04-OCT-16
WG2404216-4 MS		**L1838282-6**						
Nitrate (as N)			105.8		%		75-125	04-OCT-16
P-T-COL-CL	**Water**							
Batch R3564437								
WG2404294-10 DUP		**L1838067-4**						
Phosphorus (P)-Total		0.0145	0.0134		mg/L	7.8	20	05-OCT-16
WG2404294-4 LCS								
Phosphorus (P)-Total			98.0		%		80-120	05-OCT-16
WG2404294-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	05-OCT-16
WG2404294-9 MS		**L1838067-4**						
Phosphorus (P)-Total			89.4		%		70-130	05-OCT-16
PO4-DO-COL-CL	**Water**							
Batch R3564414								
WG2404083-3 DUP		**L1838067-1**						
Orthophosphate-Dissolved (as P)		0.270	0.281		mg/L	4.2	20	05-OCT-16
WG2404083-2 LCS								
Orthophosphate-Dissolved (as P)			100.1		%		80-120	05-OCT-16
WG2404083-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	05-OCT-16
WG2404083-4 MS		**L1838067-2**						
Orthophosphate-Dissolved (as P)			104.3		%		70-130	05-OCT-16
TSS-CL	**Water**							
Batch R3566496								
WG2406391-3 DUP		**L1838172-1**						
Total Suspended Solids		4.7	4.7		mg/L	0.0	20	06-OCT-16
WG2406391-2 LCS								
Total Suspended Solids			94.7		%		85-115	06-OCT-16
WG2406391-1 MB								
Total Suspended Solids			<3.0		mg/L		3	06-OCT-16

Quality Control Report

Workorder: L1838067 Report Date: 12-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

NAUTILUS ENVIRONMENTAL

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/10/04, 1320
Report Date: 2016/10/12
Version: FINAL

Test Report

Client: ALS106
Reference: 1617-0167
Billing: L1838067

Senior Verifier

NAUTILUS ENVIRONMENTAL

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 1617-0167

Client: ALS Laboratory Group; operation Calgary

Sample: L1838067-1 WWTP EFFLUENT - UV TROUGH, L1838067-2 COLUMBIA RIVER UPSTREAM, L1838067-3 COLUMBIA RIVER DOWN STREAM, L1838067-4 COLUMBIA RIVER SIDE CHANNEL
Collection: collected on 2016/10/03 at 1415
Receipt: received on 2016/10/04 at 1320 by MC
Containers: received 4 x 250 mL bottles at 15 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/10/04 by HS/JN; ended on 2016/10/05 by HS

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1838067-1 WWTP EFFLUENT - UV TROUGH	2
02	L1838067-2 COLUMBIA RIVER UPSTREAM	8.4
03	L1838067-3 COLUMBIA RIVER DOWN STREAM	3
04	L1838067-4 COLUMBIA RIVER SIDE CHANNEL	4.1

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

ALS Environmental

L1838067-COFC

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3: mskyring@kickinghorseresort.com	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information	
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Week - 2016 Spring EMS program - WW	
Company:	Resorts of the Canadian Rockies	PO / AFE:	
Contact:	Patrick Majer	LSD:	
Address:	1505 - 17th Ave SW Calgary AB		
Phone:	Fax:	Quote #:	
Lab Work Order # (lab use only)		ALS Contact: LS	Sampler: TJ/MS

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 18°C pH: 7.0	30 Oct 16	1415	Water	X	X	X	X	X	X	X	X	X	X			5
	Columbia River Upstream Temp: 15 pH: 8.0	30 Oct 16	1530	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 15 pH: 7.7	30 Oct 16	1545	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 15 pH: 7.8	30 Oct 16	1500	Water		X	X	X	X	X	X	X	X	X			4

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Mark Skyring	30 Oct 16	1630		30/10	8:15	5 °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 13-OCT-16
Report Date: 18-OCT-16 15:11 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1842501

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK - 2016 SPRING EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1842501-1 WWTP EFFLUENT - UV TROUGH							
Sampled By: TJ/MS on 11-OCT-16 @ 13:30							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		13-OCT-16	R3570470
Biochemical Oxygen Demand	<2.0		2.0	mg/L		13-OCT-16	R3573673
Orthophosphate-Dissolved (as P)	0.265	DLA	0.025	mg/L		13-OCT-16	R3570332
Phosphorus (P)-Total	0.358	DLA	0.025	mg/L		16-OCT-16	R3572060
Total Suspended Solids	<3.0		3.0	mg/L		14-OCT-16	R3572750
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	24.9		0.020	mg/L		13-OCT-16	R3571339
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	24.9		0.050	mg/L		14-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	0.075		0.010	mg/L		13-OCT-16	R3571339
L1842501-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 11-OCT-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		13-OCT-16	R3570470
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		13-OCT-16	R3570332
Phosphorus (P)-Total	0.0063		0.0050	mg/L		16-OCT-16	R3572060
Total Suspended Solids	6.7		3.0	mg/L		14-OCT-16	R3572750
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.080		0.020	mg/L		13-OCT-16	R3571339
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.080		0.050	mg/L		14-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		13-OCT-16	R3571339
L1842501-3 COLUMBIA RIVER DOWN STREAM							
Sampled By: TJ/MS on 11-OCT-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		13-OCT-16	R3570470
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		13-OCT-16	R3570332
Phosphorus (P)-Total	0.0082		0.0050	mg/L		16-OCT-16	R3572060
Total Suspended Solids	<3.0		3.0	mg/L		14-OCT-16	R3572750
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.128		0.020	mg/L		13-OCT-16	R3571339
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.128		0.050	mg/L		14-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		13-OCT-16	R3571339
L1842501-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 11-OCT-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		13-OCT-16	R3570470
Orthophosphate-Dissolved (as P)	0.0073		0.0050	mg/L		13-OCT-16	R3570332
Phosphorus (P)-Total	0.0102		0.0050	mg/L		16-OCT-16	R3572060

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1842501-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 11-OCT-16 @ 15:00							
Matrix: WATER							
Total Suspended Solids	<3.0		3.0	mg/L		14-OCT-16	R3572750
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.077		0.020	mg/L		13-OCT-16	R3571339
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.077		0.050	mg/L		14-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		13-OCT-16	R3571339

