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**Preliminary Baseline Hydrology Study
Great Atlantic Salt Deposit Project
Saint George's, NL**

GEMTEC Project: 101556.002

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Submitted to:

Atlas Salt Inc.
330 Duckworth Street
St. John's, NL
A1G 1G9

**Preliminary Baseline Hydrology Study
Great Atlantic Salt Deposit Project
Saint George's, NL**

March 10, 2023
GEMTEC Project: 101556.002

GEMTEC Consulting Engineers and Scientists Limited
10 Maverick Place
Paradise, NL, Canada
A1L 0J1

March 10, 2023

File: 101556.002

Atlas Salt Inc.
330 Duckworth Street
St. John's, NL
A1C 1G9

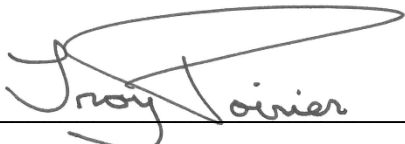
Attention: Mr. Patrick Laracy, LL.B., P.Geo

**Re: Preliminary Baseline Hydrology Study
Great Atlantic Salt Deposit Project, Saint George's, NL**

Please find enclosed the Hydrology Baseline Report prepared in support of the Great Atlantic Salt Deposit Project located near Saint George's, NL. GEMTEC Consulting Engineers and Scientists Limited was retained by Atlas Salt Inc. to assess the surface water quantity and quality baseline conditions for the Project in support of environmental permitting and mine site development.

Please do not hesitate to contact the undersigned if you have any questions regarding this report.

Sincerely,



Troy Poirier, P.Eng., Senior Hydrologist

TAP/pb

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1.0 INTRODUCTION

1.1 General

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Atlas Salt Inc. (Atlas) to conduct a hydrology baseline program in support of the Great Atlantic Salt Deposit Project (the Project), near the Town of Saint George's, NL.

1.2 Background

Atlas is proposing to develop an underground salt mine at its Great Atlantic Salt Deposit Property located within the municipal limits of the Town of St. George's and approximately 15 kilometers (km) south of the Town of Stephenville, NL. Based on available topographic mapping, ground surface elevation in the Project area ranges from approximately 30 to 60 masl.

Based on information provided in the EA Alignment Meeting Minutes Memo from SLR (Feb 10, 2022), the Project will involve extraction of rock salt from the Great Atlantic Salt deposit using underground mining methods, followed by transportation from the mine to the existing Turf Point port for shipping using an overland conveyor system. Conceptual planning for mine development is on-going. The port facilities were constructed in the 1960's and currently function to load gypsum for shipping from Atlas Salt's Flat Bay Gypsum Project, located approximately 3 km southwest of the Project.

This report documents hydrologic baseline conditions at the Great Atlantic Salt Deposit area, which we expect will be required in support of the EA. This baseline assessment report was prepared based on a desktop review of existing site information and field collection of flow and water/sediment quality data. Please note this study is limited to the baseline assessment of the Great Salt Deposit area and does not include the impact of the proposed project development.

1.3 Local Water Bodies

The most significant surface water features in the Project area are the marine waters of Flat Bay, which borders the Study Area to the northwest, and Flat Bay Brook, which flows roughly east-west approximately 200 m to the south, at its closest point. Several small ponds are present within the Study Area, including Burnt Pond Brook, which is located along the eastern site boundary and serves as a headwater to Dribble Brook. Dribble Brook flows northeast – southwest through the southeastern corner of the Study Area and discharges into Flat Bay Brook approximately 250 south and upstream of the site. Man o' War Brook and Blanchard's Brook are also small local watercourses within the Study Area.

Based on review of the NL Department of Environment and Climate Change (NLDECC) online Water Resources Portal (NLDECC, 2023a), no surface water Public Protected Water Supply Areas (PPWSA) are present within the Study Area. The Dribble Brook PPWSA for the town of St. George's is located approximately 2.5 km up-stream of the Project. The Town of St. George's

also utilizes a groundwater supply. The wellfield PPWSA for this groundwater source is located approximately 1.5 km northeast of the site.

1.4 Scope of Work

The objective of the hydrology baseline program is to characterize current climate, hydrology, and surface water flow in the Project area. The scope of the program included the following:

- The collection, review and analysis of publicly available climate and hydrologic information,
- Delineation of watershed boundaries relevant to the Project,
- Identification of watercourses and wetlands potentially impacted by salt mining operations,
- Analysis of baseline hydrologic and surface water conditions based on the field data, and
- Preparation of this baseline report.



Legend

- Protected Public Water Supply Area
- Contour_20 m
- Waterbody
- Study Area
- Mine Infrastructure Area
- Road
- Watercourse
- Municipal Boundary

Scale: 1:18,000

0 100 200 300 400 m

NAD83/ UTM Zone 21N

- General Notes:**
1. Coordinate System: NAD 1983 UTM ZONE 21 N
 2. Topographic map 12H, source GeoGratis(Government of Canada)
 3. Public water supply information obtained from the provincial online Water Resource Portal (accessed February 2023)

PROJECT

**PRELIMINARY
BASELINE HYDROLOGY STUDY,
GREAT ATLANTIC SALT DEPOSIT PROJECT,
ST.GEORGE'S, NL**

DRAWING

PROJECT LOCATION MAP OVERVIEW

DATE FEBRUARY 2023	DRAW BY MA	CHECKED BY CAM
PROJECT NUMBER: 101556.002	DRAWING NUMBER FIGURE 1	REV. No. 0



GEMTEC
CONSULTING ENGINEERS
AND SCIENTISTS



**ATLAS
SALT**

2.0 HYDROLOGY DESKTOP ASSESSMENT

2.1 Climate and Hydrologic Data Sources

The desktop assessment used long-term regional climate and hydrologic records to characterize local conditions in the Project area. The primary sources of climate and hydrological data sets are listed below.

- Historical weather and Canadian Climate Normals data was obtained from Environment and Climate Change Canada. This includes detailed records of temperature, precipitation, and Climate Normals for meteorological stations in the region.
- Hydrometric data available through Environment and Climate Change Canada (wateroffice.ec.gc.ca) for a number of streamflow gauging stations in the region. The hydrometric data includes historical and real-time water level and flow. In this study, data was analyzed for the four hydrometric stations identified in Figure 2-1 and Table 2-1.
- The Water Resources Atlas of Newfoundland (NLDMAE, 1992) provides mean annual estimates of various climatic parameters, including temperature, precipitation, runoff, evaporation, etc. Although this is not a recent study, it is considered to provide reasonable estimates of various climatic parameters for the purposes of this study.



Figure 2-1. Hydrometric Stations in the Project Region

Table 2-1. Hydrometric Station Summary

Hydrometric Station	Lat (N)	Long (W)	Drainage Area (km²)	Period of Record	Record Length (years)
02YJ001 - Harry's River below Highway Bridge	48° 34' 33"	58° 21' 45"	640	1968-2023	56
02YJ002 – Blanche Brook near Stephenville	48° 32' 56"	58° 34' 11"	120	1978-1996	19
02ZA001 - Little Barachois Brook near St. George's	48° 26' 44"	58° 23' 55"	343	1978-1997	20
02ZA002 – Highlands River at Trans-Canada Highway	48° 06' 30"	58° 47' 00"	72	1982-2023	42

2.2 Climate Normals

The Project is located within the St George's Bay Subregion of the Southwestern Newfoundland Ecoregion, which extends from Codroy in the south to Rocky Harbour in the north. This sub region has the highest temperature and humidity, great temperature variations, high rainfall, and highest snowfalls in Newfoundland (FAA, 2019).

The 1981-2010 Normals data for the Stephenville Airport (Station ID: 8403800) was used to define climate, as the station is nearest the Project area and most representative of local conditions. Normals data are summarized on Figure 2-2 and in Table 2-2 and indicate the following:

- Average annual total precipitation for the Project is 1340.4 mm.
- Monthly precipitation ranges from 97.4 mm to 130.4 mm between May and October, and from 77.7 mm to 124.6 mm between November and April.
- Monthly average snowfall ranges between 26.2 cm and 113.3 cm during the winter months of November to April.
- Annual average temperature at the Project site is 5.0°C.
- The average monthly temperatures between November and April range from -6.7°C to 2.7°C, and between May and October range from 7.6°C to 16.7°C.

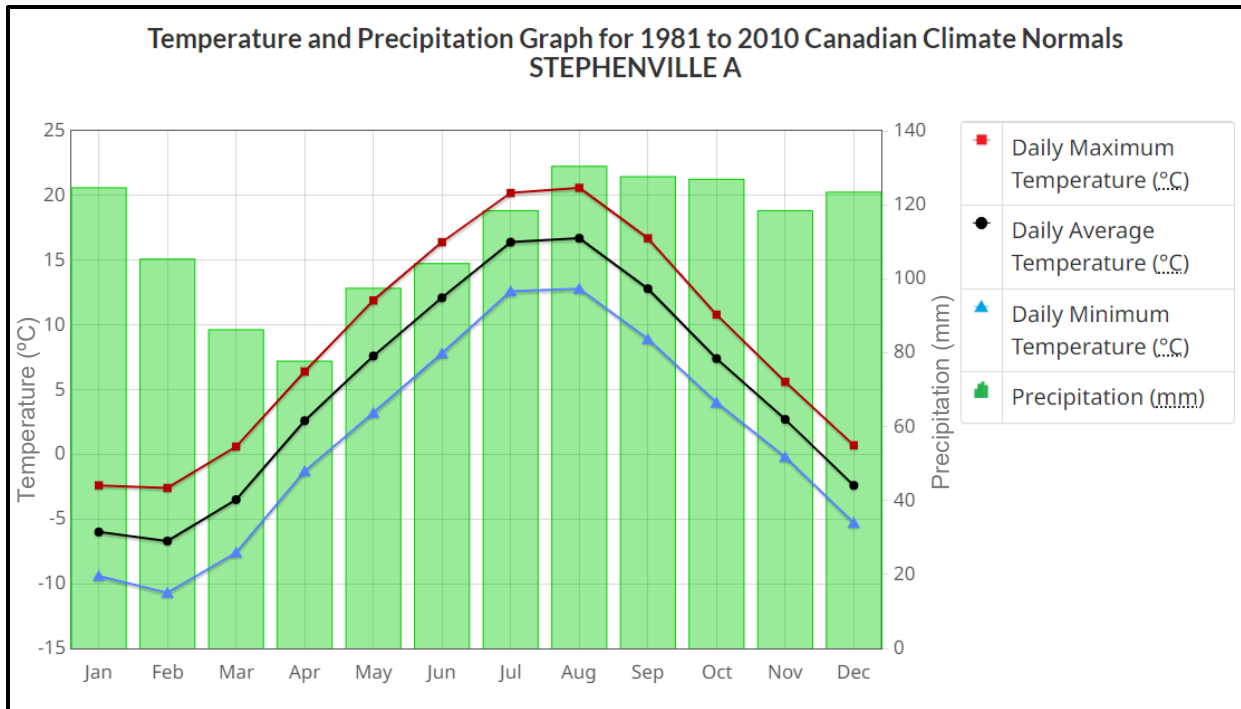


Figure 2-2. Climate Normals at Stephenville Airport (Station ID8403800) from 1981-2010

Table 2-2. Climate Normals for the Stephenville Airport from 1981-2010

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	28.9	27.2	36.9	61.5	94.0	104.1	118.4	130.4	127.5	124.0	93.8	48.6	995.3
Snow (cm)	113.3	90.1	54.4	17.0	3.3	0.0	0.0	0.0	0.1	2.9	26.2	86.0	393.2
Precipitation (mm)	124.6	105.3	86.2	77.7	97.4	104.1	118.4	130.4	127.6	126.9	118.4	123.4	1340.4
Temperature Mean (°C)	-6.0	-6.7	-3.5	2.6	7.6	12.1	16.4	16.7	12.8	7.4	2.7	-2.4	5.0
Temperature Max (°C)	-2.4	-2.6	0.6	6.4	11.9	16.4	20.2	20.6	16.7	10.8	5.6	0.7	8.7
Temperature Min (°C)	-9.4	-10.7	-7.6	-1.3	3.2	7.8	12.6	12.8	8.9	4.0	-0.2	-5.3	1.2

2.3 Intensity-Duration-Frequency Curves

Monthly and annual precipitation depths are summarized above, however rainfall design storm intensity is also an important factor. Storm events of various return periods are often characterized by Intensity-Duration-Frequency (IDF) curves. With IDF defined storm intensities, drainage infrastructure for the Project can be properly designed. For this study, IDF statistics were obtained for the Stephenville RCS climate station (8403820) as this data is not available for the airport station. Figure 2-3 and Tables 2-3 present the IDF curves and data, respectively.

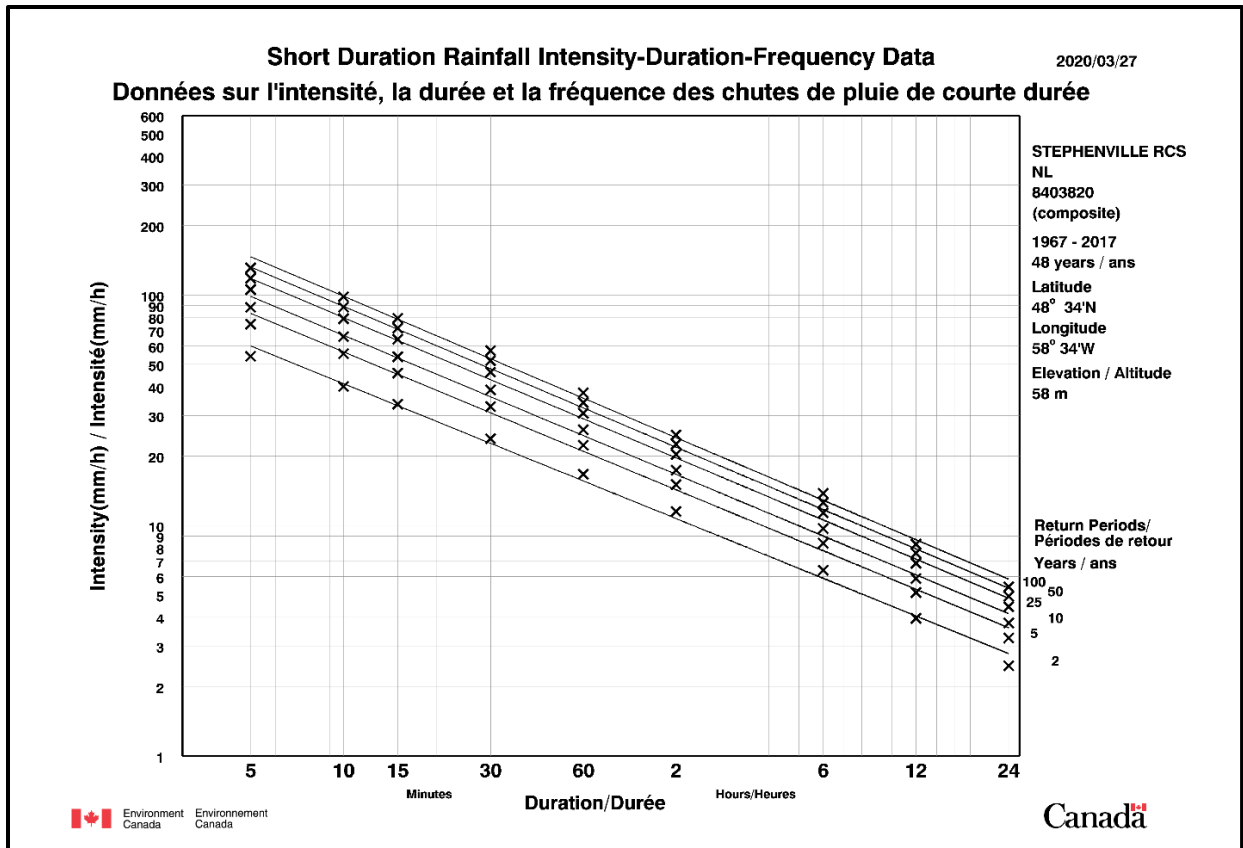


Figure 2-3. Intensity-Duration-Frequency Curves for Stephenville RCS

Table 2-3. IDF Data for Stephenville RCS (Station 8403820)

Duration	Return Period (years)					
	2	5	10	25	50	100
5 min	4.5	6.2	7.3	8.7	9.8	10.8
10 min	6.7	9.3	11.0	13.1	14.7	16.3
15 min	8.5	11.5	13.5	16.0	17.9	19.8
30 min	12.0	16.5	19.4	23.1	25.9	28.6
1 hour	16.8	22.4	26.0	30.6	34.0	37.4
2 hour	23.0	29.9	34.5	40.3	44.6	48.8
6 hour	38.3	50.0	57.8	67.6	74.9	82.1
12 hour	47.5	61.3	70.5	82.0	90.6	99.1
24 hour	58.9	77.5	89.8	105.3	116.9	128.3

2.4 Mean Annual Runoff

Runoff is the portion of precipitation that flows into rivers, lakes and oceans by surface drainage and through groundwater. Figure 2-4 presents runoff contours, indicating the mean annual runoff for watercourses near the Project to be approximately 1200-1300 mm.

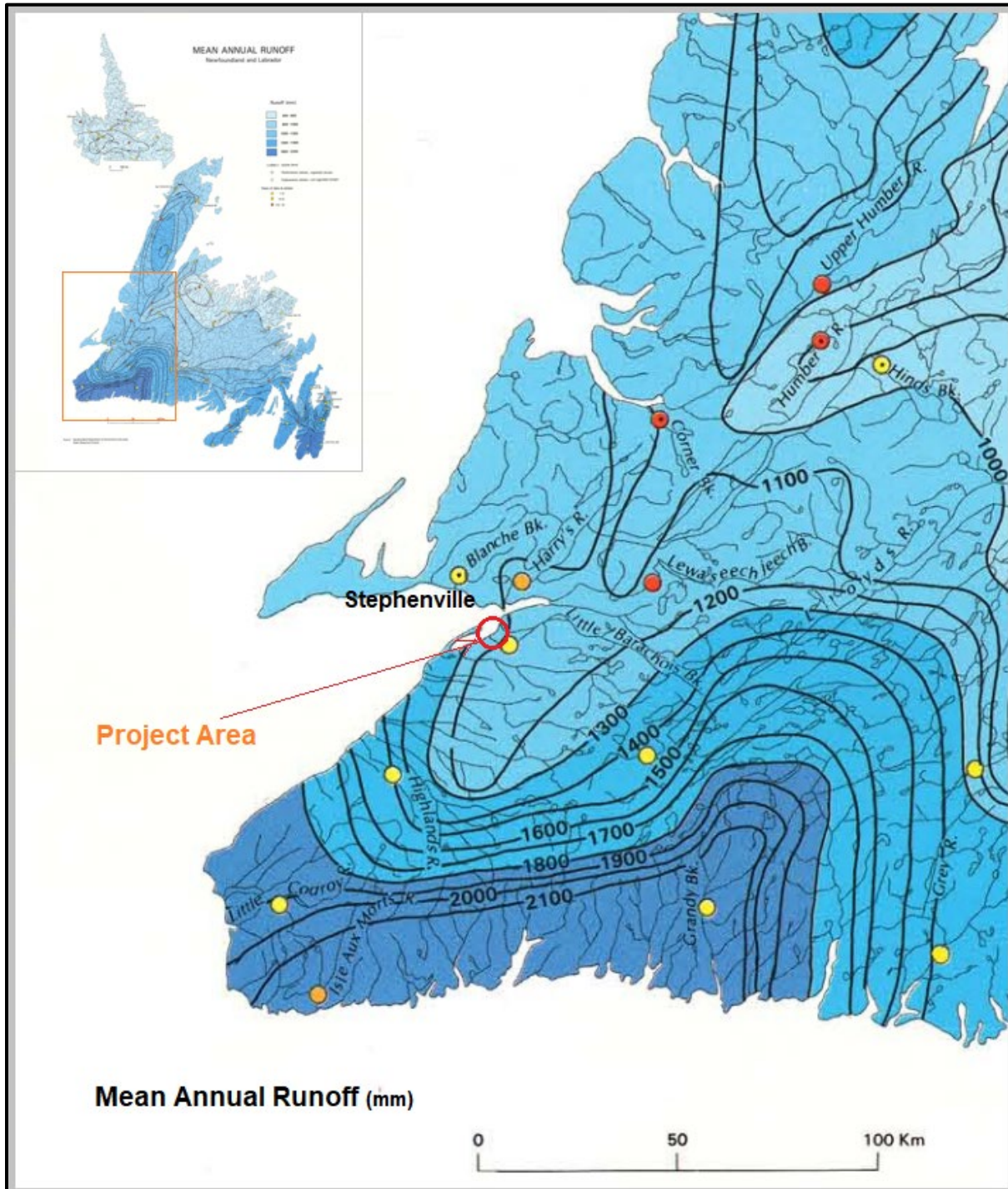


Figure 2-4. Mean Annual Runoff (NLDMAE, 1992)

Monthly and annual runoff volumes for the four nearby hydrometric stations were divided by drainage area to produce the estimates of runoff depth presented in Table 2-4. These runoff depths can be used to estimate flow rates (and temporal distribution) for local watercourses.

Table 2-4. Runoff Depths for the Regional Hydrometric Stations

Station	Runoff Depth (mm)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
02YJ001	82.2	60.9	71.3	164.8	283.4	97.0	59.0	58.5	82.7	109.6	136.0	106.7	1312
02ZA002	80.0	63.3	74.0	208.9	257.4	67.5	38.9	37.6	69.2	100.1	140.1	107.4	1244
02YJ002	63.8	38.9	78.1	194.3	167.4	97.6	71.7	67.5	89.5	98.2	125.6	87.2	1180
02ZA001	81.4	45.2	77.8	181.3	160.4	73.0	33.9	49.8	51.8	71.0	98.1	88.1	1012

The data in Table 2-4 indicates the following:

- Runoff is most significant during the spring snow-melt period of April and May and greatly exceeds monthly precipitation during those months (77.7 mm and 97.4 mm, respectively).
- Runoff depths are lowest during the summer months of July and August, even though monthly precipitation is greater than annual average (118.4 and 130.4 mm, respectively). This is likely a result of summer evapotranspiration rates and a low groundwater table.

2.5 Evapotranspiration

Evaporation estimates for Stephenville Airport climate station are presented in Table 2-5 represent data from 1942 to 2007. The average annual potential and actual evapotranspiration values were reported as 522 and 515 mm, and are greatest during the summer low flow period.

Table 2-5. Mean Monthly Evaporation for Stephenville

Evapotranspiration	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Potential	mm	2	2	5	19	55	87	115	107	72	40	15	3	522
Actual	mm	2	2	5	19	55	87	114	102	71	40	15	3	515

3.0 HYDROLOGY FIELD PROGRAM

3.1 Description of Field Program

A field program was carried out from April 08 to November 28, 2022 in support of the hydrology study. The program consisted of collecting flow measurements and surface water and sediment quality testing. The six field data collection locations are presented on Figure 3-1 and are further detailed below in Table 3-1. Additional notes regarding the hydrology field program are as follow.

- SW-001 and SW-002 are located along Man o' War Brook in the eastern portion of the Project area.
- SW-003, SW-004 and SW-005 are located along Blanchard's Brook in the central portion of the Project area.
- SW-006 is located along Dribble Brook near the confluence with Flat Brook.
- Spot flow measurements were collected by stream gauging at all 6 sites during the April 2022 site visit.
- Additional spot flow measurements were collected for Man o' War Brook at SW/SED-001 on July 09, Oct 17, and Nov. 28, 2022,
- No additional flow data was collected for sites SW/SED-002 to SW/SED-006,
- Continuous water level was measured for Man o' War Brook at SW/SED-001 and converted to flow data using a rating curve derived from spot flow measurements, and
- Surface water (SW) and sediment (SED) samples were collected at all six sites during each of the four site visits.

