Prepared for:

KICKING HORSE MOUNTAIN SANITARY SEWER SERVICES LTD.

GOLDEN, BC

CORIX UTILITIES
2120 TOBY CREEK ROAD
PANORAMA, BRITISH COLUMBIA
V0A 1T0

MAY 2011

Table of Contents

1 Introduction

Kicking Horse Mountain Sanitary Sewer Services Ltd. (KHMSSSL) provides wastewater treatment for the Kicking Horse Mountain Resort (KHMR) and is registered under the Municipal Sewage Regulation (MSR) File #RE-15474 to discharge effluent to the Columbia River.

The maximum effluent discharge is 300m^3/day with a maximum BOD_5 of 45mg/L and maximum TSS of 45mg/l. Discharge limits on Total Phosphorus (TP) and Ortho-Phosphorus are a maximum of 1.0 mg/l and 0.5 mg/l respectively.

1.1 Annual Report

In accordance with Part 7, Section 28 (3) of the Municipal Sewage Regulation, the discharger shall submit an annual report and do so in accordance with the annual report requirements of Section 28 of the Regulation. Additionally, in the letter acknowledging registration dated April 28, 2005 it is specified that 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

2 Background

The Kicking Horse Mountain Resort is located approximately 13km from Golden. It is an ongoing development currently consisting of a combination of single family, multifamily, and rental pool/ Hotel style accommodations. These contribute to total loading of the site in addition to ski hill use and ancillary services. The sewage treatment plant constructed in the year 2000 is located adjacent to the resort.

The treatment USBF technology employed is a modified conventional activated sludge process applying an Upflow Sludge Blanket Filtration clarifier. There are two independent treatment trains that are operated in parallel during the peak season (approximately December through April) and as a single train during the rest of a calendar year.

The system incorporates two (2) treatment zones and one (1) 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 the anoxic and aeration zones together. The aeration zone is connected to the clarifier by a slotted flow trough, approx. 18” above the clarifier bottom and the width of the clarifier wall. Each zone is approx.15’ deep. Effluent clarification is enhanced by an upflow 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 kilometre long gravity main to the outfall in the Columbia River.

Waste activated sludge was normally stored in a thickener for removal by vacuum tanker. In situations where it was not possible, to add any more sludge to any already full thickener the waste activated sludge would be temporarily diverted to the third process train.

2.1 Resort Construction and Occupancy

Kicking Horse Mountain Sanitary Sewer Services Ltd provided the following update of the resort construction and occupancy for 2010:

In total, there are currently three lodges, three condominium hotels; three non-residential buildings and an increase from 170 to 237 single family/multi family homes in any stage of development above foundations, or an Equivalent Bedroom Unit (EBU) capacity of 2597. Occupancy varies throughout the year, with near full occupancy only on winter long weekends.

The breakdown is as follows:

Lodges:
Construction of the Vagabond, Copper Horse and Highland lodges is complete and the accommodation comprises of:

Table 2.1 Lodge Accommodation Data

Number of Properties	Number of rental rooms	EBU for these properties
3	30	296

Condo Hotels

Construction of the Glacier, Mountaineer, and Palliser lodges is complete and the accommodation is comprised of:

Table 2.2 – Condominium Accommodation

Number of Properties	Number of rental "units"	Number of rental rooms	EBU for these properties
3	155	310	951

Family Residences

Family residences consist both of single and multi-family residential dwellings. Some of the properties are occupied by the owners but most are leased out. In the summary below the EBU for uncompleted developments is proportioned according to the percentage completion.

Table 2.3 – Condominium Accommodation

Number of Properties	Number of rooms	EBU for these properties
170	489	978

Non-Residential Properties

These properties comprising the Day Lodge, BNCL Office and the wastewater treatment plant have the following EBU capacity:

Table 2.4 – Non-Residential Property

Number of Properties	EBU for these properties
3	158

Full time residents

In the latest (2010) estimate, 29 full time year round residents live at the resort. The residential development content, as defined by the regulation, remains below 10 percent. This continues to exempt Kicking Horse Mountain Sanitary Sewer Services Ltd. (KHMSSS) from the requirement to set up a capital replacement fund or

financial security or assurance plan, as per the letter from Cranbrook Office of the Ministry of Environment dated April 28, 2005.

3 Operation of the Facilities

In 2010, Kicking Horse Mountain Sanitary Sewer Services Ltd. (KHMSSS) operated and maintained the sewage facilities at Kicking Horse Mountain Resort from January through December with oversight assistance provided by Corix Utilities Operator, Mr. Bruce MacLennan (EOCP #6387). Bruce visited KHMSSS regularly once a month. Facilities manager Jeff Phillips undertook the managerial duties for the sewage systems through out the year. Corix Utilities continued contract operations to operate and maintain the sewage facility at Kicking Horse Mountain Resort through out the year. Operational staff included Matt Wornardt (EOCP#6770) and Don Proctor (EOCP #7082) with assistance from Fred Deacon (EOCP#3635) and Supervision from Sheree Lancaster (EOCP#4020).

4 Flow Trends

In 2010 flow data was continuously monitored at the discharge to the outfall using a flow meter to be recorded on the SCADA system. The operators then transcribed the daily flows into a logbook.

Table 4.1. Effluent Flow Data for 2010

MONTH	MIN m3/d	MAX m3/d	AVEm3/d	TOTAL m3/d	COMMENTS
JANUARY	56.8	242.7	102.8	3187.3	Max Day Jan 1 New Years Day
FEBRUARY	71.1	206.4	124.1	3476.1	Max Day Feb 14 - Family Day Weekend
MARCH	75.8	212.9	120.0	3719.1	
APRIL	35.3	157.6	80.6	2417.2	
MAY	22.1	77.2	39.2	1214	
JUNE	23.3	61.5	40.9	1227.2	
JULY	21.3	363.6	88.3	2736.4	Instrumentation Error due to lightning strike
AUGUST	53.0	124.8	73.3	1465.5	
SEPTEMBER	38.6	125.9	57.5	1724.8	
OCTOBER	7.6	309.0	48.2	1495.0	
NOVEMBER	25.5	97.6	41.4	1241.6	
DECEMBER	46.2	317.6	114.9	3563.3	Max Day Dec 31 - New Years Eve
ANNUAL	7.6	363.6	77.6	27467.5	

Peak flows coincided with weekends, holiday periods, the ski season and summer recreational activities. The highest daily flow was recorded on New Years Day Saturday January 1, 2010 (242.7 m^3/day), Monday February 14, 2010 (206.4 m^3/day) and over the New Year's long weekend December 31, 2010 (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. Ministry of Environment was notified on July 29$^{th.}$ Due to routine daily monitoring of the system the operators noted that at no time during this period did flows come close to exceeding permit based on visual observations and process control monitoring.