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode
This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.			
N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH3-COL-CL	Water	Ammonia, Total (as N)	APHA 4500 NH3-NITROGEN (AMMONIA)
This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the phenate colourimetric method.			
NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.			
PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.			
TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1842501 Report Date: 18-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3573673								
WG2412985-2 LCS								
Biochemical Oxygen Demand			89.9		%		85-115	13-OCT-16
WG2412985-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	13-OCT-16
NH3-COL-CL	**Water**							
Batch R3570470								
WG2410173-7 DUP		**L1842309-1**						
Ammonia, Total (as N)		0.385	0.390		mg/L	1.4	20	13-OCT-16
WG2410173-6 LCS								
Ammonia, Total (as N)			101.5		%		85-115	13-OCT-16
WG2410173-5 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	13-OCT-16
NO2-IC-N-CL	**Water**							
Batch R3571339								
WG2410927-7 DUP		**L1842309-14**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	13-OCT-16
WG2410927-6 LCS								
Nitrite (as N)			108.3		%		90-110	13-OCT-16
WG2410927-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	13-OCT-16
WG2410927-8 MS		**L1842309-14**						
Nitrite (as N)			109.8		%		75-125	13-OCT-16
NO3-IC-N-CL	**Water**							
Batch R3571339								
WG2410927-7 DUP		**L1842309-14**						
Nitrate (as N)		<0.020	<0.020	RPD-NA	mg/L	N/A	20	13-OCT-16
WG2410927-6 LCS								
Nitrate (as N)			106.0		%		90-110	13-OCT-16
WG2410927-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	13-OCT-16
WG2410927-8 MS		**L1842309-14**						
Nitrate (as N)			108.0		%		75-125	13-OCT-16
P-T-COL-CL	**Water**							
Batch R3572060								
WG2411517-11 DUP		**L1842501-2**						
Phosphorus (P)-Total		0.0063	0.0070		mg/L	11	20	16-OCT-16
WG2411517-10 LCS								

Quality Control Report

Workorder: L1842501 Report Date: 18-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-COL-CL	**Water**							
Batch R3572060								
WG2411517-10 LCS								
Phosphorus (P)-Total			102.8		%		80-120	16-OCT-16
WG2411517-2 LCS								
Phosphorus (P)-Total			100.9		%		80-120	16-OCT-16
WG2411517-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	16-OCT-16
WG2411517-9 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	16-OCT-16
WG2411517-12 MS		**L1842501-2**						
Phosphorus (P)-Total			94.4		%		70-130	16-OCT-16
PO4-DO-COL-CL	**Water**							
Batch R3570332								
WG2409844-7 DUP		**L1842501-4**						
Orthophosphate-Dissolved (as P)		0.0073	0.0080		mg/L	8.8	20	13-OCT-16
WG2409844-2 LCS								
Orthophosphate-Dissolved (as P)			100.5		%		80-120	13-OCT-16
WG2409844-6 LCS								
Orthophosphate-Dissolved (as P)			104.2		%		80-120	13-OCT-16
WG2409844-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	13-OCT-16
WG2409844-5 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	13-OCT-16
WG2409844-8 MS		**L1842309-4**						
Orthophosphate-Dissolved (as P)			115.3		%		70-130	13-OCT-16
TSS-CL	**Water**							
Batch R3572750								
WG2411958-3 DUP		**L1842131-1**						
Total Suspended Solids		11.3	11.3		mg/L	0.0	20	14-OCT-16
WG2411958-2 LCS								
Total Suspended Solids			91.6		%		85-115	14-OCT-16
WG2411958-1 MB								
Total Suspended Solids			<3.0		mg/L		3	14-OCT-16

Quality Control Report

Workorder: L1842501 Report Date: 18-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environ

L1842501-COFC

ain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: pmajer@skircr.com		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3: mskyring@kickinghorseresort.com		Analysis Request
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Please indicate below Filtered, Preserved or both (F, P, F/P)
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Week - 2016 Spring EMS program - WW		
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)	L1842501	ALS Contact: LS	Sampler: TJ/MS	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 18 pH: 7.7	OCT 11, 16	13:30	Water	X	X	X	X	X	X	X	X	X	X			5
	Columbia River Upstream Temp: 12 pH: 7.8	OCT 11, 16	15:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 12 pH: 7.8	OCT 11, 16	15:00	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 12 pH: 7.6	OCT 11, 16	15:00	Water		X	X	X	X	X	X	X	X	X			4

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
				10/13	8:11 am	9 °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 14-OCT-16
Report Date: 20-OCT-16 17:32 (MT)
Version: FINAL

Client Phone: 250-344-8442

Certificate of Analysis

Lab Work Order #: L1843168

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK - 2016 SPRING EMS PROGRAM -WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1843168-1 WWTP EFFLUENT - UV TROUGH							
Sampled By: TJ/MS on 13-OCT-16 @ 13:00							
Matrix: WATER							
Miscellaneous Parameters							
Enterococcus	See Attached					14-OCT-16	R3575395
Coliform Bacteria - Fecal	<1		1	CFU/100mL		14-OCT-16	R3572036
MPN - E. coli	<1		1	MPN/100mL		14-OCT-16	R3572021
L1843168-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 13-OCT-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Enterococcus	See Attached					14-OCT-16	R3575395
Coliform Bacteria - Fecal	2	OCR	1	CFU/100mL		14-OCT-16	R3572036
MPN - E. coli	2	OCR	1	MPN/100mL		14-OCT-16	R3572021
L1843168-3 COLUMBIA RIVER DOWNSTREAM							
Sampled By: TJ/MS on 13-OCT-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Enterococcus	See Attached					14-OCT-16	R3575395
Coliform Bacteria - Fecal	1	OCR	1	CFU/100mL		14-OCT-16	R3572036
MPN - E. coli	1	OCR	1	MPN/100mL		14-OCT-16	R3572021
L1843168-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 13-OCT-16 @ 14:00							
Matrix: WATER							
Miscellaneous Parameters							
Enterococcus	See Attached					14-OCT-16	R3575395
Coliform Bacteria - Fecal	2	OCR	1	CFU/100mL		14-OCT-16	R3572036
MPN - E. coli	2	OCR	1	MPN/100mL		14-OCT-16	R3572021

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1843168 Report Date: 20-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-MPN-CL	**Water**							
Batch R3572021								
WG2411494-1 MB								
MPN - E. coli			<1		MPN/100mL		1	14-OCT-16
FCC-MF-CL	**Water**							
Batch R3572036								
WG2411498-2 DUP		**L1843302-1**						
Coliform Bacteria - Fecal		300	200		CFU/100mL	40	65	14-OCT-16
WG2411498-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	14-OCT-16

Quality Control Report

Workorder: L1843168 Report Date: 20-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