Table 3-1. Hydrology Program Field Data Collection

Station	Drainage Area (ha)	Spot Flow Measurement	Continuous Flow Measurement	Water Quality Samples	Sediment Quality Samples
SW/SED-001 Man o' War Brook at Flintkote Rd	183	Y (4)	Y	Y	Y
SW/SED-002 Man o' War Brook at Main St	214	Y (1)	N	Y	Y
SW/SED-003 Blanchard's Brook upstream of Flintkote Rd	--	Y (1)	N	Y	Y
SW/SED-004 Blanchard's Brook downstream of Flintkote Rd	60	Y (1)	N	Y	Y
SW/SED-005 Blanchard's Brook at Main St	116	Y (1)	N	Y	Y
SW/SED-006 Dribble Brook near confluence with Flat Brook	3886	N	N	Y	Y

3.2 Field Flow Measurements

3.2.1 Initial Site Visit

Stream gauging was performed at five of six locations during the preliminary site visit. Velocity and depth measurements collected at several points for each channel cross-section were used to calculate the flows summarized in Table 3-2. The flow measurement at SW-006 could not be completed due to the unsafe deep and fast-moving flow conditions.

Table 3-2. Flow Measurements - April 8, 2022 Site Visit

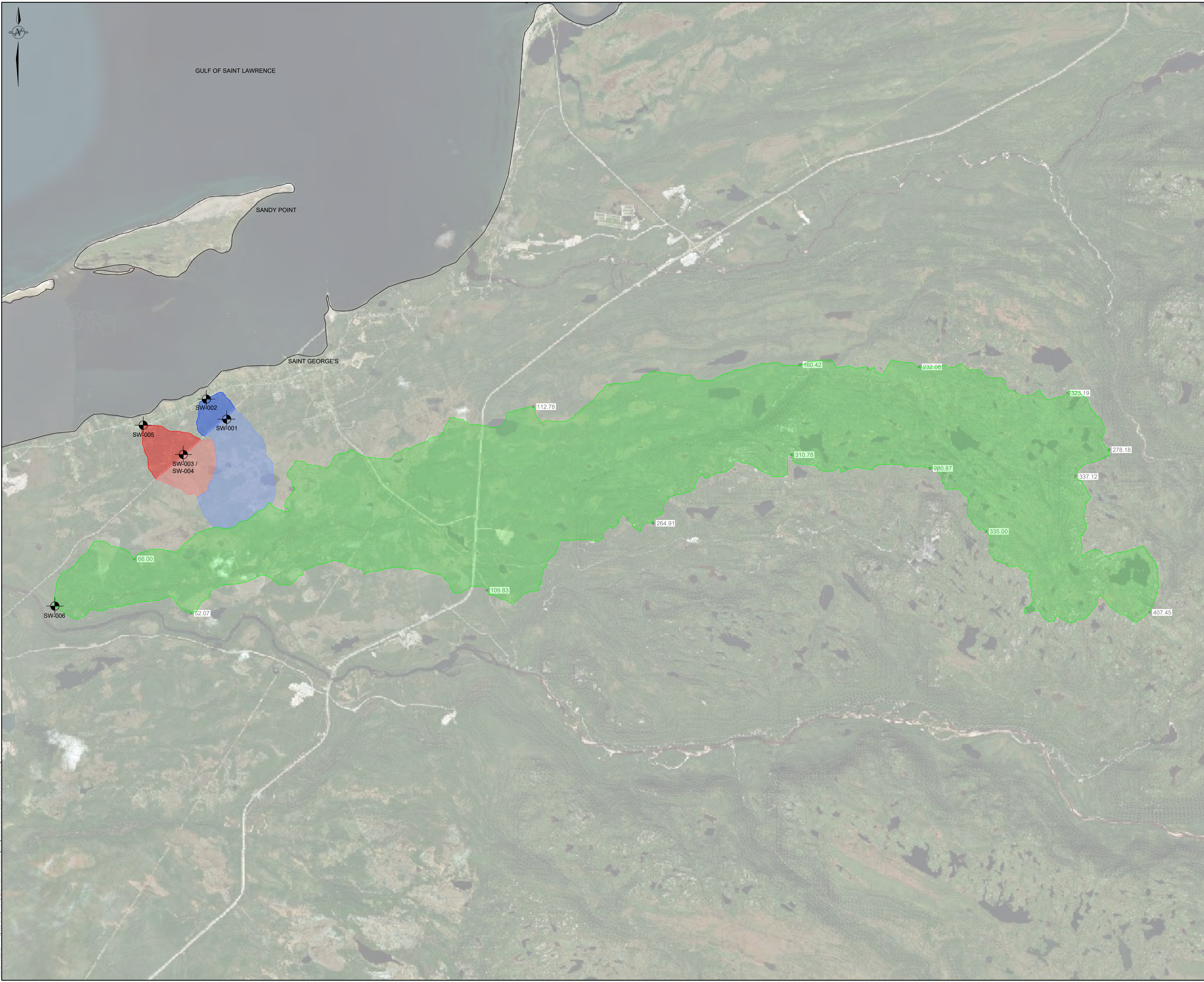
Site	SW-001	SW-002	SW-003	SW-004	SW-005	SW-006
Flow rate (m ³ /s)	0.071	0.268	0.065	0.130	0.263	n/a

3.2.2 SW-001 Spot Measurements

SW-001 (Man o' War Brook) was the only site with spot flow measurements collected during all four site visits. The stream gauging results are presented in Table 3-3.

Table 3-3. Flow Measurements for SW-001 during Four Site Visits

Date of Visit	08-Apr-22	09-Jul-22	17-Oct-22	28-Nov-22
Flow rate (m ³ /s)	0.071	0.099	0.004	0.022



LEGEND	
	SW1 WATERSHED
	SW2 WATERSHED
	SW4 WATERSHED
	SW5 WATERSHED
	SW6 WATERSHED
	GROUND ELEVATION CONTOUR

SURFACE WATER MONITORING STATION DATA			
STATION	EASTING	NORTHING	DRAINAGE AREA (ha)
SW1	389125	5364186	183
SW2	388669	5364518	214
SW4	388332	5363549	60
SW5	387627	5364066	116
SW6	386072	5360880	3886

- NOTES**
1. COORDINATE SYSTEM: NAD83 (CSRS) UTM21.
 2. VERTICAL DATUM: CGVD2013.
 3. WATERSHEDS WERE DELINEATED IN THE PCSWMM PROFESSIONAL 2D HYDROLOGIC MODELING SOFTWARE.
 4. DELINEATION WAS COMPLETED USING A DIGITAL ELEVATION MODEL PROVIDED BY GEOGRATIS (NATURAL RESOURCES CANADA) AND PUBLICLY AVAILABLE AERIAL PHOTOGRAPHS.
 5. GROUND SURFACE CONTOURS WERE DERIVED USING THE ABOVE MENTIONED DIGITAL ELEVATION MODEL.

NUMBER	ISSUE	DATE (YYYYMMDD)

ENGINEER'S STAMP

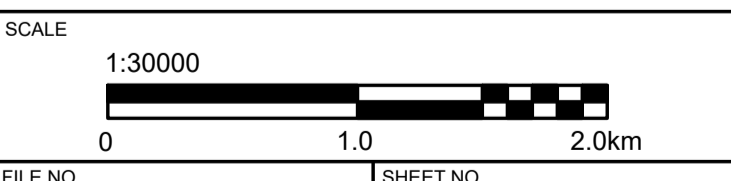
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CALCULATIONS BY		CHECKED BY	

PROJECT

**BASELINE STUDIES,
PROPOSED SALT MINE
DEVELOPMENT**

DRAWING

**SURFACE WATER STATION
CATCHMENT AREAS**



FILE NO.	SHEET NO.
101556.002	3-1



3.2.3 SW-001 Continuous Water Level Measurement and Flow Calculations

A water level logger was deployed at SW-001 (Man o' War Brook) during the April visit to measure water levels at a 5-minute interval during the 2022 field program (April to November). The stream-gauging data collected during four site visits was then used to develop a rating curve (see Figure 3-2) to convert the continuous water level measurements to flow rates. Figure 3-3 presents the resulting water level and flow graph for the 2022 program.

It should be noted an unexplained water level drop affected data reliability in November, likely due to the level logger being disturbed by moving debris in the watercourse. To account for the uncertainty, flow estimates were only produced using water levels up to November 1, 2022.

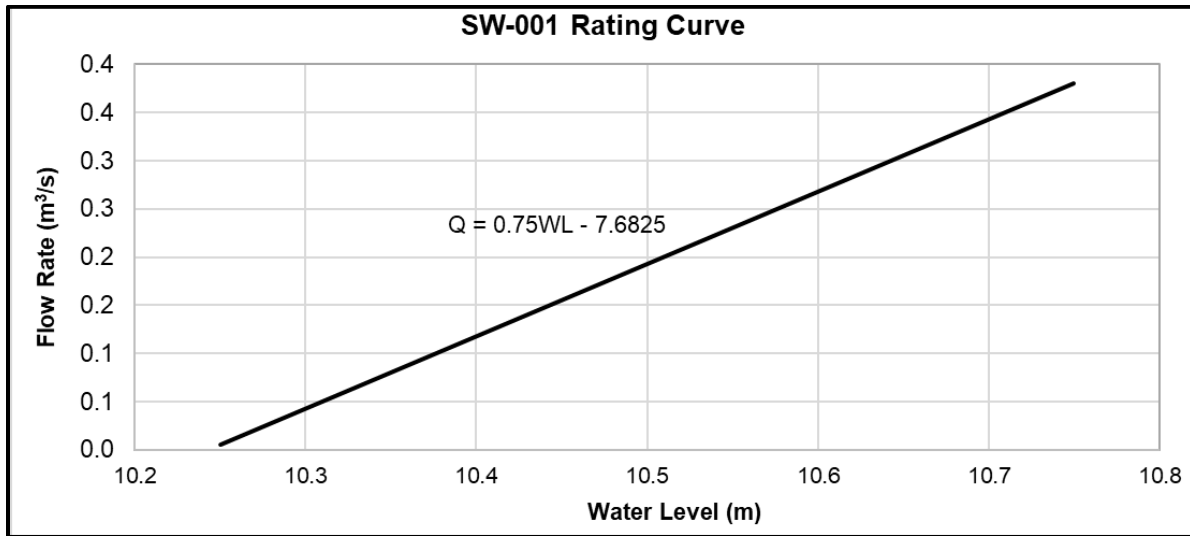


Figure 3-2. Rating Curve Developed for SW-001 (Man o' War Brook).

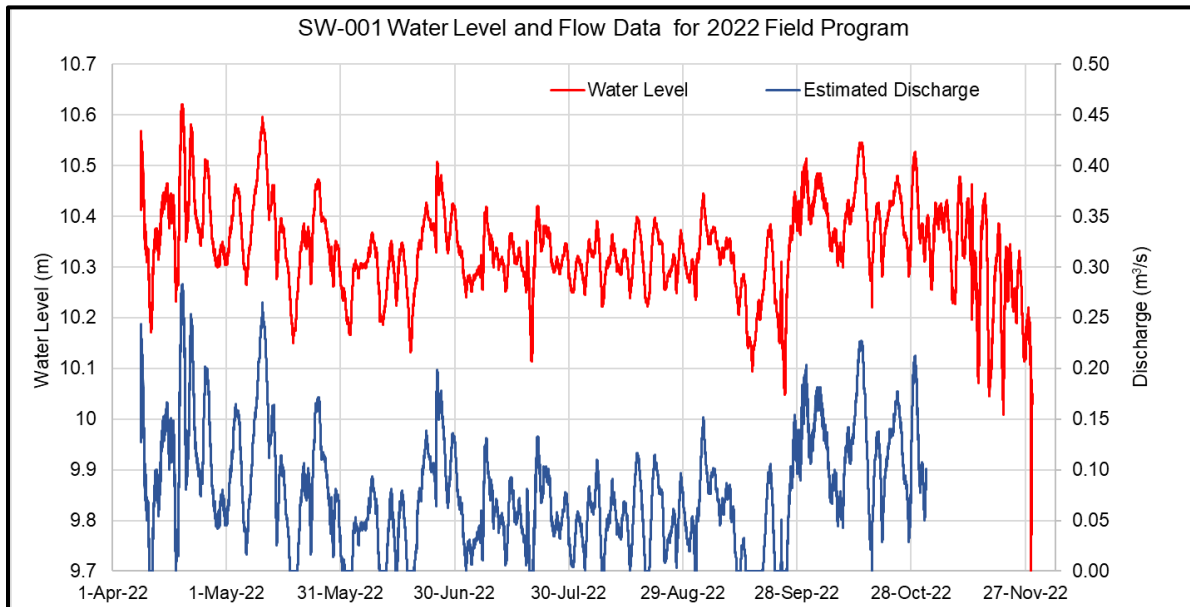


Figure 3-3. Water Level and Discharge Data for SW-001 (Man o' War Brook).

3.3 Runoff Depth during 2022 Field Program

The cumulative runoff depth was calculated for Man o' War Brook (SW-001) for the duration of field monitoring using the relationship below:

$$\text{Runoff Depth} = \frac{\text{Cumulative Flow}}{\text{Watershed Area}}$$

Runoff depths were also calculated for the two nearby active hydrometric stations during the same period, with results summarized in Table 3-4. The results show runoff depths to be similar for all three sites during the period of measurement. This similarity suggests the more accurate data from the hydrometric stations could potentially be prorated to estimate annual runoff for the Project (as follows in Table 3-4).

Table 3-4. Comparison of Runoff Depths for SW1 and nearby Active Hydrometric Stations

Station	Period	Cumulative Flow (1000x m ³)	Drainage Area (km ²)	Runoff Depth (mm)
SW-001 – Site Measurement	Apr 08 -Oct 31	1,157	1.83	760.0
02YJ001 – Hydrometric Station	Apr 08 -Oct 31	530,109	640	828.3
02ZA002 – Hydrometric Station	Apr 08 -Oct 31	55,369	72.0	769.0

3.4 Estimated Annual Runoff for the Project

As noted above, runoff depths for SW-001 during the 2022 monitoring period were similar to those of the nearby active hydrometric stations. Based on this similar hydrologic response, it is reasonable to use the hydrometric station data to estimate Project runoff depths for non-monitoring periods.

Based on temperature data, ground conditions for the Project are likely frozen during January and February, with no effective runoff. Monthly and annual runoff depths site can be estimated, however, for the non-frozen periods using averages of the two active hydrometric stations (02YJ001 and 02ZA002). Table 3-5 presents average monthly and annual depths for use in estimating site runoff for the Project.

Table 3-5. Runoff Depth Estimates for the Project

Estimated Runoff Depth (mm)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
0	0	72.6	186.8	270.4	82.2	49.0	48.0	76.0	104.8	138.0	107.5	1135

4.0 WATER AND SEDIMENT QUALITY

Baseline water and sediment quality data collection was completed during each of the four site visits (April, July, October and November 2022) with in-situ measurement of select parameters and grab samples sent to AGAT Laboratories for analysis. These test results will serve as a water quality baseline to evaluate the effectiveness of proposed treatment strategies during all phases of mining operation and closure.

Results of the testing at sites SW/SED-001 through SW/SED-006 (presented earlier in Figure 3-1) are summarized in tables in Appendix A. The water and sediment quality results indicate pH and select metals concentrations exceeded Atlantic Risk-Based Corrective Action (ARBCA) guidelines.

5.0 CONCLUSIONS

A preliminary baseline hydrologic study was conducted to support the Great Atlantic Salt Deposit Project and included the following.

- Six surface water monitoring sites were established to collect baseline water quality and sediment quality data along Dribble Brook, .
- Stream gauging was performed at 5 of the 6 surface water monitoring sites during the April site visit and repeated for 1 site (Man o' War Brook, SW-001) during the July, October and November visits.
- Continuous depth monitoring was performed at Man o' War Brook (SW-001) from April to November. A rating curve was developed based on the stream gauge results to convert depth measurements to discharge.
- The depth of runoff measured for Man o' War Brook (SW-001) between April and November was similar to the runoff depth at the 2 nearby active hydrometric stations. This preliminary finding is an indication that hydrometric station data could be prorated to estimate runoff for Project watercourses.
- Analytical results indicate pH and select metals concentrations are elevated in Project surface waters and exceed ARBCA guidelines.

6.0 CLOSURE

This report has been prepared for the sole benefit of our client, Atlas Salt Inc. The report may not be relied upon by any other person or entity without the express written consent of GEMTEC Consulting Engineers and Scientist Limited and our client, Atlas Salt Inc.

Any use that a third party makes of this report, or any reliance or decisions made based on it, is the responsibility of such third parties. GEMTEC Consulting Engineers and Scientist Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The conclusions presented represent the best technical judgment of GEMTEC Consulting Engineers and Scientist Limited based on current engineering and scientific practices. Should additional information become available, GEMTEC Consulting Engineers and Scientist Limited requests that this information be brought to our attention so that we may re-assess the conclusions presented herein.

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

GEMTEC Consulting Engineers and Scientist Limited

A handwritten signature in black ink, appearing to read "Troy Poirier", is written over a solid horizontal line.

Troy Poirier, P.Eng.
Senior Hydrologist

7.0 REFERENCES

EC (Environment Canada). 2019a. Canadian Climate Normals: 1981-2010 Climate Normals & Averages. Accessed online at http://climate.weather.gc.ca/climate_normals/index_e.html

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APPENDIX A

Analytical Data Tables

Table 1 - Sample Location GPS Coordinates

Sample ID	GPS Coordinates (UTM NAD83 Zone 21 N)	
	Easting	Northing
SW/SED - 001	389096	5364172
SW/SED - 002	388669	5364518
SW/SED - 003	388360	5363510
SW/SED - 004	388332	5363549
SW/SED - 005	387602	5364050
SW/SED - 006	386072	5360880

Notes:

SED - Sediment

SW - Surface Water

*No Samples Collected

Table 2 - Field Parameter Measurements

Location	Sample Event	Temperature (°C)	pH (Unitless)	Dissolved Oxygen (%)	Conductivity (µS/cm)	ORP (mV)
SW/SED - 001	April-08-2022	2.0	5.9	100.0	18.0	149.6
	July-09-2022	14.1	5.89	94.7	50.2	176.1
	Oct-17-2022	11.5	6.75	95.6	77.9	705.1
	Nov-28-2022	2.6	6.51	93.9	70.6	344.0
SW/SED - 002	April-08-2022	1.4	6.02	99.3	26.9	131.9
	July-09-2022	14.0	6.06	94.5	72.5	152.9
	Oct-17-2022	11.5	7.02	96.7	104.9	662.7
	Nov-28-2022	2.6	6.94	96.3	87.3	350.0
SW/SED - 003	April-08-2022	1.3	5.81	99.0	20.9	175.8
	July-09-2022	13.5	6.03	94.3	60.6	161.2
	Oct-17-2022	11.0	6.84	91.5	123.4	785.4
	Nov-28-2022	2.7	6.26	90.2	135.9	339.7
SW/SED - 004	April-08-2022	1.7	6.1	99.4	26.6	148.8
	July-09-2022	14.1	5.95	91.0	85.8	143.2
	Oct-17-2022	11.4	6.64	91.1	141.7	647.7
	Nov-28-2022	2.5	6.44	90.6	133.8	340.8
SW/SED - 005	April-08-2022	0.7	6.49	101.3	33.9	110.0
	July-09-2022	13.9	6.27	105.9	105.6	172.6
	Oct-17-2022	11.6	7.20	94.3	189.3	664.3
	Nov-28-2022	2.6	7.8	93.4	126.1	382.2
SW/SED - 006	April-08-2022	4.1	6.07	99.1	51.2	111.1
	July-09-2022	16.9	5.94	98.0	76.5	169.5
	Oct-17-2022	12.5	7.08	97.0	149.8	718.0
	Nov-28-2022	2.0	6.78	93.4	91.3	338.3
SW-SD / SED-SD	April-08-2022	2.0	5.9	100.0	18.0	149.6
	July-09-2022	14.1	5.89	94.7	50.2	176.1
	Oct-17-2022	11.5	6.75	95.6	77.9	705.1
	Nov-28-2022	2.6	6.51	93.9	70.6	344.0

Notes:

SW = Surface Water

SED = Sediment

SD-SW / SED = Field Duplicate Sample of Site 10 SW / SED during Winter and Spring, and of Site 19 SW / SED during Summer and

- = Not sampled during this event

No samples were collected at location Site 13 - SW / SED or Site 18 - SW / SED due to access restrictions

°C = Degrees Celsius

µS/cm = micro siemens per centimeter

mV = millivolts

ORP = Oxidation-Reduction Potential

Table 3 - Analytical Results for Inorganic Parameters in Surface Water

Parameter	RDL	Units	Guideline ¹	SW-001				SW-002				SW-003			
				April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022
Sampling Event															
Field-measured pH				5.9	5.89	6.75	6.51	6.02	6.06	7.02	6.94	5.81	6.03	6.84	6.26
Field measured temperature (°C)				2.0	14.1	11.5	2.6	1.4	14.0	11.5	2.6	1.3	13.5	11.0	2.7
Ammonia guideline (mg/L as N) ²				153.0	69.7	7.0	15.3	48.3	22.0	2.2	15.3	153.0	22.0	7.0	48.3
pH	NA	UNITS	6.5-9.0	5.65	6.53	6.46	6.02	5.84	6.73	6.52	6.10	5.63	6.69	6.69	6.24
Reactive Silica	0.5	mg/L	-	2.40	3.70	4.80	4.50	2.40	4.60	4.80	5.20	5.10	4.10	6.60	3.60
Chloride	1	mg/L	120	6.00	7.00	13.00	14.00	8.00	8.00	14.00	16.00	7.00	7.00	19.00	24.00
Fluoride	0.12	mg/L	0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Sulphate	2	mg/L	128	<2	<2	<2	<2	3.00	6.00	7.00	5.00	<2	<2	9.00	10.00
Alkalinity	5	mg/L	-	<5	6.00	14.00	8.00	<5	11.00	20.00	<5	<5	10.00	32.00	11.00
True Color	5.00	TCU	-	108.00	258.00	238.00	200.00	124.00	257.00	196.00	162.00	136.00	381.00	177.00	237.00
Turbidity	0.5	NTU	-	<0.5	1.60	1.70	0.80	1.20	3.40	1.20	<0.5	0.60	2.30	1.00	8.80
Electrical Conductivity	1	umho/cm	-	32.00	48.00	72.00	69.00	50.00	68.00	98.00	86.00	40.00	57.00	136.00	130.00
Nitrate + Nitrite as N	0.05	mg/L	-	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05	0.11
Nitrate as N	0.05	mg/L	13	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05	0.11
Nitrite as N	0.05	mg/L	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	0.03	mg/L	Calculated ²	0.03	<0.03	<0.03	<0.03	0.04	<0.03	<0.03	<0.03	0.03	<0.03	<0.03	<0.03
Total Organic Carbon	0.5	mg/L	-	10.10	25.40	21.00	16.60	12.00	26.80	18.10	15.80	13.20	33.50	17.10	19.70
Ortho-phosphate as P	0.01	mg/L	-	0.08	<0.01	<0.01	0.02	0.09	<0.01	<0.01	<0.01	0.08	<0.01	<0.01	0.06
Total Sodium	0.1	mg/L	-	4.70	8.40	12.00	9.00	7.40	8.90	12.00	11.20	6.70	8.80	16.00	15.90
Total Potassium	0.1	mg/L	-	0.20	0.30	0.30	0.30	0.40	0.40	0.40	0.40	0.30	0.90	0.70	0.50
Total Calcium	0.1	mg/L	-	1.00	2.30	3.20	2.40	2.80	5.80	6.70	4.40	1.60	3.70	9.00	8.00
Total Magnesium	0.1	mg/L	-	0.40	0.90	1.00	1.10	0.70	1.20	1.20	1.50	0.60	1.10	1.90	1.90
Total Phosphorous	0.02	mg/L	-	<0.02	0.03	0.03	0.03	0.03	0.04	0.03	0.02	0.03	0.03	0.04	0.03
Bicarbonate Alkalinity CaCO ₃	5	mg/L	-	<5	6.00	14.00	8.00	<5	11.00	20.00	<5	<5	10.00	32.00	11.00
Carbonate Alkalinity CaCO ₃	10	mg/L	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hydroxide	5	mg/L	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calculated TDS	1	mg/L	-	13.00	24.00	40.00	33.00	23.00	39.00	55.00	40.00	17.00	28.00	76.00	69.00
Hardness		mg/L	-	4.10	9.40	12.10	10.50	9.90	19.40	21.70	17.20	6.50	13.80	30.30	27.80
Langelier Index (@20C)	NA	mg/L	-	-5.16	-3.86	-3.44	-4.24	-4.54	-3.01	-2.91	-4.11	-4.99	-3.27	-2.43	-3.39
Langelier Index (@ 4C)	NA	NA	-	-5.48	-4.18	-3.76	-4.56	-4.86	-3.33	-3.23	-4.43	-5.31	-3.59	-2.75	-3.71
Saturation pH (@ 20C)	NA	NA	-	10.80	10.40	9.90	10.30	10.40	9.74	9.43	10.20	10.60	9.96	9.12	9.63
Saturation pH (@ 4C)	NA	NA	-	11.10	10.70	10.20	10.60	10.70	10.10	9.75	10.50	10.90	10.30	9.44	9.95
Anion Sum	NA	me/L	-	0.17	0.32	0.65	0.55	0.29	0.57	0.94	0.56	0.20	0.40	1.36	1.11
Cation sum	NA	me/L	-	0.33	0.66	0.85	0.66	0.58	0.89	1.03	0.90	0.46	0.73	1.35	1.40
% Difference/ Ion Balance	NA	%	-	31.70	34.80	13.50	8.70	33.10	21.80	4.40	23.10	39.60	29.70	0.30	11.50
Total Suspended Solids	5.00	mg/L	-	<5	<5	6.00	<5	<5	<5	<5	<5	<5	<5	<5	<5

Notes:

1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Surface Water [Freshwater] (V4 2021)

2 = The guideline for Ammonia decreases as pH and temperature increase. To select the guideline for each sample, field-measured pH was rounded up to the next 0.5 pH units, and field-measured temperature was rounded up to the nearest 5 degrees Celsius.

