Appendix F.3

Field Activities Report Beaver Dam Mine Project - November 8, 2018
Completed for the Updated 2021 Beaver Dam Mine EIS

November 8, 2018 Reference No. 088664-20

James Millard
Manager Environment and Permitting
Atlantic Gold Corporation
6749 Moose River Road, RR#2
Middle Musquodoboit NS B0N 1X0

Via email: jmillard@atlanticgoldcorporation.com

Dear Mr. Millard:

Re: Field Activities Report - Beaver Dam Mine Project, Marinette, Nova Scotia

1. Introduction

GHD Limited (GHD) is pleased to provide this report on GHD's field activities completed for the proposed Beaver Dam Mine Project, Marinette, Nova Scotia (Site) during the period of March 29 and June 27, 2018. The monitoring well drilling, installation and associated groundwater investigation was undertaken to assist with data collection to support the ongoing Environmental Assessment (EA) process for the Site.

The monitoring well drilling and installation program consisted of drilling 49 nested monitoring wells. The following letter report details of the monitoring well drilling and installation program, the associated groundwater level monitoring, hydraulic conductivity (k) testing and groundwater quality sampling program. This data and data generated from the ongoing monitoring program will be used for impact assessment and input data for the groundwater and surface water modelling efforts.

2. Site Description

The Beaver Dam Mine Project is located on Beaver Dam Mines Rd. in Marinette, Halifax Regional Municipality (Halifax County), Nova Scotia. The Beaver Dam Mine site will be developed on approximately 145 hectares (ha) of land owned by the Northern Timber Nova Scotia Corporation (Northern Timber). Access to the land for mining purposes will likely be granted by a lease agreement between Northern Timber and Atlantic Gold. Project facilities will occupy approximately 150 ha of this property as shown on Figure 1.

The Beaver Dam Mine Project will consist of the following facilities, including the open pit mine, the waste rock storage area, the crusher site, and supporting buildings and infrastructure. The processing of ore from Beaver Dam gold deposit will occur at the existing Touquoy plant upon completion of mining ore from the Touquoy deposit.

3. Monitoring Well Installation

The drilling program was completed from March 29, 2018 to May 7, 2018 and consisted of drilling and installation of 49 nested monitoring wells as follows:

MW-01A/B/C

MW-02A/B

MW-03A/B/C

MW-04A/B

MW-05A/B/C/D

MW-07A/B/C/D

MW-09A/B/C/D

MW-11A/B/C

MW-12A/B

MW-14A/B/C

MW-16A/B

MW-17A/B/C

MW-18A/B/C

MW-19A/B/C

MW-20A/B

MW-21A/B/C

MW-22A/B/C

Alan Deal, P.Geo, supervised the monitoring well design and overall program. Richard Hollett, B.A, C.Tech provided oversight and direction in the field on behalf of GHD. The monitoring wells were installed by two drill rigs (CME 55 track mount and CME 75 track mount) operated by Logan Geotech Incorporated of Stewiacke, NS. Monitoring wells were installed in an HQ sized borehole. Monitoring well materials consisted of 50 mm diameter PVC threaded pipe and #20 slot PVC well screen. The pipe and screen arrived at the Site factory-wrapped in plastic. These materials were handled only with disposable nitrile gloves after being unwrapped. Silica sand was placed around the screen to a level approximately 0.3 metres above the screen. A bentonite seal was placed above the sand pack to prevent surface runoff from entering the monitoring wells and affecting groundwater conditions. Each monitoring well was capped with a locking J plug and protected with an aboveground protector.

At each nested location, one shallow monitoring well (A) was drilled to intercept the water table or the first saturated conditions encountered. A second, deeper monitoring well (B) was also installed at every monitoring well nest, typically in competent bedrock. A series of deeper wells were installed at a depth of approximately 30.0 m bgs at MW-01C, MW-03C, MW-05D, MW-07D, MW-09D, MW-11C, MW-14C, MW-17C, MW-18C, MW-19C, MW-21C, and MW-22C. These wells are designed to assess more regional groundwater flow patterns in the deeper bedrock and determine the relationship between shallow and deep groundwater. Finally, three additional wells were installed at depths of approximately 60 m bgs at MW-05C, MW-07C, and MW-09C in order to determine deep bedrock conditions in the immediate vicinity of the proposed open pit mine.

The location of the monitoring wells are presented on Figure 1. Table 1 is a summary of the well completion details including coordinates for northings and eastings, ground surface elevation and screen intervals. Monitoring well logs containing information on stratigraphy, rock quality designation (RQD), and monitoring well construction details are included in Attachment 1. Representative photos taken during the drilling program are attached as Attachment 2.

All monitoring locations were surveyed by WSP and supplied in UTM NAD83 CSRS coordinates with elevations provided in both CGVD28 and CGVD2013. Atlantic Mining has used the CGVD28 datum in the past and all elevations of monitoring location data are reported as such.

Biweekly synoptic monitoring of surface water and groundwater elevations began on July 5, 2018. Groundwater elevations were also measured during other investigation tasks (described below). Water levels measured in all available monitoring wells and surface water monitoring locations at the Site are provided in Attachment 3.

4. Well Development

Following installation of the monitoring wells, the newly drilled monitoring wells were developed using dedicated Waterra tubing and an attached foot valve. The purging procedure is intended to promote the collection of representative groundwater samples. Monitoring well development consisted of purging groundwater from the wells in order to remove any water introduced into the borehole during drilling. Well development also removed any silt or clay fines from the wells in order to minimize sediment inside the monitoring well's screen.

5. Hydraulic Conductivity Testing

GHD completed a series of test to determine the hydraulic conductivity of the overburden and bedrock encountered during the investigation.

From May 28, 2018 to June 21, 2018, GHD completed single well response tests or "slug" tests in the newly installed monitoring wells, with the exception of two 60 m deep monitoring wells (MW-07C and MW-09C), as they recovered too slowly.

The slug tests were completed by measuring the static water level in the well, installing a pressure transducer in the well to record changes in the water level and then introducing a solid “slug” of known volume into the well. This caused an instantaneous rise in the water level in the well, which than began to recover or “fall” back to the static water level. Once the recovery was at least 90 percent complete, GHD removed the slug. This caused an instantaneous drop in the water level in the well, which then began to recover or “rise” back to the static water level. Once recovery was complete, GHD removed the transducer and downloaded the data. Data were entered into AQTESOLV, which was used to estimate the hydraulic conductivity of the material surrounding the monitoring well screen.

Table 2 provides a summary of the results of the slug tests. The hydraulic conductivities calculated ranged from 1.1.x 10^{-6} m/sec (MW-18C) to 3.8 x 10^{-2} cm/sec (MW-19A).

Logan and GHD completed packer tests in the core holes drilled for MW-05C, MW-07C, and MW-09C from May 10 through May 17, 2018. A total of thirty (30) tests (10 per well) were carried out during this period. Table 3 provides a summary of the hydraulic conductivities values derived from the packer tests. The hydraulic conductivities calculated ranged from 7.2 x 10^{-8} cm/sec to 2.1 x 10^{-4} cm/sec.

The packer tests were carried out following the Lugeon test method, which consists of isolating a section of the previously drilled borehole using inflatable packers, and injecting water in the rock mass under five (5) steady pressure levels that each last for a period of 10 minutes. The pressure levels successively correspond to 33%, 66%, 100%, 66% and 33% of the maximum test pressure. The maximum test pressure was determined based on the depth of the test, the overburden pressure and the quality of the bedrock. Based on the measured water absorptions during each of the five periods, the type of water flow within the rock mass and its associated hydraulic conductivity were determined.

6. Groundwater and Surface Water Quality Monitoring Program

The groundwater monitoring and sampling program were completed to assess groundwater conditions at the Site prior to commencement of construction activities. All surface water and groundwater samples were submitted to Maxxam Analytics (Maxxam), in Bedford, Nova Scotia for laboratory analysis.. Laboratory certificates are included as Attachment 4.

Surface water samples were collected monthly from October 2014 to August 2015. Seven samples were collected (SW-1, SW-2A, SW-4A, SW-5, SW-6A, SW-9, and SW-10) for the Beaver Dam Mine Site to characterize surface water quality on Site. Prior to sample collection GHD measured the surface water temperature, conductivity, total dissolved solids, dissolved oxygen, and pH. Table 4 provides the surface water quality data.

Groundwater samples were collected from all the newly installed wells from June 18, 2018 to June 27, 2018. A second round of groundwater samples were collected September 12 and 21, 2018. Prior to sample collection, the depth to groundwater was measured using an electronic water level meter. GHD calculated the volume of standing water in each well. The wells were purged using an inertial pump. During purging, GHD measured stabilization parameters (temperature, pH, and conductivity) at 5 L

increments for the shallow wells (A), and 10 L increments for the intermediate/deep wells (B and D). Purging was considered complete when the following stabilization criteria were achieved in three successive measurements:

Parameter	Units	Stabilization Criteria
pH	Standard units	+/- 1
Specific Conductivity	µS/cm	+/- 10%
Temperature	^{0}C	+/- 10%

If the monitoring well went dry, it was allowed to recover until a sufficient volume of groundwater accumulated in the well to permit sample collection.

Prior to sample collection, GHD personnel donned a new pair of disposable nitrile gloves. Laboratory supplied sample bottles were filled directly from the inertial pump tubing. Samples collected for metals analysis were filtered in the field using a 45-micron in-line filter. One blind field duplicate sample was collected for approximately every ten investigative samples. Immediately after sample collection was complete the samples were placed on ice in a cooler.

Groundwater quality data are tabulated in Table 5. The results are not compared to any guidelines or other criteria as the data is baseline only and will be used for future comparisons to compliance values set out in the IA and later to Canada Council of the Ministers of Environment (CCME) and/or Metal Mining Effluent Regulations (MMER) values.

7. Closing

A monitoring well drilling, installation, and groundwater sampling program completed for the proposed Beaver Dam Mine Project in Marinette, Nova Scotia during the period of March 29 and June 27, 2018 to assist with data collection to support the ongoing EA process for the Site.

The drilling program was completed during the period of March 29 and May 7, 2018, GHD staff oversaw the drilling and installation of 49 nested monitoring wells on the proposed Beaver Dam Mine property. The drill rigs (CME 55 track mount and CME 75 track mount) were supplied and operated by Logan Geotech Incorporated of Stewiacke, Nova Scotia.

Fifty-one groundwater samples including five field duplicate samples were collected from the on-Site monitoring wells in June 2018. A second round of groundwater samples was collected in September 2018. The groundwater samples were submitted to the Maxxam for laboratory analysis based on analytical parameters/test requirements typically established by NSE for this type of industrial site.

We trust this report meets your requirements. Should any questions arise, please do not hesitate to contact the undersigned.

Sincerely,

GHD

<Original signed by>

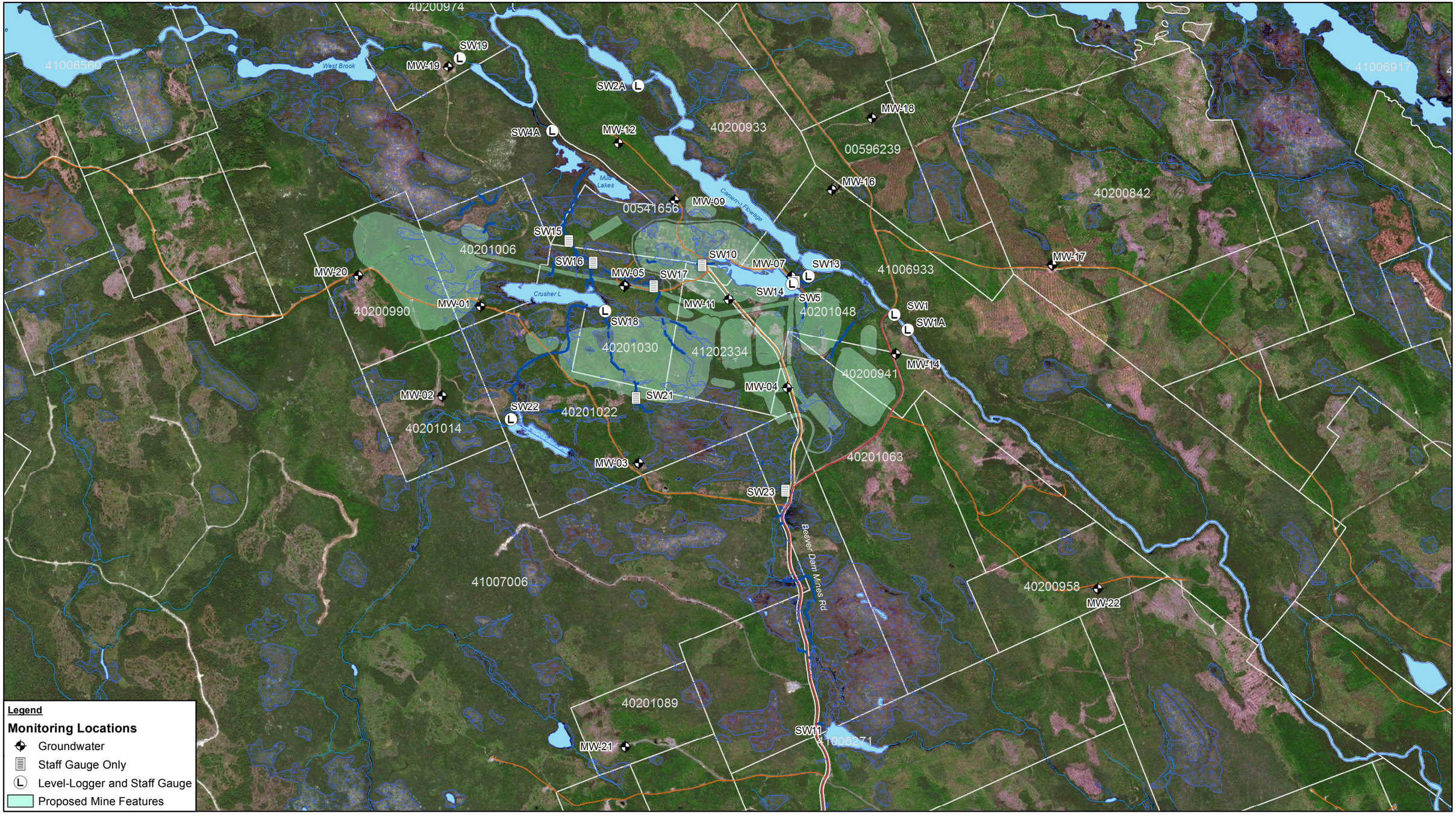
<Original signed by>

Peter Oram, P.Geo.
Senior Environmental Specialist/Hydrogeologist

Alan Deal, P.Geo.
Senior Hydrogeologist

JR/tj/1

Encl.



Source: GHD, Leading Edge Geomatics (Aerial 2015); Service Nova Scotia/ Service Layer Credits: © 2018 Microsoft Corporation © 2018 DigitalGlobe ©CNES (2018) Distribution Airbus DS

0 200 400 600
Meters

Coordinate System:
NAD 1983 CSRS UTM Zone 20N

N

ATLANTIC MINING NS CORP
BEAVER DAM MINE
GROUND WATER MONITORING PROGRAM

088664-20
Nov 7, 2018

MONITORING LOCATIONS

FIGURE 1

GIS File: I:\GIS_DATA\Projects\6-chars\08----\088---\088664 Atlantic BD\088664-CORR\088664-20(MILL001)\088664-20(MILL01)_GIS-DA001.mxd

Table 1: Well Completion Details
Beaver Dam Mine Project Field Activities Report
Marinette, Nova Scotia

	UTM Zone 20 NAD83 CSRS		Installation Date	Unit	Well Depth		Ground Surface Elevation	Stick-up	Top of Casing Elevation	Top of Screen Interval		Bottom of Screen Interval	
Well_ID	Easting	Northing			(m bgs)	(m AMSL)	(m AMSL)	(m ags)	(m AMSL)	(m bgs)	(m AMSL)	(m bgs)	(m AMSL)
MW-01A	520942.252	4990095.110	1-May-18	Shallow	6.30	144.13	150.429	1.121	151.550	1.83	148.599	6.3	144.129
MW-01B	520943.031	4990093.660	4-May-18	Intermediate	15.30	135.31	150.610	0.994	151.604	12.24	138.370	15.3	135.310
MW-01C	520944.122	4990092.462	4-May-18	Deep	30.06	120.59	150.647	1.129	151.776	27.1	123.547	30.2	120.497
MW-02A	520728.778	4989595.501	7-May-18	Shallow	4.72	146.69	151.410	1.064	152.474	1.7	149.730	4.7	146.690
MW-02B	520730.397	4989594.708	7-May-18	Intermediate	15.60	135.84	151.441	1.093	152.534	12.5	138.941	15.6	135.891
MW-03A	521823.117	4989220.163	1-May-18	Shallow	6.32	160.10	166.421	1.015	167.436	3.3	163.141	6.3	160.101
MW-03B	521823.540	4989222.229	1-May-18	Intermediate	15.32	151.05	166.374	1.014	167.388	12.3	154.104	15.3	151.054
MW-03C	521824.051	4989223.934	2-May-18	Deep	30.30	136.03	166.334	1.007	167.341	27.3	139.084	30.3	136.034
MW-04A	522649.993	4989640.335	3-Apr-18	Shallow	5.96	158.70	164.655	0.853	165.508	2.9	161.735	6.0	158.695
MW-04B	522649.439	4989639.523	3-Apr-18	Intermediate	15.53	149.16	164.687	0.869	165.556	12.5	152.197	15.5	149.157
MW-05A	521746.140	4990210.163	25-Apr-18	Shallow	6.10	134.76	140.855	0.826	141.681	1.5	139.355	6.1	134.755
MW-05B	521747.858	4990208.591	24-Apr-18	Intermediate	15.57	125.32	140.894	0.944	141.838	12.5	128.374	15.6	125.324
MW-05C	521745.609	4990207.042	23-Apr-18	Intermediate	60.43	80.52	140.947	0.993	141.940	57.4	83.567	60.4	80.517
MW-05D	521742.062	4990206.839	1-May-18	Deep	30.48	110.87	141.346	1.012	142.358	27.4	113.916	30.5	110.866
MW-07A	522676.986	4990257.899	9-Apr-18	Shallow	7.49	122.97	130.461	0.928	131.389	4.4	126.021	7.5	122.971
MW-07B	522677.763	4990256.675	6-Apr-18	Intermediate	15.49	115.11	130.600	0.943	131.543	12.4	118.160	15.5	115.110
MW-07C	522676.908	4990255.360	19-Apr-18	Intermediate	60.96	69.63	130.588	0.989	131.577	57.9	72.678	61.0	69.628
MW-07D	522674.898	4990259.556	14-May-18		30.48		130.256	1.040	131.296	27.2	103.026	30.5	99.776
MW-09A	522024.415	4990682.566	13-Apr-18	Shallow	7.14	126.75	133.894	1.075	134.969	4.1	129.804	7.1	126.754
MW-09B	522022.788	4990682.720	13-Apr-18	Intermediate	15.39	118.36	133.748	1.040	134.788	12.3	121.408	15.4	118.358
MW-09C	522022.547	4990680.996	12-Apr-18	Intermediate	63.37	70.42	133.791	0.950	134.741	60.3	73.461	63.4	70.421
MW-09D	522023.739	4990684.215	2-May-18	Deep	30.48	103.23	133.705	1.046	134.751	27.43	106.275	30.48	103.225
MW-11A	522324.169	4990130.598	3-Apr-18	Shallow	6.09	141.75	147.844	0.933	148.777	3.04	144.804	6.09	141.754
MW-11B	522325.095	4990132.870	5-Apr-18	Intermediate	15.24	132.48	147.718	0.783	148.501	12.19	135.528	15.24	132.478
MW-11C	522323.713	4990132.377	4-Apr-18	Deep	26.01	121.79	147.795	0.744	148.539	22.96	124.835	26.01	121.785
MW-12A	521711.672	4991000.037	15-Apr-18	Shallow	6.10	141.80	147.903	0.652	148.555	0.91	146.993	6.1	141.803
MW-12B	521710.995	4990999.179	15-Apr-18	Deep	25.83	121.99	147.815	0.721	148.536	22.78	125.035	25.83	121.985
MW-14A	523253.265	4989830.507	26-Apr-18	Shallow	6.10	131.30	137.404	0.977	138.381	1.5	135.904	6.1	131.304
MW-14B	523253.939	4989828.780	26-Apr-18	Deep	26.04	111.40	137.442	1.049	138.491	22.99	114.452	26.04	111.402
MW-14C	523254.933	4989827.886	26-Apr-18	VERY Deep	41.15	96.34	137.486	0.819	138.305	38.1	99.386	41.15	96.336
MW-16A	522898.761	4990744.060	20-Apr-18	Shallow	7.14	146.60	153.744	1.068	154.812	3.5	150.244	7.14	146.604
MW-16B	522898.057	4990742.630	20-Apr-18	Intermediate	15.24	138.53	153.768	1.033	154.801	12.19	141.578	15.24	138.528
MW-17A	524121.346	4990324.445	26-Apr-18	Shallow	4.57	149.94	154.508	0.941	155.449	0.76	153.748	4.57	149.938
MW-17B	524123.059	4990323.426	25-Apr-18	Shallow	9.17	145.24	154.409	1.056	155.465	6.12	148.289	9.17	145.239
MW-17C	524124.712	4990324.229	25-Apr-18	Intermediate	15.44	138.92	154.355	0.894	155.249	12.45	141.905	15.44	138.915

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Marinette, Nova Scotia

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Well_ID	Easting	Northing			(m bgs)	(m AMSL)	(m AMSL)	(m ags)	(m AMSL)	(m bgs)	(m AMSL)	(m bgs)	(m AMSL)
MW-18A	523118.888	4991142.236	20-Apr-18	Shallow	7.62	139.87	147.493	0.971	148.464	4.57	142.923	7.62	139.873
MW-18B	523120.436	4991141.883	24-Apr-18	Intermediate	15.77	131.73	147.496	0.835	148.331	12.72	134.776	15.77	131.726
MW-18C	523121.844	4991141.264	25-Apr-18	Shallow	35.05	112.26	147.313	1.146	148.459	1.5	145.813	35.05	112.263
MW-19A	520765.986	4991427.087	4-May-18	Shallow	4.72	128.87	133.590	0.971	134.561	0.61	132.980	4.72	128.870
MW-19B	520764.377	4991426.125	4-May-18	Intermediate	15.37	118.25	133.619	0.967	134.586	12.32	121.299	15.37	118.249
MW-19C	520762.233	4991425.291	7-May-18	Deep	30.30	103.39	133.692	0.881	134.573	27.25	106.442	30.3	103.392
MW-20A	520263.534	4990264.985	7-May-18	Shallow	7.62	144.49	152.106	1.165	153.271	4.57	147.536	7.62	144.486
MW-20B	520263.490	4990263.750	7-May-18	Intermediate	15.27	136.92	152.194	1.013	153.207	12.22	139.974	15.27	136.924
MW-21A	521749.236	4987642.034	7-May-18	Shallow	6.35	152.22	158.566	0.920	159.486	3.3	155.266	6.35	152.216
MW-21B	521747.935	4987641.733	3-May-18	Intermediate	15.42	143.10	158.518	0.988	159.506	12.37	146.148	15.42	143.098
MW-21C	521749.207	4987639.956	2-May-18	Deep	30.48	127.90	158.384	1.007	159.391	27.43	130.954	30.48	127.904
MW-22A	524377.001	4988520.078	25-Apr-18	Shallow	6.55	132.58	139.130	0.900	140.030	3.51	135.620	6.55	132.580
MW-22B	524377.199	4988521.744	27-Apr-18	Intermediate	15.55	123.60	139.148	0.987	140.135	12.5	126.648	15.55	123.598
MW-22C	524377.504	4988523.209	1-May-18	Deep	29.03	110.10	139.129	0.965	140.094	25.98	113.149	29.03	110.099
SW-1	523246.710	4990047.232					125.308	1.770	127.078				
SW-1A	523321.000	4989964.000											
SW-2A	521821.700	4991319.756					129.205	-0.236	128.969				
SW-4A	521343.751	4991071.233					129.343	-0.018	129.325				
SW-5	522696.387	4990229.101					130.874	-0.353	130.521				
SW-10	522176.584	4990321.015					134.168	-0.316	133.852				
SW-13	522769.824	4990261.347					129.170	-0.450	128.720				
SW-14	522677.366	4990219.104					131.709	-0.188	131.521				
SW-15	521434.000	4990457.000											
SW-16	521570.917	4990336.002					138.069	-0.253	137.816				
SW-17	521906.952	4990205.472					139.893	-0.253	139.640				
SW-18	521637.704	4990067.184					146.236	-0.582	145.654				
SW-19	520827.905	4991473.874					129.133	1.337	130.470				
SW-21	521811.000	4989584.000											
SW-22	521113.269	4989464.177					152.100	-0.886	151.214				
SW-23	522639.881	4989067.980					159.839	-0.170	159.669				

Table 2: Summary of Single-Well Response Test Results

Beaver Dam Mine Project
Marinette, Nova Scotia

Well ID	Screened Material (overburden, weathered bedrock, bedrock)	Analytical Method [1]	Hydraulic Conductivity	
			Falling Head Tests (cm/sec)	Rising Head Tests (cm/sec)
Overburden Monitoring Wells				
MW-02A		Bouwer-Rice	1.8E-03	1.7E-03
MW-12A	overburden	Bouwer-Rice	invalid (water in screen)	8.8E-05
		Dagan	-	8.9E-05
MW-14A	overburden	Bouwer-Rice	9.7E-05	6.1E-05
		Bouwer-Rice	1.2E-04	9.4E-05
MW-17A	overburden	Bouwer-Rice	6.7E-04	2.1E-04
MW-16A	overburden/weathered bedrock/bedrock - graywacke	Bouwer-Rice	7.2E-04	4.9E-04
MW-18C	overburden/weathered bedrock - graywacke	Bouwer-Rice	1.5E-06	1.1E-06
MW-19A	overburden	Bouwer-Rice	invalid (water in screen)	8.5E-03
		Springer-Gelhar	-	1.7E-02
		Dagan	-	7.7E-03
		Bouwer-Rice	invalid (water in screen)	1.1E-02
		Springer-Gelhar	-	3.8E-02
		Dagan	-	9.3E-03
Weathered Bedrock Monitoring Wells				
MW-05A	weathered bedrock/bedrock - graywacke	Bouwer-Rice	invalid (water in screen)	2.6E-04
		Dagan	-	1.7E-04
		Bouwer-Rice	invalid (water in screen)	3.8E-04
		Dagan	-	4.4E-04
MW-09A	weathered bedrock/bedrock - graywacke	Bouwer-Rice	9.8E-05	8.3E-05
MW-17B	weathered upper bedrock - greywacke	Bouwer-Rice	5.0E-03	3.5E-03
		Bouwer-Rice	2.6E-03	2.8E-03
MW-20A	weathered bedrock/bedrock - greywacke	Bouwer-Rice	3.7E-03	4.4E-03
Bedrock Monitoring Wells				
MW-01B	bedrock - greywacke	Bouwer-Rice	2.3E-05	2.5E-05
MW-02B	bedrock - granite	Bouwer-Rice	5.0E-05	4.2E-05
MW-03C	bedrock - greywacke	Bouwer-Rice	5.4E-04	3.6E-04
MW-04A	bedrock - greywacke	Bouwer-Rice	1.0E-02	-
		Springer-Gelhar	-	1.6E-02
MW-04B	bedrock - greywacke	Bouwer-Rice	2.0E-03	1.4E-03
MW-05B	bedrock - greywacke	Bouwer-Rice	9.6E-04	8.2E-04
MW-05C	bedrock - greywacke	Bouwer-Rice	bad test	3.4E-06
MW-05D	bedrock - greywacke	Bouwer-Rice	1.2E-05	1.0E-05
MW-07A	bedrock - greywacke	Bouwer-Rice	5.7E-05	3.0E-03
MW-07B	bedrock - greywacke	Bouwer-Rice	1.3E-05	1.2E-05
MW-07D	-	Bouwer-Rice	3.0E-05	2.9E-05
MW-09B	bedrock - greywacke	Bouwer-Rice	3.0E-06	2.3E-06
MW-09D	bedrock - greywacke	Bouwer-Rice	3.0E-06	2.4E-06
MW-11A	bedrock - greywacke	Bouwer-Rice	2.8E-04	4.6E-03
MW-11B	bedrock - greywacke	Bouwer-Rice	3.2E-05	2.4E-05
MW-11C [4]	bedrock	-	<10-8	
MW-12B	bedrock - greywacke	Bouwer-Rice	8.2E-05	9.4E-05
MW-14B	bedrock - greywacke	Bouwer-Rice	7.7E-06	4.5E-06
MW-14C	bedrock - greywacke	Bouwer-Rice	2.7E-05	1.6E-05
		Bouwer-Rice	5.0E-04	2.3E-05
MW-16B	bedrock - greywacke	Bouwer-Rice	5.1E-05	4.1E-05
MW-17C	bedrock - greywacke	Bouwer-Rice	6.4E-04	4.6E-04
MW-18A	bedrock - greywacke	Bouwer-Rice	4.7E-03	3.6E-03
MW-18B	bedrock - greywacke	Bouwer-Rice	7.0E-05	3.7E-05
MW-19C	bedrock - greywacke	Bouwer-Rice	3.7E-04	3.3E-04
MW-21A	bedrock - greywacke	Bouwer-Rice	3.4E-04	3.9E-04
MW-21B	bedrock - greywacke	Bouwer-Rice	9.3E-05	4.5E-05
MW-22B	bedrock - greywacke	Bouwer-Rice	1.8E-04	1.3E-04
MW-22C	bedrock - greywacke	Bouwer-Rice	5.0E-05	4.2E-05

Notes:

(1) Bouwer, H., and R.C. Rice, 1976. A Slug Test Method for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, Water Resources Research, vol. 12, no. 3, pp.423-428.
Dagan, G., 1978. A Note on Packer, Slug, and Recovery Tests in Unconfined Aquifers, Water Resources Research, vol. 14, no. 5, pp. 929-934.
Springer, R.K., and L.W. Gelhar, 1991. Characterization of Large-Scale Aquifer Heterogeneity in Glacial Outwash by Analysis of Slug Tests with Oscillatory Response, Cape Cod, Massachusetts,
U.S.G.S. Water Resources Investigation Report 91-4034, pp. 36-40.

Falling head slug tests are considered invalid when the water level is within the screened interval.
(2) The Dagan (1978) analytical solution is typically used when the water level is within the screened interval.
(3) Data was not suitable for analysis or considered anomalous.
(4) Barometric effects were too large to determine hydraulic conductivity; however, recovery is on the order of several days to weeks (thus K<10-8 cm/sec)

Table 3: Summary of Packer Test Results
Beaver Dam Mine Project
Marinette, Nova Scotia

MW-05C			MW-07C			MW-09C		
Depth of Packers (m)	Hydraulic Conductivity (cm/s)	Type	Depth of Packers (m)	Hydraulic Conductivity (cm/s)	Type	Depth of Packers (m)	Hydraulic Conductivity (cm/s)	Type
0.9 - 4	5.0E-05	laminar	4.3 - 7.3	2.1E-04	laminar	7 - 10.1	1.3E-05	laminar
4 - 7	8.3E-06	void-filling	7.3 - 10.4	1.3E-04	turbulent	10.1 - 13.1	2.7E-05	laminar
7 - 10.1	4.3E-05	wash-out	11.6 - 14.6	4.6E-05	turbulent	13.1 - 16.2	5.5E-07	dilation
10.1 - 13.1	3.8E-05	laminar	14.6 - 17.7	3.3E-07	turbulent	16.2 - 19.2	1.7E-07	turbulent
13.1 - 16.2	8.2E-05	turbulent	17.7 - 20.7	7.4E-06	turbulent	19.2 - 22.3	1.1E-06	turbulent
16.2 - 19.2	1.6E-05	wash-out	23.8 - 26.8	4.3E-06	turbulent	25.3 - 28.3	3.5E-07	laminar
37.5 - 40.5	6.8E-07	turbulent	29.9 - 32.9	4.4E-07	turbulent	31.4 - 34.4	4.5E-07	laminar
43.6 - 46.6	2.3E-07	laminar	42.1 - 45.1	2.2E-06	turbulent	40.5 - 43.6	7.2E-08	turbulent
46.6 - 49.7	7.9E-08	turbulent	45.1 - 48.2	2.8E-06	dilatation	49.7 - 52.7	1.2E-06	dilation
55.8 - 58.8	1.0E-06	turbulent	54.3 - 57.3	2.0E-05	turbulent	58.8 - 61.9	4.2E-07	dilation

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

TABLE 4A: SW-1 General Chemistry Results

		CCME FAL	MMER	SW-1									
Sampling Date				**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Calculated Parameters	**Units**							SW-1D (DUP)					
Anion Sum	me/L			0.140	0.170	0.100	0.120	0.120	0.060	0.0900	0.0800	0.0800	0.100
Bicarb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Calculated TDS	mg/L			14	16	10	12	13	6	8.0	9.0	10	12
Carb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L			0.290	0.290	0.190	0.210	0.210	0.110	0.160	0.170	0.180	0.230
Hardness (CaCO3)	mg/L			5.5	5.0	3.3	3.5	3.5	1.6	2.6	2.9	3.3	4.0
Ion Balance (% Difference)	%			34.9	26.1	31.0	27.3	27.3	29.4	28.0	36.0	38.5	39.4
Langelier Index (@ 20C)	N/A			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Langelier Index (@ 4C)	N/A			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Nitrate (N)	mg/L	**2.935**		<0.050	0.061	<0.050	0.087	0.080	0.052	<0.050	0.062	0.051	<0.050
Saturation pH (@ 20C)	N/A			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Saturation pH (@ 4C)	N/A			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Inorganics													
Total Alkalinity (Total as CaCO3)	mg/L			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Chloride (Cl)	mg/L			5.1	5.8	3.4	4.0	4.2	1.9	3.1	2.6	2.8	3.7
Colour	TCU			150	160	99	83	100	85	110	170	160	230
Nitrate + Nitrite	mg/L			<0.050	0.061	<0.050	0.087	0.080	0.052	<0.050	0.062	0.051	<0.050
Nitrite (N)	mg/L	**0.06**		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	**Varies**[(1)]		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.10	<0.050	<0.050	<0.050
Total Organic Carbon (C)	mg/L			13	18	8.2	7.0	7.5	6.3	7.5	12	12	11 (1)
Orthophosphate (P)	mg/L			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	pH	**6.5-9**	**6-9.5**	5.55	4.59	5.23	4.87	4.91	5.19	5.85	6.00	5.57	5.59
Reactive Silica (SiO2)	mg/L			2.5	3.9	2.7	3.8	4.0	1.9	1.1	2.1	2.6	3.2
Dissolved Sulphate (SO4)	mg/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU			1.1	0.64	0.59	0.62	0.69	0.76	1.1	1.2	1.1	1.2
Conductivity	uS/cm			30	33	25	27	27	14	16	17	18	21
Total Suspended Solids				-	-	-	-	-	-	-	-	-	-
Field Parameters													
Temperature	°C			15.57	8	4.2	0.16	-	3.62	19.14	19.69	19.90	-
Conductivity	µS/cm			39	36	26.7	25	-	16	22	24	-	-
Total Dissolved Solids	g/L			0.031	0.035	-	0.029	-	-	-	-	-	-
Dissolved Oxygen	mg/L	**5.5-9.5**[(2)]		9.99	14.31	13.32	37.9	-	14.97	10.63	9.6	-	-
pH		**6.5-9**	**6-9.5**	3.97	2.63	4.1	2.89	-	6.48	5.25	5.49	5.3	-

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Ammonia guideline dependent on temperature and pH, *e.g.* , if T = 10°C, guideline for total ammonia-N varies from 83.88 mg/L at pH = 6.0 to 0.02 mg/L at pH = 10 (see CCME Fact Sheet).

(2) Dissolved oxygen - lowest acceptable concentration ranges from 5.5 mg/L for warm water biota at other life stages to 9.5 mg/L for cold water biota at early life stages (see CCME Summary Table).

- denotes not analyzed

NC = not calculated

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4B: SW-1 Metals Results

		CCME FAL	MMER	SW-1									
Sampling Date				**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Metals	**Units**							SW-1D (DUP)					
Total Aluminum (Al)	ug/L	**5 / 100**[(1)]		330	320	220	200	200	140	190	280	280	400
Total Antimony (Sb)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Arsenic (As)	ug/L	**5.0**	**1000**	2.7	1.5	1.3	<1.0	<1.0	<1.0	2.6	2.5	3.7	1.3
Total Barium (Ba)	ug/L			5.8	5.6	3.1	3.3	3.4	1.7	2.4	3.0	3.2	4.6
Total Beryllium (Be)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Bismuth (Bi)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Boron (B)	ug/L	**1500**		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	**0.04 - 0.37**[(2)]		0.024	0.029	0.023	0.012	0.022	0.012	<0.010	0.028	0.014	0.022
Total Calcium (Ca)	ug/L			1200	1100	780	720	740	350	630	690	790	770
Total Chromium (Cr)	ug/L			<1.0	<1.0	<1.0	1.6	<1.0	<1.0	3.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L			0.51	0.52	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.53
Total Copper (Cu)	ug/L	**2 - 4**[(3)]	**600**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Iron (Fe)	ug/L	**300**		670	630	330	350	340	240	360	580	750	1000
Total Lead (Pb)	ug/L	**1 - 7**[(4)]	**400**	0.51	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.54	<0.50	0.57
Total Magnesium (Mg)	ug/L			590	560	330	400	410	170	240	290	310	420
Total Manganese (Mn)	ug/L			79	68	41	51	53	27	31	37	43	58
Total Mercury (Hg)	ug/L	**0.026**		<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.015	<0.013	<0.013	0.032
Total Molybdenum (Mo)	ug/L	**73**		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Nickel (Ni)	ug/L	**25 - 150**[(5)]	**1000**	<2.0	<2.0	<2.0	<2.0	2.6	<2.0	<2.0	<2.0	<2.0	<2.0
Total Phosphorus (P)	ug/L			<100	<100	<100	<100	<100	<100	<100	150	170	140
Total Potassium (K)	ug/L			570	550	380	380	370	330	340	170	210	170
Total Selenium (Se)	ug/L	**1**		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Silver (Ag)	ug/L	**0.1**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Sodium (Na)	ug/L			3100	3000	2100	2300	2400	1200	1800	1900	1900	2300
Total Strontium (Sr)	ug/L			11.0	10	5.8	6.3	6.6	2.9	4.6	5.9	6.3	7.4
Total Thallium (Tl)	ug/L	**0.8**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Tin (Sn)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Titanium (Ti)	ug/L			3.8	3.2	3.3	2.4	2.2	3.2	2.7	3.7	3.7	5.0
Total Uranium (U)	ug/L	**15**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L			<2.0	2.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Zinc (Zn)	ug/L	**30**	**1000**	5.0	5.1	7.8	<5.0	<5.0	<5.0	6.8	<5.0	<5.0	<5.0

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Aluminum guideline dependent on pH. Guideline is 5 ug/L if pH <6.5 and 100 ug/L if pH ≥ 6.5 (see CCME Summary Table).

(2) Cadmium guideline (updated for 2014) (µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.46\}}$ for hardness between 17-280 mg/L $CaCO_3$ or a lower limit of 0.04 ug/L for hardness < 17mg/L or an upper limit of 0.37 ug/L for hardness >280 mg/L (see CCME Fact Sheet).

(3) Copper guideline based on sample hardness: copper guideline (µg/L) = $e^{0.8545[\ln(\text{hardness})]-1.465} * 0.2$ for hardness ≥82 to ≤180 mg/L, or a lower limit of 2 µg/L for hardness <82 mg/L and an upper limit of 4 µg/L for hardness >180 mg/L (see CCME Summary Table).

(4) Lead guideline based on sample hardness: lead guideline (µg/L) = $e^{1.273[\ln(\text{hardness})]-4.705}$ for hardness >60 to ≤180 mg/L, or a lower limit of 1 µg/L for hardness <60 mg/L and an upper limit of 7 µg/L for hardness >180 mg/L (see CCME Summary Table).

(5) Nickel guideline based on sample hardness: nickel guideline (µg/L) = $e^{0.76[\ln(\text{hardness})]+1.06}$ for hardness >60 to ≤180 mg/L, or a lower limit of 25 µg/L for hardness <60 mg/L and an upper limit of 150 µg/L for hardness >180 mg/L (see CCME Summary Table).

- denotes not analyzed

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4C: SW-2A General Chemistry Results

		CCME FAL	MMER	SW-2A										
Sampling Date				**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Calculated Parameters	**Units**						SW-2AD (DUP)				SW-2AD (DUP)			
Anion Sum	me/L			0.150	0.180	0.100	0.110	0.130	0.0500	0.0900	0.0900	0.0800	0.0800	0.100
Bicarb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Calculated TDS	mg/L			14	17	10	10	13	6.0	7.0	7.0	8.0	9.0	12
Carb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L			0.290	0.300	0.180	0.180	0.210	0.110	0.140	0.140	0.160	0.180	0.220
Hardness (CaCO3)	mg/L			5.1	4.9	2.9	2.8	3.4	1.4	2.1	2.0	2.6	2.9	3.6
Ion Balance (% Difference)	%			31.8	25.0	28.6	24.1	23.5	37.5	21.7	21.7	33.3	38.5	37.5
Langelier Index (@ 20C)	N/A			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Langelier Index (@ 4C)	N/A			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Nitrate (N)	mg/L	**2.935**		0.11	0.065	<0.050	<0.050	0.079	<0.050	<0.050	<0.050	0.055	<0.050	<0.050
Saturation pH (@ 20C)	N/A			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Saturation pH (@ 4C)	N/A			NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Inorganics														
Total Alkalinity (Total as CaCO3)	mg/L			<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Chloride (Cl)	mg/L			5.0	6.3	3.6	3.8	4.2	1.6	3.1	3.1	2.8	2.8	3.7
Colour	TCU			160	160	100	100	110	96	120	120	170	180	230
Nitrate + Nitrite	mg/L			0.11	0.065	<0.050	<0.050	0.079	<0.050	<0.050	<0.050	0.055	<0.050	<0.050
Nitrite (N)	mg/L	**0.06**		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	**Varies**[(1)]		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.052	<0.050	<0.050	<0.050	0.084
Total Organic Carbon (C)	mg/L			14	19	8.9	9.1	7.4	5.5	7.9	8.1	12	13	14 (1)
Orthophosphate (P)	mg/L			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	pH	**6.5-9**	**6-9.5**	5.06	4.54	4.88	4.75	4.75	5.08	5.59	5.36	5.29	5.26	5.16
Reactive Silica (SiO2)	mg/L			2.7	3.9	2.8	2.7	3.7	1.9	1.1	1.1	1.9	2.6	3.2
Dissolved Sulphate (SO4)	mg/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU			1.1	0.50	0.59	0.23	0.70	0.29	1.5	1.4	0.99	0.97	1.9
Conductivity	uS/cm			31	33	25	25	28	13	16	15	17	19	21
Total Suspended Solids				-	-	-	-	-	-	-	-	-	-	-
Field Parameters														
Temperature	°C			13.57	7.89	4.2	-	0.27	3.34	20.64	-	18.81	21.2	-
Conductivity	µS/cm			38	37	27.4	-	25	16	23	-	24	-	-
Total Dissolved Solids	g/L			0.031	0.036	-	-	0.03			-		-	-
Dissolved Oxygen	mg/L	**5.5-9.5**[(2)]		8.97	13.07	12.88	-	36.14	15.35	9.91	-	9.18	-	-
pH		**6.5-9**	**6-9.5**	4.09	3.08	3.75	-	3.56	6.53	4.63	-	4.00	4.94	-

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Ammonia guideline dependent on temperature and pH, *e.g.* , if T = 10°C, guideline for total ammonia-N varies from 83.88 mg/L at pH = 6.0 to 0.02 mg/L at pH = 10 (see CCME Fact Sheet).

(2) Dissolved oxygen - lowest acceptable concentration ranges from 5.5 mg/L for warm water biota at other life stages to 9.5 mg/L for cold water biota at early life stages (see CCME Summary Table).

- denotes not analyzed

NC = not calculated

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4D: SW-2A Metals Results

		CCME FAL	MMER	SW-2A										
Sampling Date				**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Metals	**Units**						SW-2AD (DUP)	.			SW-2AD (DUP)			
Total Aluminum (Al)	ug/L	**5 / 100**[(1)]		330	340	210	210	210	140	190	190	280	300	400
Total Antimony (Sb)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Arsenic (As)	ug/L	**5.0**	**1000**	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	1.1	<1.0	1.5	1.3
Total Barium (Ba)	ug/L			5.6	5.8	3.2	3.0	3.3	1.6	2.2	2.2	3.0	3.5	4.6
Total Beryllium (Be)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Bismuth (Bi)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Boron (B)	ug/L	**1500**		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	**0.04 - 0.37**[(2)]		0.026	0.028	0.017	0.017	0.013	<0.010	0.013	0.013	0.012	0.017	0.022
Total Calcium (Ca)	ug/L			1100	1000	640	590	680	290	470	460	580	620	770
Total Chromium (Cr)	ug/L			1.4	1.6	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L			0.49	0.58	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.53
Total Copper (Cu)	ug/L	**2 - 4**[(3)]	**600**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Iron (Fe)	ug/L	**300**		740	700	360	350	340	260	410	400	590	820	1000
Total Lead (Pb)	ug/L	**1 - 7**[(4)]	**400**	0.78	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.55	0.62	0.57
Total Magnesium (Mg)	ug/L			570	570	320	310	410	160	220	210	280	330	420
Total Manganese (Mn)	ug/L			77	71	43	42	51	25	27	27	35	40	58
Total Mercury (Hg)	ug/L	**0.026**		<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	0.013	<0.013	<0.013	0.035
Total Molybdenum (Mo)	ug/L	**73**		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Nickel (Ni)	ug/L	**25 - 150**[(5)]	**1000**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Phosphorus (P)	ug/L			<100	110	<100	<100	<100	<100	<100	<100	150	170	140
Total Potassium (K)	ug/L			600	600	370	340	380	330	290	290	160	200	170
Total Selenium (Se)	ug/L	**1**		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Silver (Ag)	ug/L	**0.1**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Sodium (Na)	ug/L			3100	3100	2100	2000	2400	1200	1600	1600	1900	1900	2300
Total Strontium (Sr)	ug/L			11.0	9.5	5.6	5.2	6.6	3.0	4.1	3.9	5.0	6.3	7.4
Total Thallium (Tl)	ug/L	**0.8**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Tin (Sn)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Titanium (Ti)	ug/L			4.2	3.8	2.6	2.6	2.2	3.2	2.0	2.4	3.6	4.6	5.0
Total Uranium (U)	ug/L	**15**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L			<2.0	2.5	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Zinc (Zn)	ug/L	**30**	**1000**	6.9	6.2	5.5	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Aluminum guideline dependent on pH. Guideline is 5 ug/L if pH <6.5 and 100 ug/L if pH ≥ 6.5 (see CCME Summary Table).

(2) Cadmium guideline (updated for 2014) (µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.46\}}$ for hardness between 17-280 mg/L $CaCO_3$ or a lower limit of 0.04 ug/L for hardness < 17mg/L or an upper limit of 0.37 ug/L for hardness >280 mg/L (see CCME Fact Sheet).

(3) Copper guideline based on sample hardness: copper guideline (µg/L) = $e^{0.8545[\ln(\text{hardness})]-1.465} * 0.2$ for hardness ≥82 to ≤180 mg/L, or a lower limit of 2 µg/L for hardness <82 mg/L and an upper limit of 4 µg/L for hardness >180 mg/L (see CCME Summary Table).

(4) Lead guideline based on sample hardness: lead guideline (µg/L) = $e^{1.273[\ln(\text{hardness})]-4.705}$ for hardness >60 to ≤180 mg/L, or a lower limit of 1 µg/L for hardness <60 mg/L and an upper limit of 7 µg/L for hardness >180 mg/L (see CCME Summary Table).

(5) Nickel guideline based on sample hardness: nickel guideline (µg/L) = $e^{0.76[\ln(\text{hardness})]+1.06}$ for hardness >60 to ≤180 mg/L, or a lower limit of 25 µg/L for hardness <60 mg/L and an upper limit of 150 µg/L for hardness >180 mg/L (see CCME Summary Table).

- denotes not analyzed

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4E: SW-4A General Chemistry Results

		CCME FAL	MMER	SW-4A									
Sampling Date				**9-Oct-14**	**13-Nov-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Calculated Parameters	**Units**					SW-4AD (DUP)		No Sample					
Anion Sum	me/L			0.150	0.180	0.180	0.110		0.0400	0.110	0.0700	0.0700	0.110
Bicarb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
Calculated TDS	mg/L			15	16	16	11		6.0	9.0	8.0	9.0	12
Carb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L			0.300	0.300	0.300	0.200		0.120	0.180	0.170	0.190	0.230
Hardness (CaCO3)	mg/L			5.9	5.6	5.6	3.5		1.6	3.1	3.0	3.6	3.9
Ion Balance (% Difference)	%			33.3	25.0	25.0	29.0		50.0	24.1	41.7	46.2	35.3
Langelier Index (@ 20C)	N/A			NC	NC	NC	NC		NC	NC	NC	NC	NC
Langelier Index (@ 4C)	N/A			NC	NC	NC	NC		NC	NC	NC	NC	NC
Nitrate (N)	mg/L	**2.935**		0.093	0.062	<0.050	<0.050		<0.050	<0.050	0.064	<0.050	<0.050
Saturation pH (@ 20C)	N/A			NC	NC	NC	NC		NC	NC	NC	NC	NC
Saturation pH (@ 4C)	N/A			NC	NC	NC	NC		NC	NC	NC	NC	NC
Inorganics													
Total Alkalinity (Total as CaCO3)	mg/L			<5.0	<5.0	<5.0	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Chloride (Cl)	mg/L			5.0	6.2	6.4	3.9		1.3	3.8	2.2	2.6	3.7
Colour	TCU			120	130	130	88		100	130	160	170	260
Nitrate + Nitrite	mg/L			0.093	0.062	<0.050	<0.050		<0.050	<0.050	0.064	<0.050	<0.050
Nitrite (N)	mg/L	**0.06**		<0.010	<0.010	<0.010	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	**Varies**[(1)]		<0.050	<0.050	<0.050	<0.050		0.073	0.092	<0.050	<0.050	<0.050
Total Organic Carbon (C)	mg/L			9.3	16	16	8.2		5.5	9.7	12	18	14 (1)
Orthophosphate (P)	mg/L			<0.010	<0.010	<0.010	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010
pH	pH	**6.5-9**	**6-9.5**	5.57	4.76	4.71	4.96		5.14	5.74	5.42	5.09	4.93
Reactive Silica (SiO2)	mg/L			3.4	3.5	3.6	2.9		2.5	1.5	2.0	2.3	3.0
Dissolved Sulphate (SO4)	mg/L			<2.0	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU			1.4	0.68	0.65	0.80		0.38	1.4	1.3	0.81	1.0
Conductivity	uS/cm			29	31	31	24		15	18	17	19	21
Total Suspended Solids				-	-	-	-		-	-	-	-	-
Field Parameters													
Temperature	°C			10.85	8.98	-	5.1		5.98	22.45	20.72	22.4	-
Conductivity	µS/cm			34	35	-	24.9		31	27	32	-	-
Total Dissolved Solids	g/L			0.03	0.033	-	-		-	-	-	-	-
Dissolved Oxygen	mg/L	**5.5-9.5**[(2)]		7.11	10.4	-	7.82		13.48	7.88	6.8	-	-
pH		**6.5-9**	**6-9.5**	4.27	3.71	-	3.75		6.56	5.34	5.34	4.92	-

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Ammonia guideline dependent on temperature and pH, *e.g.* , if T = 10°C, guideline for total ammonia-N varies from 83.88 mg/L at pH = 6.0 to 0.02 mg/L at pH = 10 (see CCME Fact Sheet).

(2) Dissolved oxygen - lowest acceptable concentration ranges from 5.5 mg/L for warm water biota at other life stages to 9.5 mg/L for cold water biota at early life stages (see CCME Summary Table).

- denotes not analyzed

NC = not calculated

Table 4: Surface Water Quality Data
Beaver Dam Mine Project

Table 4F: SW-4A Metals Results

		CCME FAL	MMER	SW-4A									
Sampling Date				**9-Oct-14**	**13-Nov-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Metals	**Units**					SW-4AD (DUP)		No Sample					
Total Aluminum (Al)	ug/L	**5 / 100**[1]		250	300	310	220		130	240	300	350	390
Total Antimony (Sb)	ug/L			<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
Total Arsenic (As)	ug/L	**5.0**	**1000**	5.8	2.9	2.8	2.0		1.1	7.3	5.4	5.6	5.6
Total Barium (Ba)	ug/L			3.4	4.6	4.4	3.2		1.7	2.8	2.8	3.7	3.4
Total Beryllium (Be)	ug/L			<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
Total Bismuth (Bi)	ug/L			<2.0	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0
Total Boron (B)	ug/L	**1500**		<50	<50	<50	<50		<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	**0.04 - 0.37**[2]		0.015	0.024	0.025	0.044		0.012	0.013	0.016	0.014	0.021
Total Calcium (Ca)	ug/L			1500	1300	1300	810		350	780	710	860	930
Total Chromium (Cr)	ug/L			<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L			0.43	0.53	0.59	<0.40		<0.40	0.42	<0.40	0.63	0.48
Total Copper (Cu)	ug/L	**2 - 4**[3]	**600**	<2.0	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0
Total Iron (Fe)	ug/L	**300**		690	540	540	320		160	580	650	840	1100
Total Lead (Pb)	ug/L	**1 - 7**[4]	**400**	0.54	<0.50	<0.50	<0.50		<0.50	<0.50	0.52	0.56	0.55
Total Magnesium (Mg)	ug/L			540	590	590	350		170	280	290	360	370
Total Manganese (Mn)	ug/L			53	58	58	41		20	37	32	42	51
Total Mercury (Hg)	ug/L	**0.026**		<0.013	<0.013	<0.013	<0.013		<0.013	0.015	<0.013	<0.013	0.028
Total Molybdenum (Mo)	ug/L	**73**		<2.0	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0
Total Nickel (Ni)	ug/L	**25 - 150**[5]	**1000**	<2.0	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0
Total Phosphorus (P)	ug/L			<100	100	100	<100		<100	<100	140	150	150
Total Potassium (K)	ug/L			450	500	520	480		290	280	140	180	200
Total Selenium (Se)	ug/L	**1**		<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
Total Silver (Ag)	ug/L	**0.1**		<0.10	<0.10	<0.10	<0.10		<0.10	<0.10	<0.10	<0.10	<0.10
Total Sodium (Na)	ug/L			3200	3100	3200	2300		1300	1900	1900	1700	2200
Total Strontium (Sr)	ug/L			10	9.1	9.2	5.7		2.8	5.1	5.0	6.4	7.2
Total Thallium (Tl)	ug/L	**1**		<0.10	<0.10	<0.10	<0.10		<0.10	<0.10	<0.10	<0.10	<0.10
Total Tin (Sn)	ug/L			<2.0	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0
Total Titanium (Ti)	ug/L			5	3.7	3.9	2.3		2.4	4.7	3.8	3.8	4.9
Total Uranium (U)	ug/L	**15**		<0.10	<0.10	<0.10	<0.10		<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L			<2.0	2.9	2.8	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0
Total Zinc (Zn)	ug/L	**30**	**1000**	19	7.8	6.9	12		<5.0	7.5	<5.0	<5.0	6.0

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Aluminum guideline dependent on pH. Guideline is 5 ug/L if pH <6.5 and 100 ug/L if pH ≥ 6.5 (see CCME Summary Table).

(2) Cadmium guideline (updated for 2014) (µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.46\}}$ for hardness between 17-280 mg/L $CaCO_3$ or a lower limit of 0.04 ug/L for hardness < 17mg/L or an upper limit of 0.37 ug/L for hardness >280 mg/L (see CCME Fact Sheet).

(3) Copper guideline based on sample hardness: copper guideline (µg/L) = $e^{0.8545[\ln(\text{hardness})]-1.465}$ * 0.2 for hardness ≥82 to ≤180 mg/L, or a lower limit of 2 µg/L for hardness <82 mg/L and an upper limit of 4 µg/L for hardness >180 mg/L (see CCME Summary Table).

(4) Lead guideline based on sample hardness: lead guideline (µg/L) = $e^{1.273[\ln(\text{hardness})]-4.705}$ for hardness >60 to ≤180 mg/L, or a lower limit of 1 µg/L for hardness <60 mg/L and an upper limit of 7 µg/L for hardness >180 mg/L (see CCME Summary Table).

(5) Nickel guideline based on sample hardness: nickel guideline (µg/L) = $e^{0.76[\ln(\text{hardness})]+1.06}$ for hardness >60 to ≤180 mg/L, or a lower limit of 25 µg/L for hardness <60 mg/L and an upper limit of 150 µg/L for hardness >180 mg/L (see CCME Summary Table).

- denotes not analyzed

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4G: SW-5 General Chemistry Results

		CCME FAL	MMER	SW-5									
Sampling Date				**9-Oct-14**	**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Calculated Parameters	**Units**				SW-5D (DUP)								
Anion Sum	me/L			0.480	0.480	0.520	0.340	0.400	0.100	0.360	0.350	0.360	0.410
Bicarb. Alkalinity (calc. as CaCO3)	mg/L			14	14	11	6.1	8.0	<1.0	7.8	9.3	11	13
Calculated TDS	mg/L			28	28	33	23	27	12	21	21	21	25
Carb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L			0.480	0.470	0.510	0.340	0.430	0.240	0.350	0.350	0.340	0.420
Hardness (CaCO3)	mg/L			16	16	17	10	14	7.3	11	12	12	15
Ion Balance (% Difference)	%			0.00	1.05	0.970	0.00	3.61	41.2	1.41	0.00	2.86	1.20
Langelier Index (@ 20C)	N/A			(2.56)	(2.54)	-2.74	-3.79	-3.17	NC	-3.22	-3.00	-2.84	-2.55
Langelier Index (@ 4C)	N/A			(2.81)	(2.80)	-2.99	-4.04	-3.42	NC	-3.48	-3.26	-3.09	-2.80
Nitrate (N)	mg/L	**2.935**		0.10	0.15	0.051	0.094	0.096	0.870	<0.050	0.063	<0.050	0.055
Saturation pH (@ 20C)	N/A			9.43	9.46	9.52	10.0	9.77	NC	9.84	9.76	9.66	9.50
Saturation pH (@ 4C)	N/A			9.69	9.71	9.77	10.3	10.0	NC	10.1	10.0	9.92	9.75
Inorganics													
Total Alkalinity (Total as CaCO3)	mg/L			14	14	11	6.1	8.0	<5.0	7.8	9.3	11	13
Dissolved Chloride (Cl)	mg/L			4.0	4.1	5.2	4.0	5.0	1.5	3.4	1.9	1.7	2.2
Colour	TCU			22	23	26	30	23	28	27	23	24	37
Nitrate + Nitrite	mg/L			0.10	0.15	0.051	0.094	0.096	0.087	<0.050	0.063	<0.050	0.055
Nitrite (N)	mg/L	**0.06**		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	**Varies**[(1)]		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.052	<0.050	<0.050
Total Organic Carbon (C)	mg/L			4.1	4.3	3.5	4.0	3.1	3.5	3.6	4.1	5.3	4.3
Orthophosphate (P)	mg/L			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	0.011
pH	pH	**6.5-9**	**6-9.5**	6.88	6.92	6.78	6.23	6.60	6.14	6.62	6.76	6.83	6.95
Reactive Silica (SiO2)	mg/L			1.8	1.8	3.1	3.0	3.1	2.3	<0.50	0.92	0.77	2.5
Dissolved Sulphate (SO4)	mg/L			3.5	3.6	7.0	4.6	4.4	2.5	5.0	5.0	4.5	3.6
Turbidity	NTU			0.44	0.81	1.4	6.2	2.4	0.69	1.2	0.83	0.91	1.2
Conductivity	uS/cm			48	47	49	35	45	28	34	35	32	40
Total Suspended Solids				-	-	-	-	-	-	-	-	-	-
Field Parameters													
Temperature	°C			13.98	-	7.76	4.6	1.75	2.7	20.84	20.51	22.4	-
Conductivity	µS/cm			53	-	49	35.7	36	27	40	40	-	-
Total Dissolved Solids	g/L			0.044	-	0.048	-	0.041	-	-	-	-	-
Dissolved Oxygen	mg/L	**5.5-9.5**[(2)]		8.26	-	15.04	13.08	39.05	14.95	8.59	9.13	-	-
pH		**6.5-9**	**6-9.5**	5.46	-	4.61	5.94	4.8	6.67	6.56	6.34	6.39	-

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Ammonia guideline dependent on temperature and pH, *e.g.* , if T = 10°C, guideline for total ammonia-N varies from 83.88 mg/L at pH = 6.0 to 0.02 mg/L at pH = 10 (see CCME Fact Sheet).

(2) Dissolved oxygen - lowest acceptable concentration ranges from 5.5 mg/L for warm water biota at other life stages to 9.5 mg/L for cold water biota at early life stages (see CCME Summary Table).

- denotes not analyzed

NC = not calculated

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4H: SW-5 Metals Results

		CCME FAL	MMER	SW-5									
Sampling Date				**9-Oct-14**	**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Metals	**Units**				SW-5D (DUP)								
Total Aluminum (Al)	ug/L	**5 / 100**[(1)]		28	29	100	460	210	98	61	45	43	52
Total Antimony (Sb)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Arsenic (As)	ug/L	**5.0**	**1000**	29	30	15	17	22	15	41	32	20	47
Total Barium (Ba)	ug/L			4.5	4.6	5.5	6.1	6.1	4.6	4.4	3.6	4.1	4.5
Total Beryllium (Be)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Bismuth (Bi)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Boron (B)	ug/L	**1500**		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	**0.04 - 0.37**[(2)]		<0.010	0.016	<0.010	0.010	0.011	0.018	<0.010	<0.010	<0.010	<0.010
Total Calcium (Ca)	ug/L			5000	4900	5300	3000	4100	2200	3500	3600	3800	4500
Total Chromium (Cr)	ug/L			<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L			<0.40	<0.40	<0.40	<0.40	0.44	0.61	<0.40	<0.40	<0.40	<0.40
Total Copper (Cu)	ug/L	**2 - 4**[(3)]	**600**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Iron (Fe)	ug/L	**300**		400	400	470	730	680	560	880	530	610	750
Total Lead (Pb)	ug/L	**1 - 7**[(4)]	**400**	<0.50	<0.50	<0.50	0.57	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Magnesium (Mg)	ug/L			940	920	970	640	780	430	600	640	720	870
Total Manganese (Mn)	ug/L			60	59	28	25	150	200	65	50	45	97
Total Mercury (Hg)	ug/L	**0.026**		<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.015	<0.013	<0.013	0.027
Total Molybdenum (Mo)	ug/L	**73**		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Nickel (Ni)	ug/L	**25 - 150**[(5)]	**1000**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Phosphorus (P)	ug/L			<100	<100	<100	<100	<100	<100	<100	140	170	150
Total Potassium (K)	ug/L			730	710	1000	720	740	480	670	580	350	450
Total Selenium (Se)	ug/L	**1**		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Silver (Ag)	ug/L	**0.1**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Sodium (Na)	ug/L			2700	2700	2900	2200	2700	1400	1700	1800	1500	2000
Total Strontium (Sr)	ug/L			28.0	27	26	15	21	11	18	20	25	27
Total Thallium (Tl)	ug/L	**0.8**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Tin (Sn)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Titanium (Ti)	ug/L			<2.0	<2.0	3.2	14	4.2	<2.0	<2.0	<2.0	<2.0	<2.0
Total Uranium (U)	ug/L	**15**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L			<2.0	<2.0	3.1	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Zinc (Zn)	ug/L	**30**	**1000**	<5.0	<5.0	<5.0	<5.0	<5.0	5.4	<5.0	<5.0	<5.0	<5.0

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Aluminum guideline dependent on pH. Guideline is 5 ug/L if pH <6.5 and 100 ug/L if pH ≥ 6.5 (see CCME Summary Table).

(2) Cadmium guideline (updated for 2014) (µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.46\}}$ for hardness between 17-280 mg/L $CaCO_3$ or a lower limit of 0.04 ug/L for hardness < 17mg/L or an upper limit of 0.37 ug/L for hardness >280 mg/L (see CCME Fact Sheet).

(3) Copper guideline based on sample hardness: copper guideline (µg/L) = $e^{0.8545[\ln(\text{hardness})]-1.465} * 0.2$ for hardness ≥82 to ≤180 mg/L, or a lower limit of 2 µg/L for hardness <82 mg/L and an upper limit of 4 µg/L for hardness >180 mg/L (see CCME Summary Table).

(4) Lead guideline based on sample hardness: lead guideline (µg/L) = $e^{1.273[\ln(\text{hardness})]-4.705}$ for hardness >60 to ≤180 mg/L, or a lower limit of 1 µg/L for hardness <60 mg/L and an upper limit of 7 µg/L for hardness >180 mg/L (see CCME Summary Table).

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4I: SW-6A General Chemistry Results

		CCME FAL	MMER	SW-6A									
Sampling Date				**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Calculated Parameters	**Units**							No Sample			SW-6AD (DUP)		
Anion Sum	me/L			0.130	0.160	0.110	0.120		0.0700	0.0700	0.0700	0.0700	0.100
Bicarb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
Calculated TDS	mg/L			13	15	11	12		7.0	7.0	7.0	8.0	12
Carb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L			0.240	0.270	0.190	0.210		0.140	0.170	0.160	0.170	0.240
Hardness (CaCO3)	mg/L			4.5	5.0	3.5	3.9		2.5	2.8	2.8	3.2	4.4
Ion Balance (% Difference)	%			29.7	25.6	26.7	27.3		33.3	41.7	39.1	41.7	41.2
Langelier Index (@ 20C)	N/A			NC	NC	NC	NC		NC	NC	NC	NC	NC
Langelier Index (@ 4C)	N/A			NC	NC	NC	NC		NC	NC	NC	NC	NC
Nitrate (N)	mg/L	**2.935**		0.080	<0.050	<0.050	<0.050		<0.050	0.053	0.059	<0.050	<0.050
Saturation pH (@ 20C)	N/A			NC	NC	NC	NC		NC	NC	NC	NC	NC
Saturation pH (@ 4C)	N/A			NC	NC	NC	NC		NC	NC	NC	NC	NC
Inorganics													
Total Alkalinity (Total as CaCO3)	mg/L			<5.0	<5.0	<5.0	<5.0		<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Chloride (Cl)	mg/L			4.3	5.8	3.8	4.2		2.5	2.2	2.2	2.4	3.5
Colour	TCU			80	99	87	82		88	140	130	140	220
Nitrate + Nitrite	mg/L			0.080	<0.050	<0.050	<0.050		<0.050	0.053	0.059	<0.050	<0.050
Nitrite (N)	mg/L	**0.06**		<0.010	<0.010	<0.010	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	**Varies**[(1)]		<0.050	<0.050	<0.050	<0.050		<0.050	0.22	<0.050	<0.050	<0.050
Total Organic Carbon (C)	mg/L			9.1	13	8.1	8.9		7.3	10	11	13	12 (1)
Orthophosphate (P)	mg/L			<0.010	<0.010	<0.010	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010
pH	pH	**6.5-9**	**6-9.5**	5.73	5.05	5.13	5.09		5.76	5.79	5.64	5.50	5.37
Reactive Silica (SiO2)	mg/L			3.3	3.5	2.8	3.4		1.1	1.3	1.2	1.6	2.7
Dissolved Sulphate (SO4)	mg/L			<2.0	<2.0	<2.0	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU			0.30	0.69	0.42	0.44		0.43	0.65	1.1	0.49	0.54
Conductivity	uS/cm			25	28	24	25		16	16	16	16	20
Total Suspended Solids				-	-	-	-		-	-	-	-	-
Field Parameters													
Temperature	°C			10.98	8.04	4.6	1.15		17.4	18.09	-	20.4	-
Conductivity	µS/cm			31	32	25.7	23		34	22	-	-	-
Total Dissolved Solids	g/L			0.028	0.032	-	0.027		-	-	-	-	-
Dissolved Oxygen	mg/L	**5.5-9.5**[(2)]		8.88	14.49	12.01	42.34		10.89	9.17	-	-	-
pH		**6.5-9**	**6-9.5**	3.56	3.43	4.49	3.98		5.72	8.73	-	5.02	-

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Ammonia guideline dependent on temperature and pH, *e.g.* , if T = 10°C, guideline for total ammonia-N varies from 83.88 mg/L at pH = 6.0 to 0.02 mg/L at pH = 10 (see CCME Fact Sheet).

(2) Dissolved oxygen - lowest acceptable concentration ranges from 5.5 mg/L for warm water biota at other life stages to 9.5 mg/L for cold water biota at early life stages (see CCME Summary Table).

- denotes not analyzed

NC = not calculated

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4J: SW-6A Metals Results

		CCME FAL	MMER	SW-6A								
Sampling Date				**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**28-May-15**	**30-Jun-15**	**30-Jun-15**	**29-Jul-15**	**24-Aug-15**
Metals	**Units**									SW-6AD (DUP)		
Total Aluminum (Al)	ug/L	**5 / 100**[(1)]		220	290	240	250	220	290	39	320	470
Total Antimony (Sb)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Arsenic (As)	ug/L	**5.0**	**1000**	4.0	1.9	1.1	1.0	3.2	3.0	130	2.8	7.6
Total Barium (Ba)	ug/L			3.2	4.1	3.1	3.0	2.3	2.6	5.4	3.1	3.8
Total Beryllium (Be)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Bismuth (Bi)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Boron (B)	ug/L	**1500**		<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	**0.04 - 0.37**[(2)]		0.024	0.021	0.014	0.011	<0.010	0.016	0.061	0.012	0.031
Total Calcium (Ca)	ug/L			1000	1200	790	880	620	670	4900	770	1000
Total Chromium (Cr)	ug/L			<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L			<0.40	0.44	<0.40	<0.40	<0.40	<0.40	1.8	<0.40	1.0
Total Copper (Cu)	ug/L	**2 - 4**[(3)]	**600**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	3.0	<2.0	<2.0
Total Iron (Fe)	ug/L	**300**		500	480	330	380	370	550	1400	750	1500
Total Lead (Pb)	ug/L	**1 - 7**[(4)]	**400**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Magnesium (Mg)	ug/L			470	510	360	410	230	270	660	310	430
Total Manganese (Mn)	ug/L			50	51	39	46	29	33	110	38	100
Total Mercury (Hg)	ug/L	**0.026**		<0.013	<0.013	<0.013	<0.013	0.017	<0.013	0.013	<0.013	0.035
Total Molybdenum (Mo)	ug/L	**73**		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Nickel (Ni)	ug/L	**25 - 150**[(5)]	**1000**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	7.2	<2.0	<2.0
Total Phosphorus (P)	ug/L			<100	<100	<100	<100	<100	140	140	160	150
Total Potassium (K)	ug/L			340	470	300	300	280	190	640	200	240
Total Selenium (Se)	ug/L	**1**		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Silver (Ag)	ug/L	**0.1**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Sodium (Na)	ug/L			2800	3000	2200	2300	1700	1800	1900	1700	2200
Total Strontium (Sr)	ug/L			7.1	7.7	5.9	6.1	4.4	4.8	19	5.5	7.6
Total Thallium (Tl)	ug/L	**0.8**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Tin (Sn)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Titanium (Ti)	ug/L			2.7	3.1	2.8	2.6	2.8	3.4	<2.0	3.5	4.3
Total Uranium (U)	ug/L	**15**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Vanadium (V)	ug/L			<2.0	2.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Zinc (Zn)	ug/L	**30**	**1000**	<5.0	5.5	<5.0	<5.0	5.7	<5.0	13	<5.0	<5.0

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Aluminum guideline dependent on pH. Guideline is 5 ug/L if pH <6.5 and 100 ug/L if pH ≥ 6.5 (see CCME Summary Table).