Sludge is wasted to maintain the mixed liquor suspended solids in a seasonally dependent target range. Excess supernatant is decanted back to the treatment train throughout the year. In all 216m^3 of sludge was wasted during 2010. Kootenay Pumping Systems LTD hauled and disposed the sludge at a designated lagoon located south of Golden at GPS coordinates 51-13-07N 116-55-10W.

5 Effluent and Environmental Monitoring Program

It is specified in the registration letter dated April 28, 2005 that "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. Further the person collecting samples shall be properly trained in sample collection and handling".

KHMSSS Ltd.'s sampling and monitoring program as outlined in the Masse & Miller Consulting Ltd. letter is summarized in Table 5.1

Table 5.1 – Kicking Horse's Sampling and Monitoring Program

Parameters	**Columbia River Upstream at Bridge**	**Columbia River ~200m 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 (field)	WS/G	WS/G	WS/G	WS/G	W
Temperature (field)	WS/G	WS/G	WS/G	WS/G	W
Flow					W
BOD5					Q/G
TSS	WS/G	WS/G	WS/G	WS/G	WS/G + Q/G
N-NH4 (Ammonia)	WS/G	WS/G	WS/G	WS/G	WS/G
N-NO3 (Nitrate)	WS/G	WS/G	WS/G	WS/G	WS/G
N-NO2 (Nitrite)	WS/G	WS/G	WS/G	WS/G	WS/G
T.	WS/G	WS/G	WS/G	WS/G	WS/G

Phosphorus					
Ortho phosphate	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					1/3Y/G
Coordinates	11.500456 5684421	11.500288 5684880	N 51 19.364 W 117 00.218	11.500126 5684835	At sewage treatment plant

Sampling Frequency and Type:
Q=Quarterly
W=Weekly
1/3Y=Once every 3 years
G= Grab sample

WS = Weekly seasonal (weekly samples for a period of 5 weeks)

The winter weekly seasonal sampling began as scheduled on March 17th as soon as the river sampling sites opened up from ice cover. The summer monitoring of the receiving environment was conducted during low water flows in the Columbia River beginning August 31st.

Certified operators as outlined in Section 3.0 collected the river monitoring samples. For both the winter and summer sampling programs samples were drawn from the Control site upstream (E256694); Effluent (E256696); the Columbia River Side Channel (E258899) and the Columbia River Downstream (E258898).

6 Effluent and Receiving Environment Results

6.1 Total Suspended Solids

All results reported in Tables 1 & 2 of Appendix A are in compliance.

6.2 Biochemical Oxygen Demand

All results reported in Tables 1 & 2 of Appendix A are in compliance.

6.3 Total Phosphorus

All results reported in Tables 1 & 2 of Appendix A are in compliance.

Ongoing phosphorus removal can be attributed to the efforts undertaken in forecasting the wastewater treatment plant flows based on historical data. Total phosphorous did not exceed permit.

6.4 Ortho Phosphorus

All results reported in Tables 1 & 2 of Appendix A are in compliance.

Ortho phosphorus and total phosphorus are closely linked in wastewater treatment so the causes and mitigation measures would be similar to those of Total Phosphorus. Ortho phosphorous did not exceed permit.

6.5 Fecal Coliforms

All results reported in Tables 1 & 2 of Appendix A are in compliance.

None of the reported effluent fecal coliform results was above the specified limit.

6.6 Toxicity

The effluent LC50 test result for the sample collected on April 29, 2008 passed with a value exceeding 100%. The next sampling is due in 2011.

6.7 River monitoring data

The data provided from the river sampling sites fell within the aquatic life and recreational (primary) guidelines found in the Tables 1 and 2 of Appendix 2 of the 2005 Masse Miller environment monitoring report.

7 Problems Identified and Corrective Actions Taken

On July 29th a lightning storm caused damage to the wastewater treatment plant influent and effluent level sensors. This event resulted in erratic thus inaccurate measurement of the influent and effluent levels. A float control was immediately installed and parts ordered to repair the damaged equipment. The Ministry of

Environment was notified on July 29th. As soon as parts arrived, the influent level sensors were repaired and returned to normal operation.

On December 31, 2010 Effluent flows exceeded permit of 300m^3/day. Flows were recorded at 317m^3/day. The Ministry of Environment was notified. To prevent the re-occurrence in the future, a buffering program was initiated immediately. A pump was installed in the Equalization Tank for the purpose of transferring influent to Cell #3 during peak flows with the intentions of processing during low flows.

8 Plant Improvements Made During 2010

On January 14, 2010 Air Blower 3 was modified to increase Dissolved Oxygen to the process (Bio-reactor 1) during extreme flows.

Bio-reactor 1 was taken off line during routine operations in May 2010 at which time some minor repairs took place to repair the skimmer and the air delivery system.

During the month of October, a small enclosure was built to house the influent screen in order to prevent freezing through out the winter months. An auto-dialer was installed and commissioned on October 21st.

9 Monitoring Schedule For 2010

Environmental monitoring will be scheduled to fulfill the requirements of the MSR, transmittal, and registration letters dated April 28, 2005 and Masse's Monitoring Program dated February 17, 2005.