"-" = None established; not analyzed

NA = Not applicable

SD = Sample Duplicate

SD - SW* = Field Duplicate Sample of Site 1

SW = Surface Water

Results that exceed the ARBCA guideline are bolded and shaded

Table 3 - Analytical Results for Inorganic Parameters in Surface Water - Continued

Parameter	RDL	Units	Guideline ¹	SW-004				SW-005				SW-006			
				April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022
Sampling Event															
Field-measured pH				6.1	5.95	6.64	6.44	6.49	6.27	7.20	7.8	6.07	5.94	7.08	6.78
Field measured temperature (°C)				1.7	14.1	11.4	2.5	0.7	13.9	11.6	2.6	4.1	16.9	12.5	2.0
Ammonia guideline (mg/L as N) ²				-	69.7	7.0	48.3	48.3	22.0	2.2	1.5	48.3	4.8	2.2	15.3
pH	NA	UNITS	6.5-9.0	5.83	6.80	6.70	6.07	6.31	7.05	6.91	6.40	6.61	6.95	6.70	6.53
Reactive Silica	0.5	mg/L	-	5.80	4.60	7.40	3.40	1.20	5.10	7.30	4.10	1.20	5.50	7.20	5.30
Chloride	1	mg/L	120	7.00	8.00	19.00	33.00	10.00	11.00	27.00	24.00	14.00	9.00	15.00	14.00
Fluoride	0.12	mg/L	0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Sulphate	2	mg/L	128	4.00	10.00	3.00	5.00	4.00	8.00	9.00	6.00	6.00	5.00	24.00	5.00
Alkalinity	5	mg/L	-	<5	12.00	30.00	6.00	<5	22.00	45.00	12.00	9.00	12.00	28.00	24.00
True Color	5.00	TCU	-	125.00	346.00	215.00	235.00	80.60	295.00	133.00	248.00	102.00	207.00	56.40	195.00
Turbidity	0.5	NTU	-	<0.5	2.60	0.70	0.60	1.10	4.70	<0.5	<0.5	4.90	1.00	0.80	1.00
Electrical Conductivity	1	umho/cm	-	48.00	80.00	120.00	148.00	63.00	98.00	187.00	122.00	85.00	73.00	142.00	87.00
Nitrate + Nitrite as N	0.05	mg/L	-	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	<0.05
Nitrate as N	0.05	mg/L	13	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	<0.05
Nitrite as N	0.05	mg/L	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	0.03	mg/L	Calculated ²	0.07	<0.03	<0.03	<0.03	0.08	<0.03	1.25	0.04	<0.03	<0.03	0.09	0.05
Total Organic Carbon	0.5/1	mg/L	-	12.70	30.70	19.80	22.00	12.60	27.60	16.00	22.80	9.70	17.60	9.50	15.00
Ortho-phosphate as P	0.01	mg/L	-	0.08	<0.01	<0.01	0.08	0.08	<0.01	0.04	0.02	0.08	<0.01	<0.01	0.04
Total Sodium	0.1/0.22/0.45	mg/L	-	7.70	9.70	15.00	21.10	9.40	12.80	22.00	15.00	10.00	8.40	11.00	9.80
Total Potassium	0.1/0.58/1.15	mg/L	-	0.30	0.30	0.60	0.50	0.40	0.40	1.10	0.50	0.40	0.40	0.50	0.40
Total Calcium	0.1/0.16/0.32	mg/L	-	3.20	7.30	7.60	6.20	3.70	7.50	9.20	6.50	7.00	7.10	14.10	7.30
Total Magnesium	0.1 /0.17/0.34	mg/L	-	0.70	1.30	1.70	2.00	0.90	1.60	2.20	1.70	1.10	1.20	1.80	1.40
Total Phosphorous	0.02/0.10	mg/L	-	0.04	0.03	0.03	0.03	0.03	0.04	0.16	0.02	0.03	0.03	0.04	0.04
Bicarbonate Alkalinity CaCO ₃	5	mg/L	-	<5	12.00	30.00	6.00	<5	22.00	45.00	12.00	9.00	12.00	28.00	24.00
Carbonate Alkalinity CaCO ₃	10	mg/L	-	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Hydroxide	5	mg/L	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calculated TDS	1	mg/L	-	23.00	45.00	66.00	73.00	29.00	56.00	100.00	62.00	44.00	39.00	84.00	53.00
Hardness	0.5	mg/L	-	10.90	23.60	26.00	23.70	12.90	25.30	32.00	23.20	22.00	22.70	42.60	24.00
Langelier Index (@20C)	NA	mg/L	-	-4.50	-2.81	-2.51	-3.93	-3.96	-2.29	-2.06	-3.27	-3.14	-2.67	-2.28	-2.79
Langelier Index (@ 4C)	NA	NA	-	-4.82	-3.13	-2.83	-4.25	-4.28	-2.61	-2.38	-3.59	-3.46	-2.99	-2.60	-3.11
Saturation pH (@ 20C)	NA	NA	-	10.30	9.61	9.21	10.00	10.30	9.34	8.97	9.67	9.75	9.62	8.98	9.32
Saturation pH (@ 4C)	NA	NA	-	10.60	9.93	9.53	10.30	10.60	9.66	9.29	9.99	10.10	9.94	9.30	9.64
Anion Sum	NA	me/L	-	0.28	0.67	1.20	1.15	0.37	0.92	1.85	1.05	0.70	0.60	1.48	0.98
Cation sum	NA	me/L	-	0.60	0.98	1.22	1.47	0.74	1.16	1.74	1.18	0.92	0.89	1.38	0.97
% Difference/ Ion Balance	NA	%	-	36.00	18.70	0.90	11.90	33.20	11.80	3.10	5.90	13.60	19.40	3.80	0.40
Total Suspended Solids	5.00	mg/L	-	<5	<5	<5	16.00	10.00	<5	<5	<5	<5	<5	<5	<5

Notes:

1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Surface Water [Freshwater] (V4 2021)

2 = The guideline for Ammonia decreases as pH and temperature increase. To select the guideline for each sample, field-measured pH was rounded up to the next 0.5 pH units, and field-measured temperature was rounded up to the nearest 5 degrees Celsius.

"-" = None established; not analyzed

NA = Not applicable

SD = Sample Duplicate

SD - SW* = Field Duplicate Sample of Site 1

SW = Surface Water

Results that exceed the ARBCA guideline are bolded and shaded

Table 3 - Analytical Results for Inorganic Parameters in Surface Water - Continued

Parameter	RDL	Units	Guideline ¹	SW-SD			
				Sampling Event	April-08-2022	July-09-2022	Oct-17-2022
Field-measured pH				5.9	5.89	6.75	6.51
Field measured temperature (°C)				2.0	14.1	11.5	2.6
Ammonia guideline (mg/L as N) ²				153.0	69.7	7.0	15.3
pH	NA	UNITS	6.5-9.0	5.81	6.60	6.56	6.08
Reactive Silica	0.5	mg/L	-	1.20	3.70	4.50	4.00
Chloride	1	mg/L	120	6.00	7.00	13.00	14.00
Fluoride	0.12	mg/L	0.12	<0.12	<0.12	<0.12	<0.12
Sulphate	2	mg/L	128	<2	<2	<2	<2
Alkalinity	5	mg/L	-	<5	7.00	12.00	7.00
True Color	5.00	TCU	-	150.00	263.00	211.00	198.00
Turbidity	0.5	NTU	-	2.30	2.00	1.60	1.20
Electrical Conduct	1	umho/cm	-	32.00	48.00	72.00	68.00
Nitrate + Nitrite a	0.05	mg/L	-	<0.05	<0.05	<0.05	<0.05
Nitrate as N	0.05	mg/L	13	<0.05	<0.05	<0.05	<0.05
Nitrite as N	0.05	mg/L	0.06	<0.05	<0.05	<0.05	<0.05
Ammonia as N	0.03	mg/L	Calculated ²	<0.03	<0.03	<0.03	<0.03
Total Organic Ca	0.5/1	mg/L	-	10.00	26.20	19.30	16.30
Ortho-phosphate	0.01	mg/L	-	0.08	<0.01	<0.01	<0.01
Total Sodium	0.1/0.22/0.45	mg/L	-	5.80	8.10	11.00	10.10
Total Potassium	0.1/0.58/1.15	mg/L	-	0.30	<0.1	0.30	0.30
Total Calcium	0.1/0.16/0.32	mg/L	-	1.20	2.30	3.20	2.70
Total Magnesium	0.1 /0.17/0.34	mg/L	-	0.60	0.90	1.00	1.30
Total Phosphorus	0.02/0.10	mg/L	-	0.03	0.03	0.04	0.03
Bicarbonate Alka	5	mg/L	-	<5	7.00	12.00	7.00
Carbonate Alkali	10	mg/L	-	<10	<10	<10	<10
Hydroxide	5	mg/L	-	<5	<5	<5	<5
Calculated TDS	1	mg/L	-	14.00	24.00	38.00	34.00
Hardness	0.5	mg/L	-	5.50	9.40	12.10	12.10
Langelier Index (I	NA	mg/L	-	-4.93	-3.72	-3.40	-4.18
Langelier Index (I	NA	NA	-	-5.25	-4.04	-3.72	-4.50
Saturation pH (@	NA	NA	-	10.70	10.30	9.96	10.30
Saturation pH (@	NA	NA	-	11.10	10.60	10.30	10.60
Anion Sum	NA	me/L	-	0.17	0.34	0.61	0.53
Cation sum	NA	me/L	-	0.40	0.63	0.80	0.75
% Difference/ Ion	NA	%	-	40.70	30.10	13.90	16.50
al Suspended So	5.00	mg/L	-	<5	<5	<5	<5

Notes:

1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Surface Water [Freshwater] (V4 2021)

2 = The guideline for Ammonia decreases as pH and temperature increase. To select the guideline for each sample, field-measured pH was rounded up to the next 0.5 pH units, and field-measured temperature was rounded up to the nearest 5 degrees Celsius.

“-” = None established; not analyzed

NA = Not applicable

SD = Sample Duplicate

SD - SW* = Field Duplicate Sample of Site 1

SW = Surface Water

Results that exceed the ARBCA guideline are bolded and shaded

Table 4 - Analytical Results for Total Metals in Surface Water

Parameter	RDL	Units	Guideline ¹	SW-001				SW-002				SW-003			
				April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022
			pH	5.65	6.53	6.46	6.02	5.84	6.73	6.52	6.10	5.63	6.69	6.69	6.24
			Hardness (mg/L as CaCO ₃)	4.10	9.40	12.10	10.50	9.90	19.40	21.70	17.20	6.50	13.80	30.30	27.80
Aluminum	5	µg/L	5	142.00	446.00	147.00	200.00	306.00	604.00	154.00	338.00	142.00	288.00	96.00	901.00
Antimony	2	µg/L	9	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	2	µg/L	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	5	µg/L	1000	10.00	15.00	15.00	13.00	8.00	16.00	14.00	14.00	12.00	41.00	61.00	54.00
Beryllium ²	2	µg/L	0.15	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Bismuth	2	µg/L	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Boron	5	µg/L	1500	<5	7.00	5.00	<5	<5	8.00	6.00	<5	<5	9.00	9.00	5.00
Cadmium	0.09	µg/L	0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Chromium	1	µg/L	8.9	<1	<1	<1	<1	<1	1.00	<1	1.00	<1	<1	<1	1.00
Cobalt	1	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	1	µg/L	2	<1	<1	<1	<1	<1	1.00	<1	<1	<1	<1	<1	1.00
Iron	50	µg/L	300	345.00	1200.00	1650.00	779.00	348.00	964.00	1210.00	622.00	191.00	531.00	581.00	1030.00
Lead	0.5	µg/L	1	<0.5	0.80	1.00	<0.5	<0.5	0.70	0.60	<0.5	<0.5	<0.5	<0.5	0.70
Manganese	2	µg/L	430	49.00	35.00	37.00	17.00	13.00	48.00	29.00	28.00	17.00	25.00	89.00	99.00
Mercury	0.026	µg/L	0.03	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	0.03	<0.026	<0.026	<0.026
Molybdenum	2	µg/L	73	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel	2	µg/L	25	3.00	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Selenium	1	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver	0.1	µg/L	0.25	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium	5	µg/L	21000	7.00	15.00	20.00	16.00	13.00	35.00	35.00	26.00	6.00	18.00	51.00	46.00
Thallium	0.1	µg/L	0.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	2	µg/L	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Titanium	2	µg/L	-	<2	5.00	2.00	2.00	3.00	7.00	2.00	3.00	<2	4.00	<2	14.00
Uranium	0.2	µg/L	15	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Vanadium	2	µg/L	120	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	2.00
Zinc ⁵	5	ug/L	7.0	5.00	<5	<5	<5	<5	<5	<5	6.00	<5	<5	<5	<5

Notes:

1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Surface Water [Freshwater] (V4 2021)

2= Beryllium in surface water samples collected could not be evaluated because the elevated RDL was higher than the Atlantic RBCA guideline for this parameter.

"-" = Not established; not analyzed

NA = Not applicable

SD - Sample Duplicate

SD - SW* = Field Duplicate Sample of Site 1

SW - Surface Water

Results that exceed the ARBCA guideline are bolded

Table 4 - Analytical Results for Total Metals in Surface Water - Continued

Parameter	RDL	Units	Guideline ¹	SW-004				SW-005				SW-006			
				April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022
			pH	5.83	6.80	6.70	6.07	6.31	7.05	6.91	6.40	6.61	6.95	6.70	6.53
			Hardness (mg/L as CaCO ₃)	10.90	23.60	26.00	23.70	12.90	25.30	32.00	23.20	22.00	22.70	42.60	24.00
Aluminum ²	5/10	µg/L	5	183.00	426.00	103.00	254.00	352.00	528.00	81.00	267.00	249.00	374.00	122.00	338.00
Antimony	2/3.00	µg/L	9	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Arsenic	2/3.00	µg/L	5	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Barium	5/2.00	µg/L	1000	19.00	55.00	41.00	49.00	18.00	41.00	42.00	38.00	8.00	9.00	14.00	9.00
Beryllium ³	2/0.50	µg/L	0.15	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Bismuth	2	µg/L	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Boron	5/10	µg/L	1500	<5	9.00	8.00	<5	<5	11.00	21.00	5.00	<5	10.00	11.00	6.00
Cadmium ⁴	017/0.09/0.1	µg/L	0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Chromium	1/3.0	µg/L	8.9	4.00	<1	4.00	1.00	<1	1.00	<1	<1	<1	<1	<1	<1
Cobalt	1/0.5	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	1	µg/L	2	<1	<1	2.00	<1	<1	1.00	5.00	<1	<1	4.00	1.00	<1
Iron	50	µg/L	300	266.00	868.00	540.00	744.00	346.00	800.00	357.00	519.00	212.00	402.00	307.00	395.00
Lead	0.5/1.0	µg/L	1	<0.5	1.00	<0.5	0.70	<0.5	0.60	<0.5	<0.5	<0.5	0.60	<0.5	<0.5
Manganese	2	µg/L	430	23.00	90.00	40.00	163.00	24.00	50.00	34.00	43.00	7.00	9.00	6.00	13.00
Mercury	0.03	µg/L	0.03	0.03	<0.026	<0.026	<0.026	0.03	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026
Molybdenum	2	µg/L	73	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel	2/3.0	µg/L	25	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Selenium	1	µg/L	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver	0.1	µg/L	0.25	<0.1	<0.1	<2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Strontium	5	µg/L	21000	13.00	42.00	34.00	31.00	15.00	41.00	55.00	36.00	29.00	40.00	92.00	41.00
Thallium	0.1/0.3	µg/L	0.8	<0.1	<0.1	<2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	2	µg/L	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Titanium	2/10.0	µg/L	-	2.00	6.00	2.00	4.00	3.00	8.00	<2	3.00	<2	4.00	<2	3.00
Uranium	0.2/0.50	µg/L	15	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Vanadium	2	µg/L	120	<2	<2	<2	2.00	<2	<2	<2	<2	<2	<2	<2	<2
Zinc ⁵	5/20	ug/L	7.0	<5	<5	<5	<5	<5	<5	10.00	<5	<5	<5	<5	<5

Notes:

1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Surface Water [Freshwater] (V4 2021)

2= Beryllium in surface water samples collected could not be evaluated because the elevated RDL was higher than the Atlantic RBCA guideline for this parameter.

"-" = Not established; not analyzed

NA = Not applicable

SD - Sample Duplicate

SD - SW* = Field Duplicate Sample of Site 1

SW - Surface Water

Results that exceed the ARBCA guideline are bolded

Table 4 - Analytical Results for Total Metals in Surface Water - Continued

Parameter	RDL	Units	Guideline ¹	SW-SD			
				Sample Date	April-08-2022	July-09-2022	Oct-17-2022
			pH	5.81	6.60	6.56	6.08
			Hardness (mg/L as CaCO ₃)	5.50	9.40	12.10	12.10
Aluminum ²	5/10	µg/L	5	167.00	421.00	139.00	230.00
Antimony	2/3.00	µg/L	9	<2	<2	<2	<2
Arsenic	2/3.00	µg/L	5	<2	<2	<2	<2
Barium	5/2.00	µg/L	1000	7.00	14.00	14.00	15.00
Beryllium ³	2/0.50	µg/L	0.15	<2	<2	<2	<2
Bismuth	2	µg/L	-	<2	<2	<2	<2
Boron	5/10	µg/L	1500	<5	7.00	5.00	<5
Cadmium ⁴	0.017/0.09/0.10	µg/L	0.09	<0.09	<0.09	<0.09	<0.09
Chromium	1/3.0	µg/L	8.9	<1	9.00	2.00	<1
Cobalt	1/0.5	µg/L	1	<1	<1	<1	<1
Copper	1	µg/L	2	<1	<1	<1	<1
Iron	50	µg/L	300	337.00	1070.00	1640.00	876.00
Lead	0.5/1.0	µg/L	1	<0.5	0.70	1.00	0.60
Manganese	2	µg/L	430	9.00	30.00	27.00	18.00
Mercury	0.03	µg/L	0.03	<0.026	<0.026	<0.026	<0.026
Molybdenum	2	µg/L	73	<2	<2	<2	<2
Nickel	2/3.0	µg/L	25	<2	3.00	<2	<2
Selenium	1	µg/L	1	<1	<1	<1	<1
Silver	0.1	µg/L	0.25	<0.1	<0.1	<2	<0.1
Strontium	5	µg/L	21000	7.00	16.00	20.00	18.00
Thallium	0.1/0.3	µg/L	0.8	<0.1	<0.1	<0.1	<0.1
Tin	2	µg/L	-	<2	<2	<2	<2
Titanium	2/10.0	µg/L	-	<2	5.00	2.00	3.00
Uranium	0.2/0.50	µg/L	15	<0.2	<0.2	<0.2	<0.2
Vanadium	2	µg/L	120	<2	<2	<2	<2
Zinc ⁵	5/20	ug/L	7.0	<5	<5	<5	<5

Notes:

1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Surface Water [Freshwater] (V4 2021)

2= Beryllium in surface water samples collected could not be evaluated because the elevated RDL was higher than the Atlantic RBCA guideline for this parameter.