(2) Cadmium guideline (updated for 2014) (µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.46\}}$ for hardness between 17-280 mg/L $CaCO_3$ or a lower limit of 0.04 ug/L for hardness < 17mg/L or an upper limit of 0.37 ug/L for hardness >280 mg/L (see CCME Fact Sheet).

(3) Copper guideline based on sample hardness: copper guideline (µg/L) = $e^{0.8545[\ln(\text{hardness})]-1.465} * 0.2$ for hardness ≥82 to ≤180 mg/L, or a lower limit of 2 µg/L for hardness <82 mg/L and an upper limit of 4 µg/L for hardness >180 mg/L (see CCME Summary Table).

(4) Lead guideline based on sample hardness: lead guideline (µg/L) = $e^{1.273[\ln(\text{hardness})]-4.705}$ for hardness >60 to ≤180 mg/L, or a lower limit of 1 µg/L for hardness <60 mg/L and an upper limit of 7 µg/L for hardness >180 mg/L (see CCME Summary Table).

(5) Nickel guideline based on sample hardness: nickel guideline (µg/L) = $e^{0.76[\ln(\text{hardness})]+1.06}$ for hardness >60 to ≤180 mg/L, or a lower limit of 25 µg/L for hardness <60 mg/L and an upper limit of 150 µg/L for hardness >180 mg/L (see CCME Summary Table).

- denotes not analyzed

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4K: SW-9 General Chemistry Results

		CCME FAL	MMER	SW-9									
Sampling Date				**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**29-Jul-15**	**24-Aug-15**
Calculated Parameters	**Units**											SW-9 (DUP)	
Anion Sum	me/L			0.310	0.200	0.140	0.180	0.100	0.170	0.130	0.250	0.250	0.150
Bicarb. Alkalinity (calc. as CaCO3)	mg/L			5.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.6	5.5	<1.0
Calculated TDS	mg/L			23	17	12	16	9	13	13	18	18	15
Carb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L			0.420	0.340	0.230	0.290	0.180	0.260	0.310	0.330	0.340	0.330
Hardness (CaCO3)	mg/L			10	6.4	4.1	5.0	2.8	4.7	7.4	8.0	8.2	7.5
Ion Balance (% Difference)	%			15.1	25.9	24.3	23.4	28.6	20.9	40.9	13.8	15.3	37.5
Langelier Index (@ 20C)	N/A			(4.22)	NC	NC	NC	NC	NC	NC	-3.90	-3.83	NC
Langelier Index (@ 4C)	N/A			(4.47)	NC	NC	NC	NC	NC	NC	-4.16	-4.08	NC
Nitrate (N)	mg/L	**2.935**		0.091	<0.050	<0.050	0.051	<0.050	<0.050	<0.050	0.064	<0.050	<0.050
Saturation pH (@ 20C)	N/A			10.2	NC	NC	NC	NC	NC	NC	10.3	10.3	NC
Saturation pH (@ 4C)	N/A			10.4	NC	NC	NC	NC	NC	NC	10.5	10.5	NC
Inorganics													
Total Alkalinity (Total as CaCO3)	mg/L			5.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.6	5.5	<5.0
Dissolved Chloride (Cl)	mg/L			6.7	7.2	4.8	6.2	3.4	6.1	4.8	4.8	4.9	5.4
Colour	TCU			160	140	110	73	82	80	150	130	130	180
Nitrate + Nitrite	mg/L			0.091	<0.050	<0.050	0.051	<0.050	<0.050	<0.050	0.064	<0.050	<0.050
Nitrite (N)	mg/L	**0.06**		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	**Varies**[(1)]		<0.050	<0.050	<0.050	<0.050	0.082	<0.050	0.14	<0.050	<0.050	<0.050
Total Organic Carbon (C)	mg/L			17	18	8.9	7.0	6.1	6.7	12	12	12	11 (1)
Orthophosphate (P)	mg/L			<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	pH	**6.5-9**	**6-9.5**	5.94	4.96	5.06	5.44	5.77	6.17	6.33	6.36	6.43	6.05
Reactive Silica (SiO2)	mg/L			3.2	3.1	2.4	3.5	1.6	1.5	2.2	2.7	2.6	2.3
Dissolved Sulphate (SO4)	mg/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU			1.5	0.74	0.49	0.77	1.0	0.72	0.99	1.0	0.93	0.82
Conductivity	uS/cm			39	35	27	32	19	29	29	30	30	29
Total Suspended Solids				-	-	-	-	-	-	-	-	-	-
Field Parameters													
Temperature	°C			16.03	7.84	4	0.07	2.72	20.69	18.96	20.3	-	-
Conductivity	µS/cm			47	36	28.2	26	20	34	34	-	-	-
Total Dissolved Solids	g/L			0.037	0.037	-	0.033		-	-	-	-	-
Dissolved Oxygen	mg/L	**5.5-9.5**[(2)]		9.82	12.85	12.34	21.9	15.27	10.89	9.9	-	-	-
pH		**6.5-9**	**6-9.5**	4.90	3.17	4.66	3.68	6.6	5.72	8.04	6.14	-	-

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Ammonia guideline dependent on temperature and pH, *e.g.* , if T = 10°C, guideline for total ammonia-N varies from 83.88 mg/L at pH = 6.0 to 0.02 mg/L at pH = 10 (see CCME Fact Sheet).

(2) Dissolved oxygen - lowest acceptable concentration ranges from 5.5 mg/L for warm water biota at other life stages to 9.5 mg/L for cold water biota at early life stages (see CCME Summary Table).

- denotes not analyzed

NC = not calculated

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4L: SW-9 Metals Results

		CCME FAL	MMER	SW-9									
Sampling Date				**9-Oct-14**	**13-Nov-14**	**18-Dec-14**	**22-Jan-15**	**29-Apr-15**	**28-May-15**	**30-Jun-15**	**29-Jul-15**	**29-Jul-15**	**24-Aug-15**
Metals	**Units**											SW-1 (DUP)	
Total Aluminum (Al)	ug/L	**5 / 100**[1]		410	330	310	210	160	170	280	260	270	320
Total Antimony (Sb)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Arsenic (As)	ug/L	**5.0**	**1000**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Barium (Ba)	ug/L			6.6	5.7	3.5	3.4	2.1	2.4	3.3	3.4	3.3	4.2
Total Beryllium (Be)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Bismuth (Bi)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Boron (B)	ug/L	**1500**		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	**0.04 - 0.37**[2]		0.024	0.025	0.019	0.010	0.014	<0.010	0.014	<0.010	<0.010	0.015
Total Calcium (Ca)	ug/L			2300	1400	890	1100	640	1100	1700	1800	1900	1700
Total Chromium (Cr)	ug/L			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0
Total Cobalt (Co)	ug/L			<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Total Copper (Cu)	ug/L	**2 - 4**[3]	**600**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Iron (Fe)	ug/L	**300**		620	500	280	290	220	210	440	490	510	580
Total Lead (Pb)	ug/L	**1 - 7**[4]	**400**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Total Magnesium (Mg)	ug/L			1100	700	450	530	300	480	740	830	840	810
Total Manganese (Mn)	ug/L			140	75	51	51	36	34	57	56	60	76
Total Mercury (Hg)	ug/L	**0.026**		<0.013	<0.013	<0.013	<0.013	<0.013	0.013	<0.013	<0.013	0.013	0.032
Total Molybdenum (Mo)	ug/L	**73**		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Nickel (Ni)	ug/L	**25 - 150**[5]	**1000**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Phosphorus (P)	ug/L			<100	<100	<100	<100	<100	<100	150	160	170	160
Total Potassium (K)	ug/L			640	530	340	350	300	270	200	210	240	180
Total Selenium (Se)	ug/L	**1**		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total Silver (Ag)	ug/L	**0.1**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Sodium (Na)	ug/L			4000	3900	2900	3900	2400	3500	3100	3300	3500	3500
Total Strontium (Sr)	ug/L			10	7.7	5.0	5.6	2.8	4.2	5.9	6.5	5.9	6.6
Total Thallium (Tl)	ug/L	**0.8**		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total Tin (Sn)	ug/L			<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Titanium (Ti)	ug/L			4.8	4.1	3.5	2.8	3.1	3.0	3.1	3.6	4.9	4.3
Total Uranium (U)	ug/L	**15**		0.11	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	0.13	0.11
Total Vanadium (V)	ug/L			<2.0	2.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Total Zinc (Zn)	ug/L	**30**	**1000**	5.2	7.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Notes

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Freshwater Aquatic Life (provided for reference)

MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Aluminum guideline dependent on pH. Guideline is 5 ug/L if pH <6.5 and 100 ug/L if pH ≥ 6.5 (see CCME Summary Table).

(2) Cadmium guideline (updated for 2014) (µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.46\}}$ for hardness between 17-280 mg/L $CaCO_3$ or a lower limit of 0.04 ug/L for hardness < 17mg/L or an upper limit of 0.37 ug/L for hardness >280 mg/L (see CCME Fact Sheet).

(3) Copper guideline based on sample hardness: copper guideline (µg/L) = $e^{0.8545[\ln(\text{hardness})]-1.465} * 0.2$ for hardness ≥82 to ≤180 mg/L, or a lower limit of 2 µg/L for hardness <82 mg/L and an upper limit of 4 µg/L for hardness >180 mg/L (see CCME Summary Table).

(4) Lead guideline based on sample hardness: lead guideline (µg/L) = $e^{1.273[\ln(\text{hardness})]-4.705}$ for hardness >60 to ≤180 mg/L, or a lower limit of 1 µg/L for hardness <60 mg/L and an upper limit of 7 µg/L for hardness >180 mg/L (see CCME Summary Table).

(5) Nickel guideline based on sample hardness: nickel guideline (µg/L) = $e^{0.76[\ln(\text{hardness})]+1.06}$ for hardness >60 to ≤180 mg/L, or a lower limit of 25 µg/L for hardness <60 mg/L and an upper limit of 150 µg/L for hardness >180 mg/L (see CCME Summary Table).

- denotes not analyzed

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4M: SW-10 General Chemistry Results

		CCME FAL	MMER	SW-10			
Sampling Date				**30-Jun-15**	**29-Jul-15**	**24-Aug-15**	**24-Aug-15**
Calculated Parameters	**Units**						SW-10 (DUP)
Anion Sum	me/L			0.450	0.580	0.770	0.780
Bicarb. Alkalinity (calc. as CaCO3)	mg/L			8.0	11	25	25
Calculated TDS	mg/L			32	39	55	55
Carb. Alkalinity (calc. as CaCO3)	mg/L			<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L			0.450	0.510	0.960	0.960
Hardness (CaCO3)	mg/L			15	20	30	30
Ion Balance (% Difference)	%			0.00	6.42	11.0	10.3
Langelier Index (@ 20C)	N/A			-3.05	-3.09	-2.67	-2.60
Langelier Index (@ 4C)	N/A			-3.31	-3.35	-2.92	-2.85
Nitrate (N)	mg/L	**2.935**		0.060	0.070	<0.050	<0.050
Saturation pH (@ 20C)	N/A			9.70	9.46	8.91	8.91
Saturation pH (@ 4C)	N/A			9.96	9.71	9.16	9.16
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L			8.0	11	25	25
Dissolved Chloride (Cl)	mg/L			2.9	2.2	2.9	3.1
Colour	TCU			9.4	<5.0	100	110
Nitrate + Nitrite	mg/L			0.060	0.070	<0.050	<0.050
Nitrite (N)	mg/L	**0.06**		<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	**Varies**[(1)]		<0.050	<0.050	0.10	0.19
Total Organic Carbon (C)	mg/L			2.1	1.8	7.6	7.4
Orthophosphate (P)	mg/L			<0.010	0.012	0.064	0.064
pH	pH	**6.5-9**	**6-9.5**	6.65	6.37	6.24	6.31
Reactive Silica (SiO2)	mg/L			4.7	6.0	7.0	7.0
Dissolved Sulphate (SO4)	mg/L			9.6	14	8.8	8.9
Turbidity	NTU			1.0	<0.10	10	8.3
Conductivity	uS/cm			46	54	75	76
Total Suspended Solids				-	-	-	-
Field Parameters							
Temperature	°C			14.14	17.6	-	-
Conductivity	µS/cm			51	-	-	-
Total Dissolved Solids	g/L			-	-	-	-
Dissolved Oxygen	mg/L	**5.5-9.5**[(2)]		11.8	-	-	-
pH		**6.5-9**	**6-9.5**	6.55	5.88	-	-

Notes

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MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized

(1) Ammonia guideline dependent on temperature and pH, *e.g.* , if T = 10°C, guideline for total ammonia-N varies from 83.88 mg/L at pH = 6.0 to 0.02 mg/L at pH = 10 (see CCME Fact Sheet).

(2) Dissolved oxygen - lowest acceptable concentration ranges from 5.5 mg/L for warm water biota at other life stages to 9.5 mg/L for cold water biota at early life stages (see CCME Summary Table).

- denotes not analyzed

NC = not calculated

(4) Lead guideline based on sample hardness: lead guideline (µg/L) = $e^{1.273[\ln(\text{hardness})]-4.705}$ for hardness >60 to ≤180 mg/L, or a lower limit of 1 µg/L for hardness <60 mg/L and an upper limit of 7 µg/L for hardness >180 mg/L (see CCME Summary Table).

(5) Nickel guideline based on sample hardness: nickel guideline (µg/L) = $e^{0.76[\ln(\text{hardness})]+1.06}$ for hardness >60 to ≤180 mg/L, or a lower limit of 25 µg/L for hardness <60 mg/L and an upper limit of 150 µg/L for hardness >180 mg/L (see CCME Summary Table).

- denotes not analyzed

Table 4: Surface Water Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Table 4N: SW-10 Metals Results

		CCME FAL	MMER	SW-10			
Sampling Date				**30-Jun-15**	**29-Jul-16**	**24-Aug-15**	**24-Aug-15**
Metals	**Units**						SW-10 (DUP)
Total Aluminum (Al)	ug/L	**5 / 100**[(1)]		39	28	220	210
Total Antimony (Sb)	ug/L			<1.0	<1.0	<1.0	<1.0
Total Arsenic (As)	ug/L	**5.0**	**1000**	130	36	380	370
Total Barium (Ba)	ug/L			5.4	7.3	7.1	6.9
Total Beryllium (Be)	ug/L			<1.0	<1.0	<1.0	<1.0
Total Bismuth (Bi)	ug/L			<2.0	<2.0	<2.0	<2.0
Total Boron (B)	ug/L	**1500**		<50	<50	<50	<50
Total Cadmium (Cd)	ug/L	**0.04 - 0.37**[(2)]		0.061	0.10	0.011	<0.010
Total Calcium (Ca)	ug/L			4900	6400	10000	10000
Total Chromium (Cr)	ug/L			<1.0	<1.0	<1.0	<1.0
Total Cobalt (Co)	ug/L			1.8	1.4	2.2	2.3
Total Copper (Cu)	ug/L	**2 - 4**[(3)]	**600**	3.0	3.6	<2.0	<2.0
Total Iron (Fe)	ug/L	**300**		1400	78	6000	5900
Total Lead (Pb)	ug/L	**1 - 7**[(4)]	**400**	<0.50	<0.50	1.1	1.2
Total Magnesium (Mg)	ug/L			660	900	1200	1200
Total Manganese (Mn)	ug/L			110	78	290	280
Total Mercury (Hg)	ug/L	**0.026**		<0.013	<0.013	0.025	0.028
Total Molybdenum (Mo)	ug/L	**73**		<2.0	<2.0	<2.0	<2.0
Total Nickel (Ni)	ug/L	**25 - 150**[(5)]	**1000**	7.2	8.7	6.2	6.1
Total Phosphorus (P)	ug/L			140	170	140	140
Total Potassium (K)	ug/L			640	790	1000	1000
Total Selenium (Se)	ug/L	**1**		<1.0	<1.0	<1.0	<1.0
Total Silver (Ag)	ug/L	**0.1**		<0.10	<0.10	<0.10	<0.10
Total Sodium (Na)	ug/L			1900	2100	2500	2400
Total Strontium (Sr)	ug/L			19	26	33	33
Total Thallium (Tl)	ug/L	**0.8**		<0.10	<0.10	<0.10	<0.10
Total Tin (Sn)	ug/L			<2.0	<2.0	<2.0	<2.0
Total Titanium (Ti)	ug/L			<2.0	<2.0	2.8	2.9
Total Uranium (U)	ug/L	**15**		<0.10	<0.10	0.21	0.20
Total Vanadium (V)	ug/L			<2.0	<2.0	<2.0	<2.0
Total Zinc (Zn)	ug/L	**30**	**1000**	13	19	<5.0	<5.0

Notes

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MMER - Federal Metal Mining Effluent Regulations - guidelines shown represent maximum authorized concentrations in a grab sample (provided for reference)

(1) Aluminum guideline dependent on pH. Guideline is 5 ug/L if pH <6.5 and 100 ug/L if pH ≥ 6.5 (see CCME Summary Table).

(2) Cadmium guideline (updated for 2014) (µg/L) = $10^{\{0.83(\log[\text{hardness}])-2.46\}}$ for hardness between 17-280 mg/L $CaCO_3$ or a lower limit of 0.04 ug/L for hardness < 17mg/L or an upper limit of 0.37 ug/L for hardness >280 mg/L (see CCME Fact Sheet).

(3) Copper guideline based on sample hardness: copper guideline (µg/L) = $e^{0.8545[\ln(\text{hardness})]-1.465} * 0.2$ for hardness ≥82 to ≤180 mg/L, or a lower limit of 2 µg/L for hardness <82 mg/L and an upper limit of 4 µg/L for hardness >180 mg/L (see CCME Summary Table).

(4) Lead guideline based on sample hardness: lead guideline (µg/L) = $e^{1.273[\ln(\text{hardness})]-4.705}$ for hardness >60 to ≤180 mg/L, or a lower limit of 1 µg/L for hardness <60 mg/L and an upper limit of 7 µg/L for hardness >180 mg/L (see CCME Summary Table).

(5) Nickel guideline based on sample hardness: nickel guideline (µg/L) = $e^{0.76[\ln(\text{hardness})]+1.06}$ for hardness >60 to ≤180 mg/L, or a lower limit of 25 µg/L for hardness <60 mg/L and an upper limit of 150 µg/L for hardness >180 mg/L (see CCME Summary Table).

- denotes not analyzed

Table 5: Groundwater Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Sample		MW-01						MW-02				MW-03							MW-04				
		MW-01A		MW-01B		MW-01C		MW-02A		MW-02B		MW-03A		MW-03B		MW-03C			MW-04A		MW-04B		
Sampling Date		19-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18	19-Jun-18	19-Jun-18 (Field DUP 3)	12-Sep-18	18-Jun-18	12-Sep-18	18-Jun-18	12-Sep-18	12-Sep-18 (Field DUP 3)
Parameters	**Units**																						
Anion Sum	me/L	0.560	0.460	1.56	1.50	1.35	0.930	0.330	0.280	0.480	0.480	0.280	0.420	0.980	1.05	1.87	1.77	1.97	0.440	0.420	1.16	1.03	0.390
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	18	14	60	58	52	34	6.0	6.2	17	16	6.2	9.9	37	39	83	77	86	11	9.8	41	36	11
Calculated TDS	mg/L	37	34	91	89	79	57	21	25	40	41	20	31	62	65	110	100	110	32	31	71	67	30
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND
Cation Sum	me/L	0.510	0.440	1.47	1.46	1.26	0.940	0.260	0.270	0.440	0.450	0.260	0.390	0.930	0.970	1.79	1.76	1.91	0.510	0.390	1.08	1.06	0.330
Hardness (CaCO3)	mg/L	2.2	7.4	54	58	40	33	4.9	5.6	10	9.6	5.9	9.5	35	36	67	66	75	17	11	44	41	8.0
Ion Balance (% Difference)	%	4.67	2.22	2.97	1.35	3.45	0.530	11.9	1.82	4.35	3.23	3.70	3.70	2.62	3.96	2.19	0.280	1.55	7.37	3.70	3.57	1.44	8.33
Langelier Index (@ 20C)	N/A	-3.54	-3.14	-0.512	-0.286	-1.03	-1.41	-4.58	-4.24	-3.20	-2.94	-4.37	-3.65	-2.01	-1.67	-0.247	-0.304	-0.0900	-3.26	-3.27	-1.26	-1.22	-3.78
Langelier Index (@ 4C)	N/A	-3.79	-3.39	-0.763	-0.537	-1.28	-1.66	-4.83	-4.50	-3.45	-3.19	-4.63	-3.91	-2.26	-1.92	-0.498	-0.556	-0.341	-3.51	-3.53	-1.51	-1.47	-4.03
Nitrate (N)	mg/L	<0.050	0.065	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	0.052	0.31	0.44	0.10	0.11	<0.050	<0.050	0.074	<0.050	0.060	<0.050	0.054	0.28
Saturation pH (@ 20C)	N/A	10.3	9.9	8.29	8.28	8.50	8.75	10.4	10.4	9.64	9.70	10.3	9.87	8.67	8.63	8.06	8.10	8.00	9.58	9.80	8.54	8.62	9.97
Saturation pH (@ 4C)	N/A	10.5	10.1	8.55	8.53	8.75	9.00	10.7	10.6	9.89	9.95	10.6	10.1	8.93	8.89	8.31	8.36	8.25	9.83	10.1	8.79	8.88	10.2
INORGANICS																							
Total Alkalinity (Total as CaCO3)	mg/L	18	14	61	59	52	34	6.0	6.2	17	16	6.2	9.9	37	39	84	77	87	11	9.9	41	36	11
Dissolved Chloride (Cl)	mg/L	4.8	4.0	4.4	4.1	4.7	5.1	5.4	3.3	2.7	3.3	4.7	4.9	5.5	6.3	4.3	5.2	5.1	6.4	5.0	4.9	4.5	3.7
Colour	TCU	<5.0	ND	<5.0	ND	6.5	ND	<5.0	ND	<5.0	ND	8.6	ND	5.4	ND	5.3	<5.0	ND	<5.0	ND	<5.0	ND	ND
Nitrate + Nitrite (N)	mg/L	<0.050	0.065	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	0.052	0.31	0.44	0.10	0.11	<0.050	<0.050	0.074	<0.050	0.060	<0.050	0.054	0.28
Nitrite (N)	mg/L	<0.010	ND	<0.010	ND	<0.050	ND	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	<0.010	ND	<0.010	ND	<0.010	ND	ND
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	<0.050	ND	<0.050	ND	<0.050	ND	ND
Total Organic Carbon (C)	mg/L	1.3	ND (1)	2.6	ND	1.9	2.9	1.2	ND	1.9	ND	3.6	2.3	1.1	0.88	4.2	4.3	1.7	0.73	ND	1.1	1.6	ND
Orthophosphate (P)	mg/L	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	0.011	0.058	0.068	<0.010	ND	<0.010	ND	<0.010	<0.010	ND	<0.010	ND	<0.010	ND	0.010
pH	pH	6.75	6.74	7.78	8.00	7.47	7.34	5.83	6.12	6.44	6.76	5.93	6.21	6.66	6.97	7.81	7.80	7.91	6.32	6.53	7.28	7.41	6.19
Reactive Silica (SiO2)	mg/L	6.3	8.4	9.4	10	7.5	7.1	3.2	9.2	15	15	4.1	7.4	10	11	9.6	9.4	11	6.4	8.4	9.6	10	9.3
Dissolved Sulphate (SO4)	mg/L	3.0	3.2	11	10	8.7	5.1	2.6	2.8	2.7	3.2	<2.0	2.5	3.8	3.6	3.7	3.9	4.1	2.3	3.5	9.6	8.9	2.5
Turbidity	NTU	29	75	7.1	13	17	10	22	1.7	4.6	4.6	0.39	15	0.26	1.7	1.7	1.5	2.3	0.79	130	5.9	2.0	15
Conductivity	uS/cm	54	47	140	150	120	100	34	32	46	49	32	43	94	100	170	170	190	41	45	110	110	42
METALS																							
Total Aluminum (Al)	ug/L	69	40	20	14	19	8.2	160	34	9.2	8.7	190	96	<5.0	ND	26	30	16	6.0	13	9.0	7.0	17
Total Antimony (Sb)	ug/L	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND
Total Arsenic (As)	ug/L	<1.0	ND	5.7	5.0	1.5	ND	<1.0	ND	2.1	2.4	<1.0	ND	<1.0	ND	1.5	1.7	2.0	<1.0	ND	<1.0	ND	ND
Total Barium (Ba)	ug/L	1.3	3.2	4.0	5.6	7.3	6.7	9.3	5.8	4.2	3.4	7.2	11	3.9	4.4	8.6	9.1	6.5	4.1	3.3	4.0	4.5	4.4
Total Beryllium (Be)	ug/L	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND
Total Bismuth (Bi)	ug/L	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	ND
Total Boron (B)	ug/L	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	<50	ND	<50	ND	<50	ND	ND
Total Cadmium (Cd)	ug/L	<0.010	0.011	<0.010	ND	<0.010	0.010	0.025	0.020	0.60	0.65	0.030	0.031	0.038	0.039	<0.010	<0.010	ND	0.011	0.013	<0.010	0.012	0.031
Total Calcium (Ca)	ug/L	560	1900	18000	20000	13000	11000	1200	1300	2700	2600	1500	2700	12000	12000	23000	23000	26000	4800	3200	15000	14000	1900
Total Chromium (Cr)	ug/L	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND
Total Cobalt (Co)	ug/L	<0.40	0.49	<0.40	ND	<0.40	1.0	1.8	ND	<0.40	ND	0.46	0.53	<0.40	ND	<0.40	<0.40	ND	0.87	0.92	<0.40	ND	ND
Total Copper (Cu)	ug/L	<2.0	ND	<2.0	ND	<2.0	7.0	8.7	ND	<2.0	ND	<2.0	2.2	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	2.1	2.1
Total Iron (Fe)	ug/L	<50	ND	<50	ND	<50	ND	250	ND	<50	ND	<50	ND	<50	ND	<50	<50	ND	<50	ND	<50	ND	ND
Total Lead (Pb)	ug/L	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	<0.50	ND	<0.50	ND	<0.50	ND	ND
Total Magnesium (Mg)	ug/L	190	650	2200	2200	1800	1400	460	530	800	770	510	690	1100	1200	2300	2300	2600	1200	780	1600	1600	760
Total Manganese (Mn)	ug/L	37	110	<2.0	8.0	140	140	150	45	22	11	50	110	32	26	120	120	170	69	41	55	18	60
Total Molybdenum (Mo)	ug/L	<2.0	ND	<2.0	ND	2.1	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	6.6	6.4	5.5	<2.0	ND	<2.0	ND	2.0
Total Nickel (Ni)	ug/L	<2.0	ND	<2.0	ND	<2.0	5.3	7.8	ND	2.1	ND	3.5	4.7	<2.0	ND	<2.0	<2.0	ND	5.4	4.2	<2.0	ND	2.7
Total Phosphorus (P)	ug/L	<100	ND	<100	ND	<100	ND	<100	ND	<100	120	<100	ND	<100	ND	<100	<100	ND	<100	ND	<100	ND	ND
Total Potassium (K)	ug/L	1300	1200	3100	2100	3100	2100	250	320	640	560	880	1200	1700	1500	4300	4300	3400	1100	630	1300	1400	670
Total Selenium (Se)	ug/L	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND
Total Silver (Ag)	ug/L	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	0.20	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	<0.10	ND	<0.10	ND	<0.10	ND	ND
Total Sodium (Na)	ug/L	9900	6100	7100	5800	8900	5300	3400	3400	5100	5700	2700	3900	4600	4900	7700	7700	7600	3300	3500	4100	4600	3600
Total Strontium (Sr)	ug/L	6.0	12	69	66	77	56	6.0	14	20	18	11	22	24	25	56	56	58	25	21	84	79	18
Total Thallium (Tl)	ug/L	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	<0.10	ND	<0.10	ND	<0.10	ND	ND
Total Tin (Sn)	ug/L	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	3.8	ND	<2.0	ND	<2.0	ND	2.8
Total Titanium (Ti)	ug/L	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	ND
Total Uranium (U)	ug/L	<0.10	ND	0.90	0.78	0.63	0.16	<0.10	ND	0.56	0.82	<0.10	0.10	0.25	0.22	1.6	1.6	2.0	<0.10	ND	<0.10	ND	ND
Total Vanadium (V)	ug/L	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	ND
Total Zinc (Zn)	ug/L	<5.0	ND	<5.0	ND	<5.0	9.7	12	ND	91	88	<5.0	5.2	<5.0	7.6	<5.0	<5.0	6.0	<5.0	ND	<5.0	15	7.1

Table 5: Groundwater Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Sample		MW-05								MW-07						MW-09						
		MW-05A			MW-05B			MW-05D		MW-07A		MW-07B		MW-07D		MW-09A			MW-09B		MW-09D	
Sampling Date		27-Jun-18	(Field DUP 4) 27-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	12-Sep-18 (Field DUP 2)	27-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	18-Jun-18	18-Jun-18 (Field DUP 1)	12-Sep-18	18-Jun-18	12-Sep-18	18-Jun-18	12-Sep-18
Parameters	Units																					
Anion Sum	me/L	0.41	0.420	0.450	0.990	1.84	1.78	1.73	1.70	2.47	2.46	7.02	6.93	2.59	2.91	0.340	0.320	0.930	2.46	2.75	2.97	4.21
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	11	11	15	37	73	72	66	66	100	100	320	310	110	120	9.2	8.8	37	71	74	65	79
Calculated TDS	mg/L	27	28	30	60	100	100	100	100	150	150	380	370	150	170	30	29	56	150	170	190	260
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	2.2	2.0	1.1	1.3	<1.0	<1.0	ND	<1.0	ND	<1.0	ND
Cation Sum	me/L	0.37	0.380	0.390	0.900	1.03	1.04	1.61	1.58	2.53	2.70	6.68	6.50	2.75	2.86	0.630	0.630	0.870	2.37	2.53	2.89	4.01
Hardness (CaCO3)	mg/L	10	10	11	27	34	35	56	56	93	100	290	280	120	110	25	25	36	72	66	93	120
Ion Balance (% Difference)	%	5.13	5.00	7.14	4.76	28.2	26.2	3.59	3.66	1.20	4.65	2.48	3.20	3.00	0.870	29.9	32.6	3.33	1.86	4.17	1.37	2.43
Langelier Index (@ 20C)	N/A	-3.37	-3.46	-3.35	-1.33	-0.614	-0.780	-0.134	-0.184	-0.988	-0.642	0.935	0.874	0.288	0.346	-3.07	-2.95	-1.79	-0.174	-0.0840	-0.547	-0.0610
Langelier Index (@ 4C)	N/A	-3.62	-3.71	-3.60	-1.58	-0.865	-1.03	-0.385	-0.435	-1.24	-0.892	0.686	0.625	0.0380	0.0960	-3.32	-3.20	-2.04	-0.424	-0.335	-0.798	-0.311
Nitrate (N)	mg/L	0.051	<0.050	ND	0.061	ND	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	<0.050	0.051	<0.050	ND	<0.050	ND
Saturation pH (@ 20C)	N/A	9.8	9.79	9.64	8.80	8.42	8.42	8.26	8.26	7.93	7.90	6.93	6.96	7.77	7.73	9.37	9.39	8.64	8.11	8.13	8.09	7.90
Saturation pH (@ 4C)	N/A	10.1	10.0	9.89	9.05	8.68	8.67	8.51	8.51	8.18	8.15	7.18	7.21	8.02	7.98	9.62	9.64	8.89	8.36	8.38	8.34	8.15
INORGANICS																						
Total Alkalinity (Total as CaCO3)	mg/L	11	11	15	37	74	72	66	66	100	100	320	310	110	120	9.2	8.8	37	72	75	65	80
Dissolved Chloride (Cl)	mg/L	4.5	4.8	3.1	4.0	3.9	3.5	4.7	4.6	4.4	4.5	6.7	6.2	6.9	6.5	3.5	2.9	3.3	5.1	4.6	8.6	11
Colour	TCU	<5.0	<5.0	ND	<5.0	ND	ND	<5.0	ND	8.0	70	<5.0	ND	<5.0	ND	<5.0	<5.0	ND	<5.0	ND	<5.0	ND
Nitrate + Nitrite (N)	mg/L	0.051	<0.050	ND	0.061	ND	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	<0.050	0.051	<0.050	ND	<0.050	ND
Nitrite (N)	mg/L	<0.010	<0.010	ND	<0.010	ND	ND	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	0.021	ND	<0.010	ND	<0.010	ND
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	<0.050	ND	<0.050	ND	ND	<0.050	ND	<0.050	ND	0.060	ND	<0.050	ND	<0.050	<0.050	ND	<0.050	ND	<0.050	ND
Total Organic Carbon (C)	mg/L	1.5	1.5	0.61	2.0	7.6	8.0	1.3	ND	1.1	0.72	3.2	3.4	2.2	3.3	0.59	0.61	ND	2.5	5.4	9.1	17
Orthophosphate (P)	mg/L	<0.010	<0.010	ND	<0.010	ND	ND	<0.010	ND	<0.010	ND	0.013	0.013	0.035	0.038	<0.010	<0.010	ND	0.027	0.016	0.012	0.013
pH	pH	6.43	6.33	6.29	7.47	7.81	7.64	8.13	8.08	6.94	7.26	7.86	7.83	8.05	8.08	6.30	6.44	6.85	7.94	8.05	7.54	7.84
Reactive Silica (SiO2)	mg/L	5.1	5.2	6.4	8.2	21	20	12	12	21	22	24	24	15	15	5.1	5.1	8.6	9.3	9.0	12	11
Dissolved Sulphate (SO4)	mg/L	3	3.0	3.1	6.6	12	11	13	12	13	12	19	22	12	16	2.9	2.9	4.6	42	53	68	110
Turbidity	NTU	1.5	0.77	1.8	11	20	24	2.2	0.40	30	31	4.6	8.7	9.5	5.1	0.29	0.33	2.9	6.1	36	2.4	14
Conductivity	uS/cm	44	43	47	100	170	170	170	160	240	250	620	620	280	290	30	31	93	230	270	300	430
METALS																						
Total Aluminum (Al)	ug/L	8.3	8.8	14	10	11	6.5	29	7.4	<5.0	ND	5.7	7.2	10	14	<5.0	81	36	61	11	8.9	ND
Total Antimony (Sb)	ug/L	<1.0	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND
Total Arsenic (As)	ug/L	<1.0	<1.0	ND	1.0	1.4	1.3	<1.0	ND	12	14	39	36	170	170	1.0	<1.0	5.5	120	120	140	110
Total Barium (Ba)	ug/L	5.9	5.7	9.9	5.8	6.6	6.3	3.4	2.2	11	9.9	13	15	5.5	8.2	6.1	5.7	3.8	12	14	8.9	16
Total Beryllium (Be)	ug/L	<1.0	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND
Total Bismuth (Bi)	ug/L	<2.0	<2.0	ND	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND
Total Boron (B)	ug/L	<50	<50	ND	<50	ND	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	<50	ND	<50	ND	<50	ND
Total Cadmium (Cd)	ug/L	0.031	0.031	0.035	0.018	0.014	0.011	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	ND	0.030	0.026	0.039	<0.010	ND	<0.010	ND
Total Calcium (Ca)	ug/L	2900	2900	3000	9000	11000	12000	18000	18000	27000	28000	100000	97000	38000	37000	9100	9000	13000	25000	23000	30000	41000
Total Chromium (Cr)	ug/L	<1.0	<1.0	ND	<1.0	ND	ND	<1.0	ND	6.2	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND
Total Cobalt (Co)	ug/L	2.2	2.1	3.7	1.3	1.9	1.6	<0.40	ND	0.55	0.44	<0.40	0.43	<0.40	ND	1.2	1.3	0.42	<0.40	ND	<0.40	ND
Total Copper (Cu)	ug/L	4.7	5.0	10	4.8	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND
Total Iron (Fe)	ug/L	<50	<50	310	100	340	270	<50	ND	5100	3900	<50	ND	<50	ND	<50	<50	ND	<50	ND	<50	ND
Total Lead (Pb)	ug/L	<0.50	<0.50	ND	<0.50	ND	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	<0.50	ND	<0.50	ND	<0.50	ND
Total Magnesium (Mg)	ug/L	770	760	780	1200	1400	1400	2400	2400	6400	7500	8600	8100	5400	5300	640	640	900	2300	1800	4100	5400
Total Manganese (Mn)	ug/L	110	110	290	130	250	240	20	17	530	530	970	1000	44	38	110	110	35	11	69	46	160
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	ND	4.2	2.8	3.0	<2.0	ND	<2.0	ND	<2.0	4.1	<2.0	ND	<2.0	<2.0	ND	9.2	8.6	10	15
Total Nickel (Ni)	ug/L	8.8	8.4	8.3	3.9	3.4	2.4	<2.0	ND	2.4	ND	<2.0	3.3	<2.0	ND	3.3	3.6	2.8	<2.0	ND	<2.0	ND
Total Phosphorus (P)	ug/L	<100	<100	ND	<100	ND	ND	<100	ND	<100	ND	<100	ND	<100	ND	<100	<100	ND	<100	ND	<100	ND
Total Potassium (K)	ug/L	990	1000	960	1400	1300	1300	980	1000	1800	2000	3600	3300	1200	1300	720	670	710	1700	1500	1200	1400
Total Selenium (Se)	ug/L	<1.0	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND
Total Silver (Ag)	ug/L	<0.10	<0.10	ND	<0.10	ND	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	<0.10	ND	<0.10	ND	<0.10	ND
Total Sodium (Na)	ug/L	3300	3300	3300	7200	7000	7000	11000	10000	10000	11000	18000	21000	9200	12000	2400	2500	3200	20000	27000	23000	34000
Total Strontium (Sr)	ug/L	14	15	15	34	47	48	160	160	140	140	340	320	310	320	14	14	20	340	310	680	890
Total Thallium (Tl)	ug/L	<0.10	<0.10	ND	<0.10	ND	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	<0.10	ND	<0.10	ND	<0.10	ND
Total Tin (Sn)	ug/L	3.5	2.5	ND	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND
Total Titanium (Ti)	ug/L	<2.0	<2.0	ND	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND
Total Uranium (U)	ug/L	<0.10	<0.10	ND	0.14	0.19	0.19	0.35	0.21	0.11	0.11	2.3	2.5	0.73	0.86	<0.10	<0.10	0.30	6.6	8.7	3.7	3.8
Total Vanadium (V)	ug/L	<2.0	<2.0	ND	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND
Total Zinc (Zn)	ug/L	30	35	16	8.7	8.2	5.2	<5.0	ND	9.5	5.7	<5.0	ND	<5.0	5.8	<5.0	<5.0	7.2	<5.0	ND	<5.0	ND

Table 5: Groundwater Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Sample		MW-11							MW-12				MW-14							MW-16			
		MW-11A		MW-11B		MW-11C			MW-12A		MW-12B		MW-14A		MW-14B			MW-14C		MW-16A		MW-16B	
Sampling Date		27-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	27-Jun-18	21-Sep-18	21-Sep-18 (Field Dup 5)	18-Jun-18	12-Sep-18	18-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	27-Jun-18	(Field DUP 5) 27-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	18-Jun-18	12-Sep-18	18-Jun-18	12-Sep-18
Parameters	Units																						
Anion Sum	me/L	0.300	0.340	1.87	1.06	2.02	2.02	2.12	0.83	0.880	2.20	2.21	0.740	0.670	5.07	5.04	4.00	1.80	1.73	1.80	1.38	1.43	1.41
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	5.5	8.3	78	47	68	71	76	33	36	80	83	27	25	91	94	94	72	71	79	60	59	59
Calculated TDS	mg/L	21	23	100	63	120	120	120	64	62	130	130	53	52	320	310	240	100	100	100	78	84	82
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	ND	<1.0	ND	<1.0	<1.0	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	1.3	1.5	1.1	1.3	ND	<1.0	ND	<1.0	ND
Cation Sum	me/L	0.280	0.290	1.71	1.15	1.91	1.89	1.88	0.94	0.770	2.10	2.06	0.670	0.620	4.58	4.50	3.58	1.60	1.57	1.72	1.25	1.34	1.30
Hardness (CaCO3)	mg/L	8.0	7.8	71	24	76	71	71	31	24	70	70	18	14	46	45	54	29	32	66	46	55	54
Ion Balance (% Difference)	%	3.45	7.94	4.47	4.07	2.80	3.32	6.00	6.21	6.67	2.33	3.51	4.96	3.88	5.08	5.66	5.54	5.88	4.85	2.27	4.94	3.25	4.06
Langelier Index (@ 20C)	N/A	-4.04	-3.63	0.0690	-1.41	-0.283	-0.250	-0.307	-2.42	-2.50	-0.212	-0.155	-2.64	-2.58	-0.123	-0.0470	-0.106	-0.227	-0.406	-0.291	-1.07	-0.510	-0.249
Langelier Index (@ 4C)	N/A	-4.29	-3.88	-0.182	-1.66	-0.534	-0.501	-0.557	-2.67	-2.75	-0.462	-0.405	-2.89	-2.83	-0.371	-0.297	-0.356	-0.478	-0.657	-0.542	-1.33	-0.761	-0.501
Nitrate (N)	mg/L	0.059	ND	0.19	ND	0.066	0.089	0.077	0.085	0.17	0.062	ND	0.11	0.084	<0.050	<0.050	ND	0.052	ND	0.092	ND	0.14	0.13
Saturation pH (@ 20C)	N/A	10.2	10.0	8.05	8.75	8.10	8.10	8.08	8.9	8.95	8.08	8.07	9.19	9.31	8.29	8.29	8.20	8.52	8.48	8.08	8.34	8.27	8.27
Saturation pH (@ 4C)	N/A	10.4	10.3	8.30	9.00	8.35	8.35	8.33	9.15	9.21	8.33	8.32	9.44	9.57	8.54	8.54	8.45	8.77	8.73	8.33	8.59	8.52	8.52
INORGANICS																							
Total Alkalinity (Total as CaCO3)	mg/L	5.5	8.3	79	47	69	72	77	33	36	81	83	27	25	92	95	95	74	72	79	60	59	60
Dissolved Chloride (Cl)	mg/L	4.8	3.9	3.5	4.1	4.4	3.7	3.8	2.4	2.8	4.6	3.3	3.6	3.2	13	13	8.5	3.9	3.0	4.0	3.2	4.1	3.3
Colour	TCU	<5.0	ND	<5.0	ND	<5.0	<5.0	<5.0	<5.0	ND	<5.0	ND	<5.0	ND	<5.0	5.7	ND	<5.0	ND	<5.0	ND	<5.0	ND
Nitrate + Nitrite (N)	mg/L	0.059	ND	0.19	ND	0.066	0.089	0.077	0.085	0.17	0.062	ND	0.11	0.084	<0.050	<0.050	ND	0.052	ND	0.092	ND	0.14	0.13
Nitrite (N)	mg/L	<0.010	ND	<0.010	ND	<0.010	<0.010	<0.010	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	ND
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	ND	<0.050	ND	<0.050	<0.050	<0.050	<0.050	ND	<0.050	0.055	<0.050	ND	<0.050	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND
Total Organic Carbon (C)	mg/L	1.3	0.60	0.65	9.0	1.7	0.91	0.95	<0.50	ND	1.0	ND	0.62	ND	14	14	6.6	1.5	0.53	0.60	1.5	<0.50	ND
Orthophosphate (P)	mg/L	<0.010	ND	0.018	ND	0.021	0.019	0.018	<0.010	ND	0.016	0.013	0.012	0.018	<0.010	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	ND
pH	pH	6.12	6.37	8.11	7.34	7.82	7.85	7.77	6.48	6.46	7.86	7.91	6.56	6.74	8.17	8.24	8.09	8.29	8.08	7.79	7.27	7.76	8.02
Reactive Silica (SiO2)	mg/L	3.8	5.2	8.7	4.6	8.8	9.0	8.9	17	17	10	11	14	17	8.9	9.0	9.5	10	11	11	9.1	10	10
Dissolved Sulphate (SO4)	mg/L	2.6	3.1	8.2	ND	25	23	23	4.0	3.0	21	22	4.3	4.0	140	130	90	11	10	4.5	3.8	6.0	5.4
Turbidity	NTU	0.80	0.68	10	21	6.8	1.4	1.0	41	2.6	11	1.2	61	1.4	37	37	24	33	11	3.0	14	0.68	0.35
Conductivity	uS/cm	35	35	170	120	200	190	200	80	86	200	210	74	68	540	540	400	170	160	160	130	130	130
METALS																							
Total Aluminum (Al)	ug/L	31	78	14	5.6	18	6.2	7.6	5.0	5.0	5.5	ND	<5.0	ND	<5.0	<5.0	7.4	6.5	ND	<5.0	5.2	11	8.8
Total Antimony (Sb)	ug/L	<1.0	ND	<1.0	ND	<1.0	<1.0	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	1.6	1.6	1.3	<1.0	ND	<1.0	ND	<1.0	ND
Total Arsenic (As)	ug/L	<1.0	ND	60	4.7	78	74	76	<1.0	ND	44	36	4.9	5.4	7.7	7.6	11	1.6	1.5	1.5	1.1	8.6	9.6
Total Barium (Ba)	ug/L	6.9	7.7	7.8	4.1	11	11	11	6.7	8.1	10	8.1	3.2	3.5	5.9	5.7	5.7	13	8.9	3.5	5.2	4.6	2.2
Total Beryllium (Be)	ug/L	<1.0	ND	<1.0	ND	<1.0	<1.0	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Bismuth (Bi)	ug/L	<2.0	ND	<2.0	ND	<2.0	<2.0	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Boron (B)	ug/L	<50	ND	<50	ND	<50	<50	<50	<50	ND	<50	ND	<50	ND	84	78	78	<50	120	<50	ND	<50	ND
Total Cadmium (Cd)	ug/L	0.024	0.016	<0.010	ND	<0.010	<0.010	<0.010	0.027	0.032	<0.010	ND	0.014	0.010	<0.010	<0.010	ND	<0.010	ND	0.021	0.026	<0.010	ND
Total Calcium (Ca)	ug/L	2400	2300	25000	7900	26000	25000	25000	7900	6400	24000	24000	4900	4000	15000	15000	17000	9300	10000	23000	16000	20000	19000
Total Chromium (Cr)	ug/L	<1.0	ND	<1.0	ND	<1.0	<1.0	<1.0	<1.0	ND	2.3	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Cobalt (Co)	ug/L	1.0	0.70	<0.40	ND	0.44	<0.40	<0.40	2.6	2.3	<0.40	ND	1.6	0.82	<0.40	<0.40	ND	<0.40	ND	2.1	1.3	<0.40	ND
Total Copper (Cu)	ug/L	<2.0	ND	<2.0	ND	<2.0	<2.0	<2.0	<2.0	ND	<2.0	ND	<2.0	2.1	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Iron (Fe)	ug/L	<50	ND	<50	3800	<50	<50	<50	220	ND	<50	ND	<50	ND	<50	<50	ND	<50	ND	<50	ND	<50	ND
Total Lead (Pb)	ug/L	<0.50	ND	<0.50	ND	<0.50	<0.50	<0.50	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND
Total Magnesium (Mg)	ug/L	470	500	1800	1100	2400	2200	2200	2700	2000	2500	2500	1300	1000	2200	2100	2700	1400	1700	1900	1300	1400	1300
Total Manganese (Mn)	ug/L	76	72	35	650	56	22	22	1300	520	230	250	190	130	11	11	24	<2.0	16	690	450	6.3	2.0
Total Molybdenum (Mo)	ug/L	<2.0	ND	<2.0	4.6	2.6	2.9	2.8	<2.0	ND	19	17	<2.0	ND	15	15	12	<2.0	ND	<2.0	ND	<2.0	ND
Total Nickel (Ni)	ug/L	2.8	2.2	<2.0	ND	<2.0	<2.0	<2.0	2.5	3.2	<2.0	ND	4.2	4.8	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Phosphorus (P)	ug/L	<100	ND	<100	ND	<100	<100	<100	<100	ND	<100	ND	<100	ND	<100	<100	ND	<100	ND	<100	ND	<100	ND
Total Potassium (K)	ug/L	590	620	1600	1100	1100	1100	1100	2300	1600	1600	1500	1300	1300	1400	1400	1300	660	630	550	1200	1700	1300
Total Selenium (Se)	ug/L	<1.0	ND	<1.0	ND	<1.0	<1.0	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Silver (Ag)	ug/L	<0.10	ND	<0.10	ND	<0.10	<0.10	<0.10	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND
Total Sodium (Na)	ug/L	2400	2600	5800	12000	8500	10000	10000	6000	5600	15000	14000	6700	6900	83000	82000	57000	23000	21000	8700	7000	4600	4300
Total Strontium (Sr)	ug/L	17	15	86	28	190	230	230	53	49	80	79	38	30	330	330	350	270	260	77	61	74	71
Total Thallium (Tl)	ug/L	<0.10	ND	<0.10	ND	<0.10	<0.10	<0.10	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND
Total Tin (Sn)	ug/L	<2.0	ND	<2.0	ND	<2.0	<2.0	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Titanium (Ti)	ug/L	<2.0	ND	<2.0	ND	<2.0	<2.0	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Uranium (U)	ug/L	<0.10	ND	0.91	ND	3.3	3.6	3.7	<0.10	ND	2.0	1.5	<0.10	ND	4.7	4.7	3.4	0.53	0.26	2.4	0.55	2.6	2.3
Total Vanadium (V)	ug/L	<2.0	ND	<2.0	ND	<2.0	<2.0	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Zinc (Zn)	ug/L	12	6.5	<5.0	5.6	10	5.5	5.9	<5.0	5.2	<5.0	ND	8.1	9.3	<5.0	<5.0	ND	<5.0	ND	<5.0	5.5	<5.0	ND

Table 5: Groundwater Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Sample		MW-17							MW-18							MW-19					
		MW-17A		MW-17B			MW-17C		MW-18A			MW-18B		MW-18C		MW-19A		MW-19B		MW-19C	
Sampling Date		18-Jun-18	12-Sep-18	18-Jun-18	18-Jun-18 (Field DUP 2)	12-Sep-18	18-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	12-Sep-18 (Field DUP 1)	27-Jun-18	12-Sep-18	27-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18	19-Jun-18	12-Sep-18
Parameters	**Units**																				
Anion Sum	me/L	0.510	0.640	0.300	0.300	0.330	0.420	0.450	0.310	0.320	0.330	1.34	1.39	2.02	2.52	0.210	0.240	1.49	1.65	1.24	1.30
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	15	23	8.3	7.4	9.3	14	15	5.5	6.8	7.3	45	50	52	56	<1.0	5.3	60	67	37	39
Calculated TDS	mg/L	34	42	25	25	26	32	35	23	24	24	84	86	130	160	21	18	88	94	80	83
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Cation Sum	me/L	0.470	0.540	0.260	0.260	0.250	0.390	0.400	0.270	0.290	0.270	1.23	1.25	1.89	2.33	0.280	0.180	1.45	1.49	1.21	1.22
Hardness (CaCO3)	mg/L	15	18	6.6	6.7	6.1	12	12	6.8	7.6	7.3	41	30	45	58	5.4	4.1	59	60	36	36
Ion Balance (% Difference)	%	4.08	8.47	7.14	7.14	13.8	3.70	5.88	6.90	4.92	10.0	4.28	5.30	3.32	3.92	14.3	14.3	1.36	5.10	1.22	3.17
Langelier Index (@ 20C)	N/A	-3.14	-2.47	-4.06	-4.08	-3.80	-3.07	-2.93	-4.17	-3.82	-3.86	-0.820	-0.564	-0.636	-0.465	NC	-4.53	-0.330	-0.255	-1.53	-1.39
Langelier Index (@ 4C)	N/A	-3.40	-2.72	-4.31	-4.33	-4.06	-3.33	-3.18	-4.42	-4.07	-4.11	-1.07	-0.815	-0.886	-0.715	NC	-4.78	-0.581	-0.506	-1.78	-1.64
Nitrate (N)	mg/L	<0.050	ND	<0.050	<0.050	ND	<0.050	ND	0.062	ND	ND	<0.050	ND	<0.050	ND	0.25	0.15	0.066	ND	0.11	0.052
Saturation pH (@ 20C)	N/A	9.42	9.17	10.2	10.2	10.1	9.59	9.57	10.3	10.2	10.1	8.52	8.61	8.44	8.32	NC	10.6	8.23	8.18	8.68	8.64
Saturation pH (@ 4C)	N/A	9.67	9.42	10.4	10.4	10.4	9.84	9.82	10.6	10.4	10.4	8.77	8.86	8.69	8.57	NC	10.8	8.48	8.43	8.93	8.89
INORGANICS																					
Total Alkalinity (Total as CaCO3)	mg/L	15	23	8.3	7.4	9.3	14	15	5.5	6.8	7.3	45	50	52	56	<5.0	5.3	61	68	37	39
Dissolved Chloride (Cl)	mg/L	5.2	4.3	2.9	3.3	2.9	2.9	2.7	3.8	3.5	3.7	3.5	2.7	5.3	5.7	4.1	2.9	2.4	2.6	3.8	3.3
Colour	TCU	<5.0	ND	<5.0	5.3	ND	<5.0	ND	<5.0	ND	ND	<5.0	ND	<5.0	ND	<5.0	ND	<5.0	ND	<5.0	ND
Nitrate + Nitrite (N)	mg/L	<0.050	ND	<0.050	<0.050	ND	<0.050	ND	0.062	ND	ND	<0.050	ND	<0.050	ND	0.25	0.15	0.066	ND	0.15	0.063
Nitrite (N)	mg/L	<0.010	ND	<0.010	<0.010	ND	<0.010	ND	<0.010	ND	ND	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	ND	0.041	0.010
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	ND	<0.050	<0.050	ND	<0.050	ND	<0.050	ND	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND
Total Organic Carbon (C)	mg/L	0.59	ND	0.56	0.51	ND	<0.50	ND	1.7	ND	ND	1.4	1.6	5.8	7.7	2.4	0.85	0.95	1.2	2.1	2.0
Orthophosphate (P)	mg/L	<0.010	ND	0.014	0.017	0.019	<0.010	0.016	<0.010	ND	0.011	0.054	0.046	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	ND
pH	pH	6.28	6.70	6.10	6.12	6.34	6.51	6.64	6.18	6.34	6.28	7.70	8.04	7.81	7.86	5.85	6.06	7.90	7.93	7.15	7.26
Reactive Silica (SiO2)	mg/L	6.9	9.7	8.6	9.1	9.5	10	11	5.3	6.5	6.6	11	11	11	11	5.9	5.1	8.9	9.0	8.8	9.3
Dissolved Sulphate (SO4)	mg/L	2.6	2.9	2.7	2.6	2.8	2.9	3.2	4.3	3.9	3.8	17	15	40	59	3.5	2.2	9.8	11	18	20
Turbidity	NTU	1.6	3.3	0.49	0.90	2.1	0.74	1.0	1.1	0.23	0.45	20	43	18	9.3	1.3	14	2.7	8.9	7.0	10
Conductivity	uS/cm	46	64	29	29	31	40	45	35	36	36	130	140	210	260	34	26	140	160	130	140
METALS																					
Total Aluminum (Al)	ug/L	6.4	ND	12	11	8.7	<5.0	ND	23	27	23	13	20	16	11	110	50	15	15	37	ND
Total Antimony (Sb)	ug/L	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Arsenic (As)	ug/L	<1.0	ND	<1.0	<1.0	ND	1.2	2.6	40	26	24	230	230	57	79	<1.0	ND	8.5	6.4	3.0	3.2
Total Barium (Ba)	ug/L	10	12	3.0	2.9	3.4	2.4	1.2	5.7	11	6.1	4.1	8.4	6.4	9.6	7.4	12	10	13	7.3	7.3
Total Beryllium (Be)	ug/L	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Bismuth (Bi)	ug/L	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Boron (B)	ug/L	<50	ND	<50	<50	ND	<50	ND	<50	ND	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND
Total Cadmium (Cd)	ug/L	0.039	0.046	0.033	0.037	0.018	<0.010	0.012	0.028	0.023	0.022	<0.010	ND	<0.010	ND	0.084	0.026	<0.010	ND	0.010	ND
Total Calcium (Ca)	ug/L	4900	5900	1600	1600	1500	3600	3500	1600	1900	1900	15000	11000	16000	20000	1200	930	21000	21000	12000	12000
Total Chromium (Cr)	ug/L	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Cobalt (Co)	ug/L	3.0	4.3	<0.40	<0.40	ND	<0.40	ND	2.2	1.0	1.1	<0.40	ND	<0.40	ND	1.2	1.1	<0.40	ND	0.94	1.2
Total Copper (Cu)	ug/L	3.7	3.5	<2.0	<2.0	ND	<2.0	ND	5.1	3.6	3.6	<2.0	ND	<2.0	ND	<2.0	7.9	<2.0	ND	<2.0	2.1
Total Iron (Fe)	ug/L	<50	ND	<50	<50	ND	<50	ND	<50	ND	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND
Total Lead (Pb)	ug/L	<0.50	ND	<0.50	<0.50	ND	<0.50	ND	<0.50	ND	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND
Total Magnesium (Mg)	ug/L	790	860	630	630	570	670	690	710	660	620	1200	880	1400	1900	600	430	1500	1500	1200	1200
Total Manganese (Mn)	ug/L	240	340	200	200	7.2	20	11	53	48	44	3.1	ND	13	72	83	53	7.9	21	110	170
Total Molybdenum (Mo)	ug/L	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	ND	4.9	5.0	4.1	5.7	<2.0	ND	15	18	18	15
Total Nickel (Ni)	ug/L	8.5	11	<2.0	<2.0	ND	<2.0	ND	6.3	4.0	3.1	<2.0	ND	<2.0	ND	2.4	3.6	<2.0	ND	4.0	4.0
Total Phosphorus (P)	ug/L	<100	ND	<100	<100	ND	<100	ND	<100	ND	ND	<100	ND	<100	ND	<100	ND	<100	ND	<100	ND
Total Potassium (K)	ug/L	670	740	410	410	430	440	410	790	690	670	1500	1400	1600	1800	800	800	1900	2300	2100	2000
Total Selenium (Se)	ug/L	<1.0	ND	<1.0	<1.0	ND	<1.0	ND	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Silver (Ag)	ug/L	<0.10	ND	<0.10	<0.10	0.19	<0.10	ND	<0.10	ND	ND	<0.10	ND	<0.10	ND	<0.10	0.71	<0.10	ND	<0.10	ND
Total Sodium (Na)	ug/L	3400	3700	2800	2700	2800	3200	3600	2500	2700	2500	8400	14000	22000	26000	3400	1700	5200	5500	10000	10000
Total Strontium (Sr)	ug/L	32	29	19	18	19	18	21	13	12	12	85	150	180	240	8.6	10	120	120	71	77
Total Thallium (Tl)	ug/L	<0.10	ND	<0.10	<0.10	ND	<0.10	ND	<0.10	ND	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND
Total Tin (Sn)	ug/L	<2.0	2.6	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Titanium (Ti)	ug/L	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Uranium (U)	ug/L	<0.10	ND	<0.10	<0.10	ND	<0.10	ND	<0.10	ND	ND	1.1	1.7	1.8	1.5	<0.10	ND	2.9	3.1	<0.10	ND
Total Vanadium (V)	ug/L	<2.0	ND	<2.0	<2.0	ND	<2.0	ND	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	3.1	2.4	<2.0	ND
Total Zinc (Zn)	ug/L	12	18	<5.0	<5.0	ND	<5.0	ND	19	8.4	8.7	<5.0	9.8	<5.0	5.7	9.9	5.2	<5.0	ND	7.6	12

Table 5: Groundwater Quality Data
Beaver Dam Mine Project
Marinette, Nova Scotia

Sample		MW-20					MW-21						MW-22					
		MW-20A			MW-20B		MW-21A		MW-21B		MW-21C		MW-22A		MW-22B		MW-22C	
Sampling Date		26-Jun-18	12-Sep-18	12-Sep-18 (Field DUP 4)	26-Jun-18	12-Sep-18	18-Jun-18	12-Sep-18	18-Jun-18	12-Sep-18	18-Jun-18	12-Sep-18	26-Jun-18	12-Sep-18	26-Jun-18	12-Sep-18	26-Jun-18	12-Sep-18
Parameters	Units																	
Anion Sum	me/L	0.360	0.410	1.11	2.12	2.23	0.250	0.420	0.580	0.690	1.67	1.69	0.300	0.390	1.56	0.850	2.24	2.13
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	7.9	12	41	90	96	6.5	13	21	26	54	61	5.8	11	59	31	94	95
Calculated TDS	mg/L	26	31	68	120	120	20	31	40	46	110	110	23	31	94	59	130	120
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	1.0	ND
Cation Sum	me/L	0.310	0.330	1.01	1.95	1.96	0.240	0.370	0.550	0.620	1.56	1.52	0.260	0.330	1.38	0.790	2.00	1.90
Hardness (CaCO3)	mg/L	7.6	8.1	40	72	74	7.0	7.5	18	20	38	43	5.5	7.4	48	14	52	56
Ion Balance (% Difference)	%	7.46	10.8	4.72	4.18	6.44	2.04	6.33	2.65	5.34	3.41	5.30	7.14	8.33	6.12	3.66	5.66	5.71
Langelier Index (@ 20C)	N/A	-4.03	-3.63	-1.40	-0.0410	-0.0810	-4.65	-4.08	-2.94	-2.91	-1.93	-1.55	-4.11	-3.83	-0.786	-2.36	-0.0890	-0.106
Langelier Index (@ 4C)	N/A	-4.28	-3.88	-1.66	-0.291	-0.332	-4.90	-4.34	-3.19	-3.16	-2.18	-1.81	-4.36	-4.08	-1.04	-2.62	-0.340	-0.357
Nitrate (N)	mg/L	0.21	0.27	ND	<0.050	ND	0.48	0.67	0.35	0.53	0.14	0.17	0.093	0.059	<0.050	ND	<0.050	ND
Saturation pH (@ 20C)	N/A	10.1	9.93	8.57	8.07	8.03	10.3	9.94	9.30	9.13	8.63	8.56	10.5	10.0	8.41	9.23	8.16	8.13
Saturation pH (@ 4C)	N/A	10.4	10.2	8.83	8.32	8.28	10.5	10.2	9.56	9.38	8.88	8.81	10.7	10.3	8.66	9.48	8.41	8.38
INORGANICS																		
Total Alkalinity (Total as CaCO3)	mg/L	7.9	12	41	91	97	6.5	13	21	26	54	61	5.8	11	60	31	95	96
Dissolved Chloride (Cl)	mg/L	4.8	3.6	3.7	3.6	3.1	3.1	2.6	3.1	2.6	5.2	4.5	4.0	3.5	4.2	3.7	4.2	3.2
Colour	TCU	5.5	ND	ND	<5.0	ND	8.0	5.6	<5.0	ND	<5.0	ND	<5.0	ND	<5.0	ND	<5.0	ND
Nitrate + Nitrite (N)	mg/L	0.21	0.27	ND	<0.050	ND	0.48	0.67	0.35	0.53	0.14	0.18	0.093	0.059	<0.050	ND	<0.050	ND
Nitrite (N)	mg/L	<0.010	ND	ND	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	0.010	<0.010	ND	<0.010	ND	<0.010	ND
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	ND	ND	0.054	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND	<0.050	ND
Total Organic Carbon (C)	mg/L	1.3	ND	1.6	0.84	ND	2.1	2.0	1.0	1.3	4.2	2.5	1.0	0.93	1.8	2.6	1.6	0.93
Orthophosphate (P)	mg/L	<0.010	0.011	ND	<0.010	0.014	<0.010	ND	0.018	0.020	<0.010	ND	<0.010	ND	<0.010	ND	<0.010	ND
pH	pH	6.08	6.30	7.17	8.02	7.95	5.64	5.86	6.37	6.22	6.70	7.01	6.38	6.20	7.63	6.86	8.07	8.02
Reactive Silica (SiO2)	mg/L	6.7	9.2	10	12	12	5.6	6.8	8.9	10	15	19	6.5	10	14	13	12	12
Dissolved Sulphate (SO4)	mg/L	2.3	2.7	8.9	9.8	9.8	<2.0	2.3	2.2	2.7	21	16	3.3	3.3	12	5.6	10	6.1
Turbidity	NTU	4.9	7.9	1.0	4.7	2.5	1.1	1.7	23	17	7.6	1.8	2.2	2.7	1.8	2.3	6.8	1.0
Conductivity	uS/cm	38	41	110	200	200	33	48	61	71	160	170	33	41	150	89	210	200
METALS																		
Total Aluminum (Al)	ug/L	38	18	5.7	62	10	430	390	16	26	7.5	ND	22	19	23	8.6	12	7.6
Total Antimony (Sb)	ug/L	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Arsenic (As)	ug/L	<1.0	ND	ND	7.0	10	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	1.5	1.2	5.4	5.0
Total Barium (Ba)	ug/L	4.8	4.4	4.4	11	12	15	19	3.5	5.8	9.7	8.2	5.0	5.3	3.6	3.9	4.7	2.9
Total Beryllium (Be)	ug/L	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Bismuth (Bi)	ug/L	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Boron (B)	ug/L	<50	ND	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND
Total Cadmium (Cd)	ug/L	0.035	0.036	0.018	0.011	ND	0.049	0.066	0.015	0.025	0.019	ND	0.016	0.015	<0.010	ND	<0.010	ND
Total Calcium (Ca)	ug/L	1900	2000	14000	22000	22000	1500	1800	4700	5800	9700	10000	1000	1700	14000	3900	17000	18000
Total Chromium (Cr)	ug/L	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Cobalt (Co)	ug/L	2.8	ND	ND	<0.40	ND	3.7	4.2	<0.40	0.46	0.51	0.65	1.8	1.2	0.43	1.1	<0.40	ND
Total Copper (Cu)	ug/L	3.0	2.1	2.0	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	9.4	6.6	<2.0	ND	<2.0	ND
Total Iron (Fe)	ug/L	<50	ND	ND	<50	ND	65	ND	<50	ND	<50	ND	<50	ND	<50	ND	<50	ND
Total Lead (Pb)	ug/L	<0.50	ND	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND	<0.50	ND
Total Magnesium (Mg)	ug/L	680	770	1500	4500	4600	780	750	1500	1400	3200	4300	700	800	3000	1000	2500	2800
Total Manganese (Mn)	ug/L	150	60	17	100	110	650	540	110	200	180	240	160	160	190	200	15	21
Total Molybdenum (Mo)	ug/L	<2.0	2.3	ND	<2.0	6.7	<2.0	ND	<2.0	ND	2.6	ND	<2.0	ND	<2.0	ND	3.3	3.1
Total Nickel (Ni)	ug/L	6.8	2.8	ND	<2.0	ND	2.8	2.4	<2.0	ND	<2.0	3.7	8.1	6.9	<2.0	4.0	<2.0	ND
Total Phosphorus (P)	ug/L	<100	ND	ND	<100	ND	<100	ND	<100	ND	<100	ND	<100	ND	<100	ND	<100	ND
Total Potassium (K)	ug/L	610	670	1300	1600	1800	850	970	1200	1100	2100	1800	810	870	1600	1500	1100	990
Total Selenium (Se)	ug/L	<1.0	ND	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND	<1.0	ND
Total Silver (Ag)	ug/L	<0.10	ND	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND
Total Sodium (Na)	ug/L	3200	3600	4000	10000	10000	1800	4400	3700	4300	17000	14000	3000	3700	8900	11000	21000	18000
Total Strontium (Sr)	ug/L	19	18	78	270	270	15	18	33	43	85	86	15	19	81	44	280	260
Total Thallium (Tl)	ug/L	<0.10	ND	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND	<0.10	ND
Total Tin (Sn)	ug/L	<2.0	ND	2.3	2.1	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Titanium (Ti)	ug/L	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Uranium (U)	ug/L	<0.10	ND	ND	0.86	0.85	0.10	ND	<0.10	ND	0.29	0.32	<0.10	ND	0.26	0.12	0.52	0.12
Total Vanadium (V)	ug/L	<2.0	ND	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND	<2.0	ND
Total Zinc (Zn)	ug/L	10	6.3	16	<5.0	ND	<5.0	ND	<5.0	6.2	6.5	7.7	16	13	5.2	15	<5.0	ND

Attachment 1
Stratigraphic Logs

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-01A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 150.368	**START DATE:** May 1, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 149.247	**COMPLETION DATE:** May 1, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990095.110 E:520942.252 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - brown, trace to some clay, numerous cobbles and boulders										PVC Riser		1
	WEATHERED BEDROCK - grey greywacke, mechanical breaks, silt and clay in fractures, orange and black staining		1	CS	-	50	0				Bentonite Seal		2 3 4 5 6 7 8 9
2	BEDROCK - grey greywacke, some fractures, orange and black staining		2	CS	-	86	40				Silica Sand		10
3	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, orange and black staining		3	CS	-	100	0				PVC "2- Slot" Screen		11 12 13 14 15
4 5	BEDROCK - grey greywacke, numerous fractures, no staining		4	CS	-	100	42						16 17 18 19
6											PVC Threaded Well Point		20 21

GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-01B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 150.422	**START DATE:** May 4, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 149.428	**COMPLETION DATE:** May 4, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990093.660 E:520943.031 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, some cobbles and boulders		1	CS	-	39	0						1 2 3 4 5
2	WEATHERED BEDROCK - grey greywacke, mechanical break, silt and clay in fractures, orange and black staining		2	CS	-	60	9						6 7 8 9 10
3	BEDROCK - grey greywacke, some fractures, orange and black staining		3	CS	-	100	63						11 12 13 14 15
4											PVC Riser		
5			4	CS	-	100	78						16 17 18 19 20
6													
7	BEDROCK - grey greywacke, some fractures, no staining		5	CS	-	100	75						21 22 23 24 25
8											Bentonite Seal		
9			6	CS	-	100	88						26 27 28 29 30
10			7	CS	-	100	80						31 32 33 34 35
11			8	CS	-	100	56						36 37 38 39 40
12													
13			9	CS	-	100	44				Silica Sand		41 42 43 44
14											PVC "2- Slot" Screen		45 46 47 48
15			10	CS	-	100	69				PVC Threaded Well Point		49 50 51

GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-01C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 150.594	**START DATE:** May 4, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 149.465	**COMPLETION DATE:** May 4, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990092.462 E:520944.122 Elev: CGVD 2013 Ground Surface										Stick-up		-4 to -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, some cobbles and boulders		1	CS	-	97	15						1
2	BEDROCK - grey greywacke, mechanical breaks, silt and clay in fractures, orange and black staining		2	CS	-	100	42						2
3	BEDROCK - grey greywacke, some fractures, orange and black staining												3
4			3	CS	-	100	41				PVC Riser		4
5	BEDROCK - grey greywacke, some fractures, no staining		4	CS	-	100	75						5
6													6
7			5	CS	-	100	80						7
8			6	CS	-	100	83				Bentonite Seal		8
9													9
10			7	CS	-	100	83						10
11			8	CS	-	100	80						11
12													12
13			9	CS	-	100	64						13
14			10	CS	-	100	86						14
													15 to 48

GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-01C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 150.594	**START DATE:** May 4, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 149.465	**COMPLETION DATE:** May 4, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15													49
16			11	CS	-	100	73						50 51 52 53 54
17			12	CS	-	100	59						55 56 57 58 59
18			13	CS	-	100	51						60 61 62 63 64
19			14	CS	-	100	51				Bentonite Seal		65 66 67 68 69
20			15	CS	-	100	24						70 71 72 73 74
21	BEDROCK - grey greywacke, mechanical breaks, some fractures, no staining		16	CS	-	100	54						75 76 77 78 79
22			17	CS	-	100	68						80 81 82 83 84
23			18	CS	-	100	73				PVC Riser		85 86 87 88 89
24	BEDROCK - grey greywacke, some fractures, no staining		19	CS	-	100	37						90 91 92 93 94
25			20	CS	-	100	63				Silica Sand		95 96 97 98 99
26											PVC "2- Slot" Screen		100
27													
28													
29													
30											PVC Threaded Well Point		

GHD
45 Akerley Blvd
Dartmouth, NS
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-02A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 151.292	**START DATE:** May 7, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 150.228	**COMPLETION DATE:** May 7, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989595.501 E:520728.778 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey, some sand, some cobbles and boulders, wet at 0.6m										PVC Riser Bentonite Seal		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
2											Silica Sand		
3											PVC "2- Slot" Screen		
4											PVC Threaded Well Point		
5													16 17

GHD
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-02B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 151.352	**START DATE:** May 7, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 150.259	**COMPLETION DATE:** May 7, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989594.708 E:520730.397 Elev: CGVD 2013 Ground Surface										Stick-up		-4 to -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey, some clay, some cobbles and boulders, wet at 2.03m												1 to 4
2													
3													
4											PVC Riser		
5													5 to 16
6	BEDROCK - grey granite, some fractures, silt and clay in fractures, orange and black staining		1	CS	-	92	51						
7	BEDROCK - grey with some pinkish granite, highly fractured, orange and black staining		2	CS	-	100	22						
8											Bentonite Seal		
9	BEDROCK - grey granite, numerous fractures, orange and black staining		3	CS	-	100	44						
10	BEDROCK - grey granite, some fractures, no staining		4	CS	-	100	41						17 to 40
11													
12			5	CS	-	100	58						
13			6	CS	-	100	80				Silica Sand		
14											PVC "2- Slot" Screen		
15			7	CS	-	100	75				PVC Threaded Well Point		41 to 50
16													51 to 54

GHD
45 Akerley Blvd
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-03A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 166.256	**START DATE:** May 1, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 165.241	**COMPLETION DATE:** May 1, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989220.163 E:521823.117 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - brown, trace to some clay, some cobbles and boulders												1 2
1	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, silt and clay in fractures, orange and black staining, steeply dipping		1	CS	-	70	0				PVC Riser		3 4 5
2			2	CS	-	97	20				Bentonite Seal		6 7 8 9
3													10
	BEDROCK - grey greywacke, numerous fractures, orange and black staining, steeply dipping												11 12
4			3	CS	-	98	31				Silica Sand		13 14 15
5			4	CS	-	100	78				PVC "2- Slot" Screen		16 17 18 19
6											PVC Threaded Well Point		20
													21

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-03B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 166.208	**START DATE:** May 1, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 165.194	**COMPLETION DATE:** May 1, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989222.229 E:521823.540 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, some cobbles and boulders		1	CS	-	91	0						1 2 3 4 5 6 7 8 9 10 11 12
2	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, silt and clay in fractures, orange and black staining, steeply dipping		2	CS	-	95	0						13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
3													
4	BEDROCK - grey greywacke, some fractures, orange and black staining, more competent, steeply dipping		3	CS	-	98	40				PVC Riser		
5	BEDROCK - grey greywacke, some fractures, no staining, more competent, steeply dipping		4	CS	-	100	75						
6													
7	BEDROCK - grey greywacke, numerous fractures, no staining, steeply dipping		6	CS	-	100	27				Bentonite Seal		
8			7	CS	-	100	41						
9													
10			8	CS	-	100	61						
11			9	CS	-	100	59						
12													
13			10	CS	-	100	59				Silica Sand		
14			11	CS	-	100	69				PVC "2- Slot" Screen		
15											PVC Threaded Well Point		

GHD
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-03C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 166.161	**START DATE:** May 2, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 165.154	**COMPLETION DATE:** May 2, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989223.934 E:521824.051 Elev: CGVD 2013 Ground Surface										Stick-up		-4 to -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, some cobbles and boulders at 0.6m		1	CS	-	83	0						1
2	WEATHERED BEDROCK - grey greywacke, mechanical breaks, highly fractured, silt and clay in fractures, orange and black staining		2	CS	-	92	53						2
3	BEDROCK - grey greywacke, highly fractured, orange and black staining, primary bedding at 10°,												3
4			3	CS	-	100	37						4
5	BEDROCK - grey greywacke, some fractures, no staining, primary bedding at 15°		4	CS	-	100	75				PVC Riser		5
6													6
7			5	CS	-	100	76						7
8			6	CS	-	100	80						8
9											Bentonite Seal		9
10			7	CS	-	100	73						10
11			8	CS	-	100	73						11
12													12
13			9	CS	-	100	54						13
14			10	CS	-	100	81						14
													15 to 48

GHD
45 Akerley Blvd
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-03C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 166.161	**START DATE:** May 2, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 165.154	**COMPLETION DATE:** May 2, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15			10		-								49
16			11	CS	-	100	90						50 51 52 53 54 55
17			12	CS	-	100	90						56 57 58 59 60
18													61
19			13	CS	-	100	58						62 63 64 65
20			14	CS	-	100	63				Bentonite Seal		66 67 68 69 70
21													71
22			15	CS	-	100	97						72 73 74 75
23			16	CS	-	100	78				PVC Riser		76 77 78 79 80
24													81
25			17	CS	-	100	86						82 83 84 85
26			18	CS	-	100	83						86 87 88 89
27													90
28			19	CS	-	100	54				Silica Sand		91 92 93 94
29			20	CS	-	100	86				PVC "2- Slot" Screen		95 96 97
30											PVC Threaded Well Point		98 99
													100

GHD
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-04A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 164.330	**START DATE:** April 3, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 163.477	**COMPLETION DATE:** April 3, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989640.335 E:522649.993 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat												0
	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders										Silica Sand		1
1											PVC Riser		2 3 4 5
			1	CS	-	47	0						6
2	WEATHERED BEDROCK - grey greywacke, highly fractured, orange and black staining		2	CS	-	85	0				Bentonite Seal		7
	BEDROCK - grey greywacke, with fractures, silt in some fractures, orange and black staining, steeply dipping		3	CS	-	100	57						8 9 10
3											Silica Sand		11 12 13
4			4	CS	-	100	76				PVC "2- Slot" Screen		14 15 16
5			5	CS	-	94	87				PVC Threaded Well Point		17 18 19
6													20 21

GHD 45 Akerley Blvd Dartmouth, NS B3B 1J7	**LOGGED BY:** RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
	REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
	DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-04B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 164.378	**START DATE:** April 2, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 163.509	**COMPLETION DATE:** April 3, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989639.523 E:522649.439 Elev: CGVD 2013 Ground Surface										Stick-up		-4 to -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders												1
2	BEDROCK - grey greywacke, highly fractured, orange and black staining, water bearing zones, slight dip		1	CS	-	93	0						2
3			2	CS	-	97	97				Bentonite Seal		3
4			3	CS	-	91	44						4
5			4	CS	-	88	88						5
6	BEDROCK - grey greywacke, minor fractures, orange and black staining, slight dip		5	CS	-	94	82				PVC Riser		6
7			6	CS	-	100	100						7
8			7	CS	-	100	96						8
9			8	CS	-	96	75				Bentonite Seal		9
10	BEDROCK - grey greywacke, no fractures, quartz vein from 10.03 to 10.54m, slight dip		9	CS	-	100	100						10
11			10		-								11
12			11	CS	-	100	97						12
13			12	CS	-	98	97				Silica Sand		13
14											PVC "2- Slot" Screen		14
15			13	CS	-	100	93				PVC Threaded Well Point		15
16													16

GHD
45 Akerley Blvd
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-05A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 140.503	**START DATE:** April 25, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 139.677	**COMPLETION DATE:** April 25, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990210.163 E:521746.140 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - grey, trace to some clay, some cobbles and boulders at 0.6m										Bentonite Seal		1 2
1	WEATHERED BEDROCK - grey greywacke, mechanical breaks, silt and clay in fractures, orange and black staining, steeply dipping		1	CS	-	89	17				PVC Riser		3 4 5 6 7 8 9
2			2	CS	-	62	0						
3			3	CS	-	88	0				Silica Sand		10 11 12
4			4	CS	-	78	0				PVC "2- Slot" Screen		13 14 15 16
5	BEDROCK - grey greywacke, some fractures, minor orange and black staining, steeply dipping		5	CS	-	93	26						17 18 19
6											PVC Threaded Well Point		20
													21

GHD
45 Akerley Blvd
Dartmouth, NS
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-05B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 140.660	**START DATE:** April 24, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 139.716	**COMPLETION DATE:** April 24, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990208.591 E:521747.858 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, numerous cobbles and boulders, water at 0.68m												1
2	WEATHERED BEDROCK - grey greywacke, numerous fractures, silt and clay in fractures, orange and black staining		1	CS	-	89	31						2 3 4 5 6 7 8 9 10 11 12 13
3			2	CS	-	83	17						
4			3	CS	-	76	0						
5	BEDROCK - grey greywacke, mechanical breaks, highly fractured, orange and black staining, steeply dipping		5	CS	-	91	0				Bentonite Seal		14 15 16 17 18 19 20 21 22 23 24 25 26
6	BEDROCK - grey greywacke, numerous fractures, orange and black staining, steeply dipping		6	CS	-	98	42						
7	BEDROCK - grey greywacke, some fractures,minor orange and black staining, steeply dipping		7	CS	-	100	80				PVC Riser		
8													
9	BEDROCK - grey greywacke, minor fractures, minor orange and black staining, steeply dipping		8	CS	-	100	88						27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51
10			9	CS	-	100	100						
11													
12	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		10	CS	-	100	91						
13			11	CS	-	100	85				Silica Sand		
14											PVC "2- Slot" Screen		
15	BEDROCK - grey greywacke, some fractures, some orange and black staining in fractures from 14.32 to 14.55m, steeply dipping		12	CS	-	100	59				PVC Threaded Well Point		
16													52 53 54

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-05C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 140.762	**START DATE:** April 20, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 139.769	**COMPLETION DATE:** April 23, 2018
BENCHMARK:		**PAGE** 1 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990207.042 E:521745.609 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown to grey brown, trace to some clay, some cobbles and boulders												1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
2	WEATHERED BEDROCK - grey greywacke, some fractures, orange and black staining		1	CS	-	58	19						
			2	CS	-	92	0						
	BEDROCK - grey greywacke, less weathered, no fractures, steeply dipping		3	CS	-	88	53						
3	BEDROCK - grey greywacke, mechanical breaks, numberous fractures, some orange and black staining, steeply dipping		4	CS	-	100	76				Bentonite Seal		
4			5	CS	-	100	68						
5													
6			6	CS	-	100	69				PVC Riser		
7			7	CS	-	100	28						
8													
9	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		8	CS	-	100	77				Bentonite Seal		
10			9	CS	-	100	92						
11			10	CS	-	100	62						
12													
13			12	CS	-	100	96						
14													

GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-05C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 140.762	**START DATE:** April 20, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 139.769	**COMPLETION DATE:** April 23, 2018
BENCHMARK:		**PAGE** 2 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15			13	CS	-	100	20						48
			14	CS	-	100	0						49
16			15	CS	-	100	21						50
													51
17			11	CS	-	100	100						52
			16	CS	-	100	26						53
18			17	CS	-	100	41						54
	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping, quartz vein from 19.13 to 19.28m												55
19			18	CS	-	100	58						56
													57
20			19	CS	-	100	47						58
													59
21													60
			20	CS	-	100	34						61
22													62
													63
23			21	CS	-	100	66						64
													65
24													66
													67
25			22	CS	-	100	81						68
													69
26													70
			23	CS	-	100	91						71
27													72
													73
28			24	CS	-	100	68						74
													75
29													76
			25	CS	-	100	91						77
30													78
													79
													80
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													99
													100

GHD
45 Akerley Blvd
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-05C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 140.762	**START DATE:** April 20, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 139.769	**COMPLETION DATE:** April 23, 2018
BENCHMARK:		**PAGE** 3 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
31			26	CS	-	100	56						101
32			27	CS	-	100	23						102
33			28	CS	-	100	0						103
34			29	CS	-	100	44						104
35			30	CS	-	100	79						105
36			32	CS	-	100	26						106
37			33	CS	-	100	84						107
38			34	CS	-	100	38						108
39			35	CS	-	100	32						109
40			36	CS	-	100	55						110
41			37	CS	-	100	83						111
42			38	CS	-	100	83						112
43													113
44													114
45													115
46	BEDROCK - grey greywacke, mechanical breaks at 46.0m, numerous fractures, no staining, steeply dipping		39	CS	-	100	39						116
													117
													118
													119
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GHD
45 Akerley Blvd
Dartmouth, NS
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-05C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 140.762	**START DATE:** April 20, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 139.769	**COMPLETION DATE:** April 23, 2018
BENCHMARK:		**PAGE** 4 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
47			40	CS	-	100	52						153
48			41	CS	-	100	46						154
49			42	CS	-	100	58						155
50			43	CS	-	100	68						156
51			44	CS	-	100	83						157
52			45	CS	-	100	71						158
53			46	CS	-	100	44						159
54			47	CS	-	100	69						160
55			48	CS	-	100	54						161
56													162
57													163
58											Silica Sand		164
59											PVC "2- Slot" Screen		165
60													166
61											PVC Threaded Well Point		167
62													168
													169
													170
													171
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													204
													205

GHD

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Dartmouth, NS
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-05D
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 141.180	**START DATE:** April 30, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 140.168	**COMPLETION DATE:** May 1, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990206.839 E:521742.062 Elev: CGVD 2013 Ground Surface										Stick-up		-4 to -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, some cobbles and boulders, wet at 0.61m												1
	BEDROCK - grey greywacke, numerous fractures, silt and clay in the fractures, orange and black staining		1	CS	-	60	0						2
2			2	CS	-	43	0						3
3													4
4	BEDROCK - grey greywacke, some fractures, orange and black staining		3	CS	-	67	39				PVC Riser		5
5													6
6			4	CS	-	100	61						7
7			6	CS	-	100	75						8
8											Bentonite Seal		9
9			7	CS	-	100	63						10
10			8	CS	-	100	49						11
11	BEDROCK - grey greywacke, broken up and blocky, some fractures, no staining		9	CS	-	78	0						12
12	BEDROCK - grey greywacke, slightly broken up and blocky, numerous fractures, no staining		10	CS	-	100	78						13
13			11	CS	-	100	10						14
14			12	CS	-	100	50						15 to 48

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-05D
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 141.180	**START DATE:** April 30, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 140.168	**COMPLETION DATE:** May 1, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15			13	CS	-	100	54						49
16			14	CS	-	100	76						53
17													56
18			15	CS	-	100	58						59
19			16	CS	-	100	46						62
20											Bentonite Seal		66
21			17	CS	-	100	39						69
22	BEDROCK - grey greywacke, some fractures, no staining		18	CS	-	100	75						72
23											PVC Riser		76
24			19	CS	-	100	66						79
25			20	CS	-	100	83						82
26													85
27			21	CS	-	100	85						88
28			22	CS	-	98	18				Silica Sand		92
29			23	CS	-	97	61				PVC "2- Slot" Screen		95
30			24	CS	-	100	61				PVC Threaded Well Point		98
													100

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-07A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 9, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 9, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1											Stick-up		-3 -2 -1
0	Ground Surface												0
	SILTY SAND - brown, trace to some clay, some cobbles and boulders, water at 1.85m										Silica Sand		1 2 3 4 5 6 7 8 9 10
1													
2											PVC Riser		
											Bentonite Seal		
3	WEATHERED BEDROCK - grey greywacke, numerous fractures,orange and black staining, steeply dipping		1	CS	-	100	0						11
			2	CS	-	100	69						12
4	BEDROCK - grey greywacke, numerous fractures, orange and black staining at 3.88m, steeply dipping												13 14
			3	CS	-	96	36						
	BEDROCK - grey greywacke, numerous fractures, no staining, steeply dipping												15 16
5			4	CS	-	100	62				Silica Sand		17 18
6			5	CS	-	100	46				PVC "2- Slot" Screen		19 20 21 22
7			6	CS	-	97	62				PVC Threaded Well Point		23 24
													25 26

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-07B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 6, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 6, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, numerous cobbles and boulders												1 2 3 4 5 6 7 8 9
2													
3	WEATHERED BEDROCK - grey greywacke, soft, numerous fractures containing silt and clay, orange and black staining, steeply dipping		1	CS	-	68	0				Bentonite Seal		10 11 12 13 14 15 16 17 18 19
4			2	CS	-	100	26						20
5	BEDROCK - grey greywacke, numerous fractures containing silt and clay, orange and black staining, steeply dipping		3	CS	-	96	18						21 22 23 24 25 26 27 28 29
6	BEDROCK - grey greywacke, numerous fractures, no staining,very soft at 5.48m, small quartz vein at 5.63m		4	CS	-	100	36				PVC Riser		30 31 32 33 34 35 36 37 38 39
7	BEDROCK - grey greywacke, numerous fractures, no staining, soft, steeply dipping		5	CS	-	100	25						40 41 42 43 44 45 46 47 48 49
8			6	CS	-	100	33						50
9			7	CS	-	97	67				Bentonite Seal		51 52 53 54
10			8	CS	-	100	30						
11			9	CS	-	100	65						
12			10	CS	-	96	48						
13			11	CS	-	97	41				Silica Sand		
14			12	CS	-	100	34				PVC "2- Slot" Screen		
15			13	CS	-	100	50				PVC Threaded Well Point		
16			14	CS	-	100	36						
			15	CS	-	100	85						
			16	CS	-	100	37						
			17	CS	-	100	44						

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-07C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 16, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 19, 2018
BENCHMARK:		**PAGE** 1 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown to grey brown, trace to some clay, some cobbles and boulders, water at 1.07m												1 2 3 4
2													5 6 7 8
3	WEATHERED BEDROCK - grey greywacke, soft, some silt and clay in fractures, orange and black staining, steeply dipping		1	CS	-	46	0				Bentonite Seal		9 10 11 12
4	BEDROCK - grey greywacke, less weathered, numerous fractures, orange and black staining, steeply dipping		2	CS	-	81	0						13 14 15 16
5	BEDROCK - grey greywacke, some fractures, some orange and black staining, steeply dipping		3	CS	-	100	19						17 18 19 20
6			4	CS	-	100	46						21 22 23 24
7	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		5	CS	-	97	16				PVC Riser		25 26 27 28
8			6	CS	-	100	43						29 30 31 32
9			7	CS	-	100	43						33 34 35 36
10			8	CS	-	100	21						37 38 39 40
11			9	CS	-	100	0				Bentonite Seal		41 42 43 44
12			10	CS	-	100	0						45 46 47
13			11	CS	-	100	0						
14			12	CS	-	100	37						
			13	CS	-	64	0						
			14	CS	-	100	0						
	BEDROCK - grey greywacke, no staining, steeply dipping, quartz vein at 13.44m		15	CS	-	100	44						
			16	CS	-	100	15						

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-07C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 16, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 19, 2018
BENCHMARK:		**PAGE** 2 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		16		-								48
			17	CS	-	100	33						49
			18	CS	-	98	0						50
16			19	CS	-	100	0						51
			20	CS	-	100	0						52
17			21	CS	-	100	0						53
			22	CS	-	100	0						54
18			23	CS	-	100	47						55
			24	CS	-	100	34						56
19			25	CS	-	100	33						57
			26	CS	-	100	0						58
20			27	CS	-	100	47						59
			28	CS	-	97	36						60
21			29	CS	-	96	50						61
			30	CS	-	100	0						62
22			31	CS	-	95	0						63
			32	CS	-	88	0						64
23			33	CS	-	95	31						65
			34	CS	-	100	14						66
24			35	CS	-	100	0						67
			36	CS	-	100	46						68
25													69
													70
26													71
													72
27													73
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28													75
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29													77
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													100

GHD
45 Akerley Blvd
Dartmouth, NS
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-07C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 16, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 19, 2018
BENCHMARK:		**PAGE** 3 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
31	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		37	CS	-	100	32						101
32			38	CS	-	100	56						102
33			39	CS	-	100	46						103
34			40	CS	-	100	68						104
35			41	CS	-	100	19						105
36			42	CS	-	100	14						106
37			43	CS	-	100	26						107
38			44	CS	-	98	14						108
39			45	CS	-	98	0						109
40			46	CS	-	100	0						110
41			47	CS	-	100	36						111
42			48	CS	-	100	14						112
43			49	CS	-	100	49						113
44			50	CS	-	100	13						114
45			51	CS	-	100	12						115
46													116
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GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-07C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 16, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 19, 2018
BENCHMARK:		**PAGE** 4 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
47	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		52	CS	-	100	31						153
48			53	CS	-	87	0						154
													155
49			54	CS	-	98	18						156
													157
50	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping, quartz vein from 49.63 to 49.78m		55	CS	-	100	73						158
													159
51			56	CS	-	100	80						160
													161
52			57	CS	-	100	42						162
													163
53	BEDROCK - grey greywacky, some fractures, steeply dipping, quartz vein throughout (vertical)		58	CS	-	100	52						164
													165
54													166
													167
55	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		59	CS	-	100	80						168
													169
56			60	CS	-	100	23						170
													171
57													172
													173
58			61	CS	-	100	39				Silica Sand		174
													175
59			62	CS	-	100	36				PVC "2- Slot" Screen		176
													177
60			63	CS	-	100	14				PVC Threaded Well Point		178
													179
61													180
													181
62													182
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													205

45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-07D
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 131.296	**START DATE:** May 14, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 130.256	**COMPLETION DATE:** May 14, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990259.556 E:522674.898 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown to grey-brown, trace to some clay, some cobbles and boulders, wet at 1.24m												1 2 3 4
2													5 6 7 8
3	BEDROCK - grey greywacke, numerous fractures, silt and clay in the fractures, orange and black staining		1	CS	-	83	0						9 10 11 12
4	BEDROCK - grey greywacke, numerous fractures, mechanical breaks, silt and clay in the fractures, orange and black staining		2	CS	-	98	0				PVC Riser		13 14 15 16
5	BEDROCK - grey greywacke, broken up, no staining		3	CS	-	97	21						17 18 19 20
6	BEDROCK - grey greywacke, more competent, numerous fractures, no staining		4	CS	-	92	47						21 22 23 24
7			5	CS	-	100	18						25 26 27 28
8	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, no staining		6	CS	-	100	40				Bentonite Seal		29 30 31 32
9			7	CS	-	100	22						33 34 35 36
10			8	CS	-	100	22						37 38 39 40
11	BEDROCK - grey greywacke, more competent, numerous fractures noted, no staining		9	CS	-	100	0						41 42 43 44
12			10	CS	-	100	11						45 46 47 48
13			11	CS	-	100	42						
14			12	CS	-	100	36						

GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-07D
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 131.296	**START DATE:** May 14, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 130.256	**COMPLETION DATE:** May 14, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15													49
16	BEDROCK - grey greywacke, not very competent, numerous fractures, no staining		13	CS	-	100	37						50 51 52 53 54 55
17			14	CS	-	100	22						56 57 58 59
18	BEDROCK - grey greywacke, more competent, numerous fractures, no staining		15	CS	-	100	64						60 61 62 63 64
19													65
20			16	CS	-	100	34				Bentonite Seal		66 67 68
21													69 70 71
22	BEDROCK - grey greywacke, some fractures, no staining		17	CS	-	100	49						72 73 74
23			18	CS	-	100	25				PVC Riser		75 76 77 78 79
24													80
25			19	CS	-	100	63						81 82 83 84
26			20	CS	-	100	47						85 86 87 88
27													89
28			21	CS	-	100	66				Silica Sand		90 91 92 93 94
29											PVC "2- Slot" Screen		95 96 97
30			22	CS	-	100	52				PVC Threaded Well Point		98 99 100

GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-09A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 13, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 13, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1											Stick-up		-3 -2 -1
0	Ground Surface												0
	ORGANIC - rootmat										Silica Sand		
	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders												1
1	WEATHERED BEDROCK - grey greywacke, numerous fractures, silt and clay in fractures, orange and black staining, steeply		1	CS	-	94	0						2 3 4
			2	CS	-	76	0				PVC Riser		5 6
2			3	CS	-	51	0				Bentonite Seal		7 8 9 10
3			4	CS	-	84	0						11
			5	CS	-	85	20						12 13 14
4			6	CS	-	100	24				Silica Sand		15 16
5	BEDROCK - grey greywacke, numerous fractures, no staining, steeply dipping		7	CS	-	100	32				PVC "2- Slot" Screen		17 18 19
6													20 21
			8	CS	-	100	69				PVC Threaded Well Point		22 23
7													24

GHD 45 Akerley Blvd Dartmouth, NS B3B 1J7	**LOGGED BY:** RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
	REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
	DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-09B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 12, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 13, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders												1
1			1	CS	-	86	0						2
	WEATHERED BEDROCK - grey greywacke, orange and black staining, clay and silt in fractures		2	CS	-	87	0						3
2													4
			3	CS	-	31	0						5
3											Bentonite Seal		6
			4	CS	-	33	0						7
4													8
			5	CS	-	58	0						9
5													10
	BEDROCK - grey greywacke, numerous fractures, orange and black staining, steeply dipping		6	CS	-	100	35				PVC Riser		11
6													12
			7	CS	-	100	0						13
7													14
			8	CS	-	100	0						15
8													16
			9	CS	-	100	25				Bentonite Seal		17
9													18
	BEDROCK - grey greywacke, numerous fractures, mechanical breaks, no staining		10	CS	-	100	32						19
10													20
			11	CS	-	100	34						21
11													22
													23
12													24
	BEDROCK - grey greywacke, numerous fractures, soft, no staining, steeply dipping		12	CS	-	100	0				Silica Sand		25
13													26
			13	CS	-	100	11				PVC "2- Slot" Screen		27
14													28
													29
15			14	CS	-	100	33				PVC Threaded Well Point		30
													31
16													32
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GHD

45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-09C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 9, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 12, 2018
BENCHMARK:		**PAGE** 1 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1											Stick-up		-4 -3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, numerous cobbles and boulders		1	CS	-	74	0						1 2 3 4 5 6 7 8 9
2	WEATHERED BEDROCK - grey greywacke, numerous fractures, orange and black staining		2	CS	-	83	0						10 11 12 13 14 15 16 17 18 19
			3	CS	-	60	0						20 21 22 23 24 25 26 27 28 29
3			4	CS	-	81	0						30 31 32 33 34 35 36 37 38 39
			5	CS	-	60	0				Bentonite Seal		40 41 42 43 44 45 46 47 48 49
4			6	CS	-	63	0						50 51
5			7	CS	-	67	0						
6	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		8	CS	-	95	52				PVC Riser		
			9	CS	-	100	59						
7			10	CS	-	97	59						
8			11	CS	-	96	52						
9			12	CS	-	100	56				Bentonite Seal		
			13	CS	-	100	0						
10			14	CS	-	100	100						
11			15	CS	-	91	0						
12			16	CS	-	100	0						
			17	CS	-	96	21						
13			18	CS	-	97	0						
14			19	CS	-	97	0						
15			20	CS	-	100	24						

GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-09C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 9, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 12, 2018
BENCHMARK:		**PAGE** 2 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
16	BEDROCK - grey greywacke, highly fractured, no staining, steeply dipping		21	CS	-	95	0						52
			22	CS	-	80	0						53
17			23	CS	-	80	0						54
			24	CS	-	100	37						55
18			25	CS	-	100	40						56
			26	CS	-	100	34						57
19			27	CS	-	100	54						58
													59
20	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, no staining, steeply dipping		28	CS	-	98	0						60
													61
21			29	CS	-	100	47						62
													63
22			30	CS	-	100	40						64
													65
23			31	CS	-	96	42						66
													67
24			32	CS	-	100	59						68
													69
25			33	CS	-	100	37						70
													71
26			34	CS	-	100	17						72
													73
27			35	CS	-	100	85						74
													75
28			36	CS	-	98	34						76
													77
29			37	CS	-	100	68						78
													79
30			38	CS	-	100	37						80
													81
31			39	CS	-	100	50						82
													83
32			40	CS	-	100	41						84
													85
			41		-								86
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GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-09C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 9, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 12, 2018
BENCHMARK:		**PAGE** 3 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
33			41	CS	-	100	61						107
	BEDROCK - grey greywacke, numerous fractures, soft, no staining, steeply dipping		42	CS	-	96	27						108
34			43	CS	-	100	75						109
			44	CS	-	100	0						110
35			45	CS	-	93	0						111
			46	CS	-	100	80						112
36			47	CS	-	100	43						113
			48	CS	-	100	19						114
37			49	CS	-	100	49						115
													116
38													117
													118
39													119
	BEDROCK - grey greywacke, some fractures, mechanical breaks, no staining, steeply dipping		50	CS	-	100	61						120
40													121
			51	CS	-	100	73						122
41													123
			52	CS	-	91	0						124
42			53	CS	-	100	59						125
													126
43			54	CS	-	100	56						127
													128
44													129
			55	CS	-	100	63						130
45													131
													132
46			56	CS	-	100	66						133
													134
47													135
													136
48			57	CS	-	100	76						137
													138
49													139
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GHD
45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-09C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** April 9, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** April 12, 2018
BENCHMARK:		**PAGE** 4 of 4

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
50	BEDROCK - grey greywacke, minor fractures, no staining, slightly dipping, quartzite vein from 50.46 to 50.52m		58	CS	-	100	83						163
51													164
													165
52			59	CS	-	100	68						166
													167
53													168
			60	CS	-	100	78						169
54													170
													171
55			61	CS	-	100	86						172
													173
56													174
			62	CS	-	100	81						175
57													176
													177
58	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping, light greywhite quartz vein from 58.72 to 58.75m		63	CS	-	100	56						178
													179
59													180
			64	CS	-	100	58						181
60													182
													183
61			65	CS	-	100	20				Silica Sand		184
													185
62											PVC "2- Slot" Screen		186
			66	CS	-	100	41						187
63											PVC Threaded Well Point		188
													189
64													190
													191
65													192
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													218

45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-09D
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** May 2, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** May 2, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1											Stick-up		-3 -2 -1
0	Ground Surface												0
	ORGANIC - rootmat										Silica Sand		1
	SILTY SAND - brown, trace to some clay, some cobbles and boulders												2
1	WEATHERED BEDROCK - grey greywacke, mechanical breaks, highly fractured, silt and clay in fractures,		11	CS	-	44	0						3 4 5 6 7 8 9 10
2													11 12 13 14 15 16
3			1	CS	-	95	0						17 18 19 20 21 22 23 24
4	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, no staining, primary bedding at 20º		2	CS	-	98	20						25 26 27 28 29 30 31 32
5											PVC Riser		33 34 35 36 37 38 39 40
6			3	CS	-	100	51						41 42 43 44 45 46 47 48
7			4	CS	-	100	22						49
8			5	CS	-	100	25				Bentonite Seal		
9			6	CS	-	97	17						
10			7	CS	-	100	21						
			8	CS	-	100	0						
11			9	CS	-	100	0						
12			10	CS	-	100	18						
13			12	CS	-	100	51						
14			13	CS	-	100	29						

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Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-09D
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:**	**START DATE:** May 2, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:**	**COMPLETION DATE:** May 2, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, no staining, primary bedding at 20°												50
16			14	CS	-	100	51						51 52 53 54 55
17			15	CS	-	100	41						56 57 58 59 60
18			16	CS	-	100	20						61 62 63 64 65
19			17	CS	-	100	78				PVC Riser		66 67 68 69 70
20			18	CS	-	100	0						71 72 73 74 75
21			19	CS	-	100	15						76 77 78 79 80
22			20	CS	-	100	0				Bentonite Seal		81 82 83 84 85
23			21	CS	-	100	0						86 87 88 89 90
24			22	CS	-	100	16						91 92 93 94 95
25			23	CS	-	100	0						96 97 98 99 100
26			24	CS	-	100	0						101
27			25	CS	-	100	32				Silica Sand		
28			26	CS	-	100	0						
29	BEDROCK - grey greywacke, numerous natural fractures, slightly more competent, primary bedding at 5		27	CS	-	100	32				PVC "2- Slot" Screen		
30											PVC Threaded Well Point		

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Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-11A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.599	**START DATE:** April 3, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.666	**COMPLETION DATE:** April 3, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990130.598 E:522324.169 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders												1 2
1											PVC Riser		3 4
	BEDROCK - grey greywacke, some fractures and weathered rock, orange and black staining, some silt and clay in fractures		1	CS	-	92	53						5 6
2	BEDROCK - grey greywacke, some fractures containing clay and silt, orange and black staining, shallow dip		2	CS	-	93	59				Bentonite Seal		7 8 9
3													10 11
			3	CS	-	86	43				Silica Sand		12 13
4													14
											PVC "2- Slot" Screen		15 16
5	BEDROCK - grey greywacke, no fractures, shallow dip		4	CS	-	97	97						17 18
											PVC Threaded Well Point		19
6													20 21

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-11B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.323	**START DATE:** April 5, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.540	**COMPLETION DATE:** April 5, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990132.870 E:522325.095 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, numerous cobbles and boulders, water at 0.76m												1 2 3 4
	SILTY SAND - brown, some clay and boulders, wet		1	CS	-	81	0						5
2			2	CS	-	41	0						6 7
	WEATHERED BEDROCK - grey greywacke, orange and black staining		3	CS	-	92	42						8 9
3	BEDROCK - grey greywacke, some fractures containing clay and silt, orange and black staining, steeply dipping		4	CS	-	85	33						10 11
			5	CS	-	76	0						12 13
4													14
	BEDROCK - grey greywacke, mechanical breaks,very soft and fractured, orange and black staining		6	CS	-	92	66				Bentonite Seal		15
5													16 17
	BEDROCK - grey greywacke, minor fractures,no staining, shallow dip		7	CS	-	100	68						18 19
6													20 21
			8	CS	-	89	50						22
7	BEDROCK - grey greywacke,some fractures, mechanical breaks, some orange and black staining in fractues, steeply dipping		9	CS	-	94	46				PVC Riser		23 24 25
8													26 27
			10	CS	-	98	64						28 29
9													30 31
10			11	CS	-	100	78						32 33 34
11													35 36
			12	CS	-	96	69						37 38
12													39 40
13			13	CS	-	100	66				Silica Sand		41 42 43
14											PVC "2- Slot" Screen		44 45 46
			14	CS	-	100	48						47 48
15											PVC Threaded Well Point		49
16													50 51 52 53 54

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Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-11C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.361	**START DATE:** April 3, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.617	**COMPLETION DATE:** April 4, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990132.377 E:522323.713 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, numerous cobbles and boulders												1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44
	WEATHERED BEDROCK - grey greywacke, mechanical breaks												
2	BEDROCK - grey greywacke, highly fractured, silt and clay in fractures		1	CS	-	71	0						
3	BEDROCK - grey greywacke, highly fractured, orange and black staining		2	CS	-	87	0				Bentonite Seal		
4	BEDROCK - grey greywacke, silt and clay in fractures with orange and black staining, steeply dipping		3	CS	-	97	29						
5			4	CS	-	100	65						
6	BEDROCK - grey greywacke, some natural fractures, minor orange and black staining, steeply dipping		5	CS	-	96	61				PVC Riser		
7			6	CS	-	96	88						
8			7	CS	-	96	76						
9													
10			8	CS	-	96	86						
11													
12			9	CS	-	98	80						
13	BEDROCK - grey greywacke, trace quartz veins, minor fractures, steeply dipping		10	CS	-	98	91						

GHD
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B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-11C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.361	**START DATE:** April 3, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.617	**COMPLETION DATE:** April 4, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
14													45
	BEDROCK - grey greywacke, minor fractures, steeply dipping, mechanical breaks 14.40 to 15.47m		11	CS	-	94	47						46
15													47
	BEDROCK - grey greywacke, mechanical breaks, steeply dipping		12	CS	-	95	15						48
16													49
	BEDROCK - grey greywacke, quartzite vein from 16.79 to 16.91 m, steeply dipping, no staining		13	CS	-	90	0						50
	BEDROCK - grey greywacke, minor fractures, steeply dipping		14	CS	-	97	43				PVC Riser		51
17													52
			15	CS	-	100	35						53
18													54
			16	CS	-	93	19						55
19											Bentonite Seal		56
			17	CS	-	100	59						57
20													58
			18	CS	-	100	57						59
21													60
			19	CS	-	98	83						61
22													62
	BEDROCK - grey greywacke, mechanical breaks, steeply dipping		20	CS	-	94	0						63
23													64
	BEDROCK - grey greywacke, minor fractures, steeply dipping		21	CS	-	96	84				Silica Sand		65
24													66
	BEDROCK - grey greywacke, some fractures, steeply dipping, water bearing fracture making water		22	CS	-	96	46				PVC "2- Slot" Screen		67
25													68
											PVC Threaded Well Point		69
26													70
													71
27													72
													73
28													74
													75
													76
													77
													78
													79
													80
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													89
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													91
													92
													93

45 Akerley Blvd
Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-12A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.377	**START DATE:** April 15, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.725	**COMPLETION DATE:** April 15, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4991000.037 E:521711.672 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - grey brown, trace sand, some clay, numerous cobbles and boulders, wet at 1.07m										Bentonite Seal PVC Riser		1 2 3 4 5 6 7
1													
2											Silica Sand		8 9 10 11 12
3													
4											PVC "2- Slot" Screen		13 14 15 16 17 18
5													
6											PVC Threaded Well Point		19 20
													21

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-12B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.358	**START DATE:** April 14, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.637	**COMPLETION DATE:** April 15, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990999.179 E:521710.995 Elev: CGVD 2013										Stick-up		-4 -3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey, trace sand, some clay, numerous greywacke boulders/fragments, some boulders, wet at 1.22m												1 2 3 4
2													5 6 7 8 9
3											Bentonite Seal		10
4													11 12 13 14 15 16
5													17 18 19
6											PVC Riser		20
7													21 22 23 24 25
8													26 27 28 29
9													30 31 32 33
10													34 35 36 37
11													38 39 40 41
12													42 43 44
13													

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Dartmouth, NS
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-12B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.358	**START DATE:** April 14, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.637	**COMPLETION DATE:** April 15, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
14													45
15													46
16													47
17													48
18													49
19													50
20													51
21	BEDROCK - grey greywacke, mechanical breaks, some fractures, no staining, steeply dipping		1	CS	-	100	0						52
22	BEDROCK - grey greywacke, some fractures, some black staining, steeply dipping		2	CS	-	100	36						53
23			3	CS	-	100	0						54
24													55
25			4	CS	-	100	22						56
26													57
27													58
28													59
													60
													61
													62
													63
													64
													65
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													91
													92
													93

PVC Riser

Bentonite Seal

Silica Sand

PVC "2- Slot" Screen

PVC Threaded Well Point

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-14A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 137.203	**START DATE:** April 26, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 136.226	**COMPLETION DATE:** April 26, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989830.507 E:523253.265 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat SILTY SAND - grey, trace to some clay, some cobbles and boulders, wet at 1.91m										Silica Sand PVC Riser Bentonite Seal		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
1													
2													
3											Silica Sand		
4											PVC "2- Slot" Screen		
5													
6											PVC Threaded Well Point		
													21

GHD
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-14B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 137.313	**START DATE:** April 25, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 136.264	**COMPLETION DATE:** April 26, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989828.780 E:523253.939 Elev: CGVD 2013										Stick-up		-4 -3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey, trace to some clay, some cobbles and boulders, wet at 1.45m												1 2 3 4 5 6 7
2													8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
3													23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
4													
5											PVC Riser		
6													
7											Bentonite Seal		
8													
9													
10													
11													
12													

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-14B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 137.313	**START DATE:** April 25, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 136.264	**COMPLETION DATE:** April 26, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
13													42
14													43
15													44
16													45
17													46
18													47
19													48
20													49
21													50
22													51
23													52
24													53
25													54
26													55
													56
													57
													58
													59
	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		1	CS	-	100	43						60
			2	CS	-	100	39						61
	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, no staining, steeply dipping		3	CS	-	97	34						62
			4	CS	-	100	87						63
			5	CS	-	100	64						64
			6	CS		97	10						65
			7	CS		100	69						66
													67
													68
													69
													70
													71
													72
													73
													74
													75
													76
													77
													78
													79
													80
													81
													82
													83
													84
													85
													86
													87

Bentonite Seal

PVC Riser

Silica Sand

PVC "2- Slot" Screen

PVC Threaded Well Point

GHD
45 Akerley Blvd
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-14C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 137.127	**START DATE:** April 24, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 136.308	**COMPLETION DATE:** April 26, 2018
BENCHMARK:		**PAGE** 1 of 3

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4989827.886 E:523254.933 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey, trace to some clay, some cobbles and boulders												1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44
2													
3													
4													
5											PVC Riser		
6													
7													
8											Bentonite Seal		
9													
10													
11													
12													
13													

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-14C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 137.127	**START DATE:** April 24, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 136.308	**COMPLETION DATE:** April 26, 2018
BENCHMARK:		**PAGE** 2 of 3

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
14													45
15													46
16													47
17													48
18													49
19	WEATHERED BEDROCK - grey greywacke, highly fractured, no staining, steeply dipping		1	CS	-	100	28				Bentonite Seal		50
20			2	CS	-	100	38						51
21	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		3	CS	-	100	54						52
22			4	CS	-	100	49						53
23			5	CS	-	100	80						54
24			6	SS		100	56				PVC Riser		55
25			7	SS		100	80						56
26			8	SS		100	85						57
27													58
28			9	SS		100	56						59
													60
													61
													62
													63
													64
													65
													66
													67
													68
													69
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													89
													90
													91
													92
													93
													94

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-14C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 137.127	**START DATE:** April 24, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 136.308	**COMPLETION DATE:** April 26, 2018
BENCHMARK:		**PAGE** 3 of 3

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
29	BEDROCK - grey greywacke, numerous fractures, no staining, steeply dipping		10	SS		100	42				Bentonite Seal		95
30			11	SS		100	54						100
31			12	SS		100	25						105
32			13	SS		100	82				PVC Riser		110
33			14	SS		100	64						115
34			15	SS		100	59						120
35			16	SS		100	37						125
36			17	SS		100	64				Silica Sand		130
37			18	SS		98	48				PVC "2- Slot" Screen		135
38											PVC Threaded Well Point		140
39													145
40													150
41													155
42													160
43													165

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-16A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 153.636	**START DATE:** April 20, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 152.568	**COMPLETION DATE:** April 20, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990744.060 E:522898.761 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - grey, trace to some clay, some cobbles and boulders, water at 2.36m												1 2 3 4
1											PVC Riser		5 6
2											Bentonite Seal		7 8 9 10
3													11
	WEATHERED BEDROCK - grey greywacke, mechanical breaks, orange and black staining		1	CS	-	100	0						12
4	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, orange and black staining,		2	CS	-	83	0				Silica Sand		13 14 15 16
5			3	CS	-	100	0				PVC "2- Slot" Screen		17 18 19 20
6			4	CS	-	100	24				PVC Threaded Well Point		21 22 23
7													24

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-16B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 153.625	**START DATE:** April 19, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 152.592	**COMPLETION DATE:** April 20, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990742.630 E:522898.057 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey, trace to some clay, numerous cobbles and boulders, wet at 2.36m												1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
2													
3	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, orange and black staining, steeply dipping												
4			1	CS	-	98	27				Bentonite Seal		
5	BEDROCK - grey greywacke, some fractures, no staining, variable dip		2	CS	-	100	67						
6													
7			3	CS	-	100	57				PVC Riser		
8													
9			4	CS	-	100	70						
10			5	CS	-	100	67						
11													
12			6	CS	-	100	43						
13			7	CS	-	100	77				Silica Sand		
14			8	CS	-	100	62				PVC "2- Slot" Screen		
15											PVC Threaded Well Point		
16													51 52 53 54

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-17A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 154.269	**START DATE:** April 26, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 153.328	**COMPLETION DATE:** April 26, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990324.445 E:524121.346 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - brown to grey, trace to some clay, some cobbles and boulders, wet at 3.25m										PVC Riser Bentonite Seal		1 2 3 4 5 6 7 8 9 10 11 12 13 14
1													
2											Silica Sand		
3											PVC "2- Slot" Screen		
4											PVC Threaded Well Point		15
5													16 17 18 19 20
6													21

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-17B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 154.285	**START DATE:** April 25, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 153.229	**COMPLETION DATE:** April 25, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990323.426 E:524123.059 Elev: CGVD 2013 Ground Surface										Stick-up		-3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - brown to grey, trace to some clay, some cobbles and boulders, wet at 3.25m												1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
1													
2											PVC Riser		
3													
4											Bentonite Seal		
5	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, silt and clay in fractures, orange and black staining		1	CS	-	97	10						
6													
7	BEDROCK - grey greywacke, slightly blocky, more competent, orange and black staining, shallow dip		2	CS	-	100	17				Silica Sand		21 22 23 24 25
8			3	CS	-	100	25				PVC "2- Slot" Screen		26 27 28 29
9											PVC Threaded Well Point		30 31 32

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-17C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 154.069	**START DATE:** April 25, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 153.175	**COMPLETION DATE:** April 25, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990324.229 E:524124.712 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown to grey, trace to some clay, numerous cobbles and boulders, water at 3.15m												1
2													2
3													3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
4													
5											Bentonite Seal		
6	BEDROCK - grey greywacke, numerous fractures, orange and black staining, shallow dip		1	CS	-	100	33						
7			2	CS	-	100	23						
8											PVC Riser		
9			3	CS	-	100	32						
10			4	CS	-	100	49						
11			5	CS	-	100	65						
12													
13			6	CS	-	100	51				Silica Sand		
14			7	CS	-	98	10				PVC "2- Slot" Screen		
15											PVC Threaded Well Point		
16													51 52 53 54

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-18A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.288	**START DATE:** April 20, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.317	**COMPLETION DATE:** April 20, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4991142.236 E:523118.888 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders, wet at 1.29m												1 2 3 4 5
1											PVC Riser		6 7 8 9
2													10
3											Bentonite Seal		11 12 13 14 15 16
4	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, orange and black staining, steeply dipping		1	CS	-	100	13						
5			2	CS	-	100	0				Silica Sand		17 18 19
6			3	CS	-	100	0				PVC "2- Slot" Screen		20 21 22 23
7	BEDROCK - grey greywacke, some fractures, orange and black staining, steeply dipping		4	CS	-	100	19				PVC Threaded Well Point		24 25

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-18B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.155	**START DATE:** April 24, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.320	**COMPLETION DATE:** April 24, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4991141.883 E:523120.436 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, numerous cobbles and boulders, water at 2.01m												1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51
2													
3													
4	BEDROCK - grey greywacke, mechanical breaks, numerous fractures, orange and black staining, steeply dipping		1	CS	-	89	0				Bentonite Seal		
5			2	CS	-	97	0						
6			3	CS	-	98	0						
7			4	CS	-	100	32				PVC Riser		
8													
9			5	CS	-	100	37						
10			6	CS	-	100	22						
11													
12			7	CS	-	100	33						
13			8	CS	-	100	32				Silica Sand		
14											PVC "2- Slot" Screen		
15			9	CS	-	100	0				PVC Threaded Well Point		
16													52 53 54

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-18C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.207	**START DATE:** April 25, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.137	**COMPLETION DATE:** April 25, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4991141.264 E:523121.844 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, some cobbles and boulders										PVC Riser		1
2											Bentonite Seal		2
3													3
4	BEDROCK - grey greywacke, mechanical breaks, highly fractured, orange and black staining in fractures, steeply dipping		1	CS	-	100	0						4
5			2	CS	-	100	0						5
6			3	CS	-	100	0						6
7	BEDROCK - grey greywacke, numerous fractures, no staining, steeply dipping		4	CS	-	100	57						7
8			5	CS	-	100	57						8
9	BEDROCK - grey greywacke, mechanical breaks, some fractures, no staining, steeply dipping		6	CS	-	100	14						9
10			7	CS	-	100	10						10
11			8	CS	-	100	13						11
12			9	CS	-	98	13						12
13			10	CS	-	100	26						13
14			11	CS	-	100	15						14
15			12	CS	-	100	23						15
16													16
17													17

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-18C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 147.207	**START DATE:** April 25, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 146.137	**COMPLETION DATE:** April 25, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
18	BEDROCK - grey greywacke, mechanical breaks, some fractures, no staining		13	CS	-	100	64						58
19			14	CS	-	100	67						59 60 61 62 63
20			15	CS	-	100	34						64 65 66 67 68
21			16	CS	-	100	75						69 70 71 72 73
22			17	CS	-	100	10						74 75 76 77 78
23			18	CS	-	100	25						79 80 81 82 83
24 25			19	CS	-	100	44						84 85 86 87 88
26 27			20	CS	-	100	47						89 90 91 92 93
28 29			21	CS	-	100	39						94 95 96 97 98
30 31			22	CS	-	100	17						99 100 101 102 103
32			23	CS	-	100	20				Silica Sand		104 105 106 107
33			24	CS	-	100	0				PVC "2- Slot" Screen		108 109 110 111 112
34 35			25	CS	-	100	15				PVC Threaded Well Point		113 114 115 116 117
36													118 119 120

GHD
45 Akerley Blvd
Dartmouth, NS
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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-19A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 133.385	**START DATE:** May 4, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 132.414	**COMPLETION DATE:** May 4, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4991427.087 E:520765.986 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand PVC Riser Bentonite Seal		0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
1	SILTY SAND - brown, trace to some clay, numerous cobbles and boulders, wet at 0.64m										Silica Sand		
2													
3											PVC "2- Slot" Screen		
4													
5											PVC Threaded Well Point		16 17 18 19 20 21
6													

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-19B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 133.410	**START DATE:** May 4, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 132.443	**COMPLETION DATE:** May 4, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4991426.125 E:520764.377 Elev: CGVD 2013 Ground Surface										Stick-up		-4 to -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, some cobbles and boulders, wet at 0.71m												1
2													2
3													3
4													4
5	BEDROCK - grey greywacke, some fractures, some silt and clay in fractures, orange and black staining		1	CS	-	100	41				PVC Riser		5
6	BEDROCK - grey greywacke, some fractures, orange and black staining		2	CS	-	100	68						6
7			3	CS	-	100	85						7
8			4	CS	-	100	61				Bentonite Seal		8
9													9
10	BEDROCK - grey greywacke, some fractures, no staining		5	CS	-	100	80						10
11													11
12			6	CS	-	100	83						12
13			7	CS	-	100	44				PVC "2- Slot" Screen		13
14											Silica Sand		14
15			8	CS	-	100	76				PVC Threaded Well Point		15

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-19C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 133.397	**START DATE:** May 7, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 132.516	**COMPLETION DATE:** May 7, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4991425.291 E:520762.233 Elev: CGVD 2013 Ground Surface										Stick-up		-4 to -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey brown, some clay, some cobbles and boulders												1 to 3
4			1	CS	-	63	0				PVC Riser		4
5	WEATHERED BEDROCK - grey greywacke, mechanical breaks, highly fractured, orange and black staining		2	CS	-	85	37						5
6	BEDROCK - grey greywacke, some fractures, silt and clay in fractures, orange and black staining												6
7	BEDROCK - grey greywacke, some fractures, orange and black staining		3	SS	-	100	76						7
8			4	CS	-	100	64				Bentonite Seal		8 to 9
10			5	CS	-	100	63						10
11			6	CS	-	100	93						11 to 12
13			7	CS	-	100	78						13
14			8	CS	-	100	80						14

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-19C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 133.397	**START DATE:** May 7, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 132.516	**COMPLETION DATE:** May 7, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15													49
16			9	CS	-	100	68						50 51 52 53 54 55
17			10	CS	-	100	75						56 57 58 59 60
18													61
19			11	CS	-	100	58				Bentonite Seal		62 63 64
20			12	CS	-	100	51						65 66 67 68 69
21													70
22	BEDROCK - grey greywacke, mechanical breaks, some fractures, no staining		13	CS	-	100	54				PVC Riser		71 72 73 74
23			14	CS	-	100	75						75 76 77 78 79
24													80
25			15	CS	-	100	69						81 82 83 84
26			16	CS	-	100	64						85 86 87
27													88 89
28			17	CS	-	100	95				Silica Sand		90 91 92 93
29			18	CS	-	100	81				PVC "2- Slot" Screen		94 95 96 97
30											PVC Threaded Well Point		98 99
													100

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-20A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 152.089	**START DATE:** May 7, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 150.924	**COMPLETION DATE:** May 7, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990264.985 E:520263.534 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - grey to , trace to some clay, some cobbles and boulders, wet at 1.37m												1 2 3
1											PVC Riser		4
2											Bentonite Seal		5 6 7 8 9 10
3	WEATHERED BEDROCK - grey greywacke, mechanical breaks, numerous fractures, silt and clay in fractures, orange and black staining		1	CS	-	75	0						11
			2	CS	-	74	0						12 13
4			3	CS	-	73	0						14 15
5	BEDROCK - grey greywacke, some fractures, orange and black staining, primary bedding at 30^0		4	CS	-	100	73				Silica Sand		16 17 18 19
6											PVC "2- Slot" Screen		20 21 22
7	BEDROCK - grey greywacke, trace fractures, no staining, primary bedding 30^0		5	CS	-	100	70				PVC Threaded Well Point		23 24 25
													26

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-20B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 152.025	**START DATE:** May 7, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 151.012	**COMPLETION DATE:** May 7, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4990263.750 E:520263.490 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders, wet at 0.97m												1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50
2													
3													
4	BEDROCK - grey greywacke, some mechanical breaks, numerous fractures, silt and clay in fractures, orange and black staining		1	CS	-	97	12				PVC Riser		
5	BEDROCK - grey greywacke, some fractures, no staining		2	CS	-	100	85						
6													
7			3	CS	-	100	71						
8			4	CS	-	100	80				Bentonite Seal		
9													
10			5	CS	-	100	64						
11			6	CS	-	100	66						
12													
13			7	CS	-	100	66				Silica Sand		
14			8	CS	-	100	64				PVC "2- Slot" Screen		
15											PVC Threaded Well Point		
16													51 52 53 54

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-21A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 158.304	**START DATE:** May 7, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 157.384	**COMPLETION DATE:** May 7, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4987642.034 E:521749.236 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders, wet at 1.5m										PVC Riser		1 2 3 4 5 6
2	BEDROCK - grey greywacke, some fractures, orange and black staining		1	CS	-	88	37				Bentonite Seal		7 8 9 10
3													11
4	BEDROCK - grey greywacke, some fractures, silt and clay in fractures, orange and black staining, primary bedding at 25^0		2	CS	-	100	69				Silica Sand		12 13 14 15
5			3	CS	-	100	58				PVC "2- Slot" Screen		16 17 18 19
6											PVC Threaded Well Point		20 21 22

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-21B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 158.324	**START DATE:** May 2, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 157.336	**COMPLETION DATE:** May 3, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4987641.733 E:521747.935 Elev: CGVD 2013 Ground Surface										Stick-up		-4 to -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - grey brown, trace to some clay, some cobbles and boulders												1
2													2
3	BEDROCK - grey greywacke, some fractures, orange and black staining		1	CS	-	96	14						3
4			2	CS	-	100	59				PVC Riser		4
5			3	CS	-	100	69						5
6													6
7			4	CS	-	100	78				Bentonite Seal		7
8			5	CS	-	100	80						8
9													9
10	BEDROCK - grey greywacke, some fractures, no staining		6	CS	-	100	93						10
11			7	CS	-	100	98						11
12													12
13			8	CS	-	100	76				Silica Sand		13
14	BEDROCK - grey greywacke, trace fractures, no staining										PVC "2- Slot" Screen		14
15			9	CS	-	100	78				PVC Threaded Well Point		15

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-21C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 158.209	**START DATE:** May 16, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 157.202	**COMPLETION DATE:** May 16, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1											Stick-up		-3 -2 -1
0	Ground Surface												0
	ORGANIC - rootmat										Silica Sand		
1	SILTY SAND - grey brown, trace clay, some cobbles, some boulders												1 2 3 4 5 6
2	WEATHERED BEDROCK - grey greywacke, mechanical breaks, some fractures, silt and clay in fractures, orange and black staining		1	CS		95	25						7 8 9 10 11 12 13 14 15 16
3													
4			2	CS		100	49						
5			3	CS		100	58				PVC Riser		17 18 19 20 21 22 23 24 25 26
6													
7			4	CS		100	90						
8			5	CS		100	71				Bentonite Seal		27 28 29 30 31 32 33 34 35 36
9													
10	BEDROCK - grey greywacke, some fractures, no staining		6	CS		100	81						
11			7	CS		100	73						37 38 39 40 41 42 43 44 45 46
12													
13			8	CS		100	80						
14			9	CS		100	73						47 48 49

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-21C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 158.209	**START DATE:** May 16, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 157.202	**COMPLETION DATE:** May 16, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15													50
	BEDROCK - grey greywacke, some fractures, no staining 40mm fracture @ 16.967 filled with grey clay and silt		10	CS		100	85						51
16													52
	BEDROCK - grey greywacke, some fractures, orange staining		11	CS		100	86						53
17													54
													55
18			12	CS		100	88						56
													57
19													58
													59
20			13	CS		100	75				PVC Riser		60
													61
21													62
													63
22			14	CS		100	61						64
													65
23											Bentonite Seal		66
			15	CS		100	91						67
24													68
													69
25			16	CS		100	88						70
													71
26													72
			17	CS		100	69						73
27													74
													75
28			18	CS		100	64				Silica Sand		76
													77
29													78
			19	CS		98	81				PVC "2- Slot" Screen		79
30													80
													81
			20	CS		100	100				PVC Threaded Well Point		82
													83
													84
													85
													86
													87
													88
													89
													90
													91
													92
													93
													94
													95
													96
													97
													98
													99
													100
													101

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LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-22A
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 138.850	**START DATE:** April 25, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 137.955	**COMPLETION DATE:** April 25, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4988520.078 E:524377.001 Elev: CGVD 2013										Stick-up		-3 -2 -1
0	Ground Surface ORGANIC - rootmat										Silica Sand		0
	SILTY SAND - grey, trace to some clay, some cobbles and boulders, wet at 0.81m												1 2
1											PVC Riser		3 4 5 6
2	WEATHERED BEDROCK - grey greywacke, mechanical breaks, highly fractured, silt and clay in fractures, orange and black staining		1	CS	-	95	16				Bentonite Seal		7 8 9
3	BEDROCK - grey greywacke, some fractures, orange and black staining, ,steeply dipping		2	CS	-	91	32						10 11
	BEDROCK - grey greywacke, mechanical breaks, highly fractured, orange and black staining, steeply dipping		3	CS	-	68	0				Silica Sand		12 13 14 15 16
5											PVC "2- Slot" Screen		17
	BEDROCK - grey greywacke, some fractures, orange and black staining noted in fractures, steeply dipping		4	CS	-	73	36						18 19
6											PVC Threaded Well Point		20 21
													22

GHD
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Dartmouth, NS
B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-22B
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 138.955	**START DATE:** April 27, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 137.968	**COMPLETION DATE:** April 27, 2018
BENCHMARK:		**PAGE** 1 of 1

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4988521.744 E:524377.199 Elev: CGVD 2013 Ground Surface										Stick-up		-4 -3 -2 -1
0	ORGANIC - rootmat										Silica Sand		0
1	SILTY SAND - brown, trace to some clay, some cobbles and boulders, wet at 0.76m												1
	BEDROCK - grey greywacke, some fractures, orange and black staining, steeply dipping		1	CS	-	100	18						2 3 4 5 6 7 8 9 10 11 12 13
2			2	CS	-	100	15						
3													
4			3	CS	-	100	56				PVC Riser		14 15 16 17 18 19 20 21 22 23 24 25 26
5													
6			4	CS	-	100	85						
7			5	CS	-	100	76						
8			6	CS	-	100	70				Bentonite Seal		27 28 29 30 31 32 33 34 35 36 37 38 39
9	BEDROCK - grey greywacke, highly fractured, orange and black staining		7	CS	-	100	45						
10	BEDROCK - grey greywacke, some fractures, no orange and black staining, steeply dipping		8	CS	-	100	54						
11													
12			9	CS	-	100	46						40 41 42 43 44 45 46 47 48 49 50
			10	CS	-	100	0						
13			11	CS	-	100	76				Silica Sand		
14											PVC "2- Slot" Screen		
15			12	CS	-	100	81				PVC Threaded Well Point		51 52 53 54
16													

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B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-22C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 138.914	**START DATE:** April 28, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 137.949	**COMPLETION DATE:** May 1, 2018
BENCHMARK:		**PAGE** 1 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
-1	UTM Zone 20 NAD83 (CSRS) N:4988523.209 E:524377.504 Elev: CGVD 2013 Ground Surface												-4 -3 -2 -1
0	ORGANIC - rootmat										Flushmount		0
	SILTY SAND - brown, trace to some clay, some cobbles and boulders, wet at 0.71m										Silica Sand		1
1	BEDROCK - grey greywacke, some fractures, orange and black staining, steeply dipping		1	CS	-	100	25						2
2			2	CS	-	100	46						3 4 5 6 7 8 9 10 11 12
3			3	CS	-	95	60						13 14 15 16 17 18 19 20 21 22
4			4	CS	-	100	50						23
5			5	CS	-	100	88				PVC Riser		24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41
6													42
7	BEDROCK - grey greywacke, mechanical breaks, some fractures, no staining, steeply dipping		6	CS	-	100	41				Bentonite Seal		43 44 45 46 47 48
8	BEDROCK - grey greywacke, slightly fractured, no staining, steeply dipping		7	CS	-	100	88						
9													
10			8	CS	-	100	69						
11													
12			9	CS	-	100	88						
13	BEDROCK - grey greywacke, some fractures, no staining, steeply dipping		10	CS	-	100	41						
14													

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B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

MONITORING WELL LOG

PROJECT: EIS - Hydrogeologic Assessment and Modelling	**REF. NO:** 088664	**BOREHOLE:** MW-22C
LOCATION: Beaver Dam Mines Road	**TPC ELEV.:** 138.914	**START DATE:** April 28, 2018
CLIENT: Atlantic Gold Corporation	**GRADE ELEV.:** 137.949	**COMPLETION DATE:** May 1, 2018
BENCHMARK:		**PAGE** 2 of 2

Depth (m) Water Level	STRATIGRAPHY DESCRIPTION	MATERIAL TYPE	NUMBER	SAMPLE TYPE	"N" VALUE	RECOVERY %	RQD (%)	SAMPLE NAME/ LAB ANALYSIS	SOIL VAPOUR CONCENTRATION (ppm) 100 300 500 700 900	SOIL VAPOUR CONCENTRATION (%LEL) 10 30 50 70 90	COMMENTS AND MONITORING WELL NOTES	SLOTTED PIEZOMETER	Depth (ft) Water Level
15			11	CS	-	100	42						49
16	BEDROCK - grey greywacke, some fratures, no staining, steeply dipping, quartz vein at 16.23		12	CS	-	100	58						50 51 52 53 54 55
17			13	CS	-	100	73						56 57 58 59 60
18													
19			14	CS	-	100	81				Bentonite Seal		61 62 63 64 65
20	BEDROCK - grey greywacke, trace natural fractures, no staining, steeply dippingd		15	CS	-	100	86						66 67 68 69 70
21													71
22			16	CS	-	100	88				PVC Riser		72 73 74 75
23	BEDROCK - grey greywacke, some natural fractures, no staining, steeply dipping		17	CS	-	100	97						76 77 78 79 80
24													
25	BEDROCK - grey greywacke, minor fractures,no staining, steeply dipping, quartz veins at 24.74m and 25.15m		18	CS	-	100	98						81 82 83 84 85
26													
27			19	CS	-	100	93				Silica Sand		86 87 88 89
28	BEDROCK - grey greywacke, no fractures, steeply dipping		20	CS	-	100	100				PVC "2- Slot" Screen PVC Threaded Well Point		90 91 92 93 94
29													95 96 97 98 99
30													100

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B3B 1J7

LOGGED BY: RH	**DAYLIGHTING TO:** n/a	**GAS METER TYPE:** n/a
REVIEWED BY:	**EQUIPMENT:** CME-75 Trackmount	
DRAFTED BY: MG	**METHOD:** Case and Core	**BOREHOLE DIA:** 0.10m

Attachment 2
Photographic Log of Drilling Activities

PHOTO 1 - DRILLING ACTIVITIES FOR BEAVER DAM MINE PROJECT

PHOTO 2 - DRILL RIG DURING MOBILIZATION TO "MW16"

ATLANTIC GOLD CORPORATION
MARINETTE, NOVA SCOTIA
BEAVER DAMN MINE PROJECT

088664-20

Nov 7, 2018

PHOTOGRAPHIC LOG

FIGURE 1

CAD File: I:\Drafting\6-chars\08----\0886--\088664\088664-REPORTS\088664-20-1\088664-20(001)GN-DA001.dwg

PHOTO 3 - ROCK CORES TAKEN FROM MONITORING WELL "MW02B"

PHOTO 4 - ROCK CORES TAKEN FROM MONITORING WELL "MW18B"

ATLANTIC GOLD CORPORATION
MARINETTE, NOVA SCOTIA
BEAVER DAMN MINE PROJECT

088664-20

Nov 7, 2018

PHOTOGRAPHIC LOG

FIGURE 2

CAD File: I:\Drafting\6-chars\08----\0886--\088664\088664-REPORTS\088664-20-1\088664-20(001)GN-DA002.dwg

PHOTO 5 - VIEW OF STICKUP CASING FOR COMPLETED MONITORING WELLS "MW02"

PHOTO 6 - VIEW OF STICKUP CASING FOR COMPLETED MONITORING WELLS "MW18"

Attachment 3
Surface Water and Groundwater Elevation Data

Attachment 3
Surface Water and Groundwater Elevation Data
Beaver Dam Mine Project
Marinette, Nova Scotia

	UTM Zone 20 NAD83 CSRS		Installation Date	Unit	Well Depth		Ground Surface Elevation	Stick-up	Top of Casing Elevation	Top of Screen Interval		Bottom of Screen Interval	
Well_ID	Easting	Northing			(m bgs)	(m AMSL)	(m AMSL)	(m ags)	(m AMSL)	(m bgs)	(m AMSL)	(m bgs)	(m AMSL)
MW-1A	520942.252	4990095.110	1-May-18	Shallow	6.30	144.13	150.429	1.121	151.550	1.83	148.599	6.3	144.129
MW-1B	520943.031	4990093.660	4-May-18	Intermediate	15.30	135.31	150.610	0.994	151.604	12.24	138.370	15.3	135.310
MW-1C	520944.122	4990092.462	4-May-18	Deep	30.06	120.59	150.647	1.129	151.776	27.1	123.547	30.2	120.497
MW-2A	520728.778	4989595.501	7-May-18	Shallow	4.72	146.69	151.410	1.064	152.474	1.7	149.730	4.7	146.690
MW-2B	520730.397	4989594.708	7-May-18	Intermediate	15.60	135.84	151.441	1.093	152.534	12.5	138.941	15.6	135.891
MW-03A	521823.117	4989220.163	1-May-18	Shallow	6.32	160.10	166.421	1.015	167.436	3.3	163.141	6.3	160.101
MW-03B	521823.540	4989222.229	1-May-18	Intermediate	15.32	151.05	166.374	1.014	167.388	12.3	154.104	15.3	151.054
MW-03C	521824.051	4989223.934	2-May-18	Deep	30.30	136.03	166.334	1.007	167.341	27.3	139.084	30.3	136.034
MW-04A	522649.993	4989640.335	3-Apr-18	Shallow	5.96	158.70	164.655	0.853	165.508	2.9	161.735	6.0	158.695
MW-04B	522649.439	4989639.523	3-Apr-18	Intermediate	15.53	149.16	164.687	0.869	165.556	12.5	152.197	15.5	149.157
MW-05A	521746.140	4990210.163	25-Apr-18	Shallow	6.10	134.76	140.855	0.826	141.681	1.5	139.355	6.1	134.755
MW-05B	521747.858	4990208.591	24-Apr-18	Intermediate	15.57	125.32	140.894	0.944	141.838	12.5	128.374	15.6	125.324
MW-05C	521745.609	4990207.042	23-Apr-18	Intermediate	15.49	125.46	140.947	0.993	141.940	12.4	128.507	15.5	125.457
MW-05D	521742.062	4990206.839	1-May-18	Deep	30.48	110.87	141.346	1.012	142.358	27.4	113.916	30.5	110.866
MW-07A	522676.986	4990257.899	9-Apr-18	Shallow	7.49	122.97	130.461	0.928	131.389	4.4	126.021	7.5	122.971
MW-07B	522677.763	4990256.675	6-Apr-18	Intermediate	15.49	115.11	130.600	0.943	131.543	12.4	118.160	15.5	115.110
MW-07C	522676.908	4990255.360	19-Apr-18	Intermediate	15.49	115.10	130.588	0.989	131.577	12.4	118.148	15.5	115.098
MW-07D	522674.898	4990259.556					130.256	1.040	131.296				130.256
MW-09A	522024.415	4990682.566	13-Apr-18	Shallow	7.14	126.75	133.894	1.075	134.969	4.1	129.804	7.1	126.754
MW-09B	522022.788	4990682.720	13-Apr-18	Intermediate	15.39	118.36	133.748	1.040	134.788	12.3	121.408	15.4	118.358
MW-09C	522022.547	4990680.996	12-Apr-18	Intermediate	15.49	118.30	133.791	0.950	134.741	12.4	121.351	15.5	118.301
MW-09D	522023.739	4990684.215	2-May-18	Deep	30.48	103.23	133.705	1.046	134.751	27.43	106.275	30.48	103.225
MW-11A	522324.169	4990130.598	3-Apr-18	Shallow	6.09	141.75	147.844	0.933	148.777	3.04	144.804	6.09	141.754
MW-11B	522325.095	4990132.870	5-Apr-18	Intermediate	15.24	132.48	147.718	0.783	148.501	12.19	135.528	15.24	132.478
MW-11C	522323.713	4990132.377	4-Apr-18	Deep	26.01	121.79	147.795	0.744	148.539	22.96	124.835	26.01	121.785
MW-12A	521711.672	4991000.037	15-Apr-18	Shallow	6.10	141.80	147.903	0.652	148.555	0.91	146.993	6.1	141.803
MW-12B	521710.995	4990999.179	15-Apr-18	Deep	25.83	121.99	147.815	0.721	148.536	22.78	125.035	25.83	121.985
MW-14A	523253.265	4989830.507	26-Apr-18	Shallow	6.10	131.30	137.404	0.977	138.381	1.5	135.904	6.1	131.304
MW-14B	523253.939	4989828.780	26-Apr-18	Deep	26.04	111.40	137.442	1.049	138.491	22.99	114.452	26.04	111.402
MW-14C	523254.933	4989827.886	26-Apr-18	VERY Deep	41.15	96.34	137.486	0.819	138.305	38.1	99.386	41.15	96.336
MW-16A	522898.761	4990744.060	20-Apr-18	Shallow	7.14	146.60	153.744	1.068	154.812	3.5	150.244	7.14	146.604
MW-16B	522898.057	4990742.630	20-Apr-18	Intermediate	15.24	138.53	153.768	1.033	154.801	12.19	141.578	15.24	138.528
MW-17A	524121.346	4990324.445	26-Apr-18	Shallow	4.57	149.94	154.508	0.941	155.449	0.76	153.748	4.57	149.938
MW-17B	524123.059	4990323.426	25-Apr-18	Shallow	9.17	145.24	154.409	1.056	155.465	6.12	148.289	9.17	145.239
MW-17C	524124.712	4990324.229	25-Apr-18	Intermediate	15.44	138.92	154.355	0.894	155.249	12.45	141.905	15.44	138.915
MW-18A	523118.888	4991142.236	20-Apr-18	Shallow	7.62	139.87	147.493	0.971	148.464	4.57	142.923	7.62	139.873
MW-18B	523120.436	4991141.883	24-Apr-18	Intermediate	15.77	131.73	147.496	0.835	148.331	12.72	134.776	15.77	131.726