Sheree Lancaster, AScT

APPENDIX A – EFFLUENT AND RIVER WATER QUALITY DATA

Table 1. Water quality data - winter sampling

Winter sampling	Date	pH Field	Temp Field (oC)	TSS (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Total BOD (mg/l)	Ammonia Nitrogen (mg/l)	Ortho Phosphorus (mg/l as P)	T-Phos (mg/l as P)	F. Coliforms (Col./100ml)	E. Coli (Colo./100ml)	Enterococci (Col./100ml)
Control Site Upstream (E256694)	17-Mar-10	8.17	3.2	13	0.02	0.03		0.001	0.01	0.02	0.9	0.9	0.9
	25-Mar-10	7.76	5.4	13	0.02	0.01		0.028	0.02	0.03	0.9	0.9	0.9
	31-Mar-10	8.00	6.1	14	0.04	0.01		0.052	0.01	0.02	0.9	0.9	0.9
	7-Apr-10	8.21	5.7	2	0.16	0.01		0.016	0.01	0.01	0.9	4	0.9
	14-Apr-10	8.15	5.7	16	0.08	0.02		0.030	0.01	0.05	0.9	2	0.9
	Average	**8.06**	**5.2**	**11.6**	**0.06**	**0.02**		**0.03**	**0.01**	**0.03**			
	Geometric Mean	**8.06**	**5.1**	**9.5**	**0.05**	**0.01**		**0.01**	**0.01**	**0.02**	**0.90**	**1.42**	**0.90**
	Max	**8.21**	**6.1**	**16**	**0.16**	**0.03**	**0**	**0.052**	**0.02**	**0.05**	**0.9**	**4**	**0.9**
	Min	**7.76**	**3.2**	**2**	**0.02**	**0.01**	**0**	**0.001**	**0.01**	**0.01**	**0.9**	**0.9**	**0.9**
	26-Jan-10	7.21	11.0	17			15				48		
Effluent (E256696)	17-Mar-10	7.44	13.1	7	0.02	0.49	6	48.7	0.02	0.3	0.9	0.9	0.9
	25-Mar-10	7.49	11.8	8	0.16	0.32	15	32.8	0.02	0.05	5	6	0.9
	31-Mar-10	7.25	13.1	6	0.12	0.03	11	40.6	0.10	0.30	0.9	2	0.9
	7-Apr-10	7.38	11.9	4	1.00	0.03	4.9	36.7	0.03	0.10	0.9	0.9	0.9
	14-Apr-10	7.29	11.8	4	1.1	0.04	4.9	28.3	0.02	0.29	0.9	0.9	0.9
	Average	**7.34**	**12.1**	**7.7**	**0.48**	**0.182**	**9.5**	**37.420**	**0.038**	**0.208**			
	Geometric Mean	**7.3**	**12.1**	**6.7**	**0.2**	**0.1**	**8.4**	**36.785**	**0.0**	**0.2**	**2.3**	**1.5**	**0.9**
	Max	**7.49**	**13.1**	**17.0**	**1.1**	**0.49**	**15**	**48.700**	**0.1**	**0.3**	**48**	**6**	**0.9**
	Min	**7.21**	**11.0**	**4.0**	**0.02**	**0.03**	**4.9**	**28.300**	**0.02**	**0.05**	**0.9**	**0.9**	**0.9**
Columbia River Side Channel (E258899)	17-Mar-10	7.93	3.6	7	0.09	0.01		0.014	0.01	0.02	0.9	0.9	0.9
	25-Mar-10	8.22	5.0	8	0.03	0.01		0.043	0.01	0.02	1	1	2
	31-Mar-10	8.03	6.3	7	0.06	0.01		0.056	0.01	0.02	0.9	0.9	0.9
	7-Apr-10	8.21	6.3	2	0.11	0.01		0.020	0.01	0.01	3	4	0.9
	14-Apr-10	8.14	6.3	2	0.07	0.01		0.039	0.01	0.06	4	8	4
	Average	**8.1**	**5.5**	**5.2**	**0.07**	**0.01**		**0.0344**	**0.01**	**0.026**			
	Geometric Mean	**8.1**	**5.4**	**4.4**	**0.07**	**0.0**		**0.0**	**0.0**	**0.0**	**1.6**	**1.9**	**1.4**
	Max	**8.2**	**6.3**	**8**	**0.11**	**0.01**		**0.056**	**0.01**	**0.06**	**4**	**8**	**4**
	Min	**7.9**	**3.6**	**2**	**0.03**	**0.01**		**0.014**	**0.01**	**0.01**	**0.9**	**0.9**	**0.9**
Columbia River Downstream E258898	17-Mar-10	8.00	3.3	8	0.16	0.01		0.008	0.01	0.03	0.9	0.9	0.9
	25-Mar-10	8.22	4.1	7	0.03	0.01		0.032	0.01	0.03	1	1	1
	31-Mar-10	8.07	5.5	10	0.05	0.01		0.036	0.01	0.02	0.9	0.9	0.9
	7-Apr-10	8.21	6.3	1	0.09	0.01		0.019	0.01	0.01	2	4	0.9
	14-Apr-10	8.16	6.3	2	0.08	0.01		0.030	0.01	0.05	2	0.9	0.9
	Average	**8.13**	**5.1**	**5.6**	**0.082**	**0.01**		**0.025**	**0.01**	**0.028**			
	Geometric Mean	**8.13**	**4.9**	**4.1**	**0.07**	**0.01**		**0.02**	**0.01**	**0.02**	**1.27**	**1.24**	**0.92**
	Max	**8.22**	**6.3**	**10.0**	**0.16**	**0.01**		**0.036**	**0.01**	**0.05**	**2**	**4**	**1**
	Min	**8**	**3.3**	**1.0**	**0.03**	**0.01**		**0.008**	**0.01**	**0.01**	**0.9**	**0.9**	**0.9**
BC Approved Water Quality Guidelines													
Drinking water		6.5 - 8.5	15	na	10	1	na	na	na	na	<1	<1	<3
Aquatic Life (freshwater)		na	15	25	200max <=40avg	0.06max<= 0.02 (chloride< 2mg/l)	na	avg(1.11-1.81) max(4.61-23.5)	na	na	na	na	na
Recreational (primary)		na	na	na	10	1 max	na	na	na	na	200	77	20
Effluent quality exceedances		<6 & >9		45			45		0.5	1	200		

Dealing with results below the detection limit

In these reporting tables the reported value is one significant digit less than the detection limit [i.e. "less than 2" becomes "1.9"]. Because of how geometric mean is calculated, the precise substitution value generally does not appreciably affect the result of the calculation, and ensuring that all the data remains usable