"-" = Not established; not analyzed

NA = Not applicable

SD - Sample Duplicate

SD - SW* = Field Duplicate Sample of Site 1

SW - Surface Water

Results that exceed the ARBCA guideline are bolded

Table 5 - Analytical Results for Available Metals in Sediment

Parameter	RDL	Units	Guideline ¹	SED-001				SED-002				SED-003			
				Sample Date	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022
Aluminum	10	mg/kg	-	4590.00	4630.00	7030.00	10600.00	8040.00	7880.00	8460.00	7790.00	3590.00	3520.00	5020.00	3400.00
Antimony	1	mg/kg	25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Arsenic	1	mg/kg	17	8.00	25.00	17.00	11.00	5.00	3.00	3.00	4.00	7.00	7.00	3.00	5.00
Barium	5	mg/kg	-	35.00	41.00	42.00	26.00	28.00	27.00	20.00	23.00	215.00	208.00	28.00	119.00
Beryllium	2	mg/kg	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Boron	2	mg/kg	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	0.3	mg/kg	3.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	2	mg/kg	90	9.00	9.00	14.00	19.00	14.00	18.00	19.00	25.00	8.00	12.00	12.00	11.00
Cobalt	1	mg/kg	-	5.00	4.00	7.00	11.00	6.00	6.00	6.00	7.00	5.00	7.00	4.00	5.00
Copper	2	mg/kg	197	<2	2.00	3.00	3.00	14.00	14.00	14.00	14.00	6.00	<2	6.00	<2
Iron	50	mg/kg	43766	22900.00	52900.00	39200.00	35300.00	12600.00	11200.00	10700.00	11000.00	18900.00	22000.00	6000.00	14100.00
Lead	0.5	mg/kg	91.3	2.90	4.60	3.70	2.80	2.60	3.30	2.20	2.60	7.00	9.80	1.40	6.20
Lithium	5	mg/kg	-	<5	<5	<5	<5	5.00	<5	5.00	<5	<5	<5	<5	<5
Manganese	2	mg/kg	1100	756.00	865.00	1050.00	634.00	294.00	311.00	324.00	206.00	3130.00	3900.00	355.00	2330.00
Mercury	0.03	mg/kg	0.486	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Molybdenum	2	mg/kg	-	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel	2	mg/kg	75	8.00	7.00	10.00	10.00	20.00	19.00	20.00	16.00	10.00	7.00	7.00	7.00
Selenium	1	mg/kg	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver	0.5	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	6.00	8.00	8.00	6.00	12.00	10.00	15.00	12.00	9.00	7.00	16.00	6.00
Thallium	0.1	mg/kg	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	2	mg/kg	-	3.00	3.00	3.00	<2	3.00	3.00	4.00	3.00	4.00	3.00	3.00	2.00
Uranium	0.1	mg/kg	-	0.20	0.20	0.20	1.10	0.20	0.20	0.20	0.20	0.50	0.70	0.20	0.40
Vanadium	2	mg/kg	-	31.00	41.00	63.00	63.00	24.00	19.00	20.00	26.00	60.00	64.00	17.00	48.00
Zinc	5	mg/kg	315	23.00	26.00	44.00	21.00	31.00	29.00	26.00	27.00	36.00	29.00	13.00	20.00

Notes:

1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Sediment [Freshwater Sediment] (V4 2021)

"-" = None established; not analyzed

NA = Not applicable

RDL = Reported Detection Limit;

Note: elevated RDL for several parameters in sediment sample Site 11-SED during May 2021 in parenthesis

SD - SED* = Field Duplicate Sample of Site 1

SED = Sediment

Results that exceed the ARBCA guideline are bolded and shaded

Table 5 - Analytical Results for Available Metals in Sediment - Continued

Parameter	RDL	Units	Guideline ¹	SED-004				SED-005				SED-006			
				Sample Date	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	April-08-2022	July-09-2022	Oct-17-2022	Nov-28-2022	-	July-09-2022	Oct-17-2022
Aluminum	100 (8740)	mg/kg	-	4250.00	4020.00	3500.00	4680.00	12000.00	8000.00	9700.00	8980.00	-	6300.00	8640.00	8650.00
Antimony	1	mg/kg	25	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1
Arsenic	1	mg/kg	17	3.00	2.00	6.00	3.00	4.00	3.00	4.00	4.00	-	2.00	4.00	3.00
Barium	5	mg/kg	-	31.00	36.00	153.00	24.00	84.00	41.00	56.00	51.00	-	21.00	25.00	32.00
Beryllium	2	mg/kg	-	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2
Boron	2	mg/kg	-	<2	<2	<2	<2	2.00	<2	<2	<2	-	<2	<2	2.00
Cadmium	0.3	mg/kg	3.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	<0.3	<0.3	<0.3
Chromium	2	mg/kg	90	9.00	9.00	10.00	10.00	29.00	22.00	19.00	23.00	-	22.00	31.00	43.00
Cobalt	1	mg/kg	-	3.00	3.00	5.00	3.00	12.00	7.00	8.00	8.00	-	6.00	8.00	9.00
Copper	2	mg/kg	197	7.00	4.00	<2	5.00	11.00	8.00	8.00	12.00	-	6.00	9.00	9.00
Iron	50 (24400)	mg/kg	43766	4760.00	5330.00	17600.00	5830.00	19200.00	11500.00	14500.00	13000.00	-	9570.00	11700.00	11000.00
Lead	0.5	mg/kg	91.3	1.10	1.20	6.90	1.20	7.20	3.50	2.30	3.50	-	1.90	2.20	2.40
Lithium	5	mg/kg	-	<5	<5	<5	<5	6.00	<5	6.00	5.00	-	<5	8.00	8.00
Manganese	2 (780)	mg/kg	1100	193.00	235.00	2660.00	307.00	851.00	478.00	903.00	540.00	-	227.00	208.00	359.00
Mercury	0.05/0.03	mg/kg	0.486	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	<0.03	<0.03	<0.03
Molybdenum	2	mg/kg	-	<2	<2	<2	<2	<2	<2	<2	<2	-	<2	<2	<2
Nickel	2	mg/kg	75	8.00	7.00	6.00	7.00	25.00	18.00	20.00	18.00	-	42.00	71.00	95.00
Selenium	1	mg/kg	2	<1	<1	<1	<1	<1	<1	<1	<1	-	<1	<1	<1
Silver	0.5	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	17.00	28.00	10.00	18.00	27.00	14.00	14.00	15.00	-	13.00	14.00	24.00
Thallium	0.1	mg/kg	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1
Tin	2	mg/kg	-	3.00	2.00	3.00	3.00	2.00	3.00	3.00	3.00	-	3.00	3.00	2.00
Uranium	0.1	mg/kg	-	0.30	0.10	0.50	0.20	0.40	0.20	0.20	0.30	-	0.20	0.20	0.20
Vanadium	2	mg/kg	-	15.00	11.00	58.00	17.00	53.00	33.00	36.00	34.00	-	18.00	26.00	24.00
Zinc	5	mg/kg	315	17.00	12.00	22.00	12.00	45.00	25.00	32.00	36.00	-	17.00	23.00	24.00

Notes:

1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Sediment [Freshwater Sediment] (V4 2021)

"-" = None established; not analyzed

NA = Not applicable

RDL = Reported Detection Limit;

Note: elevated RDL for several parameters in sediment sample Site 11-SED during May 2021 in parenthesis

SD - SED* = Field Duplicate Sample of Site 1

SED = Sediment

Results that exceed the ARBCA guideline are bolded and shaded

Table 5 - Analytical Results for Available Metals in Sediment - Continued

Parameter	RDL	Units	Guideline ¹	SED-SD			
				Sample Date	April-08-2022	July-09-2022	Oct-17-2022
Aluminum	100 (8740)	mg/kg	-	7810.00	5150.00	6840.00	10300.00
Antimony	1	mg/kg	25	<1	<1	<1	<1
Arsenic	1	mg/kg	17	12.00	19.00	27.00	11.00
Barium	5	mg/kg	-	36.00	52.00	35.00	28.00
Beryllium	2	mg/kg	-	<2	<2	<2	<2
Boron	2	mg/kg	-	<2	<2	<2	<2
Cadmium	0.3	mg/kg	3.5	<0.3	<0.3	<0.3	<0.3
Chromium	2	mg/kg	90	12.00	10.00	13.00	19.00
Cobalt	1	mg/kg	-	6.00	5.00	7.00	14.00
Copper	2	mg/kg	197	4.00	<2	2.00	3.00
Iron	50 (24400)	mg/kg	43766	40300.00	49600.00	53600.00	37400.00
Lead	0.5	mg/kg	91.3	2.80	5.20	3.60	2.70
Lithium	5	mg/kg	-	<5	<5	<5	<5
Manganese	2 (780)	mg/kg	1100	798.00	1270.00	1040.00	835.00
Mercury	0.05/0.03	mg/kg	0.486	<0.03	<0.03	<0.03	<0.03
Molybdenum	2	mg/kg	-	<2	<2	<2	<2
Nickel	2	mg/kg	75	8.00	9.00	8.00	10.00
Selenium	1	mg/kg	2	<1	<1	<1	<1
Silver	0.5	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Strontium	5	mg/kg	-	8.00	9.00	10.00	7.00
Thallium	0.1	mg/kg	-	<0.1	<0.1	<0.1	<0.1
Tin	2	mg/kg	-	3.00	4.00	3.00	<2
Uranium	0.1	mg/kg	-	0.40	0.20	0.20	1.10
Vanadium	2	mg/kg	-	49.00	51.00	66.00	63.00
Zinc	5	mg/kg	315	36.00	34.00	47.00	20.00

Notes:
 1=Atlantic Risk Based Corrective Action (ARBCA) - Ecological Tier I Environmental Quality Standards (EQS) for Sediment [Freshwater Sediment] (V4 2021)
 "-" = None established; not analyzed
 NA = Not applicable
 RDL = Reported Detection Limit;
 Note: elevated RDL for several parameters in sediment sample Site 11-SED during May 2021 in parenthesis
 SD - SED* = Field Duplicate Sample of Site 1
 SED = Sediment

Results that exceed the ARBCA guideline are bolded and shaded



APPENDIX B

Laboratory Certificates of Analysis

CLIENT NAME: GEMTEC LIMITED
10 Maverick Place
Paradise, NL A1L 1Y8
709722-2275

ATTENTION TO: Darrol Rice

PROJECT: 101556.001

AGAT WORK ORDER: 22K884428

SOIL ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer

WATER ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer

DATE REPORTED: Apr 28, 2022

PAGES (INCLUDING COVER): 16

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (709)747-8573

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

Certificate of Analysis

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

57 Old Pennywell Road, Unit I
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CANADA A1E 6A8
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FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Available Metals in Soil

DATE RECEIVED: 2022-04-13

DATE REPORTED: 2022-04-28

Parameter	Unit	SAMPLE DESCRIPTION:		SED-1	SED-2	SED-3	SED-4	SED-5	SED-SD
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2022-04-08 10:10	2022-04-08 09:40	2022-04-08 11:40	2022-04-08 11:15	2022-04-08 08:55	2022-04-08 10:10
		G / S	RDL	3747400	3747402	3747403	3747404	3747405	3747406
Aluminum	mg/kg		10	4590	8040	3590	4250	12000	7810
Antimony	mg/kg		1	<1	<1	<1	<1	<1	<1
Arsenic	mg/kg		1	8	5	7	3	4	12
Barium	mg/kg		5	35	28	215	31	84	36
Beryllium	mg/kg		2	<2	<2	<2	<2	<2	<2
Boron	mg/kg		2	<2	<2	<2	<2	2	<2
Cadmium	mg/kg		0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	mg/kg		2	9	14	8	9	29	12
Cobalt	mg/kg		1	5	6	5	3	12	6
Copper	mg/kg		2	<2	14	6	7	11	4
Iron	mg/kg		50	22900	12600	18900	4760	19200	40300
Lead	mg/kg		0.5	2.9	2.6	7.0	1.1	7.2	2.8
Lithium	mg/kg		5	<5	5	<5	<5	6	<5
Manganese	mg/kg		2	756	294	3130	193	851	798
Molybdenum	mg/kg		2	<2	<2	<2	<2	<2	<2
Nickel	mg/kg		2	8	20	10	8	25	8
Selenium	mg/kg		1	<1	<1	<1	<1	<1	<1
Silver	mg/kg		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	mg/kg		5	6	12	9	17	27	8
Thallium	mg/kg		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	mg/kg		2	3	3	4	3	2	3
Uranium	mg/kg		0.1	0.2	0.2	0.5	0.3	0.4	0.4
Vanadium	mg/kg		2	31	24	60	15	53	49
Zinc	mg/kg		5	23	31	36	17	45	36

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

3747400-3747406 Results are based on the dry weight of the sample.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

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<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Mercury in Soil

DATE RECEIVED: 2022-04-13

DATE REPORTED: 2022-04-28

		SAMPLE DESCRIPTION:		SED-1	SED-2	SED-3	SED-4	SED-5	SED-SD
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2022-04-08 10:10	2022-04-08 09:40	2022-04-08 11:40	2022-04-08 11:15	2022-04-08 08:55	2022-04-08 10:10
Parameter	Unit	G / S	RDL	3747400	3747402	3747403	3747404	3747405	3747406
Mercury	mg/kg		0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

3747400-3747406 Results are based on the dry weight of the soil.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

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CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Total)

DATE RECEIVED: 2022-04-13

DATE REPORTED: 2022-04-28

		SAMPLE DESCRIPTION:		SW-01	SW-02	SW-03	SW-04	SW-05	SW-06	SW-SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-04-08 10:10	2022-04-08 09:40	2022-04-08 11:40	2022-04-08 11:15	2022-04-08 08:55	2022-04-08 13:00	2022-04-08 10:10
Parameter	Unit	G / S	RDL	3747378	3747393	3747394	3747395	3747396	3747397	3747398
Total Mercury	ug/L		0.026	<0.026	<0.026	0.027	0.027	0.026	<0.026	<0.026

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

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<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-04-13

DATE REPORTED: 2022-04-28

Parameter	Unit	SAMPLE DESCRIPTION:		SW-01	SW-02	SW-03	SW-04	SW-05	SW-06	SW-SD
		G / S	RDL	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08	2022-04-08
				10:10	09:40	11:40	11:15	08:55	13:00	10:10
				3747378	3747393	3747394	3747395	3747396	3747397	3747398
pH				5.65	5.84	5.63	5.83	6.31	6.61	5.81
Reactive Silica as SiO2	mg/L		0.5	2.4	2.4	5.1	5.8	1.2	1.2	1.2
Chloride	mg/L		1	6	8	7	7	10	14	6
Fluoride	mg/L		0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Sulphate	mg/L		2	<2	3	<2	4	4	6	<2
Alkalinity	mg/L		5	<5	<5	<5	<5	<5	9	<5
True Color	TCU		5.00	108	124	136	125	80.6	102	150
Turbidity	NTU		0.5	<0.5	1.2	0.6	<0.5	1.1	4.9	2.3
Electrical Conductivity	umho/cm		1	32	50	40	48	63	85	32
Nitrate + Nitrite as N	mg/L		0.05	<0.05	0.05	<0.05	<0.05	0.06	<0.05	<0.05
Nitrate as N	mg/L		0.05	<0.05	0.05	<0.05	<0.05	0.06	<0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03	0.03	0.04	0.03	0.07	0.08	<0.03	<0.03
Total Organic Carbon	mg/L		0.5	10.1	12.0	13.2	12.7	12.6	9.7	10.0
Ortho-Phosphate as P	mg/L		0.01	0.08	0.09	0.08	0.08	0.08	0.08	0.08
Total Sodium	mg/L		0.1	4.7	7.4	6.7	7.7	9.4	10	5.8
Total Potassium	mg/L		0.1	0.2	0.4	0.3	0.3	0.4	0.4	0.3
Total Calcium	mg/L		0.1	1.0	2.8	1.6	3.2	3.7	7.0	1.2
Total Magnesium	mg/L		0.1	0.4	0.7	0.6	0.7	0.9	1.1	0.6
Bicarb. Alkalinity (as CaCO3)	mg/L		5	<5	<5	<5	<5	<5	9	<5
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10	<10	<10	<10	<10
Hydroxide	mg/L		5	<5	<5	<5	<5	<5	<5	<5
Calculated TDS	mg/L		1	13	23	17	23	29	44	14
Hardness	mg/L			4.1	9.9	6.5	10.9	12.9	22.0	5.5
Langelier Index (@20C)	NA			-5.16	-4.54	-4.99	-4.50	-3.96	-3.14	-4.93
Langelier Index (@ 4C)	NA			-5.48	-4.86	-5.31	-4.82	-4.28	-3.46	-5.25
Saturation pH (@ 20C)	NA			10.8	10.4	10.6	10.3	10.3	9.75	10.7
Saturation pH (@ 4C)	NA			11.1	10.7	10.9	10.6	10.6	10.1	11.1
Anion Sum	me/L			0.17	0.29	0.20	0.28	0.37	0.70	0.17

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

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<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-04-13

DATE REPORTED: 2022-04-28

Parameter	Unit	SAMPLE DESCRIPTION:		SW-01	SW-02	SW-03	SW-04	SW-05	SW-06	SW-SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-04-08 10:10	2022-04-08 09:40	2022-04-08 11:40	2022-04-08 11:15	2022-04-08 08:55	2022-04-08 13:00	2022-04-08 10:10
		G / S	RDL	3747378	3747393	3747394	3747395	3747396	3747397	3747398
Cation sum	me/L			0.33	0.58	0.46	0.60	0.74	0.92	0.40
% Difference/ Ion Balance	%			31.7	33.1	39.6	36.0	33.2	13.6	40.7
Total Aluminum	ug/L	5		142	306	142	183	352	249	167
Total Antimony	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Arsenic	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Barium	ug/L	5		10	8	12	19	18	8	7
Total Beryllium	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Bismuth	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Boron	ug/L	5		<5	<5	<5	<5	<5	<5	<5
Total Cadmium	ug/L		0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Total Chromium	ug/L	1		<1	<1	<1	4	<1	<1	<1
Total Cobalt	ug/L	1		<1	<1	<1	<1	<1	<1	<1
Total Copper	ug/L	1		<1	<1	<1	<1	<1	<1	<1
Total Iron	ug/L	50		345	348	191	266	346	212	337
Total Lead	ug/L		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Manganese	ug/L	2		49	13	17	23	24	7	9
Total Molybdenum	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Nickel	ug/L	2		3	<2	<2	<2	<2	<2	<2
Total Phosphorous	mg/L	0.02		<0.02	0.03	0.03	0.04	0.03	0.03	0.03
Total Selenium	ug/L	1		<1	<1	<1	<1	<1	<1	<1
Total Silver	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L	5		7	13	6	13	15	29	7
Total Thallium	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Titanium	ug/L	2		<2	3	<2	2	3	<2	<2
Total Uranium	ug/L		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total Vanadium	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Zinc	ug/L	5		5	<5	<5	<5	<5	<5	<5

Certified By:

Sara Knox

Certificate of Analysis

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

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<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-04-13

DATE REPORTED: 2022-04-28

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

3747378 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited. The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

3747393 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited. The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

3747394-3747398 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited. The cation and anion sums are at, or below, 1 me/L, therefore the acceptable criteria is a difference of less than 0.3me/L.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

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 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

TSS

DATE RECEIVED: 2022-04-13

DATE REPORTED: 2022-04-28

		SAMPLE DESCRIPTION:		SW-01	SW-02	SW-03	SW-04	SW-05	SW-06	SW-SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-04-08 10:10	2022-04-08 09:40	2022-04-08 11:40	2022-04-08 11:15	2022-04-08 08:55	2022-04-08 13:00	2022-04-08 10:10
Parameter	Unit	G / S	RDL	3747378	3747393	3747394	3747395	3747396	3747397	3747398
Total Suspended Solids	mg/L		5	<5	<5	<5	<5	10	<5	<5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
 Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Sara Knox

Quality Assurance

CLIENT NAME: GEMTEC LIMITED
PROJECT: 101556.001
SAMPLING SITE:

AGAT WORK ORDER: 22K884428
ATTENTION TO: Darrol Rice
SAMPLED BY:

Soil Analysis															
RPT Date: Apr 28, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Available Metals in Soil

Aluminum	3747406	3747406	7810	9280	17.2%	< 10	100%	80%	120%	107%	80%	120%	NA	70%	130%
Antimony	3747406	3747406	<1	<1	NA	< 1	80%	80%	120%	NA	80%	120%	NA	70%	130%
Arsenic	3747406	3747406	12	17	30.0%	< 1	99%	80%	120%	104%	80%	120%	NA	70%	130%
Barium	3747406	3747406	36	49	30.0%	< 5	104%	80%	120%	115%	80%	120%	NA	70%	130%
Beryllium	3747406	3747406	<2	<2	NA	< 2	103%	80%	120%	110%	80%	120%	123%	70%	130%
Boron	3747406	3747406	<2	<2	NA	< 2	94%	80%	120%	106%	80%	120%	115%	70%	130%
Cadmium	3747406	3747406	<0.3	<0.3	NA	< 0.3	96%	80%	120%	103%	80%	120%	104%	70%	130%
Chromium	3747406	3747406	12	24	NA	< 2	92%	80%	120%	99%	80%	120%	NA	70%	130%
Cobalt	3747406	3747406	6	8	22.9%	< 1	96%	80%	120%	101%	80%	120%	114%	70%	130%
Copper	3747406	3747406	4	5	NA	< 2	99%	80%	120%	103%	80%	120%	126%	70%	130%
Iron	3747406	3747406	40300	49200	19.9%	< 50	95%	80%	120%	101%	80%	120%	NA	70%	130%
Lead	3747406	3747406	2.8	3.5	20.3%	< 0.5	100%	80%	120%	111%	80%	120%	120%	70%	130%
Lithium	3747406	3747406	<5	<5	NA	< 5	101%	70%	130%	109%	70%	130%	121%	70%	130%
Manganese	3747406	3747406	798	1050	27.3%	< 2	100%	80%	120%	104%	80%	120%	NA	70%	130%
Molybdenum	3747406	3747406	<2	<2	NA	< 2	86%	80%	120%	95%	80%	120%	116%	70%	130%
Nickel	3747406	3747406	8	11	NA	< 2	100%	80%	120%	117%	80%	120%	109%	70%	130%
Selenium	3747406	3747406	<1	<1	NA	< 1	85%	80%	120%	90%	80%	120%	98%	70%	130%
Silver	3747406	3747406	<0.5	<0.5	NA	< 0.5	86%	80%	120%	82%	80%	120%	99%	70%	130%
Strontium	3747406	3747406	8	10	NA	< 5	93%	80%	120%	100%	80%	120%	121%	70%	130%
Thallium	3747406	3747406	<0.1	<0.1	NA	< 0.1	100%	80%	120%	111%	80%	120%	99%	70%	130%
Tin	3747406	3747406	3	4	NA	< 2	94%	80%	120%	98%	80%	120%	122%	70%	130%
Uranium	3747406	3747406	0.4	0.6	NA	< 0.1	93%	80%	120%	101%	80%	120%	108%	70%	130%
Vanadium	3747406	3747406	49	61	21.4%	< 2	93%	80%	120%	98%	80%	120%	NA	70%	130%
Zinc	3747406	3747406	36	42	14.8%	< 5	101%	80%	120%	105%	80%	120%	119%	70%	130%

Mercury in Soil

Mercury	3747406	3747406	<0.03	<0.03	NA	< 0.03	76%	70%	130%	NA	70%	130%	105%	70%	130%
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Certified By: _____

Sara Knox

Quality Assurance

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Water Analysis															
RPT Date: Apr 28, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

TSS															
Total Suspended Solids	3748951		<5	<5	NA	< 5	97%	80%	120%	NA			93%	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Total Metals

pH	3748951		6.85	6.85	0.0%	<	100%	80%	120%	NA			NA		
Reactive Silica as SiO2	3749719		20.0	19.5	2.1%	< 0.5	106%	80%	120%	102%	80%	120%	110%	80%	120%
Chloride	3747488		6	5	10.6%	< 1	98%	80%	120%	NA	80%	120%	94%	70%	130%
Fluoride	3747488		<0.12	<0.12	NA	< 0.12	109%	80%	120%	NA	80%	120%	105%	70%	130%
Sulphate	3747488		<2	<2	NA	< 2	113%	80%	120%	NA	80%	120%	104%	70%	130%
Alkalinity	3748951		18	17	NA	< 5	88%	80%	120%	NA			NA		
True Color	3749719		<5.00	<5.00	NA	< 5.00	99%	80%	120%	108%	80%	120%	NA		
Turbidity	3762095		7.9	7.7	2.3%	< 0.5	99%	80%	120%	NA			NA		
Electrical Conductivity	3748951		62	63	0.8%	< 1	103%	90%	110%	NA			NA		
Nitrate as N	3747488		<0.05	<0.05	NA	< 0.05	107%	80%	120%	NA	80%	120%	93%	70%	130%
Nitrite as N	3747488		<0.05	<0.05	NA	< 0.05	93%	80%	120%	NA	80%	120%	114%	70%	130%
Ammonia as N	3743668		0.39	0.34	13.4%	< 0.03	98%	80%	120%	98%	80%	120%	98%	70%	130%
Total Organic Carbon	3748975		14.1	14.0	0.7%	< 0.5	99%	80%	120%	102%	80%	120%	97%	80%	120%
Ortho-Phosphate as P	3749719		0.09	0.09	4.7%	< 0.01	84%	80%	120%	87%	80%	120%	113%	80%	120%
Total Sodium	3747378		4.7	4.7	1.4%	< 0.1	101%	80%	120%	107%	80%	120%	NA	70%	130%
Total Potassium	3747378		0.2	0.2	NA	< 0.1	101%	80%	120%	106%	80%	120%	108%	70%	130%
Total Calcium	3747378		1.0	1.1	6.8%	< 0.1	100%	80%	120%	98%	80%	120%	113%	70%	130%
Total Magnesium	3747378		0.4	0.5	NA	< 0.1	101%	80%	120%	105%	80%	120%	109%	70%	130%
Bicarb. Alkalinity (as CaCO3)	3748951		18	17	NA	< 5	NA	80%	120%	NA			NA		
Carb. Alkalinity (as CaCO3)	3748951		<10	<10	NA	< 10	NA	80%	120%	NA			NA		
Hydroxide	3748951		<5	<5	NA	< 5	NA	80%	120%	NA			NA		
Total Aluminum	3747378 3747378		142	166	15.3%	< 5	103%	80%	120%	108%	80%	120%	122%	70%	130%
Total Antimony	3747378 3747378		<2	<2	NA	< 2	80%	80%	120%	NA	80%	120%	NA	70%	130%
Total Arsenic	3747378 3747378		<2	<2	NA	< 2	97%	80%	120%	103%	80%	120%	96%	70%	130%
Total Barium	3747378 3747378		10	10	NA	< 5	103%	80%	120%	114%	80%	120%	94%	70%	130%
Total Beryllium	3747378 3747378		<2	<2	NA	< 2	104%	80%	120%	109%	80%	120%	107%	70%	130%
Total Bismuth	3747378 3747378		<2	<2	NA	< 2	80%	80%	120%	106%	80%	120%	89%	70%	130%
Total Boron	3747378 3747378		<5	<5	NA	< 5	93%	80%	120%	104%	80%	120%	110%	70%	130%
Total Cadmium	3747378 3747378		<0.09	<0.09	NA	< 0.09	98%	80%	120%	105%	80%	120%	93%	70%	130%
Total Chromium	3747378 3747378		<1	<1	NA	< 1	94%	80%	120%	103%	80%	120%	95%	70%	130%
Total Cobalt	3747378 3747378		<1	<1	NA	< 1	98%	80%	120%	102%	80%	120%	96%	70%	130%
Total Copper	3747378 3747378		<1	<1	NA	< 1	100%	80%	120%	104%	80%	120%	103%	70%	130%
Total Iron	3747378 3747378		345	417	18.8%	< 50	95%	80%	120%	101%	80%	120%	NA	70%	130%
Total Lead	3747378 3747378		<0.5	<0.5	NA	< 0.5	101%	80%	120%	110%	80%	120%	92%	70%	130%
Total Manganese	3747378 3747378		49	52	5.6%	< 2	100%	80%	120%	106%	80%	120%	NA	70%	130%

Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.001
 SAMPLING SITE:

AGAT WORK ORDER: 22K884428
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Apr 28, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Molybdenum	3747378	3747378	<2	<2	NA	< 2	87%	80%	120%	97%	80%	120%	93%	70%	130%	
Total Nickel	3747378	3747378	3	<2	NA	< 2	99%	80%	120%	118%	80%	120%	94%	70%	130%	
Total Phosphorous	3747378	3747378	<0.02	<0.02	NA	< 0.02	95%	80%	120%	101%	80%	120%	107%	70%	130%	
Total Selenium	3747378	3747378	<1	<1	NA	< 1	87%	80%	120%	92%	80%	120%	84%	70%	130%	
Total Silver	3747378	3747378	<0.1	<0.1	NA	< 0.1	83%	80%	120%	85%	80%	120%	70%	70%	130%	
Total Strontium	3747378	3747378	7	7	NA	< 5	95%	80%	120%	100%	80%	120%	97%	70%	130%	
Total Thallium	3747378	3747378	<0.1	<0.1	NA	< 0.1	101%	80%	120%	109%	80%	120%	92%	70%	130%	
Total Tin	3747378	3747378	<2	<2	NA	< 2	93%	80%	120%	100%	80%	120%	94%	70%	130%	
Total Titanium	3747378	3747378	<2	2	NA	< 2	98%	80%	120%	102%	80%	120%	118%	70%	130%	
Total Uranium	3747378	3747378	<0.2	<0.2	NA	< 0.2	94%	80%	120%	102%	80%	120%	86%	70%	130%	
Total Vanadium	3747378	3747378	<2	<2	NA	< 2	95%	80%	120%	100%	80%	120%	95%	70%	130%	
Total Zinc	3747378	3747378	5	<5	NA	< 5	101%	80%	120%	108%	80%	120%	97%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Mercury Analysis in Water (Total)

Total Mercury	3737585		<0.026	<0.026	NA	< 0.026	106%	80%	120%	94%	80%	120%	117%	70%	130%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By: 

Method Summary

CLIENT NAME: GEMTEC LIMITED
AGAT WORK ORDER: 22K884428
PROJECT: 101556.001
ATTENTION TO: Darrol Rice
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Aluminum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Antimony	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Arsenic	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Barium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Beryllium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Boron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cadmium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Chromium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cobalt	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Copper	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Iron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Lead	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Lithium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Manganese	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Molybdenum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Nickel	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Selenium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Silver	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Strontium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Thallium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Tin	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Uranium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Vanadium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Zinc	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Mercury	INOR-121-6101 & INOR-121-6107	Based on EPA 245.5 & SM 3112B	CV/AA

Method Summary

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO2	INOR-121-6027	SM 4500-SiO2 F	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6008	SM 2120 B	LACHAT FIA
Turbidity	INOR-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH3 H	COLORIMETER
Total Organic Carbon	INOR-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4500-P G	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP-MS
Total Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

Method Summary

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K884428

PROJECT: 101556.001

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorous	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC



Laboratory Use Only

Arrival Condition: Good Poor (see notes)
 Arrival Temperature: 2.4, 2.9, 3.8
 Hold Time: _____
 AGAT Job Number: 22K 884428

Chain of Custody Record

P: 709.747.8573 • F: 709.747.2139

Report Information

Company: GEMTEC Consulting Engineers and Scientists Ltd.
 Contact: Darrol Rice
 Address: 19 Dundee Place
Mount Pearl, NL, A1N 4R6
 Phone: 709.693.9171 Fax: _____
 Client Project #: 101556.001
 AGAT Quotation: GEMTEC SOA
 Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Darrol Rice
 Email: darrol.rice@gemtec.ca
 2. Name: _____
 Email: _____

Report Format

- Single Sample per page
 Multiple Samples per page
 Excel Format Included
 Export

Notes:

Log under St. John's

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days
 Rush TAT Same day 1 day
 2 days 3 days

Date Required: _____

Invoice To

Same Yes / No

Company: GEMTEC Consulting Engineers and Scientists Ltd.
 Contact: Felicia Hemming (felicia.hemming@gemtec.ca)
 Address: 191 Doak Road
Fredericton, NB E3C 2E6
 Phone: 506.453.1025 x 115 Fax: _____
 PO/Credit Card#: _____

Regulatory Requirements (Check):

- List Guidelines on Report Do not list Guidelines on Report
 PIRI
 Tier 1 Res Pot Coarse
 Tier 2 Com N/Pot Fine
 Gas Fuel Lube
 CCME CDWQ
 Industrial NL DOEC GW
 Commercial NLDOEC Discharge
 Res/Park Agricultural
 FWAL Sediment Other _____

Drinking Water Sample: Yes No Salt Water Sample Yes No
 Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available		Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other:	Hazardous (Y/N)	
							<input type="checkbox"/>	<input type="checkbox"/>																						
SW - 01	April 8 2022 / 1010	Water	6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																			
SW - 02	April 8 2022 / 0940	Water	6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																			
SW - 03	April 8 2022 / 1140	Water	6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																			
SW - 04	April 8 2022 / 1115	Water	6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																			
SW - 05	April 8 2022 / 0855	Water	6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																			
SW - 07	April 8 2022 / 1300	Water	6	Please Label as SW - 06 in Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																			
SW - SD	April 8 2022 / 1010	Water	6		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																			

Samples Relinquished By (Print Name): <u>Adam Schamper</u>	Date/Time: <u>04.13.2022</u>	Samples Received By (Print Name): <u>Myron Bagge</u>	Date/Time: <u>Apr 13, 2022</u>	Pink Copy - Client	Page <u>1</u> of <u>2</u>
Samples Relinquished By (Sign): <u>[Signature]</u>	Date/Time:	Samples Received By (Sign): <u>[Signature]</u>	Date/Time: <u>Apr 14/22</u>	Yellow Copy - AGAT	
			Date/Time: <u>8:30</u>	White Copy - AGAT	



22X-884428

Chain of Custody Record

P: 709.747.8573 • F: 709.747.2139

Report to:

Company: _____ Same as COC#: _____

	SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS	# OF CONTAINERS			Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC+EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other:	Hazardous (Y/N)				
					VIALS / JARS	BAGS	BOTTLES																												
1	SED - 1	04.08.22 / 1010	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
2	SED - 2	04.08.22 / 0940	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
3	SED - 3	04.08.22 / 1140	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
4	SED - 4	04.08.22 / 1115	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
5	SED - 5	04.08.22 / 0855	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
6	SED - SD	04.08.22 / 1010	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
7																																			
8																																			
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Samples Relinquished By (Print Name and Sign): Adam Schamper	Date/Time: 04.13.2022	Samples Received By (Print Name and Sign): <i>Myra Baggs</i>	Date/Time: April 13, 2022	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page <u>2</u> of <u>2</u> No:
Samples Relinquished By (Print Name and Sign):	Date/Time:	Samples Received By (Print Name and Sign):	Date/Time:		
Samples Relinquished By (Print Name and Sign):	Date/Time:	Samples Received By (Print Name and Sign):	Date/Time:		

CLIENT NAME: GEMTEC LIMITED
10 Maverick Place
Paradise, NL A1L 1Y8
709722-2275
ATTENTION TO: Darrol Rice
PROJECT: 101556.001
AGAT WORK ORDER: 22K918645
SOIL ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer
WATER ANALYSIS REVIEWED BY: Sara Knox, Data Reviewer
DATE REPORTED: Aug 12, 2022
PAGES (INCLUDING COVER): 17
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (709)747-8573

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

Certificate of Analysis

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

57 Old Pennywell Road, Unit I
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 CANADA A1E 6A8
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 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Available Metals in Soil

DATE RECEIVED: 2022-07-11

DATE REPORTED: 2022-08-12

Parameter	Unit	SAMPLE DESCRIPTION:		SED - 1	SED - 2	SED - 3	SED - 4	SED - 5	SED - 6	SED - SD	
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2022-07-09 12:10	2022-07-09 11:43	2022-07-09 12:40	2022-07-09 12:25	2022-07-09 11:20	2022-07-09 13:20	2022-07-09 12:10	2022-07-09 12:10
		G / S	RDL	4076200	4076201	4076202	4076203	4076204	4076205	4076206	
Aluminum	mg/kg	10	4630	7880	3520	4020	8000	6300	5150		
Antimony	mg/kg	1	<1	<1	<1	<1	<1	<1	<1		
Arsenic	mg/kg	1	25	3	7	2	3	2	19		
Barium	mg/kg	5	41	27	208	36	41	21	52		
Beryllium	mg/kg	2	<2	<2	<2	<2	<2	<2	<2		
Boron	mg/kg	2	<2	<2	<2	<2	<2	<2	<2		
Cadmium	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		
Chromium	mg/kg	2	9	18	12	9	22	22	10		
Cobalt	mg/kg	1	4	6	7	3	7	6	5		
Copper	mg/kg	2	2	14	<2	4	8	6	<2		
Iron	mg/kg	50	52900	11200	22000	5330	11500	9570	49600		
Lead	mg/kg	0.5	4.6	3.3	9.8	1.2	3.5	1.9	5.2		
Lithium	mg/kg	5	<5	<5	<5	<5	<5	<5	<5		
Manganese	mg/kg	2	865	311	3900	235	478	227	1270		
Molybdenum	mg/kg	2	<2	<2	<2	<2	<2	<2	<2		
Nickel	mg/kg	2	7	19	7	7	18	42	9		
Selenium	mg/kg	1	<1	<1	<1	<1	<1	<1	<1		
Silver	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Strontium	mg/kg	5	8	10	7	28	14	13	9		
Thallium	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
Tin	mg/kg	2	3	3	3	2	3	3	4		
Uranium	mg/kg	0.1	0.2	0.2	0.7	0.1	0.2	0.2	0.2		
Vanadium	mg/kg	2	41	19	64	11	33	18	51		
Zinc	mg/kg	5	26	29	29	12	25	17	34		

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
 4076200-4076206 Results are based on the dry weight of the sample.
 Analysis performed at AGAT Halifax (unless marked by *)

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

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<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Mercury in Soil

DATE RECEIVED: 2022-07-11

DATE REPORTED: 2022-08-12

		SAMPLE DESCRIPTION:		SED - 1	SED - 2	SED - 3	SED - 4	SED - 5	SED - 6	SED - SD
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2022-07-09 12:10	2022-07-09 11:43	2022-07-09 12:40	2022-07-09 12:25	2022-07-09 11:20	2022-07-09 13:20	2022-07-09 12:10
Parameter	Unit	G / S	RDL	4076200	4076201	4076202	4076203	4076204	4076205	4076206
Mercury	mg/kg		0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4076200-4076206 Results are based on the dry weight of the soil.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Sara Knox



Certificate of Analysis

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

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FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Total)

DATE RECEIVED: 2022-07-11

DATE REPORTED: 2022-08-12

		SAMPLE DESCRIPTION:		SW-01	SW - 02	SW - 03	SW - 04	SW - 05	SW - 06	SW - SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-07-09 12:10	2022-07-09 11:43	2022-07-09 12:40	2022-07-09 12:25	2022-07-09 11:20	2022-07-09 13:20	2022-07-09 00:10
Parameter	Unit	G / S	RDL	4073184	4073230	4073231	4073232	4073233	4073234	4073235
Total Mercury	ug/L		0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

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<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-07-11

DATE REPORTED: 2022-08-12

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION:	SW-01	SW - 02	SW - 03	SW - 04	SW - 05	SW - 06	SW - SD
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2022-07-09 12:10	2022-07-09 11:43	2022-07-09 12:40	2022-07-09 12:25	2022-07-09 11:20	2022-07-09 13:20	2022-07-09 00:10
					4073184	4073230	4073231	4073232	4073233	4073234	4073235
pH					6.53	6.73	6.69	6.80	7.05	6.95	6.60
Reactive Silica as SiO2	mg/L		0.5		3.7	4.6	4.1	4.6	5.1	5.5	3.7
Chloride	mg/L		1		7	8	7	8	11	9	7
Fluoride	mg/L		0.12		<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Sulphate	mg/L		2		<2	6	<2	10	8	5	<2
Alkalinity	mg/L		5		6	11	10	12	22	12	7
True Color	TCU		5.00		258	257	381	346	295	207	263
Turbidity	NTU		0.5		1.6	3.4	2.3	2.6	4.7	1.0	2.0
Electrical Conductivity	umho/cm		1		48	68	57	80	98	73	48
Nitrate + Nitrite as N	mg/L		0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrate as N	mg/L		0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nitrite as N	mg/L		0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia as N	mg/L		0.03		<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Total Organic Carbon	mg/L		0.5		25.4	26.8	33.5	30.7	27.6	17.6	26.2
Ortho-Phosphate as P	mg/L		0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Sodium	mg/L		0.1		8.4	8.9	8.8	9.7	12.8	8.4	8.1
Total Potassium	mg/L		0.1		0.3	0.4	0.9	0.3	0.4	0.4	<0.1
Total Calcium	mg/L		0.1		2.3	5.8	3.7	7.3	7.5	7.1	2.3
Total Magnesium	mg/L		0.1		0.9	1.2	1.1	1.3	1.6	1.2	0.9
Bicarb. Alkalinity (as CaCO3)	mg/L		5		6	11	10	12	22	12	7
Carb. Alkalinity (as CaCO3)	mg/L		10		<10	<10	<10	<10	<10	<10	<10
Hydroxide	mg/L		5		<5	<5	<5	<5	<5	<5	<5
Calculated TDS	mg/L		1		24	39	28	45	56	39	24
Hardness	mg/L				9.4	19.4	13.8	23.6	25.3	22.7	9.4
Langelier Index (@20C)	NA				-3.86	-3.01	-3.27	-2.81	-2.29	-2.67	-3.72
Langelier Index (@ 4C)	NA				-4.18	-3.33	-3.59	-3.13	-2.61	-2.99	-4.04
Saturation pH (@ 20C)	NA				10.4	9.74	9.96	9.61	9.34	9.62	10.3
Saturation pH (@ 4C)	NA				10.7	10.1	10.3	9.93	9.66	9.94	10.6
Anion Sum	me/L				0.32	0.57	0.40	0.67	0.92	0.60	0.34

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

57 Old Pennywell Road, Unit I
 St. John's, NL
 CANADA A1E 6A8
 TEL (709)747-8573
 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-07-11

DATE REPORTED: 2022-08-12

Parameter	Unit	SAMPLE DESCRIPTION:		SW-01	SW - 02	SW - 03	SW - 04	SW - 05	SW - 06	SW - SD
		G / S	RDL	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-07-09	2022-07-09	2022-07-09	2022-07-09	2022-07-09	2022-07-09	2022-07-09
				12:10	11:43	12:40	12:25	11:20	13:20	00:10
				4073184	4073230	4073231	4073232	4073233	4073234	4073235
Cation sum	me/L			0.66	0.89	0.73	0.98	1.16	0.89	0.63
% Difference/ Ion Balance	%			34.8	21.8	29.7	18.7	11.8	19.4	30.1
Total Aluminum	ug/L	5		446	604	288	426	528	374	421
Total Antimony	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Arsenic	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Barium	ug/L	5		15	16	41	55	41	9	14
Total Beryllium	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Bismuth	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Boron	ug/L	5		7	8	9	9	11	10	7
Total Cadmium	ug/L	0.09		<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Total Chromium	ug/L	1		<1	1	<1	<1	1	<1	9
Total Cobalt	ug/L	1		<1	<1	<1	<1	<1	<1	<1
Total Copper	ug/L	1		<1	1	<1	<1	1	4	<1
Total Iron	ug/L	50		1200	964	531	868	800	402	1070
Total Lead	ug/L	0.5		0.8	0.7	<0.5	1.0	0.6	0.6	0.7
Total Manganese	ug/L	2		35	48	25	90	50	9	30
Total Molybdenum	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Nickel	ug/L	2		<2	<2	<2	<2	<2	<2	3
Total Phosphorous	mg/L	0.02		0.03	0.04	0.03	0.03	0.04	0.03	0.03
Total Selenium	ug/L	1		<1	<1	<1	<1	<1	<1	<1
Total Silver	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L	5		15	35	18	42	41	40	16
Total Thallium	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Titanium	ug/L	2		5	7	4	6	8	4	5
Total Uranium	ug/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total Vanadium	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Zinc	ug/L	5		<5	<5	<5	<5	<5	<5	<5

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

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St. John's, NL
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<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-07-11

DATE REPORTED: 2022-08-12

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4073184-4073232 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited. Ion Balance is biased high, contributing parameters have been confirmed.

4073233 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited. Ion Balance is biased high, contributing parameters have been confirmed.

4073234-4073235 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited. Ion Balance is biased high, contributing parameters have been confirmed.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

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 St. John's, NL
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 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

TSS

DATE RECEIVED: 2022-07-11

DATE REPORTED: 2022-08-12

		SAMPLE DESCRIPTION:		SW-01	SW - 02	SW - 03	SW - 04	SW - 05	SW - 06	SW - SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-07-09 12:10	2022-07-09 11:43	2022-07-09 12:40	2022-07-09 12:25	2022-07-09 11:20	2022-07-09 13:20	2022-07-09 00:10
Parameter	Unit	G / S	RDL	4073184	4073230	4073231	4073232	4073233	4073234	4073235
Total Suspended Solids	mg/L		5	<5	<5	<5	<5	<5	<5	<5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Sara Knox

Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.001
 SAMPLING SITE:

AGAT WORK ORDER: 22K918645
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Soil Analysis															
RPT Date: Aug 12, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Available Metals in Soil

Aluminum	4073384	4073384	1840	2090	12.7%	< 10	95%	80%	120%	100%	80%	120%	NA	70%	130%
Antimony	4073384	4073384	<1	<1	NA	< 1	80%	80%	120%	NA	80%	120%	NA	70%	130%
Arsenic	4073384	4073384	3	2	NA	< 1	101%	80%	120%	99%	80%	120%	115%	70%	130%
Barium	4073384	4073384	9	30	NA	< 5	98%	80%	120%	101%	80%	120%	109%	70%	130%
Beryllium	4073384	4073384	<2	<2	NA	< 2	95%	80%	120%	97%	80%	120%	118%	70%	130%
Boron	4073384	4073384	<2	<2	NA	< 2	92%	80%	120%	97%	80%	120%	118%	70%	130%
Cadmium	4073384	4073384	<0.3	<0.3	NA	< 0.3	100%	80%	120%	99%	80%	120%	108%	70%	130%
Chromium	4073384	4073384	<2	7	NA	< 2	89%	80%	120%	92%	80%	120%	123%	70%	130%
Cobalt	4073384	4073384	2	6	NA	< 1	90%	80%	120%	90%	80%	120%	123%	70%	130%
Copper	4073384	4073384	4	4	NA	< 2	100%	80%	120%	99%	80%	120%	108%	70%	130%
Iron	4073384	4073384	21500	23900	10.6%	< 50	96%	80%	120%	93%	80%	120%	NA	70%	130%
Lead	4073384	4073384	5.2	5.2	0.0%	< 0.5	100%	80%	120%	102%	80%	120%	NA	70%	130%
Lithium	4073384	4073384	<5	6	NA	< 5	86%	70%	130%	91%	70%	130%	128%	70%	130%
Manganese	4073384	4073384	156	159	1.9%	< 2	90%	80%	120%	89%	80%	120%	NA	70%	130%
Molybdenum	4073384	4073384	<2	<2	NA	< 2	94%	80%	120%	94%	80%	120%	101%	70%	130%
Nickel	4073384	4073384	<2	6	NA	< 2	98%	80%	120%	97%	80%	120%	126%	70%	130%
Selenium	4073384	4073384	<1	<1	NA	< 1	100%	80%	120%	99%	80%	120%	105%	70%	130%
Silver	4073384	4073384	<0.5	<0.5	NA	< 0.5	101%	80%	120%	100%	80%	120%	115%	70%	130%
Strontium	4073384	4073384	<5	<5	NA	< 5	85%	80%	120%	84%	80%	120%	116%	70%	130%
Thallium	4073384	4073384	<0.1	<0.1	NA	< 0.1	102%	80%	120%	104%	80%	120%	72%	70%	130%
Tin	4073384	4073384	3	3	NA	< 2	96%	80%	120%	98%	80%	120%	127%	70%	130%
Uranium	4073384	4073384	0.5	0.3	NA	< 0.1	100%	80%	120%	102%	80%	120%	83%	70%	130%
Vanadium	4073384	4073384	19	21	10.0%	< 2	89%	80%	120%	86%	80%	120%	NA	70%	130%
Zinc	4073384	4073384	13	25	NA	< 5	94%	80%	120%	90%	80%	120%	130%	70%	130%

Mercury in Soil

Mercury	4097331		<0.03	<0.03	NA	< 0.03	91%	70%	130%	NA	70%	130%	98%	70%	130%
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Certified By: 

Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.001
 SAMPLING SITE:

AGAT WORK ORDER: 22K918645
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Water Analysis															
RPT Date: Aug 12, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE	
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Standard Water Analysis + Total Metals

pH		4076312	8.88	9.1	2.4%	<	100%	80%	120%						
Reactive Silica as SiO2	4073221		0.6	0.5	NA	< 0.5	99%	80%	120%	111%	80%	120%	104%	80%	120%
Chloride	4067534		13	12	11.1%	< 1	98%	80%	120%	NA	80%	120%	NA	70%	130%
Fluoride	4067534		<0.12	<0.12	NA	< 0.12	105%	80%	120%	NA	80%	120%	123%	70%	130%
Sulphate	4067534		23	19	19.4%	< 2	104%	80%	120%	NA	80%	120%	NA	70%	130%
Alkalinity		4076312	104	109	4.7%	< 5	88%	80%	120%						
True Color	4073221		44.4	46.8	5.4%	< 5	90%	80%	120%	104%	80%	120%	NA		
Turbidity	4077494		461	483	4.7%	< 0.5	98%	80%	120%	NA			NA		
Electrical Conductivity		4076312	263	264	0.4%	< 1	104%	90%	110%						
Nitrate as N	4067534		0.07	0.08	NA	< 0.05	113%	80%	120%	NA	80%	120%	99%	70%	130%
Nitrite as N	4067534		<0.05	<0.05	NA	< 0.05	90%	80%	120%	NA	80%	120%	109%	70%	130%
Ammonia as N	4073506		<0.03	<0.03	NA	< 0.03	106%	80%	120%	83%	80%	120%	102%	70%	130%
Total Organic Carbon	4068605		2.9	2.9	1.3%	< 0.5	100%	80%	120%	NA	80%	120%	98%	80%	120%
Ortho-Phosphate as P			0.02	0.02	NA	< 0.01	83%	80%	120%		80%	120%		80%	120%
Total Sodium		4073235	8.1	8.6	6.0%	< 0.1	98%	80%	120%	95%	80%	120%	95%	70%	130%
Total Potassium		4073235	<0.1	0.4	NA	< 0.1	96%	80%	120%	92%	80%	120%	90%	70%	130%
Total Calcium		4073235	2.3	2.4	4.3%	< 0.1	97%	80%	120%	99%	80%	120%	92%	70%	130%
Total Magnesium		4073235	0.8	0.8	0.0%	< 0.1	108%	80%	120%	109%	80%	120%	100%	70%	130%
Bicarb. Alkalinity (as CaCO3)		4076312	84	79	6.1%	< 5	NA	80%	120%						
Carb. Alkalinity (as CaCO3)		4076312	20	30	NA	< 10	NA	80%	120%						
Hydroxide		4076312	< 5	< 5	0.0%	< 5	NA	80%	120%						
Total Aluminum	4073235	4073235	421	477	12.5%	< 5	110%	80%	120%	107%	80%	120%	NA	70%	130%
Total Antimony	4073235	4073235	<2	<2	NA	< 2	75%	80%	120%	NA	80%	120%	NA	70%	130%
Total Arsenic	4073235	4073235	<2	<2	NA	< 2	98%	80%	120%	98%	80%	120%	91%	70%	130%
Total Barium	4073235	4073235	14	15	NA	< 5	106%	80%	120%	108%	80%	120%	91%	70%	130%
Total Beryllium	4073235	4073235	<2	<2	NA	< 2	112%	80%	120%	112%	80%	120%	108%	70%	130%
Total Bismuth	4073235	4073235	<2	<2	NA	< 2	95%	80%	120%	101%	80%	120%	100%	70%	130%
Total Boron	4073235	4073235	7	7	NA	< 5	116%	80%	120%	116%	80%	120%	116%	70%	130%
Total Cadmium	4073235	4073235	<0.09	<0.09	NA	< 0.09	99%	80%	120%	99%	80%	120%	91%	70%	130%
Total Chromium	4073235	4073235	9	<1	NA	< 1	97%	80%	120%	98%	80%	120%	NA	70%	130%
Total Cobalt	4073235	4073235	<1	<1	NA	< 1	97%	80%	120%	96%	80%	120%	94%	70%	130%
Total Copper	4073235	4073235	<1	<1	NA	< 1	101%	80%	120%	100%	80%	120%	98%	70%	130%
Total Iron	4073235	4073235	1070	1300	19.3%	< 50	101%	80%	120%	99%	80%	120%	NA	70%	130%
Total Lead	4073235	4073235	0.7	0.8	NA	< 0.5	106%	80%	120%	110%	80%	120%	94%	70%	130%
Total Manganese	4073235	4073235	30	34	12.0%	< 2	99%	80%	120%	97%	80%	120%	NA	70%	130%
Total Molybdenum	4073235	4073235	<2	<2	NA	< 2	93%	80%	120%	89%	80%	120%	95%	70%	130%
Total Nickel	4073235	4073235	3	5	NA	< 2	101%	80%	120%	105%	80%	120%	80%	70%	130%
Total Phosphorous	4073235	4073235	0.03	0.04	NA	< 0.02	117%	80%	120%	113%	80%	120%	107%	70%	130%
Total Selenium	4073235	4073235	<1	<1	NA	< 1	100%	80%	120%	103%	80%	120%	81%	70%	130%

Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.001
 SAMPLING SITE:

AGAT WORK ORDER: 22K918645
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Aug 12, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Silver	4073235	4073235	<0.1	<0.1	NA	< 0.1	101%	80%	120%	99%	80%	120%	93%	70%	130%	
Total Strontium	4073235	4073235	16	16	NA	< 5	94%	80%	120%	92%	80%	120%	105%	70%	130%	
Total Thallium	4073235	4073235	<0.1	<0.1	NA	< 0.1	108%	80%	120%	110%	80%	120%	98%	70%	130%	
Total Tin	4073235	4073235	<2	<2	NA	< 2	94%	80%	120%	94%	80%	120%	93%	70%	130%	
Total Titanium	4073235	4073235	5	6	NA	< 2	107%	80%	120%	102%	80%	120%	121%	70%	130%	
Total Uranium	4073235	4073235	<0.2	<0.2	NA	< 0.2	98%	80%	120%	103%	80%	120%	90%	70%	130%	
Total Vanadium	4073235	4073235	<2	<2	NA	< 2	93%	80%	120%	90%	80%	120%	92%	70%	130%	
Total Zinc	4073235	4073235	<5	<5	NA	< 5	100%	80%	120%	101%	80%	120%	88%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.
 Certified Reference Material: More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

Mercury Analysis in Water (Total)

Total Mercury	4073374	4073374	< 0.026	< 0.026	NA	< 0.026	103%	80%	120%	106%	80%	120%	110%	70%	130%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

TSS

Total Suspended Solids	4076085		<5	<5	NA	< 5	101%	80%	120%	NA			108%	80%	120%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Total Metals

Chloride	4079234		NA	NA	NA	< 1	100%	80%	120%	NA	80%	120%	NA	70%	130%
Fluoride	4079234		<0.12	<0.12	NA	< 0.12	104%	80%	120%	NA	80%	120%	92%	70%	130%
Sulphate	4079234		NA	NA	NA	< 2	105%	80%	120%	NA	80%	120%	NA	70%	130%
Nitrate as N	4079234		<0.05	0.05	NA	< 0.05	99%	80%	120%	NA	80%	120%	99%	70%	130%
Nitrite as N	4079234		0.47	0.48	2.1%	< 0.05	92%	80%	120%	NA	80%	120%	67%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.


 Certified By:

QC Exceedance

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

ATTENTION TO: Darrol Rice

RPT Date: Aug 12, 2022		REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Sample Id	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper

Standard Water Analysis + Total Metals

Total Antimony	4073235	75%	80%	120%	NA	80%	120%	NA	70%	130%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified Reference Material: More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

Standard Water Analysis + Total Metals

Nitrite as N		92%	80%	120%	NA	80%	120%	67%	70%	130%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Method Summary

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Aluminum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Antimony	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Arsenic	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Barium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Beryllium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Boron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cadmium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Chromium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cobalt	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Copper	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Iron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Lead	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Lithium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Manganese	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Molybdenum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Nickel	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Selenium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Silver	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Strontium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Thallium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Tin	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Uranium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Vanadium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Zinc	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Mercury	INOR-121-6101 & INOR-121-6107	Based on EPA 245.5 & SM 3112B	CV/AA

Method Summary

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO ₂	INOR-121-6027	SM 4500-SiO ₂ F	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6008	SM 2120 B	LACHAT FIA
Turbidity	INOR-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH ₃ H	COLORIMETER
Total Organic Carbon	INOR-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4500-P G	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP-MS
Total Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

Method Summary

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K918645

PROJECT: 101556.001

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorous	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC



AGAT Laboratories

Unit 1 • 57 Old Peenywell Rd
St John's, NL
A1E 6A8
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Laboratory Use Only

Arrival Condition: Good Poor (see notes)
Arrival Temperature: 4.0, 2.9, 4.5
Hold Time: _____
AGAT Job Number: 22K91804D

Chain of Custody Record

P: 709.747.8573 • F: 709.747.2139

Report Information

Company: GEMTEC Consulting Engineers and Scientists Ltd.
Contact: Darrol Rice
Address: 19 Dundee Place
Mount Pearl, NL, A1N 4R6
Phone: 709.693.9171 Fax: _____
Client Project #: 101556.001
AGAT Quotation: GEMTEC SOA
Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Darrol Rice
Email: darrol.rice@gemtec.ca
2. Name: Adam Schamper
Email: adam.schamper@gemtec.ca

Report Format

- Single Sample per page
 Multiple Samples per page
 Excel Format Included
 Export

Notes: _____

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days
Rush TAT Same day 1 day
 2 days 3 days

Date Required: _____

Invoice To

Same Yes / No

Company: GEMTEC Consulting Engineers and Scientists Ltd.
Contact: Felicia Hemming (felicia.hemming@gemtec.ca)
Address: 191 Doak Road
Fredericton, NB E3C 2E6
Phone: 506.453.1025 x 115 Fax: _____
PO/Credit Card#: _____

Regulatory Requirements (Check):

- List Guidelines on Report Do not list Guidelines on Report
 PIRI
 Tier 1 Res Pot Coarse
 Tier 2 Com N/Pot Fine
 Gas Fuel Lube
 CCME CDWQ
 Industrial NL DOEC GW
 Commercial NLDOEC Discharge
 Res/Park Agricultural
 FWAL Sediment
 Other _____

Drinking Water Sample: Yes No Salt Water Sample Yes No
Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC+EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other:	Hazardous (Y/N)
SITE - 1	July 9 2022 / 1210	Water	6	Please Label as SW - 01 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																	
SITE - 2	July 9 2022 / 1143	Water	6	Please Label as SW - 02 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																	
SITE - 3	July 9 2022 / 1240	Water	6	Please Label as SW - 03 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																	
SITE - 4	July 9 2022 / 1225	Water	6	Please Label as SW - 04 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																	
SITE - 5	July 9 2022 / 1120	Water	6	Please Label as SW - 05 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																	
SITE - 6	July 9 2022 / 1320	Water	6	Please Label as SW - 06 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																	
SW - SD	July 9 2022 / 1210	Water	6	Please Label as SW - SD in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																	

Samples Relinquished By (Print Name): <u>Adam Schamper</u>	Date/Time: <u>07.11.2022 / 1215</u>	Samples Received By (Print Name):	Date/Time:	Pink Copy - Client	Page <u>1</u> of <u>2</u>
Samples Relinquished By (Sign): 	Date/Time: <u>07.11.2022 / 1215</u>	Samples Received By (Sign): <u>Adam Schamper</u>	Date/Time: <u>July 11th @ 12:00</u>	Yellow Copy - AGAT	White Copy - AGAT N°:

Delivered July 12/22 8:30 5-2, 4.7, 5.0



Chain of Custody Record

P: 709.747.8573 • F: 709.747.2139

Report to:

Company: _____ Same as COC#: 22K918645

	SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS	# OF CONTAINERS			Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other:	Hazardous (Y/N)				
					VALS / JARS	BAGS	BOTTLES																												
1	SITE - 1	07.09.22 / 1210	SOIL	Label as SED - 1	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
2	SITE - 2	07.09.22 / 1143	SOIL	Label as SED - 2	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
3	SITE - 3	07.09.22 / 1240	SOIL	Label as SED - 3	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
4	SITE - 4	07.09.22 / 1225	SOIL	Label as SED - 4	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
5	SITE - 5	07.09.22 / 1120	SOIL	Label as SED - 5	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
6	SITE - 6	07.09.22 / 1320	SOIL	Label as SED - 6	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
7	SED - SD	07.09.22 / 1210	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
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Samples Relinquished By (Print Name and Sign): Adam Schamper <i>[Signature]</i>	Date/Time: 07.11.2022	Samples Received By (Print Name and Sign): <i>[Signature]</i>	Date/Time: July 11/22 @ 12:20	Pink Copy - Client Yellow Copy - AGAT White Copy- AGAT N°:
Samples Relinquished By (Print Name and Sign):	Date/Time:	Samples Received By (Print Name and Sign):	Date/Time:	
Samples Relinquished By (Print Name and Sign):	Date/Time:	Samples Received By (Print Name and Sign):	Date/Time:	

CLIENT NAME: GEMTEC LIMITED
10 Maverick Place
Paradise, NL A1L 1Y8
709722-2275

ATTENTION TO: Darrol Rice

PROJECT: 101556.002

AGAT WORK ORDER: 22K959249

SOIL ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

WATER ANALYSIS REVIEWED BY: Corey Curl, Senior Technician

DATE REPORTED: Oct 31, 2022

PAGES (INCLUDING COVER): 17

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (709)747-8573

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.



Certificate of Analysis

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
 St. John's, NL
 CANADA A1E 6A8
 TEL (709)747-8573
 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Available Metals in Soil (Incl. Hg)

DATE RECEIVED: 2022-10-19

DATE REPORTED: 2022-10-31

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION:		SED-1	SED-2	SED-3	SED-4	SED-5	SED-6	SED-SD
				Soil	Soil	Soil	Soil	Soil	Soil	Soil		
DATE SAMPLED:		2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17
		14:55	14:35	16:05	15:50	16:10	16:10	16:10	16:10	16:35	14:55	14:55
		4430582	4430585	4430586	4430587	4430588	4430589	4430590	4430588	4430589	4430590	4430590
Aluminum	mg/kg		10	7030	8460	5020	3500	9700	8640	6840		
Antimony	mg/kg		1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Arsenic	mg/kg		1	17	3	3	6	4	4	27		
Barium	mg/kg		5	42	20	28	153	56	25	35		
Beryllium	mg/kg		2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Boron	mg/kg		2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Cadmium	mg/kg		0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chromium	mg/kg		2	14	19	12	10	19	31	13		
Cobalt	mg/kg		1	7	6	4	5	8	8	7		
Copper	mg/kg		2	3	14	6	<2	8	9	2		
Iron	mg/kg		50	39200	10700	6000	17600	14500	11700	53600		
Lead	mg/kg		0.5	3.7	2.2	1.4	6.9	2.3	2.2	3.6		
Lithium	mg/kg		5	<5	5	<5	<5	6	8	<5		
Manganese	mg/kg		2	1050	324	355	2660	903	208	1040		
Mercury	mg/kg		0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Molybdenum	mg/kg		2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Nickel	mg/kg		2	10	20	7	6	20	71	8		
Selenium	mg/kg		1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Silver	mg/kg		0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Strontium	mg/kg		5	8	15	16	10	14	14	10		
Thallium	mg/kg		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	mg/kg		2	3	4	3	3	3	3	3		
Uranium	mg/kg		0.1	0.2	0.2	0.2	0.5	0.2	0.2	0.2		
Vanadium	mg/kg		2	63	20	17	58	36	26	66		
Zinc	mg/kg		5	44	26	13	22	32	23	47		

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
 4430582-4430590 Results are based on the dry weight of the sample.
 Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
St. John's, NL
CANADA A1E 6A8
TEL (709)747-8573
FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Total)

DATE RECEIVED: 2022-10-19

DATE REPORTED: 2022-10-31

		SAMPLE DESCRIPTION:		SW-01	SW-02	SW-03	SW-04	SW-05	SW-06	SW-SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-10-17 14:55	2022-10-17 14:35	2022-10-17 16:05	2022-10-17 15:50	2022-10-17 14:10	2022-10-17 16:35	2022-10-17 14:55
Parameter	Unit	G / S	RDL	4430548	4430561	4430562	4430563	4430564	4430565	4430566
Total Mercury	ug/L		0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
 St. John's, NL
 CANADA A1E 6A8
 TEL (709)747-8573
 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-10-19

DATE REPORTED: 2022-10-31

Parameter	Unit	SAMPLE DESCRIPTION:		SW-01	SW-02	SW-03	SW-04	SW-05			
		G / S	RDL	Water	Water	Water	Water	Water			
		DATE SAMPLED:		2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17			
				14:55	14:35	16:05	15:50	14:10			
				4430548	4430561	4430562	4430563	4430564			
pH				6.46	6.52	6.69	6.70	6.91			
Reactive Silica as SiO2	mg/L		0.5	4.8	4.8	0.5	6.6	0.5	7.4	0.5	7.3
Chloride	mg/L		1	13	14	1	19	1	19	1	27
Fluoride	mg/L		0.12	<0.12	<0.12	0.12	<0.12	0.12	<0.12	0.12	<0.12
Sulphate	mg/L		2	<2	7	2	9	2	3	2	9
Alkalinity	mg/L		5	14	20	5	32	5	30	5	45
True Color	TCU		5.00	238	196	5.00	177	5.00	215	5.00	133
Turbidity	NTU		0.5	1.7	1.2	0.5	1.0	0.5	0.7	0.5	<0.5
Electrical Conductivity	umho/cm		1	72	98	1	136	1	120	1	187
Nitrate + Nitrite as N	mg/L		0.05	<0.05	<0.05	0.05	<0.05	0.05	<0.05	0.05	<0.05
Nitrate as N	mg/L		0.05	<0.05	<0.05	0.05	<0.05	0.05	<0.05	0.05	<0.05
Nitrite as N	mg/L		0.05	<0.05	<0.05	0.05	<0.05	0.05	<0.05	0.05	<0.05
Ammonia as N	mg/L		0.03	<0.03	<0.03	0.03	<0.03	0.03	<0.03	0.03	1.25
Total Organic Carbon	mg/L		0.5	21.0	18.1	0.5	17.1	0.5	19.8	0.5	16.0
Ortho-Phosphate as P	mg/L		0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	0.01	0.04
Total Sodium	mg/L		1	12	12	1	16	1	15	1	22
Total Potassium	mg/L		0.1	0.3	0.4	0.1	0.7	0.1	0.6	0.1	1.1
Total Calcium	mg/L		0.1	3.2	6.7	0.8	9.0	0.1	7.6	0.8	9.2
Total Magnesium	mg/L		0.1	1.0	1.2	0.1	1.9	0.1	1.7	0.1	2.2
Bicarb. Alkalinity (as CaCO3)	mg/L		5	14	20	5	32	5	30	5	45
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	10	<10	10	<10	10	<10
Hydroxide	mg/L		5	<5	<5	5	<5	5	<5	5	<5
Calculated TDS	mg/L		1	40	55	1	76	1	66	1	100
Hardness	mg/L			12.1	21.7		30.3		26.0		32.0
Langelier Index (@20C)	NA			-3.44	-2.91		-2.43		-2.51		-2.06
Langelier Index (@ 4C)	NA			-3.76	-3.23		-2.75		-2.83		-2.38
Saturation pH (@ 20C)	NA			9.90	9.43		9.12		9.21		8.97
Saturation pH (@ 4C)	NA			10.2	9.75		9.44		9.53		9.29
Anion Sum	me/L			0.65	0.94		1.36		1.20		1.85

Certified By:

Corey Cowl

Certificate of Analysis

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
St. John's, NL
CANADA A1E 6A8
TEL (709)747-8573
FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-10-19

DATE REPORTED: 2022-10-31

Parameter	Unit	SAMPLE DESCRIPTION:		SW-01	SW-02	SW-03	SW-04	SW-05			
		G / S	RDL	Water	Water	Water	Water	Water			
		DATE SAMPLED:		2022-10-17	2022-10-17	2022-10-17	2022-10-17	2022-10-17			
				14:55	14:35	16:05	15:50	14:10			
				4430548	4430561	4430562	4430563	4430564			
Cation sum	me/L			0.85	1.03	1.35	1.22	1.74			
% Difference/ Ion Balance	%			13.5	4.4	0.3	0.9	3.1			
Total Aluminum	ug/L	5		147	154	5	96	5	103	5	81
Total Antimony	ug/L	2		<2	<2	2	<2	2	<2	2	<2
Total Arsenic	ug/L	2		<2	<2	2	<2	2	<2	2	<2
Total Barium	ug/L	5		15	14	5	61	5	41	5	42
Total Beryllium	ug/L	2		<2	<2	2	<2	2	<2	2	<2
Total Bismuth	ug/L	2		<2	<2	2	<2	2	<2	2	<2
Total Boron	ug/L	5		5	6	5	9	5	8	5	21
Total Cadmium	ug/L		0.09	<0.09	<0.09	0.09	<0.09	0.09	<0.09	0.09	<0.09
Total Chromium	ug/L	1		<1	<1	1	<1	1	4	1	<1
Total Cobalt	ug/L	1		<1	<1	1	<1	1	<1	1	<1
Total Copper	ug/L	1		<1	<1	1	<1	1	2	1	5
Total Iron	ug/L	50		1650	1210	50	581	50	540	50	357
Total Lead	ug/L	0.5		1.0	0.6	0.5	<0.5	0.5	<0.5	0.5	<0.5
Total Manganese	ug/L	2		37	29	38	89	2	40	2	34
Total Molybdenum	ug/L	2		<2	<2	2	<2	2	<2	2	<2
Total Nickel	ug/L	2		<2	<2	2	<2	2	<2	2	<2
Total Phosphorous	mg/L	0.02		0.03	0.03	0.02	0.04	0.02	0.03	0.02	0.16
Total Selenium	ug/L	1		<1	<1	1	<1	1	<1	1	<1
Total Silver	ug/L	0.1		<0.1	<0.1	0.1	<0.1	2	<2	0.1	<0.1
Total Strontium	ug/L	5		20	35	5	51	5	34	5	55
Total Thallium	ug/L	0.1		<0.1	<0.1	0.1	<0.1	2	<2	0.1	<0.1
Total Tin	ug/L	2		<2	<2	2	<2	2	<2	2	<2
Total Titanium	ug/L	2		2	2	2	<2	2	2	2	<2
Total Uranium	ug/L	0.2		<0.2	<0.2	0.2	<0.2	0.2	<0.2	0.2	<0.2
Total Vanadium	ug/L	2		<2	<2	2	<2	2	<2	2	<2
Total Zinc	ug/L	5		<5	<5	5	<5	5	<5	5	10

Certified By:

Corey Cowl

Certificate of Analysis

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
 St. John's, NL
 CANADA A1E 6A8
 TEL (709)747-8573
 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-10-19

DATE REPORTED: 2022-10-31

Parameter	Unit	SAMPLE DESCRIPTION: SW-06		SW-SD	
		G / S	RDL	RDL	
			4430565	4430566	
			16:35	14:55	
			2022-10-17	2022-10-17	
			Water	Water	
pH			6.70	6.56	
Reactive Silica as SiO2	mg/L	0.5	7.2	0.5	4.5
Chloride	mg/L	1	15	1	13
Fluoride	mg/L	0.12	<0.12	0.12	<0.12
Sulphate	mg/L	2	24	2	<2
Alkalinity	mg/L	5	28	5	12
True Color	TCU	5.00	56.4	5.00	211
Turbidity	NTU	0.5	0.8	0.5	1.6
Electrical Conductivity	umho/cm	1	142	1	72
Nitrate + Nitrite as N	mg/L	0.05	<0.05	0.05	<0.05
Nitrate as N	mg/L	0.05	<0.05	0.05	<0.05
Nitrite as N	mg/L	0.05	<0.05	0.05	<0.05
Ammonia as N	mg/L	0.03	0.09	0.03	<0.03
Total Organic Carbon	mg/L	0.5	9.5	0.5	19.3
Ortho-Phosphate as P	mg/L	0.01	<0.01	0.01	<0.01
Total Sodium	mg/L	1	11	1	11
Total Potassium	mg/L	0.1	0.5	0.1	0.3
Total Calcium	mg/L	0.8	14.1	0.1	3.2
Total Magnesium	mg/L	0.1	1.8	0.1	1.0
Bicarb. Alkalinity (as CaCO3)	mg/L	5	28	5	12
Carb. Alkalinity (as CaCO3)	mg/L	10	<10	10	<10
Hydroxide	mg/L	5	<5	5	<5
Calculated TDS	mg/L	1	84	1	38
Hardness	mg/L		42.6		12.1
Langelier Index (@20C)	NA		-2.28		-3.40
Langelier Index (@ 4C)	NA		-2.60		-3.72
Saturation pH (@ 20C)	NA		8.98		9.96
Saturation pH (@ 4C)	NA		9.30		10.3
Anion Sum	me/L		1.48		0.61

Certified By:

Corey Cowl



Certificate of Analysis

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
 St. John's, NL
 CANADA A1E 6A8
 TEL (709)747-8573
 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-10-19

DATE REPORTED: 2022-10-31

Parameter	Unit	SAMPLE DESCRIPTION: SW-06		SW-SD	
		G / S	RDL	RDL	
Cation sum	me/L		1.38		0.80
% Difference/ Ion Balance	%		3.8		13.9
Total Aluminum	ug/L	5	122	5	139
Total Antimony	ug/L	2	<2	2	<2
Total Arsenic	ug/L	2	<2	2	<2
Total Barium	ug/L	5	14	5	14
Total Beryllium	ug/L	2	<2	2	<2
Total Bismuth	ug/L	2	<2	2	<2
Total Boron	ug/L	5	11	5	5
Total Cadmium	ug/L	0.09	<0.09	0.09	<0.09
Total Chromium	ug/L	1	<1	1	2
Total Cobalt	ug/L	1	<1	1	<1
Total Copper	ug/L	1	1	1	<1
Total Iron	ug/L	50	307	50	1640
Total Lead	ug/L	0.5	<0.5	0.5	1.0
Total Manganese	ug/L	2	6	2	27
Total Molybdenum	ug/L	2	<2	2	<2
Total Nickel	ug/L	2	<2	2	<2
Total Phosphorous	mg/L	0.02	0.04	0.02	0.04
Total Selenium	ug/L	1	<1	1	<1
Total Silver	ug/L	0.1	<0.1	2	<2
Total Strontium	ug/L	5	92	5	20
Total Thallium	ug/L	0.1	<0.1	0.1	<0.1
Total Tin	ug/L	2	<2	2	<2
Total Titanium	ug/L	2	<2	2	2
Total Uranium	ug/L	0.2	<0.2	0.2	<0.2
Total Vanadium	ug/L	2	<2	2	<2
Total Zinc	ug/L	5	<5	5	<5

