

Report Transmission Cover Page

Bill To: J. Gibson & Associates	Project:	Lot ID: 1162078
Report To: J. Gibson & Associates	ID: Rockhaven Resources	Control Number: C0059181
Box 20913	Name: Klaza	Date Received: Sep 21, 2016
Whitehorse, YT, Canada	Location: Groundwater	Date Reported: Sep 28, 2016
Y1A 6P2	LSD:	Report Number: 2133990
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

Contact & Affiliation	Address	Delivery Commitments
John Gibson J. Gibson & Associates	Box 20913, Whitehorse, Yukon Territory Y1A 6P2 Phone: (867) 633-4522 Fax: (867) 668-6895 Email: ludditegibson@gmail.com	On [Lot Verification] send (COA) by Email - Single Report On [Report Approval] send (COC, Test Report) by Email - Merge Reports On [Report Approval] send (Test Report) by Email - Single Report On [Lot Approval and Final Test Report Approval] send (Invoice) by Email - Single Report On [Lot Creation] send (COR) by Email - Single Report

Notes To Clients:

- Reduction of analytical volume was necessary for Trace Metals analysis to bring results within the analytical range for samples #1162078-1 and 2. Detection limits are adjusted accordingly.

Analytical Report

Bill To: J. Gibson & Associates
 Report To: J. Gibson & Associates
 Box 20913
 Whitehorse, YT, Canada
 Y1A 6P2
 Attn: John Gibson
 Sampled By: J. Gibson
 Company:

Project:
 ID: Rockhaven Resources
 Klaza
 Name: Groundwater
 Location:
 LSD:
 P.O.:
 Acct code:

Lot ID: **1162078**
 Control Number: C0059181
 Date Received: Sep 21, 2016
 Date Reported: Sep 28, 2016
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Reference Number	1162078-1	1162078-2	1162078-3
Sample Date	Sep 18, 2016	Sep 19, 2016	Sep 19, 2016
Sample Time	14:15	18:10	14:10
Sample Location	Groundwater	Groundwater	Groundwater
Sample Description	MW15-02S / 1.92 / m	MW15-03S / 3.19 / m	MW15-04S / 3.91 / m

Analyte	Matrix	Units	Water	Water	Water	Nominal Detection Limit
Inorganic Nonmetallic Parameters						
Ammonium - N		mg/L	0.064	<0.025	<0.025	0.025
Kjeldahl Nitrogen	Total	mg/L	1.71	0.40	0.35	0.07
Phosphorus	Total	mg/L	0.21	0.13	<0.05	0.05
Orthophosphate-P	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Organic Carbon	Dissolved Nonpurgeable	mg/L	4.0	3.2	6.0	0.5
Metals Total						
Calcium	Total	mg/L	26.9	57.2	67.6	0.01
Magnesium	Total	mg/L	6.25	9.20	17.1	0.02
Potassium	Total	mg/L	4.6	2.2	1.1	0.04
Silicon	Total	mg/L	9.29	7.22	6.25	0.005
Sulfur	Total	mg/L	15.0	17.3	8.9	0.02
Sodium	Total	mg/L	6.93	2.54	4.17	0.1
Titanium	Total	mg/L	0.656	0.072	0.024	0.002
Mercury	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Physical and Aggregate Properties						
Solids	Total Dissolved	mg/L	230	314	280	5
Routine Water						
Nitrate and Nitrite - N		mg/L	0.57	0.49	0.31	0.01
Acidity	titrate to pH of 8.3	mg/L as CaCO3	54	38	14	5
pH - Holding Time			Exceeded	Exceeded	Exceeded	
pH	at 25 °C		6.31	7.08	7.55	
Electrical Conductivity		µS/cm at 25 C	219	465	410	1
Calcium	Dissolved	mg/L	26.5	83.0	64.8	0.01
Magnesium	Dissolved	mg/L	6.0	12.6	16.3	0.02
Potassium	Dissolved	mg/L	6.1	1.6	1.1	0.04
Silicon	Dissolved	mg/L	8.04	4.49	5.23	0.005
Sodium	Dissolved	mg/L	6.7	3.3	3.5	0.1
Sulfur	Dissolved	mg/L	14.2	24.2	8.5	0.02
Bicarbonate		mg/L	73	210	238	5
Carbonate		mg/L	<6	<6	<6	6
Hydroxide		mg/L	<5	<5	<5	5
P-Alkalinity	as CaCO3	mg/L	<5	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	60	172	195	5
Chloride	Dissolved	mg/L	0.79	0.49	0.28	0.05
Fluoride	Dissolved	mg/L	<0.01	<0.01	0.06	0.01