NAUTILUS ENVIRONMENTAL

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/10/14, 1145
Report Date: 2016/10/20
Version: FINAL

Test Report

Client: ALS106
Reference: 1617-0241
Billing: L1843168

Senior Verifier

NAUTILUS ENVIRONMENTAL

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 1617-0241

Client: ALS Laboratory Group; operation Calgary

Sample: L1843168-1 WWTP EFFLUENT - UV TROUGH, L1843168-2 COLUMBIA RIVER UPSTREAM, L1843168-3 COLUMBIA RIVER DOWNSTREAM, L1843168-4 COLUMBIA RIVER SIDE CHANNEL
Collection: collected on 2016/10/13 at 1300, 1400
Receipt: received on 2016/10/14 at 1145 by MC
Containers: received 4 x 250 mL bottles at 5 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/10/14 by JN; ended on 2016/10/15 by ML/JW

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1843168-1 WWTP EFFLUENT - UV TROUGH	<1
02	L1843168-2 COLUMBIA RIVER UPSTREAM	1.0
03	L1843168-3 COLUMBIA RIVER DOWNSTREAM	<1
04	L1843168-4 COLUMBIA RIVER SIDE CHANNEL	1.0

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

ALS Environmental

L1843168-COFC

COC # ______

Page 1 of 1

Report To	
Company:	Kicking Horse Mountain Resort Utility Corporation
Contact:	Travis Jobin
Address:	1500 Kicking Horse Trail
Phone:	250-344-8442 Fax:
Invoice To	Same as Report ? ☐ Yes ☑ No
Hardcopy of Invoice with Report?	☐ Yes ☑ No
Company:	Resorts of the Canadian Rockies
Contact:	Patrick Majer
Address:	1505 - 17th Ave SW Calgary AB
Phone:	Fax:
Lab Work Order # (lab use only)	

Re	
☑ Standard ☐ Other	
☐ PDF ☐ Excel ☐ Digital ☑ Fax	
Email 1:	tjobin@kickinghorseresort.com
Email 2:	pmajer@skircr.com
Email 3:	mskyring@kickinghorseresort.com
Client / Project Information	
Job #:	Week - 2016 Spring EMS program - WW
PO / AFE:	
LSD:	
Quote #:	
ALS Contact: LS	Sampler: TJ/MS

Service Requested (Rush for routine analysis subject to availability)

- ◉ Regular (Standard Turnaround Times - Business Days)
- ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	~~BOD5~~	~~TSS~~	~~N-NH4~~	~~N-NO3~~	~~N-NO2~~	~~Total P~~	~~Ortho P~~	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 18 pH: 6.8	OCT 13	1 PM	Water	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	X	X	X			20
	Columbia River Upstream Temp: 12 pH: 7.8	Oct 13	2 PM	Water		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	X	X	X			20
	Columbia River Down stream Temp: 12 pH: 7.6	Oct 13	2 Pm	Water		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~	X	X	X			20
	Columbia River Side Channel Temp: 12 pH: 7.8	OcT 13	2PM	Water		~~X~~	~~X~~	~~X~~	X	~~X~~	~~X~~	X	X	X			20

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by: (signature)	Date: 10/14	Time: 8:20am	Temperature: 3 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 18-OCT-16
Report Date: 24-OCT-16 14:30 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1844414

Project P.O. #: NOT SUBMITTED
Job Reference: WEEK 5 - 2016 FALL EMS PROGRAM - WW
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1844414-1 WWTP EFFLUENT - UV TROUGH							
Sampled By: TJ/MS on 17-OCT-16 @ 12:30							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		19-OCT-16	R3574812
Biochemical Oxygen Demand	<2.0		2.0	mg/L		18-OCT-16	R3577543
Orthophosphate-Dissolved (as P)	0.562	DLA	0.050	mg/L		18-OCT-16	R3573839
Enterococcus	See Attached					18-OCT-16	R3575404
Coliform Bacteria - Fecal	5	OCR	1	CFU/100mL		18-OCT-16	R3575469
MPN - E. coli	<1		1	MPN/100mL		18-OCT-16	R3575452
Phosphorus (P)-Total	0.667	DLA	0.025	mg/L		19-OCT-16	R3574383
Total Suspended Solids	<3.0		3.0	mg/L		18-OCT-16	R3574754
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	15.7		0.020	mg/L		18-OCT-16	R3574451
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	15.7		0.050	mg/L		19-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	0.018		0.010	mg/L		18-OCT-16	R3574451
L1844414-2 COLUMBIA RIVER UPSTREAM							
Sampled By: TJ/MS on 17-OCT-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		19-OCT-16	R3574812
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		18-OCT-16	R3573839
Enterococcus	See Attached					18-OCT-16	R3575404
Coliform Bacteria - Fecal	6	OCR	1	CFU/100mL		18-OCT-16	R3575469
MPN - E. coli	6	OCR	1	MPN/100mL		18-OCT-16	R3575452
Phosphorus (P)-Total	0.0128		0.0050	mg/L		19-OCT-16	R3574383
Total Suspended Solids	<3.0		3.0	mg/L		18-OCT-16	R3574754
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.096		0.020	mg/L		18-OCT-16	R3574451
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.096		0.050	mg/L		19-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		18-OCT-16	R3574451
L1844414-3 COLUMBIA RIVER DOWN STREAM							
Sampled By: TJ/MS on 17-OCT-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		19-OCT-16	R3574812
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		18-OCT-16	R3573839
Enterococcus	See Attached					18-OCT-16	R3575404
Coliform Bacteria - Fecal	1	OCR	1	CFU/100mL		18-OCT-16	R3575469
MPN - E. coli	1	OCR	1	MPN/100mL		18-OCT-16	R3575452
Phosphorus (P)-Total	0.0431		0.0050	mg/L		19-OCT-16	R3574383
Total Suspended Solids	6.0		3.0	mg/L		18-OCT-16	R3574754
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.137		0.020	mg/L		18-OCT-16	R3574451
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.137		0.050	mg/L		19-OCT-16	