Certified By:

Corey Cowl



Certificate of Analysis

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

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CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-10-19

DATE REPORTED: 2022-10-31

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4430548-4430566 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

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CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

TSS

DATE RECEIVED: 2022-10-19

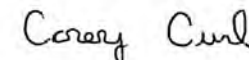
DATE REPORTED: 2022-10-31

		SAMPLE DESCRIPTION:		SW-01	SW-02	SW-04	SW-05	SW-06	SW-SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-10-17 14:55	2022-10-17 14:35	2022-10-17 15:50	2022-10-17 14:10	2022-10-17 16:35	2022-10-17 14:55
Parameter	Unit	G / S	RDL	4430548	4430561	4430563	4430564	4430565	4430566
Total Suspended Solids	mg/L		5	6	<5	<5	<5	<5	<5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.002
 SAMPLING SITE:

AGAT WORK ORDER: 22K959249
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Soil Analysis															
RPT Date: Oct 31, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Available Metals in Soil (Incl. Hg)

Aluminum	4462897		7000	6620	5.5%	< 10	104%	80%	120%	105%	80%	120%	112%	70%	130%
Antimony	4462897		<1	<1	NA	< 1	80%	80%	120%	86%	80%	120%	110%	70%	130%
Arsenic	4462897		9	8	3.6%	< 1	100%	80%	120%	99%	80%	120%	88%	70%	130%
Barium	4462897		207	209	1.0%	< 5	108%	80%	120%	98%	80%	120%	97%	70%	130%
Beryllium	4462897		<2	<2	NA	< 2	103%	80%	120%	102%	80%	120%	98%	70%	130%
Boron	4462897		3	3	NA	< 2	104%	80%	120%	101%	80%	120%	97%	70%	130%
Cadmium	4462897		0.5	0.5	NA	< 0.3	100%	80%	120%	98%	80%	120%	85%	70%	130%
Chromium	4462897		10	8	NA	< 2	96%	80%	120%	103%	80%	120%	91%	70%	130%
Cobalt	4462897		2	2	NA	< 1	99%	80%	120%	99%	80%	120%	97%	70%	130%
Copper	4462897		19	20	9.1%	< 2	101%	80%	120%	101%	80%	120%	90%	70%	130%
Iron	4462897		8650	7310	16.8%	< 50	97%	80%	120%	99%	80%	120%	97%	70%	130%
Lead	4462897		387	398	3.0%	< 0.5	105%	80%	120%	96%	80%	120%	93%	70%	130%
Lithium	4462897		24	24	NA	< 5	106%	70%	130%	103%	70%	130%	NA	70%	130%
Manganese	4462897		284	280	1.2%	< 2	95%	80%	120%	95%	80%	120%	102%	70%	130%
Mercury	4462897		0.07	0.07	NA	< 0.03	94%	80%	120%	92%	80%	120%	NA	70%	130%
Molybdenum	4462897		<2	<2	NA	< 2	93%	80%	120%	95%	80%	120%	80%	70%	130%
Nickel	4462897		4	3	NA	< 2	100%	80%	120%	101%	80%	120%	88%	70%	130%
Selenium	4462897		<1	<1	NA	< 1	99%	80%	120%	96%	80%	120%	84%	70%	130%
Silver	4462897		<0.5	<0.5	NA	< 0.5	102%	80%	120%	100%	80%	120%	87%	70%	130%
Strontium	4462897		15	15	NA	< 5	91%	80%	120%	91%	80%	120%	108%	70%	130%
Thallium	4462897		<0.1	<0.1	NA	< 0.1	109%	80%	120%	98%	80%	120%	NA	70%	130%
Tin	4462897		7	7	NA	< 2	95%	80%	120%	96%	80%	120%	95%	70%	130%
Uranium	4462897		1.2	1.2	1.5%	< 0.1	105%	80%	120%	98%	80%	120%	NA	70%	130%
Vanadium	4462897		11	10	10.1%	< 2	94%	80%	120%	96%	80%	120%	96%	70%	130%
Zinc	4462897		195	191	2.3%	< 5	99%	80%	120%	99%	80%	120%	103%	70%	130%

Certified By: _____



Quality Assurance

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Water Analysis														
RPT Date: Oct 31, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE	
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits
							Lower	Upper	Lower		Upper	Lower		Upper

TSS														
Total Suspended Solids	4425341		8	7	NA	< 5	87%	80%	120%	NA			NA	80% 120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Total Metals

pH	4430548	4430548	6.46	6.46	0.0%	<	100%	80%	120%	NA			NA	
Reactive Silica as SiO2	4430020		4.3	4.3	0.4%	< 0.5	108%	80%	120%	113%	80%	120%	101%	80% 120%
Chloride	4433658		11	11	0.4%	< 1	110%	80%	120%	NA	80%	120%	NA	70% 130%
Fluoride	4433658		<0.12	<0.12	NA	< 0.12	107%	80%	120%	NA	80%	120%	107%	70% 130%
Sulphate	4433658		61	64	5.5%	< 2	119%	80%	120%	NA	80%	120%	NA	70% 130%
Alkalinity	4430548	4430548	14	11	NA	< 5	97%	80%	120%	NA			NA	
True Color	4430020		21.9	20.1	NA	< 5	89%	80%	120%	86%	80%	120%	NA	
Turbidity	4429953		<0.5	<0.5	NA	< 0.5	97%	80%	120%	NA			NA	
Electrical Conductivity	4430548	4430548	72	72	0.6%	< 1	99%	90%	110%	NA			NA	
Nitrate as N	4433658		0.08	0.08	NA	< 0.05	109%	80%	120%	NA	80%	120%	111%	70% 130%
Nitrite as N	4433658		<0.05	<0.05	NA	< 0.05	102%	80%	120%	NA	80%	120%	108%	70% 130%
Ammonia as N	4429953		0.08	<0.03	NA	< 0.03	106%	80%	120%	106%	80%	120%	100%	70% 130%
Total Organic Carbon	4428256		7.9	8.0	0.6%	< 0.5	99%	80%	120%	NA	80%	120%	95%	80% 120%
Ortho-Phosphate as P	4430020		<0.01	<0.01	NA	< 0.01	107%	80%	120%	105%	80%	120%	112%	80% 120%
Total Sodium	4456894		8.6	8.4	2.0%	< 0.1	104%	80%	120%	105%	80%	120%	NA	70% 130%
Total Potassium	4456894		1.0	1.0	0.5%	< 0.1	104%	80%	120%	105%	80%	120%	114%	70% 130%
Total Calcium	4456894		12.4	11.7	5.3%	< 0.1	101%	80%	120%	99%	80%	120%	NA	70% 130%
Total Magnesium	4456894		2.5	2.5	3.7%	< 0.1	102%	80%	120%	105%	80%	120%	NA	70% 130%
Bicarb. Alkalinity (as CaCO3)	4430548	4430548	14	11	NA	< 5	NA	80%	120%	NA			NA	
Carb. Alkalinity (as CaCO3)	4430548	4430548	<10	<10	NA	< 10	NA	80%	120%	NA			NA	
Hydroxide	4430548	4430548	<5	<5	NA	< 5	NA	80%	120%	NA			NA	
Total Aluminum	4456894		<5	8	NA	< 5	103%	80%	120%	111%	80%	120%	110%	70% 130%
Total Antimony	4456894		<2	<2	NA	< 2	80%	80%	120%	NA	80%	120%	NA	70% 130%
Total Arsenic	4456894		<2	<2	NA	< 2	100%	80%	120%	99%	80%	120%	97%	70% 130%
Total Barium	4456894		26	29	8.5%	< 5	101%	80%	120%	104%	80%	120%	NA	70% 130%
Total Beryllium	4456894		<2	<2	NA	< 2	102%	80%	120%	103%	80%	120%	101%	70% 130%
Total Bismuth	4456894		<2	<2	NA	< 2	90%	80%	120%	99%	80%	120%	101%	70% 130%
Total Boron	4456894		10	10	NA	< 5	102%	80%	120%	103%	80%	120%	108%	70% 130%
Total Cadmium	4456894		<0.09	<0.09	NA	< 0.09	98%	80%	120%	101%	80%	120%	96%	70% 130%
Total Chromium	4456894		<1	<1	NA	< 1	97%	80%	120%	109%	80%	120%	101%	70% 130%
Total Cobalt	4456894		<1	<1	NA	< 1	97%	80%	120%	99%	80%	120%	99%	70% 130%
Total Copper	4456894		31	31	0.0%	< 1	102%	80%	120%	103%	80%	120%	NA	70% 130%
Total Iron	4456894		162	159	NA	< 50	99%	80%	120%	101%	80%	120%	107%	70% 130%
Total Lead	4456894		<0.5	<0.5	NA	< 0.5	105%	80%	120%	105%	80%	120%	95%	70% 130%
Total Manganese	4456894		9	9	NA	< 2	98%	80%	120%	99%	80%	120%	107%	70% 130%

Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.002
 SAMPLING SITE:

AGAT WORK ORDER: 22K959249
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Oct 31, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits		
								Lower	Upper		Lower	Upper		Lower	Upper	
Total Molybdenum	4456894		<2	<2	NA	< 2	92%	80%	120%	97%	80%	120%	102%	70%	130%	
Total Nickel	4456894		<2	<2	NA	< 2	98%	80%	120%	105%	80%	120%	103%	70%	130%	
Total Phosphorous	4456894		0.09	0.09	NA	< 0.02	101%	80%	120%	107%	80%	120%	NA	70%	130%	
Total Selenium	4456894		<1	<1	NA	< 1	99%	80%	120%	101%	80%	120%	94%	70%	130%	
Total Silver	4456894		<0.1	<0.1	NA	< 0.1	100%	80%	120%	104%	80%	120%	104%	70%	130%	
Total Strontium	4456894		52	52	0.0%	< 5	94%	80%	120%	96%	80%	120%	NA	70%	130%	
Total Thallium	4456894		<0.1	<0.1	NA	< 0.1	106%	80%	120%	106%	80%	120%	96%	70%	130%	
Total Tin	4456894		<2	<2	NA	< 2	95%	80%	120%	97%	80%	120%	99%	70%	130%	
Total Titanium	4456894		<2	<2	NA	< 2	100%	80%	120%	105%	80%	120%	106%	70%	130%	
Total Uranium	4456894		<0.2	<0.2	NA	< 0.2	98%	80%	120%	102%	80%	120%	93%	70%	130%	
Total Vanadium	4456894		<2	<2	NA	< 2	94%	80%	120%	95%	80%	120%	100%	70%	130%	
Total Zinc	4456894		9	10	NA	< 5	98%	80%	120%	100%	80%	120%	93%	70%	130%	

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Mercury Analysis in Water (Total)

Total Mercury	4430548	4430548	<0.026	<0.026	NA	< 0.026	115%	80%	120%	NA	80%	120%	126%	70%	130%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By: _____

Corey Curl

Method Summary

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.002
 SAMPLING SITE:

AGAT WORK ORDER: 22K959249
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Aluminum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Antimony	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Arsenic	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Barium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Beryllium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Boron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cadmium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Chromium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cobalt	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Copper	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Iron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Lead	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Lithium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Manganese	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Mercury	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Molybdenum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Nickel	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Selenium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Silver	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Strontium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Thallium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Tin	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Uranium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Vanadium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Zinc	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS

Method Summary

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.002
 SAMPLING SITE:

AGAT WORK ORDER: 22K959249
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO2	INOR-121-6027	SM 4500-SiO2 F	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6008	SM 2120 B	LACHAT FIA
Turbidity	INOR-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH3 H	COLORIMETER
Total Organic Carbon	INOR-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4500-P G	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO3)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP-MS
Total Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

Method Summary

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K959249

PROJECT: 101556.002

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorous	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC



AGAT Laboratories

Unit 1 • 57 Old Peenywell Rd
St John's, NL
A1E 6A8

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P: 709.747.8573 • F: 709.747.2139

Laboratory Use Only

Arrival Condition: Good Poor (see notes)

Arrival Temperature: 3.3, 4.8, 3.2

Hold Time: _____

AGAT Job Number: 22K959249

Notes: _____

Chain of Custody Record

Report Information

Company: GEMTEC Consulting Engineers and Scientists Ltd.
 Contact: Darrol Rice
 Address: 19 Dundee Place
Mount Pearl, NL, A1N 4R6
 Phone: 709.693.9171 Fax: _____
 Client Project #: 101556.002
 AGAT Quotation: GEMTEC SOA
 Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Darrol Rice
 Email: darrol.rice@gemtec.ca
 2. Name: Adam Schamper
 Email: adam.schamper@gemtec.ca

Report Format

- Single Sample per page
 Multiple Samples per page
 Excel Format Included
 Export

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days

Rush TAT Same day 1 day

2 days 3 days

Date Required: _____

Invoice To

Same Yes / No

Company: GEMTEC Consulting Engineers and Scientists Ltd.
 Contact: Felicia Hemming (felicia.hemming@gemtec.ca)
 Address: 191 Doak Road
Fredericton, NB E3C 2E6
 Phone: 506.453.1025 x 115 Fax: _____
 PO/Credit Card#: _____

Regulatory Requirements (Check):

- List Guidelines on Report Do not list Guidelines on Report
 PIRI
 Tier 1 Res Pot Coarse
 Tier 2 Com N/Pot Fine
 Gas Fuel Lube
 CCME CDWQ
 Industrial NL DOEC GW
 Commercial NLDOEC Discharge
 Res/Park Agricultural
 FWAL Sediment
 Other _____

Drinking Water Sample: Yes No

Salt Water Sample Yes No

Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other:	Hazardous (Y/N)
SW-001	Oct. 17 2022 / 1455	Water	6	Please Label as SW - 01 in Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>																	
SW-002	Oct. 17 2022 / 1435	Water	6	Please Label as SW - 02 in Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>																	
SW-003	Oct. 17 2022 / 1605	Water	6	Please Label as SW - 04 in Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>																	
SW-004	Oct. 17 2022 / 1550	Water	6	Please Label as SW - 03 in Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>																	
SW-005	Oct. 17 2022 / 1410	Water	6	Please Label as SW - 05 in Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>																	
SW-006	Oct. 17 2022 / 1635	Water	6	Please Label as SW - 06 in Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>																	
SW - SD	Oct. 17 2022 / 1455	Water	6	Please Label as SW - SD in Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>																	

Samples Relinquished By (Print Name): <u>Adam Schamper</u>	Date/Time: <u>19 Oct 2022</u>	Samples Received By (Print Name): <u>Maeyn Howell</u>	Date/Time: <u>Oct 19/22</u>	Pink Copy - Client	Page <u>1</u> of <u>2</u>
Samples Relinquished By (Sign): 	Date/Time: <u>11 45am</u>	Samples received by (Sign): 	Date/Time: <u>1145</u>	Yellow Copy - AGAT	
				White Copy - AGAT	No:

22K959249

Chain of Custody Record

P: 709.747.8573 • F: 709.747.2139

Report to:

Company: Same as COC#:

	SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS	# OF CONTAINERS			Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRI) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other:	Hazardous (Y/N)						
					VALS / JARS	BAGS	BOTTLES																														
1	SED-001	10.17.22 / 1455	SOIL	Label as SED - 1	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
2	SED-002	10.17.22 / 1435	SOIL	Label as SED - 2	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
3	SED-003	10.17.22 / 1605	SOIL	Label as SED - 3	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
4	SED-004	10.17.22 / 1550	SOIL	Label as SED - 4	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
5	SED-005	10.17.22 / 1410	SOIL	Label as SED - 5	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
6	SED-006	10.17.22 / 1635	SOIL	Label as SED - 6	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
7	SED - SD	10.17.22 / 1455	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																										
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Samples Relinquished By (Print Name and Sign): Adam Schamper	Date/Time: 19 Oct 2022	Samples Received By (Print Name and Sign):	Date/Time:	Pink Copy - Client Yellow Copy - AGAT White Copy - AGAT	Page <u>2</u> of <u>2</u>
Samples Relinquished By (Print Name and Sign): 	Date/Time: 11/4/2022	Samples Received By (Print Name and Sign): 	Date/Time: Oct 19/22		
Samples Relinquished By (Print Name and Sign):	Date/Time:	Samples Received By (Print Name and Sign):	Date/Time: 11/4/22		

CLIENT NAME: GEMTEC LIMITED
10 Maverick Place
Paradise, NL A1L 1Y8
709722-2275

ATTENTION TO: Darrol Rice

PROJECT: 101556.002

AGAT WORK ORDER: 22K976564

SOIL ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

WATER ANALYSIS REVIEWED BY: Jason Coughtrey, Inorganics Supervisor

DATE REPORTED: Dec 13, 2022

PAGES (INCLUDING COVER): 15

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (709)747-8573

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

Certificate of Analysis

AGAT WORK ORDER: 22K976564

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
 St. John's, NL
 CANADA A1E 6A8
 TEL (709)747-8573
 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Available Metals in Soil (Incl. Hg)

DATE RECEIVED: 2022-12-02

DATE REPORTED: 2022-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		SED-1	SED-2	SED-3	SED-4	SED-5	SED-6	SED-SD
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2022-11-28 09:25	2022-11-28 09:25	2022-11-28 09:25	2022-11-28 09:25	2022-11-28 09:25	2022-11-28 09:25	2022-11-28 09:25
G / S	RDL	4581700	4581725	4581726	4581727	4581728	4581729	4581730		
Aluminum	mg/kg	10	10600	7790	3400	4680	8980	8650	10300	
Antimony	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	
Arsenic	mg/kg	1	11	4	5	3	4	3	11	
Barium	mg/kg	5	26	23	119	24	51	32	28	
Beryllium	mg/kg	2	<2	<2	<2	<2	<2	<2	<2	
Boron	mg/kg	2	<2	<2	<2	<2	<2	2	<2	
Cadmium	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
Chromium	mg/kg	2	19	25	11	10	23	43	19	
Cobalt	mg/kg	1	11	7	5	3	8	9	14	
Copper	mg/kg	2	3	14	<2	5	12	9	3	
Iron	mg/kg	50	35300	11000	14100	5830	13000	11000	37400	
Lead	mg/kg	0.5	2.8	2.6	6.2	1.2	3.5	2.4	2.7	
Lithium	mg/kg	5	<5	<5	<5	<5	5	8	<5	
Manganese	mg/kg	2	634	206	2330	307	540	359	835	
Mercury	mg/kg	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	
Molybdenum	mg/kg	2	<2	<2	<2	<2	<2	<2	<2	
Nickel	mg/kg	2	10	16	7	7	18	95	10	
Selenium	mg/kg	1	<1	<1	<1	<1	<1	<1	<1	
Silver	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Strontium	mg/kg	5	6	12	6	18	15	24	7	
Thallium	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Tin	mg/kg	2	<2	3	2	3	3	2	<2	
Uranium	mg/kg	0.1	1.1	0.2	0.4	0.2	0.3	0.2	1.1	
Vanadium	mg/kg	2	63	26	48	17	34	24	63	
Zinc	mg/kg	5	21	27	20	12	36	24	20	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
 4581700-4581730 Results are based on the dry weight of the sample.
 Analysis performed at AGAT Halifax (unless marked by *)

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 22K976564

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
St. John's, NL
CANADA A1E 6A8
TEL (709)747-8573
FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Mercury Analysis in Water (Total)

DATE RECEIVED: 2022-12-02

DATE REPORTED: 2022-12-13

		SAMPLE DESCRIPTION:		SW-01	SW-02	SW-04	SW-03	SW-05	SW-06	SW-SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-11-28 09:55	2022-11-28 08:55	2022-11-28 11:20	2022-11-28 11:10	2022-11-28 08:25	2022-11-28 10:25	2022-11-28 09:55
Parameter	Unit	G / S	RDL	4581587	4581593	4581594	4581595	4581596	4581597	4581598
Total Mercury	ug/L		0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026	<0.026

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 22K976564

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
St. John's, NL
CANADA A1E 6A8
TEL (709)747-8573
FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-12-02

DATE REPORTED: 2022-12-13

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION:		SW-01	SW-02	SW-04	SW-03	SW-05	SW-06	SW-SD
				Water	Water	Water	Water	Water	Water	Water		
SAMPLE TYPE:		DATE SAMPLED:		2022-11-28	2022-11-28	2022-11-28	2022-11-28	2022-11-28	2022-11-28	2022-11-28	2022-11-28	2022-11-28
				09:55	08:55	11:20	11:10	08:25	10:25	09:55	09:55	09:55
				4581587	4581593	4581594	4581595	4581596	4581597	4581598	4581599	4581600
pH				6.02	6.10	6.07	6.24	6.40	6.53	6.08		
Reactive Silica as SiO2	mg/L		0.5	4.5	5.2	3.4	3.6	4.1	5.3	4.0		
Chloride	mg/L		1	14	16	33	24	24	14	14		
Fluoride	mg/L		0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12		
Sulphate	mg/L		2	<2	5	5	10	6	5	<2		
Alkalinity	mg/L		5	8	<5	6	11	12	24	7		
True Color	TCU		5.00	200	162	235	237	248	195	198		
Turbidity	NTU		0.5	0.8	<0.5	0.6	8.8	<0.5	1.0	1.2		
Electrical Conductivity	umho/cm		1	69	86	148	130	122	87	68		
Nitrate + Nitrite as N	mg/L		0.05	<0.05	0.11	<0.05	0.11	0.12	<0.05	<0.05		
Nitrate as N	mg/L		0.05	<0.05	0.11	<0.05	0.11	0.12	<0.05	<0.05		
Nitrite as N	mg/L		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
Ammonia as N	mg/L		0.03	<0.03	<0.03	<0.03	<0.03	0.04	0.05	<0.03		
Total Organic Carbon	mg/L		0.5	16.6	15.8	22.0	19.7	22.8	15.0	16.3		
Ortho-Phosphate as P	mg/L		0.01	0.02	<0.01	0.08	0.06	0.02	0.04	<0.01		
Total Sodium	mg/L		0.1	9.0	11.2	21.1	15.9	15.0	9.8	10.1		
Total Potassium	mg/L		0.1	0.3	0.4	0.5	0.5	0.5	0.4	0.3		
Total Calcium	mg/L		0.1	2.4	4.4	6.2	8.0	6.5	7.3	2.7		
Total Magnesium	mg/L		0.1	1.1	1.5	2.0	1.9	1.7	1.4	1.3		
Bicarb. Alkalinity (as CaCO3)	mg/L		5	8	<5	6	11	12	24	7		
Carb. Alkalinity (as CaCO3)	mg/L		10	<10	<10	<10	<10	<10	<10	<10		
Hydroxide	mg/L		5	<5	<5	<5	<5	<5	<5	<5		
Calculated TDS	mg/L		1	33	40	73	69	62	53	34		
Hardness	mg/L			10.5	17.2	23.7	27.8	23.2	24.0	12.1		
Langelier Index (@20C)	NA			-4.24	-4.11	-3.93	-3.39	-3.27	-2.79	-4.18		
Langelier Index (@ 4C)	NA			-4.56	-4.43	-4.25	-3.71	-3.59	-3.11	-4.50		
Saturation pH (@ 20C)	NA			10.3	10.2	10.0	9.63	9.67	9.32	10.3		
Saturation pH (@ 4C)	NA			10.6	10.5	10.3	9.95	9.99	9.64	10.6		
Anion Sum	me/L			0.55	0.56	1.15	1.11	1.05	0.98	0.53		

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 22K976564

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
 St. John's, NL
 CANADA A1E 6A8
 TEL (709)747-8573
 FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-12-02

DATE REPORTED: 2022-12-13

Parameter	Unit	SAMPLE DESCRIPTION:		SW-01	SW-02	SW-04	SW-03	SW-05	SW-06	SW-SD
		G / S	RDL	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-11-28	2022-11-28	2022-11-28	2022-11-28	2022-11-28	2022-11-28	2022-11-28
				09:55	08:55	11:20	11:10	08:25	10:25	09:55
				4581587	4581593	4581594	4581595	4581596	4581597	4581598
Cation sum	me/L			0.66	0.90	1.47	1.40	1.18	0.97	0.75
% Difference/ Ion Balance	%			8.7	23.1	11.9	11.5	5.9	0.4	16.5
Total Aluminum	ug/L	5		200	338	254	901	267	338	230
Total Antimony	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Arsenic	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Barium	ug/L	5		13	14	49	54	38	9	15
Total Beryllium	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Bismuth	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Boron	ug/L	5		<5	<5	<5	5	5	6	<5
Total Cadmium	ug/L		0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Total Chromium	ug/L	1		<1	1	1	1	<1	<1	<1
Total Cobalt	ug/L	1		<1	<1	<1	<1	<1	<1	<1
Total Copper	ug/L	1		<1	<1	<1	1	<1	<1	<1
Total Iron	ug/L	50		779	622	744	1030	519	395	876
Total Lead	ug/L		0.5	<0.5	<0.5	0.7	0.7	<0.5	<0.5	0.6
Total Manganese	ug/L	2		17	28	163	99	43	13	18
Total Molybdenum	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Nickel	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Phosphorous	mg/L	0.02		0.03	0.02	0.03	0.03	0.02	0.04	0.03
Total Selenium	ug/L	1		<1	<1	<1	<1	<1	<1	<1
Total Silver	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Strontium	ug/L	5		16	26	31	46	36	41	18
Total Thallium	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Tin	ug/L	2		<2	<2	<2	<2	<2	<2	<2
Total Titanium	ug/L	2		2	3	4	14	3	3	3
Total Uranium	ug/L		0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Total Vanadium	ug/L	2		<2	<2	2	2	<2	<2	<2
Total Zinc	ug/L	5		<5	6	<5	<5	<5	<5	<5

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 22K976564

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
St. John's, NL
CANADA A1E 6A8
TEL (709)747-8573
FAX (709) 747-2139
<http://www.agatlabs.com>

CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

Standard Water Analysis + Total Metals

DATE RECEIVED: 2022-12-02

DATE REPORTED: 2022-12-13

- Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard
- 4581587 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
Turbidity, Nitrate and Nitrite ran past hold times.
 - 4581593 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
Turbidity, Nitrate and Nitrite ran past hold times.
 - 4581594-4581595 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
Turbidity, Nitrate and Nitrite ran past hold times.
 - 4581596 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
Turbidity, Nitrate and Nitrite ran past hold times.
 - 4581597-4581598 % Difference / Ion Balance, Hardness, Langelier Index, Nitrate + Nitrite, Hydroxide and Saturation pH are calculated parameters. The calculated parameters are non-accredited. The component parameters of the calculations are accredited.
Turbidity, Nitrate and Nitrite ran past hold times.