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Analyte	Matrix	Units	Results	Results	Results	Nominal Detection Limit
Routine Water - Continued						
Sulfate (SO4)	Dissolved	mg/L	38.0	65.1	22.2	0.5
Hardness	as CaCO3 (dissolved)	mg/L	91	259	229	5
Trace Metals Dissolved						
Digestion	Dissolved		Field Filtered	Field Filtered	Field Filtered	
Titanium	Dissolved	mg/L	0.099	0.015	0.011	0.002
Aluminum	Dissolved	mg/L	0.1091	0.007074	0.002589	0.001
Antimony	Dissolved	mg/L	0.000255	0.000536	0.000438	0.00002
Arsenic	Dissolved	mg/L	0.0025	0.0003	0.0002	0.0001
Barium	Dissolved	mg/L	0.4078	0.0541	0.1031	0.0001
Beryllium	Dissolved	mg/L	<0.000050	<0.000050	<0.000050	0.00005
Bismuth	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Dissolved	mg/L	0.004	0.003	0.002	0.002
Cadmium	Dissolved	mg/L	0.005838	0.000404	0.000462	0.00001
Chromium	Dissolved	mg/L	0.001543	0.000070	<0.000050	0.00005
Cobalt	Dissolved	mg/L	0.001928	0.000320	0.000064	0.00002
Copper	Dissolved	mg/L	0.0088	0.0030	0.0012	0.0005
Iron	Dissolved	mg/L	0.336	0.057	<0.002	0.002
Lead	Dissolved	mg/L	0.002586	0.000056	0.000030	0.00001
Lithium	Dissolved	mg/L	0.0022	0.0021	0.0031	0.0005
Manganese	Dissolved	mg/L	1.01	0.092	0.009	0.001
Molybdenum	Dissolved	mg/L	0.000283	0.000388	0.000413	0.00002
Nickel	Dissolved	mg/L	0.0038	0.0012	<0.0002	0.0002
Selenium	Dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Dissolved	mg/L	0.1353	0.2535	0.2434	0.0001
Tellurium	Dissolved	mg/L	<0.000050	<0.000050	<0.000050	0.00005
Thallium	Dissolved	mg/L	0.000011	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.000050	<0.000050	<0.000050	0.00005
Tin	Dissolved	mg/L	0.0003	0.0003	0.0004	0.0001
Uranium	Dissolved	mg/L	0.000151	0.007196	0.005619	0.00001
Vanadium	Dissolved	mg/L	0.000400	<0.000050	<0.000050	0.00005
Zinc	Dissolved	mg/L	4.321	0.1930	0.0158	0.0005
Zirconium	Dissolved	mg/L	0.0006	<0.0001	<0.0001	0.0001
Trace Metals Total						
Aluminum	Total	mg/L	0.478	1.82	0.394	0.001
Antimony	Total	mg/L	0.00045	0.00087	0.00063	0.00002

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Analyte	Matrix	Units	Results	Results	Results	Nominal Detection Limit
Trace Metals Total - Continued						
Arsenic	Total	mg/L	0.0047	0.0068	0.0011	0.0001
Barium	Total	mg/L	0.453	0.129	0.135	0.0001
Beryllium	Total	mg/L	<0.00005	0.00017	<0.00005	0.00005
Bismuth	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Boron	Total	mg/L	0.003	0.003	0.003	0.002
Cadmium	Total	mg/L	0.0147	0.00110	0.00148	0.00001
Chromium	Total	mg/L	0.00377	0.00307	0.00163	0.00005
Cobalt	Total	mg/L	0.00223	0.00082	0.00039	0.00002
Copper	Total	mg/L	0.0162	0.0106	0.0044	0.0002
Iron	Total	mg/L	0.917	5.69	0.648	0.002
Lead	Total	mg/L	0.00833	0.00877	0.00179	0.00001
Lithium	Total	mg/L	0.0025	0.0030	0.0035	0.0005
Manganese	Total	mg/L	1.05	0.101	0.048	0.001
Molybdenum	Total	mg/L	0.000292	0.000557	0.000660	0.00002
Nickel	Total	mg/L	0.0042	0.0024	0.0015	0.0002
Selenium	Total	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Silver	Total	mg/L	0.000180	0.00231	0.000097	0.00001
Strontium	Total	mg/L	0.129	0.169	0.234	0.0001
Tellurium	Total	mg/L	<0.000050	<0.000050	<0.000050	0.00005
Thallium	Total	mg/L	0.000029	0.000076	0.000014	0.00001
Thorium	Total	mg/L	0.000103	0.000651	0.000065	0.00005
Tin	Total	mg/L	0.001	0.0018	0.0031	0.0001
Uranium	Total	mg/L	0.000236	0.00513	0.00551	0.00001
Vanadium	Total	mg/L	0.00121	0.00314	0.000900	0.00005
Zinc	Total	mg/L	3.58	0.435	0.0267	0.0005
Zirconium	Total	mg/L	0.0022	0.0005	<0.0001	0.0001