Table 2. Water quality data - summer sampling

Summer sampling	Date	pH Field	Temp Field (oC)	TSS (mg/l)	Nitrate (mg/l)	Nitrite (mg/l)	Total BOD (mg/l)	Ammonia Nitrogen (mg/l)	Ortho Phosphorus (mg/l as P)	T-Phos (mg/l as P)	F. Coliforms (Col./100ml)	E. Coli (Colo./100ml)	Enterococci (Col./100ml)
Control Site Upstream (E256694)	31-Aug-10	8.16	11.2	13	0.06	0.004		0.04	0.02	0.04	6	4	4
	7-Sep-10	7.92	11.5	15	0.08	0.004		0.04	0.02	0.04	2	0.9	0.9
	14-Sep-10	8.1	11.1	11	0.08	0.004		0.04	0.02	0.04	15	6	6
	22-Sep-10	8.12	8.6	26	0.07	0.004		0.04	0.02	0.04	21	15	34
	29-Sep-10	8.14	9.1	1010	0.07	0.004		0.04	0.02	0.35	4	3	300
	Average	**8.09**	**10.30**	**215.0**	**0.07**	**0.00**		**0.04**	**0.02**	**0.10**	**9.60**	**5.78**	**68.98**
	Geometric Mean	**8.09**	**10.23**	**35.5**	**0.07**	**0.00**		**0.04**	**0.02**	**0.06**	**6.85**	**3.96**	**11.71**
	Max	**8.16**	**11.5**	**1010.0**	**0.08**	**0.004**		**0.04**	**0.02**	**0.35**	**21**	**15**	**300**
	Min	**7.92**	**8.6**	**11.0**	**0.06**	**0.004**		**0.04**	**0.02**	**0.04**	**2**	**0.9**	**0.9**
Effluent (E256696)	31-Aug-10	7.54	18.9	4	11.8	0.190	3.9	1.53	0.16	0.36	0.9	0.9	0.9
	7-Sep-10	7.43	15.8	7	6.74	0.231	3.9	1.03	0.11	0.35	0.9	0.9	0.9
	14-Sep-10	7.75	16.2	4	4.18	0.017	3.9	0.11	0.16	0.36	30	1	1
	22-Sep-10	7.65	19.1	0.9	13.4	0.282	3.9	0.14	0.26	0.36	6	0.9	0.9
	29-Sep-10	7.39	15.4	8	18.8	0.029	3.9	0.15	0.26	0.38	0.9	0.9	0.9
	Average	**7.55**	**17.08**	**4.78**	**10.984**	**0.1498**	**3.9**	**0.592**	**0.190**	**0.362**	**7.74**	**0.92**	**0.92**
	Geometric Mean	**7.6**	**17.0**	**3.8**	**9.7**	**0.1**	**3.9**	**0.3**	**0.2**	**0.4**	**2.7**	**0.9**	
	Max	**7.75**	**19.1**	**8**	**18.8**	**0.282**	**3.9**	**1.53**	**0.26**	**0.38**	**30**	**1**	**1**
	Min	**7.39**	**15.4**	**0.9**	**4.18**	**0.017**	**3.9**	**0.11**	**0.11**	**0.35**	**0.9**	**0.9**	**0.9**
Columbia River Side Channel (E258899)	31-Aug-10	8.09	12.8	16	0.04	0.004		0.04	0.02	0.04	11	3	3
	7-Sep-10	7.81	12.4	8	0.08	0.004		0.04	0.02	0.04	5	2	2
	14-Sep-10	8.07	12.6	3	0.05	0.004		0.04	0.02	0.04	8	22	22
	22-Sep-10	8.02	9.8	12	0.06	0.004		0.04	0.02	0.04	10	9	26
	29-Sep-10	8.14	11.5	351	0.06	0.004		0.040	0.03	0.13	5	5	22
	Average	**8.03**	**11.82**	**78**	**0.058**	**0.004**		**0.04**	**0.022**	**0.058**	**7.8**	**8.2**	**15**
	Geometric Mean	**8.0**	**11.8**	**17.4**	**0.1**	**0.0**		**0.0**	**0.0**	**0.1**	**7.4**	**5.7**	**9.5**
	Max	**8.14**	**12.8**	**351**	**0.08**	**0.004**		**0.04**	**0.03**	**0.13**	**11**	**22**	**26**
	Min	**7.81**	**9.8**	**3**	**0.04**	**0.004**		**0.04**	**0.02**	**0.04**	**5**	**2**	**2**
Columbia River Downstream E258898	31-Aug-10	8.23	9.9	2	0.08	0.004		0.04	0.01	0.04	9	0.9	0.9
	7-Sep-10	8.02	10.4	4	0.11	0.004		0.04	0.02	0.04	6	0.9	0.9
	14-Sep-10	8.16	10.3	10	0.1	0.004		0.04	0.02	0.04	13	0.9	0.9
	22-Sep-10	8.24	7.5	17	0.1	0.004		0.04	0.02	0.04	2	2	9
	29-Sep-10	8.15	8.3	1770	0.08	0.004		0.04	0.02	0.48	4	3	2
	Average	**8.16**	**9.28**	**360.6**	**0.09**	**0.004**		**0.04**	**0.018**	**0.128**	**6.8**	**1.54**	**2.7**
	Geometric Mean	**8.16**	**9.20**	**18.89**	**0.09**	**0.00**		**0.04**	**0.02**	**0.07**	**5.62**	**1.34**	**1.67**
	Max	**8.24**	**10.4**	**1770**	**0.11**	**0.004**		**0.04**	**0.02**	**0.48**	**13**	**3**	**9**
	Min	**8.02**	**7.5**	**2**	**0.08**	**0.004**		**0.04**	**0.01**	**0.04**	**2**	**0.9**	**0.9**
BC Approved Water Quality Guidelines													
Drinking water		6.5 - 8.5	15?	na	10	1	na	na	na	na	<1	<1	<3
Aquatic Life (freshwater)		na	15	25	200max <=40avg	0.06max< = 0.02 (chloride< 2mg/l)	na	avg(1.11-1.81) max(4.61-23.5)	na	na	na	na	na
Recreational (primary)		na	na	na	10	1 max	na	na	na	na	200	77	20
Effleunt quality exceedances		<6 & >9		45			45		0.5	1	200		

Dealing with results below the detection limit

In these reporting tables the reported value is one significant digit less than the detection limit [i.e. "less than 2" becomes "1.9"]. Because of how geometric mean is calculated, the precise substitution value generally does not appreciably affect the result of the calculation, and ensuring that all the data remains usable

APPENDIX B – LABORATORY ANALYSIS REPORTS

CORIX Utilities
East Kootenay Environmental Laboratory

Box 36, 2120 Toby Creek Road
Panorama, BC V0A 1T0
Ph (250) 341-6194
Fax (250) 341-6249

Client: Kicking Horse Mountain Resort Sanitary
Address: Sewer Services Ltd.
City: Golden, BC
Tel: (250) 344-6003
Fax: (250) 344-7441

Sample: Wastewater
Samples Received: January 26, 2010
Storage: 3.0°C in the dark
Analysis completed: February 1, 2010
Analyst: S.Lancaster

Sample Results:

Sample ID:	Plant Effluent
Date/Time sampled:	26/01/2010 @ 11:30
Field Temperature (C°)	11.0
Lab pH	7.21
TSS (mg/L)	17
BOD (mg/L)	15
FC (cfu/100 mL)	48

Methods:

According to Standard Methods for the Examination of Water and Wastewater 20th ed.