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 22K976564

PROJECT: 101556.002

57 Old Pennywell Road, Unit I
 St. John's, NL
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CLIENT NAME: GEMTEC LIMITED

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

TSS

DATE RECEIVED: 2022-12-02

DATE REPORTED: 2022-12-13

		SAMPLE DESCRIPTION:		SW-01	SW-02	SW-04	SW-03	SW-05	SW-06	SW-SD
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2022-11-28 09:55	2022-11-28 08:55	2022-11-28 11:20	2022-11-28 11:10	2022-11-28 08:25	2022-11-28 10:25	2022-11-28 09:55
Parameter	Unit	G / S	RDL	4581587	4581593	4581594	4581595	4581596	4581597	4581598
Total Suspended Solids	mg/L		5	<5	<5	<5	16	<5	<5	<5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Halifax (unless marked by *)

Certified By:



Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.002
 SAMPLING SITE:

AGAT WORK ORDER: 22K976564
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Soil Analysis															
RPT Date: Dec 13, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Available Metals in Soil (Incl. Hg)

Aluminum	4581730		10300	15800	42.1%	< 10	101%	80%	120%	111%	80%	120%	NA	70%	130%
Antimony	4581730		<1	<1	NA	< 1	80%	80%	120%	120%	80%	120%	NA	70%	130%
Arsenic	4581730		11	17	42.9%	< 1	96%	80%	120%	99%	80%	120%	NA	70%	130%
Barium	4581730		28	44	44.4%	< 5	98%	80%	120%	93%	80%	120%	NA	70%	130%
Beryllium	4581730		<2	<2	NA	< 2	101%	80%	120%	108%	80%	120%	NA	70%	130%
Boron	4581730		<2	<2	NA	< 2	98%	80%	120%	109%	80%	120%	NA	70%	130%
Cadmium	4581730		<0.3	<0.3	NA	< 0.3	96%	80%	120%	100%	80%	120%	NA	70%	130%
Chromium	4581730		19	29	41.7%	< 2	96%	80%	120%	102%	80%	120%	NA	70%	130%
Cobalt	4581730		14	18	25.0%	< 1	95%	80%	120%	102%	80%	120%	NA	70%	130%
Copper	4581730		3	5	NA	< 2	98%	80%	120%	105%	80%	120%	76%	70%	130%
Iron	4581730		37400	59600	45.8%	< 50	93%	80%	120%	99%	80%	120%	NA	70%	130%
Lead	4581730		2.7	3.7	31.3%	< 0.5	96%	80%	120%	92%	80%	120%	NA	70%	130%
Lithium	4581730		<5	6	NA	< 5	97%	70%	130%	109%	70%	130%	89%	70%	130%
Manganese	4581730		835	1340	46.4%	< 2	94%	80%	120%	101%	80%	120%	NA	70%	130%
Mercury	4581730		<0.03	<0.03	NA	< 0.03	108%	80%	120%	100%	80%	120%	NA	70%	130%
Molybdenum	4581730		<2	2	NA	< 2	88%	80%	120%	93%	80%	120%	NA	70%	130%
Nickel	4581730		10	15	40.0%	< 2	97%	80%	120%	106%	80%	120%	114%	70%	130%
Selenium	4581730		<1	<1	NA	< 1	97%	80%	120%	98%	80%	120%	NA	70%	130%
Silver	4581730		<0.5	<0.5	NA	< 0.5	93%	80%	120%	102%	80%	120%	NA	70%	130%
Strontium	4581730		7	11	NA	< 5	86%	80%	120%	93%	80%	120%	71%	70%	130%
Thallium	4581730		<0.1	<0.1	NA	< 0.1	99%	80%	120%	94%	80%	120%	NA	70%	130%
Tin	4581730		<2	2	NA	< 2	92%	80%	120%	97%	80%	120%	NA	70%	130%
Uranium	4581730		1.1	1.6	37.0%	< 0.1	94%	80%	120%	90%	80%	120%	NA	70%	130%
Vanadium	4581730		63	95	40.5%	< 2	95%	80%	120%	103%	80%	120%	NA	70%	130%
Zinc	4581730		20	33	NA	< 5	95%	80%	120%	102%	80%	120%	75%	70%	130%

Comments: Duplicate not within acceptance limits. Sample visibly non-homogeneous.

Certified By: _____



Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.002
 SAMPLING SITE:

AGAT WORK ORDER: 22K976564
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Water Analysis														
RPT Date: Dec 13, 2022			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE	
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits
							Lower	Upper	Lower		Upper	Lower		Upper

TSS															
Total Suspended Solids	4572865		<5	<5	NA	< 5	102%	80%	120%	NA			107%	80%	120%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Total Metals

pH	4586626		6.20	6.15	0.8%	<	100%	80%	120%	NA			NA		
Reactive Silica as SiO2	4586626		2.9	3.1	5.5%	< 0.5	97%	80%	120%	101%	80%	120%	110%	80%	120%
Chloride	4581899		16	17	4.3%	< 1	87%	80%	120%	NA	80%	120%	NA	70%	130%
Fluoride	4581899		<0.12	<0.12	NA	< 0.12	100%	80%	120%	NA	80%	120%	95%	70%	130%
Sulphate	4581899		7	6	NA	< 2	103%	80%	120%	NA	80%	120%	92%	70%	130%
Alkalinity	4586626		24	13	NA	< 5	96%	80%	120%	NA			NA		
True Color	4586626		<5.00	<5.00	NA	< 5	96%	80%	120%	94%	80%	120%	NA		
Turbidity	4593995		2130	2160	1.5%	< 0.5	98%	80%	120%	NA			NA		
Electrical Conductivity	4586626		67	67	0.4%	< 1	101%	90%	110%	NA			NA		
Nitrate as N	4581899		0.98	1.04	5.6%	< 0.05	95%	80%	120%	NA	80%	120%	NA	70%	130%
Nitrite as N	4581899		<0.05	<0.05	NA	< 0.05	92%	80%	120%	NA	80%	120%	93%	70%	130%
Ammonia as N	4577356		<0.03	<0.03	NA	< 0.03	110%	80%	120%	103%	80%	120%	116%	70%	130%
Total Organic Carbon	4581266		4.3	4.2	2.8%	< 0.5	93%	80%	120%	NA	80%	120%	94%	80%	120%
Ortho-Phosphate as P	4586626		<0.01	<0.01	NA	< 0.01	107%	80%	120%	82%	80%	120%	112%	80%	120%
Total Sodium	4591800		186	193	3.7%	< 0.1	100%	80%	120%	107%	80%	120%	NA	70%	130%
Total Potassium	4591800		4.7	5.0	5.8%	< 0.1	96%	80%	120%	105%	80%	120%	NA	70%	130%
Total Calcium	4591800		17.1	17.4	1.5%	< 0.1	97%	80%	120%	102%	80%	120%	NA	70%	130%
Total Magnesium	4591800		2.3	2.4	3.7%	< 0.1	101%	80%	120%	107%	80%	120%	NA	70%	130%
Bicarb. Alkalinity (as CaCO3)	4586626		24	13	NA	< 5	NA	80%	120%	NA			NA		
Carb. Alkalinity (as CaCO3)	4586626		<10	<10	NA	< 10	NA	80%	120%	NA			NA		
Hydroxide	4586626		<5	<5	NA	< 5	NA	80%	120%	NA			NA		
Total Aluminum	4591800		1320	1470	10.4%	< 5	99%	80%	120%	108%	80%	120%	NA	70%	130%
Total Antimony	4591800		<2	<2	NA	< 2	97%	80%	120%	NA	80%	120%	NA	70%	130%
Total Arsenic	4591800		13	14	3.7%	< 2	94%	80%	120%	97%	80%	120%	NA	70%	130%
Total Barium	4591800		55	64	13.6%	< 5	105%	80%	120%	112%	80%	120%	NA	70%	130%
Total Beryllium	4591800		<2	<2	NA	< 2	97%	80%	120%	104%	80%	120%	95%	70%	130%
Total Bismuth	4591800		<2	<2	NA	< 2	90%	80%	120%	116%	80%	120%	85%	70%	130%
Total Boron	4591800		92	97	5.6%	< 5	97%	80%	120%	106%	80%	120%	NA	70%	130%
Total Cadmium	4591800		0.15	0.14	NA	< 0.09	93%	80%	120%	99%	80%	120%	95%	70%	130%
Total Chromium	4591800		29	29	0.3%	< 1	95%	80%	120%	102%	80%	120%	NA	70%	130%
Total Cobalt	4591800		3	4	NA	< 1	96%	80%	120%	104%	80%	120%	114%	70%	130%
Total Copper	4591800		46	52	13.2%	< 1	98%	80%	120%	104%	80%	120%	NA	70%	130%
Total Iron	4591800		10500	10700	1.9%	< 50	100%	80%	120%	107%	80%	120%	NA	70%	130%
Total Lead	4591800		1.1	1.1	NA	< 0.5	102%	80%	120%	109%	80%	120%	81%	70%	130%
Total Manganese	4591800		134	134	0.4%	< 2	95%	80%	120%	102%	80%	120%	NA	70%	130%

Quality Assurance

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.002
 SAMPLING SITE:

AGAT WORK ORDER: 22K976564
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

Water Analysis (Continued)

RPT Date: Dec 13, 2022			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Molybdenum	4591800		24	25	2.9%	< 2	90%	80%	120%	98%	80%	120%	NA	70%	130%
Total Nickel	4591800		14	14	4.2%	< 2	98%	80%	120%	106%	80%	120%	NA	70%	130%
Total Phosphorous	4591800		0.06	0.05	NA	< 0.02	109%	80%	120%	110%	80%	120%	NA	70%	130%
Total Selenium	4591800		<1	<1	NA	< 1	88%	80%	120%	99%	80%	120%	91%	70%	130%
Total Silver	4591800		<0.1	<0.1	NA	< 0.1	93%	80%	120%	100%	80%	120%	92%	70%	130%
Total Strontium	4591800		294	315	6.7%	< 5	89%	80%	120%	93%	80%	120%	NA	70%	130%
Total Thallium	4591800		<0.1	<0.1	NA	< 0.1	105%	80%	120%	110%	80%	120%	81%	70%	130%
Total Tin	4591800		3	3	NA	< 2	90%	80%	120%	99%	80%	120%	98%	70%	130%
Total Titanium	4591800		35	35	1.0%	< 2	96%	80%	120%	100%	80%	120%	NA	70%	130%
Total Uranium	4591800		6.0	6.8	12.8%	< 0.2	101%	80%	120%	109%	80%	120%	NA	70%	130%
Total Vanadium	4591800		25	26	3.6%	< 2	92%	80%	120%	99%	80%	120%	NA	70%	130%
Total Zinc	4591800		31	32	4.1%	< 5	95%	80%	120%	102%	80%	120%	99%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Mercury Analysis in Water (Total)

Total Mercury	4580294		<0.026	<0.026	NA	< 0.026	91%	80%	120%	NA	80%	120%	96%	70%	130%
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Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Standard Water Analysis + Total Metals

Chloride	4580837		14	14	3.9%	< 1	87%	80%	120%	NA	80%	120%	NA	70%	130%
Fluoride	4580837		<0.12	<0.12	NA	< 0.12	100%	80%	120%	NA	80%	120%	99%	70%	130%
Sulphate	4580837		3	3	NA	< 2	103%	80%	120%	NA	80%	120%	100%	70%	130%
Turbidity	4581598	4581598	1.2	1.1	NA	< 0.5	99%	80%	120%	NA			NA		
Nitrate as N	4580837		0.23	0.24	NA	< 0.05	97%	80%	120%	NA	80%	120%	91%	70%	130%
Nitrite as N	4580837		<0.05	<0.05	NA	< 0.05	90%	80%	120%	NA	80%	120%	101%	70%	130%

Comments: If RPD value is NA, the results of the duplicates are less than 5x the RDL and the RPD will not be calculated.

Certified By: _____



Method Summary

CLIENT NAME: GEMTEC LIMITED
 PROJECT: 101556.002
 SAMPLING SITE:

AGAT WORK ORDER: 22K976564
 ATTENTION TO: Darrol Rice
 SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Aluminum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Antimony	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Arsenic	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Barium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Beryllium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Boron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cadmium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Chromium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Cobalt	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Copper	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Iron	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Lead	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Lithium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Manganese	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Mercury	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP-MS
Molybdenum	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Nickel	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Selenium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Silver	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Strontium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Thallium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Tin	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Uranium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Vanadium	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS
Zinc	MET-121-6105 & MET-121-6103	EPA SW 846 6020A/3050B & SM 3125	ICP/MS

Method Summary

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K976564

PROJECT: 101556.002

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Total Mercury	MET-121-6100 & MET-121-6107	SM 3112 B	CV/AA
pH	INOR-121-6001	SM 4500 H+B	PC TITRATE
Reactive Silica as SiO ₂	INOR-121-6027	SM 4500-SiO ₂ F	COLORIMETER
Chloride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Alkalinity	INOR-121-6001	SM 2320 B	
True Color	INOR-121-6008	SM 2120 B	LACHAT FIA
Turbidity	INOR-121-6022	SM 2130 B	NEPHELOMETER
Electrical Conductivity	INOR-121-6001	SM 2510 B	PC TITRATE
Nitrate + Nitrite as N	INORG-121-6005	SM 4110 B	CALCULATION
Nitrate as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INORG-121-6005	SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-121-6047	SM 4500-NH ₃ H	COLORIMETER
Total Organic Carbon	INOR-121-6026	SM 5310 B	TOC ANALYZER
Ortho-Phosphate as P	INOR-121-6012	SM 4500-P G	COLORIMETER
Total Sodium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Potassium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Calcium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Magnesium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Bicarb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Carb. Alkalinity (as CaCO ₃)	INORG-121-6001	SM 2320 B	PC TITRATE
Hydroxide	INORG-121-6001	SM 2320 B	PC-TITRATE
Calculated TDS	CALCULATION	SM 1030E	CALCULATION
Hardness	CALCULATION	SM 2340B	CALCULATION
Langelier Index (@20C)	CALCULATION	CALCULATION	CALCULATION
Langelier Index (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 20C)	CALCULATION	CALCULATION	CALCULATION
Saturation pH (@ 4C)	CALCULATION	CALCULATION	CALCULATION
Anion Sum	CALCULATION	SM 1030E	CALCULATION
Cation sum	CALCULATION	SM 1030E	CALCULATION
% Difference/ Ion Balance	CALCULATION	SM 1030E	CALCULATION
Total Aluminum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Antimony	MET121-6104 & MET-121-6105	SM 3125	ICP-MS
Total Arsenic	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Barium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Beryllium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Bismuth	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Boron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS

Method Summary

CLIENT NAME: GEMTEC LIMITED

AGAT WORK ORDER: 22K976564

PROJECT: 101556.002

ATTENTION TO: Darrol Rice

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Cadmium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Chromium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Cobalt	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Copper	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Iron	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Lead	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Manganese	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Molybdenum	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Nickel	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Phosphorous	MET-121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Selenium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Silver	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Strontium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Thallium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Tin	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Titanium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Uranium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Vanadium	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Zinc	MET121-6104 & MET-121-6105	modified from SM 3125/SM 3030 B/SM 3030 D	ICP-MS
Total Suspended Solids	INOR-121-6024, 6025	SM 2540C, D	GRAVIMETRIC



AGAT Laboratories

Unit 1 • 57 Old Peenywell Rd
St John's, NL
A1E 6A8
webearth.agatlabs.com • www.agatlabs.com

P: 709.747.8573 • F: 709.747.2139

Laboratory Use Only

Arrival Condition: Good Poor (see notes)

Arrival Temperature: 2.3, 2.8, 2.4

Hold Time: _____

AGAT Job Number: 22K970545 **AP**

Notes: 02K970545

Chain of Custody Record

Report Information

Company: GEMTEC Consulting Engineers and Scientists Ltd.

Contact: Darrol Rice

Address: 19 Dundee Place
Mount Pearl, NL, A1N 4R6

Phone: 709.693.9171 Fax: _____

Client Project #: 101556.002

AGAT Quotation: GEMTEC SOA

Please Note: If quotation number is not provided client will be billed full price for analysis.

Report Information (Please print):

1. Name: Darrol Rice
Email: darrol.rice@gemtec.ca

2. Name: Adam Schamper
Email: adam.schamper@gemtec.ca

Report Format

Single Sample per page

Multiple Samples per page

Excel Format Included

Export

Regulatory Requirements (Check):

List Guidelines on Report Do not list Guidelines on Report

PIRI

Tier 1 Res Pot Coarse

Tier 2 Com N/Pot Fine

Gas Fuel Lube

CCME CDWQ

Industrial NL DOEC GW

Commercial Res/Park NLDOEC Discharge

Agricultural FWAL

Sediment Other _____

Turnaround Time Required (TAT)

Regular TAT 5 to 7 working days

Rush TAT Same day 1 day 2 days 3 days

Date Required: _____

Invoice To Same Yes / No

Company: GEMTEC Consulting Engineers and Scientists Ltd.

Contact: Felicia Hemming (felicia.hemming@gemtec.ca)

Address: 191 Doak Road
Fredericton, NB E3C 2E6

Phone: 506.453.1025 x 115 Fax: _____

PO/Credit Card#: _____

Drinking Water Sample: Yes No **Salt Water Sample** Yes No

Reg. No.: _____

Sample Identification	Date/Time Sampled	Sample Matrix	# Containers	Comments - Site/Sample Info. Sample Containment	Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIR) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other:	Hazardous (Y/N)	
SITE-1	Nov. 28 2022 / 0955	Water	6	Please Label as SW - 01 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																		
SITE-2	Nov. 28 2022 / 0855	Water	6	Please Label as SW - 02 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																		
SITE-3	Nov. 28 2022 / 1120	Water	6	Please Label as SW - 04 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																		
SITE-4	Nov. 28 2022 / 1110	Water	6	Please Label as SW - 03 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																		
SITE-5	Nov. 28 2022 / 0825	Water	6	Please Label as SW - 05 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																		
SITE-6	Nov. 28 2022 / 1025	Water	6	Please Label as SW - 06 in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																		
SW - SD	Nov. 28 2022 / 0955	Water	6	Please Label as SW - SD in Report		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>																		

Samples Relinquished By (Print Name): Adam Schamper Date/Time: _____

Samples Received By (Print Name): _____ Date/Time: _____

Samples Relinquished By (Sign): _____ Date/Time: _____

Samples Received By (Sign): *[Signature]* Date/Time: Dec 2/20

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 1 of 2

Nº: 1150 AM



Chain of Custody Record

P: 709.747.8573 • F: 709.747.2139

Report to:

Company:

Same as COC#: 22K976545

	SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS	# OF CONTAINERS			Field Filtered/Preserved	Standard Water Analysis	Metals: <input type="checkbox"/> Total <input type="checkbox"/> Diss <input type="checkbox"/> Available	Mercury	<input type="checkbox"/> BOD <input type="checkbox"/> CBOD	pH	<input type="checkbox"/> TSS <input type="checkbox"/> TDS <input type="checkbox"/> VSS	TKN	Total Phosphorus	Phenols	Tier 1: TPH/BTEX (PIRT) <input type="checkbox"/> low level	Tier 2: TPH/BTEX Fractionation	CCME-CWS TPH/BTEX	VOC	THM	HAA	PAH	PCB	TC + EC <input type="checkbox"/> P/A <input type="checkbox"/> MPN <input type="checkbox"/> MF	<input type="checkbox"/> HPC <input type="checkbox"/> Pseudomonas	Fecal Coliform <input type="checkbox"/> MPN <input type="checkbox"/> MF	Other:	Other:	Hazardous (Y/N)				
					VIALS / JARS	BAGS	BOTTLES																												
1	SITE-1	11.28.22 / 0925	SOIL	Label as SED - 1	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
2	SITE-2	11.28.22 / 0855	SOIL	Label as SED - 2	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
3	SITE-3	11.28.22 / 1120	SOIL	Label as SED - 3	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
4	SITE-4	11.28.22 / 1110	SOIL	Label as SED - 4	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
5	SITE-5	11.28.22 / 0825	SOIL	Label as SED - 5	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
6	SITE-6	11.28.22 / 1025	SOIL	Label as SED - 6	1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
7	SED - SD	11.28.22 / 0925	SOIL		1					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																								
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Samples Relinquished By (Print Name and Sign):

Adam Schamper

Date/Time

Samples Received By (Print Name and Sign):

Adam Schamper

Date/Time

Dec 2/22

Samples Relinquished By (Print Name and Sign):

Date/Time

Samples Received By (Print Name and Sign):

Date/Time

11:50 AM

Samples Relinquished By (Print Name and Sign):

Date/Time

Samples Received By (Print Name and Sign):

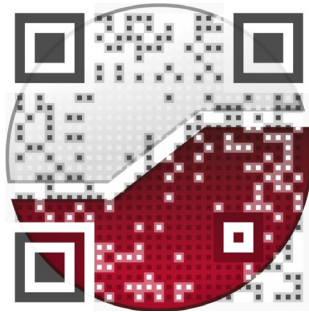
Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT

Page 2 of 2

Nº:

experience • knowledge • integrity



civil
geotechnical
environmental
field services
materials testing

civil
géotechnique
environnementale
surveillance de chantier
service de laboratoire des matériaux

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