Attachment 3
Surface Water and Groundwater Elevation Data
Beaver Dam Mine Project
Marinette, Nova Scotia

	UTM Zone 20 NAD83 CSRS		Installation Date	Unit	Well Depth		Ground Surface Elevation	Stick-up	Top of Casing Elevation	Top of Screen Interval		Bottom of Screen Interval	
Well_ID	Easting	Northing			(m bgs)	(m AMSL)	(m AMSL)	(m ags)	(m AMSL)	(m bgs)	(m AMSL)	(m bgs)	(m AMSL)
MW-18C	523121.844	4991141.264	25-Apr-18	Shallow	6.10	141.21	147.313	1.146	148.459	1.5	145.813	6.1	141.213
MW-19A	520765.986	4991427.087	4-May-18	Shallow	4.72	128.87	133.590	0.971	134.561	0.61	132.980	4.72	128.870
MW-19B	520764.377	4991426.125	4-May-18	Intermediate	15.37	118.25	133.619	0.967	134.586	12.32	121.299	15.37	118.249
MW-19C	520762.233	4991425.291	7-May-18	Deep	30.30	103.39	133.692	0.881	134.573	27.25	106.442	30.3	103.392
MW-20A	520263.534	4990264.985	7-May-18	Shallow	7.62	144.49	152.106	1.165	153.271	4.57	147.536	7.62	144.486
MW-20B	520263.490	4990263.750	7-May-18	Intermediate	15.27	136.92	152.194	1.013	153.207	12.22	139.974	15.27	136.924
MW-21A	521749.236	4987642.034	7-May-18	Shallow	6.35	152.22	158.566	0.920	159.486	3.3	155.266	6.35	152.216
MW-21B	521747.935	4987641.733	3-May-18	Intermediate	15.42	143.10	158.518	0.988	159.506	12.37	146.148	15.42	143.098
MW-21C	521749.207	4987639.956	2-May-18	Deep	30.48	127.90	158.384	1.007	159.391	27.43	130.954	30.48	127.904
MW-22A	524377.001	4988520.078	25-Apr-18	Shallow	6.55	132.58	139.130	0.900	140.030	3.51	135.620	6.55	132.580
MW-22B	524377.199	4988521.744	27-Apr-18	Intermediate	15.55	123.60	139.148	0.987	140.135	12.5	126.648	15.55	123.598
MW-22C	524377.504	4988523.209	1-May-18	Deep	29.03	110.10	139.129	0.965	140.094	25.98	113.149	29.03	110.099
SW-1	523246.783	4990047.378					127.711	-1.170	126.541				
SW-2A	521821.700	4991319.756					129.205	-0.236	128.969				
SW-4A	521343.751	4991071.233					129.343	-0.018	129.325				
SW-5	522696.387	4990229.101					130.874	-0.353	130.521				
SW-10	522176.584	4990321.015					134.168	-0.316	133.852				
SW13	522769.824	4990261.347					129.170	-0.450	128.720				
SW-14	522677.366	4990219.104					131.709	-0.188	131.521				
SW-15	521434.975	4990457.303					133.055						
SW-16	521570.917	4990336.002					138.069	-0.253	137.816				
SW-17	521906.952	4990205.472					139.893	-0.253	139.640				
SW-18	521637.704	4990067.184					146.236	-0.582	145.654				
SW-21	521809.216	4989583.858					159.224						
SW-22	521113.269	4989464.177					152.100	-0.886	151.214				
SW-23	522639.881	4989067.980					159.839	-0.170	159.669				
SW-24													

Attachment 4
Laboratory Certificates

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your Project #: 088664
Site Location: BEAVER DAM
Your C.O.C. #: B 171028

Attention:Peter Oram

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2014/10/21
Report #: R3195176
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4J1118
Received: 2014/10/14, 14:21

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	7	N/A	2014/10/21	N/A	SM 22 4500-CO2 D
Alkalinity	7	N/A	2014/10/17	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	7	N/A	2014/10/20	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	7	N/A	2014/10/20	ATL SOP 00020	SM 22 2120C m
Conductance - water	7	N/A	2014/10/21	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	7	N/A	2014/10/17	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	7	2014/10/17	2014/10/17	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS (1)	7	2014/10/16	2014/10/16	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	7	N/A	2014/10/21		Auto Calc.
Anion and Cation Sum	7	N/A	2014/10/21		Auto Calc.
Nitrogen Ammonia - water	7	N/A	2014/10/20	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	7	N/A	2014/10/20	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	7	N/A	2014/10/20	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	7	N/A	2014/10/20	ATL SOP 00018	ASTM D3867
pH (2)	7	N/A	2014/10/21	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	7	N/A	2014/10/17	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	7	N/A	2014/10/21	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	7	N/A	2014/10/21	ATL SOP 00049	Auto Calc.
Reactive Silica	7	N/A	2014/10/16	ATL SOP 00022	EPA 366.0 m
Sulphate	7	N/A	2014/10/20	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	7	N/A	2014/10/21		Auto Calc.
Organic carbon - Total (TOC) (3)	7	N/A	2014/10/17	ATL SOP 00037	SM 22 5310C m
Turbidity	7	N/A	2014/10/20	ATL SOP 00011	EPA 180.1 R2 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) New RDLs in effect due to release of NS Contaminated Sites Regulations. Reduced RDL based on MDL study performance. Low level analytical run checks being implemented.
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

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Success Through Science®

Your Project #: 088664
Site Location: BEAVER DAM
Your C.O.C. #: B 171028

Attention:Peter Oram

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2014/10/21
Report #: R3195176
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4J1118
Received: 2014/10/14, 14:21

Encryption Key

<Original signed by>Katie Campbell
21 Oct 2014 16:55:16 -03:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B4J1118
Report Date: 2014/10/21

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

RESULTS OF ANALYSES OF WATER

Maxxam ID		XZ3577		XZ3578	XZ3579		XZ3580	XZ3580		
Sampling Date		2014/10/10		2014/10/10	2014/10/10		2014/10/10	2014/10/10		
COC Number		B 171028		B 171028	B 171028		B 171028	B 171028		
	Units	SW-1	QC Batch	SW-2A	SW-4A	RDL	SW-5	SW-5 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	0.140	3784855	0.150	0.150	N/A	0.480		N/A	3784855
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	3784852	<1.0	<1.0	1.0	14		1.0	3784852
Calculated TDS	mg/L	14	3784860	14	15	1.0	28		1.0	3784860
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	3784852	<1.0	<1.0	1.0	<1.0		1.0	3784852
Cation Sum	me/L	0.290	3784855	0.290	0.300	N/A	0.480		N/A	3784855
Hardness (CaCO3)	mg/L	5.5	3784853	5.1	5.9	1.0	16		1.0	3784853
Ion Balance (% Difference)	%	34.9	3784854	31.8	33.3	N/A	0.00		N/A	3784854
Langelier Index (@ 20C)	N/A	NC	3784858	NC	NC		-2.56			3784858
Langelier Index (@ 4C)	N/A	NC	3784859	NC	NC		-2.81			3784859
Nitrate (N)	mg/L	<0.050	3784856	0.11	0.093	0.050	0.10		0.050	3784856
Saturation pH (@ 20C)	N/A	NC	3784858	NC	NC		9.43			3784858
Saturation pH (@ 4C)	N/A	NC	3784859	NC	NC		9.69			3784859
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	3786534	<5.0	<5.0	5.0	14		5.0	3786534
Dissolved Chloride (Cl)	mg/L	5.1	3786536	5.0	5.0	1.0	4.0		1.0	3786536
Colour	TCU	150	3786543	160	120	25	22		5.0	3786543
Nitrate + Nitrite	mg/L	<0.050	3786546	0.11	0.093	0.050	0.10		0.050	3786546
Nitrite (N)	mg/L	<0.010	3786547	<0.010	<0.010	0.010	<0.010		0.010	3786547
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	3788334	<0.050	<0.050	0.050	<0.050	<0.050	0.050	3788334
Total Organic Carbon (C)	mg/L	13 (1)	3788537	14 (1)	9.3 (1)	5.0	4.1		0.50	3788537
Orthophosphate (P)	mg/L	<0.010	3786544	<0.010	<0.010	0.010	<0.010		0.010	3786544
pH	pH	5.55	3792031	5.06	5.57	N/A	6.88		N/A	3792034
Reactive Silica (SiO2)	mg/L	2.5	3786541	2.7	3.4	0.50	1.8		0.50	3786541
Dissolved Sulphate (SO4)	mg/L	<2.0	3786538	<2.0	<2.0	2.0	3.5		2.0	3786538
Turbidity	NTU	1.1	3790888	1.1	1.4	0.10	0.44		0.10	3790888
Conductivity	uS/cm	30	3792033	31	29	1.0	48		1.0	3792035

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B4J1118
Report Date: 2014/10/21

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

RESULTS OF ANALYSES OF WATER

Maxxam ID		XZ3581		XZ3582		XZ3583		
Sampling Date		2014/10/10		2014/10/10		2014/10/10		
COC Number		B 171028		B 171028		B 171028		
	Units	SW-5D	RDL	SW-6A	RDL	SW-9	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	0.480	N/A	0.130	N/A	0.310	N/A	3784855
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	14	1.0	<1.0	1.0	5.8	1.0	3784852
Calculated TDS	mg/L	28	1.0	13	1.0	23	1.0	3784860
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	3784852
Cation Sum	me/L	0.470	N/A	0.240	N/A	0.420	N/A	3784855
Hardness (CaCO3)	mg/L	16	1.0	4.5	1.0	10	1.0	3784853
Ion Balance (% Difference)	%	1.05	N/A	29.7	N/A	15.1	N/A	3784854
Langelier Index (@ 20C)	N/A	-2.54		NC		-4.22		3784858
Langelier Index (@ 4C)	N/A	-2.80		NC		-4.47		3784859
Nitrate (N)	mg/L	0.15	0.050	0.080	0.050	0.091	0.050	3784856
Saturation pH (@ 20C)	N/A	9.46		NC		10.2		3784858
Saturation pH (@ 4C)	N/A	9.71		NC		10.4		3784859
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	14	5.0	<5.0	5.0	5.8	5.0	3786534
Dissolved Chloride (Cl)	mg/L	4.1	1.0	4.3	1.0	6.7	1.0	3786536
Colour	TCU	23	5.0	80	25	160	25	3786543
Nitrate + Nitrite	mg/L	0.15	0.050	0.080	0.050	0.091	0.050	3786546
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	<0.010	0.010	3786547
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	<0.050	0.050	<0.050	0.050	3788334
Total Organic Carbon (C)	mg/L	4.3	0.50	9.1	0.50	17 (1)	5.0	3788537
Orthophosphate (P)	mg/L	<0.010	0.010	<0.010	0.010	<0.010	0.010	3786544
pH	pH	6.92	N/A	5.73	N/A	5.94	N/A	3792034
Reactive Silica (SiO2)	mg/L	1.8	0.50	3.3	0.50	3.2	0.50	3786541
Dissolved Sulphate (SO4)	mg/L	3.6	2.0	<2.0	2.0	<2.0	2.0	3786538
Turbidity	NTU	0.81	0.10	0.30	0.10	1.5	0.10	3790888
Conductivity	uS/cm	47	1.0	25	1.0	39	1.0	3792035

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B4J1118
Report Date: 2014/10/21

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		XZ3577	XZ3578	XZ3579	XZ3580	XZ3581	XZ3582	XZ3583		
Sampling Date		2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10		
COC Number		B 171028	B 171028	B 171028	B 171028	B 171028	B 171028	B 171028		
	Units	**SW-1**	**SW-2A**	**SW-4A**	**SW-5**	**SW-5D**	**SW-6A**	**SW-9**	**RDL**	**QC Batch**
Metals										
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	3788512

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4J1118
Report Date: 2014/10/21

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		XZ3577	XZ3578	XZ3579	XZ3580	XZ3580	XZ3581	XZ3582		
Sampling Date		2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10		
COC Number		B 171028	B 171028	B 171028	B 171028	B 171028	B 171028	B 171028		
	Units	SW-1	SW-2A	SW-4A	SW-5	SW-5 Lab-Dup	SW-5D	SW-6A	RDL	QC Batch
Metals										
Total Aluminum (Al)	ug/L	330	330	250	28	27	29	220	5.0	3785198
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3785198
Total Arsenic (As)	ug/L	2.7	1.1	5.8	29	30	30	4.0	1.0	3785198
Total Barium (Ba)	ug/L	5.8	5.6	3.4	4.5	4.6	4.6	3.2	1.0	3785198
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3785198
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	<50	50	3785198
Total Cadmium (Cd)	ug/L	0.024	0.026	0.015	<0.010	<0.010	0.016	0.024	0.010	3785198
Total Calcium (Ca)	ug/L	1200	1100	1500	5000	5000	4900	1000	100	3785198
Total Chromium (Cr)	ug/L	<1.0	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3785198
Total Cobalt (Co)	ug/L	0.51	0.49	0.43	<0.40	<0.40	<0.40	<0.40	0.40	3785198
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Iron (Fe)	ug/L	670	740	690	400	400	400	500	50	3785198
Total Lead (Pb)	ug/L	0.51	0.78	0.54	<0.50	<0.50	<0.50	<0.50	0.50	3785198
Total Magnesium (Mg)	ug/L	590	570	540	940	930	920	470	100	3785198
Total Manganese (Mn)	ug/L	79	77	53	60	59	59	50	2.0	3785198
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	<100	<100	100	3785198
Total Potassium (K)	ug/L	570	600	450	730	730	710	340	100	3785198
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3785198
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3785198
Total Sodium (Na)	ug/L	3100	3100	3200	2700	2700	2700	2800	100	3785198
Total Strontium (Sr)	ug/L	11	11	9.9	28	27	27	7.1	2.0	3785198
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3785198
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Titanium (Ti)	ug/L	3.8	4.2	5.1	<2.0	<2.0	<2.0	2.7	2.0	3785198
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3785198
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Zinc (Zn)	ug/L	5.0	6.9	19	<5.0	<5.0	<5.0	<5.0	5.0	3785198

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B4J1118
Report Date: 2014/10/21

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		XZ3583		
Sampling Date		2014/10/10		
COC Number		B 171028		
	Units	SW-9	RDL	QC Batch
Metals				
Total Aluminum (Al)	ug/L	410	5.0	3785198
Total Antimony (Sb)	ug/L	<1.0	1.0	3785198
Total Arsenic (As)	ug/L	<1.0	1.0	3785198
Total Barium (Ba)	ug/L	6.6	1.0	3785198
Total Beryllium (Be)	ug/L	<1.0	1.0	3785198
Total Bismuth (Bi)	ug/L	<2.0	2.0	3785198
Total Boron (B)	ug/L	<50	50	3785198
Total Cadmium (Cd)	ug/L	0.024	0.010	3785198
Total Calcium (Ca)	ug/L	2300	100	3785198
Total Chromium (Cr)	ug/L	<1.0	1.0	3785198
Total Cobalt (Co)	ug/L	<0.40	0.40	3785198
Total Copper (Cu)	ug/L	<2.0	2.0	3785198
Total Iron (Fe)	ug/L	620	50	3785198
Total Lead (Pb)	ug/L	<0.50	0.50	3785198
Total Magnesium (Mg)	ug/L	1100	100	3785198
Total Manganese (Mn)	ug/L	140	2.0	3785198
Total Molybdenum (Mo)	ug/L	<2.0	2.0	3785198
Total Nickel (Ni)	ug/L	<2.0	2.0	3785198
Total Phosphorus (P)	ug/L	<100	100	3785198
Total Potassium (K)	ug/L	640	100	3785198
Total Selenium (Se)	ug/L	<1.0	1.0	3785198
Total Silver (Ag)	ug/L	<0.10	0.10	3785198
Total Sodium (Na)	ug/L	4000	100	3785198
Total Strontium (Sr)	ug/L	10	2.0	3785198
Total Thallium (Tl)	ug/L	<0.10	0.10	3785198
Total Tin (Sn)	ug/L	<2.0	2.0	3785198
Total Titanium (Ti)	ug/L	4.8	2.0	3785198
Total Uranium (U)	ug/L	0.11	0.10	3785198
Total Vanadium (V)	ug/L	<2.0	2.0	3785198
Total Zinc (Zn)	ug/L	5.2	5.0	3785198

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.3°C

Sample XZ3577-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample XZ3578-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample XZ3579-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample XZ3582-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample XZ3583-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B4J1118
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QUALITY ASSURANCE REPORT

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3785198	Total Aluminum (Al)	2014/10/16	103 (1)	80 - 120	102	80 - 120	<5.0	ug/L	2.5 (2)	20		
3785198	Total Antimony (Sb)	2014/10/16	99 (1)	80 - 120	99	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Arsenic (As)	2014/10/16	99 (1)	80 - 120	99	80 - 120	<1.0	ug/L	0.50 (2)	20		
3785198	Total Barium (Ba)	2014/10/16	100 (1)	80 - 120	97	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Beryllium (Be)	2014/10/16	99 (1)	80 - 120	100	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Bismuth (Bi)	2014/10/16	100 (1)	80 - 120	98	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Boron (B)	2014/10/16	97 (1)	80 - 120	102	80 - 120	<50	ug/L	NC (2)	20		
3785198	Total Cadmium (Cd)	2014/10/16	100 (1)	80 - 120	98	80 - 120	<0.010	ug/L	NC (2)	20		
3785198	Total Calcium (Ca)	2014/10/16	102 (1)	80 - 120	102	80 - 120	<100	ug/L	0.17 (2)	20		
3785198	Total Chromium (Cr)	2014/10/16	98 (1)	80 - 120	98	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Cobalt (Co)	2014/10/16	98 (1)	80 - 120	98	80 - 120	<0.40	ug/L	NC (2)	20		
3785198	Total Copper (Cu)	2014/10/16	96 (1)	80 - 120	97	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Iron (Fe)	2014/10/16	104 (1)	80 - 120	103	80 - 120	<50	ug/L	0.74 (2)	20		
3785198	Total Lead (Pb)	2014/10/16	102 (1)	80 - 120	102	80 - 120	<0.50	ug/L	NC (2)	20		
3785198	Total Magnesium (Mg)	2014/10/16	107 (1)	80 - 120	105	80 - 120	<100	ug/L	1.1 (2)	20		
3785198	Total Manganese (Mn)	2014/10/16	NC (1)	80 - 120	101	80 - 120	<2.0	ug/L	2.3 (2)	20		
3785198	Total Molybdenum (Mo)	2014/10/16	100 (1)	80 - 120	100	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Nickel (Ni)	2014/10/16	99 (1)	80 - 120	100	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Phosphorus (P)	2014/10/16	106 (1)	80 - 120	104	80 - 120	<100	ug/L	NC (2)	20		
3785198	Total Potassium (K)	2014/10/16	104 (1)	80 - 120	101	80 - 120	<100	ug/L	0.012 (2)	20		
3785198	Total Selenium (Se)	2014/10/16	98 (1)	80 - 120	97	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Silver (Ag)	2014/10/16	98 (1)	80 - 120	98	80 - 120	<0.10	ug/L	NC (2)	20		
3785198	Total Sodium (Na)	2014/10/16	102 (1)	80 - 120	102	80 - 120	<100	ug/L	0.062 (2)	20		
3785198	Total Strontium (Sr)	2014/10/16	100 (1)	80 - 120	100	80 - 120	<2.0	ug/L	1.2 (2)	20		
3785198	Total Thallium (Tl)	2014/10/16	98 (1)	80 - 120	98	80 - 120	<0.10	ug/L	NC (2)	20		
3785198	Total Tin (Sn)	2014/10/16	102 (1)	80 - 120	100	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Titanium (Ti)	2014/10/16	105 (1)	80 - 120	104	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Uranium (U)	2014/10/16	103 (1)	80 - 120	101	80 - 120	<0.10	ug/L	NC (2)	20		
3785198	Total Vanadium (V)	2014/10/16	99 (1)	80 - 120	101	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Zinc (Zn)	2014/10/16	97 (1)	80 - 120	98	80 - 120	<5.0	ug/L	NC (2)	20		
3786534	Total Alkalinity (Total as CaCO3)	2014/10/17	106	80 - 120	108	80 - 120	<5.0	mg/L	NC (3)	25		
3786536	Dissolved Chloride (Cl)	2014/10/20	NC	80 - 120	103	80 - 120	<1.0	mg/L	0.49 (3)	25	111	80 - 120

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Maxxam Job #: B4J1118
Report Date: 2014/10/21

QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3786538	Dissolved Sulphate (SO4)	2014/10/20	98	80 - 120	105	80 - 120	<2.0	mg/L	NC (3)	25		
3786541	Reactive Silica (SiO2)	2014/10/16	NC	80 - 120	100	80 - 120	<0.50	mg/L	0.56 (3)	25		
3786543	Colour	2014/10/20			105	80 - 120	<5.0	TCU	9.8 (3)	25		
3786544	Orthophosphate (P)	2014/10/17	103	80 - 120	99	80 - 120	<0.010	mg/L	NC (3)	25		
3786546	Nitrate + Nitrite	2014/10/20	102	80 - 120	102	80 - 120	0.091 ,RDL=0.050	mg/L	NC (3)	25		
3786547	Nitrite (N)	2014/10/20	90	80 - 120	97	80 - 120	<0.010	mg/L	NC (3)	25		
3788334	Nitrogen (Ammonia Nitrogen)	2014/10/20	96 (4)	80 - 120	99	80 - 120	<0.050	mg/L	NC (5)	25		
3788512	Total Mercury (Hg)	2014/10/17	84	80 - 120	94	80 - 120	<0.013	ug/L	NC (3)	20		
3788537	Total Organic Carbon (C)	2014/10/17	99	80 - 120	104	80 - 120	<0.50	mg/L	NC (3)	20		
3790888	Turbidity	2014/10/20					<0.10	NTU	NC (3)	25	96	80 - 120
3792031	pH	2014/10/21							1.3 (3)	N/A	101	97 - 103
3792033	Conductivity	2014/10/21			100	80 - 120	1.1 ,RDL=1.0	uS/cm	0.36 (3)	25		
3792034	pH	2014/10/21							0.67 (3)	N/A	101	97 - 103
3792035	Conductivity	2014/10/21			99	80 - 120	<1.0	uS/cm	0.35 (3)	25		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Matrix Spike Parent ID [XZ3581-03]

(2) Duplicate Parent ID [XZ3580-03]

(3) Duplicate Parent ID

(4) Matrix Spike Parent ID [XZ3580-01]

(5) Duplicate Parent ID [XZ3580-01]

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Maxxam Job #: B4J1118
Report Date: 2014/10/21

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Kevin MacDonald, Inorganics Supervisor

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MAXXAM Chain of Custody Record

COC #: B 171028 Page 1 of 1

This column for lab use only:
Client Code
Maxxam Job # B4J1118

Cooler ID	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp
			1	3	0	

Integrity: YES (NO)
Integrity / Checklist by: <Original signed by>
Labelled by:
Location / Bin #:

INVOICE INFORMATION:
Company Name: CRA
Contact Name: PETER ORAM
Address: 45 AKERLEY BLVD.
DARTMOUTH, NS Postal Code B3B 1J7
Email: <email address removed>
Ph: <personal information removed> Fax: (902)468-2207

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address:
Postal Code
Email:
Ph: Fax:

PO #
Project # / Phase # 088664
Project Name / Site Location BEAVER DAM
Quote 14-161KG
Site #
Task Order #
Sampled by JEFF PARKS / AMANDA FALEY

TURNAROUND TIME
Standard ☒
10 day ☐
If RUSH Specify Date: N/A
Pre-schedule rush work
Charge for # Jars used but not submitted: Ø

Guideline Requirements / Detection Limits / Special Instructions
CCME FRESHWATER AQUATIC LIFE
cc: jparks@CRAworld.com

*Specify Matrix: Surface/Salt/Ground/Tapwater/Sewage/Effluent/Potable/NonPotable/Tissue/Soil/Sludge/Metal/Seawater

Field Sample Identification	Matrix*	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	Metals Water: RCAP-30 Choose Total or Diss Metals	Metals Water: RCAP-MS Choose Total or Diss Metals	Metals Water: Total Digest (Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default Available Digest Method	Metals Soil: Metals Total Digest - for Ocean sediments (HNO3/HF/HCLO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Rec'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H.	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine, Quinoline
1 SW-1	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
2 SW-2A	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
3 SW-4A	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
4 SW-5	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
5 SW-5D	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
6 SW-6A	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
7 SW-9	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
8																				
9																				

'14 OCT 14 14:21

B4J1118

RELINQUISHED BY: (Signature/Print) Date Time
<Original signed by> / RAISSA HART 14-OCT-14 14:20

RECEIVED BY: (Signature/Print) Date Time
<Original signed by> ALYSON WATERS
<Original signed by> JOSHA BARIBAULT

White: Maxxam Yellow: Mail

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Success Through Science®

Your Project #: 088664
Site Location: BEAVER DAM
Your C.O.C. #: B 171028

Attention:Peter Oram

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2014/10/24
Report #: R3199243
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4J1118
Received: 2014/10/14, 14:21

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	7	N/A	2014/10/21	N/A	SM 22 4500-CO2 D
Alkalinity	7	N/A	2014/10/17	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	7	N/A	2014/10/20	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	7	N/A	2014/10/20	ATL SOP 00020	SM 22 2120C m
Conductance - water	7	N/A	2014/10/21	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	7	N/A	2014/10/17	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	7	2014/10/17	2014/10/17	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS (1)	7	2014/10/16	2014/10/16	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	7	N/A	2014/10/21		Auto Calc.
Anion and Cation Sum	7	N/A	2014/10/21		Auto Calc.
Nitrogen Ammonia - water	7	N/A	2014/10/20	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	7	N/A	2014/10/20	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	7	N/A	2014/10/20	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	7	N/A	2014/10/20	ATL SOP 00018	ASTM D3867
pH (2)	7	N/A	2014/10/21	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	7	N/A	2014/10/17	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	7	N/A	2014/10/21	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	7	N/A	2014/10/21	ATL SOP 00049	Auto Calc.
Reactive Silica	7	N/A	2014/10/16	ATL SOP 00022	EPA 366.0 m
Sulphate	7	N/A	2014/10/20	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	7	N/A	2014/10/21		Auto Calc.
Organic carbon - Total (TOC) (3)	7	N/A	2014/10/17	ATL SOP 00037	SM 22 5310C m
Turbidity	7	N/A	2014/10/20	ATL SOP 00011	EPA 180.1 R2 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) New RDLs in effect due to release of NS Contaminated Sites Regulations. Reduced RDL based on MDL study performance. Low level analytical run checks being implemented.
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Success Through Science®

Your Project #: 088664
Site Location: BEAVER DAM
Your C.O.C. #: B 171028

Attention:Peter Oram

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2014/10/24
Report #: R3199243
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4J1118
Received: 2014/10/14, 14:21

Encryption Key <Original signed by> Mari Kenny
24 Oct 2014 15:44:11 -03:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

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Maxxam Job #: B4J1118
Report Date: 2014/10/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

RESULTS OF ANALYSES OF WATER

Maxxam ID		XZ3577		XZ3578	XZ3579		XZ3580	XZ3580		
Sampling Date		2014/10/10		2014/10/10	2014/10/10		2014/10/10	2014/10/10		
COC Number		B 171028		B 171028	B 171028		B 171028	B 171028		
	Units	SW-1	QC Batch	SW-2A	SW-4A	RDL	SW-5	SW-5 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	0.140	3784855	0.150	0.150	N/A	0.480		N/A	3784855
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	3784852	<1.0	<1.0	1.0	14		1.0	3784852
Calculated TDS	mg/L	14	3784860	14	15	1.0	28		1.0	3784860
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	3784852	<1.0	<1.0	1.0	<1.0		1.0	3784852
Cation Sum	me/L	0.290	3784855	0.290	0.300	N/A	0.480		N/A	3784855
Hardness (CaCO3)	mg/L	5.5	3784853	5.1	5.9	1.0	16		1.0	3784853
Ion Balance (% Difference)	%	34.9	3784854	31.8	33.3	N/A	0.00		N/A	3784854
Langelier Index (@ 20C)	N/A	NC	3784858	NC	NC		-2.56			3784858
Langelier Index (@ 4C)	N/A	NC	3784859	NC	NC		-2.81			3784859
Nitrate (N)	mg/L	<0.050	3784856	0.11	0.093	0.050	0.10		0.050	3784856
Saturation pH (@ 20C)	N/A	NC	3784858	NC	NC		9.43			3784858
Saturation pH (@ 4C)	N/A	NC	3784859	NC	NC		9.69			3784859
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	3786534	<5.0	<5.0	5.0	14		5.0	3786534
Dissolved Chloride (Cl)	mg/L	5.1	3786536	5.0	5.0	1.0	4.0		1.0	3786536
Colour	TCU	150	3786543	160	120	25	22		5.0	3786543
Nitrate + Nitrite	mg/L	<0.050	3786546	0.11	0.093	0.050	0.10		0.050	3786546
Nitrite (N)	mg/L	<0.010	3786547	<0.010	<0.010	0.010	<0.010		0.010	3786547
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	3788334	<0.050	<0.050	0.050	<0.050	<0.050	0.050	3788334
Total Organic Carbon (C)	mg/L	13 (1)	3788537	14 (1)	9.3 (1)	5.0	4.1		0.50	3788537
Orthophosphate (P)	mg/L	<0.010	3786544	<0.010	<0.010	0.010	<0.010		0.010	3786544
pH	pH	5.55	3792031	5.06	5.57	N/A	6.88		N/A	3792034
Reactive Silica (SiO2)	mg/L	2.5	3786541	2.7	3.4	0.50	1.8		0.50	3786541
Dissolved Sulphate (SO4)	mg/L	<2.0	3786538	<2.0	<2.0	2.0	3.5		2.0	3786538
Turbidity	NTU	1.1	3790888	1.1	1.4	0.10	0.44		0.10	3790888
Conductivity	uS/cm	30	3792033	31	29	1.0	48		1.0	3792035

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable
(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B4J1118
Report Date: 2014/10/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

RESULTS OF ANALYSES OF WATER

Maxxam ID		XZ3581		XZ3582		XZ3583		
Sampling Date		2014/10/10		2014/10/10		2014/10/10		
COC Number		B 171028		B 171028		B 171028		
	Units	SW-5D	RDL	SW-6A	RDL	SW-9	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	0.480	N/A	0.130	N/A	0.310	N/A	3784855
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	14	1.0	<1.0	1.0	5.8	1.0	3784852
Calculated TDS	mg/L	28	1.0	13	1.0	23	1.0	3784860
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	3784852
Cation Sum	me/L	0.470	N/A	0.240	N/A	0.420	N/A	3784855
Hardness (CaCO3)	mg/L	16	1.0	4.5	1.0	10	1.0	3784853
Ion Balance (% Difference)	%	1.05	N/A	29.7	N/A	15.1	N/A	3784854
Langelier Index (@ 20C)	N/A	-2.54		NC		-4.22		3784858
Langelier Index (@ 4C)	N/A	-2.80		NC		-4.47		3784859
Nitrate (N)	mg/L	0.15	0.050	0.080	0.050	0.091	0.050	3784856
Saturation pH (@ 20C)	N/A	9.46		NC		10.2		3784858
Saturation pH (@ 4C)	N/A	9.71		NC		10.4		3784859
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	14	5.0	<5.0	5.0	5.8	5.0	3786534
Dissolved Chloride (Cl)	mg/L	4.1	1.0	4.3	1.0	6.7	1.0	3786536
Colour	TCU	23	5.0	80	25	160	25	3786543
Nitrate + Nitrite	mg/L	0.15	0.050	0.080	0.050	0.091	0.050	3786546
Nitrite (N)	mg/L	<0.010	0.010	<0.010	0.010	<0.010	0.010	3786547
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	<0.050	0.050	<0.050	0.050	3788334
Total Organic Carbon (C)	mg/L	4.3	0.50	9.1	0.50	17 (1)	5.0	3788537
Orthophosphate (P)	mg/L	<0.010	0.010	<0.010	0.010	<0.010	0.010	3786544
pH	pH	6.92	N/A	5.73	N/A	5.94	N/A	3792034
Reactive Silica (SiO2)	mg/L	1.8	0.50	3.3	0.50	3.2	0.50	3786541
Dissolved Sulphate (SO4)	mg/L	3.6	2.0	<2.0	2.0	<2.0	2.0	3786538
Turbidity	NTU	0.81	0.10	0.30	0.10	1.5	0.10	3790888
Conductivity	uS/cm	47	1.0	25	1.0	39	1.0	3792035

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B4J1118
Report Date: 2014/10/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		XZ3577	XZ3578	XZ3579	XZ3580	XZ3581	XZ3582	XZ3583		
Sampling Date		2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10		
COC Number		B 171028	B 171028	B 171028	B 171028	B 171028	B 171028	B 171028		
	Units	**SW-1**	**SW-2A**	**SW-4A**	**SW-5**	**SW-5D**	**SW-6A**	**SW-9**	**RDL**	**QC Batch**
Metals										
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	3788512

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4J1118
Report Date: 2014/10/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		XZ3577	XZ3578	XZ3579	XZ3580	XZ3580	XZ3581	XZ3582		
Sampling Date		2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10	2014/10/10		
COC Number		B 171028	B 171028	B 171028	B 171028	B 171028	B 171028	B 171028		
	Units	SW-1	SW-2A	SW-4A	SW-5	SW-5 Lab-Dup	SW-5D	SW-6A	RDL	QC Batch
Metals										
Total Aluminum (Al)	ug/L	330	330	250	28	27	29	220	5.0	3785198
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3785198
Total Arsenic (As)	ug/L	2.7	1.1	5.8	29	30	30	4.0	1.0	3785198
Total Barium (Ba)	ug/L	5.8	5.6	3.4	4.5	4.6	4.6	3.2	1.0	3785198
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3785198
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	<50	50	3785198
Total Cadmium (Cd)	ug/L	0.024	0.026	0.015	<0.010	<0.010	0.016	0.024	0.010	3785198
Total Calcium (Ca)	ug/L	1200	1100	1500	5000	5000	4900	1000	100	3785198
Total Chromium (Cr)	ug/L	<1.0	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3785198
Total Cobalt (Co)	ug/L	0.51	0.49	0.43	<0.40	<0.40	<0.40	<0.40	0.40	3785198
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Iron (Fe)	ug/L	670	740	690	400	400	400	500	50	3785198
Total Lead (Pb)	ug/L	0.51	0.78	0.54	<0.50	<0.50	<0.50	<0.50	0.50	3785198
Total Magnesium (Mg)	ug/L	590	570	540	940	930	920	470	100	3785198
Total Manganese (Mn)	ug/L	79	77	53	60	59	59	50	2.0	3785198
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	<100	<100	100	3785198
Total Potassium (K)	ug/L	570	600	450	730	730	710	340	100	3785198
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3785198
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3785198
Total Sodium (Na)	ug/L	3100	3100	3200	2700	2700	2700	2800	100	3785198
Total Strontium (Sr)	ug/L	11	11	9.9	28	27	27	7.1	2.0	3785198
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3785198
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Titanium (Ti)	ug/L	3.8	4.2	5.1	<2.0	<2.0	<2.0	2.7	2.0	3785198
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3785198
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3785198
Total Zinc (Zn)	ug/L	5.0	6.9	19	<5.0	<5.0	<5.0	<5.0	5.0	3785198

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B4J1118
Report Date: 2014/10/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		XZ3583		
Sampling Date		2014/10/10		
COC Number		B 171028		
	Units	SW-9	RDL	QC Batch
Metals				
Total Aluminum (Al)	ug/L	410	5.0	3785198
Total Antimony (Sb)	ug/L	<1.0	1.0	3785198
Total Arsenic (As)	ug/L	<1.0	1.0	3785198
Total Barium (Ba)	ug/L	6.6	1.0	3785198
Total Beryllium (Be)	ug/L	<1.0	1.0	3785198
Total Bismuth (Bi)	ug/L	<2.0	2.0	3785198
Total Boron (B)	ug/L	<50	50	3785198
Total Cadmium (Cd)	ug/L	0.024	0.010	3785198
Total Calcium (Ca)	ug/L	2300	100	3785198
Total Chromium (Cr)	ug/L	<1.0	1.0	3785198
Total Cobalt (Co)	ug/L	<0.40	0.40	3785198
Total Copper (Cu)	ug/L	<2.0	2.0	3785198
Total Iron (Fe)	ug/L	620	50	3785198
Total Lead (Pb)	ug/L	<0.50	0.50	3785198
Total Magnesium (Mg)	ug/L	1100	100	3785198
Total Manganese (Mn)	ug/L	140	2.0	3785198
Total Molybdenum (Mo)	ug/L	<2.0	2.0	3785198
Total Nickel (Ni)	ug/L	<2.0	2.0	3785198
Total Phosphorus (P)	ug/L	<100	100	3785198
Total Potassium (K)	ug/L	640	100	3785198
Total Selenium (Se)	ug/L	<1.0	1.0	3785198
Total Silver (Ag)	ug/L	<0.10	0.10	3785198
Total Sodium (Na)	ug/L	4000	100	3785198
Total Strontium (Sr)	ug/L	10	2.0	3785198
Total Thallium (Tl)	ug/L	<0.10	0.10	3785198
Total Tin (Sn)	ug/L	<2.0	2.0	3785198
Total Titanium (Ti)	ug/L	4.8	2.0	3785198
Total Uranium (U)	ug/L	0.11	0.10	3785198
Total Vanadium (V)	ug/L	<2.0	2.0	3785198
Total Zinc (Zn)	ug/L	5.2	5.0	3785198

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4J1118
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Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.3°C

Report re-issued to include the National Excel EDD - 2014/10/24 MK

Sample XZ3577-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample XZ3578-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample XZ3579-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample XZ3582-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample XZ3583-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B4J1118
Report Date: 2014/10/24

QUALITY ASSURANCE REPORT

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3785198	Total Aluminum (Al)	2014/10/16	103 (1)	80 - 120	102	80 - 120	<5.0	ug/L	2.5 (2)	20		
3785198	Total Antimony (Sb)	2014/10/16	99 (1)	80 - 120	99	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Arsenic (As)	2014/10/16	99 (1)	80 - 120	99	80 - 120	<1.0	ug/L	0.50 (2)	20		
3785198	Total Barium (Ba)	2014/10/16	100 (1)	80 - 120	97	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Beryllium (Be)	2014/10/16	99 (1)	80 - 120	100	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Bismuth (Bi)	2014/10/16	100 (1)	80 - 120	98	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Boron (B)	2014/10/16	97 (1)	80 - 120	102	80 - 120	<50	ug/L	NC (2)	20		
3785198	Total Cadmium (Cd)	2014/10/16	100 (1)	80 - 120	98	80 - 120	<0.010	ug/L	NC (2)	20		
3785198	Total Calcium (Ca)	2014/10/16	102 (1)	80 - 120	102	80 - 120	<100	ug/L	0.17 (2)	20		
3785198	Total Chromium (Cr)	2014/10/16	98 (1)	80 - 120	98	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Cobalt (Co)	2014/10/16	98 (1)	80 - 120	98	80 - 120	<0.40	ug/L	NC (2)	20		
3785198	Total Copper (Cu)	2014/10/16	96 (1)	80 - 120	97	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Iron (Fe)	2014/10/16	104 (1)	80 - 120	103	80 - 120	<50	ug/L	0.74 (2)	20		
3785198	Total Lead (Pb)	2014/10/16	102 (1)	80 - 120	102	80 - 120	<0.50	ug/L	NC (2)	20		
3785198	Total Magnesium (Mg)	2014/10/16	107 (1)	80 - 120	105	80 - 120	<100	ug/L	1.1 (2)	20		
3785198	Total Manganese (Mn)	2014/10/16	NC (1)	80 - 120	101	80 - 120	<2.0	ug/L	2.3 (2)	20		
3785198	Total Molybdenum (Mo)	2014/10/16	100 (1)	80 - 120	100	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Nickel (Ni)	2014/10/16	99 (1)	80 - 120	100	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Phosphorus (P)	2014/10/16	106 (1)	80 - 120	104	80 - 120	<100	ug/L	NC (2)	20		
3785198	Total Potassium (K)	2014/10/16	104 (1)	80 - 120	101	80 - 120	<100	ug/L	0.012 (2)	20		
3785198	Total Selenium (Se)	2014/10/16	98 (1)	80 - 120	97	80 - 120	<1.0	ug/L	NC (2)	20		
3785198	Total Silver (Ag)	2014/10/16	98 (1)	80 - 120	98	80 - 120	<0.10	ug/L	NC (2)	20		
3785198	Total Sodium (Na)	2014/10/16	102 (1)	80 - 120	102	80 - 120	<100	ug/L	0.062 (2)	20		
3785198	Total Strontium (Sr)	2014/10/16	100 (1)	80 - 120	100	80 - 120	<2.0	ug/L	1.2 (2)	20		
3785198	Total Thallium (Tl)	2014/10/16	98 (1)	80 - 120	98	80 - 120	<0.10	ug/L	NC (2)	20		
3785198	Total Tin (Sn)	2014/10/16	102 (1)	80 - 120	100	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Titanium (Ti)	2014/10/16	105 (1)	80 - 120	104	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Uranium (U)	2014/10/16	103 (1)	80 - 120	101	80 - 120	<0.10	ug/L	NC (2)	20		
3785198	Total Vanadium (V)	2014/10/16	99 (1)	80 - 120	101	80 - 120	<2.0	ug/L	NC (2)	20		
3785198	Total Zinc (Zn)	2014/10/16	97 (1)	80 - 120	98	80 - 120	<5.0	ug/L	NC (2)	20		
3786534	Total Alkalinity (Total as CaCO3)	2014/10/17	106	80 - 120	108	80 - 120	<5.0	mg/L	NC (3)	25		
3786536	Dissolved Chloride (Cl)	2014/10/20	NC	80 - 120	103	80 - 120	<1.0	mg/L	0.49 (3)	25	111	80 - 120

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Maxxam Job #: B4J1118
Report Date: 2014/10/24

QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3786538	Dissolved Sulphate (SO4)	2014/10/20	98	80 - 120	105	80 - 120	<2.0	mg/L	NC (3)	25		
3786541	Reactive Silica (SiO2)	2014/10/16	NC	80 - 120	100	80 - 120	<0.50	mg/L	0.56 (3)	25		
3786543	Colour	2014/10/20			105	80 - 120	<5.0	TCU	9.8 (3)	25		
3786544	Orthophosphate (P)	2014/10/17	103	80 - 120	99	80 - 120	<0.010	mg/L	NC (3)	25		
3786546	Nitrate + Nitrite	2014/10/20	102	80 - 120	102	80 - 120	0.091 ,RDL=0.050	mg/L	NC (3)	25		
3786547	Nitrite (N)	2014/10/20	90	80 - 120	97	80 - 120	<0.010	mg/L	NC (3)	25		
3788334	Nitrogen (Ammonia Nitrogen)	2014/10/20	96 (4)	80 - 120	99	80 - 120	<0.050	mg/L	NC (5)	25		
3788512	Total Mercury (Hg)	2014/10/17	84	80 - 120	94	80 - 120	<0.013	ug/L	NC (3)	20		
3788537	Total Organic Carbon (C)	2014/10/17	99	80 - 120	104	80 - 120	<0.50	mg/L	NC (3)	20		
3790888	Turbidity	2014/10/20					<0.10	NTU	NC (3)	25	96	80 - 120
3792031	pH	2014/10/21							1.3 (3)	N/A	101	97 - 103
3792033	Conductivity	2014/10/21			100	80 - 120	1.1 ,RDL=1.0	uS/cm	0.36 (3)	25		
3792034	pH	2014/10/21							0.67 (3)	N/A	101	97 - 103
3792035	Conductivity	2014/10/21			99	80 - 120	<1.0	uS/cm	0.35 (3)	25		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Matrix Spike Parent ID [XZ3581-03]

(2) Duplicate Parent ID [XZ3580-03]

(3) Duplicate Parent ID

(4) Matrix Spike Parent ID [XZ3580-01]

(5) Duplicate Parent ID [XZ3580-01]

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Maxxam Job #: B4J1118
Report Date: 2014/10/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664
Site Location: BEAVER DAM
Sampler Initials: JP

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Kevin MacDonald, Inorganics Supervisor

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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MAXXAM Chain of Custody Record

COC #: B 171028 Page 1 of 1

This column for lab use only:
Client Code
Maxxam Job # B4J1118

Cooler ID	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp
			1	3	0	

Integrity: YES (NO) Integrity / Checklist by: <Original signed by>
Labelled by: Location / Bin #:

INVOICE INFORMATION:
Company Name: CRA
Contact Name: PETER ORAM
Address: 45 AKERLEY BLVD.
DARTMOUTH, NS Postal Code B3B 1J7
Email: <email address removed>
<personal information removed>
Ph: Fax: (902)468-2207

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address: Postal Code
Email:
Ph: Fax:

PO #
Project # / Phase # 088664
Project Name / Site Location BEAVER DAM
Quote 14-161KG
Site #
Task Order #
Sampled by JEFF PARKS / AMANDA FOLEY

TURNAROUND TIME
Standard ☒
10 day ☐
If RUSH Specify Date: N/A
Pre-schedule rush work
Charge for # Jars used but not submitted: Ø

Guideline Requirements / Detection Limits / Special Instructions
CCME FRESHWATER AQUATIC LIFE
cc: jparks@CRAworld.com

*Specify Matrix: Surface/Salt/Ground/Tapwater/Sewage/Effluent/Potable/NonPotable/Tissue/Soil/Sludge/Metal/Seawater

Field Sample Identification	Matrix*	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	Metals Water: RCAP-30 Choose Total or Diss Metals	Metals Water: RCAP-MS Choose Total or Diss Metals	Metals Water: Total Digest (Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default Available Digest Method	Metals Soil: Metals Total Digest - for Ocean sediments (HNO3/HF/HCLO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Rec'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H.	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine, Quinoline
1 SW-1	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
2 SW-2A	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
3 SW-4A	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
4 SW-5	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
5 SW-5D	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
6 SW-6A	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
7 SW-9	SURFACE WATER	10-OCT-14	1X50 1X200 1X100				X			X										
8																				
9																				

'14 OCT 14 14:21

B4J1118

RELINQUISHED BY: (Signature/Print) Date Time
<Original signed by> / RACHEL HART 14-OCT-14 14:20

RECEIVED BY: (Signature/Print) Date Time
<Original signed by> ALYSON WATERS
<Original signed by> JOSHA BARIBAULT

White: Maxxam Yellow: Mail

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 66223

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2014/11/24
Report #: R3231882
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4L5339
Received: 2014/11/14, 10:45

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	7	N/A	2014/11/21	N/A	SM 22 4500-CO2 D
Alkalinity	7	N/A	2014/11/24	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	7	N/A	2014/11/21	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	6	N/A	2014/11/20	ATL SOP 00020	SM 22 2120C m
Colour	1	N/A	2014/11/21	ATL SOP 00020	SM 22 2120C m
Conductance - water	7	N/A	2014/11/20	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	7	N/A	2014/11/20	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	7	2014/11/20	2014/11/21	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS (1)	7	2014/11/19	2014/11/20	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	7	N/A	2014/11/24		Auto Calc.
Anion and Cation Sum	7	N/A	2014/11/21		Auto Calc.
Nitrogen Ammonia - water	7	N/A	2014/11/20	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	7	N/A	2014/11/21	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	7	N/A	2014/11/21	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	7	N/A	2014/11/21	ATL SOP 00018	ASTM D3867
pH (2)	7	N/A	2014/11/20	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	7	N/A	2014/11/20	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	7	N/A	2014/11/24	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	7	N/A	2014/11/24	ATL SOP 00049	Auto Calc.
Reactive Silica	1	N/A	2014/11/19	ATL SOP 00022	EPA 366.0 m
Reactive Silica	6	N/A	2014/11/20	ATL SOP 00022	EPA 366.0 m
Sulphate	7	N/A	2014/11/21	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	7	N/A	2014/11/24		Auto Calc.
Organic carbon - Total (TOC) (3)	7	N/A	2014/11/19	ATL SOP 00037	SM 22 5310C m
Turbidity	7	N/A	2014/11/21	ATL SOP 00011	EPA 180.1 R2 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) New RDLs in effect due to release of NS Contaminated Sites Regulations. Reduced RDL based on MDL study performance. Low level analytical run checks being implemented.
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

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Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 66223

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2014/11/24
Report #: R3231882
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4L5339
Received: 2014/11/14, 10:45

<Original signed by>
Rachael Mansfield
24 Nov 2014 15:35:38 -04:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Job #: B4L5339
Report Date: 2014/11/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

RESULTS OF ANALYSES OF WATER

Maxxam ID		YL6603	YL6604	YL6605	YL6605		YL6606		
Sampling Date		2014/11/13	2014/11/13	2014/11/13	2014/11/13		2014/11/13		
COC Number		B 66223	B 66223	B 66223	B 66223		B 66223		
	Units	SW-1	SW-2A	SW-4A	SW-4A Lab-Dup	QC Batch	SW-4AD	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.170	0.180	0.180		3824136	0.180	N/A	3824136
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	<1.0		3824131	<1.0	1.0	3824131
Calculated TDS	mg/L	16	17	16		3824140	16	1.0	3824140
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	<1.0		3824131	<1.0	1.0	3824131
Cation Sum	me/L	0.290	0.300	0.300		3824136	0.300	N/A	3824136
Hardness (CaCO3)	mg/L	5.0	4.9	5.6		3824134	5.6	1.0	3824134
Ion Balance (% Difference)	%	26.1	25.0	25.0		3824135	25.0	N/A	3824135
Langelier Index (@ 20C)	N/A	NC	NC	NC		3824138	NC		3824138
Langelier Index (@ 4C)	N/A	NC	NC	NC		3824139	NC		3824139
Nitrate (N)	mg/L	0.061	0.065	0.062		3824137	<0.050	0.050	3824137
Saturation pH (@ 20C)	N/A	NC	NC	NC		3824138	NC		3824138
Saturation pH (@ 4C)	N/A	NC	NC	NC		3824139	NC		3824139
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	<5.0	<5.0	<5.0	3827629	<5.0	5.0	3827629
Dissolved Chloride (Cl)	mg/L	5.8	6.3	6.2	5.8	3827631	6.4	1.0	3827631
Colour	TCU	160	160	130	130	3827648	130	25	3827648
Nitrate + Nitrite	mg/L	0.061	0.065	0.062	0.066	3827662	<0.050	0.050	3827662
Nitrite (N)	mg/L	<0.010	<0.010	<0.010	<0.010	3827664	<0.010	0.010	3827664
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	<0.050	<0.050		3829220	<0.050	0.050	3829221
Total Organic Carbon (C)	mg/L	18	19	16		3828950	16	0.50	3828950
Orthophosphate (P)	mg/L	<0.010	<0.010	<0.010	<0.010	3827660	<0.010	0.010	3827660
pH	pH	4.59	4.54	4.76		3830316	4.71	N/A	3830316
Reactive Silica (SiO2)	mg/L	3.9	3.9	3.5	3.6	3827642	3.6	0.50	3827642
Dissolved Sulphate (SO4)	mg/L	<2.0	<2.0	<2.0	<2.0	3827633	<2.0	2.0	3827633
Turbidity	NTU	0.64	0.50	0.68		3832636	0.65	0.10	3832636
Conductivity	uS/cm	33	33	31		3830317	31	1.0	3830317

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B4L5339
Report Date: 2014/11/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

RESULTS OF ANALYSES OF WATER

Maxxam ID		YL6607		YL6608	YL6609		
Sampling Date		2014/11/13		2014/11/13	2014/11/13		
COC Number		B 66223		B 66223	B 66223		
	Units	SW-5	RDL	SW-6A	SW-9	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	0.520	N/A	0.160	0.200	N/A	3824136
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	11	1.0	<1.0	<1.0	1.0	3824131
Calculated TDS	mg/L	33	1.0	15	17	1.0	3824140
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	<1.0	1.0	3824131
Cation Sum	me/L	0.510	N/A	0.270	0.340	N/A	3824136
Hardness (CaCO3)	mg/L	17	1.0	5.0	6.4	1.0	3824134
Ion Balance (% Difference)	%	0.970	N/A	25.6	25.9	N/A	3824135
Langelier Index (@ 20C)	N/A	-2.74		NC	NC		3824138
Langelier Index (@ 4C)	N/A	-2.99		NC	NC		3824139
Nitrate (N)	mg/L	0.051	0.050	<0.050	<0.050	0.050	3824137
Saturation pH (@ 20C)	N/A	9.52		NC	NC		3824138
Saturation pH (@ 4C)	N/A	9.77		NC	NC		3824139
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L	11	5.0	<5.0	<5.0	5.0	3827629
Dissolved Chloride (Cl)	mg/L	5.2	1.0	5.8	7.2	1.0	3827631
Colour	TCU	26	5.0	99	140	25	3827648
Nitrate + Nitrite	mg/L	0.051	0.050	<0.050	<0.050	0.050	3827662
Nitrite (N)	mg/L	<0.010	0.010	<0.010	<0.010	0.010	3827664
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	<0.050	<0.050	0.050	3829221
Total Organic Carbon (C)	mg/L	3.5	0.50	13	18	0.50	3828950
Orthophosphate (P)	mg/L	<0.010	0.010	<0.010	<0.010	0.010	3827660
pH	pH	6.78	N/A	5.05	4.96	N/A	3830316
Reactive Silica (SiO2)	mg/L	3.1	0.50	3.5	3.1	0.50	3827642
Dissolved Sulphate (SO4)	mg/L	7.0	2.0	<2.0	<2.0	2.0	3827633
Turbidity	NTU	1.4	0.10	0.69	0.74	0.10	3832636
Conductivity	uS/cm	49	1.0	28	35	1.0	3830317

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Conestoga-Rovers and Associates Ltd
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Sampler Initials: AF

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		YL6603	YL6604	YL6605	YL6606	YL6607	YL6608	YL6609		
Sampling Date		2014/11/13	2014/11/13	2014/11/13	2014/11/13	2014/11/13	2014/11/13	2014/11/13		
COC Number		B 66223	B 66223	B 66223	B 66223	B 66223	B 66223	B 66223		
	Units	SW-1	SW-2A	SW-4A	SW-4AD	SW-5	SW-6A	SW-9	RDL	QC Batch
Metals										
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	3831012

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		YL6603	YL6604	YL6605	YL6606	YL6607	YL6608	YL6609		
Sampling Date		2014/11/13	2014/11/13	2014/11/13	2014/11/13	2014/11/13	2014/11/13	2014/11/13		
COC Number		B 66223	B 66223	B 66223	B 66223	B 66223	B 66223	B 66223		
	Units	SW-1	SW-2A	SW-4A	SW-4AD	SW-5	SW-6A	SW-9	RDL	QC Batch
Metals										
Total Aluminum (Al)	ug/L	320	340	300	310	100	290	330	5.0	3827227
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3827227
Total Arsenic (As)	ug/L	1.5	<1.0	2.9	2.8	15	1.9	<1.0	1.0	3827227
Total Barium (Ba)	ug/L	5.6	5.8	4.6	4.4	5.5	4.1	5.7	1.0	3827227
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3827227
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3827227
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	<50	50	3827227
Total Cadmium (Cd)	ug/L	0.029	0.028	0.024	0.025	<0.010	0.021	0.025	0.010	3827227
Total Calcium (Ca)	ug/L	1100	1000	1300	1300	5300	1200	1400	100	3827227
Total Chromium (Cr)	ug/L	<1.0	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3827227
Total Cobalt (Co)	ug/L	0.52	0.58	0.53	0.59	<0.40	0.44	<0.40	0.40	3827227
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3827227
Total Iron (Fe)	ug/L	630	700	540	540	470	480	500	50	3827227
Total Lead (Pb)	ug/L	<0.50	0.55	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3827227
Total Magnesium (Mg)	ug/L	560	570	590	590	970	510	700	100	3827227
Total Manganese (Mn)	ug/L	68	71	58	58	28	51	75	2.0	3827227
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3827227
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3827227
Total Phosphorus (P)	ug/L	<100	110	100	100	<100	<100	<100	100	3827227
Total Potassium (K)	ug/L	550	600	500	520	1000	470	530	100	3827227
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3827227
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3827227
Total Sodium (Na)	ug/L	3000	3100	3100	3200	2900	3000	3900	100	3827227
Total Strontium (Sr)	ug/L	10	9.5	9.1	9.2	26	7.7	7.7	2.0	3827227
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3827227
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3827227
Total Titanium (Ti)	ug/L	3.2	3.8	3.7	3.9	3.2	3.1	4.1	2.0	3827227
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3827227
Total Vanadium (V)	ug/L	2.3	2.5	2.9	2.8	3.1	2.2	2.3	2.0	3827227
Total Zinc (Zn)	ug/L	5.1	6.2	7.8	6.9	<5.0	5.5	7.5	5.0	3827227

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4L5339
Report Date: 2014/11/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.3°C

Sample YL6603-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YL6604-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YL6605-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YL6606-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YL6608-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YL6609-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B4L5339
Report Date: 2014/11/24

QUALITY ASSURANCE REPORT

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3827227	Total Aluminum (Al)	2014/11/20	98	80 - 120	100	80 - 120	<5.0	ug/L	NC (1)	20		
3827227	Total Antimony (Sb)	2014/11/20	108	80 - 120	104	80 - 120	<1.0	ug/L				
3827227	Total Arsenic (As)	2014/11/20	99	80 - 120	97	80 - 120	<1.0	ug/L	NC (1)	20		
3827227	Total Barium (Ba)	2014/11/20	NC	80 - 120	103	80 - 120	<1.0	ug/L				
3827227	Total Beryllium (Be)	2014/11/20	104	80 - 120	103	80 - 120	<1.0	ug/L				
3827227	Total Bismuth (Bi)	2014/11/20	101	80 - 120	103	80 - 120	<2.0	ug/L				
3827227	Total Boron (B)	2014/11/20	99	80 - 120	98	80 - 120	<50	ug/L				
3827227	Total Cadmium (Cd)	2014/11/20	99	80 - 120	98	80 - 120	<0.010	ug/L	NC (1)	20		
3827227	Total Calcium (Ca)	2014/11/20	NC	80 - 120	92	80 - 120	<100	ug/L				
3827227	Total Chromium (Cr)	2014/11/20	96	80 - 120	96	80 - 120	<1.0	ug/L	NC (1)	20		
3827227	Total Cobalt (Co)	2014/11/20	95	80 - 120	95	80 - 120	<0.40	ug/L				
3827227	Total Copper (Cu)	2014/11/20	94	80 - 120	94	80 - 120	<2.0	ug/L	NC (1)	20		
3827227	Total Iron (Fe)	2014/11/20	101	80 - 120	102	80 - 120	<50	ug/L	NC (1)	20		
3827227	Total Lead (Pb)	2014/11/20	97	80 - 120	98	80 - 120	<0.50	ug/L	NC (1)	20		
3827227	Total Magnesium (Mg)	2014/11/20	NC	80 - 120	105	80 - 120	<100	ug/L				
3827227	Total Manganese (Mn)	2014/11/20	93	80 - 120	100	80 - 120	<2.0	ug/L				
3827227	Total Molybdenum (Mo)	2014/11/20	104	80 - 120	103	80 - 120	<2.0	ug/L	NC (1)	20		
3827227	Total Nickel (Ni)	2014/11/20	97	80 - 120	98	80 - 120	<2.0	ug/L	NC (1)	20		
3827227	Total Phosphorus (P)	2014/11/20	109	80 - 120	109	80 - 120	<100	ug/L				
3827227	Total Potassium (K)	2014/11/20	106	80 - 120	109	80 - 120	<100	ug/L				
3827227	Total Selenium (Se)	2014/11/20	96	80 - 120	94	80 - 120	<1.0	ug/L	NC (1)	20		
3827227	Total Silver (Ag)	2014/11/20	101	80 - 120	100	80 - 120	<0.10	ug/L	NC (1)	20		
3827227	Total Sodium (Na)	2014/11/20	NC	80 - 120	103	80 - 120	<100	ug/L				
3827227	Total Strontium (Sr)	2014/11/20	NC	80 - 120	100	80 - 120	<2.0	ug/L				
3827227	Total Thallium (Tl)	2014/11/20	100	80 - 120	101	80 - 120	<0.10	ug/L				
3827227	Total Tin (Sn)	2014/11/20	105	80 - 120	101	80 - 120	<2.0	ug/L				
3827227	Total Titanium (Ti)	2014/11/20	101	80 - 120	101	80 - 120	<2.0	ug/L				
3827227	Total Uranium (U)	2014/11/20	108	80 - 120	105	80 - 120	<0.10	ug/L				
3827227	Total Vanadium (V)	2014/11/20	98	80 - 120	101	80 - 120	3.5, RDL=2.0	ug/L				
3827227	Total Zinc (Zn)	2014/11/20	99	80 - 120	100	80 - 120	<5.0	ug/L	1.7 (1)	20		
3827629	Total Alkalinity (Total as CaCO3)	2014/11/24	102 (2)	80 - 120	109	80 - 120	<5.0	mg/L	NC (3)	25		

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Maxxam Job #: B4L5339
Report Date: 2014/11/24

QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3827631	Dissolved Chloride (Cl)	2014/11/21	100 (2)	80 - 120	103	80 - 120	<1.0	mg/L	7.3 (3)	25	107	80 - 120
3827633	Dissolved Sulphate (SO4)	2014/11/21	105 (2)	80 - 120	96	80 - 120	<2.0	mg/L	NC (3)	25		
3827642	Reactive Silica (SiO2)	2014/11/19	99 (2)	80 - 120	103	80 - 120	<0.50	mg/L	0.58 (3)	25		
3827648	Colour	2014/11/21			104	80 - 120	<5.0	TCU	3.2 (3)	25		
3827660	Orthophosphate (P)	2014/11/20	90 (2)	80 - 120	97	80 - 120	<0.010	mg/L	NC (3)	25		
3827662	Nitrate + Nitrite	2014/11/21	103 (2)	80 - 120	103	80 - 120	<0.050	mg/L	NC (3)	25		
3827664	Nitrite (N)	2014/11/21	91 (2)	80 - 120	101	80 - 120	<0.010	mg/L	NC (3)	25		
3828950	Total Organic Carbon (C)	2014/11/19	101	80 - 120	107	80 - 120	<0.50	mg/L	NC (1)	20		
3829220	Nitrogen (Ammonia Nitrogen)	2014/11/20	96	80 - 120	100	80 - 120	<0.050	mg/L	NC (1)	25		
3829221	Nitrogen (Ammonia Nitrogen)	2014/11/21	98	80 - 120	102	80 - 120	<0.050	mg/L	14 (1)	25		
3830316	pH	2014/11/20							0.45 (1)	N/A	100	97 - 103
3830317	Conductivity	2014/11/20			99	80 - 120	1.3, RDL=1.0	uS/cm	0 (1)	25		
3831012	Total Mercury (Hg)	2014/11/21	91	80 - 120	101	80 - 120	<0.013	ug/L	NC (1)	20		
3832636	Turbidity	2014/11/21					<0.10	NTU	5.6 (1)	25	106	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [YL6605-01]

(3) Duplicate Parent ID [YL6605-01]

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B4L5339
Report Date: 2014/11/24

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

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Maxxam Analytics International Corporation

200 Bluewater Road, Suite 105, Bedford, Nova Scotia B4B 1G9 Tel: 902-420-0203 Fax: 902-420-8612 Toll Free: 1-800-565-7227
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www.maxxamanalytics.com E-mail: Clientservicesbedford@maxxamanalytics.com

MAXXAM Chain of Custody Record

COC #: B 66223 Page 1 of 1

This column for lab use only:
Client Code:
Maxxam Job #: B4L5339

Cooler ID	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp
			3	3	4	

Integrity: YES (NO) Integrity / Checklist by: <Original signed by>
Labelled by: Location / Bin #: 50

INVOICE INFORMATION:
Company Name: CRA
Contact Name: Jeff Parks
Address: Dartmouth, NS
Postal Code: B3B 1J7
Email: jparks@craworld.com
Ph: 468-1248 Fax: 468-2207

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address:
Postal Code:
Email:
Ph: Fax:

PO #: 20-019340
Project # / Phase #: 086664-05
Project Name / Site Location: Atlantic Gold-Beaver Dam
Quote: 14-161 KG
Site #:
Task Order #:
Sampled by: AF

TURNAROUND TIME
Standard ☑
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted: /

Guideline Requirements / Detection Limits / Special Instructions
CCME FWAL

*Specify Matrix: Surface/Salt/Ground/Tapwater/Sewage/Effluent/Potable/NonPotable/Tissue/Soil/Sludge/Metal/Seawater

	Field Sample Identification	Matrix*	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	RCAP-30 Choose Total or Diss Metals	RCAP-MS Choose Total or Diss Metals	Metals Water: Total Digest (Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default: Available Digest: Method	Metals Soil: Metals Total Digest - for Ocean sediments (HNO3/HF/HClO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Req'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H.	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine, Quinoline
1	SW-1	SW	13 Nov 14	1x50 1x100 1x200	X			X			X											
2	SW-2A				X			X			X											
3	SW-4A				X			X			X											
4	SW-4AD				X			X			X											
5	SW-5				X			X			X											
6	SW-6A				X			X			X											
7	SW-9																					
8																						
9																						
10																						

2014 NOV 14 11:25

B4L5339

RELINQUISHED BY: (Signature/Print) Date Time
<Original signed by> A Facey 14 Nov 14

RECEIVED BY: (Signature/Print) Date Time
<Original signed by>
<Original signed by> SARA MASON 14 NOV 14 10:45

White: Maxxam Yellow : Mail Pink: Client ATL FCD 00149 / Revision 8 11/08

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A Bureau Veritas Group Company

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 100254

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2014/12/31
Report #: R3275281
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4O0693
Received: 2014/12/19, 10:13

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	7	N/A	2014/12/30	N/A	SM 22 4500-CO2 D
Alkalinity	7	N/A	2014/12/29	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	7	N/A	2014/12/30	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	7	N/A	2014/12/30	ATL SOP 00020	SM 22 2120C m
Conductance - water	7	N/A	2014/12/30	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	7	N/A	2014/12/24	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	7	2014/12/22	2014/12/22	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS (1)	7	2014/12/23	2014/12/23	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	7	N/A	2014/12/31		Auto Calc.
Anion and Cation Sum	7	N/A	2014/12/30		Auto Calc.
Nitrogen Ammonia - water	7	N/A	2014/12/29	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	7	N/A	2014/12/30	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	7	N/A	2014/12/30	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	7	N/A	2014/12/31	ATL SOP 00018	ASTM D3867
pH (2)	7	N/A	2014/12/30	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	7	N/A	2014/12/31	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	6	N/A	2014/12/30	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 20C)	1	N/A	2014/12/31	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	6	N/A	2014/12/30	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	1	N/A	2014/12/31	ATL SOP 00049	Auto Calc.
Reactive Silica	7	N/A	2014/12/29	ATL SOP 00022	EPA 366.0 m
Sulphate	7	N/A	2014/12/30	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	7	N/A	2014/12/31		Auto Calc.
Organic carbon - Total (TOC) (3)	7	N/A	2014/12/30	ATL SOP 00037	SM 22 5310C m
Turbidity	7	N/A	2014/12/30	ATL SOP 00011	EPA 180.1 R2 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) New RDLs in effect due to release of NS Contaminated Sites Regulations. Reduced RDL based on MDL study performance. Low level analytical run checks being implemented.
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

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Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 100254

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2014/12/31
Report #: R3275281
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4O0693
Received: 2014/12/19, 10:13

<Original signed by>
Rachael Mansfield
31 Dec 2014 12:23:06 -04:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

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Maxxam Job #: B4O0693
Report Date: 2014/12/31

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		YX9103	YX9103	YX9104	YX9105			YX9106		
Sampling Date		2014/12/18	2014/12/18	2014/12/18	2014/12/18			2014/12/18		
COC Number		B 100254	B 100254	B 100254	B 100254			B 100254		
	Units	SW-1	SW-1 Lab-Dup	SW-2A	SW-4A	RDL	QC Batch	SW-5	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	0.100		0.100	0.110	N/A	3865872	0.340	N/A	3865872
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0		<1.0	<1.0	1.0	3865868	6.1	1.0	3865868
Calculated TDS	mg/L	10		10	11	1.0	3865865	23	1.0	3865865
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0		<1.0	<1.0	1.0	3865868	<1.0	1.0	3865868
Cation Sum	me/L	0.190		0.180	0.200	N/A	3865872	0.340	N/A	3865872
Hardness (CaCO3)	mg/L	3.3		2.9	3.5	1.0	3865870	10	1.0	3865870
Ion Balance (% Difference)	%	31.0		28.6	29.0	N/A	3865871	0.00	N/A	3865871
Langelier Index (@ 20C)	N/A	NC		NC	NC		3865863	-3.79		3865863
Langelier Index (@ 4C)	N/A	NC		NC	NC		3865864	-4.04		3865864
Nitrate (N)	mg/L	<0.050		<0.050	<0.050	0.050	3865873	0.094	0.050	3865873
Saturation pH (@ 20C)	N/A	NC		NC	NC		3865863	10.0		3865863
Saturation pH (@ 4C)	N/A	NC		NC	NC		3865864	10.3		3865864
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	<5.0	<5.0	<5.0	5.0	3872171	6.1	5.0	3872171
Dissolved Chloride (Cl)	mg/L	3.4	3.8	3.6	3.9	1.0	3872174	4.0	1.0	3872174
Colour	TCU	99	96	100	88	25	3872177	30	5.0	3872177
Nitrate + Nitrite	mg/L	<0.050	0.066	<0.050	<0.050	0.050	3872180	0.094	0.050	3872180
Nitrite (N)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	3872181	<0.010	0.010	3872181
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050		<0.050	<0.050	0.050	3872510	<0.050	0.050	3872510
Total Organic Carbon (C)	mg/L	8.2		8.9	8.2	0.50	3873222	4.0	0.50	3873222
Orthophosphate (P)	mg/L	<0.010	<0.010	<0.010	<0.010	0.010	3872178	<0.010	0.010	3872178
pH	pH	5.23		4.88	4.96	N/A	3872971	6.23	N/A	3872971
Reactive Silica (SiO2)	mg/L	2.7	2.8	2.8	2.9	0.50	3872176	3.0	0.50	3872176
Dissolved Sulphate (SO4)	mg/L	<2.0	<2.0	<2.0	<2.0	2.0	3872175	4.6	2.0	3872175
Turbidity	NTU	0.59		0.59	0.80	0.10	3873221	6.2	0.10	3873217
Conductivity	uS/cm	25		25	24	1.0	3872972	35	1.0	3872972

