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Updated Baseline Groundwater Quality and Quantity Report Valentine Gold Project Berry Pit Area

Central Newfoundland

GEMTEC Project: 1000424.004

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Submitted to:

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Central Newfoundland

October 4, 2024

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TABLE OF CONTENTS

TABLE OF CONTENTS	I
LIST OF TABLES.....	I
LIST OF FIGURES	I
LIST OF APPENDICES	I
1.0 INTRODUCTION.....	1
2.0 UPDATE ON GROUNDWATER QUALITY.....	1
2.1 Data Sources.....	1
2.2 Groundwater Quality Analysis.....	4
2.2.1 Overburden and Shallow Bedrock Groundwater Quality	4
2.2.2 Deeper Bedrock Groundwater Quality	5
3.0 UPDATE ON GROUNDWATER QUANTITY	6
3.1 Summary of the 2022 Feasibility Study Groundwater Level Monitoring Program	6
3.2 Summary of Results.....	7
4.0 CONCLUSIONS.....	9
5.0 REFERENCES.....	10

LIST OF TABLES

Table 1 Summary of Groundwater Quality Monitoring Locations and Sampling Events.....	3
Table 2 Summary of Manual Groundwater Level Measurements	7
Table 3 Summary of Groundwater Level Monitoring (June 2022 – September 2024).....	8

LIST OF FIGURES

Figure 1 Site Plan	Appendix A
Figure 2 Piper Plot of Groundwater Samples	Appendix A

LIST OF APPENDICES

Appendix A	Figures
Appendix B	Tabulated Groundwater Sampling Results
Appendix C	Time Series Groundwater Level Hydrographs

1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) has been retained by Calibre Mining Corp. (Calibre) to conduct an updated assessment of baseline groundwater quality and quantity conditions that encompasses all seasonal variations for the Valentine Gold Project Expansion Berry Pit area.

This report provides an update to the baseline groundwater quality and quantity conditions in the Berry Pit area as described in the information previously reported, including:

- Chapter 7.0 Groundwater Resources, Berry Pit Expansion Environmental Registration / Environmental Assessment, (Valentine Gold Project) Update submitted by Marathon Gold Corporation to the NL Department of Environment and Climate Change (Environmental Assessment Division), August 2023; and,
- Supporting document - 2022 Feasibility Study (FS) Update Geotechnical and Hydrogeological Investigations Valentine Gold Project (Final Report), prepared by GEMTEC for Marathon Gold Corporation. Project No: 100042.003, October 19, 2022.

The information provided in this report is intended to summarize and document additional groundwater quality and groundwater level data applicable to the Berry Pit area collected since the submission of the Project EA update in order to provide a more comprehensive description including seasonal variability of baseline hydrogeological conditions in the Berry Pit area prior to the commencement of construction activities.

2.0 UPDATE ON GROUNDWATER QUALITY

2.1 Data Sources

For this assessment the groundwater chemistry results from a total of 11 monitoring wells (MWs) were used to describe general groundwater quality in the Berry Pit area. These MWs include:

- six (6) MWs (22BH-02, 22BH07, and paired wells 22BH-03A/B, and 22BH-04A/B) installed at four locations in the Berry Pit area as part of the GEMTEC 2022 FS. For this program one sample was collected in each MW in June 2022; and,
- five (5) MWs (19-MW2, and paired wells 19-MW6/3 and 19-MW7/8) installed at three locations as part of the initial Project baseline study in 2019 (GEMTEC, 2020) and more recently included in the Project's Water Management Plan (WMP) long-term monitoring network. Sampling in these MWs has generally occurred three times per year since December 2022.

Table 1 provides a summary of further information on the MWs and sampling events used to characterize baseline conditions in the Berry Pit area as part of this assessment. A total of seven MWs (including 22BH-02, 22BH-03A, 22BH-4A, 22BH-07, 19-MW2, 19-MW3, and 19-MW7) were

screened in overburden (OB) and shallow bedrock (< 10 m depth), and four (including 22BH-03B, 22BH-04B, 19-MW6 and 19-MW8) were screened in deeper bedrock (from 26 – 30 m depth). Groundwater quality is discussed below using the sampling results from MWs screened in these OB/shallow bedrock and deeper bedrock geological groupings.

The locations of the 11 MWs used for this assessment are shown on Figure 1 in Appendix A. Seven of these are located in the general Berry Pit area including the 2022 FS MWs (22BH-02 to 22BH-07) and historical MW 19-MW2. In addition, sampling results for several MWs in adjacent areas of the Project were also used to define the seasonal range in groundwater quality anticipated for the Berry Pit area. These include the paired shallow and deep well system 19-MW6/3 in the Leprechaun Pit area, and the paired well system 19-MW7/8 in the Marathon Pit area. These MW locations bound the Berry Pit area along the northeast-trending ridge that runs through the Project and are considered to have a hydrogeological setting similar to that of the Berry Pit area with the following key characteristics:

- represent areas of groundwater recharge;
- underlain by similar granitic intrusive rocks that underlie the majority of the Berry Pit area; and,
- within unconfined groundwater systems with overall flow towards the northwest and discharging into Valentine Lake.

We acknowledge that some mine development activities have taken place in the Marathon and Leprechaun Pit areas over the period of groundwater sampling. However, we consider it unlikely that groundwater at the selected MW locations in the Leprechaun and Marathon pit areas has been affected by early mine development activities given:

- the preliminary nature of development - limited to road construction and excavation of in-pit quarries for structural fill and road gravel materials, and **no construction** of stockpiles of waste rock or low grade ore, and therefore no potentially acid generating (PAG) materials that could impact water quality; and,
- the significant separation distance (>200 m) between these development activities and the MWs.

In addition, the groundwater sampling results for the Leprechaun and Marathon Pit MWs were generally consistent; further supporting the assumption that baseline groundwater quality conditions were present in these wells over the period of groundwater sampling.

Table 1 Summary of Groundwater Quality Monitoring Locations and Sampling Events

Monitoring Well ID	Coordinate (NAD83_UTM Zone 21)		Site Description	Installation Depth			Sampling Events						
							No. Samples	2022		2023		2024	
	Northing	Easting		Top of screen (mbgs)	Bottom of screen (mbgs)	Geologic Unit		Jun.	Dec.	Mar.	Jul.	Dec.	May
22BH-02	5357771.702	488457.589	Berry Pit Area	1.55	3.70	Overburden (Till)	1	X	-	-	-	-	-
22BH-03A	5357548.669	489136.481	Berry Pit Area	2.70	5.79	Conglomerate	1	X	-	-	-	-	-
22BH-03B	5357548.669	489136.481	Berry Pit Area	26.18	29.30	Conglomerate	1	X	-	-	-	-	-
22BH-04A	5358620.702	488980.442	Berry Pit Area	5.80	8.80	Granitic Intrusive/Gabbro	1	X	-	-	-	-	-
22BH-04B	5358620.702	488980.442	Berry Pit Area	26.80	29.80	Granitic Intrusive/Gabbro	1	X	-	-	-	-	-
22BH-07	5358848.081	489598.843	Berry Pit Area	2.44	5.49	Overburden (Till)	1	X	-	-	-	-	-
19-MW6	5356720.7	486724.5	Leprechaun Pit area	28.50	30.00	Granitic Intrusive	5	-	X	X	X	X	X
19-MW3	5356723.7	486729.7	Leprechaun Pit area	1.42	6.10	Granitic Intrusive	4	-	X	-	X	X	X
19-MW2	5358751.3	490868.4	Berry Pit Area	0.91	5.64	Granitic Intrusive	4	-	X	-	X	X	X
19-MW7	5360014.9	491700.8	Marathon Pit area	1.52	6.00	Granitic Intrusive	5	-	X	X	X	X	X
19-MW8	5360010.4	491702.4	Marathon Pit area	28.50	30.00	Granitic Intrusive	5	-	X	X	X	X	X

Notes:

mbgs = meters below ground surface

The following sections summarize the results of the groundwater sampling programs described above and are used to describe baseline groundwater quality conditions in the Berry Pit area prior to construction.