Approved by: 
 Mathieu Simoneau
 Operations Manager

Methodology and Notes

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Y1A 6P2	LSD:	Report Number: 2133990
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Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Acidity in water (Surrey)	APHA	* Acidity - Titration Method, 2310 B	27-Sep-16	Exova Surrey
Alk, pH, EC, Turb in water (Surrey)	APHA	* Alkalinity - Titration Method, 2320 B	24-Sep-16	Exova Surrey
Alk, pH, EC, Turb in water (Surrey)	APHA	* Conductivity, 2510 B	24-Sep-16	Exova Surrey
Alk, pH, EC, Turb in water (Surrey)	APHA	* pH - Electrometric Method, 4500-H+ B	24-Sep-16	Exova Surrey
Ammonium-N in Water	APHA	* Automated Phenate Method, 4500-NH3 G	26-Sep-16	Exova Edmonton
Anions (Routine) by Ion Chromatography	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	27-Sep-16	Exova Edmonton
Anions by IEC in water (Surrey)	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	24-Sep-16	Exova Surrey
Carbon Organic (Dissolved) in water (DOC)	APHA	High-Temperature Combustion Method, 5310 B	27-Sep-16	Exova Edmonton
Filtration of water for dissolved analysis	APHA	* Filtration for Dissolved and Suspended Metals / Total Organic Carbon, 3030 B / 5310 A	27-Sep-16	Exova Edmonton
Mercury Low Level (Total) in water (Surrey)	EPA	* Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	24-Sep-16	Exova Surrey
Metals SemiTrace (Dissolved) in water (Surrey)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	23-Sep-16	Exova Surrey
Metals SemiTrace (Total) in Water (Surrey)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	22-Sep-16	Exova Surrey
Orthophosphate-P in Water	APHA	* Automated Ascorbic Acid Reduction Method, 4500-P F	27-Sep-16	Exova Edmonton
Phosphorus - Total in Water	APHA	* Automated Ascorbic Acid Reduction Method, 4500-P F	26-Sep-16	Exova Edmonton
Solids Dissolved (Total, Fixed and Volatile) - Surrey	APHA	* Total Dissolved Solids Dried at 180 C, 2540 C	23-Sep-16	Exova Surrey
Total and Kjeldahl Nitrogen (Total) in Water	ISO	* Water Quality - Determination of nitrogen, ISO/TR 11905-2	27-Sep-16	Exova Edmonton
Trace Metals (dissolved) in Water (Surrey)	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	23-Sep-16	Exova Surrey
Trace Metals (dissolved) in Water (Surrey)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	23-Sep-16	Exova Surrey
Trace Metals (Total) in Water (Surrey)	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	22-Sep-16	Exova Surrey
Trace Metals (Total) in Water (Surrey)	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	22-Sep-16	Exova Surrey

* Reference Method Modified

References

APHA	Standard Methods for the Examination of Water and Wastewater
EPA	Environmental Protection Agency Test Methods - US
ISO	International Organization for Standardization
US EPA	US Environmental Protection Agency Test Methods

Methodology and Notes

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Company:		Acct code:			

References

APHA	Standard Methods for the Examination of Water and Wastewater
EPA	Environmental Protection Agency Test Methods - US
ISO	International Organization for Standardization
US EPA	US Environmental Protection Agency Test Methods