TSS - Gravimetric
Total BOD - (5 day) DO Meter
Total phosphorous, Ammonia - Colorimetric
Fecal *Coliforms, E.coli, Enterococci* - Membrane Filtration

Notes:

est. = Estimated Coliform Count
FC = Fecal Coliforms
TNTC = Too Numerous To Count

corix Utilities
East Kootenay Environmental Laboratory

Box 36, 2120 Toby Creek Road
Panorama, BC V0A 1T0
Ph (250) 341-6194
Fax (250) 341-6249

Client: Kicking Horse Mountain Resort Sanitary
Address: Sewer Services Ltd.
City: Golden, BC
Tel: (250) 344-6003
Fax: (250) 344-7441

Sample: Wastewater
Samples Received: March 17, 2010
Storage: 3.0°C in the dark
Analysis completed: March 24, 2010
Analyst: S.Lancaster

Sample Results:

Sample ID:	Upstream River	Downstream River	River Side-Channel	Plant Effluent
Date/Time sampled:	03/17/2010 @ 08:10	03/17/2010 @ 08:20	03/17/2010 @ 07:50	03/17/2010 @ 07:30
Field Temperature (C°)	3.2	3.3	3.6	13.1
Lab pH	8.17	8.00	7.93	7.44
TSS (mg/L)	13	8	7	7
BOD (mg/L)	-	-	-	6
FC (cfu/100 mL)	<1	<1	<1	<1
E.coli (cfu/100mL)	<1	<1	<1	<1
Enterococci (cfu/100mL)	<1	<1	<1	<1
Total PO_4 as P (mg/L)	0.02	0.03	0.02	0.30
Ortho-PO_4 as P (mg/L)	0.01	0.01	0.01	0.02
NO3 - N (mg/L)	0.02	0.16	0.09	0.02
NO2 - N (mg/L)	0.03	0.01	<0.01	0.49
NH3-N (mg/L)	0.001	0.008	0.014	48.7

Methods:

According to Standard Methods for the Examination of Water and Wastewater 20th ed.

TSS - Gravimetric
Total BOD - (5 day) DO Meter
Total phosphorous, Ammonia - Colorimetric
Fecal *Coliforms, E.coli, Enterococci* - Membrane Filtration

Notes:

est. = Estimated Coliform Count
TNTC = Too Numerous To Count
FC = Fecal Coliforms

corix Utilities
East Kootenay Environmental Laboratory

Box 36, 2120 Toby Creek Road
Panorama, BC V0A 1T0
Ph (250) 341-6194
Fax (250) 341-6249

Client: Kicking Horse Mountain Resort Sanitary Sewer Services Ltd.
Address:
City: Golden, BC
Tel: (250) 344-6003
Fax: (250) 344-7441

Sample: Wastewater
Samples Received: March 25, 2010
Storage: 3.0°C in the dark
Analysis completed: March 30, 2010
Analyst: S.Lancaster

Sample Results:

Sample ID: / Date/Time sampled:	Upstream River 03/25/2010 @ 08:00	Downstream River 03/25/2010 @ 08:10	River Side-Channel 03/25/2010 @ 07:50	Plant Effluent 03/25/2010 @ 07:30
Field Temperature (C°)	5.4	4.1	5.0	11.8
Lab pH	7.76	8.22	8.22	7.49
TSS (mg/L)	13	7	8	8
BOD (mg/L)	-	-	-	15
FC (cfu/100 mL)	<1	1	1	5
E.coli (cfu/100mL)	<1	1	1	6
Enterococci (cfu/100mL)	<1	1	2	<1
Total PO_4 as P (mg/L)	0.03	0.03	0.02	0.05
Ortho-PO_4 as P (mg/L)	0.02	0.01	0.01	0.02
NO3 - N (mg/L)	0.02	0.03	0.03	0.16
NO2 - N (mg/L)	0.01	<0.01	0.01	0.32
NH3-N (mg/L)	0.028	0.032	0.043	32.8

Methods:

According to Standard Methods for the Examination of Water and Wastewater 20th ed.

TSS - Gravimetric
Total BOD - (5 day) DO Meter
Total phosphorous, Ammonia - Colorimetric
Fecal *Coliforms, E.coli, Enterococci* - Membrane Filtration

Notes:

est. = Estimated Coliform Count
FC = Fecal Coliforms
TNTC = Too Numerous To Count

CORIX Utilities
East Kootenay Environmental Laboratory

Box 36, 2120 Toby Creek Road
Panorama, BC V0A 1T0
Ph (250) 341-6194
Fax (250) 341-6249

Client: Kicking Horse Mountain Resort Sanitary
Address: Sewer Services Ltd.
City: Golden, BC
Tel: (250) 344-6003
Fax: (250) 344-7441

Sample: Wastewater
Samples Received: March 31, 2010
Storage: 3.0°C in the dark
Analysis completed: April 5, 2010
Analyst: S.Lancaster

Sample Results:

Sample ID: / Date/Time sampled:	Upstream River 03/31/2010 @ 08:15	Downstream River 03/31/2010 @ 08:25	River Side-Channel 03/31/2010 @ 08:00	Plant Effluent 03/31/2010 @ 07:40
Field Temperature (C°)	6.1	5.5	6.3	13.1
Lab pH	8.00	8.07	8.03	7.25
TSS (mg/L)	14	10	7	6
BOD (mg/L)	-	-	-	11
FC (cfu/100 mL)	<1	<1	<1	<1
E.coli (cfu/100mL)	<1	<1	<1	2
Enterococci (cfu/100mL)	<1	<1	<1	<1
Total PO_4 as P (mg/L)	0.02	0.02	0.02	0.30
Ortho-PO_4 as P (mg/L)	0.01	0.01	0.01	0.10
NO3 - N (mg/L)	0.04	0.05	0.06	0.12
NO2 - N (mg/L)	0.01	0.01	<0.01	0.03
NH3-N (mg/L)	0.052	0.036	0.056	40.6

Methods:

According to Standard Methods for the Examination of Water and Wastewater 20th ed.