2.2 Groundwater Quality Analysis

The groundwater chemistry analytical data for the MWs and sampling events used for this assessment are provided in Table B.1 in Appendix B and are compared to the relevant water quality guidelines for the Project including as follows:

- Metal and Diamond Mining Effluent Regulations (MDMER) (SOR/2002-222 last amended on June 9, 2023) - Schedule 4 - Maximum Authorized Concentrations of Prescribed Deleterious Substances - Table 1 - Maximum Authorized Monthly Mean Concentration
- Atlantic Risk-Based Corrective Action (ARBCA) Environmental Quality Standards and Pathway Specific Standards (July 2021) - Ecological Tier II Pathway-Specific Standards (PSS) for Groundwater (> 10 metres from Surface Water Body) - Freshwater

The groundwater chemistry analytical data were processed, and summary statistics for concentrations of each analyzed parameter were generated for two categories of MW types: (1) those screened in the OB and shallow bedrock, and (2) those screened in the deeper bedrock. Any value lower than the laboratory reporting limit (LRL) was assumed to be equal to one-half the LDL for inclusion in the statistical analysis.

2.2.1 Overburden and Shallow Bedrock Groundwater Quality

A total of 17 groundwater samples from seven MWs were used to characterize the groundwater quality within the OB and shallow bedrock. A statistical summary of these groundwater sample chemistry results is provided in Table B.2 in Appendix B.

A Piper plot diagram is provided in Figure 2 (Appendix A) using concentrations of major cation and anion data collected from June 2022 for the 2022 FS MWs and the July 2023 chemical results for the historical MWs included in the Project WMP network. The plot indicates that shallow groundwater is classified primarily as a calcium-bicarbonate groundwater type. However, one sample (22BH-03A) had a different signature and was classified as sodium-bicarbonate type.

The groundwater is slightly acidic to neutral with pH ranging from 5.4 to 7.8. Total alkalinity ranged from 2.2 mg/L to 124 mg/L, and hardness ranged from 0.5 mg/L (soft) to 113 mg/L (moderately hard). Total dissolved solids (TDS) content was low, ranging from 24 mg/L to 47 mg/L.

The following general chemistry and dissolved metal concentrations were noted to exceed or meet the applicable guidelines in one or more MWs and in one or more sampling events:

- ammonia (2 MWs; 22BH-02 and 22BH-07) exceeded ARBCA.
- pH (3 MWs; 19-MW2, 19-MW3, 19-MW7) were slightly below the MDMER and ARBCA acceptable ranges.
- total suspended solids (TSS) (3 MWs; 19-MW2, 19-MW3, 19-MW7) exceeded MDMER
- aluminum (1 MW; 19-MW7) exceeded ARBCA
- arsenic (1 MW; 19-MW7) exceeded ARBCA
- copper (2 MWs; 19-MW3, 19-MW7) exceeded ARBCA
- iron (1 MW; 19-MW7) exceeded ARBCA
- zinc (1 MW; 19-MW7) exceeded ARBCA

While the concentrations of ammonia detect in 22BH-02 (0.12 mg/L) and 22BH-07 (0.29 mg/L) exceeded the ARBCA criteria of 0.0173 mg/L, these concentrations are generally in the range of that considered naturally occurring (Health Canada, 2013).

It is suspected that the elevated concentrations of TSS in 19-MW2, 19-MW3 and 19-MW7 are due to insufficient purging of the wells prior to collection of the groundwater samples, and that the associated elevated concentrations of metals (aluminum, arsenic, copper, iron, and zinc) detected in these samples are not naturally occurring but rather are an artifact of sampling due to the elevated TSS content.

No apparent seasonal trend was observed in the OB and shallow bedrock general chemistry and dissolved metal dataset.

2.2.2 Deeper Bedrock Groundwater Quality

A total of 12 groundwater samples from four MWs were used to characterize the groundwater quality within the deeper bedrock. A statistical summary of these groundwater sample chemistry results is provided in Table B.3 in Appendix B.

The Piper plot diagram provided in Figure 2 (Appendix A) indicates that deeper groundwater is classified primarily as a calcium-bicarbonate groundwater type similar to that identified for shallow groundwater in the area. Also similar to shallow groundwater, one sample 22BH-04B had a different signature than the other deeper groundwater samples and was classified as sodium-bicarbonate type.

The groundwater is neutral to moderately alkaline with pH ranging from 7.8 to 10.1. Total alkalinity ranged from 119 mg/L to 170 mg/L, and hardness ranged from 10.9 mg/L (soft) to 170 mg/L (hard). TDS content was low, ranging from 140 mg/L to 190 mg/L. In comparison to the shallow groundwater quality, the deeper groundwater is overall more alkaline with a higher TDS content.

The following general chemistry and dissolved metal concentrations were noted to exceed or meet the applicable guidelines in one or more MWs and in one or more sampling events:

- ammonia (2 MWs; 22BH-04B, 19-MW8) exceeded ARBCA
- pH (1 MW; 22BH-04B) was above the MDMER and ARBCA acceptable ranges
- TSS (1 MW; 19-MW8) exceeded MDMER

The concentrations of ammonia detect in 22BH-04B (2.78 mg/L) and 22BH-08 (0.097 mg/L) are in the range of that considered to be naturally occurring (Health Canada, 2013) and the higher than criteria pH level of 10.1 detected in 22BH-04B is inferred to be attributed to the alkaline bedrock (gabbro) present in the screened interval of the well.

No apparent seasonal trend was observed in the deeper bedrock general chemistry and dissolved metal dataset.

3.0 UPDATE ON GROUNDWATER QUANTITY

This assessment provides an update on the groundwater level monitoring data that has been collected in the Berry Pit area since June 2022 when data was collected for GEMTEC's 2022 FS program.

3.1 Summary of the 2022 Feasibility Study Groundwater Level Monitoring Program

During the June 2022 FS field program groundwater level monitoring was conducted in the subject six MWs installed in the Berry Pit area (22-BH02, 22-BH03A, 22-BH03B, 22-BH04A, 22-BH04B, and 22-BH-07). Groundwater levels in the monitoring wells were measured manually with a Solinst® water level meter immediately before slug testing and sampling. After sampling a Solinst® water level datalogger, set to record water levels at six-hour intervals, was installed in wells 22BH-02 and 22BH-07 as well as in both the shallow and deep wells in paired well systems 22BH-03A/22BH-03B and 22BH-04A/22BH-04B for long-term monitoring. A Solinst® barologger was also placed inside the surface casing of 22BH-04B to monitor atmospheric pressure variations for barometric corrections of water level data.

During the follow-up sampling program in September 2022 groundwater levels were measured manually again in the six MWs, and the levellogger and barologger data were downloaded and the levelloggers were redeployed.