Comments:

- Reduction of analytical volume was necessary for Trace Metals analysis to bring results within the analytical range for samples #1162078-1 and 2. Detection limits are adjusted accordingly.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

Project Information

Project ID: RECREATION RESOURCES
 Project Name: KLAZA
 Project Location: GROUND H2O
 Legal Location: GROUND H2O
 PO/AFE#: _____
 Proj. Acct. Code: _____
 Quote #: _____

Invoice to:
 Company: J. Gibson & Associates
 Address: Box 20913
Whitehorse, YT Y1A 6P2
 Attention: John Gibson
 Phone: (867) 633-4522
 Cell: _____
 Fax: (867) 668-6895
 E-mail: ludditegibson@gmail.com
 Agreement ID: 6645
 Copy of report: X

Report To:
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 Address: Box 20913
Whitehorse, YT Y1A 6P2
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 Fax: (867) 668-6895
 E-mail 1: ludditegibson@gmail.com
 E-mail 2: _____
 Copy of invoice: _____

Report Results	Regulatory Requirement
E-Mail	HCDWQG
Mail	Ab Tier 1
Online	SPIGEC
Fax	BCCSR
PDF	Other (list below)
Excel	
QA/QC	

Sample Custody (please print)
 Sampled by: J Gibson
 Company: _____

This section for Lab use only
 Date/Time stamp: RECEIVED
SEP 21 2016

RUSH Priority

Emergency (contact lab for turnaround and pricing)
 Priority 1-2 working days (100% surcharge)
 Urgent 2-3 working days (50% surcharge)

When "ASAP" is requested, turn around will default to a 100% RUSH priority, with pricing and turn around time to match. Please contact the lab prior to submitting RUSH samples. If not all samples require RUSH, please indicate in the special instructions.

Date Required: _____ Signature: _____

Special Instructions/Comments (please include contact information including ph. # if different from above).

RUSH = PH, EC, TDS, DOC, OH, TALK, ACIDITY
NUT = NH3, NO3, NO2, O-PO4, P, SO4, FL, CL

Number of Containers

<u>R CITEN</u>	<u>NUTRIENTS</u>	<u>NH4</u>	<u>TKN</u>	<u>TW24</u>	<u>TW23-F</u>	<u>THG</u>
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Enter tests above (✓ relevant samples below)

Site I.D.	Sample Description	Depth start end in cm m	Date/Time Sampled	Matrix	Sampling Method													
1																		
2	<u>MW15-02 S</u>	<u>1.92</u>	<u>SEPT 18 @ 1415</u>	<u>H2O</u>	<u>PTG</u>	<u>8</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
3																		
4	<u>MW15-03 S</u>	<u>3.19</u>	<u>SEPT 19 @ 1810</u>	<u>H2O</u>	<u>PTG</u>	<u>8</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
5																		
6	<u>MW15-04 S</u>	<u>3.91</u>	<u>SEPT 19 @ 1410</u>	<u>H2O</u>	<u>PTG</u>	<u>7</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
7																		
8	<u>IF POSSIBLE, ALSO DO NUTRIENTS - SOMEY MISSED A BOTTLE.</u>																	
9																		
10																		
11																		
12																		
13	<u>NOTES: TW23 FILTRATED METALS + NITRIC</u>																	
14	<u>TAQ + TKN (1) + HCL</u>																	
15	<u>NH4 + SULFURIC</u>																	

Indicate in the space allotted any deficiencies by the corresponding number.

1. Indicate any samples that were not packaged well
2. Indicate any samples not received in Exova supplies
3. Indicate any samples that were not clearly labeled
4. Indicate any samples not received within the required hold time or temp.
5. Indicate any missing or extra samples
6. Indicate any samples that were received broken
7. Indicate any samples where sufficient volume was not received
8. Indicate any samples received in an inappropriate container

Submission of this form acknowledges acceptance of Exova's Standard Terms and Conditions (<http://www.exova.com/about/terms-and-conditions/>)

Please indicate any potentially hazardous samples

Page 1 of 1 Control # **C 0059181**

Lot: 1162078 COC



Shipping: COD Y/ N
 # and size of coolers
 Temp. received: 9.5°C
 Delivery Method: Courier
 Waybill:
 Received by: GR