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B4O0693
Report Date: 2014/12/31

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		YX9106			YX9107	YX9107	YX9108	YX9109		
Sampling Date		2014/12/18			2014/12/18	2014/12/18	2014/12/18	2014/12/18		
COC Number		B 100254			B 100254	B 100254	B 100254	B 100254		
	Units	SW-5 Lab-Dup	RDL	QC Batch	SW-6A	SW-6A Lab-Dup	SW-9	SW-2AD	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L		N/A	3865872	0.110		0.140	0.110	N/A	3865872
Bicarb. Alkalinity (calc. as CaCO3)	mg/L		1.0	3865868	<1.0		<1.0	<1.0	1.0	3865868
Calculated TDS	mg/L		1.0	3865865	11		12	10	1.0	3865865
Carb. Alkalinity (calc. as CaCO3)	mg/L		1.0	3865868	<1.0		<1.0	<1.0	1.0	3865868
Cation Sum	me/L		N/A	3865872	0.190		0.230	0.180	N/A	3865872
Hardness (CaCO3)	mg/L		1.0	3865870	3.5		4.1	2.8	1.0	3865870
Ion Balance (% Difference)	%		N/A	3865871	26.7		24.3	24.1	N/A	3865871
Langelier Index (@ 20C)	N/A			3865863	NC		NC	NC		3865863
Langelier Index (@ 4C)	N/A			3865864	NC		NC	NC		3865864
Nitrate (N)	mg/L		0.050	3865873	<0.050		<0.050	<0.050	0.050	3865873
Saturation pH (@ 20C)	N/A			3865863	NC		NC	NC		3865863
Saturation pH (@ 4C)	N/A			3865864	NC		NC	NC		3865864
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L		5.0	3872171	<5.0		<5.0	<5.0	5.0	3872171
Dissolved Chloride (Cl)	mg/L		1.0	3872174	3.8		4.8	3.8	1.0	3872174
Colour	TCU		5.0	3872177	87		110	100	25	3872177
Nitrate + Nitrite	mg/L		0.050	3872180	<0.050		<0.050	<0.050	0.050	3872180
Nitrite (N)	mg/L		0.010	3872181	<0.010		<0.010	<0.010	0.010	3872181
Nitrogen (Ammonia Nitrogen)	mg/L		0.050	3872510	<0.050	<0.050	<0.050	<0.050	0.050	3872510
Total Organic Carbon (C)	mg/L		0.50	3873222	8.1		8.9	9.1	0.50	3873222
Orthophosphate (P)	mg/L		0.010	3872178	<0.010		<0.010	<0.010	0.010	3872178
pH	pH		N/A	3872971	5.13	4.97	5.06	4.75	N/A	3872971
Reactive Silica (SiO2)	mg/L		0.50	3872176	2.8		2.4	2.7	0.50	3872176
Dissolved Sulphate (SO4)	mg/L		2.0	3872175	<2.0		<2.0	<2.0	2.0	3872175
Turbidity	NTU	6.1	0.10	3873217	0.42		0.49	0.23	0.10	3873221
Conductivity	uS/cm		1.0	3872972	24	24	27	25	1.0	3872972

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B4O0693
Report Date: 2014/12/31

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		YX9103	YX9104	YX9105	YX9106	YX9107	YX9108	YX9109		
Sampling Date		2014/12/18	2014/12/18	2014/12/18	2014/12/18	2014/12/18	2014/12/18	2014/12/18		
COC Number		B 100254	B 100254	B 100254	B 100254	B 100254	B 100254	B 100254		
	Units	SW-1	SW-2A	SW-4A	SW-5	SW-6A	SW-9	SW-2AD	RDL	QC Batch
Metals										
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	3868558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B4O0693
Report Date: 2014/12/31

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		YX9103	YX9104	YX9105	YX9106	YX9107	YX9108	YX9109		
Sampling Date		2014/12/18	2014/12/18	2014/12/18	2014/12/18	2014/12/18	2014/12/18	2014/12/18		
COC Number		B 100254	B 100254	B 100254	B 100254	B 100254	B 100254	B 100254		
	Units	SW-1	SW-2A	SW-4A	SW-5	SW-6A	SW-9	SW-2AD	RDL	QC Batch
Metals										
Total Aluminum (Al)	ug/L	220	210	220	460	240	310	210	5.0	3868017
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3868017
Total Arsenic (As)	ug/L	1.3	<1.0	2.0	17	1.1	<1.0	<1.0	1.0	3868017
Total Barium (Ba)	ug/L	3.1	3.2	3.2	6.1	3.1	3.5	3.0	1.0	3868017
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3868017
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3868017
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	<50	50	3868017
Total Cadmium (Cd)	ug/L	0.023	0.017	0.044	0.010	0.014	0.019	0.017	0.010	3868017
Total Calcium (Ca)	ug/L	780	640	810	3000	790	890	590	100	3868017
Total Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	1.1	1.3	<1.0	<1.0	1.0	3868017
Total Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	3868017
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3868017
Total Iron (Fe)	ug/L	330	360	320	730	330	280	350	50	3868017
Total Lead (Pb)	ug/L	<0.50	<0.50	<0.50	0.57	<0.50	<0.50	<0.50	0.50	3868017
Total Magnesium (Mg)	ug/L	330	320	350	640	360	450	310	100	3868017
Total Manganese (Mn)	ug/L	41	43	41	25	39	51	42	2.0	3868017
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3868017
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3868017
Total Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	<100	<100	100	3868017
Total Potassium (K)	ug/L	380	370	480	720	300	340	340	100	3868017
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3868017
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3868017
Total Sodium (Na)	ug/L	2100	2100	2300	2200	2200	2900	2000	100	3868017
Total Strontium (Sr)	ug/L	5.8	5.6	5.7	15	5.9	5.0	5.2	2.0	3868017
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3868017
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3868017
Total Titanium (Ti)	ug/L	3.3	2.6	2.3	14	2.8	3.5	2.6	2.0	3868017
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3868017
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3868017
Total Zinc (Zn)	ug/L	7.8	5.5	12	<5.0	<5.0	<5.0	5.0	5.0	3868017

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4O0693
Report Date: 2014/12/31

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.0°C

Sample YX9103-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YX9104-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YX9105-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YX9107-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YX9108-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample YX9109-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B4O0693
Report Date: 2014/12/31

QUALITY ASSURANCE REPORT

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3868017	Total Aluminum (Al)	2014/12/23	103	80 - 120	103	80 - 120	<5.0	ug/L	0.22 (1)	20		
3868017	Total Antimony (Sb)	2014/12/23	106	80 - 120	105	80 - 120	<1.0	ug/L	NC (1)	20		
3868017	Total Arsenic (As)	2014/12/23	99	80 - 120	99	80 - 120	<1.0	ug/L	NC (1)	20		
3868017	Total Barium (Ba)	2014/12/23	97	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
3868017	Total Beryllium (Be)	2014/12/23	102	80 - 120	102	80 - 120	<1.0	ug/L	NC (1)	20		
3868017	Total Bismuth (Bi)	2014/12/23	104	80 - 120	105	80 - 120	<2.0	ug/L	NC (1)	20		
3868017	Total Boron (B)	2014/12/23	100	80 - 120	101	80 - 120	<50	ug/L	NC (1)	20		
3868017	Total Cadmium (Cd)	2014/12/23	99	80 - 120	99	80 - 120	<0.010	ug/L	NC (1)	20		
3868017	Total Calcium (Ca)	2014/12/23	NC	80 - 120	95	80 - 120	<100	ug/L	3.3 (1)	20		
3868017	Total Chromium (Cr)	2014/12/23	96	80 - 120	98	80 - 120	<1.0	ug/L	3.5 (1)	20		
3868017	Total Cobalt (Co)	2014/12/23	97	80 - 120	98	80 - 120	<0.40	ug/L	NC (1)	20		
3868017	Total Copper (Cu)	2014/12/23	95	80 - 120	97	80 - 120	<2.0	ug/L	NC (1)	20		
3868017	Total Iron (Fe)	2014/12/23	104	80 - 120	106	80 - 120	<50	ug/L	0.82 (1)	20		
3868017	Total Lead (Pb)	2014/12/23	98	80 - 120	99	80 - 120	<0.50	ug/L	23 (2,1)	20		
3868017	Total Magnesium (Mg)	2014/12/23	103	80 - 120	105	80 - 120	<100	ug/L	2.0 (1)	20		
3868017	Total Manganese (Mn)	2014/12/23	102	80 - 120	104	80 - 120	<2.0	ug/L	NC (1)	20		
3868017	Total Molybdenum (Mo)	2014/12/23	NC	80 - 120	103	80 - 120	<2.0	ug/L	NC (1)	20		
3868017	Total Nickel (Ni)	2014/12/23	98	80 - 120	101	80 - 120	<2.0	ug/L	NC (1)	20		
3868017	Total Phosphorus (P)	2014/12/23	108	80 - 120	107	80 - 120	<100	ug/L	NC (1)	20		
3868017	Total Potassium (K)	2014/12/23	103	80 - 120	105	80 - 120	<100	ug/L	1.2 (1)	20		
3868017	Total Selenium (Se)	2014/12/23	97	80 - 120	95	80 - 120	<1.0	ug/L	NC (1)	20		
3868017	Total Silver (Ag)	2014/12/23	100	80 - 120	100	80 - 120	<0.10	ug/L	NC (1)	20		
3868017	Total Sodium (Na)	2014/12/23	99	80 - 120	103	80 - 120	<100	ug/L	2.9 (1)	20		
3868017	Total Strontium (Sr)	2014/12/23	96	80 - 120	102	80 - 120	<2.0	ug/L	7.0 (1)	20		
3868017	Total Thallium (Tl)	2014/12/23	104	80 - 120	104	80 - 120	<0.10	ug/L	NC (1)	20		
3868017	Total Tin (Sn)	2014/12/23	105	80 - 120	105	80 - 120	<2.0	ug/L	NC (1)	20		
3868017	Total Titanium (Ti)	2014/12/23	101	80 - 120	102	80 - 120	<2.0	ug/L	NC (1)	20		
3868017	Total Uranium (U)	2014/12/23	107	80 - 120	105	80 - 120	<0.10	ug/L	NC (1)	20		
3868017	Total Vanadium (V)	2014/12/23	98	80 - 120	99	80 - 120	<2.0	ug/L	NC (1)	20		
3868017	Total Zinc (Zn)	2014/12/23	99	80 - 120	100	80 - 120	<5.0	ug/L	2.8 (1)	20		
3868558	Total Mercury (Hg)	2014/12/22	100	80 - 120	99	80 - 120	<0.013	ug/L	NC (1)	20		
3872171	Total Alkalinity (Total as CaCO3)	2014/12/29	102 (3)	80 - 120	105	80 - 120	<5.0	mg/L	NC (4)	25		

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Maxxam Job #: B4O0693
Report Date: 2014/12/31

QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3872174	Dissolved Chloride (Cl)	2014/12/30	100 (3)	80 - 120	98	80 - 120	<1.0	mg/L	NC (4)	25	103	80 - 120
3872175	Dissolved Sulphate (SO4)	2014/12/30	86 (3)	80 - 120	92	80 - 120	<2.0	mg/L	NC (4)	25		
3872176	Reactive Silica (SiO2)	2014/12/29	104 (3)	80 - 120	104	80 - 120	<0.50	mg/L	1.1 (4)	25		
3872177	Colour	2014/12/30			97	80 - 120	<5.0	TCU	NC (4)	25		
3872178	Orthophosphate (P)	2014/12/31	96 (3)	80 - 120	99	80 - 120	<0.010	mg/L	NC (4)	25		
3872180	Nitrate + Nitrite	2014/12/30	99 (3)	80 - 120	95	80 - 120	0.051, RDL=0.050	mg/L	NC (4)	25		
3872181	Nitrite (N)	2014/12/30	91 (3)	80 - 120	113	80 - 120	<0.010	mg/L	NC (4)	25		
3872510	Nitrogen (Ammonia Nitrogen)	2014/12/29	96 (5)	80 - 120	100	80 - 120	<0.050	mg/L	NC (6)	25		
3872971	pH	2014/12/30							3.3 (6)	N/A	100	97 - 103
3872972	Conductivity	2014/12/30			100	80 - 120	1.5, RDL=1.0	uS/cm	0.40 (6)	25		
3873217	Turbidity	2014/12/30					<0.10	NTU	2.4 (7)	25	96	80 - 120
3873221	Turbidity	2014/12/30					<0.10	NTU	NC (1)	25	95	80 - 120
3873222	Total Organic Carbon (C)	2014/12/30	100	80 - 120	99	80 - 120	<0.50	mg/L	NC (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Duplicate Parent ID

(2) Poor RPD due to sample inhomogeneity. < 10 % of compounds in multi-component analysis in violation.

(3) Matrix Spike Parent ID [YX9103-01]

(4) Duplicate Parent ID [YX9103-01]

(5) Matrix Spike Parent ID [YX9107-01]

(6) Duplicate Parent ID [YX9107-01]

(7) Duplicate Parent ID [YX9106-01]

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Maxxam Job #: B4O0693
Report Date: 2014/12/31

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Analytics International Corporation

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MAXXAM Chain of Custody Record

COC #: B 100254 Page 1 of 1

This column for lab use only:
Client Code 162276
Maxxam Job # B400693

Cooler ID	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp
			4	5	6	

Integrity: YES (NO) — Integrity / Checklist by: <Original signed by>
Labelled by — Location / Bin #: 4

INVOICE INFORMATION:
Company Name: CRA
Contact Name: Jeff Parks
Address: Dartmouth, NS
Postal Code: B3B 1J7
Email: jparks@craworld.com
Ph: 468-1248 Fax: 468-2207

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address:
Postal Code:
Email:
Ph: Fax:

PO # 20-019340
Project # / Phase # 088664-05
Project Name / Site Location: Atlantic Gold-Beaver Dam
Quote: 14-161 KG
Site #
Task Order #
Sampled by

TURNAROUND TIME
Standard ☑
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted: /

Guideline Requirements / Detection Limits / Special Instructions: CCME FWAL

*Specify Matrix: Surface/Salt/Ground/Tapwater/Sewage/Effluent/Potable/NonPotable/Tissue/Soil/Sludge/Metal/Seawater

	Field Sample Identification	Matrix*	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	RCAP-30 Choose Total or Diss Metals	RCAP-MS Choose Total or Diss Metals	Metals Water: Total Digest (Default Method) for well water surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default Available Digest Method	Metals Soil: Metals Total Digest - for Ocean sediments (HNO3/HF/HClO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Req'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H.	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine, Quinoline
1	SW-1	SW	18 Dec 14	1X50 1X100 1X200	X			X			X											
2	SW-2A	↓	↓	↓	X			X			X											
3	SW-4A				X			X			X											
4	SW-5				X			X			X											
5	SW-6A				X			X			X											
6	SW-9				X			X			X											
7	SW-2AD				X			X			X											
8																						
9																						
10																						

2014 DEC 19 11:36

RELINQUISHED BY: (Signature/Print) <Original signed by> A Facey — Date: 19 Dec 14 — Time:

RECEIVED BY: (Signature/Print) <Original signed by> Joe Doyle — Date: 14 DEC 19 — Time: 10:13

<Original signed by> SARA MASON

White: Maxxam Yellow : Mail Pink: Client

ATL FCD 00149 / Revision 10

Maxxam
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Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 100261

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/01/30
Report #: R3317426
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B513234
Received: 2015/01/23, 09:47

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	6	N/A	2015/01/29	N/A	SM 22 4500-CO2 D
Alkalinity	6	N/A	2015/01/28	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	6	N/A	2015/01/29	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	6	N/A	2015/01/28	ATL SOP 00020	SM 22 2120C m
Conductance - water	6	N/A	2015/01/28	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	6	N/A	2015/01/29	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	6	2015/01/30	2015/01/30	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS (1)	6	2015/01/28	2015/01/28	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	6	N/A	2015/01/29		Auto Calc.
Anion and Cation Sum	6	N/A	2015/01/29		Auto Calc.
Nitrogen Ammonia - water	6	N/A	2015/01/28	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	6	N/A	2015/01/29	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	6	N/A	2015/01/28	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	6	N/A	2015/01/29	ATL SOP 00018	ASTM D3867
pH (2)	6	N/A	2015/01/28	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	6	N/A	2015/01/28	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	6	N/A	2015/01/29	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	6	N/A	2015/01/29	ATL SOP 00049	Auto Calc.
Reactive Silica	6	N/A	2015/01/28	ATL SOP 00022	EPA 366.0 m
Sulphate	6	N/A	2015/01/28	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	6	N/A	2015/01/29		Auto Calc.
Organic carbon - Total (TOC) (3)	6	N/A	2015/01/28	ATL SOP 00037	SM 22 5310C m
Turbidity	6	N/A	2015/01/29	ATL SOP 00011	EPA 180.1 R2 m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) New RDLs in effect due to release of NS Contaminated Sites Regulations. Reduced RDL based on MDL study performance. Low level analytical run checks being implemented.
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

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Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 100261

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/01/30
Report #: R3317426
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B513234
Received: 2015/01/23, 09:47

Encryption Key <Original signed by> Rachael Mansfield 30 Jan 2015 17:01:58 -04:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

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Maxxam Job #: B513234
Report Date: 2015/01/30

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

RESULTS OF ANALYSES OF WATER

Maxxam ID		ZG7131	ZG7132			ZG7133		ZG7134	ZG7135		
Sampling Date		2015/01/22	2015/01/22			2015/01/22		2015/01/22	2015/01/22		
COC Number		B 100261	B 100261			B 100261		B 100261	B 100261		
	Units	SW-1	SW-2A	RDL	QC Batch	SW-5	RDL	SW-6A	SW-9	RDL	QC Batch
Calculated Parameters											
Anion Sum	me/L	0.120	0.130	N/A	3895941	0.400	N/A	0.120	0.180	N/A	3895941
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	1.0	3895938	8.0	1.0	<1.0	<1.0	1.0	3895938
Calculated TDS	mg/L	12	13	1.0	3895946	27	1.0	12	16	1.0	3895946
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	1.0	3895938	<1.0	1.0	<1.0	<1.0	1.0	3895938
Cation Sum	me/L	0.210	0.210	N/A	3895941	0.430	N/A	0.210	0.290	N/A	3895941
Hardness (CaCO3)	mg/L	3.5	3.4	1.0	3895939	14	1.0	3.9	5.0	1.0	3895939
Ion Balance (% Difference)	%	27.3	23.5	N/A	3895940	3.61	N/A	27.3	23.4	N/A	3895940
Langelier Index (@ 20C)	N/A	NC	NC		3895944	-3.17		NC	NC		3895944
Langelier Index (@ 4C)	N/A	NC	NC		3895945	-3.42		NC	NC		3895945
Nitrate (N)	mg/L	0.087	0.079	0.050	3895942	0.096	0.050	<0.050	0.051	0.050	3895942
Saturation pH (@ 20C)	N/A	NC	NC		3895944	9.77		NC	NC		3895944
Saturation pH (@ 4C)	N/A	NC	NC		3895945	10.0		NC	NC		3895945
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	<5.0	5.0	3898008	8.0	5.0	<5.0	<5.0	5.0	3898008
Dissolved Chloride (Cl)	mg/L	4.0	4.2	1.0	3898009	5.0	1.0	4.2	6.2	1.0	3898009
Colour	TCU	83	110	25	3898012	23	5.0	82	73	25	3898012
Nitrate + Nitrite	mg/L	0.087	0.079	0.050	3898014	0.096	0.050	<0.050	0.051	0.050	3898014
Nitrite (N)	mg/L	<0.010	<0.010	0.010	3898015	<0.010	0.010	<0.010	<0.010	0.010	3898015
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	<0.050	0.050	3898401	<0.050	0.050	<0.050	<0.050	0.050	3898402
Total Organic Carbon (C)	mg/L	7.0	7.4	0.50	3900707	3.1	0.50	8.9	7.0	0.50	3900707
Orthophosphate (P)	mg/L	<0.010	<0.010	0.010	3898013	<0.010	0.010	<0.010	<0.010	0.010	3898013
pH	pH	4.87	4.75	N/A	3900512	6.60	N/A	5.09	5.44	N/A	3900512
Reactive Silica (SiO2)	mg/L	3.8	3.7	0.50	3898011	3.1	0.50	3.4	3.5	0.50	3898011
Dissolved Sulphate (SO4)	mg/L	<2.0	<2.0	2.0	3898010	4.4	2.0	<2.0	<2.0	2.0	3898010
Turbidity	NTU	0.62	0.70	0.10	3902044	2.4	0.10	0.44	0.77	0.10	3902044
Conductivity	uS/cm	27	28	1.0	3900514	45	1.0	25	32	1.0	3900514

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam
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Success Through Science®

Maxxam Job #: B513234
Report Date: 2015/01/30

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

RESULTS OF ANALYSES OF WATER

Maxxam ID		ZG7135	ZG7136		
Sampling Date		2015/01/22	2015/01/22		
COC Number		B 100261	B 100261		
	Units	SW-9 Lab-Dup	SW-1D	RDL	QC Batch
Calculated Parameters					
Anion Sum	me/L		0.120	N/A	3895941
Bicarb. Alkalinity (calc. as CaCO3)	mg/L		<1.0	1.0	3895938
Calculated TDS	mg/L		13	1.0	3895946
Carb. Alkalinity (calc. as CaCO3)	mg/L		<1.0	1.0	3895938
Cation Sum	me/L		0.210	N/A	3895941
Hardness (CaCO3)	mg/L		3.5	1.0	3895939
Ion Balance (% Difference)	%		27.3	N/A	3895940
Langelier Index (@ 20C)	N/A		NC		3895944
Langelier Index (@ 4C)	N/A		NC		3895945
Nitrate (N)	mg/L		0.080	0.050	3895942
Saturation pH (@ 20C)	N/A		NC		3895944
Saturation pH (@ 4C)	N/A		NC		3895945
Inorganics					
Total Alkalinity (Total as CaCO3)	mg/L		<5.0	5.0	3898008
Dissolved Chloride (Cl)	mg/L		4.2	1.0	3898009
Colour	TCU		100	25	3898012
Nitrate + Nitrite	mg/L		0.080	0.050	3898014
Nitrite (N)	mg/L		<0.010	0.010	3898015
Nitrogen (Ammonia Nitrogen)	mg/L		<0.050	0.050	3898402
Total Organic Carbon (C)	mg/L	7.3	7.5	0.50	3900707
Orthophosphate (P)	mg/L		<0.010	0.010	3898013
pH	pH		4.91	N/A	3900512
Reactive Silica (SiO2)	mg/L		4.0	0.50	3898011
Dissolved Sulphate (SO4)	mg/L		<2.0	2.0	3898010
Turbidity	NTU	0.80	0.69	0.10	3902044
Conductivity	uS/cm		27	1.0	3900514

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
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Your P.O. #: 20-019340
Sampler Initials: AF

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		ZG7131	ZG7132	ZG7133	ZG7134	ZG7135	ZG7136		
Sampling Date		2015/01/22	2015/01/22	2015/01/22	2015/01/22	2015/01/22	2015/01/22		
COC Number		B 100261	B 100261	B 100261	B 100261	B 100261	B 100261		
	Units	SW-1	SW-2A	SW-5	SW-6A	SW-9	SW-1D	RDL	QC Batch
Metals									
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	3903361

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		ZG7131	ZG7132	ZG7133	ZG7134	ZG7135	ZG7136		
Sampling Date		2015/01/22	2015/01/22	2015/01/22	2015/01/22	2015/01/22	2015/01/22		
COC Number		B 100261	B 100261	B 100261	B 100261	B 100261	B 100261		
	Units	SW-1	SW-2A	SW-5	SW-6A	SW-9	SW-1D	RDL	QC Batch
Metals									
Total Aluminum (Al)	ug/L	200	210	210	250	210	200	5.0	3898143
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3898143
Total Arsenic (As)	ug/L	<1.0	<1.0	22	1.0	<1.0	<1.0	1.0	3898143
Total Barium (Ba)	ug/L	3.3	3.3	6.1	3.0	3.4	3.4	1.0	3898143
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3898143
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3898143
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	50	3898143
Total Cadmium (Cd)	ug/L	0.012	0.013	0.011	0.011	0.010	0.022	0.010	3898143
Total Calcium (Ca)	ug/L	720	680	4100	880	1100	740	100	3898143
Total Chromium (Cr)	ug/L	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3898143
Total Cobalt (Co)	ug/L	<0.40	<0.40	0.44	<0.40	<0.40	<0.40	0.40	3898143
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3898143
Total Iron (Fe)	ug/L	350	340	680	380	290	340	50	3898143
Total Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3898143
Total Magnesium (Mg)	ug/L	400	410	780	410	530	410	100	3898143
Total Manganese (Mn)	ug/L	51	51	150	46	51	53	2.0	3898143
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3898143
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.6	2.0	3898143
Total Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	<100	100	3898143
Total Potassium (K)	ug/L	380	380	740	300	350	370	100	3898143
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	3898143
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3898143
Total Sodium (Na)	ug/L	2300	2400	2700	2300	3900	2400	100	3898143
Total Strontium (Sr)	ug/L	6.3	6.6	21	6.1	5.6	6.6	2.0	3898143
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3898143
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3898143
Total Titanium (Ti)	ug/L	2.4	2.2	4.2	2.6	2.8	2.2	2.0	3898143
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	3898143
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	3898143
Total Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	3898143

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B513234
Report Date: 2015/01/30

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.3°C

Sample SW-4A was not received.

Sample ZG7131-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ZG7132-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ZG7133-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ZG7134-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ZG7135-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ZG7136-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3898008	Total Alkalinity (Total as CaCO3)	2015/01/28	NC	80 - 120	102	80 - 120	<5.0	mg/L	0.10 (1)	25		
3898009	Dissolved Chloride (Cl)	2015/01/29	NC	80 - 120	99	80 - 120	<1.0	mg/L	0.51 (1)	25	106	80 - 120
3898010	Dissolved Sulphate (SO4)	2015/01/28	89	80 - 120	89	80 - 120	<2.0	mg/L	NC (1)	25		
3898011	Reactive Silica (SiO2)	2015/01/28	NC	80 - 120	105	80 - 120	<0.50	mg/L	1.5 (1)	25		
3898012	Colour	2015/01/28			99	80 - 120	<5.0	TCU	NC (1)	25		
3898013	Orthophosphate (P)	2015/01/28	95	80 - 120	99	80 - 120	<0.010	mg/L	NC (1)	25		
3898014	Nitrate + Nitrite	2015/01/29	93	80 - 120	96	80 - 120	<0.050	mg/L	NC (1)	25		
3898015	Nitrite (N)	2015/01/28	95	80 - 120	92	80 - 120	<0.010	mg/L	NC (1)	25		
3898143	Total Aluminum (Al)	2015/01/28	107	80 - 120	106	80 - 120	<5.0	ug/L	2.8 (1)	20		
3898143	Total Antimony (Sb)	2015/01/28	112	80 - 120	108	80 - 120	<1.0	ug/L				
3898143	Total Arsenic (As)	2015/01/28	101	80 - 120	101	80 - 120	<1.0	ug/L				
3898143	Total Barium (Ba)	2015/01/28	NC	80 - 120	100	80 - 120	<1.0	ug/L				
3898143	Total Beryllium (Be)	2015/01/28	100	80 - 120	99	80 - 120	<1.0	ug/L				
3898143	Total Bismuth (Bi)	2015/01/28	105	80 - 120	104	80 - 120	<2.0	ug/L				
3898143	Total Boron (B)	2015/01/28	98	80 - 120	96	80 - 120	<50	ug/L				
3898143	Total Cadmium (Cd)	2015/01/28	102	80 - 120	101	80 - 120	<0.010	ug/L				
3898143	Total Calcium (Ca)	2015/01/28	NC	80 - 120	98	80 - 120	<100	ug/L				
3898143	Total Chromium (Cr)	2015/01/28	99	80 - 120	100	80 - 120	<1.0	ug/L				
3898143	Total Cobalt (Co)	2015/01/28	99	80 - 120	100	80 - 120	<0.40	ug/L				
3898143	Total Copper (Cu)	2015/01/28	99	80 - 120	102	80 - 120	<2.0	ug/L				
3898143	Total Iron (Fe)	2015/01/28	NC	80 - 120	109	80 - 120	<50	ug/L				
3898143	Total Lead (Pb)	2015/01/28	102	80 - 120	101	80 - 120	<0.50	ug/L				
3898143	Total Magnesium (Mg)	2015/01/28	NC	80 - 120	109	80 - 120	<100	ug/L				
3898143	Total Manganese (Mn)	2015/01/28	102	80 - 120	103	80 - 120	<2.0	ug/L				
3898143	Total Molybdenum (Mo)	2015/01/28	112	80 - 120	110	80 - 120	<2.0	ug/L				
3898143	Total Nickel (Ni)	2015/01/28	101	80 - 120	103	80 - 120	<2.0	ug/L				
3898143	Total Phosphorus (P)	2015/01/28	114	80 - 120	113	80 - 120	<100	ug/L				
3898143	Total Potassium (K)	2015/01/28	112	80 - 120	112	80 - 120	<100	ug/L				
3898143	Total Selenium (Se)	2015/01/28	100	80 - 120	100	80 - 120	<1.0	ug/L				
3898143	Total Silver (Ag)	2015/01/28	107	80 - 120	104	80 - 120	<0.10	ug/L				
3898143	Total Sodium (Na)	2015/01/28	NC	80 - 120	107	80 - 120	<100	ug/L				

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Maxxam Job #: B513234
Report Date: 2015/01/30

QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
3898143	Total Strontium (Sr)	2015/01/28	NC	80 - 120	103	80 - 120	<2.0	ug/L				
3898143	Total Thallium (Tl)	2015/01/28	106	80 - 120	104	80 - 120	<0.10	ug/L				
3898143	Total Tin (Sn)	2015/01/28	112	80 - 120	107	80 - 120	<2.0	ug/L				
3898143	Total Titanium (Ti)	2015/01/28	105	80 - 120	105	80 - 120	<2.0	ug/L				
3898143	Total Uranium (U)	2015/01/28	113	80 - 120	110	80 - 120	<0.10	ug/L				
3898143	Total Vanadium (V)	2015/01/28	100	80 - 120	102	80 - 120	<2.0	ug/L				
3898143	Total Zinc (Zn)	2015/01/28	100	80 - 120	102	80 - 120	<5.0	ug/L				
3898401	Nitrogen (Ammonia Nitrogen)	2015/01/28	100	80 - 120	102	80 - 120	<0.050	mg/L	NC (2,1)	25		
3898402	Nitrogen (Ammonia Nitrogen)	2015/01/28	99	80 - 120	99	80 - 120	<0.050	mg/L	NC (1)	25		
3900512	pH	2015/01/28							0 (1)	N/A	100	97 - 103
3900514	Conductivity	2015/01/28			99	80 - 120	1.2, RDL=1.0	uS/cm	0.84 (1)	25		
3900707	Total Organic Carbon (C)	2015/01/28	NC (3)	80 - 120	103	80 - 120	<0.50	mg/L	3.7 (4)	20		
3902044	Turbidity	2015/01/29					<0.10	NTU	3.8 (4)	25	101	80 - 120
3903361	Total Mercury (Hg)	2015/01/30	96	80 - 120	101	80 - 120	<0.013	ug/L	NC (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Duplicate Parent ID

(2) Duplicate results exceeded low level duplicate acceptance criteria. This may be due to sample heterogeneity.

(3) Matrix Spike Parent ID [ZG7135-01]

(4) Duplicate Parent ID [ZG7135-01]

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Maxxam Job #: B513234
Report Date: 2015/01/30

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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MAXXAM Chain of Custody Record

COC #: B 100261 Page 1 of 1

This column for lab use only:
Client Code: 16276
Maxxam Job #: B513234

Cooler ID	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp
			4	4	5	

Integrity: YES NO | Integrity / Checklist by: <Original signed by>
Labelled by: | Location / Bin #: 8

INVOICE INFORMATION:
Company Name: CRA
Contact Name: Jeff Parks
Address: Dartmouth, NS
Postal Code: B3B 1J7
Email: jparks@craworld.com
Ph: 468-1248 Fax: 468-2207

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address:
Postal Code
Email:
Ph: Fax:

PO #: 20-019340
Project # / Phase #: 088664-05
Project Name / Site Location: Atlantic Gold - Beaver Dam
Quote: 14-161KG
Site #:
Task Order #:
Sampled by: AF + AD

TURNAROUND TIME
Standard ☑
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted: -

Guideline Requirements / Detection Limits / Special Instructions
*Specify N B513234 / Seawater

	Field Sample Identification	Matrix*	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	RCAP-30 Choose Total or Diss Metals	RCAP-MS Choose (Total) or Diss Metals	Metals Water: Total Digest (Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default Available Digest Method	Metals Soil: Metals Total Digest - for Ocean sediments (HNO3/HF/HClO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Req'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H.	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine, Quinoline
1	SW-1	SW	22 Jan 15	1x 100, 50, 250	X			X			X											
2	SW-2A				X			X			X											
3	SW-4A				X			X			X											
4	SW-5				X			X			X											
5	SW-6A				X			X			X											
6	SW-9				X			X			X											
7	SW-1D				X			X			X											
8																						
9																						
10																						

RELINQUISHED BY: (Signature/Print) <Original signed by> A Facey Date: 23 Jan 15 Time:
RECEIVED BY: (Signature/Print) <Original signed by> Jae Doyle Date: 15 JAN 23 Time: 11:24

<Original signed by>

15 JAN 23 9:47

<Original signed by>

White: Maxxam Yellow : Mail Pink: Cli...

ATL FCD 00149 / Revision 10

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 100289

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/05/08
Report #: R3419942
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B579909
Received: 2015/05/01, 11:15

Sample Matrix: Water
Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	5	N/A	2015/05/06	N/A	SM 22 4500-CO2 D
Alkalinity	5	N/A	2015/05/05	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	5	N/A	2015/05/06	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	5	N/A	2015/05/06	ATL SOP 00020	SM 22 2120C m
Conductance - water	5	N/A	2015/05/05	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	5	N/A	2015/05/07	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	4	2015/05/07	2015/05/07	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS (1)	5	2015/05/05	2015/05/06	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	5	N/A	2015/05/07		Auto Calc.
Anion and Cation Sum	5	N/A	2015/05/07		Auto Calc.
Nitrogen Ammonia - water	5	N/A	2015/05/05	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	5	N/A	2015/05/07	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	5	N/A	2015/05/05	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	5	N/A	2015/05/07	ATL SOP 00018	ASTM D3867
pH (2)	5	N/A	2015/05/05	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	5	N/A	2015/05/06	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	5	N/A	2015/05/07	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	5	N/A	2015/05/07	ATL SOP 00049	Auto Calc.
Reactive Silica	5	N/A	2015/05/06	ATL SOP 00022	EPA 366.0 m
Sulphate	5	N/A	2015/05/06	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	5	N/A	2015/05/07		Auto Calc.
Organic carbon - Total (TOC) (3)	1	N/A	2015/05/06	ATL SOP 00037	SM 22 5310C m
Organic carbon - Total (TOC) (3)	4	N/A	2015/05/07	ATL SOP 00037	SM 22 5310C m
Turbidity	1	N/A	2015/05/06	ATL SOP 00011	EPA 180.1 R2 m
Turbidity	4	N/A	2015/05/08	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) New RDLs in effect due to release of NS Contaminated Sites Regulations. Reduced RDL based on MDL study performance. Low level analytical run checks being implemented.
(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

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CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B579909
Received: 2015/05/01, 11:15

Encryption Key

<Original signed by>Rachael Mansfield
8 May 2015 16:39:28 -03:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B579909
Report Date: 2015/05/08

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		AEZ157		AEZ158	AEZ159			AEZ160		
Sampling Date		2015/04/29		2015/04/29	2015/04/29			2015/04/29		
COC Number		B 100289		B 100289	B 100289			B 100289		
	Units	SW-1	QC Batch	SW-2A	SW-4A	RDL	QC Batch	SW-5	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	0.0600	4006172	0.0500	0.0400	N/A	4006172	0.100	N/A	4006172
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	4006170	<1.0	<1.0	1.0	4006170	<1.0	1.0	4006170
Calculated TDS	mg/L	6.0	4006175	6.0	6.0	1.0	4006175	12	1.0	4006175
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	4006170	<1.0	<1.0	1.0	4006170	<1.0	1.0	4006170
Cation Sum	me/L	0.110	4006172	0.110	0.120	N/A	4006172	0.240	N/A	4006172
Hardness (CaCO3)	mg/L	1.6	4006001	1.4	1.6	1.0	4006001	7.3	1.0	4006001
Ion Balance (% Difference)	%	29.4	4006171	37.5	50.0	N/A	4006171	41.2	N/A	4006171
Langelier Index (@ 20C)	N/A	NC	4006173	NC	NC		4006173	NC		4006173
Langelier Index (@ 4C)	N/A	NC	4006174	NC	NC		4006174	NC		4006174
Nitrate (N)	mg/L	0.052	4005906	<0.050	<0.050	0.050	4005906	0.087	0.050	4005906
Saturation pH (@ 20C)	N/A	NC	4006173	NC	NC		4006173	NC		4006173
Saturation pH (@ 4C)	N/A	NC	4006174	NC	NC		4006174	NC		4006174
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	4009444	<5.0	<5.0	5.0	4009444	<5.0	5.0	4009444
Dissolved Chloride (Cl)	mg/L	1.9	4009446	1.6	1.3	1.0	4009446	1.5	1.0	4009446
Colour	TCU	85	4009455	96	100	25	4009455	28	5.0	4009455
Nitrate + Nitrite	mg/L	0.052	4009464	<0.050	<0.050	0.050	4009464	0.087	0.050	4009464
Nitrite (N)	mg/L	<0.010	4009467	<0.010	<0.010	0.010	4009467	<0.010	0.010	4009467
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	4009585	<0.050	0.073	0.050	4009585	<0.050	0.050	4009585
Total Organic Carbon (C)	mg/L	6.3	4011581	5.5	5.5	0.50	4013585	3.5	0.50	4013585
Orthophosphate (P)	mg/L	<0.010	4009456	<0.010	<0.010	0.010	4009456	<0.010	0.010	4009456
pH	pH	5.19	4009555	5.08	5.14	N/A	4009555	6.14	N/A	4009711
Reactive Silica (SiO2)	mg/L	1.9	4009454	1.9	2.5	0.50	4009454	2.3	0.50	4009454
Dissolved Sulphate (SO4)	mg/L	<2.0	4009451	<2.0	<2.0	2.0	4009451	2.5	2.0	4009451
Turbidity	NTU	0.76	4015745	0.29	0.38	0.10	4015745	0.69	0.10	4012141
Conductivity	uS/cm	14	4009558	13	15	1.0	4009558	28	1.0	4009713

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B579909
Report Date: 2015/05/08

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		AEZ160			AEZ161		
Sampling Date		2015/04/29			2015/04/29		
COC Number		B 100289			B 100289		
	Units	SW-5 Lab-Dup	RDL	QC Batch	SW-9	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L		N/A	4006172	0.100	N/A	4006172
Bicarb. Alkalinity (calc. as CaCO3)	mg/L		1.0	4006170	<1.0	1.0	4006170
Calculated TDS	mg/L		1.0	4006175	9.0	1.0	4006175
Carb. Alkalinity (calc. as CaCO3)	mg/L		1.0	4006170	<1.0	1.0	4006170
Cation Sum	me/L		N/A	4006172	0.180	N/A	4006172
Hardness (CaCO3)	mg/L		1.0	4006001	2.8	1.0	4006001
Ion Balance (% Difference)	%		N/A	4006171	28.6	N/A	4006171
Langelier Index (@ 20C)	N/A			4006173	NC		4006173
Langelier Index (@ 4C)	N/A			4006174	NC		4006174
Nitrate (N)	mg/L		0.050	4005906	<0.050	0.050	4005906
Saturation pH (@ 20C)	N/A			4006173	NC		4006173
Saturation pH (@ 4C)	N/A			4006174	NC		4006174
Inorganics							
Total Alkalinity (Total as CaCO3)	mg/L		5.0	4009444	<5.0	5.0	4009444
Dissolved Chloride (Cl)	mg/L		1.0	4009446	3.4	1.0	4009446
Colour	TCU		5.0	4009455	82	25	4009455
Nitrate + Nitrite	mg/L		0.050	4009464	<0.050	0.050	4009464
Nitrite (N)	mg/L		0.010	4009467	<0.010	0.010	4009467
Nitrogen (Ammonia Nitrogen)	mg/L		0.050	4009585	0.082	0.050	4009585
Total Organic Carbon (C)	mg/L		0.50	4013585	6.1	0.50	4013585
Orthophosphate (P)	mg/L		0.010	4009456	<0.010	0.010	4009456
pH	pH	6.16	N/A	4009711	5.77	N/A	4009555
Reactive Silica (SiO2)	mg/L		0.50	4009454	1.6	0.50	4009454
Dissolved Sulphate (SO4)	mg/L		2.0	4009451	<2.0	2.0	4009451
Turbidity	NTU	0.76	0.10	4012141	1.0	0.10	4015745
Conductivity	uS/cm	27	1.0	4009713	19	1.0	4009558

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B579909
Report Date: 2015/05/08

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		AEZ157	AEZ158	AEZ159	AEZ160		
Sampling Date		2015/04/29	2015/04/29	2015/04/29	2015/04/29		
COC Number		B 100289	B 100289	B 100289	B 100289		
	Units	SW-1	SW-2A	SW-4A	SW-5	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.013	4013354

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B579909
Report Date: 2015/05/08

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Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		AEZ157	AEZ158	AEZ159	AEZ160	AEZ161		
Sampling Date		2015/04/29	2015/04/29	2015/04/29	2015/04/29	2015/04/29		
COC Number		B 100289	B 100289	B 100289	B 100289	B 100289		
	Units	SW-1	SW-2A	SW-4A	SW-5	SW-9	RDL	QC Batch
Metals								
Total Aluminum (Al)	ug/L	140	140	130	98	160	5.0	4007953
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4007953
Total Arsenic (As)	ug/L	<1.0	<1.0	1.1	15	<1.0	1.0	4007953
Total Barium (Ba)	ug/L	1.7	1.6	1.7	4.6	2.1	1.0	4007953
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4007953
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4007953
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	50	4007953
Total Cadmium (Cd)	ug/L	0.012	<0.010	0.012	0.018	0.014	0.010	4007953
Total Calcium (Ca)	ug/L	350	290	350	2200	640	100	4007953
Total Chromium (Cr)	ug/L	<1.0	1.2	<1.0	<1.0	<1.0	1.0	4007953
Total Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	0.61	<0.40	0.40	4007953
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4007953
Total Iron (Fe)	ug/L	240	260	160	560	220	50	4007953
Total Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	4007953
Total Magnesium (Mg)	ug/L	170	160	170	430	300	100	4007953
Total Manganese (Mn)	ug/L	27	25	20	200	36	2.0	4007953
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4007953
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4007953
Total Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	100	4007953
Total Potassium (K)	ug/L	330	330	290	480	300	100	4007953
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4007953
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4007953
Total Sodium (Na)	ug/L	1200	1200	1300	1400	2400	100	4007953
Total Strontium (Sr)	ug/L	2.9	3.0	2.8	11	2.8	2.0	4007953
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4007953
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4007953
Total Titanium (Ti)	ug/L	3.2	3.2	2.4	<2.0	3.1	2.0	4007953
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4007953
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4007953
Total Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	5.4	<5.0	5.0	4007953

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Report Date: 2015/05/08

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C

Sample AEZ157-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AEZ158-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AEZ159-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AEZ160-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AEZ161-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B579909
Report Date: 2015/05/08

QUALITY ASSURANCE REPORT

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4007953	Total Aluminum (Al)	2015/05/06	100	80 - 120	100	80 - 120	<5.0	ug/L	1.7 (1)	20		
4007953	Total Antimony (Sb)	2015/05/06	109	80 - 120	108	80 - 120	<1.0	ug/L	NC (1)	20		
4007953	Total Arsenic (As)	2015/05/06	98	80 - 120	99	80 - 120	<1.0	ug/L	NC (1)	20		
4007953	Total Barium (Ba)	2015/05/06	103	80 - 120	102	80 - 120	<1.0	ug/L	0.78 (1)	20		
4007953	Total Beryllium (Be)	2015/05/06	104	80 - 120	103	80 - 120	<1.0	ug/L	NC (1)	20		
4007953	Total Bismuth (Bi)	2015/05/06	107	80 - 120	105	80 - 120	<2.0	ug/L	NC (1)	20		
4007953	Total Boron (B)	2015/05/06	108	80 - 120	103	80 - 120	<50	ug/L	NC (1)	20		
4007953	Total Cadmium (Cd)	2015/05/06	103	80 - 120	102	80 - 120	<0.010	ug/L	NC (1)	20		
4007953	Total Calcium (Ca)	2015/05/06	98	80 - 120	100	80 - 120	<100	ug/L	1.1 (1)	20		
4007953	Total Chromium (Cr)	2015/05/06	97	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
4007953	Total Cobalt (Co)	2015/05/06	97	80 - 120	98	80 - 120	<0.40	ug/L	NC (1)	20		
4007953	Total Copper (Cu)	2015/05/06	100	80 - 120	96	80 - 120	<2.0	ug/L	NC (1)	20		
4007953	Total Iron (Fe)	2015/05/06	102	80 - 120	104	80 - 120	<50	ug/L	NC (1)	20		
4007953	Total Lead (Pb)	2015/05/06	102	80 - 120	100	80 - 120	<0.50	ug/L	NC (1)	20		
4007953	Total Magnesium (Mg)	2015/05/06	102	80 - 120	103	80 - 120	<100	ug/L	2.4 (1)	20		
4007953	Total Manganese (Mn)	2015/05/06	103	80 - 120	103	80 - 120	<2.0	ug/L	NC (1)	20		
4007953	Total Molybdenum (Mo)	2015/05/06	103	80 - 120	102	80 - 120	<2.0	ug/L	NC (1)	20		
4007953	Total Nickel (Ni)	2015/05/06	97	80 - 120	100	80 - 120	<2.0	ug/L	NC (1)	20		
4007953	Total Phosphorus (P)	2015/05/06	107	80 - 120	106	80 - 120	<100	ug/L	NC (1)	20		
4007953	Total Potassium (K)	2015/05/06	105	80 - 120	105	80 - 120	<100	ug/L	10 (1)	20		
4007953	Total Selenium (Se)	2015/05/06	98	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
4007953	Total Silver (Ag)	2015/05/06	105	80 - 120	105	80 - 120	<0.10	ug/L	NC (1)	20		
4007953	Total Sodium (Na)	2015/05/06	103	80 - 120	104	80 - 120	<100	ug/L	0.77 (1)	20		
4007953	Total Strontium (Sr)	2015/05/06	103	80 - 120	100	80 - 120	<2.0	ug/L	1.0 (1)	20		
4007953	Total Thallium (Tl)	2015/05/06	107	80 - 120	104	80 - 120	<0.10	ug/L	NC (1)	20		
4007953	Total Tin (Sn)	2015/05/06	107	80 - 120	109	80 - 120	<2.0	ug/L	NC (1)	20		
4007953	Total Titanium (Ti)	2015/05/06	100	80 - 120	101	80 - 120	<2.0	ug/L	NC (1)	20		
4007953	Total Uranium (U)	2015/05/06	108	80 - 120	106	80 - 120	<0.10	ug/L	NC (1)	20		
4007953	Total Vanadium (V)	2015/05/06	100	80 - 120	102	80 - 120	<2.0	ug/L	NC (1)	20		
4007953	Total Zinc (Zn)	2015/05/06	98	80 - 120	100	80 - 120	<5.0	ug/L	NC (1)	20		
4009444	Total Alkalinity (Total as CaCO3)	2015/05/05	98	80 - 120	101	80 - 120	<5.0	mg/L	NC (1)	25		
4009446	Dissolved Chloride (Cl)	2015/05/06	111	80 - 120	107	80 - 120	<1.0	mg/L	0.56 (1)	25	109	80 - 120

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Maxxam Job #: B579909
Report Date: 2015/05/08

QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4009451	Dissolved Sulphate (SO4)	2015/05/06	85	80 - 120	91	80 - 120	<2.0	mg/L	NC (1)	25		
4009454	Reactive Silica (SiO2)	2015/05/06	NC	80 - 120	96	80 - 120	<0.50	mg/L	2.8 (1)	25		
4009455	Colour	2015/05/06			108	80 - 120	<5.0	TCU	NC (1)	25		
4009456	Orthophosphate (P)	2015/05/06	99	80 - 120	100	80 - 120	<0.010	mg/L	NC (1)	25		
4009464	Nitrate + Nitrite	2015/05/07	100	80 - 120	102	80 - 120	<0.050	mg/L	NC (1)	25		
4009467	Nitrite (N)	2015/05/05	101	80 - 120	100	80 - 120	<0.010	mg/L	NC (1)	25		
4009555	pH	2015/05/05							0.13 (1)	N/A	100	97 - 103
4009558	Conductivity	2015/05/05			107	80 - 120	1.8, RDL=1.0	uS/cm	0.0010 (1)	25		
4009585	Nitrogen (Ammonia Nitrogen)	2015/05/05	87	80 - 120	100	80 - 120	<0.050	mg/L	NC (1)	25		
4009711	pH	2015/05/05							0.33 (2)	N/A	100	97 - 103
4009713	Conductivity	2015/05/05			101	80 - 120	1.0, RDL=1.0	uS/cm	1.8 (2)	25		
4011581	Total Organic Carbon (C)	2015/05/06	105	80 - 120	103	80 - 120	<0.50	mg/L	NC (1)	20		
4012141	Turbidity	2015/05/06					<0.10	NTU	9.7 (2)	25	99	80 - 120
4013354	Total Mercury (Hg)	2015/05/07	101	80 - 120	97	80 - 120	<0.013	ug/L	NC (1)	20		
4013585	Total Organic Carbon (C)	2015/05/07	98	80 - 120	99	80 - 120	<0.50	mg/L	NC (1)	20		
4015745	Turbidity	2015/05/08					<0.10	NTU	NC (1)	25	103	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Duplicate Parent ID

(2) Duplicate Parent ID [AEZ160-01]

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Maxxam Job #: B579909
Report Date: 2015/05/08

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

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Maxxam Analytics International Corporation

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MAXXAM Chain of Custody Record

COC #: B 100289 Page 1 of 1

This column for lab use only:
Client Code
Maxxam Job # B579909

Cooler ID	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp
			1	2	2	

Integrity: YES / NO
Integrity / Checklist by: <Original signed by>
Labelled by
Location / Bin #

INVOICE INFORMATION:
Company Name: CRA
Contact Name: Jeff Parks
Address: Dartmouth NS
Postal Code B3B 1J7
Email: jparks@craworld.com
Ph: 468-1248 Fax: 468-2207

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address:
Postal Code
Email:
Ph: Fax:

PO # 20-019340
Project # / Phase # 088664-05
Project Name / Site Location Atlantic Gold - Beaver Dam
Quote 14-161KG
Site #
Task Order #
Sampled by AF + DN

TURNAROUND TIME
Standard ☑
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted: -

Guideline Requirements / Detection Limits / Special Instructions

*Specify Matrix: Surface/Salt/Ground/Tapwater/Sewage/Effluent/Potable/NonPotable/Tissue/Soil/Sludge/Metal/Seawater

	Field Sample Identification	Matrix*	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	RCAP-30 (Choose Total or Diss Metals)	RCAP-MS (Choose Total or Diss Metals)	Metals Water: Total Digest (Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default: Available Digest Method	Metals Soil: Metals Total Digest - for Ocean sediments (HNO3/HF/HCLO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Req'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H.	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine, Quinoline
1	SW-1	SW	29 Apr 15	50, 100, 200 ml	X			X			X											
2	SW-2A				X			X			X											
3	SW-4A				X			X			X											
4	SW-5				X			X			X											
5	SW-9	↓	↓	↓	X			X			X											
6																						
7																						
8																						
9																						

2015 MAY 1 12:44

B579909

RELINQUISHED BY: (Signature/Print) Date Time
<Original signed by> AFacey 1 May 205

RECEIVED BY: (Signature/Print) Date Time
<Original signed by> Jae Payne
<Original signed by> Lee Bustt 15 MAY 1 11:15

White: Maxxam Yellow: Mail Pink: Client

ATL FCD 00140 / Revision 10

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Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 100296

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/06/05
Report #: R3454128
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5A1423
Received: 2015/05/29, 08:37

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	8	N/A	2015/06/03	N/A	SM 22 4500-CO2 D
Alkalinity	8	N/A	2015/06/03	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	8	N/A	2015/06/03	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	8	N/A	2015/06/03	ATL SOP 00020	SM 22 2120C m
Conductance - water	8	N/A	2015/06/03	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	1	N/A	2015/06/03	ATL SOP 00048	SM 22 2340 B
Hardness (calculated as CaCO3)	7	N/A	2015/06/05	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	8	2015/06/01	2015/06/02	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	1	2015/06/02	2015/06/02	ATL SOP 00058	EPA 6020A R1 m
Metals Water Total MS	7	2015/06/03	2015/06/04	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	8	N/A	2015/06/05		Auto Calc.
Anion and Cation Sum	1	N/A	2015/06/03		Auto Calc.
Anion and Cation Sum	7	N/A	2015/06/05		Auto Calc.
Nitrogen Ammonia - water	8	N/A	2015/06/02	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	8	N/A	2015/06/04	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	8	N/A	2015/06/03	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	8	N/A	2015/06/05	ATL SOP 00018	ASTM D3867
pH (1)	8	N/A	2015/06/03	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	8	N/A	2015/06/03	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	1	N/A	2015/06/04	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 20C)	7	N/A	2015/06/05	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	1	N/A	2015/06/04	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	7	N/A	2015/06/05	ATL SOP 00049	Auto Calc.
Reactive Silica	8	N/A	2015/06/03	ATL SOP 00022	EPA 366.0 m
Sulphate	8	N/A	2015/06/04	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	8	N/A	2015/06/05		Auto Calc.
Organic carbon - Total (TOC) (2)	8	N/A	2015/06/02	ATL SOP 00037	SM 22 5310C m
Turbidity	8	N/A	2015/06/03	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: B 100296

Attention:Jeff Parks

Conestoga-Rovers and Associates Ltd
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/06/05
Report #: R3454128
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5A1423
Received: 2015/05/29, 08:37

(1) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

<Original signed by> Rachael Mansfield

05 Jun 2015 15:49:54 -03:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		AIY460	AIY461	AIY462	AIY462		AIY463		
Sampling Date		2015/05/28	2015/05/28	2015/05/28	2015/05/28		2015/05/28		
COC Number		B 100296	B 100296	B 100296	B 100296		B 100296		
	Units	SW-1	SW-2A	SW-2AD	SW-2AD Lab-Dup	QC Batch	SW-4A	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	0.0900	0.0900	0.0900		4043516	0.110	N/A	4043516
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	<1.0		4043514	<1.0	1.0	4043514
Calculated TDS	mg/L	8.0	7.0	7.0		4043520	9.0	1.0	4043520
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	<1.0		4043514	<1.0	1.0	4043514
Cation Sum	me/L	0.160	0.140	0.140		4043516	0.180	N/A	4043516
Hardness (CaCO3)	mg/L	2.6	2.1	2.0		4043502	3.1	1.0	4043502
Ion Balance (% Difference)	%	28.0	21.7	21.7		4043515	24.1	N/A	4043515
Langelier Index (@ 20C)	N/A	NC	NC	NC		4043518	NC		4043518
Langelier Index (@ 4C)	N/A	NC	NC	NC		4043519	NC		4043519
Nitrate (N)	mg/L	<0.050	<0.050	<0.050		4042583	<0.050	0.050	4042583
Saturation pH (@ 20C)	N/A	NC	NC	NC		4043518	NC		4043518
Saturation pH (@ 4C)	N/A	NC	NC	NC		4043519	NC		4043519
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	<5.0	<5.0	<5.0	4047788	<5.0	5.0	4047788
Dissolved Chloride (Cl)	mg/L	3.1	3.1	3.1	3.0	4047794	3.8	1.0	4047794
Colour	TCU	110	120	120	120	4047803	130	25	4047803
Nitrate + Nitrite	mg/L	<0.050	<0.050	<0.050	<0.050	4047812	<0.050	0.050	4047812
Nitrite (N)	mg/L	<0.010	<0.010	<0.010	<0.010	4047814	<0.010	0.010	4047814
Nitrogen (Ammonia Nitrogen)	mg/L	0.10	0.052	<0.050		4047272	0.092	0.050	4047276
Total Organic Carbon (C)	mg/L	7.5	7.9	8.1		4047061	9.7	0.50	4047063
Orthophosphate (P)	mg/L	<0.010	<0.010	<0.010	<0.010	4047807	<0.010	0.010	4047807
pH	pH	5.85	5.59	5.36		4048933	5.74	N/A	4048933
Reactive Silica (SiO2)	mg/L	1.1	1.1	1.1	1.1	4047800	1.5	0.50	4047800
Dissolved Sulphate (SO4)	mg/L	<2.0	<2.0	<2.0	<2.0	4047798	<2.0	2.0	4047798
Turbidity	NTU	1.1	1.5	1.4	1.3	4049776	1.4	0.10	4049776
Conductivity	uS/cm	16	16	15		4048936	18	1.0	4048936

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		AIY464			AIY465		AIY466	AIY466		
Sampling Date		2015/05/28			2015/05/28		2015/05/28	2015/05/28		
COC Number		B 100296			B 100296		B 100296	B 100296		
	Units	SW-5	RDL	QC Batch	SW-6A	QC Batch	SW-9	SW-9 Lab-Dup	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	0.360	N/A	4043516	0.0700	4043516	0.170		N/A	4043516
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	7.8	1.0	4043514	<1.0	4043514	<1.0		1.0	4043514
Calculated TDS	mg/L	21	1.0	4043520	7.0	4043520	13		1.0	4043520
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4043514	<1.0	4043514	<1.0		1.0	4043514
Cation Sum	me/L	0.350	N/A	4043516	0.140	4043516	0.260		N/A	4043516
Hardness (CaCO3)	mg/L	11	1.0	4043502	2.5	4043502	4.7		1.0	4043502
Ion Balance (% Difference)	%	1.41	N/A	4043515	33.3	4043515	20.9		N/A	4043515
Langelier Index (@ 20C)	N/A	-3.22		4043518	NC	4043518	NC			4043518
Langelier Index (@ 4C)	N/A	-3.48		4043519	NC	4043519	NC			4043519
Nitrate (N)	mg/L	<0.050	0.050	4042583	<0.050	4042583	<0.050		0.050	4043600
Saturation pH (@ 20C)	N/A	9.84		4043518	NC	4043518	NC			4043518
Saturation pH (@ 4C)	N/A	10.1		4043519	NC	4043519	NC			4043519
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	7.8	5.0	4047788	<5.0	4047788	<5.0		5.0	4047788
Dissolved Chloride (Cl)	mg/L	3.4	1.0	4047794	2.5	4047794	6.1		1.0	4047794
Colour	TCU	27	5.0	4047803	88	4047803	80		25	4047803
Nitrate + Nitrite	mg/L	<0.050	0.050	4047812	<0.050	4047812	<0.050		0.050	4047812
Nitrite (N)	mg/L	<0.010	0.010	4047814	<0.010	4047814	<0.010		0.010	4047814
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	4047276	<0.050	4047276	<0.050		0.050	4047276
Total Organic Carbon (C)	mg/L	3.6	0.50	4047063	7.3	4047063	6.7	6.8	0.50	4047063
Orthophosphate (P)	mg/L	0.011	0.010	4047807	<0.010	4047807	<0.010		0.010	4047807
pH	pH	6.62	N/A	4048933	5.76	4048933	6.17		N/A	4048933
Reactive Silica (SiO2)	mg/L	<0.50	0.50	4047800	1.1	4047800	1.5		0.50	4047800
Dissolved Sulphate (SO4)	mg/L	5.0	2.0	4047798	<2.0	4047798	<2.0		2.0	4047798
Turbidity	NTU	1.2	0.10	4049776	0.43	4049778	0.72		0.10	4049778
Conductivity	uS/cm	34	1.0	4048936	16	4048936	29		1.0	4048936

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		AIY467		
Sampling Date		2015/05/28		
COC Number		B 100296		
	Units	SW-10	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	0.450	N/A	4043516
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	6.8	1.0	4043514
Calculated TDS	mg/L	31	1.0	4043520
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4043514
Cation Sum	me/L	0.430	N/A	4043516
Hardness (CaCO3)	mg/L	15	1.0	4043502
Ion Balance (% Difference)	%	2.27	N/A	4043515
Langelier Index (@ 20C)	N/A	-3.44		4043518
Langelier Index (@ 4C)	N/A	-3.69		4043519
Nitrate (N)	mg/L	0.074	0.050	4043600
Saturation pH (@ 20C)	N/A	9.78		4043518
Saturation pH (@ 4C)	N/A	10.0		4043519
Inorganics				
Total Alkalinity (Total as CaCO3)	mg/L	6.8	5.0	4047788
Dissolved Chloride (Cl)	mg/L	3.2	1.0	4047794
Colour	TCU	8.8	5.0	4047803
Nitrate + Nitrite	mg/L	0.074	0.050	4047812
Nitrite (N)	mg/L	<0.010	0.010	4047814
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	4047276
Total Organic Carbon (C)	mg/L	1.6	0.50	4047063
Orthophosphate (P)	mg/L	<0.010	0.010	4047807
pH	pH	6.34	N/A	4048933
Reactive Silica (SiO2)	mg/L	4.0	0.50	4047800
Dissolved Sulphate (SO4)	mg/L	11	2.0	4047798
Turbidity	NTU	0.79	0.10	4049778
Conductivity	uS/cm	46	1.0	4048936

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		AIY460	AIY460	AIY461	AIY462	AIY463	AIY464	AIY465		
Sampling Date		2015/05/28	2015/05/28	2015/05/28	2015/05/28	2015/05/28	2015/05/28	2015/05/28		
COC Number		B 100296	B 100296	B 100296	B 100296	B 100296	B 100296	B 100296		
	Units	SW-1	SW-1 Lab-Dup	SW-2A	SW-2AD	SW-4A	SW-5	SW-6A	RDL	QC Batch
Metals										
Total Mercury (Hg)	ug/L	0.015	0.015	0.013	0.013	0.015	0.015	0.017	0.013	4045913

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		AIY466	AIY467		
Sampling Date		2015/05/28	2015/05/28		
COC Number		B 100296	B 100296		
	Units	SW-9	SW-10	RDL	QC Batch
Metals					
Total Mercury (Hg)	ug/L	0.013	<0.013	0.013	4045913

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5A1423
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Conestoga-Rovers and Associates Ltd
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Your P.O. #: 20-019340

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		AIY460		AIY461	AIY462	AIY463	AIY464	AIY465		
Sampling Date		2015/05/28		2015/05/28	2015/05/28	2015/05/28	2015/05/28	2015/05/28		
COC Number		B 100296		B 100296	B 100296	B 100296	B 100296	B 100296		
	Units	SW-1	QC Batch	SW-2A	SW-2AD	SW-4A	SW-5	SW-6A	RDL	QC Batch
Metals										
Total Aluminum (Al)	ug/L	190	4045823	190	190	240	61	220	5.0	4047400
Total Antimony (Sb)	ug/L	<1.0	4045823	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4047400
Total Arsenic (As)	ug/L	2.6	4045823	1.1	1.1	7.3	41	3.2	1.0	4047400
Total Barium (Ba)	ug/L	2.4	4045823	2.2	2.2	2.8	4.4	2.3	1.0	4047400
Total Beryllium (Be)	ug/L	<1.0	4045823	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4047400
Total Bismuth (Bi)	ug/L	<2.0	4045823	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4047400
Total Boron (B)	ug/L	<50	4045823	<50	<50	<50	<50	<50	50	4047400
Total Cadmium (Cd)	ug/L	<0.010	4045823	0.013	0.013	0.013	<0.010	<0.010	0.010	4047400
Total Calcium (Ca)	ug/L	630	4045823	470	460	780	3500	620	100	4047400
Total Chromium (Cr)	ug/L	3.0	4045823	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4047400
Total Cobalt (Co)	ug/L	<0.40	4045823	<0.40	<0.40	0.42	<0.40	<0.40	0.40	4047400
Total Copper (Cu)	ug/L	<2.0	4045823	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4047400
Total Iron (Fe)	ug/L	360	4045823	410	400	580	880	370	50	4047400
Total Lead (Pb)	ug/L	<0.50	4045823	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	4047400
Total Magnesium (Mg)	ug/L	240	4045823	220	210	280	600	230	100	4047400
Total Manganese (Mn)	ug/L	31	4045823	27	27	37	65	29	2.0	4047400
Total Molybdenum (Mo)	ug/L	<2.0	4045823	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4047400
Total Nickel (Ni)	ug/L	<2.0	4045823	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4047400
Total Phosphorus (P)	ug/L	<100	4045823	<100	<100	<100	<100	<100	100	4047400
Total Potassium (K)	ug/L	340	4045823	290	290	280	670	280	100	4047400
Total Selenium (Se)	ug/L	<1.0	4045823	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4047400
Total Silver (Ag)	ug/L	<0.10	4045823	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4047400
Total Sodium (Na)	ug/L	1800	4045823	1600	1600	1900	1700	1700	100	4047400
Total Strontium (Sr)	ug/L	4.6	4045823	4.1	3.9	5.1	18	4.4	2.0	4047400
Total Thallium (Tl)	ug/L	<0.10	4045823	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4047400
Total Tin (Sn)	ug/L	<2.0	4045823	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4047400
Total Titanium (Ti)	ug/L	2.7	4045823	2.0	2.4	4.7	<2.0	2.8	2.0	4047400
Total Uranium (U)	ug/L	<0.10	4045823	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4047400
Total Vanadium (V)	ug/L	<2.0	4045823	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4047400
Total Zinc (Zn)	ug/L	6.8	4045823	<5.0	<5.0	7.5	<5.0	5.7	5.0	4047400

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		AIY466	AIY467		
Sampling Date		2015/05/28	2015/05/28		
COC Number		B 100296	B 100296		
	Units	SW-9	SW-10	RDL	QC Batch
Metals					
Total Aluminum (Al)	ug/L	170	64	5.0	4047400
Total Antimony (Sb)	ug/L	<1.0	<1.0	1.0	4047400
Total Arsenic (As)	ug/L	<1.0	60	1.0	4047400
Total Barium (Ba)	ug/L	2.4	5.6	1.0	4047400
Total Beryllium (Be)	ug/L	<1.0	<1.0	1.0	4047400
Total Bismuth (Bi)	ug/L	<2.0	<2.0	2.0	4047400
Total Boron (B)	ug/L	<50	<50	50	4047400
Total Cadmium (Cd)	ug/L	<0.010	0.049	0.010	4047400
Total Calcium (Ca)	ug/L	1100	4800	100	4047400
Total Chromium (Cr)	ug/L	<1.0	<1.0	1.0	4047400
Total Cobalt (Co)	ug/L	<0.40	1.0	0.40	4047400
Total Copper (Cu)	ug/L	<2.0	3.9	2.0	4047400
Total Iron (Fe)	ug/L	210	740	50	4047400
Total Lead (Pb)	ug/L	<0.50	<0.50	0.50	4047400
Total Magnesium (Mg)	ug/L	480	680	100	4047400
Total Manganese (Mn)	ug/L	34	56	2.0	4047400
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	2.0	4047400
Total Nickel (Ni)	ug/L	<2.0	7.1	2.0	4047400
Total Phosphorus (P)	ug/L	<100	<100	100	4047400
Total Potassium (K)	ug/L	270	740	100	4047400
Total Selenium (Se)	ug/L	<1.0	<1.0	1.0	4047400
Total Silver (Ag)	ug/L	<0.10	<0.10	0.10	4047400
Total Sodium (Na)	ug/L	3500	2000	100	4047400
Total Strontium (Sr)	ug/L	4.2	19	2.0	4047400
Total Thallium (Tl)	ug/L	<0.10	<0.10	0.10	4047400
Total Tin (Sn)	ug/L	<2.0	<2.0	2.0	4047400
Total Titanium (Ti)	ug/L	3.0	2.3	2.0	4047400
Total Uranium (U)	ug/L	<0.10	<0.10	0.10	4047400
Total Vanadium (V)	ug/L	<2.0	<2.0	2.0	4047400
Total Zinc (Zn)	ug/L	<5.0	16	5.0	4047400

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C

Sample AIY460-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AIY461-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AIY462-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AIY463-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AIY465-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AIY466-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

QUALITY ASSURANCE REPORT

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4045823	Total Aluminum (Al)	2015/06/02	111	80 - 120	108	80 - 120	<5.0	ug/L	NC (1)	20		
4045823	Total Antimony (Sb)	2015/06/02	114	80 - 120	105	80 - 120	<1.0	ug/L	NC (1)	20		
4045823	Total Arsenic (As)	2015/06/02	101	80 - 120	99	80 - 120	<1.0	ug/L	NC (1)	20		
4045823	Total Barium (Ba)	2015/06/02	NC	80 - 120	96	80 - 120	<1.0	ug/L	0.23 (1)	20		
4045823	Total Beryllium (Be)	2015/06/02	104	80 - 120	101	80 - 120	<1.0	ug/L	NC (1)	20		
4045823	Total Bismuth (Bi)	2015/06/02	100	80 - 120	104	80 - 120	<2.0	ug/L	NC (1)	20		
4045823	Total Boron (B)	2015/06/02	NC	80 - 120	118	80 - 120	<50	ug/L	NC (1)	20		
4045823	Total Cadmium (Cd)	2015/06/02	101	80 - 120	100	80 - 120	<0.010	ug/L	NC (1)	20		
4045823	Total Calcium (Ca)	2015/06/02	NC	80 - 120	103	80 - 120	<100	ug/L	1.7 (1)	20		
4045823	Total Chromium (Cr)	2015/06/02	98	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
4045823	Total Cobalt (Co)	2015/06/02	96	80 - 120	99	80 - 120	<0.40	ug/L	NC (1)	20		
4045823	Total Copper (Cu)	2015/06/02	92	80 - 120	97	80 - 120	<2.0	ug/L	NC (1)	20		
4045823	Total Iron (Fe)	2015/06/02	103	80 - 120	105	80 - 120	<50	ug/L	NC (1)	20		
4045823	Total Lead (Pb)	2015/06/02	98	80 - 120	100	80 - 120	<0.50	ug/L	NC (1)	20		
4045823	Total Magnesium (Mg)	2015/06/02	NC	80 - 120	106	80 - 120	<100	ug/L	1.3 (1)	20		
4045823	Total Manganese (Mn)	2015/06/02	101	80 - 120	102	80 - 120	<2.0	ug/L	NC (1)	20		
4045823	Total Molybdenum (Mo)	2015/06/02	112	80 - 120	105	80 - 120	<2.0	ug/L	NC (1)	20		
4045823	Total Nickel (Ni)	2015/06/02	93	80 - 120	99	80 - 120	<2.0	ug/L	NC (1)	20		
4045823	Total Phosphorus (P)	2015/06/02	110	80 - 120	109	80 - 120	<100	ug/L	NC (1)	20		
4045823	Total Potassium (K)	2015/06/02	NC	80 - 120	107	80 - 120	<100	ug/L	2.4 (1)	20		
4045823	Total Selenium (Se)	2015/06/02	99	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
4045823	Total Silver (Ag)	2015/06/02	103	80 - 120	102	80 - 120	<0.10	ug/L	NC (1)	20		
4045823	Total Sodium (Na)	2015/06/02	NC	80 - 120	109	80 - 120	<100	ug/L	1.8 (1)	20		
4045823	Total Strontium (Sr)	2015/06/02	NC	80 - 120	100	80 - 120	<2.0	ug/L	0.80 (1)	20		
4045823	Total Thallium (Tl)	2015/06/02	102	80 - 120	103	80 - 120	<0.10	ug/L	NC (1)	20		
4045823	Total Tin (Sn)	2015/06/02	109	80 - 120	102	80 - 120	<2.0	ug/L	NC (1)	20		
4045823	Total Titanium (Ti)	2015/06/02	104	80 - 120	99	80 - 120	<2.0	ug/L	NC (1)	20		
4045823	Total Uranium (U)	2015/06/02	106	80 - 120	103	80 - 120	<0.10	ug/L	2.4 (1)	20		
4045823	Total Vanadium (V)	2015/06/02	103	80 - 120	102	80 - 120	<2.0	ug/L	NC (1)	20		
4045823	Total Zinc (Zn)	2015/06/02	96	80 - 120	101	80 - 120	<5.0	ug/L	NC (1)	20		
4045913	Total Mercury (Hg)	2015/06/02	95 (2)	80 - 120	100	80 - 120	<0.013	ug/L	NC (3)	20		