Most recently on September 21, 2024, Calibre collected manual water level measurements and downloaded the data from the levelloggers and barologgers for evaluation as part of this assessment.

3.2 Summary of Results

The current long-term groundwater level monitoring data set for the Berry Pit area spans a 27-month period from June 27, 2022 to September 21, 2024. A summary of the manual groundwater level measurements collected from the monitoring wells over this monitoring period is presented below in Table 2, and the groundwater level data recorded by the leveloggers in the six MWs are presented on time series groundwater level hydrographs (Appendix C). Daily total precipitation data was taken from two sources:

- Project's onsite weather station (from June 16, 2023 when the station was installed to September 9, 2024); and,
- Burnt Pond Regional Weather Station, located approximately 24 kilometers southwest of the Project (from June 26, 2022 to June 15, 2023) (Environment and Climate Change Canada, 2024).

Each groundwater level hydrograph also contains this daily total precipitation data presented in a millimeter equivalent of rain to identify possible correlation between groundwater levels and precipitation.

Table 2 Summary of Manual Groundwater Level Measurements

Well ID	Surface Elevation (masl)	June 2022		September 2022		October 2023		September 2024	
		GW Level (mbgs)	GW Elevation (masl)	GW Level (mbgs)	GW Elevation (masl)	GW Level (mbgs)	GW Level (mbgs)	GW Level (mbgs)	GW Level (mbgs)
22BH-02	402.32	0.19	402.13	0.06	402.26	-	-	0.19	402.14
22BH-03A	424.87	0.38	424.50	0.62	424.26	0.56	424.31	1.10	423.77
22BH-03B	424.87	2.30	422.57	2.58	422.30	2.56	422.31	3.09	421.79
22BH-04A	342.85	0.82	342.03	1.93	340.93	-	-	4.66	388.19
22BH-04B	342.85	6.21	336.64	7.83	335.03	-	-	11.06	331.79
22BH-07	377.88	0.20	377.68	0.75	377.14	-	-	2.50	375.39

Notes: GW – groundwater; mbgs – meters below ground surface; masl – meters above sea level.

A summary of the groundwater level data collected from the leveloggers over the monitoring period is presented below in Table 3.

Over the monitoring period, the depth to groundwater as recorded in the six MWs ranged from -0.04 mbgs (22BH-07) to 10.45 mbgs (22BH-02). Above ground surface water level readings were recorded in 22BH-07. While these measurements likely in part reflect near surface water

table conditions and levellogger and barologger sensitivities, artesian conditions are present in several exploration drillholes in the area and may also be present at this MW location, at least seasonally. The monitoring well with the highest observed mean groundwater elevation during the monitoring period was 22BH-03A (423.38 masl), while the lowest was observed at 22BH-04A (342.24 masl). However, we note that the hydrographs for 22BH-04A, 22BH-04B, and 22BH-07 show a flatlining of the water levels at the end of the monitoring period. We interrupt this flat water level profile to possibly be a result of the water level in the MWs dropping below the logger installation depth over this period. As a result water levels at these locations may be lower during this time period than that reported here.

Table 3 Summary of Groundwater Level Monitoring (June 2022 – September 2024)

Well ID	Highest Observed Groundwater Elevation			Lowest Observed Groundwater Elevation			Mean Groundwater Elevation		Observed Groundwater Elevation Variability (m)
	Depth (mbgs)	Elevation (masl)	Date	Depth (mbgs)	Elevation (masl)	Date	Depth (mbgs)	Elevation (masl)	
22BH-02	0.08	402.24	Nov 19, 2023	10.45	401.88	Sept 8, 2024	0.19	402.13	0.37
22BH-03A	0.03	424.84	Jan 24, 2023	1.49	423.38	Sept 9, 2024	0.61	424.26	1.46
22BH-03B	1.99	422.88	Jan 24, 2023	3.23	421.64	Sept 17, 2024	2.51	422.36	1.25
22BH-04A	0.61	342.24	June 8, 2024	2.92	339.93	Feb 22, 2024	1.42	341.43	2.32
22BH-04B	4.33	338.52	Dec 22, 2023	7.94	334.91	Sept 9, 2024	5.69	337.16	3.62
22BH-07	-0.04	377.81	Nov 19, 2023	2.26	375.51	Sept 9, 2024	0.45	377.32	2.29

Notes: mbgs – meters below ground surface; masl – meters above sea level.

The 27-month monitoring period depicted on the groundwater level hydrographs capture a full range of seasonal groundwater level fluctuations and indicates a transient groundwater system. In general, the groundwater levels in the MWs were typically lower during the winter months (January, February, March) prior to spring run-off and in the mid- to late-summer (July, August, September) corresponding to a period of relatively lower precipitation. The highest groundwater levels were recorded during spring run-off (April, May, June) and during the fall rainy period (October, November, December). Seasonal fluctuations in groundwater levels ranged from 0.37 m in 22BH-02 to 3.62 m in 22BH-04B, and with the exception of 22BH-02 reflect typical seasonal groundwater level fluctuations observed in water table aquifers in the region. The reason for the muted seasonal fluctuation observed in 22BH-02 is not known for certain but may be due to blockage of the well screen that is inhibiting free, open movement of groundwater.

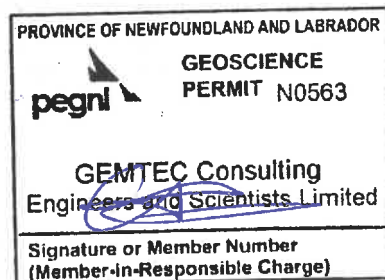
4.0 CONCLUSIONS

The hydrogeological data presented in this report are considered to achieve the objective of characterizing groundwater quality and quantity conditions and provides a reasonable baseline dataset for the Berry Pit area. Continued monitoring of the seven existing MWs and five new MWs currently being installed in the Berry Pit area (as part of the WMP groundwater monitoring network expansion program) will enhance the current baseline dataset and will be used to monitor potential changes in groundwater quality and quantity in the Berry Pit area associated with future development and operational activities.

This report was prepared by Candice Williams, P.Eng., and was reviewed by Carolyn Anstey-Moore, M.Sc., M.A.Sc., P.Geo. We trust that this report meets your present requirements. If you have any questions or require additional information, please contact our office at your convenience.

Respectfully submitted,

GEMTEC Consulting Engineers and Scientist Limited



Carolyn Anstey-Moore, M.Sc., M.A.Sc., P.Geo.
Senior Environmental Geoscientist

5.0 REFERENCES

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https://climate.weather.gc.ca/historical_data/search_historic_data_e.html.