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1844414-3 COLUMBIA RIVER DOWN STREAM							
Sampled By: TJ/MS on 17-OCT-16 @ 15:00							
Matrix: WATER							
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		18-OCT-16	R3574451
L1844414-4 COLUMBIA RIVER SIDE CHANNEL							
Sampled By: TJ/MS on 17-OCT-16 @ 15:00							
Matrix: WATER							
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.050		0.050	mg/L		19-OCT-16	R3574812
Orthophosphate-Dissolved (as P)	<0.0050		0.0050	mg/L		18-OCT-16	R3573839
Enterococcus	See Attached					18-OCT-16	R3575404
Coliform Bacteria - Fecal	<1		1	CFU/100mL		18-OCT-16	R3575469
MPN - E. coli	<1		1	MPN/100mL		18-OCT-16	R3575452
Phosphorus (P)-Total	0.0121		0.0050	mg/L		19-OCT-16	R3574383
Total Suspended Solids	<3.0		3.0	mg/L		18-OCT-16	R3574754
NO2, NO3 and Sum of NO2/NO3							
Nitrate in Water by IC							
Nitrate (as N)	0.083		0.020	mg/L		18-OCT-16	R3574451
Nitrate+Nitrite							
Nitrate and Nitrite (as N)	0.083		0.050	mg/L		19-OCT-16	
Nitrite in Water by IC							
Nitrite (as N)	<0.010		0.010	mg/L		18-OCT-16	R3574451

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit adjusted for required dilution
OCR	Parameter is out of client specific range.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

EC-MPN-CL	Water	MPN - E. coli	APHA 9223B

This analysis is carried out using procedures adapted from APHA Method 9223 "Enzyme Substrate Coliform Test". E. coli and Total Coliform are determined simultaneously. The sample is mixed with a mixture hydrolyzable substrates and then sealed in a multi-well packet. The packet is incubated for 18 or 24 hours and then the number of wells exhibiting a positive response are counted. The final result is obtained by comparing the positive responses to a probability table.
Recommended Holding Time:
Sample: 1 day
Reference: APHA

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

N2N3-CALC-CL	Water	Nitrate+Nitrite	CALCULATION
NH3-COL-CL	Water	Ammonia, Total (as N)	APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the phenate colourimetric method.

NO2-IC-N-CL	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-CL	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1844414 Report Date: 24-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3577543								
WG2416874-3 DUP		**L1844645-3**						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	18-OCT-16
WG2416874-2 LCS								
Biochemical Oxygen Demand			87.7		%		85-115	18-OCT-16
WG2416874-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	18-OCT-16
EC-MPN-CL	**Water**							
Batch R3575452								
WG2414771-1 MB								
MPN - E. coli			<1		MPN/100mL		1	18-OCT-16
FCC-MF-CL	**Water**							
Batch R3575469								
WG2414807-2 DUP		**L1844593-1**						
Coliform Bacteria - Fecal		3	3		CFU/100mL	0.0	65	18-OCT-16
WG2414807-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	18-OCT-16
NH3-COL-CL	**Water**							
Batch R3574812								
WG2414192-6 DUP		**L1844942-3**						
Ammonia, Total (as N)		0.228	0.230		mg/L	0.6	20	19-OCT-16
WG2414192-5 LCS								
Ammonia, Total (as N)			97.1		%		85-115	19-OCT-16
WG2414192-8 LCS								
Ammonia, Total (as N)			96.3		%		85-115	19-OCT-16
WG2414192-4 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	19-OCT-16
WG2414192-7 MB								
Ammonia, Total (as N)			<0.050		mg/L		0.05	19-OCT-16
WG2414192-12 MS		**L1844414-2**						
Ammonia, Total (as N)			97.9		%		75-125	19-OCT-16
NO2-IC-N-CL	**Water**							
Batch R3574451								
WG2413805-3 DUP		**L1843906-2**						
Nitrite (as N)		<0.010	<0.010	RPD-NA	mg/L	N/A	20	18-OCT-16
WG2413805-2 LCS								
Nitrite (as N)			105.8		%		90-110	18-OCT-16

Quality Control Report

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-CL	**Water**							
Batch R3574451								
WG2413805-1 MB								
Nitrite (as N)			<0.010		mg/L		0.01	18-OCT-16
WG2413805-4 MS		**L1843906-2**						
Nitrite (as N)			110.7		%		75-125	18-OCT-16
NO3-IC-N-CL	**Water**							
Batch R3574451								
WG2413805-3 DUP		**L1843906-2**						
Nitrate (as N)		0.333	0.331		mg/L	0.6	20	18-OCT-16
WG2413805-2 LCS								
Nitrate (as N)			99.9		%		90-110	18-OCT-16
WG2413805-1 MB								
Nitrate (as N)			<0.020		mg/L		0.02	18-OCT-16
WG2413805-4 MS		**L1843906-2**						
Nitrate (as N)			104.6		%		75-125	18-OCT-16
P-T-COL-CL	**Water**							
Batch R3574383								
WG2413729-2 LCS								
Phosphorus (P)-Total			102.2		%		80-120	19-OCT-16
WG2413729-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	19-OCT-16
PO4-DO-COL-CL	**Water**							
Batch R3573839								
WG2412782-3 DUP		**L1844414-1**						
Orthophosphate-Dissolved (as P)		0.562	0.569		mg/L	1.2	20	18-OCT-16
WG2412782-2 LCS								
Orthophosphate-Dissolved (as P)			105.0		%		80-120	18-OCT-16
WG2412782-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	18-OCT-16
WG2412782-4 MS		**L1844414-3**						
Orthophosphate-Dissolved (as P)			110.4		%		70-130	18-OCT-16
TSS-CL	**Water**							
Batch R3574754								
WG2414138-2 LCS								
Total Suspended Solids			94.2		%		85-115	18-OCT-16
WG2414138-1 MB								
Total Suspended Solids			<3.0		mg/L		3	18-OCT-16

Quality Control Report

Workorder: L1844414 Report Date: 24-OCT-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

NAUTILUS ENVIRONMENTAL

ATTN: Lyudmyla Shvets
ALS Laboratory Group
2559 29th St. N.E.
Calgary, Alberta
Canada T1Y 7B5

Received: 2016/10/18, 1045
Report Date: 2016/10/20
Version: FINAL

Test Report

Client: ALS106
Reference: 1617-0263
Billing: L1844414

Senior Verifier

NAUTILUS ENVIRONMENTAL

Enterococcus Test Report

Result Summary

Client: ALS106
Reference: 1617-0263

Client: ALS Laboratory Group; operation Calgary

Sample: L1844414-1 WWTP EFFLUENT - UV THOUGH, L1844414-2 COLUMBIA RIVER UPSTREAM, L1844414-3 COLUMBIA RIVER DOWN STREAM, L1844414-4 COLUMBIA RIVER DOWN
Collection: collected on 2016/10/17 at 1230; 1500
Receipt: received on 2016/10/18 at 1045 by MC
Containers: received 4 x 250 mL bottles at 11 °C, in good condition with no seals and no initials
Description: type: water, collection method: not given