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4047061	Total Organic Carbon (C)	2015/06/02	102	80 - 120	101	80 - 120	<0.50	mg/L	2.3 (1)	20		
4047063	Total Organic Carbon (C)	2015/06/02	NC (4)	80 - 120	100	80 - 120	<0.50	mg/L	1.7 (5)	20		
4047272	Nitrogen (Ammonia Nitrogen)	2015/06/02	92	80 - 120	90	80 - 120	<0.050	mg/L	NC (1)	25		
4047276	Nitrogen (Ammonia Nitrogen)	2015/06/02	91	80 - 120	95	80 - 120	<0.050	mg/L	NC (1)	25		
4047400	Total Aluminum (Al)	2015/06/04	107	80 - 120	100	80 - 120	<5.0	ug/L				
4047400	Total Antimony (Sb)	2015/06/04	102	80 - 120	103	80 - 120	<1.0	ug/L				
4047400	Total Arsenic (As)	2015/06/04	96	80 - 120	97	80 - 120	<1.0	ug/L				
4047400	Total Barium (Ba)	2015/06/04	94	80 - 120	95	80 - 120	<1.0	ug/L				
4047400	Total Beryllium (Be)	2015/06/04	99	80 - 120	100	80 - 120	<1.0	ug/L				
4047400	Total Bismuth (Bi)	2015/06/04	100	80 - 120	102	80 - 120	<2.0	ug/L				
4047400	Total Boron (B)	2015/06/04	112	80 - 120	115	80 - 120	<50	ug/L				
4047400	Total Cadmium (Cd)	2015/06/04	97	80 - 120	99	80 - 120	<0.010	ug/L				
4047400	Total Calcium (Ca)	2015/06/04	NC	80 - 120	104	80 - 120	<100	ug/L	0.64 (1)	20		
4047400	Total Chromium (Cr)	2015/06/04	95	80 - 120	95	80 - 120	<1.0	ug/L				
4047400	Total Cobalt (Co)	2015/06/04	95	80 - 120	97	80 - 120	<0.40	ug/L				
4047400	Total Copper (Cu)	2015/06/04	93	80 - 120	96	80 - 120	<2.0	ug/L				
4047400	Total Iron (Fe)	2015/06/04	102	80 - 120	103	80 - 120	<50	ug/L				
4047400	Total Lead (Pb)	2015/06/04	94	80 - 120	97	80 - 120	<0.50	ug/L				
4047400	Total Magnesium (Mg)	2015/06/04	101	80 - 120	101	80 - 120	<100	ug/L	1.8 (1)	20		
4047400	Total Manganese (Mn)	2015/06/04	96	80 - 120	98	80 - 120	<2.0	ug/L				
4047400	Total Molybdenum (Mo)	2015/06/04	104	80 - 120	103	80 - 120	<2.0	ug/L				
4047400	Total Nickel (Ni)	2015/06/04	94	80 - 120	98	80 - 120	<2.0	ug/L				
4047400	Total Phosphorus (P)	2015/06/04	104	80 - 120	102	80 - 120	<100	ug/L				
4047400	Total Potassium (K)	2015/06/04	101	80 - 120	101	80 - 120	<100	ug/L				
4047400	Total Selenium (Se)	2015/06/04	97	80 - 120	98	80 - 120	<1.0	ug/L				
4047400	Total Silver (Ag)	2015/06/04	101	80 - 120	102	80 - 120	<0.10	ug/L				
4047400	Total Sodium (Na)	2015/06/04	NC	80 - 120	99	80 - 120	<100	ug/L				
4047400	Total Strontium (Sr)	2015/06/04	NC	80 - 120	98	80 - 120	<2.0	ug/L				
4047400	Total Thallium (Tl)	2015/06/04	101	80 - 120	102	80 - 120	<0.10	ug/L				
4047400	Total Tin (Sn)	2015/06/04	100	80 - 120	100	80 - 120	<2.0	ug/L				
4047400	Total Titanium (Ti)	2015/06/04	99	80 - 120	100	80 - 120	<2.0	ug/L				

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Maxxam Job #: B5A1423
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QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4047400	Total Uranium (U)	2015/06/04	104	80 - 120	105	80 - 120	<0.10	ug/L				
4047400	Total Vanadium (V)	2015/06/04	97	80 - 120	99	80 - 120	<2.0	ug/L				
4047400	Total Zinc (Zn)	2015/06/04	96	80 - 120	97	80 - 120	<5.0	ug/L				
4047788	Total Alkalinity (Total as CaCO3)	2015/06/03	98 (6)	80 - 120	101	80 - 120	<5.0	mg/L	NC (7)	25		
4047794	Dissolved Chloride (Cl)	2015/06/03	104 (6)	80 - 120	100	80 - 120	<1.0	mg/L	NC (7)	25	109	80 - 120
4047798	Dissolved Sulphate (SO4)	2015/06/04	106 (6)	80 - 120	85	80 - 120	<2.0	mg/L	NC (7)	25		
4047800	Reactive Silica (SiO2)	2015/06/03	95 (6)	80 - 120	95	80 - 120	<0.50	mg/L	NC (7)	25		
4047803	Colour	2015/06/03			105	80 - 120	<5.0	TCU	NC (7)	25		
4047807	Orthophosphate (P)	2015/06/03	95 (6)	80 - 120	101	80 - 120	<0.010	mg/L	NC (7)	25		
4047812	Nitrate + Nitrite	2015/06/04	95 (6)	80 - 120	96	80 - 120	<0.050	mg/L	NC (7)	25		
4047814	Nitrite (N)	2015/06/03	88 (6)	80 - 120	103	80 - 120	<0.010	mg/L	NC (7)	25		
4048933	pH	2015/06/03							0.44 (1)	N/A	101	97 - 103
4048936	Conductivity	2015/06/03			101	80 - 120	<1.0	uS/cm	0.45 (1)	25		
4049776	Turbidity	2015/06/03					<0.10	NTU	8.8 (7)	25	104	80 - 120

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Maxxam Job #: B5A1423
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QUALITY ASSURANCE REPORT(CONT'D)

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4049778	Turbidity	2015/06/03					<0.10	NTU	1.6 (1)	25	105	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [AIY461-03]

(3) Duplicate Parent ID [AIY460-03]

(4) Matrix Spike Parent ID [AIY466-01]

(5) Duplicate Parent ID [AIY466-01]

(6) Matrix Spike Parent ID [AIY462-01]

(7) Duplicate Parent ID [AIY462-01]

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Maxxam Job #: B5A1423
Report Date: 2015/06/05

Conestoga-Rovers and Associates Ltd
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Kevin MacDonald, Inorganics Supervisor

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

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Maxxam Analytics International Corporation

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www.maxxamanalytics.com E-mail: Clientservicesbedford@maxxamanalytics.com

MAXXAM Chain of Custody Record

COC #: B 100296 Page 1 of 1

This column for lab use only:
Client Code
Maxxam Job # B5A1423
2015/03/29

Cooler ID	Seal Present	Seal Intact	Temp 1	Temp 2	Temp 3	Average Temp
			1	2	2	

Integrity: YES NO
Integrity / Checklist by: <Original signed by>
Labelled by:
Location / Bin #:

INVOICE INFORMATION:
Company Name: CRA
Contact Name: Jeff Parks
Address: Dartmouth, NS
Postal Code: B3B 1J7
Email: jparks@erraworld.com
Ph: 468-1248 Fax: 468-2207

REPORT INFORMATION (if differs from invoice):
Company Name:
Contact Name:
Address:
Postal Code:
Email:
Ph: Fax:

PO # 20-019340
Project # / Phase # 088064-05
Project Name / Site Location: Atlantic Gold-Beaver Dam
Quote: 14-161KG
Site #:
Task Order #:
Sampled by: AF + ZJ

TURNAROUND TIME
Standard ☒
10 day ☐
If RUSH Specify Date:
Pre-schedule rush work
Charge for # Jars used but not submitted: 1

Guideline Requirements / Detection Limits / Special Instructions

*Specify Matrix: Surface/Salt/Ground/Tapwater/Sewage/Effluent/Potable/NonPotable/Tissue/Soil/Sludge/Metal/Seawater

	Field Sample Identification	Matrix*	Date/Time Sampled	# & type of bottles	Field Filtered & Preserved	Lab Filtration Required	RCAP-30 Choose Total or Diss Metals	RCAP-MS Choose Total or Diss Metals	Metals Water: Total Digest (Default Method) for well water, surface water	Metals Water: Dissolved for ground water	Metals Water: Mercury	Metals Soil: Metals & Mercury Default Available Digest Method	Metals Soil: Metals Total Digest - for Ocean sediments (HNO3/HF/HCLO4)	Metals Soil: Mercury Low level by Cold Vapour AA	Metals Soil: Selenium (low level) Req'd for CCME Residential, Parklands, Agricultural	Metals Soil: Hot Water soluble Boron (required for CCME Agricultural)	Hydrocarbons: RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons: Hydrocarbons Soil (Potable) NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	Hydrocarbons: NB Potable Water BTEX, VPH, Low level T.E.H.	Hydrocarbons: TPH Fractionation	Hydrocarbons: PAH's	Hydrocarbons: PAH's with Acridine, Quinoline
1	SW-1	SW	28May15	3	X			X			X											
2	SW-2A				X			X			X											
3	SW-2AD				X			X			X											
4	SW-4A				X			X			X											
5	SW-5				X			X			X											
6	SW-6A				X			X			X											
7	SW-9				X			X			X											
8	SW-10	↓	↓	↓	X			X			X											
9																						

2015 MAY 29 9:50

B5A1423

RELINQUISHED BY: (Signature/Print) <Original signed by> Zachary Jerkes Date: 5/29/15 Time: 8:35

RECEIVED BY: (Signature/Print) <Original signed by> Joe Doyle Date Time

<Original signed by> SARA MASON 15 MAY 29 8:37

White: Maxxam Yellow : Mail Pink: Client

ATL FCD 00149 / Revision 10

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: 519518-01-01

Attention:Amanda Facey

GHD Limited
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/07/13
Report #: R3571678
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5C9254
Received: 2015/07/03, 16:20

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	8	N/A	2015/07/13	N/A	SM 22 4500-CO2 D
Alkalinity	8	N/A	2015/07/08	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	8	N/A	2015/07/10	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	8	N/A	2015/07/10	ATL SOP 00020	SM 22 2120C m
Conductance - water	8	N/A	2015/07/10	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	8	N/A	2015/07/09	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	8	2015/07/07	2015/07/08	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	6	2015/07/07	2015/07/08	ATL SOP 00058	EPA 6020A R1 m
Metals Water Total MS	2	2015/07/08	2015/07/09	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	8	N/A	2015/07/13		Auto Calc.
Anion and Cation Sum	8	N/A	2015/07/13		Auto Calc.
Nitrogen Ammonia - water	8	N/A	2015/07/08	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	8	N/A	2015/07/09	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	8	N/A	2015/07/10	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	8	N/A	2015/07/10	ATL SOP 00018	ASTM D3867
pH (1)	8	N/A	2015/07/10	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	8	N/A	2015/07/10	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	8	N/A	2015/07/13	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	8	N/A	2015/07/13	ATL SOP 00049	Auto Calc.
Reactive Silica	8	N/A	2015/07/09	ATL SOP 00022	EPA 366.0 m
Sulphate	8	N/A	2015/07/10	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	8	N/A	2015/07/10		Auto Calc.
Organic carbon - Total (TOC) (2)	8	N/A	2015/07/08	ATL SOP 00037	SM 22 5310C m
Turbidity	8	N/A	2015/07/13	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.

(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: 519518-01-01

Attention:Amanda Facey

GHD Limited
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/07/13
Report #: R3571678
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5C9254
Received: 2015/07/03, 16:20

<Original signed by> Rachael Mansfield

Encryption Key

13 Jul 2015 15:19:30 -03:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

RESULTS OF ANALYSES OF WATER

Maxxam ID		AOE400	AOE401		AOE402	AOE402		
Sampling Date		2015/06/30	2015/06/30		2015/06/30	2015/06/30		
COC Number		519518-01-01	519518-01-01		519518-01-01	519518-01-01		
	Units	SW-1	SW-2A	QC Batch	SW-4A	SW-4A Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	0.0800	0.0800	4092060	0.0700		N/A	4092060
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	4092057	<1.0		1.0	4092057
Calculated TDS	mg/L	9.0	8.0	4092063	8.0		1.0	4092063
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	4092057	<1.0		1.0	4092057
Cation Sum	me/L	0.170	0.160	4092060	0.170		N/A	4092060
Hardness (CaCO3)	mg/L	2.9	2.6	4092058	3.0		1.0	4092058
Ion Balance (% Difference)	%	36.0	33.3	4092059	41.7		N/A	4092059
Langelier Index (@ 20C)	N/A	NC	NC	4092061	NC			4092061
Langelier Index (@ 4C)	N/A	NC	NC	4092062	NC			4092062
Nitrate (N)	mg/L	0.062	0.055	4092065	0.064		0.050	4092065
Saturation pH (@ 20C)	N/A	NC	NC	4092061	NC			4092061
Saturation pH (@ 4C)	N/A	NC	NC	4092062	NC			4092062
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	<5.0	4096752	<5.0	<5.0	5.0	4096752
Dissolved Chloride (Cl)	mg/L	2.6	2.8	4096766	2.2	2.7	1.0	4096766
Colour	TCU	170	170	4096770	160	160	25	4096770
Nitrate + Nitrite	mg/L	0.062	0.055	4096777	0.064	0.077	0.050	4096777
Nitrite (N)	mg/L	<0.010	<0.010	4096781	<0.010	<0.010	0.010	4096781
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	<0.050	4096184	<0.050		0.050	4096184
Total Organic Carbon (C)	mg/L	12	12	4096103	12		0.50	4096104
Orthophosphate (P)	mg/L	<0.010	<0.010	4096771	<0.010	<0.010	0.010	4096771
pH	pH	6.00	5.29	4099822	5.42		N/A	4099822
Reactive Silica (SiO2)	mg/L	2.1	1.9	4096769	2.0	1.9	0.50	4096769
Dissolved Sulphate (SO4)	mg/L	<2.0	<2.0	4096767	<2.0	<2.0	2.0	4096767
Turbidity	NTU	1.2	0.99	4102538	1.3		0.10	4102538
Conductivity	uS/cm	17	17	4099826	17		1.0	4099826

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

RESULTS OF ANALYSES OF WATER

Maxxam ID		AOE403		AOE404		AOE405		AOE406		
Sampling Date		2015/06/30		2015/06/30		2015/06/30		2015/06/30		
COC Number		519518-01-01		519518-01-01		519518-01-01		519518-01-01		
	Units	SW-5	RDL	SW-6A	QC Batch	SW-6AD	QC Batch	SW-9	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	0.350	N/A	0.0700	4092060	0.0700	4092060	0.130	N/A	4092060
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	9.3	1.0	<1.0	4092057	<1.0	4092057	<1.0	1.0	4092057
Calculated TDS	mg/L	21	1.0	7.0	4092063	7.0	4092063	13	1.0	4092063
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	4092057	<1.0	4092057	<1.0	1.0	4092057
Cation Sum	me/L	0.350	N/A	0.170	4092060	0.160	4092060	0.310	N/A	4092060
Hardness (CaCO3)	mg/L	12	1.0	2.8	4092058	2.8	4092058	7.4	1.0	4092058
Ion Balance (% Difference)	%	0.00	N/A	41.7	4092059	39.1	4092059	40.9	N/A	4092059
Langelier Index (@ 20C)	N/A	-3.00		NC	4092061	NC	4092061	NC		4092061
Langelier Index (@ 4C)	N/A	-3.26		NC	4092062	NC	4092062	NC		4092062
Nitrate (N)	mg/L	0.063	0.050	0.053	4092065	0.059	4092065	<0.050	0.050	4092065
Saturation pH (@ 20C)	N/A	9.76		NC	4092061	NC	4092061	NC		4092061
Saturation pH (@ 4C)	N/A	10.0		NC	4092062	NC	4092062	NC		4092062
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	9.3	5.0	<5.0	4096752	<5.0	4096782	<5.0	5.0	4096782
Dissolved Chloride (Cl)	mg/L	1.9	1.0	2.2	4096766	2.2	4096787	4.8	1.0	4096787
Colour	TCU	23	5.0	140	4096770	130	4096792	150	25	4096792
Nitrate + Nitrite	mg/L	0.063	0.050	0.053	4096777	0.059	4096794	<0.050	0.050	4096794
Nitrite (N)	mg/L	<0.010	0.010	<0.010	4096781	<0.010	4096799	<0.010	0.010	4096799
Nitrogen (Ammonia Nitrogen)	mg/L	0.052	0.050	0.22	4096184	<0.050	4096184	0.14	0.050	4096184
Total Organic Carbon (C)	mg/L	4.1	0.50	10	4096104	11	4096104	12	0.50	4096104
Orthophosphate (P)	mg/L	<0.010	0.010	<0.010	4096771	<0.010	4096793	<0.010	0.010	4096793
pH	pH	6.76	N/A	5.79	4099822	5.64	4099822	6.33	N/A	4099822
Reactive Silica (SiO2)	mg/L	0.92	0.50	1.3	4096769	1.2	4096789	2.2	0.50	4096789
Dissolved Sulphate (SO4)	mg/L	5.0	2.0	<2.0	4096767	<2.0	4096788	<2.0	2.0	4096788
Turbidity	NTU	0.83	0.10	0.65	4102538	1.1	4102538	0.99	0.10	4102542
Conductivity	uS/cm	35	1.0	16	4099826	16	4099826	29	1.0	4099826

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

RESULTS OF ANALYSES OF WATER

Maxxam ID		AOE407	AOE407		
Sampling Date		2015/06/30	2015/06/30		
COC Number		519518-01-01	519518-01-01		
	Units	SW-10	SW-10 Lab-Dup	RDL	QC Batch
Calculated Parameters					
Anion Sum	me/L	0.450		N/A	4092060
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	8.0		1.0	4092057
Calculated TDS	mg/L	32		1.0	4092063
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0		1.0	4092057
Cation Sum	me/L	0.450		N/A	4092060
Hardness (CaCO3)	mg/L	15		1.0	4092058
Ion Balance (% Difference)	%	0.00		N/A	4092059
Langelier Index (@ 20C)	N/A	-3.05			4092061
Langelier Index (@ 4C)	N/A	-3.31			4092062
Nitrate (N)	mg/L	0.060		0.050	4092065
Saturation pH (@ 20C)	N/A	9.70			4092061
Saturation pH (@ 4C)	N/A	9.96			4092062
Inorganics					
Total Alkalinity (Total as CaCO3)	mg/L	8.0		5.0	4096782
Dissolved Chloride (Cl)	mg/L	2.9		1.0	4096787
Colour	TCU	9.4		5.0	4096792
Nitrate + Nitrite	mg/L	0.060		0.050	4096794
Nitrite (N)	mg/L	<0.010		0.010	4096799
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050		0.050	4096184
Total Organic Carbon (C)	mg/L	2.1		0.50	4096104
Orthophosphate (P)	mg/L	<0.010		0.010	4096793
pH	pH	6.65	6.72	N/A	4099822
Reactive Silica (SiO2)	mg/L	4.7		0.50	4096789
Dissolved Sulphate (SO4)	mg/L	9.6		2.0	4096788
Turbidity	NTU	1.0		0.10	4102542
Conductivity	uS/cm	46	46	1.0	4099826

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		AOE400	AOE401		AOE402	AOE402	AOE403		
Sampling Date		2015/06/30	2015/06/30		2015/06/30	2015/06/30	2015/06/30		
COC Number		519518-01-01	519518-01-01		519518-01-01	519518-01-01	519518-01-01		
	Units	SW-1	SW-2A	QC Batch	SW-4A	SW-4A Lab-Dup	SW-5	RDL	QC Batch
Metals									
Total Mercury (Hg)	ug/L	<0.013	<0.013	4094692	<0.013	<0.013	<0.013	0.013	4094727

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		AOE404	AOE405	AOE406	AOE407		
Sampling Date		2015/06/30	2015/06/30	2015/06/30	2015/06/30		
COC Number		519518-01-01	519518-01-01	519518-01-01	519518-01-01		
	Units	SW-6A	SW-6AD	SW-9	SW-10	RDL	QC Batch
Metals							
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	0.013	4094727

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		AOE400	AOE401	AOE402	AOE403	AOE404	AOE405		
Sampling Date		2015/06/30	2015/06/30	2015/06/30	2015/06/30	2015/06/30	2015/06/30		
COC Number		519518-01-01	519518-01-01	519518-01-01	519518-01-01	519518-01-01	519518-01-01		
	Units	SW-1	SW-2A	SW-4A	SW-5	SW-6A	SW-6AD	RDL	QC Batch
Metals									
Total Aluminum (Al)	ug/L	280	280	300	45	290	300	5.0	4094135
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4094135
Total Arsenic (As)	ug/L	2.5	<1.0	5.4	32	3.0	3.1	1.0	4094135
Total Barium (Ba)	ug/L	3.0	3.0	2.8	3.6	2.6	2.7	1.0	4094135
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4094135
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4094135
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	50	4094135
Total Cadmium (Cd)	ug/L	0.028	0.012	0.016	<0.010	0.016	0.015	0.010	4094135
Total Calcium (Ca)	ug/L	690	580	710	3600	670	670	100	4094135
Total Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4094135
Total Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	0.40	4094135
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4094135
Total Iron (Fe)	ug/L	580	590	650	530	550	560	50	4094135
Total Lead (Pb)	ug/L	0.54	0.55	0.52	<0.50	<0.50	<0.50	0.50	4094135
Total Magnesium (Mg)	ug/L	290	280	290	640	270	280	100	4094135
Total Manganese (Mn)	ug/L	37	35	32	50	33	34	2.0	4094135
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4094135
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4094135
Total Phosphorus (P)	ug/L	150	150	140	140	140	150	100	4094135
Total Potassium (K)	ug/L	170	160	140	580	190	190	100	4094135
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4094135
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4094135
Total Sodium (Na)	ug/L	1900	1900	1900	1800	1800	1800	100	4094135
Total Strontium (Sr)	ug/L	5.9	5.0	5.0	20	4.8	5.1	2.0	4094135
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4094135
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4094135
Total Titanium (Ti)	ug/L	3.7	3.6	3.8	<2.0	3.4	3.9	2.0	4094135
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4094135
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4094135
Total Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	4094135

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		AOE406	AOE407		
Sampling Date		2015/06/30	2015/06/30		
COC Number		519518-01-01	519518-01-01		
	Units	SW-9	SW-10	RDL	QC Batch
Metals					
Total Aluminum (Al)	ug/L	280	39	5.0	4094792
Total Antimony (Sb)	ug/L	<1.0	<1.0	1.0	4094792
Total Arsenic (As)	ug/L	<1.0	130	1.0	4094792
Total Barium (Ba)	ug/L	3.3	5.4	1.0	4094792
Total Beryllium (Be)	ug/L	<1.0	<1.0	1.0	4094792
Total Bismuth (Bi)	ug/L	<2.0	<2.0	2.0	4094792
Total Boron (B)	ug/L	<50	<50	50	4094792
Total Cadmium (Cd)	ug/L	0.014	0.061	0.010	4094792
Total Calcium (Ca)	ug/L	1700	4900	100	4094792
Total Chromium (Cr)	ug/L	<1.0	<1.0	1.0	4094792
Total Cobalt (Co)	ug/L	<0.40	1.8	0.40	4094792
Total Copper (Cu)	ug/L	<2.0	3.0	2.0	4094792
Total Iron (Fe)	ug/L	440	1400	50	4094792
Total Lead (Pb)	ug/L	<0.50	<0.50	0.50	4094792
Total Magnesium (Mg)	ug/L	740	660	100	4094792
Total Manganese (Mn)	ug/L	57	110	2.0	4094792
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	2.0	4094792
Total Nickel (Ni)	ug/L	<2.0	7.2	2.0	4094792
Total Phosphorus (P)	ug/L	150	140	100	4094792
Total Potassium (K)	ug/L	200	640	100	4094792
Total Selenium (Se)	ug/L	<1.0	<1.0	1.0	4094792
Total Silver (Ag)	ug/L	<0.10	<0.10	0.10	4094792
Total Sodium (Na)	ug/L	3100	1900	100	4094792
Total Strontium (Sr)	ug/L	5.9	19	2.0	4094792
Total Thallium (Tl)	ug/L	<0.10	<0.10	0.10	4094792
Total Tin (Sn)	ug/L	<2.0	<2.0	2.0	4094792
Total Titanium (Ti)	ug/L	3.1	<2.0	2.0	4094792
Total Uranium (U)	ug/L	<0.10	<0.10	0.10	4094792
Total Vanadium (V)	ug/L	<2.0	<2.0	2.0	4094792
Total Zinc (Zn)	ug/L	<5.0	13	5.0	4094792

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.7°C

Sample AOE400-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AOE401-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AOE402-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AOE404-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AOE405-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AOE406-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

QUALITY ASSURANCE REPORT

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4094135	Total Aluminum (Al)	2015/07/08	102	80 - 120	104	80 - 120	<5.0	ug/L	NC (1)	20		
4094135	Total Antimony (Sb)	2015/07/08	106	80 - 120	102	80 - 120	<1.0	ug/L	NC (1)	20		
4094135	Total Arsenic (As)	2015/07/08	100	80 - 120	99	80 - 120	<1.0	ug/L	NC (1)	20		
4094135	Total Barium (Ba)	2015/07/08	99	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
4094135	Total Beryllium (Be)	2015/07/08	99	80 - 120	99	80 - 120	<1.0	ug/L	NC (1)	20		
4094135	Total Bismuth (Bi)	2015/07/08	102	80 - 120	100	80 - 120	<2.0	ug/L	NC (1)	20		
4094135	Total Boron (B)	2015/07/08	108	80 - 120	109	80 - 120	<50	ug/L	NC (1)	20		
4094135	Total Cadmium (Cd)	2015/07/08	103	80 - 120	104	80 - 120	<0.010	ug/L	NC (1)	20		
4094135	Total Calcium (Ca)	2015/07/08	94	80 - 120	95	80 - 120	<100	ug/L	0.070 (1)	20		
4094135	Total Chromium (Cr)	2015/07/08	99	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
4094135	Total Cobalt (Co)	2015/07/08	100	80 - 120	100	80 - 120	<0.40	ug/L	NC (1)	20		
4094135	Total Copper (Cu)	2015/07/08	98	80 - 120	99	80 - 120	<2.0	ug/L	0.31 (1)	20		
4094135	Total Iron (Fe)	2015/07/08	103	80 - 120	104	80 - 120	<50	ug/L	NC (1)	20		
4094135	Total Lead (Pb)	2015/07/08	102	80 - 120	101	80 - 120	<0.50	ug/L	NC (1)	20		
4094135	Total Magnesium (Mg)	2015/07/08	103	80 - 120	103	80 - 120	<100	ug/L	NC (1)	20		
4094135	Total Manganese (Mn)	2015/07/08	104	80 - 120	104	80 - 120	<2.0	ug/L	NC (1)	20		
4094135	Total Molybdenum (Mo)	2015/07/08	102	80 - 120	101	80 - 120	<2.0	ug/L	NC (1)	20		
4094135	Total Nickel (Ni)	2015/07/08	100	80 - 120	101	80 - 120	<2.0	ug/L	NC (1)	20		
4094135	Total Phosphorus (P)	2015/07/08	104	80 - 120	105	80 - 120	130, RDL=100	ug/L	NC (1)	20		
4094135	Total Potassium (K)	2015/07/08	97	80 - 120	99	80 - 120	<100	ug/L	NC (1)	20		
4094135	Total Selenium (Se)	2015/07/08	99	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
4094135	Total Silver (Ag)	2015/07/08	107	80 - 120	103	80 - 120	<0.10	ug/L	NC (1)	20		
4094135	Total Sodium (Na)	2015/07/08	104	80 - 120	106	80 - 120	<100	ug/L	NC (1)	20		
4094135	Total Strontium (Sr)	2015/07/08	102	80 - 120	104	80 - 120	<2.0	ug/L	NC (1)	20		
4094135	Total Thallium (Tl)	2015/07/08	103	80 - 120	101	80 - 120	<0.10	ug/L	NC (1)	20		
4094135	Total Tin (Sn)	2015/07/08	104	80 - 120	102	80 - 120	<2.0	ug/L	NC (1)	20		
4094135	Total Titanium (Ti)	2015/07/08	104	80 - 120	104	80 - 120	<2.0	ug/L	NC (1)	20		
4094135	Total Uranium (U)	2015/07/08	110	80 - 120	108	80 - 120	<0.10	ug/L	NC (1)	20		
4094135	Total Vanadium (V)	2015/07/08	103	80 - 120	101	80 - 120	<2.0	ug/L	NC (1)	20		
4094135	Total Zinc (Zn)	2015/07/08	99	80 - 120	98	80 - 120	<5.0	ug/L	6.9 (1)	20		

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4094692	Total Mercury (Hg)	2015/07/08	95	80 - 120	94	80 - 120	<0.013	ug/L	NC (1)	20		
4094727	Total Mercury (Hg)	2015/07/08	88 (2)	80 - 120	103	80 - 120	<0.013	ug/L	NC (3)	20		
4094792	Total Aluminum (Al)	2015/07/09	104	80 - 120	102	80 - 120	<5.0	ug/L	NC (1)	20		
4094792	Total Antimony (Sb)	2015/07/09	114	80 - 120	112	80 - 120	<1.0	ug/L	2.5 (1)	20		
4094792	Total Arsenic (As)	2015/07/09	100	80 - 120	98	80 - 120	<1.0	ug/L	NC (1)	20		
4094792	Total Barium (Ba)	2015/07/09	102	80 - 120	100	80 - 120	<1.0	ug/L	NC (1)	20		
4094792	Total Beryllium (Be)	2015/07/09	103	80 - 120	97	80 - 120	<1.0	ug/L	NC (1)	20		
4094792	Total Bismuth (Bi)	2015/07/09	106	80 - 120	107	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Boron (B)	2015/07/09	115	80 - 120	108	80 - 120	<50	ug/L	NC (1)	20		
4094792	Total Cadmium (Cd)	2015/07/09	105	80 - 120	98	80 - 120	<0.010	ug/L	NC (1)	20		
4094792	Total Calcium (Ca)	2015/07/09	97	80 - 120	97	80 - 120	<100	ug/L	NC (1)	20		
4094792	Total Chromium (Cr)	2015/07/09	96	80 - 120	95	80 - 120	<1.0	ug/L	NC (1)	20		
4094792	Total Cobalt (Co)	2015/07/09	96	80 - 120	96	80 - 120	<0.40	ug/L	NC (1)	20		
4094792	Total Copper (Cu)	2015/07/09	94	80 - 120	94	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Iron (Fe)	2015/07/09	102	80 - 120	102	80 - 120	<50	ug/L	NC (1)	20		
4094792	Total Lead (Pb)	2015/07/09	103	80 - 120	103	80 - 120	<0.50	ug/L	NC (1)	20		
4094792	Total Magnesium (Mg)	2015/07/09	102	80 - 120	103	80 - 120	<100	ug/L	NC (1)	20		
4094792	Total Manganese (Mn)	2015/07/09	100	80 - 120	101	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Molybdenum (Mo)	2015/07/09	108	80 - 120	107	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Nickel (Ni)	2015/07/09	96	80 - 120	95	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Phosphorus (P)	2015/07/09	108	80 - 120	108	80 - 120	140, RDL=100	ug/L	NC (1)	20		
4094792	Total Potassium (K)	2015/07/09	108	80 - 120	108	80 - 120	<100	ug/L	NC (1)	20		
4094792	Total Selenium (Se)	2015/07/09	99	80 - 120	99	80 - 120	<1.0	ug/L	NC (1)	20		
4094792	Total Silver (Ag)	2015/07/09	108	80 - 120	106	80 - 120	<0.10	ug/L	NC (1)	20		
4094792	Total Sodium (Na)	2015/07/09	96	80 - 120	99	80 - 120	<100	ug/L	0.87 (1)	20		
4094792	Total Strontium (Sr)	2015/07/09	106	80 - 120	103	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Thallium (Tl)	2015/07/09	106	80 - 120	106	80 - 120	<0.10	ug/L	NC (1)	20		
4094792	Total Tin (Sn)	2015/07/09	111	80 - 120	110	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Titanium (Ti)	2015/07/09	97	80 - 120	98	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Uranium (U)	2015/07/09	110	80 - 120	109	80 - 120	<0.10	ug/L	0.17 (1)	20		

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4094792	Total Vanadium (V)	2015/07/09	97	80 - 120	96	80 - 120	<2.0	ug/L	NC (1)	20		
4094792	Total Zinc (Zn)	2015/07/09	96	80 - 120	97	80 - 120	<5.0	ug/L	NC (1)	20		
4096103	Total Organic Carbon (C)	2015/07/08	100	80 - 120	100	80 - 120	<0.50	mg/L	5.7 (1)	20		
4096104	Total Organic Carbon (C)	2015/07/08	108	80 - 120	98	80 - 120	<0.50	mg/L	NC (1)	20		
4096184	Nitrogen (Ammonia Nitrogen)	2015/07/08	96	80 - 120	109	80 - 120	0.076, RDL=0.050	mg/L	NC (1)	25		
4096752	Total Alkalinity (Total as CaCO3)	2015/07/08	101 (4)	80 - 120	101	80 - 120	<5.0	mg/L	NC (5)	25		
4096766	Dissolved Chloride (Cl)	2015/07/10	112 (4)	80 - 120	115	80 - 120	<1.0	mg/L	NC (5)	25	107	80 - 120
4096767	Dissolved Sulphate (SO4)	2015/07/10	105 (4)	80 - 120	100	80 - 120	<2.0	mg/L	NC (5)	25		
4096769	Reactive Silica (SiO2)	2015/07/09	95 (4)	80 - 120	105	80 - 120	<0.50	mg/L	NC (5)	25		
4096770	Colour	2015/07/10			110	80 - 120	<5.0	TCU	0.15 (5)	20		
4096771	Orthophosphate (P)	2015/07/10	94 (4)	80 - 120	99	80 - 120	<0.010	mg/L	NC (5)	25		
4096777	Nitrate + Nitrite	2015/07/09	99 (4)	80 - 120	109	80 - 120	<0.050	mg/L	NC (5)	25		
4096781	Nitrite (N)	2015/07/10	92 (4)	80 - 120	105	80 - 120	<0.010	mg/L	NC (5)	25		
4096782	Total Alkalinity (Total as CaCO3)	2015/07/08	NC	80 - 120	101	80 - 120	<5.0	mg/L	NC (1)	25		
4096787	Dissolved Chloride (Cl)	2015/07/10	115	80 - 120	110	80 - 120	<1.0	mg/L	NC (1)	25	101	80 - 120
4096788	Dissolved Sulphate (SO4)	2015/07/10	100	80 - 120	102	80 - 120	<2.0	mg/L	NC (1)	25		
4096789	Reactive Silica (SiO2)	2015/07/09	105	80 - 120	103	80 - 120	<0.50	mg/L	NC (1)	25		
4096792	Colour	2015/07/10			99	80 - 120	<5.0	TCU	NC (1)	20		
4096793	Orthophosphate (P)	2015/07/10	101	80 - 120	99	80 - 120	<0.010	mg/L	NC (1)	25		
4096794	Nitrate + Nitrite	2015/07/09	98	80 - 120	107	80 - 120	0.054, RDL=0.050	mg/L	NC (1)	25		
4096799	Nitrite (N)	2015/07/10	105	80 - 120	94	80 - 120	<0.010	mg/L	NC (1)	25		
4099822	pH	2015/07/10							1.0 (6)	N/A	100	97 - 103
4099826	Conductivity	2015/07/10			103	80 - 120	1.0, RDL=1.0	uS/cm	0 (6)	25		
4102538	Turbidity	2015/07/13					<0.10	NTU	NC (1)	25	91	80 - 120

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4102542	Turbidity	2015/07/13					<0.10	NTU	6.1 (1)	25	95	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [AOE403-05]

(3) Duplicate Parent ID [AOE402-05]

(4) Matrix Spike Parent ID [AOE402-01]

(5) Duplicate Parent ID [AOE402-01]

(6) Duplicate Parent ID [AOE407-01]

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Maxxam Job #: B5C9254
Report Date: 2015/07/13

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: AF

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Kevin MacDonald, Inorganics Supervisor

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

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200 Bluewater Road, Bedford, Nova Scotia Canada B4B 1G9 Tel:(902) 420-0203 Toll-Free:800-563-6266 Fax:(902) 420-8612 www.maxxam.ca

Chain Of Custody Record

Page 1 of 1

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#16276 ~~Conestoga-Rovers and Associates Ltd~~ GHD	Company Name		Quotation #	14-161KG	Maxxam Job #	Bottle Order #:
Contact Name	Amanda Facey	Contact Name		P.O. #	20-019340	B5C9254	519518
Address	45 Akerley Blvd	Address		Project #	088664-05	Chain Of Custody Record	Project Manager
	Dartmouth NS B3B 1J7			Project Name	Atlantic Gold-Beaver Dam	C#519518-01-01	Michelle Hill
Phone	(902) 468-1248 Fax: (902) 468-2207	Phone	Fax:	Site #			
Email	~~afacey@craworld.com~~ amanda.facey@ghd.com	Email		Sampled By	AF, ZJ		

Re: B5C9254

Special Instructions

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: X
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	RCAp-MS Total Metals in Water	Mercury - Total (CVAA,LL)	# of Bottles	Comments / Hazards / Other Required Analysis
1		SW-1	30 Jun 15		SW			X	X	5	
2		SW-2A						X	X		
3		SW-4A						X	X		
4		SW-5						X	X		
5		SW-6A						X	X		
6		SW-6AD						X	X		
7		SW-9						X	X		
8		SW-10						X	X		2015 JUL 3 12:25
9											'15 JUL 3 8:43
10											

* * RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
<Original signed by> A Facey	15/07/03		<Original signed by> Jax Doyle				☐	1 2 2	☐ Yes ☐ No

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: 523658-01-01

Attention:Amanda Facey

GHD Limited
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/08/07
Report #: R3620816
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5F0835
Received: 2015/07/30, 09:12

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	8	N/A	2015/08/07	N/A	SM 22 4500-CO2 D
Alkalinity	8	N/A	2015/08/06	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	8	N/A	2015/08/07	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	8	N/A	2015/08/06	ATL SOP 00020	SM 22 2120C m
Conductance - water	8	N/A	2015/08/06	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	8	N/A	2015/08/06	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	7	2015/08/04	2015/08/04	ATL SOP 00026	EPA 245.1 R3 m
Mercury - Total (CVAA,LL)	1	2015/08/06	2015/08/06	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	8	2015/08/05	2015/08/06	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	8	N/A	2015/08/07		Auto Calc.
Anion and Cation Sum	8	N/A	2015/08/07		Auto Calc.
Nitrogen Ammonia - water	8	N/A	2015/08/05	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	8	N/A	2015/08/07	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	8	N/A	2015/08/06	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	8	N/A	2015/08/07	ATL SOP 00018	ASTM D3867
pH (1)	8	N/A	2015/08/06	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	8	N/A	2015/08/06	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	8	N/A	2015/08/07	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	8	N/A	2015/08/07	ATL SOP 00049	Auto Calc.
Reactive Silica	8	N/A	2015/08/06	ATL SOP 00022	EPA 366.0 m
Sulphate	8	N/A	2015/08/07	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	8	N/A	2015/08/07		Auto Calc.
Organic carbon - Total (TOC) (2)	8	N/A	2015/08/05	ATL SOP 00037	SM 22 5310C m
Turbidity	8	N/A	2015/08/07	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.

(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: 523658-01-01

Attention:Amanda Facey

GHD Limited
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/08/07
Report #: R3620816
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5F0835
Received: 2015/07/30, 09:12

<Original signed by>
Rachael Mansfield
07 Aug 2015 16:34:59 -03:00

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		ASJ208	ASJ209	ASJ210		ASJ211		
Sampling Date		2015/07/29 14:15	2015/07/29 14:45	2015/07/29 15:27		2015/07/29 15:55		
COC Number		523658-01-01	523658-01-01	523658-01-01		523658-01-01		
	Units	SW-1	SW-2A	SW-4A	RDL	SW-5	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	0.0800	0.0800	0.0700	N/A	0.360	N/A	4128401
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	<1.0	1.0	11	1.0	4128398
Calculated TDS	mg/L	10	9.0	9.0	1.0	21	1.0	4127241
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	<1.0	1.0	<1.0	1.0	4128398
Cation Sum	me/L	0.180	0.180	0.190	N/A	0.340	N/A	4128401
Hardness (CaCO3)	mg/L	3.3	2.9	3.6	1.0	12	1.0	4128399
Ion Balance (% Difference)	%	38.5	38.5	46.2	N/A	2.86	N/A	4128400
Langelier Index (@ 20C)	N/A	NC	NC	NC		-2.84		4127239
Langelier Index (@ 4C)	N/A	NC	NC	NC		-3.09		4127240
Nitrate (N)	mg/L	0.051	<0.050	<0.050	0.050	<0.050	0.050	4128388
Saturation pH (@ 20C)	N/A	NC	NC	NC		9.66		4127239
Saturation pH (@ 4C)	N/A	NC	NC	NC		9.92		4127240
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	<5.0	<5.0	5.0	11	5.0	4134526
Dissolved Chloride (Cl)	mg/L	2.8	2.8	2.6	1.0	1.7	1.0	4134529
Colour	TCU	160	180	170	25	24	5.0	4134542
Nitrate + Nitrite	mg/L	0.051	<0.050	<0.050	0.050	<0.050	0.050	4134544
Nitrite (N)	mg/L	<0.010	<0.010	<0.010	0.010	<0.010	0.010	4134547
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	<0.050	<0.050	0.050	<0.050	0.050	4134239
Total Organic Carbon (C)	mg/L	12	13	18	0.50	5.3	0.50	4133762
Orthophosphate (P)	mg/L	<0.010	<0.010	<0.010	0.010	<0.010	0.010	4134543
pH	pH	5.57	5.26	5.09	N/A	6.83	N/A	4135976
Reactive Silica (SiO2)	mg/L	2.6	2.6	2.3	0.50	0.77	0.50	4134540
Dissolved Sulphate (SO4)	mg/L	<2.0	<2.0	<2.0	2.0	4.5	2.0	4134539
Turbidity	NTU	1.1	0.97	0.81	0.10	0.91	0.10	4138515
Conductivity	uS/cm	18	19	19	1.0	32	1.0	4135978

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

RESULTS OF ANALYSES OF WATER

Maxxam ID		ASJ212		ASJ213		ASJ214		ASJ215		
Sampling Date		2015/07/29 16:21		2015/07/29 16:48		2015/07/29 15:48		2015/07/29 16:48		
COC Number		523658-01-01		523658-01-01		523658-01-01		523658-01-01		
	Units	SW-6A	QC Batch	SW-9	RDL	SW-10	RDL	SW-9D	RDL	QC Batch
Calculated Parameters										
Anion Sum	me/L	0.0700	4128401	0.250	N/A	0.580	N/A	0.250	N/A	4128401
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	4128398	5.6	1.0	11	1.0	5.5	1.0	4128398
Calculated TDS	mg/L	8.0	4128391	18	1.0	39	1.0	18	1.0	4128391
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	4128398	<1.0	1.0	<1.0	1.0	<1.0	1.0	4128398
Cation Sum	me/L	0.170	4128401	0.330	N/A	0.510	N/A	0.340	N/A	4128401
Hardness (CaCO3)	mg/L	3.2	4128399	8.0	1.0	20	1.0	8.2	1.0	4128399
Ion Balance (% Difference)	%	41.7	4128400	13.8	N/A	6.42	N/A	15.3	N/A	4128400
Langelier Index (@ 20C)	N/A	NC	4128389	-3.90		-3.09		-3.83		4128389
Langelier Index (@ 4C)	N/A	NC	4128390	-4.16		-3.35		-4.08		4128390
Nitrate (N)	mg/L	<0.050	4128388	0.064	0.050	0.070	0.050	<0.050	0.050	4128388
Saturation pH (@ 20C)	N/A	NC	4128389	10.3		9.46		10.3		4128389
Saturation pH (@ 4C)	N/A	NC	4128390	10.5		9.71		10.5		4128390
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	4134526	5.6	5.0	11	5.0	5.5	5.0	4134552
Dissolved Chloride (Cl)	mg/L	2.4	4134529	4.8	1.0	2.2	1.0	4.9	1.0	4134582
Colour	TCU	140	4134542	130	25	<5.0	5.0	130	25	4134598
Nitrate + Nitrite	mg/L	<0.050	4134544	0.064	0.050	0.070	0.050	<0.050	0.050	4134601
Nitrite (N)	mg/L	<0.010	4134547	<0.010	0.010	<0.010	0.010	<0.010	0.010	4134603
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	4134239	<0.050	0.050	<0.050	0.050	<0.050	0.050	4134239
Total Organic Carbon (C)	mg/L	13	4133762	12	0.50	1.8	0.50	12	0.50	4133762
Orthophosphate (P)	mg/L	<0.010	4134543	<0.010	0.010	0.012	0.010	<0.010	0.010	4134599
pH	pH	5.50	4135976	6.36	N/A	6.37	N/A	6.43	N/A	4135976
Reactive Silica (SiO2)	mg/L	1.6	4134540	2.7	0.50	6.0	0.50	2.6	0.50	4134596
Dissolved Sulphate (SO4)	mg/L	<2.0	4134539	<2.0	2.0	14	2.0	<2.0	2.0	4134594
Turbidity	NTU	0.49	4138515	1.0	0.10	<0.10	0.10	0.93	0.10	4138515
Conductivity	uS/cm	16	4135978	30	1.0	54	1.0	30	1.0	4135978

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		ASJ208	ASJ209	ASJ210	ASJ211	ASJ212	ASJ213		
Sampling Date		2015/07/29 14:15	2015/07/29 14:45	2015/07/29 15:27	2015/07/29 15:55	2015/07/29 16:21	2015/07/29 16:48		
COC Number		523658-01-01	523658-01-01	523658-01-01	523658-01-01	523658-01-01	523658-01-01		
	Units	**SW-1**	**SW-2A**	**SW-4A**	**SW-5**	**SW-6A**	**SW-9**	**RDL**	**QC Batch**
Metals									
Total Mercury (Hg)	ug/L	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	0.013	4133159

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Maxxam ID		ASJ214		ASJ215		
Sampling Date		2015/07/29 15:48		2015/07/29 16:48		
COC Number		523658-01-01		523658-01-01		
	Units	**SW-10**	**QC Batch**	**SW-9D**	**RDL**	**QC Batch**
Metals						
Total Mercury (Hg)	ug/L	<0.013	4133159	0.013	0.013	4136068

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		ASJ208	ASJ209	ASJ210	ASJ211	ASJ212	ASJ213		
Sampling Date		2015/07/29 14:15	2015/07/29 14:45	2015/07/29 15:27	2015/07/29 15:55	2015/07/29 16:21	2015/07/29 16:48		
COC Number		523658-01-01	523658-01-01	523658-01-01	523658-01-01	523658-01-01	523658-01-01		
	Units	SW-1	SW-2A	SW-4A	SW-5	SW-6A	SW-9	RDL	QC Batch
Metals									
Total Aluminum (Al)	ug/L	280	300	350	43	320	260	5.0	4133678
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4133678
Total Arsenic (As)	ug/L	3.7	1.5	5.6	20	2.8	<1.0	1.0	4133678
Total Barium (Ba)	ug/L	3.2	3.5	3.7	4.1	3.1	3.4	1.0	4133678
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4133678
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4133678
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	50	4133678
Total Cadmium (Cd)	ug/L	0.014	0.017	0.014	<0.010	0.012	<0.010	0.010	4133678
Total Calcium (Ca)	ug/L	790	620	860	3800	770	1800	100	4133678
Total Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4133678
Total Cobalt (Co)	ug/L	<0.40	<0.40	0.63	<0.40	<0.40	<0.40	0.40	4133678
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4133678
Total Iron (Fe)	ug/L	750	820	840	610	750	490	50	4133678
Total Lead (Pb)	ug/L	<0.50	0.62	0.56	<0.50	<0.50	<0.50	0.50	4133678
Total Magnesium (Mg)	ug/L	310	330	360	720	310	830	100	4133678
Total Manganese (Mn)	ug/L	43	40	42	45	38	56	2.0	4133678
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4133678
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4133678
Total Phosphorus (P)	ug/L	170	170	150	170	160	160	100	4133678
Total Potassium (K)	ug/L	210	200	180	350	200	210	100	4133678
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4133678
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4133678
Total Sodium (Na)	ug/L	1900	1900	1700	1500	1700	3300	100	4133678
Total Strontium (Sr)	ug/L	6.3	6.3	6.4	25	5.5	6.5	2.0	4133678
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4133678
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4133678
Total Titanium (Ti)	ug/L	3.7	4.6	3.8	<2.0	3.5	3.6	2.0	4133678
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	0.10	4133678
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4133678
Total Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	4133678

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		ASJ214	ASJ215		
Sampling Date		2015/07/29 15:48	2015/07/29 16:48		
COC Number		523658-01-01	523658-01-01		
	Units	SW-10	SW-9D	RDL	QC Batch
Metals					
Total Aluminum (Al)	ug/L	28	270	5.0	4133678
Total Antimony (Sb)	ug/L	<1.0	<1.0	1.0	4133678
Total Arsenic (As)	ug/L	36	<1.0	1.0	4133678
Total Barium (Ba)	ug/L	7.3	3.3	1.0	4133678
Total Beryllium (Be)	ug/L	<1.0	<1.0	1.0	4133678
Total Bismuth (Bi)	ug/L	<2.0	<2.0	2.0	4133678
Total Boron (B)	ug/L	<50	<50	50	4133678
Total Cadmium (Cd)	ug/L	0.10	<0.010	0.010	4133678
Total Calcium (Ca)	ug/L	6400	1900	100	4133678
Total Chromium (Cr)	ug/L	<1.0	1.3	1.0	4133678
Total Cobalt (Co)	ug/L	1.4	<0.40	0.40	4133678
Total Copper (Cu)	ug/L	3.6	<2.0	2.0	4133678
Total Iron (Fe)	ug/L	78	510	50	4133678
Total Lead (Pb)	ug/L	<0.50	<0.50	0.50	4133678
Total Magnesium (Mg)	ug/L	900	840	100	4133678
Total Manganese (Mn)	ug/L	78	60	2.0	4133678
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	2.0	4133678
Total Nickel (Ni)	ug/L	8.7	<2.0	2.0	4133678
Total Phosphorus (P)	ug/L	170	170	100	4133678
Total Potassium (K)	ug/L	790	240	100	4133678
Total Selenium (Se)	ug/L	<1.0	<1.0	1.0	4133678
Total Silver (Ag)	ug/L	<0.10	<0.10	0.10	4133678
Total Sodium (Na)	ug/L	2100	3500	100	4133678
Total Strontium (Sr)	ug/L	26	5.9	2.0	4133678
Total Thallium (Tl)	ug/L	<0.10	<0.10	0.10	4133678
Total Tin (Sn)	ug/L	<2.0	<2.0	2.0	4133678
Total Titanium (Ti)	ug/L	<2.0	4.9	2.0	4133678
Total Uranium (U)	ug/L	<0.10	0.13	0.10	4133678
Total Vanadium (V)	ug/L	<2.0	<2.0	2.0	4133678
Total Zinc (Zn)	ug/L	19	<5.0	5.0	4133678

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	5.0°C

Sample ASJ208-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ASJ209-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ASJ210-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ASJ212-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ASJ213-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ASJ214-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample ASJ215-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

QUALITY ASSURANCE REPORT

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4133159	Total Mercury (Hg)	2015/08/05	113	80 - 120	105	80 - 120	<0.013	ug/L	NC (1)	20		
4133678	Total Aluminum (Al)	2015/08/07	102	80 - 120	103	80 - 120	<5.0	ug/L	NC (1)	20		
4133678	Total Antimony (Sb)	2015/08/07	105	80 - 120	103	80 - 120	<1.0	ug/L	NC (1)	20		
4133678	Total Arsenic (As)	2015/08/07	101	80 - 120	102	80 - 120	<1.0	ug/L	NC (1)	20		
4133678	Total Barium (Ba)	2015/08/07	100	80 - 120	100	80 - 120	<1.0	ug/L	NC (1)	20		
4133678	Total Beryllium (Be)	2015/08/07	102	80 - 120	102	80 - 120	<1.0	ug/L	NC (1)	20		
4133678	Total Bismuth (Bi)	2015/08/07	104	80 - 120	104	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Boron (B)	2015/08/07	105	80 - 120	105	80 - 120	<50	ug/L	NC (1)	20		
4133678	Total Cadmium (Cd)	2015/08/07	102	80 - 120	103	80 - 120	<0.010	ug/L	NC (1)	20		
4133678	Total Calcium (Ca)	2015/08/07	102	80 - 120	103	80 - 120	<100	ug/L	NC (1)	20		
4133678	Total Chromium (Cr)	2015/08/07	99	80 - 120	100	80 - 120	<1.0	ug/L	NC (1)	20		
4133678	Total Cobalt (Co)	2015/08/07	101	80 - 120	100	80 - 120	<0.40	ug/L	NC (1)	20		
4133678	Total Copper (Cu)	2015/08/07	NC	80 - 120	100	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Iron (Fe)	2015/08/07	105	80 - 120	106	80 - 120	<50	ug/L	NC (1)	20		
4133678	Total Lead (Pb)	2015/08/07	102	80 - 120	103	80 - 120	<0.50	ug/L	NC (1)	20		
4133678	Total Magnesium (Mg)	2015/08/07	105	80 - 120	106	80 - 120	<100	ug/L	NC (1)	20		
4133678	Total Manganese (Mn)	2015/08/07	102	80 - 120	103	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Molybdenum (Mo)	2015/08/07	106	80 - 120	106	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Nickel (Ni)	2015/08/07	100	80 - 120	101	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Phosphorus (P)	2015/08/07	105	80 - 120	106	80 - 120	150, RDL=100	ug/L	NC (1)	20		
4133678	Total Potassium (K)	2015/08/07	101	80 - 120	101	80 - 120	<100	ug/L	NC (1)	20		
4133678	Total Selenium (Se)	2015/08/07	101	80 - 120	100	80 - 120	<1.0	ug/L	NC (1)	20		
4133678	Total Silver (Ag)	2015/08/07	107	80 - 120	107	80 - 120	<0.10	ug/L	NC (1)	20		
4133678	Total Sodium (Na)	2015/08/07	103	80 - 120	104	80 - 120	<100	ug/L	1.7 (1)	20		
4133678	Total Strontium (Sr)	2015/08/07	103	80 - 120	104	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Thallium (Tl)	2015/08/07	101	80 - 120	102	80 - 120	<0.10	ug/L	NC (1)	20		
4133678	Total Tin (Sn)	2015/08/07	104	80 - 120	106	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Titanium (Ti)	2015/08/07	102	80 - 120	100	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Uranium (U)	2015/08/07	108	80 - 120	108	80 - 120	<0.10	ug/L	NC (1)	20		
4133678	Total Vanadium (V)	2015/08/07	102	80 - 120	103	80 - 120	<2.0	ug/L	NC (1)	20		
4133678	Total Zinc (Zn)	2015/08/07	100	80 - 120	101	80 - 120	<5.0	ug/L	NC (1)	20		

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4133762	Total Organic Carbon (C)	2015/08/05	NC	80 - 120	103	80 - 120	<0.50	mg/L	1.3 (1)	20		
4134239	Nitrogen (Ammonia Nitrogen)	2015/08/05	87	80 - 120	93	80 - 120	<0.050	mg/L	NC (1)	20		
4134526	Total Alkalinity (Total as CaCO3)	2015/08/06	101	80 - 120	104	80 - 120	<5.0	mg/L	NC (1)	25		
4134529	Dissolved Chloride (Cl)	2015/08/07	NC	80 - 120	98	80 - 120	<1.0	mg/L	0.91 (1)	25	105	80 - 120
4134539	Dissolved Sulphate (SO4)	2015/08/07	115	80 - 120	104	80 - 120	<2.0	mg/L	NC (1)	25		
4134540	Reactive Silica (SiO2)	2015/08/06	97	80 - 120	99	80 - 120	<0.50	mg/L	1.7 (1)	25		
4134542	Colour	2015/08/06			95	80 - 120	<5.0	TCU	3.7 (1)	20		
4134543	Orthophosphate (P)	2015/08/06	102	80 - 120	99	80 - 120	<0.010	mg/L	NC (1)	25		
4134544	Nitrate + Nitrite	2015/08/07	99	80 - 120	100	80 - 120	<0.050	mg/L	NC (1)	25		
4134547	Nitrite (N)	2015/08/06	94	80 - 120	97	80 - 120	<0.010	mg/L	NC (1)	25		
4134552	Total Alkalinity (Total as CaCO3)	2015/08/06	104	80 - 120	107	80 - 120	<5.0	mg/L	NC (1)	25		
4134582	Dissolved Chloride (Cl)	2015/08/07	NC	80 - 120	108	80 - 120	<1.0	mg/L	5.1 (1)	25	101	80 - 120
4134594	Dissolved Sulphate (SO4)	2015/08/07	109	80 - 120	119	80 - 120	<2.0	mg/L	NC (1)	25		
4134596	Reactive Silica (SiO2)	2015/08/06	NC	80 - 120	97	80 - 120	<0.50	mg/L	8.2 (1)	25		
4134598	Colour	2015/08/06			96	80 - 120	<5.0	TCU	NC (1)	20		
4134599	Orthophosphate (P)	2015/08/06	95	80 - 120	98	80 - 120	<0.010	mg/L	NC (1)	25		
4134601	Nitrate + Nitrite	2015/08/07	95	80 - 120	97	80 - 120	<0.050	mg/L	NC (1)	25		
4134603	Nitrite (N)	2015/08/06	99	80 - 120	99	80 - 120	<0.010	mg/L	NC (1)	25		
4135976	pH	2015/08/06							0.66 (1)	N/A	101	97 - 103
4135978	Conductivity	2015/08/06			99	80 - 120	1.1, RDL=1.0	uS/cm	1.1 (1)	25		
4136068	Total Mercury (Hg)	2015/08/06	99	80 - 120	89	80 - 120	<0.013	ug/L	NC (1)	20		

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
4138515	Turbidity	2015/08/07					<0.10	NTU	NC (1)	25	102	80 - 120

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Duplicate Parent ID

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Maxxam Job #: B5F0835
Report Date: 2015/08/07

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Kevin MacDonald, Inorganics Supervisor

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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Maxxam Analytics International Corporation o/a Maxxam Analytics
200 Bluewater Road, Bedford, Nova Scotia Canada B4B 1G9 Tel:(902) 420-0203 Toll-Free:800-563-6266 Fax:(902) 420-8612 www.maxxam.ca

Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#16276 GHD Limited	Company Name		Quotation #	B46955	Maxxam Job #	Bottle Order #:
Contact Name	Trina Jeffrey	Contact Name	Amanda Facey	P.O. #	20-019340	B5F0835	523658
Address	45 Akerley Blvd Dartmouth NS B3B 1J7	Address		Project #	088864-05	Chain Of Custody Record	Project Manager
Phone	(902) 468-1248 Fax: (902) 468-2207	Phone	(902) 468-1248 Fax: (902) 468-2207	Project Name	ATLANTIC GOLD - BEATTIE DAM	C#523658-01-01	Michelle Hill
Email	tjeffrey@craworld.com	Email	amanda.facey@ghd.com, NationalEDDsupport@maxxa	Site #			
				Sampled By	DAWN NEGUS / ZACH JENKINS		

Regulatory Criteria:

Special Instructions

** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: (will be applied if Rush TAT is not specified): X

Standard TAT = 5-7 Working days for most tests.

Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)

Date Required: Time Required:

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	RCAp-MS Total Metals in Water	Mercury - Total (CVAA,LL)	# of Bottles	Comments / Hazards / Other Required Analysis
1		SW-1	29/7/15	14:15	SW	X		X	X	5	
2		SW-2A	29/7/15	14:45	SW	X		X	X	5	
3		SW-4A	29/7/15	15:27	SW	X		X	X	5	
		SW-5	29/7/15	15:55	SW	X		X	X	5	
		SW-6A	29/7/15	16:21	SW	X		X	X	5	
		SW-9	29/7/15	16:48	SW	X		X	X	5	
		SW-10	29/7/15	15:48	SW	X		X	X	5	
		SW-9D	29/7/15	16:48	SW	X		X	X	5	

B5F0835

'15 JUL 30 12:54

'15 JUL 30 9:12

* * RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
<Original signed by> DAWN NEGUS	15/07/30	9:12	<Original signed by>			0	☐	6 6 3	☐ Yes ☐ No
			<Original signed by> SARA MASON						

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: N/A

Attention:Dawn Negus

GHD Limited
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/09/01
Report #: R3647471
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5H0151
Received: 2015/08/25, 10:09

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	3	N/A	2015/08/28	N/A	SM 22 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide	5	N/A	2015/08/31	N/A	SM 22 4500-CO2 D
Alkalinity	8	N/A	2015/08/31	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	8	N/A	2015/09/01	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	8	N/A	2015/08/31	ATL SOP 00020	SM 22 2120C m
Conductance - water	8	N/A	2015/08/28	ATL SOP 00004	SM 22 2510B m
Hardness (calculated as CaCO3)	8	N/A	2015/09/01	ATL SOP 00048	SM 22 2340 B
Mercury - Total (CVAA,LL)	8	2015/08/31	2015/08/31	ATL SOP 00026	EPA 245.1 R3 m
Metals Water Total MS	8	2015/08/28	2015/08/31	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	8	N/A	2015/09/01		Auto Calc.
Anion and Cation Sum	8	N/A	2015/09/01		Auto Calc.
Nitrogen Ammonia - water	8	N/A	2015/08/31	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	8	N/A	2015/09/01	ATL SOP 00016	USGS SOPINCF0452.2 m
Nitrogen - Nitrite	8	N/A	2015/08/31	ATL SOP 00017	SM 22 4500-NO2- B m
Nitrogen - Nitrate (as N)	8	N/A	2015/09/01	ATL SOP 00018	ASTM D3867
pH (1)	8	N/A	2015/08/28	ATL SOP 00003	SM 22 4500-H+ B m
Phosphorus - ortho	8	N/A	2015/08/31	ATL SOP 00021	EPA 365.2 m
Sat. pH and Langelier Index (@ 20C)	8	N/A	2015/09/01	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	8	N/A	2015/09/01	ATL SOP 00049	Auto Calc.
Reactive Silica	8	N/A	2015/09/01	ATL SOP 00022	EPA 366.0 m
Sulphate	8	N/A	2015/09/01	ATL SOP 00023	EPA 375.4 R1978 m
Total Dissolved Solids (TDS calc)	8	N/A	2015/09/01		Auto Calc.
Organic carbon - Total (TOC) (2)	8	N/A	2015/09/01	ATL SOP 00037	SM 22 5310C m
Turbidity	8	N/A	2015/08/28	ATL SOP 00011	EPA 180.1 R2 m

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.