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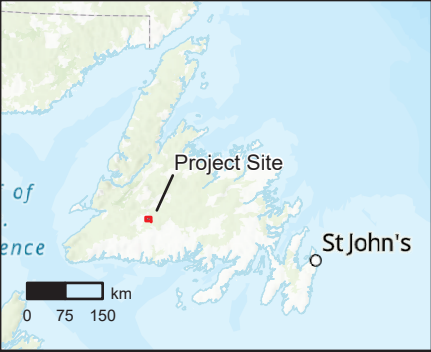
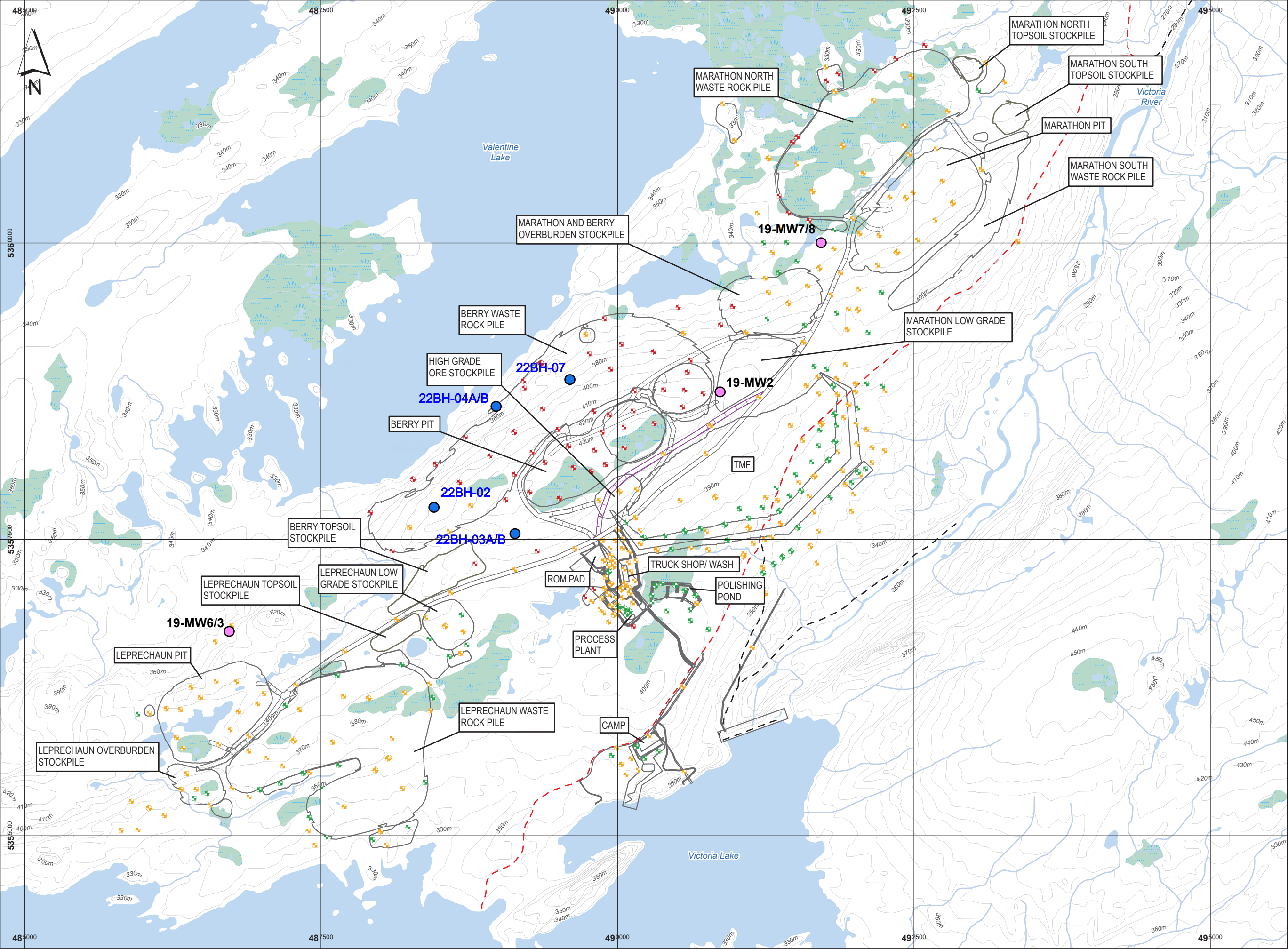
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APPENDIX A

Figures





CONSULTING ENGINEERS
AND SCIENTISTS

 2022 BH LOCATIONS

 2022 TP LOCATIONS

 2021 BH LOCATIONS

 2021 TP LOCATIONS

 2019/2020 BH LOCATIONS

 2019/2020 TP LOCATIONS

 CONTOUR - 10M SPACING

 EXISTING SITE ACCESS ROAD

 WATERCOURSE

 FOREST ACCESS ROADS

 FUTURE HAUL ROAD EXTENSION

 MARATHON SITE LAYOUT

 WATERBODY

 WETLAND

 Monitoring Well - 2022 Feasibility Study Update

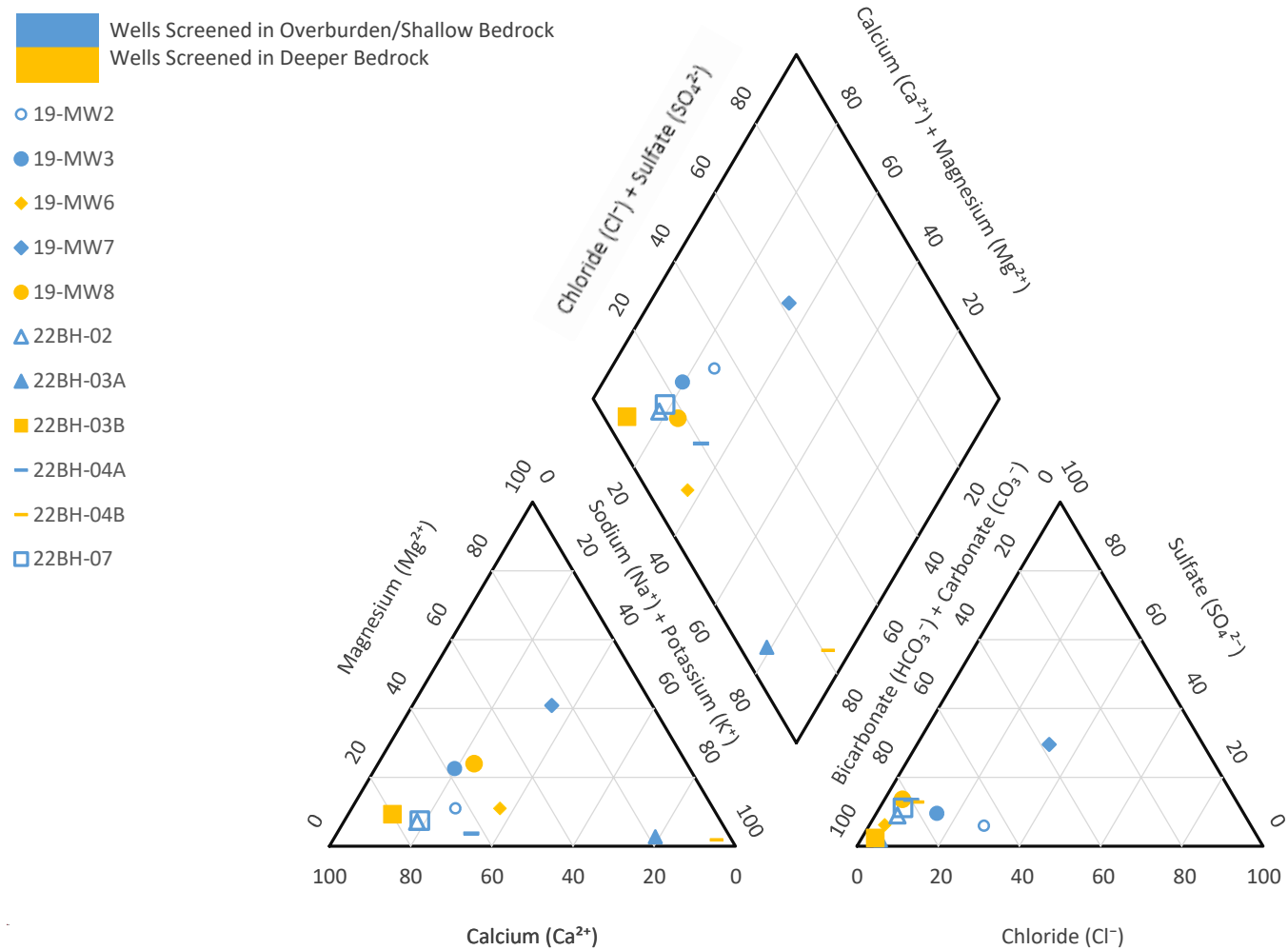
 Historical Monitoring Well included in the Project's Water Management Plan's monitoring network