Analysis: started on 2016/10/18 by JN/HS; ended on 2016/10/19 by JN

Result:

Sample	Client Code	*Enterococcus* (MPN/100mL)
01	L1844414-1 WWTP EFFLUENT - UV THOUGH	1.0
02	L1844414-2 COLUMBIA RIVER UPSTREAM	<1
03	L1844414-3 COLUMBIA RIVER DOWN STREAM	1.0
04	L1844414-4 COLUMBIA RIVER DOWN STREAM	<1

Notes: MPN, most probable number

Comments: Test incubation was 24 hours at 41 ± 1°C
Reagents performed as expected

Method: *Enterococcus* by Most Probable Number method (WTRQ-ME-009)
Reference: Multiple-tube Technique, variation of 9230 B. (IDEXX Enterolert media)
Standard Methods for Examination of Water and Wastewater, 22nd ed. 2012. Edited by: E.W. Rice, L.S. Clesceri, A.E. Greenberg, and A.D. Eaton. APHA, AWWA, WEF, Washington. (ISBN 978-087553-013-0).

The test data and results are authorized and verified correct.

ALS Environmental

L1844414-COFC

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 608 9878

www.alsglobal.com

COC #

Page 1 of 1

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Resort Utility Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1:	tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2:	pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-8442 Fax:	Email 3:	mskyring@kickinghorseresort.com	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Week 5 - 2016 FALL EMS program - WW	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:	Resorts of the Canadian Rockies	PO / AFE:		
Contact:	Patrick Majer	LSD:		
Address:	1505 - 17th Ave SW Calgary AB			
Phone:	Fax:	Quote #:		
Lab Work Order # (lab use only)	L1844414	ALS Contact:	LS	Sampler: TJ/MS

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD5	TSS	N-NH4	N-NO3	N-NO2	Total P	Ortho P	Fecal Coliform	Enterococci	E. Coli			Number of Containers
	WWTP Effluent - UV trough Temp: 13 pH: 6.6	OCT 17,16	1230PM	Water	X	X	X	X	X	X	X	X	X	X			5
	Columbia River Upstream Temp: 11 pH: 7.8	11	1500	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Down stream Temp: 11 pH: 7.7	11	1500	Water		X	X	X	X	X	X	X	X	X			4
	Columbia River Side Channel Temp: 11 pH: 7.7	11	1500	Water		X	X	X	X	X	X	X	X	X			4

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date	Time:	Observations: Yes / No ? If Yes add SIF
				12/18	8:11	5 °C				

GENF 20.00 Front

KICKING HORSE MOUNTAIN UTILITY CORPORATION
ATTN: TRAVIS JOBIN
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Date Received: 01-DEC-16
Report Date: 08-DEC-16 09:16 (MT)
Version: FINAL

Client Phone: 250-344-6003

Certificate of Analysis

Lab Work Order #: L1865026

Project P.O. #: NOT SUBMITTED
Job Reference: WWRCR - KICKING HORSE MOUNTAIN RESORT
C of C Numbers:
Legal Site Desc:

Lyudmyla Shvets, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1865026-1 UV TROUGH							
Sampled By: TJ on 30-NOV-16 @ 12:00							
Matrix: WATER							
Miscellaneous Parameters							
Biochemical Oxygen Demand	<2.0	BODQ	2.0	mg/L		02-DEC-16	R3612470
Orthophosphate-Dissolved (as P)	0.232		0.0050	mg/L		01-DEC-16	R3608284
Coliform Bacteria - Fecal	<1		1	CFU/100mL		01-DEC-16	R3609247
Phosphorus (P)-Total	0.367	DLA	0.025	mg/L		02-DEC-16	R3608961
Total Suspended Solids	3.3		3.0	mg/L		06-DEC-16	R3612630

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
SPL	P - Sample was Preserved at the laboratory

Sample Parameter Qualifier Key:

Qualifier	Description
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.
DLA	Detection Limit adjusted for required dilution
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BOD-BC-CL	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B-5 day Incub.-O2 electrode

This analysis is carried out using procedures adapted from APHA Method 5210B - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting and incubating a sample for a specified time period, and measuring the oxygen depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a glass fibre filter prior to dilution. Carbonaceous BOD (CBOD) is determined by adding a nitrification inhibitor to the diluted sample prior to incubation.

FCC-MF-CL	Water	Fecal Coliform Count-MF	APHA 9222D

This analysis is carried out using procedures adapted from APHA Method 9222 "Membrane Filter Technique for Members of the Coliform Group". Coliform bacteria is enumerated by culturing and colony counting. A known sample volume is filtered through a 0.45 micron membrane filter. The test involves an initial 24 hour incubation at 44.5 degrees C of the filter with the appropriate growth medium. This method is specific for thermotolerant bacteria (Fecal) and is used for non-turbid water with a low background bacteria level.

P-T-COL-CL	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorus is determined colourimetrically after persulphate digestion of the sample.

PO4-DO-COL-CL	Water	Diss. Orthophosphate in Water by Colour	APHA 4500-P PHOSPHORUS

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter.

TSS-CL	Water	Total Suspended Solids	APHA 2540 D-Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total suspended solids (TSS) are determined by filtering a sample through a glass fibre filter, and by drying the filter at 104 deg. C.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
CL	ALS ENVIRONMENTAL - CALGARY, ALBERTA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1865026 Report Date: 08-DEC-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2

Contact: TRAVIS JOBIN

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BOD-BC-CL	**Water**							
Batch R3612470								
WG2447524-3 DUP		**L1865046-3**						
Biochemical Oxygen Demand		<2.0	<2.0	RPD-NA	mg/L	N/A	20	02-DEC-16
WG2447524-2 LCS								
Biochemical Oxygen Demand			74.4	LCS-ND	%		85-115	02-DEC-16
WG2447524-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	02-DEC-16
FCC-MF-CL	**Water**							
Batch R3609247								
WG2445189-2 DUP		**L1864690-1**						
Coliform Bacteria - Fecal		<100	<100	RPD-NA	CFU/100mL	N/A	65	01-DEC-16
WG2445189-1 MB								
Coliform Bacteria - Fecal			<1		CFU/100mL		1	01-DEC-16
P-T-COL-CL	**Water**							
Batch R3608961								
WG2444884-2 LCS								
Phosphorus (P)-Total			103.8		%		80-120	02-DEC-16
WG2444884-1 MB								
Phosphorus (P)-Total			<0.0050		mg/L		0.005	02-DEC-16
PO4-DO-COL-CL	**Water**							
Batch R3608284								
WG2444513-5 DUP		**L1865026-1**						
Orthophosphate-Dissolved (as P)		0.232	0.225		mg/L	2.9	20	01-DEC-16
WG2444513-2 LCS								
Orthophosphate-Dissolved (as P)			101.0		%		80-120	01-DEC-16
WG2444513-1 MB								
Orthophosphate-Dissolved (as P)			<0.0050		mg/L		0.005	01-DEC-16
WG2444513-4 MS		**L1865026-1**						
Orthophosphate-Dissolved (as P)			N/A	MS-B	%		-	01-DEC-16
TSS-CL	**Water**							
Batch R3612630								
WG2447926-3 DUP		**L1865984-2**						
Total Suspended Solids		73.3	71.7		mg/L	2.3	20	06-DEC-16
WG2447926-2 LCS								
Total Suspended Solids			95.1		%		85-115	06-DEC-16
WG2447926-1 MB								
Total Suspended Solids			<3.0		mg/L		3	06-DEC-16