(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Success Through Science®

Your P.O. #: 20-019340
Your Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your C.O.C. #: N/A

Attention:Dawn Negus
GHD Limited
45 Akerley Blvd
Dartmouth , NS
B3B 1J7

Report Date: 2015/09/01
Report #: R3647471
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B5H0151
Received: 2015/08/25, 10:09

Encryption Key

<Original signed by> Rachael Mansfield
01 Sep 2015 16:16:12 -03:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Michelle Hill, Project Manager
Email: MHill@maxxam.ca
Phone# (902)420-0203 Ext:289

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B5H0151
Report Date: 2015/09/01

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		AWD356			AWD357	AWD358			AWD359		
Sampling Date		2015/08/24 14:04			2015/08/24 10:40	2015/08/24 11:30			2015/08/24 13:33		
COC Number		N/A			N/A	N/A			N/A		
	UNITS	SW-1	RDL	QC Batch	SW-2A	SW-4A	RDL	QC Batch	SW-5	RDL	QC Batch
Calculated Parameters											
Anion Sum	me/L	0.100	N/A	4164169	0.100	0.110	N/A	4164169	0.410	N/A	4164169
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4164165	<1.0	<1.0	1.0	4164165	13	1.0	4164165
Calculated TDS	mg/L	12	1.0	4164173	12	12	1.0	4164173	25	1.0	4164173
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	4164165	<1.0	<1.0	1.0	4164165	<1.0	1.0	4164165
Cation Sum	me/L	0.230	N/A	4164169	0.220	0.230	N/A	4164169	0.420	N/A	4164169
Hardness (CaCO3)	mg/L	4.0	1.0	4164167	3.6	3.9	1.0	4164167	15	1.0	4164167
Ion Balance (% Difference)	%	39.4	N/A	4164168	37.5	35.3	N/A	4164168	1.20	N/A	4164168
Langelier Index (@ 20C)	N/A	NC		4164171	NC	NC		4164171	-2.55		4164171
Langelier Index (@ 4C)	N/A	NC		4164172	NC	NC		4164172	-2.80		4164172
Nitrate (N)	mg/L	<0.050	0.050	4164170	<0.050	<0.050	0.050	4164170	0.055	0.050	4164170
Saturation pH (@ 20C)	N/A	NC		4164171	NC	NC		4164171	9.50		4164171
Saturation pH (@ 4C)	N/A	NC		4164172	NC	NC		4164172	9.75		4164172
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	5.0	4168809	<5.0	<5.0	5.0	4168809	13	5.0	4168809
Dissolved Chloride (Cl)	mg/L	3.7	1.0	4168823	3.7	3.7	1.0	4168823	2.2	1.0	4168823
Colour	TCU	230	25	4168833	230	260	50	4168833	37	5.0	4168833
Nitrate + Nitrite	mg/L	<0.050	0.050	4168838	<0.050	<0.050	0.050	4168838	0.055	0.050	4168838
Nitrite (N)	mg/L	<0.010	0.010	4168842	<0.010	<0.010	0.010	4168842	<0.010	0.010	4168842
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	4169316	0.084	<0.050	0.050	4169316	<0.050	0.050	4169316
Total Organic Carbon (C)	mg/L	11 (1)	5.0	4172579	14 (1)	14 (1)	5.0	4172599	4.3	0.50	4172599
Orthophosphate (P)	mg/L	<0.010	0.010	4168837	<0.010	<0.010	0.010	4168837	0.011	0.010	4168837
pH	pH	5.59	N/A	4168309	5.16	4.93	N/A	4168309	6.95	N/A	4168375
Reactive Silica (SiO2)	mg/L	3.2	0.50	4168830	3.2	3.0	0.50	4168830	2.5	0.50	4168830
Dissolved Sulphate (SO4)	mg/L	<2.0	2.0	4168826	<2.0	<2.0	2.0	4168826	3.6	2.0	4168826
Turbidity	NTU	1.2	0.10	4168900	1.9	1.0	0.10	4168900	1.2	0.10	4168900
Conductivity	uS/cm	21	1.0	4168318	21	21	1.0	4168318	40	1.0	4168392

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		AWD360	AWD361		AWD362	AWD363		
Sampling Date		2015/08/24 12:27	2015/08/24 14:25		2015/08/24 13:52	2015/08/24 13:52		
COC Number		N/A	N/A		N/A	N/A		
	UNITS	SW-6A	SW-9	RDL	SW-10	SW-10D	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	0.100	0.150	N/A	0.770	0.780	N/A	4164169
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	1.0	25	25	1.0	4164165
Calculated TDS	mg/L	12	15	1.0	55	55	1.0	4164173
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	1.0	<1.0	<1.0	1.0	4164165
Cation Sum	me/L	0.240	0.330	N/A	0.960	0.960	N/A	4164169
Hardness (CaCO3)	mg/L	4.4	7.5	1.0	30	30	1.0	4164167
Ion Balance (% Difference)	%	41.2	37.5	N/A	11.0	10.3	N/A	4164168
Langelier Index (@ 20C)	N/A	NC	NC		-2.67	-2.60		4164171
Langelier Index (@ 4C)	N/A	NC	NC		-2.92	-2.85		4164172
Nitrate (N)	mg/L	<0.050	<0.050	0.050	<0.050	<0.050	0.050	4164170
Saturation pH (@ 20C)	N/A	NC	NC		8.91	8.91		4164171
Saturation pH (@ 4C)	N/A	NC	NC		9.16	9.16		4164172
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	<5.0	<5.0	5.0	25	25	5.0	4168809
Dissolved Chloride (Cl)	mg/L	3.5	5.4	1.0	2.9	3.1	1.0	4168823
Colour	TCU	220	180	25	100	110	25	4168833
Nitrate + Nitrite	mg/L	<0.050	<0.050	0.050	<0.050	<0.050	0.050	4168838
Nitrite (N)	mg/L	<0.010	<0.010	0.010	<0.010	<0.010	0.010	4168842
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	<0.050	0.050	0.10	0.19	0.050	4169316
Total Organic Carbon (C)	mg/L	12 (1)	11 (1)	5.0	7.6	7.4	0.50	4172599
Orthophosphate (P)	mg/L	<0.010	<0.010	0.010	0.064	0.064	0.010	4168837
pH	pH	5.37	6.05	N/A	6.24	6.31	N/A	4168354
Reactive Silica (SiO2)	mg/L	2.7	2.3	0.50	7.0	7.0	0.50	4168830
Dissolved Sulphate (SO4)	mg/L	<2.0	<2.0	2.0	8.8	8.9	2.0	4168826
Turbidity	NTU	0.54	0.82	0.10	10	8.3	0.10	4168900
Conductivity	uS/cm	20	29	1.0	75	76	1.0	4168347

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
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(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

MERCURY BY COLD VAPOUR AA (WATER)

Maxxam ID		AWD356	AWD356	AWD357	AWD358	AWD359	AWD360	AWD361		
Sampling Date		2015/08/24 14:04	2015/08/24 14:04	2015/08/24 10:40	2015/08/24 11:30	2015/08/24 13:33	2015/08/24 12:27	2015/08/24 14:25		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	SW-1	SW-1 Lab-Dup	SW-2A	SW-4A	SW-5	SW-6A	SW-9	RDL	QC Batch
Metals										
Total Mercury (Hg)	ug/L	0.032	0.035	0.035	0.028	0.027	0.035	0.032	0.013	4170872

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		AWD362	AWD363		
Sampling Date		2015/08/24 13:52	2015/08/24 13:52		
COC Number		N/A	N/A		
	UNITS	SW-10	SW-10D	RDL	QC Batch
Metals					
Total Mercury (Hg)	ug/L	0.025	0.028	0.013	4170872

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		AWD356	AWD357	AWD358	AWD359	AWD360	AWD361	AWD362		
Sampling Date		2015/08/24 14:04	2015/08/24 10:40	2015/08/24 11:30	2015/08/24 13:33	2015/08/24 12:27	2015/08/24 14:25	2015/08/24 13:52		
COC Number		N/A	N/A	N/A	N/A	N/A	N/A	N/A		
	UNITS	SW-1	SW-2A	SW-4A	SW-5	SW-6A	SW-9	SW-10	RDL	QC Batch
Metals										
Total Aluminum (Al)	ug/L	390	400	390	52	470	320	220	5.0	4168208
Total Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4168208
Total Arsenic (As)	ug/L	4.1	1.3	5.6	47	7.6	<1.0	380	1.0	4168208
Total Barium (Ba)	ug/L	4.2	4.6	3.4	4.5	3.8	4.2	7.1	1.0	4168208
Total Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4168208
Total Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4168208
Total Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	<50	50	4168208
Total Cadmium (Cd)	ug/L	0.036	0.022	0.021	<0.010	0.031	0.015	0.011	0.010	4168208
Total Calcium (Ca)	ug/L	900	770	930	4500	1000	1700	10000	100	4168208
Total Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4168208
Total Cobalt (Co)	ug/L	0.57	0.53	0.48	<0.40	1.0	<0.40	2.2	0.40	4168208
Total Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4168208
Total Iron (Fe)	ug/L	1000	1000	1100	750	1500	580	6000	50	4168208
Total Lead (Pb)	ug/L	0.58	0.57	0.55	<0.50	<0.50	<0.50	1.1	0.50	4168208
Total Magnesium (Mg)	ug/L	420	420	370	870	430	810	1200	100	4168208
Total Manganese (Mn)	ug/L	65	58	51	97	100	76	290	2.0	4168208
Total Molybdenum (Mo)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4168208
Total Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	6.2	2.0	4168208
Total Phosphorus (P)	ug/L	140	140	150	150	150	160	140	100	4168208
Total Potassium (K)	ug/L	190	170	200	450	240	180	1000	100	4168208
Total Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	4168208
Total Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4168208
Total Sodium (Na)	ug/L	2400	2300	2200	2000	2200	3500	2500	100	4168208
Total Strontium (Sr)	ug/L	8.0	7.4	7.2	27	7.6	6.6	33	2.0	4168208
Total Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	4168208
Total Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4168208
Total Titanium (Ti)	ug/L	4.2	5.0	4.9	<2.0	4.3	4.3	2.8	2.0	4168208
Total Uranium (U)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	0.21	0.10	4168208
Total Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	4168208
Total Zinc (Zn)	ug/L	<5.0	<5.0	6.0	<5.0	<5.0	<5.0	<5.0	5.0	4168208

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		AWD363		
Sampling Date		2015/08/24 13:52		
COC Number		N/A		
	UNITS	SW-10D	RDL	QC Batch
Metals				
Total Aluminum (Al)	ug/L	210	5.0	4168208
Total Antimony (Sb)	ug/L	<1.0	1.0	4168208
Total Arsenic (As)	ug/L	370	1.0	4168208
Total Barium (Ba)	ug/L	6.9	1.0	4168208
Total Beryllium (Be)	ug/L	<1.0	1.0	4168208
Total Bismuth (Bi)	ug/L	<2.0	2.0	4168208
Total Boron (B)	ug/L	<50	50	4168208
Total Cadmium (Cd)	ug/L	<0.010	0.010	4168208
Total Calcium (Ca)	ug/L	10000	100	4168208
Total Chromium (Cr)	ug/L	<1.0	1.0	4168208
Total Cobalt (Co)	ug/L	2.3	0.40	4168208
Total Copper (Cu)	ug/L	<2.0	2.0	4168208
Total Iron (Fe)	ug/L	5900	50	4168208
Total Lead (Pb)	ug/L	1.2	0.50	4168208
Total Magnesium (Mg)	ug/L	1200	100	4168208
Total Manganese (Mn)	ug/L	280	2.0	4168208
Total Molybdenum (Mo)	ug/L	<2.0	2.0	4168208
Total Nickel (Ni)	ug/L	6.1	2.0	4168208
Total Phosphorus (P)	ug/L	140	100	4168208
Total Potassium (K)	ug/L	1000	100	4168208
Total Selenium (Se)	ug/L	<1.0	1.0	4168208
Total Silver (Ag)	ug/L	<0.10	0.10	4168208
Total Sodium (Na)	ug/L	2400	100	4168208
Total Strontium (Sr)	ug/L	33	2.0	4168208
Total Thallium (Tl)	ug/L	<0.10	0.10	4168208
Total Tin (Sn)	ug/L	<2.0	2.0	4168208
Total Titanium (Ti)	ug/L	2.9	2.0	4168208
Total Uranium (U)	ug/L	0.20	0.10	4168208
Total Vanadium (V)	ug/L	<2.0	2.0	4168208
Total Zinc (Zn)	ug/L	<5.0	5.0	4168208

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C

Sample AWD356-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AWD357-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AWD358-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AWD360-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AWD361-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AWD362-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample AWD363-01 : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

QUALITY ASSURANCE REPORT

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
4168208	Total Aluminum (Al)	2015/08/29	105	80 - 120	104	80 - 120	<5.0	ug/L				
4168208	Total Antimony (Sb)	2015/08/29	106	80 - 120	100	80 - 120	<1.0	ug/L				
4168208	Total Arsenic (As)	2015/08/29	97	80 - 120	93	80 - 120	<1.0	ug/L				
4168208	Total Barium (Ba)	2015/08/29	101	80 - 120	98	80 - 120	<1.0	ug/L				
4168208	Total Beryllium (Be)	2015/08/29	102	80 - 120	97	80 - 120	<1.0	ug/L				
4168208	Total Bismuth (Bi)	2015/08/29	101	80 - 120	101	80 - 120	<2.0	ug/L				
4168208	Total Boron (B)	2015/08/29	102	80 - 120	96	80 - 120	<50	ug/L				
4168208	Total Cadmium (Cd)	2015/08/29	99	80 - 120	96	80 - 120	<0.010	ug/L				
4168208	Total Calcium (Ca)	2015/08/29	NC	80 - 120	102	80 - 120	<100	ug/L	2.4 (1)	20		
4168208	Total Chromium (Cr)	2015/08/29	97	80 - 120	94	80 - 120	<1.0	ug/L				
4168208	Total Cobalt (Co)	2015/08/29	95	80 - 120	93	80 - 120	<0.40	ug/L				
4168208	Total Copper (Cu)	2015/08/29	93	80 - 120	92	80 - 120	<2.0	ug/L	NC (1)	20		
4168208	Total Iron (Fe)	2015/08/29	NC	80 - 120	98	80 - 120	<50	ug/L	1.5 (1)	20		
4168208	Total Lead (Pb)	2015/08/29	100	80 - 120	98	80 - 120	<0.50	ug/L				
4168208	Total Magnesium (Mg)	2015/08/29	104	80 - 120	103	80 - 120	<100	ug/L	1.6 (1)	20		
4168208	Total Manganese (Mn)	2015/08/29	NC	80 - 120	99	80 - 120	<2.0	ug/L	0.54 (1)	20		
4168208	Total Molybdenum (Mo)	2015/08/29	105	80 - 120	99	80 - 120	<2.0	ug/L				
4168208	Total Nickel (Ni)	2015/08/29	95	80 - 120	94	80 - 120	<2.0	ug/L				
4168208	Total Phosphorus (P)	2015/08/29	104	80 - 120	103	80 - 120	160, RDL=100	ug/L				
4168208	Total Potassium (K)	2015/08/29	NC	80 - 120	104	80 - 120	<100	ug/L	2.6 (1)	20		
4168208	Total Selenium (Se)	2015/08/29	95	80 - 120	93	80 - 120	<1.0	ug/L				
4168208	Total Silver (Ag)	2015/08/29	100	80 - 120	96	80 - 120	<0.10	ug/L				
4168208	Total Sodium (Na)	2015/08/29	NC	80 - 120	102	80 - 120	<100	ug/L	1.9 (1)	20		
4168208	Total Strontium (Sr)	2015/08/29	NC	80 - 120	98	80 - 120	<2.0	ug/L				
4168208	Total Thallium (Tl)	2015/08/29	100	80 - 120	98	80 - 120	<0.10	ug/L				
4168208	Total Tin (Sn)	2015/08/29	104	80 - 120	99	80 - 120	<2.0	ug/L				
4168208	Total Titanium (Ti)	2015/08/29	105	80 - 120	101	80 - 120	<2.0	ug/L				
4168208	Total Uranium (U)	2015/08/29	111	80 - 120	106	80 - 120	<0.10	ug/L				
4168208	Total Vanadium (V)	2015/08/29	99	80 - 120	95	80 - 120	<2.0	ug/L				
4168208	Total Zinc (Zn)	2015/08/29	94	80 - 120	92	80 - 120	<5.0	ug/L	NC (1)	20		

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
4168309	pH	2015/08/28							1.3 (1)	N/A	99	97 - 103
4168318	Conductivity	2015/08/28			98	80 - 120	1.3, RDL=1.0	uS/cm	NC (1)	25		
4168347	Conductivity	2015/08/28			101	80 - 120	1.1, RDL=1.0	uS/cm	0.35 (1)	25		
4168354	pH	2015/08/28							0.66 (1)	N/A	100	97 - 103
4168375	pH	2015/08/28							0.42 (1)	N/A	100	97 - 103
4168392	Conductivity	2015/08/28			100	80 - 120	1.1, RDL=1.0	uS/cm	0.48 (1)	25		
4168809	Total Alkalinity (Total as CaCO3)	2015/08/31	106	80 - 120	103	80 - 120	<5.0	mg/L	NC (1)	25		
4168823	Dissolved Chloride (Cl)	2015/09/01	102	80 - 120	104	80 - 120	<1.0	mg/L	NC (1)	25	105	80 - 120
4168826	Dissolved Sulphate (SO4)	2015/09/01	107	80 - 120	100	80 - 120	<2.0	mg/L	NC (1)	25		
4168830	Reactive Silica (SiO2)	2015/09/01	100	80 - 120	99	80 - 120	<0.50	mg/L	NC (1)	25		
4168833	Colour	2015/08/31			102	80 - 120	<5.0	TCU	NC (1)	20		
4168837	Orthophosphate (P)	2015/08/31	98	80 - 120	97	80 - 120	<0.010	mg/L	NC (1)	25		
4168838	Nitrate + Nitrite	2015/09/01	98	80 - 120	98	80 - 120	<0.050	mg/L	NC (1)	25		
4168842	Nitrite (N)	2015/08/31	95	80 - 120	104	80 - 120	<0.010	mg/L	NC (1)	25		
4168900	Turbidity	2015/08/28					<0.10	NTU	0.33 (1)	25	102	80 - 120
4169316	Nitrogen (Ammonia Nitrogen)	2015/08/31	98	80 - 120	95	80 - 120	<0.050	mg/L	NC (1)	20		
4170872	Total Mercury (Hg)	2015/08/31	101 (2)	80 - 120	101	80 - 120	<0.013	ug/L	NC (3)	20		
4172579	Total Organic Carbon (C)	2015/09/01	91	80 - 120	101	80 - 120	<0.50	mg/L	NC (1)	20		

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
4172599	Total Organic Carbon (C)	2015/09/01	100	80 - 120	97	80 - 120	<0.50	mg/L	NC (1)	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Duplicate Parent ID

(2) Matrix Spike Parent ID [AWD357-05]

(3) Duplicate Parent ID [AWD356-05]

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Maxxam Job #: B5H0151
Report Date: 2015/09/01

GHD Limited
Client Project #: 088664-05
Site Location: ATLANTIC GOLD-BEAVER DAM
Your P.O. #: 20-019340
Sampler Initials: DN

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

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200 Bluewater Road, Bedford, Nova Scotia Canada B4B 1G9 Tel:(902) 420-0203 Toll-Free:800-563-6266 Fax:(902) 420-8612 www.maxxam.ca

Chain Of Custody Record

INVOICE TO:		Report Information		Project Information		Laboratory Use Only	
Company Name	#16276 GHD Limited	Company Name		Quotation #	B37708	Maxxam Job #	Bottle Order #:
Contact Name	Dawn Negus	Contact Name		P.O. #	20-019340	B5H0151	526668
Address	45 Akerley Blvd Dartmouth NS B3B 1J7	Address		Project #	088664-05	Chain Of Custody Record	Project Manager
Phone	(902) 468-1248 Fax: (902) 468-2207	Phone	Fax:	Project Name	ATLANTIC GOLD - BEAVER DAM	C#526668-01-01	Michelle Hill
Email	dnegus@craworld.com	Email		Site #			
				Sampled By	D. NEGUS / K. BAILLIE		

Regulatory Criteria:

Special Instructions

** Specify Matrix: Surface/Ground/Tapwater/Sewage/Effluent/Seawater Potable/Nonpotable/Tissue/Soil/Sludge/Metal

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT:
(will be applied if Rush TAT is not specified): X
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: Time Required:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered & Preserved	Lab Filtration Required	Atlantic RCAp-MS Total Metals in Water	Mercury - Total (CVAA,LL)	# of Bottles	Comments / Hazards / Other Required Analysis
1	B5H0151	SW-1	24/8/15	14:04	SW			X	X	5	
2		SW-2A	24/8/15	10:40	SW			X	X	5	
3		SW-4A	24/8/15	11:30	SW			X	X	5	
4		SW-5	24/8/15	13:33	SW			X	X	5	15 AUG 25 10:09
5		SW-6A	24/8/15	12:27	SW			X	X	5	
6		SW-9	24/8/15	14:25	SW			X	X	5	
7		SW-10	24/8/15	13:52	SW			X	X	5	
8		~~SW-10 SW-10D~~			SW			~~X~~	~~X~~	—	
9		SW-10D	24/8/15	13:52	SW			X	X	5	2015 AUG 25 11:30
10											

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Lab Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
<Original signed by> DAWN NEGUS	15/25/08	10:08	<Original signed by>			0	☐	3 3 2	☐ Yes ☐ No
			<Original signed by>						

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

White: Maxxam Yellow: Client

Maxxam Analytics International Corporation o/a Maxxam Analytics

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 73512044
Your Project #: 088664-20
Site Location: BEAVER DAM
Your C.O.C. #: D34770

Attention: Jeff Parks

GHD Limited
45 Akerley Blvd
Dartmouth , NS
CANADA B3B 1J7

Report Date: 2018/06/26
Report #: R5266818
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8F1147
Received: 2018/06/19, 14:47

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	12	N/A	2018/06/22	N/A	SM 22 4500-CO2 D
Alkalinity	12	N/A	2018/06/25	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	12	N/A	2018/06/22	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	11	N/A	2018/06/22	ATL SOP 00020	SM 22 2120C m
Colour	1	N/A	2018/06/25	ATL SOP 00020	SM 22 2120C m
Conductance - water	12	N/A	2018/06/22	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3)	12	N/A	2018/06/22	ATL SOP 00048	SM 22 2340 B
Metals Water Diss. MS (as rec'd)	12	N/A	2018/06/22	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	12	N/A	2018/06/26	N/A	Auto Calc.
Anion and Cation Sum	12	N/A	2018/06/22	N/A	Auto Calc.
Nitrogen Ammonia - water	12	N/A	2018/06/21	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	12	N/A	2018/06/25	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	12	N/A	2018/06/25	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	12	N/A	2018/06/26	ATL SOP 00018	ASTM D3867-16
pH (1)	12	N/A	2018/06/22	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho	12	N/A	2018/06/22	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	12	N/A	2018/06/26	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	12	N/A	2018/06/26	ATL SOP 00049	Auto Calc.
Reactive Silica	12	N/A	2018/06/25	ATL SOP 00022	EPA 366.0 m
Sulphate	12	N/A	2018/06/22	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	12	N/A	2018/06/26	N/A	Auto Calc.
Organic carbon - Total (TOC) (2)	12	N/A	2018/06/22	ATL SOP 00203	SM 23 5310B m
Turbidity	12	N/A	2018/06/22	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless

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Maxxam
A Bureau Veritas Group Company

Your P.O. #: 73512044
Your Project #: 088664-20
Site Location: BEAVER DAM
Your C.O.C. #: D34770

Attention: Jeff Parks

GHD Limited
45 Akerley Blvd
Dartmouth , NS
CANADA B3B 1J7

Report Date: 2018/06/26
Report #: R5266818
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8F1147
Received: 2018/06/19, 14:47
indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

<Original signed by> Kavya Nair
Project Manager Assistant
26 Jun 2018 13:41:37

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Heather Macumber, Senior Project Manager
Email: HMacumber@maxxam.ca
Phone# (902)420-0203 Ext:226

==========

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZX294	GZX295	GZX296		GZX297			
Sampling Date		2018/06/19 10:29	2018/06/19 10:20	2018/06/19 10:16		2018/06/19 11:12			
COC Number		D34770	D34770	D34770		D34770			
	UNITS	MW-01A	MW-01B	MW-01C	QC Batch	MW-02A	RDL	QC Batch	MDL
Calculated Parameters									
Anion Sum	me/L	0.560	1.56	1.35	5590385	0.330	N/A	5590385	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	18	60	52	5590380	6.0	1.0	5590380	0.20
Calculated TDS	mg/L	37	91	79	5590389	21	1.0	5590389	0.20
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	<1.0	5590380	<1.0	1.0	5590380	0.20
Cation Sum	me/L	0.510	1.47	1.26	5590385	0.260	N/A	5590385	N/A
Hardness (CaCO3)	mg/L	2.2	54	40	5590383	4.9	1.0	5590383	1.0
Ion Balance (% Difference)	%	4.67	2.97	3.45	5590384	11.9	N/A	5590384	N/A
Langelier Index (@ 20C)	N/A	-3.54	-0.512	-1.03	5590387	-4.58		5590387	
Langelier Index (@ 4C)	N/A	-3.79	-0.763	-1.28	5590388	-4.83		5590388	
Nitrate (N)	mg/L	<0.050	<0.050	<0.050	5590281	<0.050	0.050	5590281	N/A
Saturation pH (@ 20C)	N/A	10.3	8.29	8.50	5590387	10.4		5590387	
Saturation pH (@ 4C)	N/A	10.5	8.55	8.75	5590388	10.7		5590388	
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	18	61	52	5593768	6.0	5.0	5593768	N/A
Dissolved Chloride (Cl)	mg/L	4.8	4.4	4.7	5593775	5.4	1.0	5593775	N/A
Colour	TCU	<5.0	<5.0	6.5	5593779	<5.0	5.0	5593779	N/A
Nitrate + Nitrite (N)	mg/L	<0.050	<0.050	<0.050	5593781	<0.050	0.050	5593781	N/A
Nitrite (N)	mg/L	<0.010	<0.010	<0.010	5593783	<0.010	0.010	5593783	N/A
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	<0.050	<0.050	5592399	<0.050	0.050	5592423	N/A
Total Organic Carbon (C)	mg/L	1.3	2.6	1.9	5592255	1.2	0.50	5592255	N/A
Orthophosphate (P)	mg/L	<0.010	<0.010	<0.010	5593780	<0.010	0.010	5593780	N/A
pH	pH	6.75	7.78	7.47	5593693	5.83	N/A	5593691	N/A
Reactive Silica (SiO2)	mg/L	6.3	9.4	7.5	5593778	3.2	0.50	5593778	N/A
Dissolved Sulphate (SO4)	mg/L	3.0	11	8.7	5593777	2.6	2.0	5593777	N/A
Turbidity	NTU	29	7.1	17	5593709	22	0.10	5593708	0.10
Conductivity	uS/cm	54	140	120	5593694	34	1.0	5593692	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZX298		GZX299				GZX299			
Sampling Date		2018/06/19 11:09		2018/06/19 09:47				2018/06/19 09:47			
COC Number		D34770		D34770				D34770			
	UNITS	MW-02B	QC Batch	MW-03A	RDL	QC Batch	MDL	MW-03A Lab-Dup	RDL	QC Batch	MDL
Calculated Parameters											
Anion Sum	me/L	0.480	5590385	0.280	N/A	5590385	N/A				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	17	5590380	6.2	1.0	5590380	0.20				
Calculated TDS	mg/L	40	5590389	20	1.0	5590389	0.20				
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	5590380	<1.0	1.0	5590380	0.20				
Cation Sum	me/L	0.440	5590385	0.260	N/A	5590385	N/A				
Hardness (CaCO3)	mg/L	10	5590383	5.9	1.0	5590383	1.0				
Ion Balance (% Difference)	%	4.35	5590384	3.70	N/A	5590384	N/A				
Langelier Index (@ 20C)	N/A	-3.20	5590387	-4.37		5590387					
Langelier Index (@ 4C)	N/A	-3.45	5590388	-4.63		5590388					
Nitrate (N)	mg/L	<0.050	5590281	0.31	0.050	5590281	N/A				
Saturation pH (@ 20C)	N/A	9.64	5590387	10.3		5590387					
Saturation pH (@ 4C)	N/A	9.89	5590388	10.6		5590388					
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L	17	5593768	6.2	5.0	5593768	N/A				
Dissolved Chloride (Cl)	mg/L	2.7	5593775	4.7	1.0	5593775	N/A				
Colour	TCU	<5.0	5593779	8.6	5.0	5593779	N/A				
Nitrate + Nitrite (N)	mg/L	<0.050	5593781	0.31	0.050	5593781	N/A				
Nitrite (N)	mg/L	<0.010	5593783	<0.010	0.010	5593783	N/A				
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	5592423	<0.050	0.050	5592423	N/A	<0.050	0.050	5592423	N/A
Total Organic Carbon (C)	mg/L	1.9	5593990	3.6	0.50	5592255	N/A	3.5	0.50	5592255	N/A
Orthophosphate (P)	mg/L	0.058	5593780	<0.010	0.010	5593780	N/A				
pH	pH	6.44	5593691	5.93	N/A	5593691	N/A				
Reactive Silica (SiO2)	mg/L	15	5593778	4.1	0.50	5593778	N/A				
Dissolved Sulphate (SO4)	mg/L	2.7	5593777	<2.0	2.0	5593777	N/A				
Turbidity	NTU	4.6	5593708	0.39	0.10	5593708	0.10				
Conductivity	uS/cm	46	5593692	32	1.0	5593692	N/A				

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZX300		GZX301	GZX302	GZX303			
Sampling Date		2018/06/19 09:52		2018/06/19 10:00	2018/06/19 10:42	2018/06/19 10:46			
COC Number		D34770		D34770	D34770	D34770			
	UNITS	MW-03B	QC Batch	MW-03C	MW-19A	MW-19B	RDL	QC Batch	MDL
Calculated Parameters									
Anion Sum	me/L	0.980	5590385	1.87	0.210	1.49	N/A	5590385	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	37	5590380	83	<1.0	60	1.0	5590380	0.20
Calculated TDS	mg/L	62	5590389	110	21	88	1.0	5590389	0.20
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	5590380	<1.0	<1.0	<1.0	1.0	5590380	0.20
Cation Sum	me/L	0.930	5590385	1.79	0.280	1.45	N/A	5590385	N/A
Hardness (CaCO3)	mg/L	35	5590383	67	5.4	59	1.0	5590383	1.0
Ion Balance (% Difference)	%	2.62	5590384	2.19	14.3	1.36	N/A	5590384	N/A
Langelier Index (@ 20C)	N/A	-2.01	5590387	-0.247	NC	-0.330		5590387	
Langelier Index (@ 4C)	N/A	-2.26	5590388	-0.498	NC	-0.581		5590388	
Nitrate (N)	mg/L	0.10	5590281	<0.050	0.25	0.066	0.050	5590281	N/A
Saturation pH (@ 20C)	N/A	8.67	5590387	8.06	NC	8.23		5590387	
Saturation pH (@ 4C)	N/A	8.93	5590388	8.31	NC	8.48		5590388	
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	37	5593768	84	<5.0	61	5.0	5593768	N/A
Dissolved Chloride (Cl)	mg/L	5.5	5593775	4.3	4.1	2.4	1.0	5593775	N/A
Colour	TCU	5.4	5593779	5.3	<5.0	<5.0	5.0	5593779	N/A
Nitrate + Nitrite (N)	mg/L	0.10	5593781	<0.050	0.25	0.066	0.050	5593781	N/A
Nitrite (N)	mg/L	<0.010	5593783	<0.010	<0.010	<0.010	0.010	5593783	N/A
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	5592423	<0.050	<0.050	<0.050	0.050	5592423	N/A
Total Organic Carbon (C)	mg/L	1.1	5593990	4.2	2.4	0.95	0.50	5592255	N/A
Orthophosphate (P)	mg/L	<0.010	5593780	<0.010	<0.010	<0.010	0.010	5593780	N/A
pH	pH	6.66	5593691	7.81	5.85	7.90	N/A	5593691	N/A
Reactive Silica (SiO2)	mg/L	10	5593778	9.6	5.9	8.9	0.50	5593778	N/A
Dissolved Sulphate (SO4)	mg/L	3.8	5593777	3.7	3.5	9.8	2.0	5593777	N/A
Turbidity	NTU	0.26	5593708	1.7	1.3	2.7	0.10	5593708	0.10
Conductivity	uS/cm	94	5593692	170	34	140	1.0	5593692	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZX304				GZX304				GZX305			
Sampling Date		2018/06/19 10:53				2018/06/19 10:53				2018/06/19			
COC Number		D34770				D34770				D34770			
	UNITS	MW-19C	RDL	QC Batch	MDL	MW-19C Lab-Dup	RDL	QC Batch	MDL	MW-DUPC	RDL	QC Batch	MDL
Calculated Parameters													
Anion Sum	me/L	1.24	N/A	5590385	N/A					1.77	N/A	5590385	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	37	1.0	5590380	0.20					77	1.0	5590380	0.20
Calculated TDS	mg/L	80	1.0	5590389	0.20					100	1.0	5590389	0.20
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5590380	0.20					<1.0	1.0	5590380	0.20
Cation Sum	me/L	1.21	N/A	5590385	N/A					1.76	N/A	5590385	N/A
Hardness (CaCO3)	mg/L	36	1.0	5590383	1.0					66	1.0	5590383	1.0
Ion Balance (% Difference)	%	1.22	N/A	5590384	N/A					0.280	N/A	5590384	N/A
Langelier Index (@ 20C)	N/A	-1.53		5590387						-0.304		5590387	
Langelier Index (@ 4C)	N/A	-1.78		5590388						-0.556		5590388	
Nitrate (N)	mg/L	0.11	0.050	5590281	N/A					<0.050	0.050	5590281	N/A
Saturation pH (@ 20C)	N/A	8.68		5590387						8.10		5590387	
Saturation pH (@ 4C)	N/A	8.93		5590388						8.36		5590388	
Inorganics													
Total Alkalinity (Total as CaCO3)	mg/L	37	5.0	5593768	N/A					77	5.0	5589743	N/A
Dissolved Chloride (Cl)	mg/L	3.8	1.0	5593775	N/A					5.2	1.0	5589752	N/A
Colour	TCU	<5.0	5.0	5593779	N/A					<5.0	5.0	5597605	N/A
Nitrate + Nitrite (N)	mg/L	0.15	0.050	5593781	N/A					<0.050	0.050	5589765	N/A
Nitrite (N)	mg/L	0.041	0.010	5593783	N/A					<0.010	0.010	5589767	N/A
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	5592423	N/A					<0.050	0.050	5592423	N/A
Total Organic Carbon (C)	mg/L	2.1	0.50	5593990	N/A					4.3	0.50	5592255	N/A
Orthophosphate (P)	mg/L	<0.010	0.010	5593780	N/A					<0.010	0.010	5589762	N/A
pH	pH	7.15	N/A	5593695	N/A	7.20	N/A	5593695	N/A	7.80	N/A	5593691	N/A
Reactive Silica (SiO2)	mg/L	8.8	0.50	5593778	N/A					9.4	0.50	5589757	N/A
Dissolved Sulphate (SO4)	mg/L	18	2.0	5593777	N/A					3.9	2.0	5589755	N/A
Turbidity	NTU	7.0	0.10	5593709	0.10					1.5	0.10	5593709	0.10
Conductivity	uS/cm	130	1.0	5593696	N/A	130	1.0	5593696	N/A	170	1.0	5593692	N/A

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Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZX305			
Sampling Date		2018/06/19			
COC Number		D34770			
	UNITS	MW-DUPC Lab-Dup	RDL	QC Batch	MDL
Inorganics					
Total Alkalinity (Total as CaCO3)	mg/L	84	5.0	5589743	N/A
Dissolved Chloride (Cl)	mg/L	5.8	1.0	5589752	N/A
Colour	TCU	<5.0	5.0	5597605	N/A
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	5589765	N/A
Nitrite (N)	mg/L	<0.010	0.010	5589767	N/A
Orthophosphate (P)	mg/L	<0.010	0.010	5589762	N/A
Reactive Silica (SiO2)	mg/L	9.5	0.50	5589757	N/A
Dissolved Sulphate (SO4)	mg/L	3.9	2.0	5589755	N/A

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Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		GZX294	GZX295	GZX296	GZX297	GZX298	GZX299			
Sampling Date		2018/06/19 10:29	2018/06/19 10:20	2018/06/19 10:16	2018/06/19 11:12	2018/06/19 11:09	2018/06/19 09:47			
COC Number		D34770	D34770	D34770	D34770	D34770	D34770			
	UNITS	MW-01A	MW-01B	MW-01C	MW-02A	MW-02B	MW-03A	RDL	QC Batch	MDL
Metals										
Dissolved Aluminum (Al)	ug/L	69	20	19	160	9.2	190	5.0	5592240	N/A
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5592240	N/A
Dissolved Arsenic (As)	ug/L	<1.0	5.7	1.5	<1.0	2.1	<1.0	1.0	5592240	N/A
Dissolved Barium (Ba)	ug/L	1.3	4.0	7.3	9.3	4.2	7.2	1.0	5592240	N/A
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5592240	N/A
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	50	5592240	N/A
Dissolved Cadmium (Cd)	ug/L	<0.010	<0.010	<0.010	0.025	0.60	0.030	0.010	5592240	N/A
Dissolved Calcium (Ca)	ug/L	560	18000	13000	1200	2700	1500	100	5592240	N/A
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5592240	N/A
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	1.8	<0.40	0.46	0.40	5592240	N/A
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	<2.0	8.7	<2.0	<2.0	2.0	5592240	N/A
Dissolved Iron (Fe)	ug/L	<50	<50	<50	250	<50	<50	50	5592240	N/A
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5592240	N/A
Dissolved Magnesium (Mg)	ug/L	190	2200	1800	460	800	510	100	5592240	N/A
Dissolved Manganese (Mn)	ug/L	37	<2.0	140	150	22	50	2.0	5592240	N/A
Dissolved Molybdenum (Mo)	ug/L	<2.0	<2.0	2.1	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	7.8	2.1	3.5	2.0	5592240	N/A
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	<100	100	5592240	N/A
Dissolved Potassium (K)	ug/L	1300	3100	3100	250	640	880	100	5592240	N/A
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5592240	N/A
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5592240	N/A
Dissolved Sodium (Na)	ug/L	9900	7100	8900	3400	5100	2700	100	5592240	N/A
Dissolved Strontium (Sr)	ug/L	6.0	69	77	6.0	20	11	2.0	5592240	N/A
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5592240	N/A
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Uranium (U)	ug/L	<0.10	0.90	0.63	<0.10	0.56	<0.10	0.10	5592240	N/A
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	12	91	<5.0	5.0	5592240	N/A

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		GZX300	GZX301	GZX301	GZX302	GZX303	GZX304			
Sampling Date		2018/06/19 09:52	2018/06/19 10:00	2018/06/19 10:00	2018/06/19 10:42	2018/06/19 10:46	2018/06/19 10:53			
COC Number		D34770	D34770	D34770	D34770	D34770	D34770			
	UNITS	MW-03B	MW-03C	MW-03C Lab-Dup	MW-19A	MW-19B	MW-19C	RDL	QC Batch	MDL
Metals										
Dissolved Aluminum (Al)	ug/L	<5.0	26	26	110	15	37	5.0	5592240	N/A
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5592240	N/A
Dissolved Arsenic (As)	ug/L	<1.0	1.5	1.5	<1.0	8.5	3.0	1.0	5592240	N/A
Dissolved Barium (Ba)	ug/L	3.9	8.6	8.6	7.4	10	7.3	1.0	5592240	N/A
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5592240	N/A
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Boron (B)	ug/L	<50	<50	<50	<50	<50	<50	50	5592240	N/A
Dissolved Cadmium (Cd)	ug/L	0.038	<0.010	<0.010	0.084	<0.010	0.010	0.010	5592240	N/A
Dissolved Calcium (Ca)	ug/L	12000	23000	23000	1200	21000	12000	100	5592240	N/A
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5592240	N/A
Dissolved Cobalt (Co)	ug/L	<0.40	<0.40	<0.40	1.2	<0.40	0.94	0.40	5592240	N/A
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Iron (Fe)	ug/L	<50	<50	<50	<50	<50	<50	50	5592240	N/A
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	5592240	N/A
Dissolved Magnesium (Mg)	ug/L	1100	2300	2300	600	1500	1200	100	5592240	N/A
Dissolved Manganese (Mn)	ug/L	32	120	120	83	7.9	110	2.0	5592240	N/A
Dissolved Molybdenum (Mo)	ug/L	<2.0	6.6	6.8	<2.0	15	18	2.0	5592240	N/A
Dissolved Nickel (Ni)	ug/L	<2.0	<2.0	<2.0	2.4	<2.0	4.0	2.0	5592240	N/A
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	<100	100	5592240	N/A
Dissolved Potassium (K)	ug/L	1700	4300	4400	800	1900	2100	100	5592240	N/A
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	5592240	N/A
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5592240	N/A
Dissolved Sodium (Na)	ug/L	4600	7700	7700	3400	5200	10000	100	5592240	N/A
Dissolved Strontium (Sr)	ug/L	24	56	57	8.6	120	71	2.0	5592240	N/A
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	5592240	N/A
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	2.0	5592240	N/A
Dissolved Uranium (U)	ug/L	0.25	1.6	1.6	<0.10	2.9	<0.10	0.10	5592240	N/A
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	3.1	<2.0	2.0	5592240	N/A
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	9.9	<5.0	7.6	5.0	5592240	N/A

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		GZX305			
Sampling Date		2018/06/19			
COC Number		D34770			
	UNITS	MW-DUPC	RDL	QC Batch	MDL
Metals					
Dissolved Aluminum (Al)	ug/L	30	5.0	5592240	N/A
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	5592240	N/A
Dissolved Arsenic (As)	ug/L	1.7	1.0	5592240	N/A
Dissolved Barium (Ba)	ug/L	9.1	1.0	5592240	N/A
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	5592240	N/A
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	5592240	N/A
Dissolved Boron (B)	ug/L	<50	50	5592240	N/A
Dissolved Cadmium (Cd)	ug/L	<0.010	0.010	5592240	N/A
Dissolved Calcium (Ca)	ug/L	23000	100	5592240	N/A
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	5592240	N/A
Dissolved Cobalt (Co)	ug/L	<0.40	0.40	5592240	N/A
Dissolved Copper (Cu)	ug/L	<2.0	2.0	5592240	N/A
Dissolved Iron (Fe)	ug/L	<50	50	5592240	N/A
Dissolved Lead (Pb)	ug/L	<0.50	0.50	5592240	N/A
Dissolved Magnesium (Mg)	ug/L	2300	100	5592240	N/A
Dissolved Manganese (Mn)	ug/L	120	2.0	5592240	N/A
Dissolved Molybdenum (Mo)	ug/L	6.4	2.0	5592240	N/A
Dissolved Nickel (Ni)	ug/L	<2.0	2.0	5592240	N/A
Dissolved Phosphorus (P)	ug/L	<100	100	5592240	N/A
Dissolved Potassium (K)	ug/L	4300	100	5592240	N/A
Dissolved Selenium (Se)	ug/L	<1.0	1.0	5592240	N/A
Dissolved Silver (Ag)	ug/L	<0.10	0.10	5592240	N/A
Dissolved Sodium (Na)	ug/L	7700	100	5592240	N/A
Dissolved Strontium (Sr)	ug/L	56	2.0	5592240	N/A
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	5592240	N/A
Dissolved Tin (Sn)	ug/L	3.8	2.0	5592240	N/A
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	5592240	N/A
Dissolved Uranium (U)	ug/L	1.6	0.10	5592240	N/A
Dissolved Vanadium (V)	ug/L	<2.0	2.0	5592240	N/A
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	5592240	N/A

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX294
Sample ID: MW-01A
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX295
Sample ID: MW-01B
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX295
Sample ID: MW-01B
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX296
Sample ID: MW-01C
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX297
Sample ID: MW-02A
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX297
Sample ID: MW-02A
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX298
Sample ID: MW-02B
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX298
Sample ID: MW-02B
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX299
Sample ID: MW-03A
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX299 Dup
Sample ID: MW-03A
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX300
Sample ID: MW-03B
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX301
Sample ID: MW-03C
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX301
Sample ID: MW-03C
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX301 Dup
Sample ID: MW-03C
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery

Maxxam ID: GZX302
Sample ID: MW-19A
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX303
Sample ID: MW-19B
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX304
Sample ID: MW-19C
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593696	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593695	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX304
Sample ID: MW-19C
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX304 Dup
Sample ID: MW-19C
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT	5593696	N/A	2018/06/22	Julia McGovern
pH	AT	5593695	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZX305
Sample ID: MW-DUPC
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592423	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZX305 Dup
Sample ID: MW-DUPC
Matrix: Water

Collected: 2018/06/19
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C

Sample GZX297 [MW-02A] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample GZX302 [MW-19A] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

QUALITY ASSURANCE REPORT

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5589743	Total Alkalinity (Total as CaCO3)	2018/06/25	NC	80 - 120	96	80 - 120	<5.0	mg/L	9.1	25		
5589752	Dissolved Chloride (Cl)	2018/06/22	100	80 - 120	103	80 - 120	<1.0	mg/L	10	25	102	80 - 120
5589755	Dissolved Sulphate (SO4)	2018/06/22	93	80 - 120	95	80 - 120	<2.0	mg/L	0.48	25		
5589757	Reactive Silica (SiO2)	2018/06/25	98	80 - 120	95	80 - 120	<0.50	mg/L	0.84	25		
5589762	Orthophosphate (P)	2018/06/22	87	80 - 120	94	80 - 120	<0.010	mg/L	NC	25		
5589765	Nitrate + Nitrite (N)	2018/06/25	96	80 - 120	98	80 - 120	<0.050	mg/L	NC	25		
5589767	Nitrite (N)	2018/06/25	92	80 - 120	96	80 - 120	<0.010	mg/L	NC	20		
5592240	Dissolved Aluminum (Al)	2018/06/22	97	80 - 120	98	80 - 120	<5.0	ug/L	1.7	20		
5592240	Dissolved Antimony (Sb)	2018/06/22	103	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
5592240	Dissolved Arsenic (As)	2018/06/22	96	80 - 120	96	80 - 120	<1.0	ug/L	3.9	20		
5592240	Dissolved Barium (Ba)	2018/06/22	104	80 - 120	105	80 - 120	<1.0	ug/L	0.23	20		
5592240	Dissolved Beryllium (Be)	2018/06/22	99	80 - 120	100	80 - 120	<1.0	ug/L	NC	20		
5592240	Dissolved Bismuth (Bi)	2018/06/22	101	80 - 120	104	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Boron (B)	2018/06/22	96	80 - 120	95	80 - 120	<50	ug/L	NC	20		
5592240	Dissolved Cadmium (Cd)	2018/06/22	103	80 - 120	104	80 - 120	<0.010	ug/L	NC	20		
5592240	Dissolved Calcium (Ca)	2018/06/22	99	80 - 120	105	80 - 120	<100	ug/L	1.0	20		
5592240	Dissolved Chromium (Cr)	2018/06/22	95	80 - 120	97	80 - 120	<1.0	ug/L	NC	20		
5592240	Dissolved Cobalt (Co)	2018/06/22	95	80 - 120	97	80 - 120	<0.40	ug/L	NC	20		
5592240	Dissolved Copper (Cu)	2018/06/22	91	80 - 120	93	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Iron (Fe)	2018/06/22	98	80 - 120	100	80 - 120	<50	ug/L	NC	20		
5592240	Dissolved Lead (Pb)	2018/06/22	98	80 - 120	100	80 - 120	<0.50	ug/L	NC	20		
5592240	Dissolved Magnesium (Mg)	2018/06/22	100	80 - 120	103	80 - 120	<100	ug/L	0.41	20		
5592240	Dissolved Manganese (Mn)	2018/06/22	NC	80 - 120	97	80 - 120	<2.0	ug/L	0.58	20		
5592240	Dissolved Molybdenum (Mo)	2018/06/22	103	80 - 120	103	80 - 120	<2.0	ug/L	3.7	20		
5592240	Dissolved Nickel (Ni)	2018/06/22	92	80 - 120	94	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Phosphorus (P)	2018/06/22	104	80 - 120	103	80 - 120	<100	ug/L	NC	20		
5592240	Dissolved Potassium (K)	2018/06/22	100	80 - 120	105	80 - 120	<100	ug/L	1.3	20		
5592240	Dissolved Selenium (Se)	2018/06/22	96	80 - 120	96	80 - 120	<1.0	ug/L	NC	20		
5592240	Dissolved Silver (Ag)	2018/06/22	92	80 - 120	99	80 - 120	<0.10	ug/L	NC	20		
5592240	Dissolved Sodium (Na)	2018/06/22	94	80 - 120	95	80 - 120	<100	ug/L	0.53	20		

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5592240	Dissolved Strontium (Sr)	2018/06/22	100	80 - 120	99	80 - 120	<2.0	ug/L	1.0	20		
5592240	Dissolved Thallium (Tl)	2018/06/22	103	80 - 120	104	80 - 120	<0.10	ug/L	NC	20		
5592240	Dissolved Tin (Sn)	2018/06/22	105	80 - 120	108	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Titanium (Ti)	2018/06/22	99	80 - 120	103	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Uranium (U)	2018/06/22	101	80 - 120	102	80 - 120	<0.10	ug/L	2.6	20		
5592240	Dissolved Vanadium (V)	2018/06/22	98	80 - 120	100	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Zinc (Zn)	2018/06/22	100	80 - 120	100	80 - 120	<5.0	ug/L	NC	20		
5592255	Total Organic Carbon (C)	2018/06/22	95	85 - 115	96	80 - 120	<0.50	mg/L	2.1	15		
5592399	Nitrogen (Ammonia Nitrogen)	2018/06/21	101	80 - 120	104	80 - 120	<0.050	mg/L	NC	20		
5592423	Nitrogen (Ammonia Nitrogen)	2018/06/21	103	80 - 120	100	80 - 120	<0.050	mg/L	NC	20		
5593691	pH	2018/06/22							0.74	N/A	101	97 - 103
5593692	Conductivity	2018/06/22			101	80 - 120	1.5, RDL=1.0	uS/cm	0.29	25		
5593693	pH	2018/06/22							0.48	N/A	100	97 - 103
5593694	Conductivity	2018/06/22			100	80 - 120	1.4, RDL=1.0	uS/cm	0.24	25		
5593695	pH	2018/06/22							0.76	N/A	100	97 - 103
5593696	Conductivity	2018/06/22			101	80 - 120	1.7, RDL=1.0	uS/cm	0.15	25		
5593708	Turbidity	2018/06/22			94	80 - 120	<0.10	NTU	2.4	20	97	80 - 120
5593709	Turbidity	2018/06/22			94	80 - 120	<0.10	NTU	9.5	20	96	80 - 120
5593768	Total Alkalinity (Total as CaCO3)	2018/06/25	90	80 - 120	95	80 - 120	<5.0	mg/L	2.2	25		
5593775	Dissolved Chloride (Cl)	2018/06/22	101	80 - 120	102	80 - 120	<1.0	mg/L	1.8	25	100	80 - 120
5593777	Dissolved Sulphate (SO4)	2018/06/22	97	80 - 120	93	80 - 120	<2.0	mg/L	0.015	25		
5593778	Reactive Silica (SiO2)	2018/06/25	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.95	25		
5593779	Colour	2018/06/22			99	80 - 120	<5.0	TCU	NC	20		
5593780	Orthophosphate (P)	2018/06/22	92	80 - 120	94	80 - 120	<0.010	mg/L	NC	25		
5593781	Nitrate + Nitrite (N)	2018/06/25	95	80 - 120	97	80 - 120	<0.050	mg/L	0.94	25		
5593783	Nitrite (N)	2018/06/25	98	80 - 120	96	80 - 120	<0.010	mg/L	NC	20		
5593990	Total Organic Carbon (C)	2018/06/22	92	85 - 115	94	80 - 120	<0.50	mg/L	1.5	15		

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5597605	Colour	2018/06/25			96	80 - 120	<5.0	TCU	NC	20		

N/A = Not Applicable

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Maxxam Job #: B8F1147
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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CHAIN OF CUSTODY RECORD

COC #: D34770 Page 1 of 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required
Company Name:	GHD Ltd.	Company Name:	Jeff Parks	Quotation #:	STANDING OFFER	X Regular TAT (5 business days) Most analyses
Contact Name:	Trina Jeffrey	Contact Name:	GHD	P.O. #:	73512044	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	45 Akerley Blvd. Dartmouth Postal Code: B3B 1J7	Address:	45 Akerley Blvd. Dartmouth Postal Code: B3B 1J7	Project #:	0886664	IF RUSH please specify date (Surcharges will be applied)
Phone:	902-468-1248 Fax:	Phone:	902-468-1248 Fax:	Site Location:	Beaver Dam	DATE REQUIRED:
Email:	trina.jeffery@ghd.com	Email:	jeffrey.parks@ghd.com	Site #:		
				Sampled By:	D.N. / J.R. / R.H.	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		6	
		8	
		3	

COOLING MEDIA PRESENT Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED &PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS [Total Metals] Well / Surface water	RCAP-MS [Dissolved Metals] Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	NB Potable Water BTEX, VPH, Low level T.E.H	PAHs (Default for water/soil)	PAHs (FWAL/CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.Coli (Count)		HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify) / COMMENTS
1	MW-01A	2018/06/19	10:29	H2O	3	X			X																			
2	MW-01B	2018/06/19	10:20	H2O	3	X			X																			
3	MW-01C	2018/06/19	10:16	H2O	3	X			X																			
4	MW-02A	2018/06/19	11:12	H2O	3	X			X																			
5	MW-02B	2018/06/19	11:09	H2O	3	X			X																			
6	MW-03A	2018/06/19	9:47	H2O	3	X			X																			
7	MW-03B	2018/06/19	9:52	H2O	3	X			X																			
8	MW-03C	2018/06/19	10:00	H2O	3	X			X																			
9	MW-19A	2018/06/19	10:42	H2O	3	X			X																			
10	MW-19B	2018/06/19	10:46	H2O	3	X			X																			

2018 JUN 19 15:24

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
<Original signed by>	2018/06/19	2:47	<Original signed by>			B8F1147
Jessica Romeo						

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

18 JUN 19 14:47

White: Maxxam Pink: Client

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ATL FCD 00149 / 22

CHAIN OF CUSTODY RECORD

COC #: D34772 Page 2 of 2

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: GHD Ltd.	Company Name: GHD Ltd.	Quotation #: STANDING OFFER	[X] Regular TAT (5 business days) Most analyses
Contact Name: Trina Jeffrey	Contact Name: Jeff Parks	P.O. #: 7351/2044	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 45 Akerley Blvd. Dartmouth Postal Code: B3B 1J7	Address: 45 Akerley Blvd. Dartmouth Postal Code: B3B 1J7	Project #: 088664	IF RUSH please specify date (Surcharges will be applied)
Phone: 902-468-1248 Fax:	Phone: 902-468-1248 Fax:	Site Location: Beaver Dam	DATE REQUIRED:
Email: trina.jeffery@ghd.com	Email: Jeffrey.Parks@ghd.com	Site #:	
		Sampled By: B.D.N. / J.R. / R.H.	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		6	
		8	
		5	

COOLING MEDIA PRESENT Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS [Total Metals] Well / Surface water	RCAP-MS [Dissolved Metals] Ground waters	Metals (Water): Total Digest [Default Method] for well water & surface water	Metals (Water): Dissolved for ground water	Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default: Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest - for Ocean Sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural / Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX, C6-C32	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	NB Potable Water BTEX, VPH, Low level T.E.H	PAHs (Default for water/Soil)	PAHs (FWAL /CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.Coli (Count)		HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify) / COMMENTS
1	MW-19C	2018/06/19	10:53	H_2O	3	X			X																			
2	MW-DupC	2018/06/19	—	H_2O	3	X			X																			
3																												
4																												
5																												
6																												
7																												
8																												2018 JUN 19 15:24
9																												
10																												

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
<Original signed by>	2018/06/19	2:47	<Original signed by>			B8F1147
V Jessica Romeo						

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

'19 JUN 19 14:47

White: Maxxam Pink: Client

Maxxam
A Bureau Veritas Group Company

Your P.O. #: 73512044
Your Project #: 088664-20
Site Location: BEAVER DAM
Your C.O.C. #: D34771

Attention: Jeff Parks

GHD Limited
45 Akerley Blvd
Dartmouth , NS
CANADA B3B 1J7

Report Date: 2018/06/26
Report #: R5266814
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8F0978
Received: 2018/06/19, 14:47

Sample Matrix: Water
Samples Received: 17

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	17	N/A	2018/06/22	N/A	SM 22 4500-CO2 D
Alkalinity	17	N/A	2018/06/25	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	17	N/A	2018/06/22	ATL SOP 00014	SM 22 4500-Cl- E m
Colour	4	N/A	2018/06/22	ATL SOP 00020	SM 22 2120C m
Colour	13	N/A	2018/06/25	ATL SOP 00020	SM 22 2120C m
Conductance - water	17	N/A	2018/06/22	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3)	17	N/A	2018/06/22	ATL SOP 00048	SM 22 2340 B
Metals Water Diss. MS (as rec'd)	17	N/A	2018/06/22	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	17	N/A	2018/06/26	N/A	Auto Calc.
Anion and Cation Sum	17	N/A	2018/06/22	N/A	Auto Calc.
Nitrogen Ammonia - water	17	N/A	2018/06/21	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	17	N/A	2018/06/25	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	17	N/A	2018/06/25	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	17	N/A	2018/06/26	ATL SOP 00018	ASTM D3867-16
pH (1)	17	N/A	2018/06/22	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho	17	N/A	2018/06/22	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	17	N/A	2018/06/26	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	17	N/A	2018/06/26	ATL SOP 00049	Auto Calc.
Reactive Silica	17	N/A	2018/06/25	ATL SOP 00022	EPA 366.0 m
Sulphate	17	N/A	2018/06/22	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	17	N/A	2018/06/26	N/A	Auto Calc.
Organic carbon - Total (TOC) (2)	16	N/A	2018/06/22	ATL SOP 00203	SM 23 5310B m
Organic carbon - Total (TOC) (2)	1	N/A	2018/06/25	ATL SOP 00203	SM 23 5310B m
Turbidity	17	N/A	2018/06/22	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Your P.O. #: 73512044
Your Project #: 088664-20
Site Location: BEAVER DAM
Your C.O.C. #: D34771

Attention: Jeff Parks
GHD Limited
45 Akerley Blvd
Dartmouth , NS
CANADA B3B 1J7

Report Date: 2018/06/26
Report #: R5266814
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8F0978
Received: 2018/06/19, 14:47

data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

<Original signed by>
Kavya Nair
Project Manager Assistant
26 Jun 2018 13:38:53

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Heather Macumber, Senior Project Manager
Email: HMacumber@maxxam.ca
Phone# (902)420-0203 Ext:226

==========

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZW431				GZW431				GZW432			
Sampling Date		2018/06/18 11:26				2018/06/18 11:26				2018/06/18 11:37			
COC Number		D34771				D34771				D34771			
	UNITS	MW-12A	RDL	QC Batch	MDL	MW-12A Lab-Dup	RDL	QC Batch	MDL	MW-12B	RDL	QC Batch	MDL
Calculated Parameters													
Anion Sum	me/L	0.830	N/A	5589413	N/A					2.20	N/A	5589413	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	33	1.0	5589410	0.20					80	1.0	5589410	0.20
Calculated TDS	mg/L	64	1.0	5589418	0.20					130	1.0	5589418	0.20
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5589410	0.20					<1.0	1.0	5589410	0.20
Cation Sum	me/L	0.940	N/A	5589413	N/A					2.10	N/A	5589413	N/A
Hardness (CaCO3)	mg/L	31	1.0	5589411	1.0					70	1.0	5589411	1.0
Ion Balance (% Difference)	%	6.21	N/A	5589412	N/A					2.33	N/A	5589412	N/A
Langelier Index (@ 20C)	N/A	-2.42		5589415						-0.212		5589415	
Langelier Index (@ 4C)	N/A	-2.67		5589416						-0.462		5589416	
Nitrate (N)	mg/L	0.085	0.050	5590281	N/A					0.062	0.050	5590281	N/A
Saturation pH (@ 20C)	N/A	8.90		5589415						8.08		5589415	
Saturation pH (@ 4C)	N/A	9.15		5589416						8.33		5589416	
Inorganics													
Total Alkalinity (Total as CaCO3)	mg/L	33	5.0	5593768	N/A	33	5.0	5593768	N/A	81	5.0	5589743	N/A
Dissolved Chloride (Cl)	mg/L	2.4	1.0	5593775	N/A	2.4	1.0	5593775	N/A	4.6	1.0	5589752	N/A
Colour	TCU	<5.0	5.0	5593779	N/A	<5.0	5.0	5593779	N/A	<5.0	5.0	5597605	N/A
Nitrate + Nitrite (N)	mg/L	0.085	0.050	5593781	N/A	0.086	0.050	5593781	N/A	0.062	0.050	5589765	N/A
Nitrite (N)	mg/L	<0.010	0.010	5593783	N/A	<0.010	0.010	5593783	N/A	<0.010	0.010	5589767	N/A
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	5592399	N/A	<0.050	0.050	5592399	N/A	<0.050	0.050	5592399	N/A
Total Organic Carbon (C)	mg/L	<0.50	0.50	5592255	N/A					1.0	0.50	5592255	N/A
Orthophosphate (P)	mg/L	<0.010	0.010	5593780	N/A	<0.010	0.010	5593780	N/A	0.016	0.010	5589762	N/A
pH	pH	6.48	N/A	5593693	N/A	6.45	N/A	5593693	N/A	7.86	N/A	5593691	N/A
Reactive Silica (SiO2)	mg/L	17	0.50	5593778	N/A	17	0.50	5593778	N/A	10	0.50	5589757	N/A
Dissolved Sulphate (SO4)	mg/L	4.0	2.0	5593777	N/A	4.0	2.0	5593777	N/A	21	2.0	5589755	N/A
Turbidity	NTU	41	0.10	5593708	0.10	40	0.10	5593708	0.10	11	0.10	5593709	0.10
Conductivity	uS/cm	80	1.0	5593694	N/A	80	1.0	5593694	N/A	200	1.0	5593692	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZW433			GZW434			GZW435			
Sampling Date		2018/06/18 11:58			2018/06/18 12:07			2018/06/18 12:15			
COC Number		D34771			D34771			D34771			
	UNITS	MW-09A	RDL	QC Batch	MW-09B	RDL	QC Batch	MW-09D	RDL	QC Batch	MDL
Calculated Parameters											
Anion Sum	me/L	0.340	N/A	5589413	2.46	N/A	5589413	2.97	N/A	5589413	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	9.2	1.0	5589410	71	1.0	5589410	65	1.0	5589410	0.20
Calculated TDS	mg/L	30	1.0	5589418	150	1.0	5589418	190	1.0	5589418	0.20
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	5589410	<1.0	1.0	5589410	<1.0	1.0	5589410	0.20
Cation Sum	me/L	0.630	N/A	5589413	2.37	N/A	5589413	2.89	N/A	5589413	N/A
Hardness (CaCO3)	mg/L	25	1.0	5589411	72	1.0	5589411	93	1.0	5589411	1.0
Ion Balance (% Difference)	%	29.9	N/A	5589412	1.86	N/A	5589412	1.37	N/A	5589412	N/A
Langelier Index (@ 20C)	N/A	-3.07		5589415	-0.174		5589415	-0.547		5589415	
Langelier Index (@ 4C)	N/A	-3.32		5589416	-0.424		5589416	-0.798		5589416	
Nitrate (N)	mg/L	<0.050	0.050	5590281	<0.050	0.050	5590281	<0.050	0.050	5590281	N/A
Saturation pH (@ 20C)	N/A	9.37		5589415	8.11		5589415	8.09		5589415	
Saturation pH (@ 4C)	N/A	9.62		5589416	8.36		5589416	8.34		5589416	
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L	9.2	5.0	5589743	72	5.0	5589743	65	5.0	5589743	N/A
Dissolved Chloride (Cl)	mg/L	3.5	1.0	5589752	5.1	1.0	5589752	8.6	1.0	5589752	N/A
Colour	TCU	<5.0	5.0	5597605	<5.0	5.0	5597605	<5.0	5.0	5597605	N/A
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	5589765	<0.050	0.050	5589765	<0.050	0.050	5589765	N/A
Nitrite (N)	mg/L	<0.010	0.010	5589767	<0.010	0.010	5589767	<0.010	0.010	5589767	N/A
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	5592399	<0.050	0.050	5592399	<0.050	0.050	5592399	N/A
Total Organic Carbon (C)	mg/L	0.59	0.50	5592255	2.5	0.50	5592255	9.1 (1)	5.0	5593990	N/A
Orthophosphate (P)	mg/L	<0.010	0.010	5589762	0.027	0.010	5589762	0.012	0.010	5589762	N/A
pH	pH	6.30	N/A	5593693	7.94	N/A	5593691	7.54	N/A	5593691	N/A
Reactive Silica (SiO2)	mg/L	5.1	0.50	5589757	9.3	0.50	5589757	12	0.50	5589757	N/A
Dissolved Sulphate (SO4)	mg/L	2.9	2.0	5589755	42 (1)	10	5589755	68 (1)	10	5589755	N/A
Turbidity	NTU	0.29	0.10	5593709	6.1	0.10	5593709	2.4	0.10	5593708	0.10
Conductivity	uS/cm	30	1.0	5593694	230	1.0	5593692	300	1.0	5593692	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable
(1) Elevated reporting limit due to sample matrix.

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZW436	GZW437		GZW438		GZW439			
Sampling Date		2018/06/18 12:50	2018/06/18 12:58		2018/06/18 15:10		2018/06/18 15:16			
COC Number		D34771	D34771		D34771		D34771			
	UNITS	MW-04A	MW-04B	QC Batch	MW-21A	QC Batch	MW-21B	RDL	QC Batch	MDL
Calculated Parameters										
Anion Sum	me/L	0.440	1.16	5590385	0.250	5590385	0.580	N/A	5590385	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	11	41	5590380	6.5	5590380	21	1.0	5590380	0.20
Calculated TDS	mg/L	32	71	5590389	20	5590389	40	1.0	5590389	0.20
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	5590380	<1.0	5590380	<1.0	1.0	5590380	0.20
Cation Sum	me/L	0.510	1.08	5590385	0.240	5590385	0.550	N/A	5590385	N/A
Hardness (CaCO3)	mg/L	17	44	5590383	7.0	5590383	18	1.0	5590383	1.0
Ion Balance (% Difference)	%	7.37	3.57	5590384	2.04	5590384	2.65	N/A	5590384	N/A
Langelier Index (@ 20C)	N/A	-3.26	-1.26	5590387	-4.65	5590387	-2.94		5590387	
Langelier Index (@ 4C)	N/A	-3.51	-1.51	5590388	-4.90	5590388	-3.19		5590388	
Nitrate (N)	mg/L	<0.050	<0.050	5590281	0.48	5590281	0.35	0.050	5590281	N/A
Saturation pH (@ 20C)	N/A	9.58	8.54	5590387	10.3	5590387	9.30		5590387	
Saturation pH (@ 4C)	N/A	9.83	8.79	5590388	10.5	5590388	9.56		5590388	
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	11	41	5589743	6.5	5589743	21	5.0	5589743	N/A
Dissolved Chloride (Cl)	mg/L	6.4	4.9	5589752	3.1	5589752	3.1	1.0	5589752	N/A
Colour	TCU	<5.0	<5.0	5597605	8.0	5597605	<5.0	5.0	5597605	N/A
Nitrate + Nitrite (N)	mg/L	<0.050	<0.050	5589765	0.48	5589765	0.35	0.050	5589765	N/A
Nitrite (N)	mg/L	<0.010	<0.010	5589767	<0.010	5589767	<0.010	0.010	5589767	N/A
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	<0.050	5592399	<0.050	5592399	<0.050	0.050	5592399	N/A
Total Organic Carbon (C)	mg/L	0.73	1.1	5592255	2.1	5593990	1.0	0.50	5593990	N/A
Orthophosphate (P)	mg/L	<0.010	<0.010	5589762	<0.010	5589762	0.018	0.010	5589762	N/A
pH	pH	6.32	7.28	5593693	5.64	5593693	6.37	N/A	5593697	N/A
Reactive Silica (SiO2)	mg/L	6.4	9.6	5589757	5.6	5589757	8.9	0.50	5589757	N/A
Dissolved Sulphate (SO4)	mg/L	2.3	9.6	5589755	<2.0	5589755	2.2	2.0	5589755	N/A
Turbidity	NTU	0.79	5.9	5593709	1.1	5593709	23	0.10	5593709	0.10
Conductivity	uS/cm	41	110	5593694	33	5593694	61	1.0	5593698	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

Maxxam Analytics International Corporation o/a Maxxam Analytics 200 Bluewater Rd, Suite 105, Bedford, Nova Scotia Canada B4B 1G9 Tel: 902-420-0203 Toll-free: 800-565-7227 Fax: 902-420-8612 www.maxxamanalytics.com

Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZW439				GZW440		GZW441			
Sampling Date		2018/06/18 15:16				2018/06/18 15:28		2018/06/18 13:36			
COC Number		D34771				D34771		D34771			
	UNITS	MW-21B Lab-Dup	RDL	QC Batch	MDL	MW-21C	QC Batch	MW-16A	RDL	QC Batch	MDL
Calculated Parameters											
Anion Sum	me/L					1.67	5590385	1.80	N/A	5590385	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L					54	5590380	79	1.0	5590380	0.20
Calculated TDS	mg/L					110	5590389	100	1.0	5590389	0.20
Carb. Alkalinity (calc. as CaCO3)	mg/L					<1.0	5590380	<1.0	1.0	5590380	0.20
Cation Sum	me/L					1.56	5590385	1.72	N/A	5590385	N/A
Hardness (CaCO3)	mg/L					38	5590383	66	1.0	5590383	1.0
Ion Balance (% Difference)	%					3.41	5590384	2.27	N/A	5590384	N/A
Langelier Index (@ 20C)	N/A					-1.93	5590387	-0.291		5590387	
Langelier Index (@ 4C)	N/A					-2.18	5590388	-0.542		5590388	
Nitrate (N)	mg/L					0.14	5590281	0.092	0.050	5590281	N/A
Saturation pH (@ 20C)	N/A					8.63	5590387	8.08		5590387	
Saturation pH (@ 4C)	N/A					8.88	5590388	8.33		5590388	
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L					54	5589743	79	5.0	5589743	N/A
Dissolved Chloride (Cl)	mg/L					5.2	5589752	4.0	1.0	5589752	N/A
Colour	TCU					<5.0	5597605	<5.0	5.0	5597605	N/A
Nitrate + Nitrite (N)	mg/L					0.14	5589765	0.092	0.050	5589765	N/A
Nitrite (N)	mg/L					<0.010	5589767	<0.010	0.010	5589767	N/A
Nitrogen (Ammonia Nitrogen)	mg/L					<0.050	5592399	<0.050	0.050	5592399	N/A
Total Organic Carbon (C)	mg/L					4.2	5593990	0.60	0.50	5596952	N/A
Orthophosphate (P)	mg/L					<0.010	5589762	<0.010	0.010	5589762	N/A
pH	pH	6.39	N/A	5593697	N/A	6.70	5593693	7.79	N/A	5593695	N/A
Reactive Silica (SiO2)	mg/L					15	5589757	11	0.50	5589757	N/A
Dissolved Sulphate (SO4)	mg/L					21	5589755	4.5	2.0	5589755	N/A
Turbidity	NTU					7.6	5593711	3.0	0.10	5593711	0.10
Conductivity	uS/cm	60	1.0	5593698	N/A	160	5593694	160	1.0	5593696	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
N/A = Not Applicable

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZW442		GZW443		GZW444		GZW445			
Sampling Date		2018/06/18 13:40		2018/06/18 14:11		2018/06/18 14:19		2018/06/18 14:25			
COC Number		D34771		D34771		D34771		D34771			
	UNITS	MW-16B	QC Batch	MW-17A	QC Batch	MW-17B	QC Batch	MW-17C	RDL	QC Batch	MDL
Calculated Parameters											
Anion Sum	me/L	1.43	5590385	0.510	5590385	0.300	5590385	0.420	N/A	5590385	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	59	5590380	15	5590380	8.3	5590380	14	1.0	5590380	0.20
Calculated TDS	mg/L	84	5590389	34	5590389	25	5590389	32	1.0	5590389	0.20
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	5590380	<1.0	5590380	<1.0	5590380	<1.0	1.0	5590380	0.20
Cation Sum	me/L	1.34	5590385	0.470	5590385	0.260	5590385	0.390	N/A	5590385	N/A
Hardness (CaCO3)	mg/L	55	5590383	15	5590383	6.6	5590383	12	1.0	5590383	1.0
Ion Balance (% Difference)	%	3.25	5590384	4.08	5590384	7.14	5590384	3.70	N/A	5590384	N/A
Langelier Index (@ 20C)	N/A	-0.510	5590387	-3.14	5590387	-4.06	5590387	-3.07		5590387	
Langelier Index (@ 4C)	N/A	-0.761	5590388	-3.40	5590388	-4.31	5590388	-3.33		5590388	
Nitrate (N)	mg/L	0.14	5590281	<0.050	5590281	<0.050	5590281	<0.050	0.050	5590281	N/A
Saturation pH (@ 20C)	N/A	8.27	5590387	9.42	5590387	10.2	5590387	9.59		5590387	
Saturation pH (@ 4C)	N/A	8.52	5590388	9.67	5590388	10.4	5590388	9.84		5590388	
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L	59	5589743	15	5589743	8.3	5593768	14	5.0	5593768	N/A
Dissolved Chloride (Cl)	mg/L	4.1	5589752	5.2	5589752	2.9	5593775	2.9	1.0	5593775	N/A
Colour	TCU	<5.0	5597605	<5.0	5597605	<5.0	5597513	<5.0	5.0	5593779	N/A
Nitrate + Nitrite (N)	mg/L	0.14	5589765	<0.050	5589765	<0.050	5593781	<0.050	0.050	5593781	N/A
Nitrite (N)	mg/L	<0.010	5589767	<0.010	5589767	<0.010	5593783	<0.010	0.010	5593783	N/A
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	5592399	<0.050	5592399	<0.050	5592399	<0.050	0.050	5592399	N/A
Total Organic Carbon (C)	mg/L	<0.50	5593990	0.59	5593990	0.56	5593990	<0.50	0.50	5593990	N/A
Orthophosphate (P)	mg/L	<0.010	5589762	<0.010	5589762	0.014	5593780	<0.010	0.010	5593780	N/A
pH	pH	7.76	5593693	6.28	5593693	6.10	5593693	6.51	N/A	5593691	N/A
Reactive Silica (SiO2)	mg/L	10	5589757	6.9	5589757	8.6	5593778	10	0.50	5593778	N/A
Dissolved Sulphate (SO4)	mg/L	6.0	5589755	2.6	5589755	2.7	5593777	2.9	2.0	5593777	N/A
Turbidity	NTU	0.68	5593709	1.6	5593711	0.49	5593711	0.74	0.10	5593709	0.10
Conductivity	uS/cm	130	5593694	46	5593694	29	5593694	40	1.0	5593692	N/A

RDL = Reportable Detection Limit
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N/A = Not Applicable

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

RESULTS OF ANALYSES OF WATER

Maxxam ID		GZW446		GZW447				GZW447			
Sampling Date		2018/06/18		2018/06/18				2018/06/18			
COC Number		D34771		D34771				D34771			
	UNITS	MW-DUPA	QC Batch	MW-DUPB	RDL	QC Batch	MDL	MW-DUPB Lab-Dup	RDL	QC Batch	MDL
Calculated Parameters											
Anion Sum	me/L	0.320	5590385	0.300	N/A	5590385	N/A				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	8.8	5590380	7.4	1.0	5590380	0.20				
Calculated TDS	mg/L	29	5590389	25	1.0	5590389	0.20				
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	5590380	<1.0	1.0	5590380	0.20				
Cation Sum	me/L	0.630	5590385	0.260	N/A	5590385	N/A				
Hardness (CaCO3)	mg/L	25	5590383	6.7	1.0	5590383	1.0				
Ion Balance (% Difference)	%	32.6	5590384	7.14	N/A	5590384	N/A				
Langelier Index (@ 20C)	N/A	-2.95	5590387	-4.08		5590387					
Langelier Index (@ 4C)	N/A	-3.20	5590388	-4.33		5590388					
Nitrate (N)	mg/L	<0.050	5590281	<0.050	0.050	5590281	N/A				
Saturation pH (@ 20C)	N/A	9.39	5590387	10.2		5590387					
Saturation pH (@ 4C)	N/A	9.64	5590388	10.4		5590388					
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L	8.8	5593768	7.4	5.0	5593768	N/A				
Dissolved Chloride (Cl)	mg/L	2.9	5593775	3.3	1.0	5593775	N/A				
Colour	TCU	<5.0	5593779	5.3	5.0	5593779	N/A				
Nitrate + Nitrite (N)	mg/L	<0.050	5593781	<0.050	0.050	5593781	N/A				
Nitrite (N)	mg/L	0.021	5593783	<0.010	0.010	5593783	N/A				
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	5592399	<0.050	0.050	5592399	N/A				
Total Organic Carbon (C)	mg/L	0.61	5593990	0.51	0.50	5592255	N/A				
Orthophosphate (P)	mg/L	<0.010	5593780	0.017	0.010	5593780	N/A				
pH	pH	6.44	5593691	6.12	N/A	5593693	N/A				
Reactive Silica (SiO2)	mg/L	5.1	5593778	9.1	0.50	5593778	N/A				
Dissolved Sulphate (SO4)	mg/L	2.9	5593777	2.6	2.0	5593777	N/A				
Turbidity	NTU	0.33	5593708	0.90	0.10	5593709	0.10	0.99	0.10	5593709	0.10
Conductivity	uS/cm	31	5593692	29	1.0	5593694	N/A				