NAD 1983 UTM Zone 21N

Notes 1. TOPOGRAPHIC DATA ACQUIRED FROM CANADA GOV. CANVEC OPEN DATA SERIES	
VALENTINE GOLD PROJECT UPDATED BASELINE GROUNDWATER QUALITY AND QUANTITY REPORT BERRY PIT AREA SITE PLAN	
Figure 1	
YYYY-MM-DD	2024-10-03
DESIGNED/ PREPARED	MC
REVIEWED/ APPROVED	CAM
Project No. 100042.004	Rev.01

Figure 2: Piper Plot of Groundwater Samples

Project: Updated Baseline Groundwater Quality and Quantity Report,
Valentine Gold Project Berry Pit Area





APPENDIX B

Tabulated Groundwater Sampling Results

Table B.1 Groundwater Sampling Chemistry Analytical Results

Based on original Stantec file:
20240620-121417803-GW Analytical-NV.xlsx;
chemical analytical data for Berry Pit area 2022 monitoring wells
added with no other modifications to data/guideline screening on
original table.

	Sample Location						22BH-02	22BH-03A	22BH-03B	22BH-04A	22BH-04B	22BH-07	19-MW2	19-MW2	19-MW2	19-MW2	19-MW2	19-MW2	19-MW3	19-MW3	19-MW3
Total/Dissolved	Sample Date		Units		MDMER	Atlantic RBCA	27-Jun-22	27-Jun-22	27-Jun-22	27-Jun-22	27-Jun-22	27-Jun-22	10-Dec-22	15-Jul-23	11-Dec-23	11-Dec-23	11-May-24	11-May-24	12-Dec-22	12-Dec-22	16-Jul-23
	Sample Type															Lab Replicate		Lab Replicate		Lab Replicate	
General Chemistry																					
N	Alkalinity, Carbonate (as CaCO3)	ALKCARB	mg/L	MGC-GC	n/v	n/v	<10	<10	<10	<10	104.0	<10	<1.0	<1.0	<1.0	-	<1.0	-	<1.0	-	<1.0
N	Alkalinity, Total (as CaCO3)	ALK	mg/L	MGC-GC	n/v	n/v	124.00	56	139.00	73	119	114	17	13	14	-	16	16	24	-	28
N	Ammonia (as N)	7664-41-7-N	mg/L	MGC-GC	n/v	0.0173/190 _{g,d,v} g ^B	<0.03	0.12 ^B	0.05	0.03	2.78 ^B	0.29 ^B	<0.050	<0.050	<0.050	-	0.081	-	<0.050	-	<0.050
N	Anion Sum	ANIONSUM	me/L	MGC-GC	n/v	n/v	2.85	1.18	2.93	1.80	3.38	3.32	0.440	0.380	0.410	-	0.480	-	0.630	-	0.730
N	Bicarbonate(as CaCO3, Calculated)	71-52-3-CALC	mg/L	MGC-GC	n/v	n/v	124.00						17	13	14	-	16	-	24	-	28
N	Cation Sum	CATIONSUM	me/L	MGC-GC	n/v	n/v	2.64	1.10	3.03	2.01	4.05	2.82	0.450	0.450	0.480	-	0.500	-	0.410	-	0.800
N	Chloride	16887-00-6	mg/L	MGC-GC	n/v	1,200 ^B	5	2	3.00	4	14	6	2.1	3.5	3.8	-	4.1	-	1.1	-	3.3
N	Color	COLOR	color unit (CU)	MGC-GC	n/v	n/v	<5.00	<5	<5	<5	<5	<5.00	<5.0	<5.0	<5.0	-	<5.0	-	<5.0	-	<5.0
N	Cyanide	57-12-5	mg/L	MGC-GC	0.50 ^A	0.05 ^B	-	-	-	-	-	-	-	<0.00050	<0.00050	-	<0.00050	-	-	-	<0.00050
N	Dissolved Organic Carbon (DOC)	DOC	mg/L	MGC-GC	n/v	n/v	-	-	-	-	-	-	<0.50	<0.50	0.65	-	0.58	-	0.85	-	<0.50
N	Electrical Conductivity, Lab	CONDLAB	µS/cm	MGC-GC	n/v	n/v	289.00	118	275.00	723	416	327	45	48	60	-	63	-	40	-	80
D	Hardness (as CaCO3)	HARDNESS	mg/L	MGC-GC	n/v	n/v	107	11.4	135.00	66.4	10.9	113.0	17	17	18.3	-	19.6	-	14	-	32
N	Ion Balance % Difference	IONBAL%	%	MGC-GC	n/v	n/v	3.8	3.6	1.80	5.4	9.0	8.2	1.12	8.43	7.87	-	2.04	-	21.2	-	4.58
N	Langelier Index (at 20 C)	LANG20	none	MGC-GC	n/v	n/v	-0.18	-2.48	0.06	-1.32	1.03	-0.08	-2.52	-2.95	-2.71	-	-2.10	-	-2.87	-	-2.17
N	Langelier Index (at 4 C)	LANG4	none	MGC-GC	n/v	n/v	-0.50	-2.80	-0.26	-1.64	0.71	-0.40	-2.77	-3.20	-2.96	-	-2.35	-	-3.12	-	-2.42
N	Nitrate (as N)	14797-55-8-N	mg/L	MGC-GC	n/v	130 ^B	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	0.10	0.16	-	0.27	-	0.087	-	0.11
N	Nitrate + Nitrite (as N)	14797650/558-N	mg/L	MGC-GC	n/v	n/v	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	0.10	0.16	-	0.27	-	0.087	-	0.11
N	Nitrite (as N)	14797-65-0-N	mg/L	MGC-GC	n/v	0.6 ^B	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.010
N	Orthophosphate (as P)	ORTHOPHOS	mg/L	MGC-GC	n/v	n/v	0.02	<0.01	<0.01	<0.01		<0.01	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.010
N	pH, lab	PHLAB	S.U.	MGC-GC	6.5-9.5 ^A	6.5-9 ^B	7.73	6.75	7.84	7.00	10.11 ^{AB}	7.76	6.78	6.46 ^{AB}	6.62	-	7.15	-	6.43 ^{AB}	-	6.72
N	Phenols-4AAP	64743-03-9-4AAP	mg/L	MGC-GC	n/v	n/v							<0.0010	0.0017	<0.0010	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
D	Phosphorus, Dissolved Organic	7723-14-0TOTAL	mg/L	MGC-GC	n/v	n/v							-	-	0.005	<0.004	<0.004	-	-	-	-
N	Reactive Silica (SiO2)	7631-86-9-REAC	mg/L	MGC-GC	n/v	n/v	7.3	9.3	9.10	8.1	7.9	7.3	10	7.4	7.3	-	6.5	-	6.9	-	8.1
N	Saturation pH (at 20 C)	SATPH20	none	MGC-GC	n/v	n/v	7.91	9.23	7.78	8.32	9.08	7.84	9.30	9.41	9.33	-	9.25	-	9.30	-	8.88
N	Saturation pH (at 4 C)	SATPH4	none	MGC-GC	n/v	n/v	8.23	9.55	8.10	8.64	9.40	8.16	9.55	9.66	9.59	-	9.51	-	9.55	-	9.14
N	Sulfate	14808-79-8	mg/L	MGC-GC	n/v	1,280 ^B	11	<2	3.00	11	29	16	2.1	<2.0	<1.0	-	1.1	-	5.6	-	2.9
N	Sulfide	18496-25-8	mg/L	MGC-GC	n/v	n/v							<0.020	<0.020	<0.020	-	<0.020	-	<0.020	-	<0.020
D	Total Dissolved Solids (Calculated)	TDS-CALC	mg/L	MGC-GC	n/v	n/v							34	28	30	-	33	-	36	-	47
T	Total Organic Carbon	7440-44-0-ORG	mg/L	MGC-GC	n/v	n/v	4.2	3.5	2.90	3.7	6.1	4	<5.0 IA	<5.0 IA	1.0	-	0.87	-	1.2	-	<0.50
N	Total Suspended Solids	TSS	mg/L	MGC-GC	15.00 ^A	n/v	10	1280	10.00	<5	27	40	310 ^A	160 ^A	560 ^A	-	64 ^A	-	230 ^A	-	49 ^A
N	Turbidity, Lab	TURBLAB	NTU	MGC-GC	n/v	n/v	9.6	297	12.30	1.5	23.8	33.9	78	33	62	-	30	-	59	-	27
	Fluoride		mg/L			1.2	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12									
Metals																					
D	Aluminum	7429-90-5	µg/L	MGC-MET	n/v	50 ^B	16.4	35.4	26.6	15.9	127	20.6	6.9	11	8.82	-	5.00	5.54	11	-	<5.0
D	Antimony	7440-36-0	µg/L	MGC-MET	n/v	90 ^B	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	-	<0.020	<0.020	<1.0	-	<1.0
D	Arsenic	7440-38-2	µg/L	MGC-MET	100 ^A	50 ^B	3.2	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.164	-	0.111	0.110	<1.0	-	<1.0
D	Barium	7440-39-3	µg/L	MGC-MET	n/v	10,000 ^B	20.3	6.7	6.7	10.2	8	14	6.4	6.5	8.30	-	7.62	7.68	63	-	45
D	Beryllium	7440-41-7	µg/L	MGC-MET	n/v	1.5 ^B	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.10	<0.10	0.014	-	0.013	0.015	<0.10	-	<0.10
D	Bismuth	7440-69-9	µg/L	MGC-MET	n/v	n/v	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.0050	-	<0.0050	<0.0050	<2.0	-	<2.0
D	Boron	7440-42-8	µg/L	MGC-MET	n/v	15,000 ^B	<10.0	12.8	<10.0	<10.0	<10.0	<10.0	<50	<50	<5.0	-	<5.0	<5.0	<50	-	<50
D	Cadmium	7440-43-9	µg/L	MGC-MET	n/v	0.9 ^B	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.025	0.022	0.0306	-	0.0364	0.0336	0.028	-	0.027
D	Calcium	7440-70-2	µg/L	MGC-MET	n/v	n/v	-	-	-	-	-	-	5,900	5,700	6,270	-	-	-	4,200	-	9,300
D	Calcium	7440-70-2	mg/L	MGC-MET	n/v	n/v	39	4	48	25	3	41	-	-	-	-	6.72	-	-	-	-
D	Chromium	7440-47-3	µg/L	MGC-MET	n/v																