TSS - Gravimetric
Total BOD - (5 day) DO Meter
Total phosphorous, Ammonia - Colorimetric
Fecal *Coliforms, E.coli, Enterococci* - Membrane Filtration

Notes:

est. = Estimated Coliform Count
FC = Fecal Coliforms
TNTC = Too Numerous To Count

corix Utilities
East Kootenay Environmental Laboratory

Box 36, 2120 Toby Creek Road
Panorama, BC V0A 1T0
Ph (250) 341-6194
Fax (250) 341-6249

Client: Kicking Horse Mountain Resort Sanitary
Address: Sewer Services Ltd.
City: Golden, BC
Tel: (250) 344-6003
Fax: (250) 344-7441

Sample: Wastewater
Samples Received: April 07, 2010
Storage: 3.5°C in the dark
Analysis completed: April 12, 2010
Analyst: S.Lancaster

Sample Results:

Sample ID: / Date/Time sampled:	Upstream River 04/07/2010 @ 08:10	Downstream River 04/07/2010 @ 08:15	River Side-Channel 04/07/2010 @ 07:55	Plant Effluent 04/07/2010 @ 07:35
Field Temperature (C°)	5.7	6.3	6.3	11.9
Lab pH	8.21	8.21	8.21	7.38
TSS (mg/L)	2	1	2	4
BOD (mg/L)	-	-	-	<5
FC (cfu/100 mL)	<1	2	3	<1
E.coli (cfu/100mL)	4	4	4	<1
Enterococci (cfu/100mL)	<1	<1	<1	<1
Total PO_4 as P (mg/L)	0.01	0.01	0.01	0.10
Ortho-PO_4 as P (mg/L)	0.01	<0.01	0.01	0.03
NO3 - N (mg/L)	0.16	0.09	0.11	1.00
NO2 - N (mg/L)	<0.01	0.01	<0.01	0.03
NH3-N (mg/L)	0.016	0.019	0.020	36.7

Methods:

According to Standard Methods for the Examination of Water and Wastewater 20th ed.

TSS - Gravimetric
Total BOD - (5 day) DO Meter
Total phosphorous, Ammonia - Colorimetric
Fecal *Coliforms, E.coli, Enterococci* - Membrane Filtration

Notes:

est. = Estimated Coliform Count
FC = Fecal Coliforms
TNTC = Too Numerous To Count

CORIX Utilities
East Kootenay Environmental Laboratory

Box 36, 2120 Toby Creek Road
Panorama, BC V0A 1T0
Ph (250) 341-6194
Fax (250) 341-6249

Client: Kicking Horse Mountain Resort Sanitary Sewer Services Ltd.
Address:
City: Golden, BC
Tel: (250) 344-6003
Fax: (250) 344-7441

Sample: Wastewater
Samples Received: April 14, 2010
Storage: 3.5°C in the dark
Analysis completed: April 19, 2010
Analyst: S.Lancaster

Sample Results:

Sample ID: / Date/Time sampled:	Upstream River 04/14/2010 @ 07:30	Downstream River 04/14/2010 @ 08:00	River Side-Channel 04/14/2010 @ 07:40	Plant Effluent 04/14/2010 @ 07:30
Field Temperature (C°)	5.7	6.3	6.3	11.8
Lab pH	8.15	8.16	8.14	7.29
TSS (mg/L)	16	2	2	4
BOD (mg/L)	-	-	-	<5
FC (cfu/100 mL)	<1	2	4	<1
E.coli (cfu/100mL)	2	<1	8	<1
Enterococci (cfu/100mL)	<1	<1	4	<1
Total PO_4 as P (mg/L)	0.05	0.05	0.06	0.29
Ortho-PO_4 as P (mg/L)	0.01	0.01	0.01	0.02
NO3 - N (mg/L)	0.08	0.08	0.07	1.1
NO2 - N (mg/L)	0.02	<0.01	0.01	0.04
NH3-N (mg/L)	0.030	0.030	0.039	28.3

Methods:

According to Standard Methods for the Examination of Water and Wastewater 20th ed.

TSS - Gravimetric
Total BOD - (5 day) DO Meter
Total phosphorous, Ammonia - Colorimetric
Fecal *Coliforms, E.coli, Enterococci* - Membrane Filtration

Notes:

est. = Estimated Coliform Count
TNTC = Too Numerous To Count
FC = Fecal Coliforms

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**760220**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A176247
	Box 36	Name:	EMS Summer Week #1	Date Received:	Sep 1, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 8, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1354110
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

Reference Number	760220-1
Sample Date	Aug 31, 2010
Sample Time	08:00
Sample Location	
Sample Description	UV chamber / WWTP Effluent / 7.1C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Biochemical Oxygen Demand	5 Day	mg/L	<4			4

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**760220**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A176247
	Box 36	Name:	EMS Summer Week #1	Date Received:	Sep 1, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 8, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1354110
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

Reference Number	760220-4
Sample Date	Aug 31, 2010
Sample Time	09:05
Sample Location	
Sample Description	River / River downstream / 7.1C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	<0.05			0.05
Phosphorus	Total	mg/L	<0.05			0.05
Orthophosphate-P	Dissolved	mg/L	0.01			0.01
Microbiological Analysis						
Fecal Streptococci/Enterococci	Membrane Filtration	CFU/100 mL	9			
Fecal Coliforms	Membrane Filtration	CFU/100 mL	<1			1
Escherichia coli	Membrane Filtration	CFU/100 mL	<1			1
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	2			1
Routine Water						
pH			8.23			
Temperature of observed pH		°C	19.7			
Nitrate - N		mg/L	0.08			0.01
Nitrite - N		mg/L	<0.005			0.005
Nitrate and Nitrite - N		mg/L	0.08			0.01