RDL = Reportable Detection Limit
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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		GZW431	GZW432	GZW433	GZW434	GZW435		GZW436			
Sampling Date		2018/06/18 11:26	2018/06/18 11:37	2018/06/18 11:58	2018/06/18 12:07	2018/06/18 12:15		2018/06/18 12:50			
COC Number		D34771	D34771	D34771	D34771	D34771		D34771			
	UNITS	MW-12A	MW-12B	MW-09A	MW-09B	MW-09D	QC Batch	MW-04A	RDL	QC Batch	MDL
Metals											
Dissolved Aluminum (Al)	ug/L	5.0	5.5	<5.0	61	8.9	5592239	6.0	5.0	5593914	N/A
Dissolved Antimony (Sb)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	5592239	<1.0	1.0	5593914	N/A
Dissolved Arsenic (As)	ug/L	<1.0	44	1.0	120	140	5592239	<1.0	1.0	5593914	N/A
Dissolved Barium (Ba)	ug/L	6.7	10	6.1	12	8.9	5592239	4.1	1.0	5593914	N/A
Dissolved Beryllium (Be)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	5592239	<1.0	1.0	5593914	N/A
Dissolved Bismuth (Bi)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	5592239	<2.0	2.0	5593914	N/A
Dissolved Boron (B)	ug/L	<50	<50	<50	<50	<50	5592239	<50	50	5593914	N/A
Dissolved Cadmium (Cd)	ug/L	0.027	<0.010	0.030	<0.010	<0.010	5592239	0.011	0.010	5593914	N/A
Dissolved Calcium (Ca)	ug/L	7900	24000	9100	25000	30000	5592239	4800	100	5593914	N/A
Dissolved Chromium (Cr)	ug/L	<1.0	2.3	<1.0	<1.0	<1.0	5592239	<1.0	1.0	5593914	N/A
Dissolved Cobalt (Co)	ug/L	2.6	<0.40	1.2	<0.40	<0.40	5592239	0.87	0.40	5593914	N/A
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	5592239	<2.0	2.0	5593914	N/A
Dissolved Iron (Fe)	ug/L	220	<50	<50	<50	<50	5592239	<50	50	5593914	N/A
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	5592239	<0.50	0.50	5593914	N/A
Dissolved Magnesium (Mg)	ug/L	2700	2500	640	2300	4100	5592239	1200	100	5593914	N/A
Dissolved Manganese (Mn)	ug/L	1300	230	110	11	46	5592239	69	2.0	5593914	N/A
Dissolved Molybdenum (Mo)	ug/L	<2.0	19	<2.0	9.2	10	5592239	<2.0	2.0	5593914	N/A
Dissolved Nickel (Ni)	ug/L	2.5	<2.0	3.3	<2.0	<2.0	5592239	5.4	2.0	5593914	N/A
Dissolved Phosphorus (P)	ug/L	<100	<100	<100	<100	<100	5592239	<100	100	5593914	N/A
Dissolved Potassium (K)	ug/L	2300	1600	720	1700	1200	5592239	1100	100	5593914	N/A
Dissolved Selenium (Se)	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	5592239	<1.0	1.0	5593914	N/A
Dissolved Silver (Ag)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	5592239	<0.10	0.10	5593914	N/A
Dissolved Sodium (Na)	ug/L	6000	15000	2400	20000	23000	5592239	3300	100	5593914	N/A
Dissolved Strontium (Sr)	ug/L	53	80	14	340	680	5592239	25	2.0	5593914	N/A
Dissolved Thallium (Tl)	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	5592239	<0.10	0.10	5593914	N/A
Dissolved Tin (Sn)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	5592239	<2.0	2.0	5593914	N/A
Dissolved Titanium (Ti)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	5592239	<2.0	2.0	5593914	N/A
Dissolved Uranium (U)	ug/L	<0.10	2.0	<0.10	6.6	3.7	5592239	<0.10	0.10	5593914	N/A
Dissolved Vanadium (V)	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	5592239	<2.0	2.0	5593914	N/A
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	5592239	<5.0	5.0	5593914	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		GZW436		GZW437		GZW438		GZW439			
Sampling Date		2018/06/18 12:50		2018/06/18 12:58		2018/06/18 15:10		2018/06/18 15:16			
COC Number		D34771		D34771		D34771		D34771			
	UNITS	MW-04A Lab-Dup	QC Batch	MW-04B	QC Batch	MW-21A	QC Batch	MW-21B	RDL	QC Batch	MDL
Metals											
Dissolved Aluminum (Al)	ug/L	5.8	5593914	9.0	5592239	430	5593914	16	5.0	5592239	N/A
Dissolved Antimony (Sb)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592239	N/A
Dissolved Arsenic (As)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592239	N/A
Dissolved Barium (Ba)	ug/L	4.1	5593914	4.0	5592239	15	5593914	3.5	1.0	5592239	N/A
Dissolved Beryllium (Be)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592239	N/A
Dissolved Bismuth (Bi)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592239	N/A
Dissolved Boron (B)	ug/L	<50	5593914	<50	5592239	<50	5593914	<50	50	5592239	N/A
Dissolved Cadmium (Cd)	ug/L	0.010	5593914	<0.010	5592239	0.049	5593914	0.015	0.010	5592239	N/A
Dissolved Calcium (Ca)	ug/L	4800	5593914	15000	5592239	1500	5593914	4700	100	5592239	N/A
Dissolved Chromium (Cr)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592239	N/A
Dissolved Cobalt (Co)	ug/L	0.84	5593914	<0.40	5592239	3.7	5593914	<0.40	0.40	5592239	N/A
Dissolved Copper (Cu)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592239	N/A
Dissolved Iron (Fe)	ug/L	<50	5593914	<50	5592239	65	5593914	<50	50	5592239	N/A
Dissolved Lead (Pb)	ug/L	<0.50	5593914	<0.50	5592239	<0.50	5593914	<0.50	0.50	5592239	N/A
Dissolved Magnesium (Mg)	ug/L	1200	5593914	1600	5592239	780	5593914	1500	100	5592239	N/A
Dissolved Manganese (Mn)	ug/L	70	5593914	55	5592239	650	5593914	110	2.0	5592239	N/A
Dissolved Molybdenum (Mo)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592239	N/A
Dissolved Nickel (Ni)	ug/L	5.4	5593914	<2.0	5592239	2.8	5593914	<2.0	2.0	5592239	N/A
Dissolved Phosphorus (P)	ug/L	<100	5593914	<100	5592239	<100	5593914	<100	100	5592239	N/A
Dissolved Potassium (K)	ug/L	1100	5593914	1300	5592239	850	5593914	1200	100	5592239	N/A
Dissolved Selenium (Se)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592239	N/A
Dissolved Silver (Ag)	ug/L	<0.10	5593914	<0.10	5592239	<0.10	5593914	<0.10	0.10	5592239	N/A
Dissolved Sodium (Na)	ug/L	3200	5593914	4100	5592239	1800	5593914	3700	100	5592239	N/A
Dissolved Strontium (Sr)	ug/L	24	5593914	84	5592239	15	5593914	33	2.0	5592239	N/A
Dissolved Thallium (Tl)	ug/L	<0.10	5593914	<0.10	5592239	<0.10	5593914	<0.10	0.10	5592239	N/A
Dissolved Tin (Sn)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592239	N/A
Dissolved Titanium (Ti)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592239	N/A
Dissolved Uranium (U)	ug/L	<0.10	5593914	<0.10	5592239	0.10	5593914	<0.10	0.10	5592239	N/A
Dissolved Vanadium (V)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592239	N/A
Dissolved Zinc (Zn)	ug/L	<5.0	5593914	<5.0	5592239	<5.0	5593914	<5.0	5.0	5592239	N/A

RDL = Reportable Detection Limit
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Lab-Dup = Laboratory Initiated Duplicate
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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		GZW440		GZW441		GZW442	GZW443			
Sampling Date		2018/06/18 15:28		2018/06/18 13:36		2018/06/18 13:40	2018/06/18 14:11			
COC Number		D34771		D34771		D34771	D34771			
	UNITS	MW-21C	QC Batch	MW-16A	QC Batch	MW-16B	MW-17A	RDL	QC Batch	MDL
Metals										
Dissolved Aluminum (Al)	ug/L	7.5	5592239	<5.0	5593914	11	6.4	5.0	5592239	N/A
Dissolved Antimony (Sb)	ug/L	<1.0	5592239	<1.0	5593914	<1.0	<1.0	1.0	5592239	N/A
Dissolved Arsenic (As)	ug/L	<1.0	5592239	1.5	5593914	8.6	<1.0	1.0	5592239	N/A
Dissolved Barium (Ba)	ug/L	9.7	5592239	3.5	5593914	4.6	10	1.0	5592239	N/A
Dissolved Beryllium (Be)	ug/L	<1.0	5592239	<1.0	5593914	<1.0	<1.0	1.0	5592239	N/A
Dissolved Bismuth (Bi)	ug/L	<2.0	5592239	<2.0	5593914	<2.0	<2.0	2.0	5592239	N/A
Dissolved Boron (B)	ug/L	<50	5592239	<50	5593914	<50	<50	50	5592239	N/A
Dissolved Cadmium (Cd)	ug/L	0.019	5592239	0.021	5593914	<0.010	0.039	0.010	5592239	N/A
Dissolved Calcium (Ca)	ug/L	9700	5592239	23000	5593914	20000	4900	100	5592239	N/A
Dissolved Chromium (Cr)	ug/L	<1.0	5592239	<1.0	5593914	<1.0	<1.0	1.0	5592239	N/A
Dissolved Cobalt (Co)	ug/L	0.51	5592239	2.1	5593914	<0.40	3.0	0.40	5592239	N/A
Dissolved Copper (Cu)	ug/L	<2.0	5592239	<2.0	5593914	<2.0	3.7	2.0	5592239	N/A
Dissolved Iron (Fe)	ug/L	<50	5592239	<50	5593914	<50	<50	50	5592239	N/A
Dissolved Lead (Pb)	ug/L	<0.50	5592239	<0.50	5593914	<0.50	<0.50	0.50	5592239	N/A
Dissolved Magnesium (Mg)	ug/L	3200	5592239	1900	5593914	1400	790	100	5592239	N/A
Dissolved Manganese (Mn)	ug/L	180	5592239	690	5593914	6.3	240	2.0	5592239	N/A
Dissolved Molybdenum (Mo)	ug/L	2.6	5592239	<2.0	5593914	<2.0	<2.0	2.0	5592239	N/A
Dissolved Nickel (Ni)	ug/L	<2.0	5592239	<2.0	5593914	<2.0	8.5	2.0	5592239	N/A
Dissolved Phosphorus (P)	ug/L	<100	5592239	<100	5593914	<100	<100	100	5592239	N/A
Dissolved Potassium (K)	ug/L	2100	5592239	550	5593914	1700	670	100	5592239	N/A
Dissolved Selenium (Se)	ug/L	<1.0	5592239	<1.0	5593914	<1.0	<1.0	1.0	5592239	N/A
Dissolved Silver (Ag)	ug/L	<0.10	5592239	<0.10	5593914	<0.10	<0.10	0.10	5592239	N/A
Dissolved Sodium (Na)	ug/L	17000	5592239	8700	5593914	4600	3400	100	5592239	N/A
Dissolved Strontium (Sr)	ug/L	85	5592239	77	5593914	74	32	2.0	5592239	N/A
Dissolved Thallium (Tl)	ug/L	<0.10	5592239	<0.10	5593914	<0.10	<0.10	0.10	5592239	N/A
Dissolved Tin (Sn)	ug/L	<2.0	5592239	<2.0	5593914	<2.0	<2.0	2.0	5592239	N/A
Dissolved Titanium (Ti)	ug/L	<2.0	5592239	<2.0	5593914	<2.0	<2.0	2.0	5592239	N/A
Dissolved Uranium (U)	ug/L	0.29	5592239	2.4	5593914	2.6	<0.10	0.10	5592239	N/A
Dissolved Vanadium (V)	ug/L	<2.0	5592239	<2.0	5593914	<2.0	<2.0	2.0	5592239	N/A
Dissolved Zinc (Zn)	ug/L	6.5	5592239	<5.0	5593914	<5.0	12	5.0	5592239	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		GZW444		GZW445		GZW446		GZW447			
Sampling Date		2018/06/18 14:19		2018/06/18 14:25		2018/06/18		2018/06/18			
COC Number		D34771		D34771		D34771		D34771			
	UNITS	MW-17B	QC Batch	MW-17C	QC Batch	MW-DUPA	QC Batch	MW-DUPB	RDL	QC Batch	MDL
Metals											
Dissolved Aluminum (Al)	ug/L	12	5593914	<5.0	5592239	81	5593914	11	5.0	5592240	N/A
Dissolved Antimony (Sb)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592240	N/A
Dissolved Arsenic (As)	ug/L	<1.0	5593914	1.2	5592239	<1.0	5593914	<1.0	1.0	5592240	N/A
Dissolved Barium (Ba)	ug/L	3.0	5593914	2.4	5592239	5.7	5593914	2.9	1.0	5592240	N/A
Dissolved Beryllium (Be)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592240	N/A
Dissolved Bismuth (Bi)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592240	N/A
Dissolved Boron (B)	ug/L	<50	5593914	<50	5592239	<50	5593914	<50	50	5592240	N/A
Dissolved Cadmium (Cd)	ug/L	0.033	5593914	<0.010	5592239	0.026	5593914	0.037	0.010	5592240	N/A
Dissolved Calcium (Ca)	ug/L	1600	5593914	3600	5592239	9000	5593914	1600	100	5592240	N/A
Dissolved Chromium (Cr)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592240	N/A
Dissolved Cobalt (Co)	ug/L	<0.40	5593914	<0.40	5592239	1.3	5593914	<0.40	0.40	5592240	N/A
Dissolved Copper (Cu)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592240	N/A
Dissolved Iron (Fe)	ug/L	<50	5593914	<50	5592239	<50	5593914	<50	50	5592240	N/A
Dissolved Lead (Pb)	ug/L	<0.50	5593914	<0.50	5592239	<0.50	5593914	<0.50	0.50	5592240	N/A
Dissolved Magnesium (Mg)	ug/L	630	5593914	670	5592239	640	5593914	630	100	5592240	N/A
Dissolved Manganese (Mn)	ug/L	200	5593914	20	5592239	110	5593914	200	2.0	5592240	N/A
Dissolved Molybdenum (Mo)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592240	N/A
Dissolved Nickel (Ni)	ug/L	<2.0	5593914	<2.0	5592239	3.6	5593914	<2.0	2.0	5592240	N/A
Dissolved Phosphorus (P)	ug/L	<100	5593914	<100	5592239	<100	5593914	<100	100	5592240	N/A
Dissolved Potassium (K)	ug/L	410	5593914	440	5592239	670	5593914	410	100	5592240	N/A
Dissolved Selenium (Se)	ug/L	<1.0	5593914	<1.0	5592239	<1.0	5593914	<1.0	1.0	5592240	N/A
Dissolved Silver (Ag)	ug/L	<0.10	5593914	<0.10	5592239	<0.10	5593914	<0.10	0.10	5592240	N/A
Dissolved Sodium (Na)	ug/L	2800	5593914	3200	5592239	2500	5593914	2700	100	5592240	N/A
Dissolved Strontium (Sr)	ug/L	19	5593914	18	5592239	14	5593914	18	2.0	5592240	N/A
Dissolved Thallium (Tl)	ug/L	<0.10	5593914	<0.10	5592239	<0.10	5593914	<0.10	0.10	5592240	N/A
Dissolved Tin (Sn)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592240	N/A
Dissolved Titanium (Ti)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592240	N/A
Dissolved Uranium (U)	ug/L	<0.10	5593914	<0.10	5592239	<0.10	5593914	<0.10	0.10	5592240	N/A
Dissolved Vanadium (V)	ug/L	<2.0	5593914	<2.0	5592239	<2.0	5593914	<2.0	2.0	5592240	N/A
Dissolved Zinc (Zn)	ug/L	<5.0	5593914	<5.0	5592239	<5.0	5593914	<5.0	5.0	5592240	N/A

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW431
Sample ID: MW-12A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5589410	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5589411	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5589412	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5589413	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5589415	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5589416	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5589418	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW431 Dup
Sample ID: MW-12A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW432
Sample ID: MW-12B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5589410	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5589411	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5589412	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5589413	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5589415	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5589416	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5589418	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW433
Sample ID: MW-09A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5589410	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5589411	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5589412	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5589413	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW433
Sample ID: MW-09A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sat. pH and Langelier Index (@ 20C)	CALC	5589415	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5589416	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5589418	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW434
Sample ID: MW-09B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5589410	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5589411	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5589412	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5589413	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5589415	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5589416	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5589418	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW435
Sample ID: MW-09D
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5589410	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW435
Sample ID: MW-09D
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5589411	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5589412	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5589413	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5589415	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5589416	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5589418	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW436
Sample ID: MW-04A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5593914	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW436
Sample ID: MW-04A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW436 Dup
Sample ID: MW-04A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals Water Diss. MS (as rec'd)	CICP/MS	5593914	N/A	2018/06/22	Bryon Angevine

Maxxam ID: GZW437
Sample ID: MW-04B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW438
Sample ID: MW-21A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5593914	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW439
Sample ID: MW-21B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593698	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593697	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW439
Sample ID: MW-21B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW439 Dup
Sample ID: MW-21B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT	5593698	N/A	2018/06/22	Julia McGovern
pH	AT	5593697	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW440
Sample ID: MW-21C
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593711	N/A	2018/06/22	Julia McGovern

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW441
Sample ID: MW-16A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593696	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5593914	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593695	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5596952	N/A	2018/06/25	Luke MacPherson
Turbidity	TURB	5593711	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW442
Sample ID: MW-16B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW442
Sample ID: MW-16B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW443
Sample ID: MW-17A
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5589743	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5589752	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597605	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5589765	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5589767	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5589762	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5589757	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5589755	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593711	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW444
Sample ID: MW-17B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW444
Sample ID: MW-17B
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5597513	N/A	2018/06/25	Jacob Henley
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5593914	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593711	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW445
Sample ID: MW-17C
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592239	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW445
Sample ID: MW-17C
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW446
Sample ID: MW-DUPA
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley
Conductance - water	AT	5593692	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5593914	N/A	2018/06/22	Bryon Angevine
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593691	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5593990	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593708	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW447
Sample ID: MW-DUPB
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	5590380	N/A	2018/06/22	Automated Statchk
Alkalinity	KONE	5593768	N/A	2018/06/25	Jacob Henley
Chloride	KONE	5593775	N/A	2018/06/22	Jacob Henley
Colour	KONE	5593779	N/A	2018/06/22	Jacob Henley

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

TEST SUMMARY

Maxxam ID: GZW447
Sample ID: MW-DUPB
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT	5593694	N/A	2018/06/22	Julia McGovern
Hardness (calculated as CaCO3)		5590383	N/A	2018/06/22	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	5592240	N/A	2018/06/22	Cassandra Hartery
Ion Balance (% Difference)	CALC	5590384	N/A	2018/06/26	Automated Statchk
Anion and Cation Sum	CALC	5590385	N/A	2018/06/22	Automated Statchk
Nitrogen Ammonia - water	KONE	5592399	N/A	2018/06/21	Jacob Henley
Nitrogen - Nitrate + Nitrite	KONE	5593781	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrite	KONE	5593783	N/A	2018/06/25	Jacob Henley
Nitrogen - Nitrate (as N)	CALC	5590281	N/A	2018/06/26	Automated Statchk
pH	AT	5593693	N/A	2018/06/22	Julia McGovern
Phosphorus - ortho	KONE	5593780	N/A	2018/06/22	Jacob Henley
Sat. pH and Langelier Index (@ 20C)	CALC	5590387	N/A	2018/06/26	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	5590388	N/A	2018/06/26	Automated Statchk
Reactive Silica	KONE	5593778	N/A	2018/06/25	Jacob Henley
Sulphate	KONE	5593777	N/A	2018/06/22	Jacob Henley
Total Dissolved Solids (TDS calc)	CALC	5590389	N/A	2018/06/26	Automated Statchk
Organic carbon - Total (TOC)	TOCV/NDIR	5592255	N/A	2018/06/22	Luke MacPherson
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

Maxxam ID: GZW447 Dup
Sample ID: MW-DUPB
Matrix: Water

Collected: 2018/06/18
Shipped:
Received: 2018/06/19

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Turbidity	TURB	5593709	N/A	2018/06/22	Julia McGovern

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.3°C
Package 2	5.3°C

Sample GZW431 [MW-12A] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample GZW433 [MW-09A] : RCAp Ion Balance acceptable. Low ionic strength sample.

Sample GZW436 [MW-04A] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample GZW444 [MW-17B] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample GZW446 [MW-DUPA] : RCAp Ion Balance acceptable. Low ionic strength sample.

Sample GZW447 [MW-DUPB] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Results relate only to the items tested.

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A Bureau Veritas Group Company

Maxxam Job #: B8F0978
Report Date: 2018/06/26

QUALITY ASSURANCE REPORT

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5589743	Total Alkalinity (Total as CaCO3)	2018/06/25	NC	80 - 120	96	80 - 120	<5.0	mg/L	9.1	25		
5589752	Dissolved Chloride (Cl)	2018/06/22	100	80 - 120	103	80 - 120	<1.0	mg/L	10	25	102	80 - 120
5589755	Dissolved Sulphate (SO4)	2018/06/22	93	80 - 120	95	80 - 120	<2.0	mg/L	0.48	25		
5589757	Reactive Silica (SiO2)	2018/06/25	98	80 - 120	95	80 - 120	<0.50	mg/L	0.84	25		
5589762	Orthophosphate (P)	2018/06/22	87	80 - 120	94	80 - 120	<0.010	mg/L	NC	25		
5589765	Nitrate + Nitrite (N)	2018/06/25	96	80 - 120	98	80 - 120	<0.050	mg/L	NC	25		
5589767	Nitrite (N)	2018/06/25	92	80 - 120	96	80 - 120	<0.010	mg/L	NC	20		
5592239	Dissolved Aluminum (Al)	2018/06/22	100	80 - 120	98	80 - 120	<5.0	ug/L	NC	20		
5592239	Dissolved Antimony (Sb)	2018/06/22	103	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		
5592239	Dissolved Arsenic (As)	2018/06/22	97	80 - 120	95	80 - 120	<1.0	ug/L	NC	20		
5592239	Dissolved Barium (Ba)	2018/06/22	101	80 - 120	101	80 - 120	<1.0	ug/L	0.13	20		
5592239	Dissolved Beryllium (Be)	2018/06/22	101	80 - 120	100	80 - 120	<1.0	ug/L	NC	20		
5592239	Dissolved Bismuth (Bi)	2018/06/22	98	80 - 120	103	80 - 120	<2.0	ug/L	NC	20		
5592239	Dissolved Boron (B)	2018/06/22	99	80 - 120	94	80 - 120	<50	ug/L	NC	20		
5592239	Dissolved Cadmium (Cd)	2018/06/22	102	80 - 120	101	80 - 120	<0.010	ug/L	NC	20		
5592239	Dissolved Calcium (Ca)	2018/06/22	NC	80 - 120	102	80 - 120	<100	ug/L	0.11	20		
5592239	Dissolved Chromium (Cr)	2018/06/22	96	80 - 120	95	80 - 120	<1.0	ug/L	NC	20		
5592239	Dissolved Cobalt (Co)	2018/06/22	94	80 - 120	95	80 - 120	<0.40	ug/L	NC	20		
5592239	Dissolved Copper (Cu)	2018/06/22	90	80 - 120	93	80 - 120	<2.0	ug/L	NC	20		
5592239	Dissolved Iron (Fe)	2018/06/22	99	80 - 120	98	80 - 120	<50	ug/L	NC	20		
5592239	Dissolved Lead (Pb)	2018/06/22	97	80 - 120	98	80 - 120	<0.50	ug/L	NC	20		
5592239	Dissolved Magnesium (Mg)	2018/06/22	NC	80 - 120	101	80 - 120	<100	ug/L	0.36	20		
5592239	Dissolved Manganese (Mn)	2018/06/22	95	80 - 120	96	80 - 120	<2.0	ug/L	NC	20		
5592239	Dissolved Molybdenum (Mo)	2018/06/22	106	80 - 120	102	80 - 120	<2.0	ug/L	NC	20		
5592239	Dissolved Nickel (Ni)	2018/06/22	92	80 - 120	95	80 - 120	<2.0	ug/L	NC	20		
5592239	Dissolved Phosphorus (P)	2018/06/22	104	80 - 120	102	80 - 120	<100	ug/L	NC	20		
5592239	Dissolved Potassium (K)	2018/06/22	102	80 - 120	103	80 - 120	<100	ug/L	1.3	20		
5592239	Dissolved Selenium (Se)	2018/06/22	96	80 - 120	95	80 - 120	<1.0	ug/L	NC	20		
5592239	Dissolved Silver (Ag)	2018/06/22	99	80 - 120	98	80 - 120	<0.10	ug/L	NC	20		
5592239	Dissolved Sodium (Na)	2018/06/22	94	80 - 120	96	80 - 120	<100	ug/L	0.37	20		

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5592239	Dissolved Strontium (Sr)	2018/06/22	NC	80 - 120	97	80 - 120	<2.0	ug/L	0.60	20		
5592239	Dissolved Thallium (Tl)	2018/06/22	101	80 - 120	101	80 - 120	<0.10	ug/L	NC	20		
5592239	Dissolved Tin (Sn)	2018/06/22	108	80 - 120	107	80 - 120	<2.0	ug/L	NC	20		
5592239	Dissolved Titanium (Ti)	2018/06/22	100	80 - 120	99	80 - 120	<2.0	ug/L	NC	20		
5592239	Dissolved Uranium (U)	2018/06/22	101	80 - 120	99	80 - 120	<0.10	ug/L	0.48	20		
5592239	Dissolved Vanadium (V)	2018/06/22	99	80 - 120	98	80 - 120	<2.0	ug/L	NC	20		
5592239	Dissolved Zinc (Zn)	2018/06/22	97	80 - 120	99	80 - 120	<5.0	ug/L	NC	20		
5592240	Dissolved Aluminum (Al)	2018/06/22	97	80 - 120	98	80 - 120	<5.0	ug/L	1.7	20		
5592240	Dissolved Antimony (Sb)	2018/06/22	103	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
5592240	Dissolved Arsenic (As)	2018/06/22	96	80 - 120	96	80 - 120	<1.0	ug/L	3.9	20		
5592240	Dissolved Barium (Ba)	2018/06/22	104	80 - 120	105	80 - 120	<1.0	ug/L	0.23	20		
5592240	Dissolved Beryllium (Be)	2018/06/22	99	80 - 120	100	80 - 120	<1.0	ug/L	NC	20		
5592240	Dissolved Bismuth (Bi)	2018/06/22	101	80 - 120	104	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Boron (B)	2018/06/22	96	80 - 120	95	80 - 120	<50	ug/L	NC	20		
5592240	Dissolved Cadmium (Cd)	2018/06/22	103	80 - 120	104	80 - 120	<0.010	ug/L	NC	20		
5592240	Dissolved Calcium (Ca)	2018/06/22	99	80 - 120	105	80 - 120	<100	ug/L	1.0	20		
5592240	Dissolved Chromium (Cr)	2018/06/22	95	80 - 120	97	80 - 120	<1.0	ug/L	NC	20		
5592240	Dissolved Cobalt (Co)	2018/06/22	95	80 - 120	97	80 - 120	<0.40	ug/L	NC	20		
5592240	Dissolved Copper (Cu)	2018/06/22	91	80 - 120	93	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Iron (Fe)	2018/06/22	98	80 - 120	100	80 - 120	<50	ug/L	NC	20		
5592240	Dissolved Lead (Pb)	2018/06/22	98	80 - 120	100	80 - 120	<0.50	ug/L	NC	20		
5592240	Dissolved Magnesium (Mg)	2018/06/22	100	80 - 120	103	80 - 120	<100	ug/L	0.41	20		
5592240	Dissolved Manganese (Mn)	2018/06/22	NC	80 - 120	97	80 - 120	<2.0	ug/L	0.58	20		
5592240	Dissolved Molybdenum (Mo)	2018/06/22	103	80 - 120	103	80 - 120	<2.0	ug/L	3.7	20		
5592240	Dissolved Nickel (Ni)	2018/06/22	92	80 - 120	94	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Phosphorus (P)	2018/06/22	104	80 - 120	103	80 - 120	<100	ug/L	NC	20		
5592240	Dissolved Potassium (K)	2018/06/22	100	80 - 120	105	80 - 120	<100	ug/L	1.3	20		
5592240	Dissolved Selenium (Se)	2018/06/22	96	80 - 120	96	80 - 120	<1.0	ug/L	NC	20		
5592240	Dissolved Silver (Ag)	2018/06/22	92	80 - 120	99	80 - 120	<0.10	ug/L	NC	20		
5592240	Dissolved Sodium (Na)	2018/06/22	94	80 - 120	95	80 - 120	<100	ug/L	0.53	20		

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5592240	Dissolved Strontium (Sr)	2018/06/22	100	80 - 120	99	80 - 120	<2.0	ug/L	1.0	20		
5592240	Dissolved Thallium (Tl)	2018/06/22	103	80 - 120	104	80 - 120	<0.10	ug/L	NC	20		
5592240	Dissolved Tin (Sn)	2018/06/22	105	80 - 120	108	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Titanium (Ti)	2018/06/22	99	80 - 120	103	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Uranium (U)	2018/06/22	101	80 - 120	102	80 - 120	<0.10	ug/L	2.6	20		
5592240	Dissolved Vanadium (V)	2018/06/22	98	80 - 120	100	80 - 120	<2.0	ug/L	NC	20		
5592240	Dissolved Zinc (Zn)	2018/06/22	100	80 - 120	100	80 - 120	<5.0	ug/L	NC	20		
5592255	Total Organic Carbon (C)	2018/06/22	95	85 - 115	96	80 - 120	<0.50	mg/L	2.1	15		
5592399	Nitrogen (Ammonia Nitrogen)	2018/06/21	101	80 - 120	104	80 - 120	<0.050	mg/L	NC	20		
5593691	pH	2018/06/22							0.74	N/A	101	97 - 103
5593692	Conductivity	2018/06/22			101	80 - 120	1.5, RDL=1.0	uS/cm	0.29	25		
5593693	pH	2018/06/22							0.48	N/A	100	97 - 103
5593694	Conductivity	2018/06/22			100	80 - 120	1.4, RDL=1.0	uS/cm	0.24	25		
5593695	pH	2018/06/22							0.76	N/A	100	97 - 103
5593696	Conductivity	2018/06/22			101	80 - 120	1.7, RDL=1.0	uS/cm	0.15	25		
5593697	pH	2018/06/22							0.39	N/A	101	97 - 103
5593698	Conductivity	2018/06/22			101	80 - 120	1.8, RDL=1.0	uS/cm	1.9	25		
5593708	Turbidity	2018/06/22			94	80 - 120	<0.10	NTU	2.4	20	97	80 - 120
5593709	Turbidity	2018/06/22			94	80 - 120	<0.10	NTU	9.5	20	96	80 - 120
5593711	Turbidity	2018/06/22			92	80 - 120	<0.10	NTU	4.5	20	96	80 - 120
5593768	Total Alkalinity (Total as CaCO3)	2018/06/25	90	80 - 120	95	80 - 120	<5.0	mg/L	2.2	25		
5593775	Dissolved Chloride (Cl)	2018/06/22	101	80 - 120	102	80 - 120	<1.0	mg/L	1.8	25	100	80 - 120
5593777	Dissolved Sulphate (SO4)	2018/06/22	97	80 - 120	93	80 - 120	<2.0	mg/L	0.015	25		
5593778	Reactive Silica (SiO2)	2018/06/25	NC	80 - 120	97	80 - 120	<0.50	mg/L	0.95	25		
5593779	Colour	2018/06/22			99	80 - 120	<5.0	TCU	NC	20		
5593780	Orthophosphate (P)	2018/06/22	92	80 - 120	94	80 - 120	<0.010	mg/L	NC	25		
5593781	Nitrate + Nitrite (N)	2018/06/25	95	80 - 120	97	80 - 120	<0.050	mg/L	0.94	25		
5593783	Nitrite (N)	2018/06/25	98	80 - 120	96	80 - 120	<0.010	mg/L	NC	20		
5593914	Dissolved Aluminum (Al)	2018/06/22	100	80 - 120	99	80 - 120	<5.0	ug/L	3.1	20		
5593914	Dissolved Antimony (Sb)	2018/06/22	94	80 - 120	92	80 - 120	<1.0	ug/L	NC	20		

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5593914	Dissolved Arsenic (As)	2018/06/22	95	80 - 120	95	80 - 120	<1.0	ug/L	NC	20		
5593914	Dissolved Barium (Ba)	2018/06/22	95	80 - 120	95	80 - 120	<1.0	ug/L	0.55	20		
5593914	Dissolved Beryllium (Be)	2018/06/22	94	80 - 120	96	80 - 120	<1.0	ug/L	NC	20		
5593914	Dissolved Bismuth (Bi)	2018/06/22	101	80 - 120	99	80 - 120	<2.0	ug/L	NC	20		
5593914	Dissolved Boron (B)	2018/06/22	93	80 - 120	93	80 - 120	<50	ug/L	NC	20		
5593914	Dissolved Cadmium (Cd)	2018/06/22	95	80 - 120	98	80 - 120	<0.010	ug/L	0.74	20		
5593914	Dissolved Calcium (Ca)	2018/06/22	98	80 - 120	99	80 - 120	<100	ug/L	0.17	20		
5593914	Dissolved Chromium (Cr)	2018/06/22	92	80 - 120	93	80 - 120	<1.0	ug/L	NC	20		
5593914	Dissolved Cobalt (Co)	2018/06/22	95	80 - 120	96	80 - 120	<0.40	ug/L	3.5	20		
5593914	Dissolved Copper (Cu)	2018/06/22	94	80 - 120	96	80 - 120	<2.0	ug/L	NC	20		
5593914	Dissolved Iron (Fe)	2018/06/22	97	80 - 120	98	80 - 120	<50	ug/L	NC	20		
5593914	Dissolved Lead (Pb)	2018/06/22	97	80 - 120	97	80 - 120	<0.50	ug/L	NC	20		
5593914	Dissolved Magnesium (Mg)	2018/06/22	97	80 - 120	98	80 - 120	<100	ug/L	0.76	20		
5593914	Dissolved Manganese (Mn)	2018/06/22	96	80 - 120	99	80 - 120	<2.0	ug/L	2.1	20		
5593914	Dissolved Molybdenum (Mo)	2018/06/22	100	80 - 120	98	80 - 120	<2.0	ug/L	NC	20		
5593914	Dissolved Nickel (Ni)	2018/06/22	94	80 - 120	96	80 - 120	<2.0	ug/L	0.38	20		
5593914	Dissolved Phosphorus (P)	2018/06/22	102	80 - 120	103	80 - 120	<100	ug/L	NC	20		
5593914	Dissolved Potassium (K)	2018/06/22	100	80 - 120	101	80 - 120	<100	ug/L	0.065	20		
5593914	Dissolved Selenium (Se)	2018/06/22	95	80 - 120	95	80 - 120	<1.0	ug/L	NC	20		
5593914	Dissolved Silver (Ag)	2018/06/22	95	80 - 120	95	80 - 120	<0.10	ug/L	NC	20		
5593914	Dissolved Sodium (Na)	2018/06/22	93	80 - 120	95	80 - 120	<100	ug/L	0.99	20		
5593914	Dissolved Strontium (Sr)	2018/06/22	97	80 - 120	97	80 - 120	<2.0	ug/L	0.61	20		
5593914	Dissolved Thallium (Tl)	2018/06/22	101	80 - 120	100	80 - 120	<0.10	ug/L	NC	20		
5593914	Dissolved Tin (Sn)	2018/06/22	103	80 - 120	98	80 - 120	<2.0	ug/L	NC	20		
5593914	Dissolved Titanium (Ti)	2018/06/22	101	80 - 120	98	80 - 120	<2.0	ug/L	NC	20		
5593914	Dissolved Uranium (U)	2018/06/22	100	80 - 120	99	80 - 120	<0.10	ug/L	NC	20		
5593914	Dissolved Vanadium (V)	2018/06/22	94	80 - 120	96	80 - 120	<2.0	ug/L	NC	20		
5593914	Dissolved Zinc (Zn)	2018/06/22	100	80 - 120	101	80 - 120	<5.0	ug/L	NC	20		
5593990	Total Organic Carbon (C)	2018/06/22	92	85 - 115	94	80 - 120	<0.50	mg/L	1.5	15		
5596952	Total Organic Carbon (C)	2018/06/25	105	85 - 115	106	80 - 120	<0.50	mg/L	5.4	15		

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

QUALITY ASSURANCE REPORT(CONT'D)

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
5597513	Colour	2018/06/25			98	80 - 120	<5.0	TCU	NC	20		
5597605	Colour	2018/06/25			96	80 - 120	<5.0	TCU	NC	20		

N/A = Not Applicable

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Maxxam Job #: B8F0978
Report Date: 2018/06/26

GHD Limited
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 73512044
Sampler Initials: DN

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Eric Dearman, Scientific Specialist

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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465 George Street,Unit G,Sydney, NS B1P 1K5 Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770
www.maxxam.ca E-mail: Customerservicebedford@maxxam.ca

CHAIN OF CUSTODY RECORD

COC #: D34771 Page 1 of 2

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: GHD LTD	Company Name:	Quotation #: STANDING OFFER	[X] Regular TAT (5 business days) Most analyses
Contact Name: JEFFREY, TRINA	Contact Name: JEFF PARKS	P.O. #: 7351204 4	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 45 AKERLEY BLVD DARTMOUTH Postal Code: B3B 1J7	Address: Postal Code:	Project #: 088664	IF RUSH please specify date (Surcharges will be applied)
Phone: 902-468-1243 Fax:	Phone: Fax:	Site Location: BEAVER DAM	DATE REQUIRED:
Email: trina.jeffrey@ghd.com	Email: jeffrey.parks@ghd.com	Site #:	
		Sampled By: D.N. / J.R. / R.H.	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		6	4
		6	5
		7	7

COOLING MEDIA PRESENT Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED &PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS [Total Metals] Well / Surface water	RCAP-MS [Dissolved Metals] Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default: Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons Soil (Potable), NS Fuel Oil Spill Policy Low Level BTEX ,C6-C32	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	NB Potable Water BTEX, VPH, Low level T.E.H	PAHs (Default: for water/soil)	PAHs (FWAL /CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.Coli (Count)		HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify) / COMMENTS
1	MW-12A	18/06/18	11:26	GW	4	X			X																			
2	MW-12B	18/06/18	11:37	GW	4	X			X																			
3	MW-09A	18/06/18	11:58	GW	4	X			X																			
4	MW-09B	18/06/18	12:07	GW	4	X			X																			
5	MW-09D	18/06/18	12:15	GW	4	X			X																			
6	MW-04A	18/06/18	12:50	GW	4	X			X																			
7	MW-04B	18/06/18	12:58	GW	4	X			X																			
8	MW-21A	18/06/18	15:10	GW	4	X			X																			
9	MW-21B	18/06/18	15:16	GW	4	X			X																			
10	MW-21C	18/06/18	15:28	GW	4	X			X																			

2018 JUN 19 15:24

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
<Original signed by>	2018/06/19	2:46	<Original signed by>			B8F09978
V Jessica Remy						

'18 JUN 19 14:47

White: Maxxam Pink: Client

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CHAIN OF CUSTODY RECORD

COC #: D34773 Page 2 of 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required
Company Name:	GHD LTD	Company Name:		Quotation #:	STANDING OFFER	[X] Regular TAT (5 business days) Most analyses
Contact Name:	TRINA JEFFREY	Contact Name:	JEFFREY PARKS	P.O. #:	7351204	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address:	45 AKERLEY BLVD	Address:		Project #:	088664	IF RUSH please specify date (Surcharges will be applied)
	DARTMOUTH Postal Code: B3B 1J7		Postal Code:	Site Location:	BEAVER DAM	DATE REQUIRED:
Phone:	902-468-1248 902-468-2207	Phone:	Fax:	Site #:		
Email:	trina.jeffrey@ghd.com	Email:	jeffrey.parks@ghd.com	Sampled By:	DN/JR/RH	

Laboratory Use Only

CUSTODY SEAL Present	CUSTODY SEAL Intact	COOLER TEMPERATURES	COOLER TEMPERATURES
		6	4
		6	5
		4	7

COOLING MEDIA PRESENT Y / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM

Analysis Requested

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	RCAP-MS [Total Metals] Well / Surface water	RCAP-MS [Dissolved Metals] Ground waters	Metals (Water): Total Digest (Default Method) for well water & surface water	Metals (Water): Dissolved for ground water	Metals (Water): Mercury (CIRCLE) TOTAL / DISSOLVED	Metals (Soil): Metals & Mercury Default Acid Extractable (Available) Digest	Metals (Soil): Metals Total Digest -for Ocean sediments (HNO3/HF/HClO4)	Metals (Soil): Mercury Low level by Cold Vapour AA	Metals (Soil): Hot Water Soluble Boron (required for CCME Agricultural/ Landfill)	RBCA Hydrocarbons (BTEX, C6-C32)	Hydrocarbons Soil (Portable), NS Fuel Oil Spill Policy Low Level BTEX ,C6-C32	CCME Hydrocarbons (CWS-PHC F1/BTEX, F2-F4)	NB Potable Water BTEX, VPH, Low level T.E.H	PAHs (Default for water/soil)	PAHs (FWAL /CCME Sediment)	PCBs	VOCs	Total Coliform/E.coli (Presence/Absence)	Total Coliform/E.Coli (Count)		HOLD- DO NOT ANALYZE	Regulatory Requirements (Specify) / COMMENTS
1	MW-16A	18/06/18	13:36	GW	4	X			X																			
2	MW-16B	18/06/18	13:40	GW	4	X			X																			
3	MW-17A	18/06/18	14:11	GW	4	X			X																			
4	MW-17B	18/06/18	14:19	GW	4	X			X																			
5	MW-17C	18/06/18	14:25	GW	4	X			X																			2018 JUN 19 15:24
6	MW-DUPA	18/06/18	—	GW	4	X			X																			
7	MW-DUPB	18/06/18	—	GW	4	X			X																			
8																												
9																												
10																												

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY:(Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	MAXXAM JOB #
<Original signed by>	2018/06/19	2:46	<Original signed by> Jane Doyle			B8F0978
V Jessica Romo						

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Maxxam's standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms which are available for viewing at www.maxxam.ca/terms.

'18 JUN 19 14:47

White: Maxxam Pink: Client

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Your P.O. #: 3151
Your Project #: 088664-20
Site Location: BEAVER DAM
Your C.O.C. #: D34774

Attention: James Millard

Atlantic Mining NS Corp
6749 Moose River Rd
Middle Musquodoboit, NS
CANADA B0N 1X0

Report Date: 2018/07/09
Report #: R5286935
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8G1148
Received: 2018/06/28, 10:31

Sample Matrix: Water
Samples Received: 22

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Carbonate, Bicarbonate and Hydroxide	22	N/A	2018/07/04	N/A	SM 22 4500-CO2 D
Alkalinity	1	N/A	2018/07/04	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity	8	N/A	2018/07/05	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity	13	N/A	2018/07/06	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	1	N/A	2018/07/05	ATL SOP 00014	SM 23 4500-Cl- E m
Chloride	21	N/A	2018/07/06	ATL SOP 00014	SM 23 4500-Cl- E m
Colour	1	N/A	2018/07/06	ATL SOP 00020	SM 22 2120C m
Colour	21	N/A	2018/07/09	ATL SOP 00020	SM 22 2120C m
Conductance - water	22	N/A	2018/07/04	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3)	8	N/A	2018/07/05	ATL SOP 00048	SM 22 2340 B
Hardness (calculated as CaCO3)	14	N/A	2018/07/06	ATL SOP 00048	SM 22 2340 B
Metals Water Diss. MS (as rec'd)	8	N/A	2018/07/05	ATL SOP 00058	EPA 6020A R1 m
Metals Water Diss. MS (as rec'd)	14	N/A	2018/07/06	ATL SOP 00058	EPA 6020A R1 m
Ion Balance (% Difference)	1	N/A	2018/07/06	N/A	Auto Calc.
Ion Balance (% Difference)	21	N/A	2018/07/09	N/A	Auto Calc.
Anion and Cation Sum	8	N/A	2018/07/05	N/A	Auto Calc.
Anion and Cation Sum	14	N/A	2018/07/06	N/A	Auto Calc.
Nitrogen Ammonia - water	21	N/A	2018/07/05	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen Ammonia - water	1	N/A	2018/07/06	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	1	N/A	2018/07/05	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrate + Nitrite	21	N/A	2018/07/09	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	22	N/A	2018/07/05	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	1	N/A	2018/07/06	ATL SOP 00018	ASTM D3867-16
Nitrogen - Nitrate (as N)	21	N/A	2018/07/09	ATL SOP 00018	ASTM D3867-16
pH (1)	22	N/A	2018/07/04	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho	1	N/A	2018/07/05	ATL SOP 00021	SM 23 4500-P E m
Phosphorus - ortho	21	N/A	2018/07/06	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	1	N/A	2018/07/06	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 20C)	21	N/A	2018/07/09	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	1	N/A	2018/07/06	ATL SOP 00049	Auto Calc.

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Your P.O. #: 3151
Your Project #: 088664-20
Site Location: BEAVER DAM
Your C.O.C. #: D34774

Attention: James Millard

Atlantic Mining NS Corp
6749 Moose River Rd
Middle Musquodoboit, NS
CANADA B0N 1X0

Report Date: 2018/07/09
Report #: R5286935
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8G1148
Received: 2018/06/28, 10:31

Sample Matrix: Water
Samples Received: 22

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Sat. pH and Langelier Index (@ 4C)	21	N/A	2018/07/09	ATL SOP 00049	Auto Calc.
Reactive Silica	14	N/A	2018/07/05	ATL SOP 00022	EPA 366.0 m
Reactive Silica	8	N/A	2018/07/06	ATL SOP 00022	EPA 366.0 m
Sulphate	1	N/A	2018/07/04	ATL SOP 00023	ASTM D516-16 m
Sulphate	21	N/A	2018/07/06	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	1	N/A	2018/07/06	N/A	Auto Calc.
Total Dissolved Solids (TDS calc)	21	N/A	2018/07/09	N/A	Auto Calc.
Organic carbon - Total (TOC) (2)	8	N/A	2018/07/04	ATL SOP 00203	SM 23 5310B m
Organic carbon - Total (TOC) (2)	14	N/A	2018/07/05	ATL SOP 00203	SM 23 5310B m
Turbidity	22	N/A	2018/07/05	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.
(2) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

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Your P.O. #: 3151
Your Project #: 088664-20
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CANADA B0N 1X0

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CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B8G1148
Received: 2018/06/28, 10:31

Encryption Key

Maxxam
09 Jul 2018 17:20:08

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Maryann Comeau, Project Manager
Email: MComeau@maxxam.ca
Phone# (902) 420-0203
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Maxxam Job #: B8G1148
Report Date: 2018/07/09

Atlantic Mining NS Corp
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 3151
Sampler Initials: RH

RESULTS OF ANALYSES OF WATER

Maxxam ID		HCC205	HCC206	HCC207		HCC207		HCC208		HCC209	
Sampling Date		2018/06/27 10:49	2018/06/27 10:57	2018/06/27 11:03		2018/06/27 11:03		2018/06/27 11:19		2018/06/27 11:23	
COC Number		D34774	D34774	D34774		D34774		D34774		D34774	
	UNITS	MW-05A	MW-05B	MW-05D	RDL	MW-05D Lab-Dup	RDL	MW-07A	RDL	MW-07B	RDL
Calculated Parameters											
Anion Sum	me/L	0.410	0.990	1.73	N/A			2.47	N/A	7.02	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	11	37	66	1.0			100	1.0	320	1.0
Calculated TDS	mg/L	27	60	100	1.0			150	1.0	380	1.0
Carb. Alkalinity (calc. as CaCO3)	mg/L	ND	ND	ND	1.0			ND	1.0	2.2	1.0
Cation Sum	me/L	0.370	0.900	1.61	N/A			2.53	N/A	6.68	N/A
Hardness (CaCO3)	mg/L	10	27	56	1.0			93	1.0	290	1.0
Ion Balance (% Difference)	%	5.13	4.76	3.59	N/A			1.20	N/A	2.48	N/A
Langelier Index (@ 20C)	N/A	-3.37	-1.33	-0.134				-0.988		0.935	
Langelier Index (@ 4C)	N/A	-3.62	-1.58	-0.385				-1.24		0.686	
Nitrate (N)	mg/L	0.051	0.061	ND	0.050			ND	0.050	ND	0.050
Saturation pH (@ 20C)	N/A	9.80	8.80	8.26				7.93		6.93	
Saturation pH (@ 4C)	N/A	10.1	9.05	8.51				8.18		7.18	
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L	11	37	66	5.0			100	10	320	25
Dissolved Chloride (Cl-)	mg/L	4.5	4.0	4.7	1.0			4.4	1.0	6.7	1.0
Colour	TCU	ND	ND	ND	5.0			8.0	5.0	ND	5.0
Nitrate + Nitrite (N)	mg/L	0.051	0.061	ND	0.050			ND	0.050	ND	0.050
Nitrite (N)	mg/L	ND	ND	ND	0.010			ND	0.010	ND	0.010
Nitrogen (Ammonia Nitrogen)	mg/L	ND	ND	ND	0.050	ND	0.050	ND	0.050	0.060	0.050
Total Organic Carbon (C)	mg/L	1.5	2.0	1.3	0.50			1.1	0.50	3.2	0.50
Orthophosphate (P)	mg/L	ND	ND	ND	0.010			ND	0.010	0.013	0.010
pH	pH	6.43	7.47	8.13	N/A			6.94	N/A	7.86	N/A
Reactive Silica (SiO2)	mg/L	5.1	8.2	12	0.50			21	0.50	24	0.50
Dissolved Sulphate (SO4)	mg/L	3.0	6.6	13	2.0			13	2.0	19	2.0
Turbidity	NTU	1.5	11	2.2	0.10			30	0.10	4.6	0.10
Conductivity	uS/cm	44	100	170	1.0			240	1.0	620	1.0

RDL = Reportable Detection Limit
Lab-Dup = Laboratory Initiated Duplicate
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Maxxam Job #: B8G1148
Report Date: 2018/07/09

Atlantic Mining NS Corp
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 3151
Sampler Initials: RH

RESULTS OF ANALYSES OF WATER

Maxxam ID		HCC210		HCC211	HCC212	HCC213	HCC214		HCC215	
Sampling Date		2018/06/27 11:28		2018/06/27 11:49	2018/06/27 11:54	2018/06/27 11:45	2018/06/27 12:42		2018/06/27 12:51	
COC Number		D34774		D34774	D34774	D34774	D34774		D34774	
	UNITS	MW-07D	RDL	MW-11A	MW-11B	MW-11C	MW-14A	RDL	MW-14B	RDL
Calculated Parameters										
Anion Sum	me/L	2.59	N/A	0.300	1.87	2.02	0.740	N/A	5.07	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	110	1.0	5.5	78	68	27	1.0	91	1.0
Calculated TDS	mg/L	150	1.0	21	100	120	53	1.0	320	1.0
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.1	1.0	ND	ND	ND	ND	1.0	1.3	1.0
Cation Sum	me/L	2.75	N/A	0.280	1.71	1.91	0.670	N/A	4.58	N/A
Hardness (CaCO3)	mg/L	120	1.0	8.0	71	76	18	1.0	46	1.0
Ion Balance (% Difference)	%	3.00	N/A	3.45	4.47	2.80	4.96	N/A	5.08	N/A
Langelier Index (@ 20C)	N/A	0.288		-4.04	0.0690	-0.283	-2.64		-0.123	
Langelier Index (@ 4C)	N/A	0.0380		-4.29	-0.182	-0.534	-2.89		-0.371	
Nitrate (N)	mg/L	ND	0.050	0.059	0.19	0.066	0.11	0.050	ND	0.050
Saturation pH (@ 20C)	N/A	7.77		10.2	8.05	8.10	9.19		8.29	
Saturation pH (@ 4C)	N/A	8.02		10.4	8.30	8.35	9.44		8.54	
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	110 (1)	25	5.5	79	69	27	5.0	92	5.0
Dissolved Chloride (Cl-)	mg/L	6.9	1.0	4.8	3.5	4.4	3.6	1.0	13	1.0
Colour	TCU	ND	5.0	ND	ND	ND	ND	5.0	ND	5.0
Nitrate + Nitrite (N)	mg/L	ND	0.050	0.059	0.19	0.066	0.11	0.050	ND	0.050
Nitrite (N)	mg/L	ND	0.010	ND	ND	ND	ND	0.010	ND	0.010
Nitrogen (Ammonia Nitrogen)	mg/L	ND	0.050	ND	ND	ND	ND	0.050	ND	0.050
Total Organic Carbon (C)	mg/L	2.2	0.50	1.3	0.65	1.7	0.62	0.50	14	0.50
Orthophosphate (P)	mg/L	0.035	0.010	ND	0.018	0.021	0.012	0.010	ND	0.010
pH	pH	8.05	N/A	6.12	8.11	7.82	6.56	N/A	8.17	N/A
Reactive Silica (SiO2)	mg/L	15	0.50	3.8	8.7	8.8	14	0.50	8.9	0.50
Dissolved Sulphate (SO4)	mg/L	12	2.0	2.6	8.2	25	4.3	2.0	140	10
Turbidity	NTU	9.5	0.10	0.80	10	6.8	61	0.10	37	0.10
Conductivity	uS/cm	280	1.0	35	170	200	74	1.0	540	1.0

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(1) Elevated reporting limit due to sample matrix.

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Maxxam Job #: B8G1148
Report Date: 2018/07/09

Atlantic Mining NS Corp
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 3151
Sampler Initials: RH

RESULTS OF ANALYSES OF WATER

Maxxam ID		HCC216	HCC217	HCC218		HCC218		HCC219	HCC220	
Sampling Date		2018/06/27 13:01	2018/06/27 12:18	2018/06/27 12:22		2018/06/27 12:22		2018/06/27 12:27	2018/06/26 13:28	
COC Number		D34774	D34774	D34774		D34774		D34774	D34774	
	UNITS	MW-14C	MW-18A	MW-18B	RDL	MW-18B Lab-Dup	RDL	MW-18C	MW-20A	RDL
Calculated Parameters										
Anion Sum	me/L	1.80	0.310	1.34	N/A			2.02	0.360	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	72	5.5	45	1.0			52	7.9	1.0
Calculated TDS	mg/L	100	23	84	1.0			130	26	1.0
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.3	ND	ND	1.0			ND	ND	1.0
Cation Sum	me/L	1.60	0.270	1.23	N/A			1.89	0.310	N/A
Hardness (CaCO3)	mg/L	29	6.8	41	1.0			45	7.6	1.0
Ion Balance (% Difference)	%	5.88	6.90	4.28	N/A			3.32	7.46	N/A
Langelier Index (@ 20C)	N/A	-0.227	-4.17	-0.820				-0.636	-4.03	
Langelier Index (@ 4C)	N/A	-0.478	-4.42	-1.07				-0.886	-4.28	
Nitrate (N)	mg/L	0.052	0.062	ND	0.050			ND	0.21	0.050
Saturation pH (@ 20C)	N/A	8.52	10.3	8.52				8.44	10.1	
Saturation pH (@ 4C)	N/A	8.77	10.6	8.77				8.69	10.4	
Inorganics										
Total Alkalinity (Total as CaCO3)	mg/L	74	5.5	45	5.0	46	5.0	52	7.9	5.0
Dissolved Chloride (Cl-)	mg/L	3.9	3.8	3.5	1.0	3.3	1.0	5.3	4.8	1.0
Colour	TCU	ND	ND	ND	5.0	ND	5.0	ND	5.5	5.0
Nitrate + Nitrite (N)	mg/L	0.052	0.062	ND	0.050	0.050	0.050	ND	0.21	0.050
Nitrite (N)	mg/L	ND	ND	ND	0.010	ND	0.010	ND	ND	0.010
Nitrogen (Ammonia Nitrogen)	mg/L	ND	ND	ND	0.050			ND	ND	0.050
Total Organic Carbon (C)	mg/L	1.5	1.7	1.4	0.50			5.8	1.3	0.50
Orthophosphate (P)	mg/L	ND	ND	0.054	0.010	0.051	0.010	ND	ND	0.010
pH	pH	8.29	6.18	7.70	N/A	7.83	N/A	7.81	6.08	N/A
Reactive Silica (SiO2)	mg/L	10	5.3	11	0.50	11	0.50	11	6.7	0.50
Dissolved Sulphate (SO4)	mg/L	11	4.3	17	2.0	16	2.0	40	2.3	2.0
Turbidity	NTU	33	1.1	20	0.10	19	0.10	18	4.9	0.10
Conductivity	uS/cm	170	35	130	1.0	130	1.0	210	38	1.0

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Maxxam Job #: B8G1148
Report Date: 2018/07/09

Atlantic Mining NS Corp
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 3151
Sampler Initials: RH

RESULTS OF ANALYSES OF WATER

Maxxam ID		HCC221	HCC222	HCC223	HCC224	HCC225		HCC226	
Sampling Date		2018/06/26 13:36	2018/06/26 12:58	2018/06/26 13:03	2018/06/26 13:09	2018/06/27 13:20		2018/06/27 13:25	
COC Number		D34774	D34774	D34774	D34774	D34774		D34774	
	UNITS	MW-20B	MW-22A	MW-22B	MW-22C	DUP4	RDL	DUP5	RDL
Calculated Parameters									
Anion Sum	me/L	2.12	0.300	1.56	2.24	0.420	N/A	5.04	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	90	5.8	59	94	11	1.0	94	1.0
Calculated TDS	mg/L	120	23	94	130	28	1.0	310	1.0
Carb. Alkalinity (calc. as CaCO3)	mg/L	ND	ND	ND	1.0	ND	1.0	1.5	1.0
Cation Sum	me/L	1.95	0.260	1.38	2.00	0.380	N/A	4.50	N/A
Hardness (CaCO3)	mg/L	72	5.5	48	52	10	1.0	45	1.0
Ion Balance (% Difference)	%	4.18	7.14	6.12	5.66	5.00	N/A	5.66	N/A
Langelier Index (@ 20C)	N/A	-0.0410	-4.11	-0.786	-0.0890	-3.46		-0.0470	
Langelier Index (@ 4C)	N/A	-0.291	-4.36	-1.04	-0.340	-3.71		-0.297	
Nitrate (N)	mg/L	ND	0.093	ND	ND	ND	0.050	ND	0.050
Saturation pH (@ 20C)	N/A	8.07	10.5	8.41	8.16	9.79		8.29	
Saturation pH (@ 4C)	N/A	8.32	10.7	8.66	8.41	10.0		8.54	
Inorganics									
Total Alkalinity (Total as CaCO3)	mg/L	91	5.8	60	95	11	5.0	95	5.0
Dissolved Chloride (Cl-)	mg/L	3.6	4.0	4.2	4.2	4.8	1.0	13	1.0
Colour	TCU	ND	ND	ND	ND	ND	5.0	5.7	5.0
Nitrate + Nitrite (N)	mg/L	ND	0.093	ND	ND	ND	0.050	ND	0.050
Nitrite (N)	mg/L	ND	ND	ND	ND	ND	0.010	ND	0.010
Nitrogen (Ammonia Nitrogen)	mg/L	0.054	ND	ND	ND	ND	0.050	ND	0.050
Total Organic Carbon (C)	mg/L	0.84	1.0	1.8	1.6	1.5	0.50	14	0.50
Orthophosphate (P)	mg/L	ND	ND	ND	ND	ND	0.010	ND	0.010
pH	pH	8.02	6.38	7.63	8.07	6.33	N/A	8.24	N/A
Reactive Silica (SiO2)	mg/L	12	6.5	14	12	5.2	0.50	9.0	0.50
Dissolved Sulphate (SO4)	mg/L	9.8	3.3	12	10	3.0	2.0	130	10
Turbidity	NTU	4.7	2.2	1.8	6.8	0.77	0.10	37	0.10
Conductivity	uS/cm	200	33	150	210	43	1.0	540	1.0

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Maxxam Job #: B8G1148
Report Date: 2018/07/09

Atlantic Mining NS Corp
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 3151
Sampler Initials: RH

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		HCC205	HCC206	HCC206	HCC207	HCC208	HCC209	HCC210	HCC211	
Sampling Date		2018/06/27 10:49	2018/06/27 10:57	2018/06/27 10:57	2018/06/27 11:03	2018/06/27 11:19	2018/06/27 11:23	2018/06/27 11:28	2018/06/27 11:49	
COC Number		D34774	D34774	D34774	D34774	D34774	D34774	D34774	D34774	
	UNITS	MW-05A	MW-05B	MW-05B Lab-Dup	MW-05D	MW-07A	MW-07B	MW-07D	MW-11A	RDL
Metals										
Dissolved Aluminum (Al)	ug/L	8.3	10	9.9	29	ND	5.7	10	31	5.0
Dissolved Antimony (Sb)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Arsenic (As)	ug/L	ND	1.0	1.0	ND	12	39	170	ND	1.0
Dissolved Barium (Ba)	ug/L	5.9	5.8	5.9	3.4	11	13	5.5	6.9	1.0
Dissolved Beryllium (Be)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Bismuth (Bi)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Boron (B)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	50
Dissolved Cadmium (Cd)	ug/L	0.031	0.018	0.014	ND	ND	ND	ND	0.024	0.010
Dissolved Calcium (Ca)	ug/L	2900	9000	8900	18000	27000	100000	38000	2400	100
Dissolved Chromium (Cr)	ug/L	ND	ND	ND	ND	6.2	ND	ND	ND	1.0
Dissolved Cobalt (Co)	ug/L	2.2	1.3	1.4	ND	0.55	ND	ND	1.0	0.40
Dissolved Copper (Cu)	ug/L	4.7	4.8	4.7	ND	ND	ND	ND	ND	2.0
Dissolved Iron (Fe)	ug/L	ND	100	91	ND	5100	ND	ND	ND	50
Dissolved Lead (Pb)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	0.50
Dissolved Magnesium (Mg)	ug/L	770	1200	1100	2400	6400	8600	5400	470	100
Dissolved Manganese (Mn)	ug/L	110	130	130	20	530	970	44	76	2.0
Dissolved Molybdenum (Mo)	ug/L	ND	4.2	4.2	ND	ND	ND	ND	ND	2.0
Dissolved Nickel (Ni)	ug/L	8.8	3.9	3.8	ND	2.4	ND	ND	2.8	2.0
Dissolved Phosphorus (P)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	100
Dissolved Potassium (K)	ug/L	990	1400	1400	980	1800	3600	1200	590	100
Dissolved Selenium (Se)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Silver (Ag)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	0.10
Dissolved Sodium (Na)	ug/L	3300	7200	7200	11000	10000	18000	9200	2400	100
Dissolved Strontium (Sr)	ug/L	14	34	33	160	140	340	310	17	2.0
Dissolved Thallium (Tl)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	0.10
Dissolved Tin (Sn)	ug/L	3.5	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Titanium (Ti)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Uranium (U)	ug/L	ND	0.14	0.14	0.35	0.11	2.3	0.73	ND	0.10
Dissolved Vanadium (V)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Zinc (Zn)	ug/L	30	8.7	9.7	ND	9.5	ND	ND	12	5.0

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Site Location: BEAVER DAM
Your P.O. #: 3151
Sampler Initials: RH

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		HCC212	HCC213	HCC214	HCC215	HCC216	HCC217	HCC218	HCC219	
Sampling Date		2018/06/27 11:54	2018/06/27 11:45	2018/06/27 12:42	2018/06/27 12:51	2018/06/27 13:01	2018/06/27 12:18	2018/06/27 12:22	2018/06/27 12:27	
COC Number		D34774	D34774	D34774	D34774	D34774	D34774	D34774	D34774	
	UNITS	MW-11B	MW-11C	MW-14A	MW-14B	MW-14C	MW-18A	MW-18B	MW-18C	RDL
Metals										
Dissolved Aluminum (Al)	ug/L	14	18	ND	ND	6.5	23	13	16	5.0
Dissolved Antimony (Sb)	ug/L	ND	ND	ND	1.6	ND	ND	ND	ND	1.0
Dissolved Arsenic (As)	ug/L	60	78	4.9	7.7	1.6	40	230	57	1.0
Dissolved Barium (Ba)	ug/L	7.8	11	3.2	5.9	13	5.7	4.1	6.4	1.0
Dissolved Beryllium (Be)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Bismuth (Bi)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Boron (B)	ug/L	ND	ND	ND	84	120	ND	ND	ND	50
Dissolved Cadmium (Cd)	ug/L	ND	ND	0.014	ND	ND	0.028	ND	ND	0.010
Dissolved Calcium (Ca)	ug/L	25000	26000	4900	15000	9300	1600	15000	16000	100
Dissolved Chromium (Cr)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Cobalt (Co)	ug/L	ND	0.44	1.6	ND	ND	2.2	ND	ND	0.40
Dissolved Copper (Cu)	ug/L	ND	ND	ND	ND	ND	5.1	ND	ND	2.0
Dissolved Iron (Fe)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	50
Dissolved Lead (Pb)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	0.50
Dissolved Magnesium (Mg)	ug/L	1800	2400	1300	2200	1400	710	1200	1400	100
Dissolved Manganese (Mn)	ug/L	35	56	190	11	ND	53	3.1	13	2.0
Dissolved Molybdenum (Mo)	ug/L	ND	2.6	ND	15	ND	ND	4.9	4.1	2.0
Dissolved Nickel (Ni)	ug/L	ND	ND	4.2	ND	ND	6.3	ND	ND	2.0
Dissolved Phosphorus (P)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	100
Dissolved Potassium (K)	ug/L	1600	1100	1300	1400	660	790	1500	1600	100
Dissolved Selenium (Se)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Silver (Ag)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	0.10
Dissolved Sodium (Na)	ug/L	5800	8500	6700	83000	23000	2500	8400	22000	100
Dissolved Strontium (Sr)	ug/L	86	190	38	330	270	13	85	180	2.0
Dissolved Thallium (Tl)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	0.10
Dissolved Tin (Sn)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Titanium (Ti)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Uranium (U)	ug/L	0.91	3.3	ND	4.7	0.53	ND	1.1	1.8	0.10
Dissolved Vanadium (V)	ug/L	ND	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Zinc (Zn)	ug/L	ND	10	8.1	ND	ND	19	ND	ND	5.0

RDL = Reportable Detection Limit
ND = Not detected

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Maxxam Job #: B8G1148
Report Date: 2018/07/09

Atlantic Mining NS Corp
Client Project #: 088664-20
Site Location: BEAVER DAM
Your P.O. #: 3151
Sampler Initials: RH

ELEMENTS BY ICP/MS (WATER)

Maxxam ID		HCC220	HCC221	HCC222	HCC223	HCC224	HCC225	HCC226	
Sampling Date		2018/06/26 13:28	2018/06/26 13:36	2018/06/26 12:58	2018/06/26 13:03	2018/06/26 13:09	2018/06/27 13:20	2018/06/27 13:25	
COC Number		D34774	D34774	D34774	D34774	D34774	D34774	D34774	
	UNITS	**MW-20A**	**MW-20B**	**MW-22A**	**MW-22B**	**MW-22C**	**DUP4**	**DUP5**	**RDL**
Metals									
Dissolved Aluminum (Al)	ug/L	38	62	22	23	12	8.8	ND	5.0
Dissolved Antimony (Sb)	ug/L	ND	ND	ND	ND	ND	ND	1.6	1.0
Dissolved Arsenic (As)	ug/L	ND	7.0	ND	1.5	5.4	ND	7.6	1.0
Dissolved Barium (Ba)	ug/L	4.8	11	5.0	3.6	4.7	5.7	5.7	1.0
Dissolved Beryllium (Be)	ug/L	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Bismuth (Bi)	ug/L	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Boron (B)	ug/L	ND	ND	ND	ND	ND	ND	78	50
Dissolved Cadmium (Cd)	ug/L	0.035	0.011	0.016	ND	ND	0.031	ND	0.010
Dissolved Calcium (Ca)	ug/L	1900	22000	1000	14000	17000	2900	15000	100
Dissolved Chromium (Cr)	ug/L	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Cobalt (Co)	ug/L	2.8	ND	1.8	0.43	ND	2.1	ND	0.40
Dissolved Copper (Cu)	ug/L	3.0	ND	9.4	ND	ND	5.0	ND	2.0
Dissolved Iron (Fe)	ug/L	ND	ND	ND	ND	ND	ND	ND	50
Dissolved Lead (Pb)	ug/L	ND	ND	ND	ND	ND	ND	ND	0.50
Dissolved Magnesium (Mg)	ug/L	680	4500	700	3000	2500	760	2100	100
Dissolved Manganese (Mn)	ug/L	150	100	160	190	15	110	11	2.0
Dissolved Molybdenum (Mo)	ug/L	ND	7.0	ND	ND	3.3	ND	15	2.0
Dissolved Nickel (Ni)	ug/L	6.8	ND	8.1	ND	ND	8.4	ND	2.0
Dissolved Phosphorus (P)	ug/L	ND	ND	ND	ND	ND	ND	ND	100
Dissolved Potassium (K)	ug/L	610	1600	810	1600	1100	1000	1400	100
Dissolved Selenium (Se)	ug/L	ND	ND	ND	ND	ND	ND	ND	1.0
Dissolved Silver (Ag)	ug/L	ND	ND	ND	ND	ND	ND	ND	0.10
Dissolved Sodium (Na)	ug/L	3200	10000	3000	8900	21000	3300	82000	100
Dissolved Strontium (Sr)	ug/L	19	270	15	81	280	15	330	2.0
Dissolved Thallium (Tl)	ug/L	ND	ND	ND	ND	ND	ND	ND	0.10
Dissolved Tin (Sn)	ug/L	ND	2.1	ND	ND	ND	2.5	ND	2.0
Dissolved Titanium (Ti)	ug/L	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Uranium (U)	ug/L	ND	0.86	ND	0.26	0.52	ND	4.7	0.10
Dissolved Vanadium (V)	ug/L	ND	ND	ND	ND	ND	ND	ND	2.0
Dissolved Zinc (Zn)	ug/L	10	ND	16	5.2	ND	35	ND	5.0

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.3°C
Package 2	3.0°C

Sample HCC205 [MW-05A] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample HCC215 [MW-14B] : Poor RCAp Ion Balance due to sample matrix.

Sample HCC216 [MW-14C] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample HCC217 [MW-18A] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample HCC220 [MW-20A] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample HCC222 [MW-22A] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample HCC223 [MW-22B] : RCAp Ion Balance acceptable. Anion/cation agreement within 0.2 meq/L.

Sample HCC224 [MW-22C] : Poor RCAp Ion Balance due to sample matrix.

Sample HCC226 [DUP5] : Poor RCAp Ion Balance due to sample matrix.

Results relate only to the items tested.

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VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

<Original signed by>

Mike MacGillivray, Scientific Specialist (Inorganics)

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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