Table B.1 Groundwater Sampling Chemistry Analytical Results

Based on original Stantec file:

20240620-121417803-GW Analytical-NV.xlsx;

chemical analytical data for Berry Pit area 2022 monitoring wells

added with no other modifications to data/guideline screening on

original table.

	Sample Location						19-MW3	19-MW3	19-MW3	19-MW6	19-MW6	19-MW6	19-MW6	19-MW6	19-MW6	19-MW6	19-MW6	19-MW6	19-MW6	19-MW7	19-MW7	
	Sample Date						16-Jul-23	2-Dec-23	13-May-24	11-Dec-22	29-Mar-23	16-Jul-23	2-Dec-23	2-Dec-23	13-May-24	13-May-24	13-May-24	13-May-24	13-May-24	11-Dec-22	11-Dec-22	
Total/Dissolved	Sample Type		Units		MDMER	Atlantic RBCA	Lab Replicate							Lab Replicate		Lab Replicate	Field Duplicate	(%)	Lab Replicate		Lab Replicate	
General Chemistry																						
N	Alkalinity, Carbonate (as CaCO3)	ALKCARB	mg/L	MGC-GC	n/v	n/v	-	<1.0	<1.0	1.4	1.4	<1.0	1.7	-	2.6	-	2.4	nc	-	<1.0	-	
N	Alkalinity, Total (as CaCO3)	ALK	mg/L	MGC-GC	n/v	n/v	-	15	18	130	130	140	140	-	170	-	170	0%	-	2.2	-	
N	Ammonia (as N)	7664-41-7-N	mg/L	MGC-GC	n/v	0.0173/190 ^B _{o.d.vals}	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	0.055	-	<0.050	nc	-	0.13	-	
N	Anion Sum	ANIONSUM	me/L	MGC-GC	n/v	n/v	-	0.390	0.480	2.92	2.89	3.06	3.00	-	3.55	-	3.55	nc	-	0.240	-	
N	Bicarbonate(as CaCO3, Calculated)	71-52-3-CALC	mg/L	MGC-GC	n/v	n/v	-	15	18	130	130	140	140	-	160	-	160	0%	-	2.2	-	
N	Cation Sum	CATIONSUM	me/L	MGC-GC	n/v	n/v	-	0.630	0.480	2.93	3.14	3.51	2.14	-	3.45	-	3.40	nc	-	0.540	-	
N	Chloride	16887-00-6	mg/L	MGC-GC	n/v	1,200 ^B	-	2.3	2.4	2.6	2.6	3.4	3.0	-	3.9	-	3.8	nc	-	4.7	-	
N	Color	COLOR	color unit (CU)	MGC-GC	n/v	n/v	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	-	<5.0	-	<5.0	nc	-	520	-	
N	Cyanide	57-12-5	mg/L	MGC-GC	0.50 ^A	0.05 ^B	-	<0.00050	<0.00050	-	-	<0.00050	<0.00050	-	<0.00050	-	<0.00050	nc	-	-	-	
N	Dissolved Organic Carbon (DOC)	DOC	mg/L	MGC-GC	n/v	n/v	<0.50	0.70	0.59	<0.50	0.72	<0.50	<0.50	-	<0.50	-	0.50	nc	-	40	-	
N	Electrical Conductivity, Lab	CONDLAB	µS/cm	MGC-GC	n/v	n/v	-	41	59	270	280	310	290	-	340	-	340	0%	-	45	-	
D	Hardness (as CaCO3)	HARDNESS	mg/L	MGC-GC	n/v	n/v	-	24.7	17.9	140	150	170	102	-	164	-	162	1%	-	15	-	
N	Ion Balance % Difference	IONBAL%	%	MGC-GC	n/v	n/v	-	23.5	0.00	0.170	4.15	6.85	16.7	-	1.43	-	2.16	nc	-	38.5	-	
N	Langelier Index (at 20 C)	LANG20	none	MGC-GC	n/v	n/v	-	-2.05	-2.27	0.478	0.481	0.369	0.432	-	0.800	-	0.754	nc	-	-5.01	-	
N	Langelier Index (at 4 C)	LANG4	none	MGC-GC	n/v	n/v	-	-2.30	-2.52	0.228	0.230	0.119	0.181	-	0.550	-	0.504	nc	-	-5.26	-	
N	Nitrate (as N)	14797-55-8-N	mg/L	MGC-GC	n/v	130 ^B	-	0.14	0.12	0.11	0.15	0.11	0.13	-	0.064	-	0.066	nc	-	<0.050	-	
N	Nitrate + Nitrite (as N)	14797650/558-N	mg/L	MGC-GC	n/v	n/v	-	0.14	0.12	0.11	0.15	0.11	0.15	-	0.064	-	0.066	nc	-	<0.050	-	
N	Nitrite (as N)	14797-65-0-N	mg/L	MGC-GC	n/v	0.6 ^B	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	nc	-	<0.010	-	
N	Orthophosphate (as P)	ORTHOPHOS	mg/L	MGC-GC	n/v	n/v	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	nc	-	0.079	-	
N	pH, lab	PHLAB	S. U.	MGC-GC	6.5-9.5 ^A	6.5-9 ^B	-	7.20	7.04	8.05	8.04	7.86	8.12	-	8.23	-	8.19	nc	-	5.35 ^{AB}	-	
N	Phenols-4AAP	64743-03-9-4AAP	mg/L	MGC-GC	n/v	n/v	-	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	<0.0010	nc	-	<0.0010	-	
D	Phosphorus, Dissolved Organic	7723-14-0TOTAL	mg/L	MGC-GC	n/v	n/v	-	<0.004	<0.004	-	-	-	<0.004	<0.004	-	<0.004	-	<0.004	nc	-	-	-
N	Reactive Silica (SiO2)	7631-86-9-REAC	mg/L	MGC-GC	n/v	n/v	-	4.5	6.9	8.9	9.4	10	9.6	-	10	-	10	0%	-	3.7	-	
N	Saturation pH (at 20 C)	SATPH20	none	MGC-GC	n/v	n/v	-	9.25	9.31	7.58	7.55	7.49	7.69	-	7.43	-	7.43	nc	-	10.4	-	
N	Saturation pH (at 4 C)	SATPH4	none	MGC-GC	n/v	n/v	-	9.51	9.56	7.83	7.81	7.74	7.94	-	7.68	-	7.68	nc	-	10.6	-	
N	Sulfate	14808-79-8	mg/L	MGC-GC	n/v	1,280 ^B	-	1.2	2.4	6.8	6.1	7.6	4.1	-	5.5	5.0	6.4	15%	-	2.8	-	
N	Sulfide	18496-25-8	mg/L	MGC-GC	n/v	n/v	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	-	<0.020	-	<0.020	nc	<0.020	0.031	-	
D	Total Dissolved Solids (Calculated)	TDS-CALC	mg/L	MGC-GC	n/v	n/v	-	30	32	160	160	170	140	-	190	-	190	0%	-	25	-	