Approved by:

Michael Yohemas, BSc
Laboratory Operations Manager

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**761190**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A144414
	Box 36	Name:	EMS Summer Week #2	Date Received:	Sep 8, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 15, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1355726
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:					
Company:	Corix				

Reference Number	761190-1
Sample Date	Sep 07, 2010
Sample Time	07:35
Sample Location	
Sample Description	UV chamber / WWTP Effluent
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Biochemical Oxygen Demand	5 Day	mg/L	<4			4

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**761190**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A144414
	Box 36	Name:	EMS Summer Week #2	Date Received:	Sep 8, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 15, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1355726
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:					
Company:	Corix				

		Reference Number	761190-1	761190-2	761190-3	
		Sample Date	Sep 07, 2010	Sep 07, 2010	Sep 07, 2010	
		Sample Time	07:35	07:55	08:15	
		Sample Location				
		Sample Description	UV chamber / WWTP Effluent	River / River side channel	River / River upstream	
		Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	1.03	<0.05	<0.05	0.05
Phosphorus	Total	mg/L	0.35	<0.05	<0.05	0.05
Orthophosphate-P	Dissolved	mg/L	0.11	0.02	0.02	0.01
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	7	8	15	1
Routine Water						
pH			7.43	7.81	7.92	
Temperature of observed pH		°C		17.8	17.6	
Nitrate - N		mg/L	6.74	0.08	0.08	0.01
Nitrite - N		mg/L	0.231	<0.005	<0.005	0.005
Nitrate and Nitrite - N		mg/L	6.97	0.08	0.08	0.01

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**761190**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A144414
	Box 36	Name:	EMS Summer Week #2	Date Received:	Sep 8, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 15, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1355726
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:					
Company:	Corix				

		Reference Number	761190-4			
		Sample Date	Sep 07, 2010			
		Sample Time	08:25			
		Sample Location				
		Sample Description	River / River downstream			
		Matrix	Water			
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	<0.05			0.05
Phosphorus	Total	mg/L	<0.05			0.05
Orthophosphate-P	Dissolved	mg/L	0.02			0.01
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	4			1
Routine Water						
pH			8.02			
Temperature of observed pH		°C	17.5			
Nitrate - N		mg/L	0.11			0.01
Nitrite - N		mg/L	<0.005			0.005
Nitrate and Nitrite - N		mg/L	0.11			0.01

Approved by: Bonnie Garbutt

Bonnie Garbutt
Microbiology Team Leader

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**761734**
Report To:	Corix Utilities	ID:	EMS Week #2 Re-Sample	Control Number:	A176246
	Box 36	Name:		Date Received:	Sep 10, 2010
	2120 Toby Creek Rd	Location:	KHMR	Date Reported:	Sep 13, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1356467
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

		Reference Number	761734-1	761734-2	761734-3	
		Sample Date	Sep 09, 2010	Sep 09, 2010	Sep 09, 2010	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	WWTP Effluent / 7.1C	River - Side Channel / 7.1C	River - Upstream / 7.1C	
		Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Microbiological Analysis						
Fecal Streptococci/Enterococci	Membrane Filtration	CFU/100 mL	<1	5	2	
Fecal Coliforms	Membrane Filtration	CFU/100 mL	<1	2	<1	1
Escherichia coli	Membrane Filtration	CFU/100 mL	<1	2	<1	1

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**761734**
Report To:	Corix Utilities	ID:	EMS Week #2 Re-Sample	Control Number:	A176246
	Box 36	Name:		Date Received:	Sep 10, 2010
	2120 Toby Creek Rd	Location:	KHMR	Date Reported:	Sep 13, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1356467
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

Reference Number	761734-4
Sample Date	Sep 09, 2010
Sample Time	NA
Sample Location	
Sample Description	River - Downstream / 7.1C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Microbiological Analysis						
Fecal Streptococci/Enterococci	Membrane Filtration	CFU/100 mL	6			
Fecal Coliforms	Membrane Filtration	CFU/100 mL	1			1
Escherichia coli	Membrane Filtration	CFU/100 mL	1			1

Approved by: Bonnie Garbutt

Bonnie Garbutt
Microbiology Team Leader

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**762478**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A175711
	Box 36	Name:	EMS Week #3	Date Received:	Sep 15, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 21, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1357719
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

Reference Number	762478-1
Sample Date	Sep 14, 2010
Sample Time	NA
Sample Location	
Sample Description	UV chamber / WWTP Effluent / 9.2C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Biochemical Oxygen Demand	5 Day	mg/L	<4			4

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**762478**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A175711
	Box 36	Name:	EMS Week #3	Date Received:	Sep 15, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 21, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1357719
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

		Reference Number	762478-1	762478-2	762478-3	
		Sample Date	Sep 14, 2010	Sep 14, 2010	Sep 14, 2010	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	UV chamber / WWTP Effluent / 9.2C	River / River side channel / 9.2C	River / River upstream / 9.2C	
		Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	0.11	<0.05	<0.05	0.05
Phosphorus	Total	mg/L	0.36	<0.05	<0.05	0.05
Orthophosphate-P	Dissolved	mg/L	0.16	0.02	0.02	0.01
Microbiological Analysis						
Fecal Streptococci/Enterococci	Membrane Filtration	CFU/100 mL	30	8	15	
Fecal Coliforms	Membrane Filtration	CFU/100 mL	1	22	6	1
Escherichia coli	Membrane Filtration	CFU/100 mL	1	22	6	1
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	4	3	11	1
Routine Water						
pH			7.75	8.07	8.10	
Temperature of observed pH		°C		22.6	23.3	
Nitrate - N		mg/L	4.18	0.05	0.08	0.01
Nitrite - N		mg/L	0.017	<0.005	<0.005	0.005
Nitrate and Nitrite - N		mg/L	4.19	0.05	0.08	0.01

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**762478**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A175711
	Box 36	Name:	EMS Week #3	Date Received:	Sep 15, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 21, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1357719
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