Quality Control Report

Workorder: L1865026 Report Date: 08-DEC-16

Client: KICKING HORSE MOUNTAIN UTILITY CORPORATION
1505 - 17th AVENUE SW
CALGARY AB T2T 0E2
Contact: TRAVIS JOBIN

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
BODQ	BOD Qualification: Lab Control Sample outside standard 85-115% objective (see QC report). Sample(s) cannot be rerun due to hold time expiry.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

L1865026-COFC

of 1

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Kicking Horse Mountain Water Utility Co. Ltd.	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Travis Jobin	☐ PDF ☐ Excel ☐ Digital ☑ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1500 Kicking Horse Trail	Email 1: tjobin@kickinghorseresort.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
		Email 2: pmajer@skircr.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	250-344-6003 Fax:	Email 3: mskyring@kickinghorseresort.com	
Invoice To	Same as Report ? ☐ Yes ☑ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: WWRCR - Kicking Horse Mountain Resort	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:	Resorts of the Canadian Rockies	PO / AFE:	
Contact:	Patrick Majer	LSD:	
Address:	1505 - 17th Ave SW Calgary AB		
Phone:	Fax:	Quote #: Q33059	
Lab Work Order # (lab use only)		ALS Contact: LS	Sampler: TJ

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BOD	TSS	Fecal Coliform	~~Tot~~ ORTHO P	TOTAL P	Number of Containers
	UV trough - WASTEWATER	Nov 30	12:00PM	Water	✓	✓	✓	✓	✓	3
	~~UV trough~~			~~Water~~						

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
			MM	1 Dec	11:20	6 °C				

GENF 20.00 Front

CERTIFICATE OF INSURANCE

BROKER
Toole Peet & Co. Limited
P.O. Box 4650 Station C
1135 - 17th Avenue SW
Calgary, AB T2T 5R5
BROKER'S CLIENT ID:

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policies below.

INSURED'S FULL NAME AND MAILING ADDRESS

Environmental Diagnostics Inc.
#140, 5050 - 106 Ave. SE
Calgary, AB T2C 5E9

COMPANIES AFFORDING COVERAGE

COMPANY **A**	**Aviva Insurance**
COMPANY **B**	**Certain Underwriters at Lloyds as under contract MKL2016001 (Markel Syndicate 3000)**
COMPANY **C**	**Certain Underwriters as arranged through Encon Group Inc.**
COMPANY **D**	

COVERAGES

This is to certify that the policies of insurance listed below have been issued to the insured named above for the policy period indicated, notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain. The insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS

TYPE OF INSURANCE	CO LTR	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS OF LIABILITY	
COMMERCIAL GENERAL LIABILITY	**A**	81229768	3/30/2017	3/30/2018	EACH OCCURRENCE	$ **2,000,000**
☐ CLAIMS MADE OR ☑ OCCURRENCE					GENERAL AGGREGATE	$ **5,000,000**
☑ PRODUCTS AND / OR COMPLETED OPERATIONS					PRODUCTS - Comp/Ops Agg.	$ **2,000,000**
☐ EMPLOYERS' LIABILITY					PERSONAL INJURY	$ **2,000,000**
☑ CROSS LIABILITY					TENANT'S LEGAL LIABILITY	$ **250,000**
☑ TENANT'S LIABILITY					MED EXP (any one person)	$ **10,000**
☑ NON-OWNED AUTOMOBILES					NON-OWNED AUTO	$ **2,000,000**
☐ ☑ HIRED					OPTIONAL POLLUTION LIABILITY EXTENSION	$
☐ POLLUTION LIABILITY EXTENSION					(Per Occurrence/Aggregate)	$
☑ CONTRACTUAL LIABILITY						
AUTOMOBILE LIABILITY					BODILY INJURY PROPERTY DAMAGE COMBINED	
☑ DESCRIBED AUTOMOBILES	**A**	6141184202	9/18/2017	9/18/2018		$ **2,000,000**
☐ ALL OWNED AUTOMOBILES					BODILY INJURY (Per Person)	$
☐ LEASED AUTOMOBILES					BODILY INJURY (Per Accident)	$
					PROPERTY DAMAGE	$
EXCESS LIABILITY						$
☐ UMBRELLA FORM						$
☐ OTHER THAN UMBRELLA FORM						
(Specify)						
OTHER LIABILITY (SPECIFY)						$
☑						$
ENVIRONMENTAL CONSULTING PROFESSIONAL (ERRORS AND OMISSIONS) LIABILITY (Claims Made)	**C**	SRD450628	4/20/2017	4/20/2018	Per Loss/Aggregate	$ **2,000,000**
☑ ENVIRONMENTAL IMPAIRMENT LIABILITY (Claims Made)	**B**	EILT2093	4/1/2017	4/1/2018	Each Claim	$ **1,000,000**
					Aggregate for Each Policy Period	$ **1,000,000**

ADDITIONAL INSURED

DESCRIPTION OF OPERATIONS, LOCATIONS/ AUTOMOBILES/ SPECIAL ITEMS

Environmental Consultants

CERTIFICATE HOLDER 1

To Whom It May Concern

CANCELLATION

Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 0 days written notice to the certificate holder named to the left, but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives

SIGNATURE OF AUTHORIZED REPRESENTATIVE

FAX NUMBER
(403) 228-0231

EMAIL ADDRESS
esiver@toolepeet.com

PRINT NAME INCLUDING POSITION HELD
Erica Siver, Account Manager

COMPANY
Toole Peet & Co. Limited

DATE
March 9, 2017

COMPANY PROFILE

ENVIRONMENTAL DIAGNOSTICS INC. (EDI) was established in 1993. EDI is a Canadian-based company offering ***environmental and engineering services*** to commercial, industrial, oil & gas and government clients in Western Canada. The company has the main office located in Calgary and operations offices in Edmonton and Kamloops.