T	Total Organic Carbon	7440-44-0-ORG	mg/L	MGC-GC	n/v	n/v	-	<5.0 IA	10 IA	<0.50	0.73	<0.50	<0.50	-	<0.50	-	<0.50	nc	-	39 IA	-	
N	Total Suspended Solids	TSS	mg/L	MGC-GC	15.00 ^A	n/v	-	450 ^A	1,100 ^A	4.0	7.4	10	14	-	8.8	-	6.2	35%	-	4,400 ^A	-	
N	Turbidity, Lab	TURBLAB	NTU	MGC-GC	n/v	n/v	-	510	530	2.0	0.66	0.30	15	-	2.3	-	7.2	103%	-	>1000	>1000	
	Fluoride		mg/L			1.2																
Metals																						
D	Aluminum	7429-90-5	µg/L	MGC-MET	n/v	50 ^B	-	4.96	5.52	<5.0	6.6	5.9	2.91	-	1.67	-	1.56	nc	-	890 ^B	-	
D	Antimony	7440-36-0	µg/L	MGC-MET	n/v	90 ^B	-	<0.020	<0.020	<1.0	<1.0	<1.0	0.020	-	0.027	-	0.028	nc	-	1.0	-	
D	Arsenic	7440-38-2	µg/L	MGC-MET	100 ^A	50 ^B	-	0.151	0.054	<1.0	<1.0	<1.0	0.090	-	0.131	-	0.126	4%	-	64 ^B	-	
D	Barium	7440-39-3	µg/L	MGC-MET	n/v	10,000 ^B	-	47.8	59.4	8.7	10	12	8.10	-	13.3	-	13.0	2%	-	17	-	
D	Beryllium	7440-41-7	µg/L	MGC-MET	n/v	1.5 ^B	-	<0.010	<0.010	<2.0	<2.0	<2.0	<0.010	-	<0.010	-	<0.010	nc	-	<0.10	-	
D	Bismuth	7440-69-9	µg/L	MGC-MET	n/v	n/v	-	<0.0050	<0.0050	<2.0	<2.0	<2.0	<0.0050	-	<0.0050	-	<0.0050	nc	-	<2.0	-	
D	Boron	7440-42-8	µg/L	MGC-MET	n/v	15,000 ^B	-	<5.0	<5.0	<50	<50	<50	<5.0	-	<5.0	-	<5.0	nc	-	<50	-	
D	Cadmium	7440-43-9	µg/L	MGC-MET	n/v	0.9 ^B	-	0.0475	0.0291	<0.010	<0.010	<0.010	<0.0050	-	<0.0050	-	<0.0050	nc	-	0.52	-	
D	Calcium	7440-70-2	µg/L	MGC-MET	n/v	n/v	-	7,410	-	47,000	49,000	55,000	34,000	-	-	-	-	-	-	3,800	-	
D	Calcium	7440-70-2	mg/L	MGC-MET	n/v	n/v	-	-	5.39	-	-	-	-	-	55.0	-	54.3	1%	-	-	-	
D	Chromium	7440-47-3	µg/L	MGC-MET	n/v	89 ^B	-	1.99	0.29	<1.0	<1.0	<1.0	2.68	-	0.16	-	<0.10	nc	-	1.4	-	
D	Cobalt	7440-48-4	µg/L	MGC-MET	n/v	10 ^B	-	2.16	1.36	<0.40	<0.40	<0.40	0.0185	-	0.0103	-	0.0091	nc	-	9.6	-	
D	Copper	7440-50-8	µg/L	MGC-MET	100 ^A	100 ^A	-	10.3	22.2 ^B	<0.50	<0.50	<0.50	0.833	-	0.848	-	0.669	24%	-	79 ^B	-	
D	Iron	7439-89-6	µg/L	MGC-MET	n/v	3,000 ^B	-	2.0	7.1	<50	<50	<50	5.2	-	<1.0	-	<1.0	nc	-	2,800	-	
D	Lead	7439-92-1	µg/L	MGC-MET	80 ^A	10 ^B	-	0.0201	<0.0050	<0.50	<0.50	<0.50	<0.0050	-	<0.0050	-	<0.0050	nc	-	7.1	-	
D	Lithium	7439-93-2	µg/L	MGC-MET	n/v	n/v	-	<0.50	<0.50	-	-	-	<0.50	-	<0.50	-	<0.50	nc	-	-	-	
D	Magnesium	7439-95-4	µg/L	MGC-MET	n/v	n/v	-	1,500	-	5,400	6,000	7,000	4,020	-	-	-	-	-	-	1,300	-	
D	Magnesium	7439-95-4	mg/L	MGC-MET	n/v	n/v	-	-	1.08	-	-	-	-	-	6.42	-	6.36	1%	-	-	-	
D	Manganese	7439-96-5	µg/L	MGC-MET	n/v	4,300 ^B	-	40.2	12.4	<2.0	<2.0	<2.0	1.15	-	0.894	-	0.746	18%	-	330	-	
D	Mercury	7439-97-6	µg/L	MGC-MET	n/v	0.26 ^B	-	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	-	<0.013	-	<0.013	nc	-	<0.023 EHG	-	
D	Molybdenum	7439-98-7	µg/L	MGC-MET	n/v	730 ^B	-	3.71	0.680	2.9	6.3	2.4	2.89	-	1.85	-	1.74	6%	-	2.7	-	
D	Nickel	7440-02-0	µg/L	MGC-MET	250 ^A	250 ^B	-	4.52	1.07	<2.0	<2.0	<2.0	0.788	-	0.281	-	0.126	76%	-	15	-	
D	Phosphorus	7723-14-0	µg/L	MGC-MET	n/v	n/v	-	2.1	<2.0	<100	<100	<100	<2.0	-	<2.0	-	2.1	nc	-	120	-	
D	Potassium	7440-09-7	µg/L	MGC-MET	n/v	n/v	-	149	-	300	310	320	199	-	-	-	-	-	-	1,700	-	
D	Potassium	7440-09-7	mg/L	MGC-MET	n/v	n/v	-	-	0.123	-	-	-	-	-	0.317	-	0.308	3%	-	-	-	
D	Selenium	7782-49-2	µg/L	MGC-MET	n/v	10 ^B	-	<0.040	<0.040	<0.50	<0.50	<0.50	<0.040	-	<0.040	-	<0.040	nc	-	<0.50	-	
D	Silicon	7440-21-3	µg/L	MGC-MET	n/v	n/v	-	3.830	3.370	-	-	-	3.440	-	5.000	-	4.940	1%	-	-	-	
D	Silver	7440-22-4	µg/L	MGC-MET	n/v	2.5 ^B	-	0.0110	0.0745	<0.10	<0.10	<0.10	<0.0050	-	<0.0050	-	<0.0050	nc	-	<0.10	-	
D	Sodium	7440-23-5	µg/L	MGC-MET	n/v	n/v	-	3.050	-	3.600	4,100	4,200	2,410	-	-	-	-	-	-	1,900	-	
D	Sodium	7440-23-5	mg/L	MGC-MET	n/v	n/v	-	-	2.66	-	-	-	-	-	3.72	-	3.59	4%	-	-	-	
D	Strontium	7440-24-6	µg/L	MGC-MET	n/v	210,000 ^B	-	16.6	14.5	67	81	82	51.7	-	80.6	-	80.0	1%	-	8.7	-	
D	Sulfur	7704-34-9	µg/L	MGC-MET	n/v	n/v	-	<3,000	-	-	-	-	<3,000	-	-	-	-	-	-	-	-	
D	Sulfur	7704-34-9	mg/L	MGC-MET	n/v	n/v	-	-	<3.0	-	-	-	-	-	<3.0	-	<3.0	nc	-	-	-	
D	Thallium	7440-28-0	µg/L	MGC-MET	n/v	8 ^B	-	<0.0020	0.0031	<0.10	<0.10	<0.10	<0.0020	-	0.0020	-	<0.0020	nc	-	<0.10	-	
D	Tin	7440-31-5	µg/L	MGC-MET	n/v	n/v	-	<0.20	<0.20	<2.0	<2.0	<2.0	<0.20	-	<0.20	-	<0.20	nc	-	<2.0	-	
D	Titanium	7440-32-6</																				