Reference Number	762478-4
Sample Date	Sep 14, 2010
Sample Time	NA
Sample Location	
Sample Description	River / River downstream / 9.2C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	<0.05			0.05
Phosphorus	Total	mg/L	<0.05			0.05
Orthophosphate-P	Dissolved	mg/L	0.02			0.01
Microbiological Analysis						
Fecal Streptococci/Enterococci	Membrane Filtration	CFU/100 mL	13			
Fecal Coliforms	Membrane Filtration	CFU/100 mL	<1			1
Escherichia coli	Membrane Filtration	CFU/100 mL	<1			1
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	10			1
Routine Water						
pH			8.16			
Temperature of observed pH		°C	23.0			
Nitrate - N		mg/L	0.10			0.01
Nitrite - N		mg/L	<0.005			0.005
Nitrate and Nitrite - N		mg/L	0.10			0.01

Approved by: Bonnie Garbutt

Bonnie Garbutt
Microbiology Team Leader

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**763946**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A175725
	Box 36	Name:	EMS Week #4	Date Received:	Sep 23, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 30, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1360009
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

Reference Number	763946-1
Sample Date	Sep 22, 2010
Sample Time	NA
Sample Location	
Sample Description	UV chamber / WWTP Effluent / 5.1C
Matrix	Water

Analyte	Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents					
Biochemical Oxygen Demand 5 Day	mg/L	<4			4

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To: Corix Utilities
Report To: Corix Utilities
Box 36
2120 Toby Creek Rd
Panorama, BC, Canada
V0A 1T0
Attn: Sheree Lancaster
Sampled By: MW
Company: Corix

Project:
ID: Kicking Horse Mt. Resort
Name: EMS Week #4
Location:
LSD:
P.O.:
Acct code:

Lot ID: **763946**
Control Number: A175725
Date Received: Sep 23, 2010
Date Reported: Sep 30, 2010
Report Number: 1360009

		Reference Number	763946-1	763946-2	763946-3	
		Sample Date	Sep 22, 2010	Sep 22, 2010	Sep 22, 2010	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	UV chamber / WWTP Effluent / 5.1C	River / River side channel / 5.1C	River / River upstream / 5.1C	
		Matrix	Water	Water	Water	
Analyte		**Units**	**Results**	**Results**	**Results**	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	0.14	<0.05	<0.05	0.05
Phosphorus	Total	mg/L	0.36	<0.05	<0.05	0.05
Orthophosphate-P	Dissolved	mg/L	0.26	0.02	0.02	0.01
Microbiological Analysis						
Fecal Streptococci/Enterococci	Membrane Filtration	CFU/100 mL	<1	26	34	
Fecal Coliforms	Membrane Filtration	CFU/100 mL	6	10	21	1
Escherichia coli	Membrane Filtration	CFU/100 mL	<1	9	15	1
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	<1	12	26	1
Routine Water						
pH			7.65	8.02	8.12	
Temperature of observed pH		°C		19.4	19.3	
Nitrate - N		mg/L	13.4	0.06	0.07	0.01
Nitrite - N		mg/L	0.282	<0.005	<0.005	0.005
Nitrate and Nitrite - N		mg/L	13.6	0.06	0.07	0.01

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**763946**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A175725
	Box 36	Name:	EMS Week #4	Date Received:	Sep 23, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Sep 30, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1360009
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	MW				
Company:	Corix				

Reference Number	763946-4
Sample Date	Sep 22, 2010
Sample Time	NA
Sample Location	
Sample Description	River / River downstream / 5.1C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	<0.05			0.05
Phosphorus	Total	mg/L	<0.05			0.05
Orthophosphate-P	Dissolved	mg/L	0.02			0.01
Microbiological Analysis						
Fecal Streptococci/Enterococci	Membrane Filtration	CFU/100 mL	9			
Fecal Coliforms	Membrane Filtration	CFU/100 mL	2			1
Escherichia coli	Membrane Filtration	CFU/100 mL	2			1
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	17			1
Routine Water						
pH			8.24			
Temperature of observed pH		°C	19.5			
Nitrate - N		mg/L	0.10			0.01
Nitrite - N		mg/L	<0.005			0.005
Nitrate and Nitrite - N		mg/L	0.10			0.01

Approved by: Bonnie Garbutt

Bonnie Garbutt
Microbiology Team Leader

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**765249**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A175787
	Box 36	Name:	EMS Week #5	Date Received:	Sep 30, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Oct 6, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1361967
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	Matt Wornardt				
Company:	Corix				

Reference Number	765249-1
Sample Date	Sep 29, 2010
Sample Time	07:30
Sample Location	
Sample Description	WWTP Effluent / 6.1C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Aggregate Organic Constituents						
Biochemical Oxygen Demand	5 Day	mg/L	<4			4

Exova
Bay #5, 2712-37 Avenue N.E.
Calgary, Alberta
T1Y-5L3, Canada

T: +1 (403) 291-2022
F: +1 (403) 291-2021
E: Calgary@exova.com
W: www.exova.com

Exova

Analytical Report

Bill To:	Corix Utilities	Project:		Lot ID:	**765249**
Report To:	Corix Utilities	ID:	Kicking Horse Mt. Resort	Control Number:	A175787
	Box 36	Name:	EMS Week #5	Date Received:	Sep 30, 2010
	2120 Toby Creek Rd	Location:		Date Reported:	Oct 6, 2010
	Panorama, BC, Canada	LSD:		Report Number:	1361967
	V0A 1T0	P.O.:			
Attn:	Sheree Lancaster	Acct code:			
Sampled By:	Matt Wornardt				
Company:	Corix				

Reference Number	765249-4
Sample Date	Sep 29, 2010
Sample Time	08:10
Sample Location	
Sample Description	River / River downstream / 6.1C
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	<0.05			0.05
Phosphorus	Total	mg/L	0.48			0.05
Orthophosphate-P	Dissolved	mg/L	0.02			0.01
Microbiological Analysis						
Fecal Streptococci/Enterococci	Membrane Filtration	CFU/100 mL	2			
Fecal Coliforms	Membrane Filtration	CFU/100 mL	4			1
Escherichia coli	Membrane Filtration	CFU/100 mL	3			1
Physical and Aggregate Properties						
Solids	Total Suspended	mg/L	1770			1
Routine Water						
pH			8.15			
Temperature of observed pH		°C	21.0			
Nitrate - N		mg/L	0.08			0.01
Nitrite - N		mg/L	<0.005			0.005
Nitrate and Nitrite - N		mg/L	0.08			0.01

Approved by:

Randy Neumann, BSc
General Manager