Environmental Diagnostics Inc. brings more than 20 years of experience and knowledge in many areas of the environmental and engineering sectors. EDI employees are dedicated to providing effective solutions to the clients' problems, implementing efficient and cost effective methods as well as an innovative approach.

All of EDI ***personnel*** are graduates of engineering and/or environmental science programs at recognized universities, colleges and reclamation/environmental programs. Our staff consists of experienced technicians, technologists, scientists and engineers, which are members of ***APEGGA, APEGBC, AIA, APEGS, ACPA, ACPBC, CRLA, AWWA, WEFTEC, WCWWA*** and others.

The ***company*** is an active member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta - ***APEGGA***, Association of Professional Engineers and Geoscientists of Saskatchewan - ***APEGS***, the Environmental Services Association of Alberta - ***ESAA***, the Canadian Land Reclamation Association - ***CLRA*** and the Alberta Petroleum Storage Systems Contractor's Association - ***APSSCA***.

The company possesses the ***Partnerships in Health & Safety*** Small Employer Certificate of Recognition - ***SECOR*** (currently working on ***COR***) and is a member of ***ISN***etworld.

EXPERIENCE OVERVIEW

ENVIRONMENTAL & CONTAMINATED LAND SITE ASSESSMENTS

- Pre-purchase Assessments
- Phase I, II and III Environmental Site Assessments for Commercial, Industrial, Residential and Oil & Gas Properties
- Site Specific Guideline Re-calculation
- Statistical Trend Analysis
- Conceptual Site Model Development
- Contact with Regulatory Agencies
- Soils, Surface Water, Groundwater, Snow and Sludge Sampling & Testing

RISK MANAGEMENT AND MITIGATION

- Risk Management Plans
- Risk Management Implementation
- Environmental Mitigation Strategies
- Exposure Control
- Natural Attenuation

REMEDIATION

- Soil & Groundwater Remediation Evaluation & Method Selection
  - ✓ In-situ Remediation (Vapour Extraction, Bioremediation, Oxygen Introduction, Groundwater Pump and Treat)
  - ✓ On-site (Landfarming, Bio-piling, Alluing/Aeration)
  - ✓ Source Removal and Off-site Disposal
  - ✓ Site Specific and Innovative Techniques
- Tender Documents Preparation
- Comprehensive Remediation Management and/or Supervision
- Experience with Numerous Contaminants: Salt, Hydrocarbons, Chlorinated Solvents, PAHs, Fertilizers, Herbicides/Pesticides, Heavy Metals, Disulfides and others
- Underground Storage Tanks Removals
- Post Remediation Monitoring & Evaluation

SOIL VAPOUR SURVEYS & EVALUATION

- Soil Vapour Assessments
- Soil Vapour Probe Sampling
- Soil Vapour Criteria Derivation
- Risk Management and Remediation
- Conceptual Site Model
- Experience with Various Parameters: Methane, Hydrocarbons, Solvents, etc.

INDOOR AIR QUALITY ASSESSMENT

- Indoor Air Sampling and Testing
- Sub-slab Air Sampling and Testing
- Pollutant Source Assessment and Problem Identification
- Air Quality Improvements
- Experience with Hydrocarbons, Chlorinated Compounds, Dust, Metals, Mould

HAZARDOUS BUILDING MATERIAL ASSESSMENT

- Indoor Air Sampling and Testing for Hazardous Materials: Asbestos, Lead, Arsenic, Mercury, UFFI, PCBs, Silica, Radioactive Materials, ODS
- Mould Testing
- Radon Testing and Mitigation

EXPERIENCE OVERVIEW - continued

REGULATORY COMPLIANCE FOR FACILITIES (under AER and AEP)

- Site Assessments (Phase I & II ESA, Contamination Delineation)
- Risk Management Plans
- Standard Operating Procedures Development & Process Optimization
- Liability Assessments including Site Specific
- Decommissioning Plans
- Site Remediation & Monitoring
- Contact with Regulatory Agencies
- Assistance with Regulatory Approvals

ENGINEERING – WATER, WASTEWATER & CONTAMINATED WATER

- Water & Wastewater Systems Evaluation
- Annual Compliance Reports
- Wastewater Irrigation Reports
- Environmental Emergency Plans for WTP
- Water Source Evaluation
- Well Pumping/Flow Tests and Evaluation
- Feasibility Studies
- Chemical and Microbial Sampling and Testing
- Soil Evaluation for Septic Fields
- Full Contaminated Water Remediation System Design and Treatment
- Pilot Water Testing (DAF, Media Filters, Membrane Filtration, Biological Activated Filter, and others)
- Design/Built Potable Water, Process Water and Contaminated Water Packages

COMPLIANCE TESTING & MONITORING

- Long Term Compliance Testing and Monitoring such as:
  - ✓ Water Distribution Systems
  - ✓ Water & Wastewater Treatment Plants Compliance Reports
  - ✓ Wastewater Irrigation Reports
  - ✓ Landfill Monitoring
  - ✓ Fuel Tank Sites Monitoring
  - ✓ Lead in Water Sampling
  - ✓ Surface Water Sampling
  - ✓ Snow & Snow Storage Sampling
- Various clients
  - ✓ Municipalities
  - ✓ Various Developments
  - ✓ Golf Courses
  - ✓ Resorts
  - ✓ Facilities

CORE PERSONNEL

Jana Zverina, P.Eng. (M.Sc. in Water Resources Engineering & Management and Diploma in Civil Engineering)
Manager of Environmental Engineering & Operations (Principal)

Jana has been working as a water resources and environmental engineer for more than 30 years. The following is the pertinent experience:

- ✓ Five years of process design, equipment selection, evaluation, pricing of industrial and municipal water & wastewater treatment, industrial water remediation including floatation sediment storage & transportation and mine rehabilitation work, environmental remediation including natural attenuation and containment for deep coal mines as a junior engineer
- ✓ Twenty five years as an environmental engineer including:
    - o Engineering and project management
    - o Thousands of environmental site assessments for oil & gas facilities, commercial and industrial sites & multi-residential site
    - o Hundreds of Remediation and Risk Management Plans for various projects such as oil & gas leases, batteries, gas plants, underground and aboveground storage tanks sites, chemical storage sites, sites on and adjacent to landfills, CPR yards, chemical storage sites, dry-cleaning and other facilities
    - o Specifications, budget proposals, cost estimates for hundreds of site abandonments projects including equipment dismantling, disposal, re-use, recycling
    - o Remediation and risk management options for a number of soil and groundwater treatment methods including off-site disposal and treatment, in-situ treatments ie land treatment, bio-piling, enhanced bio-remediation, chemical in-situ treatment, chemical oxidation and reduction, vapour extraction, pump and treat, etc. as well as other site specific treatment methods
    - o Numerous soil and groundwater remediation projects employing various remediation methods for salt, hydrocarbons, solvents, fertilizers, herbicides/pesticides, heavy metals and others
    - o Completed numerous remediation projects within the proposed budget cost

Irina Sabau, P.Ag. (B.Sc. In Environmental Sciences)
Environmental Project Manager (Principal)

Irina has been working as an environmental scientist for over 8 years. The following is the pertinent experience:

- ✓ One year of analytical environmental laboratory experience
- ✓ Seven years as an environmental scientist including:
    - o Hundreds of environmental site assessments, indoor air evaluations, soil vapour evaluations, snow assessment, mitigation plans, exposure control plans, hazardous materials assessments, methane gas studies, remediation and risk management plans for various projects
    - o Specifications, budget proposals, cost estimates for assessment
    - o Remediation and risk management options for a number of soil and groundwater treatment methods including off-site disposal and treatment, in-situ treatments ie land treatment, bio-piling, enhanced bio-remediation, chemical in-situ treatment, chemical oxidation and reduction, vapour extraction, pump and treat, etc. as well as other site specific treatment methods
    - o Numerous soil and groundwater remediation projects employing various remediation methods for salt, hydrocarbons, chlorinated solvents, fertilizers, heavy metals, disulfides, and others
    - o Completed numerous remediation projects within the proposed budget cost

Lisa Columbus
Office Manager

- Over 20 years of experience with office management, work and personnel organization, book-keeping and payroll

Kim Harvey, P.Chem (B.Sc. in Chemical Science)
Environmental Consultant

Kim has been working as an environmental consultant for over 10 years. The following is the pertinent experience:

- ✓ Four years of analytical environmental laboratory experience
- ✓ Ten years as an environmental consultant including:
  - o Hundreds of environmental site assessments, mitigation plans, risk management plans, soil and groundwater monitoring programs, reclamation and remediation assessments
  - o Specifications, budget proposals, cost estimates for assessment

Naomi Anton, A.T.T. (B.Sc. in Environmental Management, Diploma in Environmental Technology)
Environmental Consultant

Naomi has been working as an environmental consultant for over 6 years. The following is the pertinent experience:

- ✓ Six years as an environmental consultant including:
  - o Numerous environmental site assessments, soil and groundwater monitoring programs, remediation supervision, hazardous materials assessment, indoor air and soil vapour sampling
  - o Potable, surface and groundwater sampling

Samantha Thompson, (Diploma in Environmental Technology)
Samantha has been working as an environmental consultant for over 4 years. The following is the pertinent experience:

- o Phase I & II Environmental Site Assessments, Water sampling and testing, soil & indoor air & probe air sampling,

Desarae Ahlstrom, (Diploma in Environmental Technology)
Environmental Technologist/Water Sampler

- Water sampling and testing, analytical laboratory experience

Contract Work

Milan Zverina, P.Eng. (M.Sc. in Water/Wastewater Treatment & Water Resources)
Project Manager

- over 35 years of experience in feasibility studies, municipal and industrial water & wastewater systems evaluations, water & wastewater treatment, process equipment & package design, manufacture and start up, design and management of the construction of equipment and pipelines for oil & gas industry, the projects he participated in include numerous plants & equipment in Eastern Europe, Asia, Africa, Canada and US

Lukas Fikr, P.Geol. (M.Sc. in Geology)
Senior Geologist/Hydrogeologist

- Over 15 years of environmental, geological and hydrogeological experience including exploration, drilling supervision, interpretation of geological, hydrogeological and environmental data, processing of geological parts of risk and hazard assessments and environmental audits

S. Tolga Olcay, M.Sc., P.Eng. (B.Sc. in Environmental Engineering, M.Sc. in Environmental Sciences)

- Planned, implemented and reported ambient air quality and meteorological monitoring studies in Alberta, BC and NWT (Set-up monitoring units at site, maintenance and calibration, data collection, data processing, compliance reporting) for mining industry. extensive experience as air dispersion modeler (by using calpuff and aermod) for EIA projects for oil & gas industry, numerous oil sands projects and mining industries, conducted training sessions for new staff about environmental issues, ambient air quality and indoor air quality monitoring and reporting., accomplished indoor air quality studies for residential buildings, office buildings and industrial buildings. (Generic pollutants, mold, toxic gases…), performed periodical maintenance of monitoring analyzers and calibration devices, developed technical calibration procedures for electrochemical sensors for ambient air.

RECENT PROJECTS

The list of projects, clients and references can be provided on request.

Environmental Diagnostics Inc. has undertook thousands of Phase I, II and III Environmental Site Assessments, contamination delineations and contamination remediation projects in Southern and Central Alberta, British Columbia and Saskatchewan as well as numerous hazardous materials surveys, indoor/sub-slab and soil-vapour sampling and evaluations.

EDI also undertook numerous pump/flow tests and chemical tests as well as water well and water supply/treatment system evaluations and compliance report preparations.

Example of some of the EDI long-term clients:

City of Calgary
- Potable water sampling for the City of Calgary
- Storm water pond sampling
- Lead in water distribution system sampling
- Snow and meltwater sampling

City of Airdrie
- Landfill monitoring
- Fleet yard tank nest monitoring

Oil & Gas Midstream and Upstream Clients

Land Developers
- Ronmor Developers Inc.
- Harmin Holdings Ltd.
- MDC Properties Ltd.
- Certus Development Ltd.
- United Communities
- Qualico Development

Resorts and Golf Courses
- The Lake Louise Ski Resort
- Resort of the Canadian Rockies Inc.
- Priddis Greens Services Co-op Limited
- Azuridge Boutique Hotel
- Johnson Canyon Resort

Various
- Alsa Paving
- Freeze Maxwell Roofing Ltd.
- Calgary Metals
- NAI Advent
- Gas Plus
- Numerous commercial and industrial clients – transactional assessments & remediation work

EDI is on the list of all major banks and financial institutions such as Business Development Bank, Royal Bank of Canada, CIBC, Bank of Montreal and others.