Table B.1 Groundwater Sampling Chemistry Analytical Results

Based on original Stantec file:
20240620-121417803-GW Analytical-NV.xlsx;
chemical analytical data for Berry Pit area 2022 monitoring wells
added with no other modifications to data/guideline screening on
original table.

	Sample Location						19-MW7	19-MW7	19-MW7	19-MW7	19-MW7	19-MW7	19-MW8	19-MW8	19-MW8	19-MW8	19-MW8	19-MW8	19-MW8	19-MW8
	Sample Date						28-Mar-23	28-Mar-23	16-Jul-23	16-Jul-23	10-Dec-23	11-May-24	11-Dec-22	11-Dec-22	28-Mar-23	28-Mar-23	16-Jul-23	16-Jul-23	10-Dec-23	10-Dec-23
Total/Dissolved	Sample Type		Units		MDMER	Atlantic RBCA		Lab Replicate		Lab Replicate				Lab Replicate		Lab Replicate		Lab Replicate		Lab Replicate
General Chemistry																				
N	Alkalinity, Carbonate (as CaCO3)	ALKCARB	mg/L	MGC-GC	n/v	n/v	<1.0	-	<1.0	-	<1.0	<1.0	1.6	-	1.3	-	1.2	-	1.5	-
N	Alkalinity, Total (as CaCO3)	ALK	mg/L	MGC-GC	n/v	n/v	26	-	7.6	-	32	15	130	-	120	-	120	-	120	-
N	Ammonia (as N)	7664-41-7-N	mg/L	MGC-GC	n/v	0.0173/190 _{g,d,via3} ^B	0.25	-	0.19	-	0.069	0.27	0.051	-	<0.050	<0.050	<0.050	-	<0.050	0.097 ^B
N	Anion Sum	ANIONSUM	me/L	MGC-GC	n/v	n/v	0.600	-	0.390	-	0.870	0.420	3.06	-	2.84	-	2.84	-	2.92	3.06
N	Bicarbonate(as CaCO3, Calculated)	71-52-3-CALC	mg/L	MGC-GC	n/v	n/v	26	-	7.6	-	32	15	130	-	120	-	120	-	120	120
N	Cation Sum	CATIONSUM	me/L	MGC-GC	n/v	n/v	0.920	-	0.0200	-	0.580	0.570	3.33	-	3.22	-	3.15	-	3.10	3.05
N	Chloride	16887-00-6	mg/L	MGC-GC	n/v	1.200 ^B	2.6	-	4.3	-	8.2	3.3	2.8	-	2.1	-	3.8	-	2.2	3.3
N	Color	COLOR	color unit (CU)	MGC-GC	n/v	n/v	290	-	610	-	370	350	<5.0	-	<5.0	-	<5.0	-	<5.0	<5.0
N	Cyanide	57-12-5	mg/L	MGC-GC	0.50 ^A	0.05 ^B	-	-	0.00051	-	<0.00050	0.00050	-	-	-	-	0.00077	-	<0.00050	<0.00050
N	Dissolved Organic Carbon (DOC)	DOC	mg/L	MGC-GC	n/v	n/v	24	-	47 EZ	-	30 EZ	25	1.3	-	0.83	-	<0.50	-	<0.50	<0.50
N	Electrical Conductivity, Lab	CONDLAB	µS/cm	MGC-GC	n/v	n/v	66	-	45	-	50	53	280	-	290	-	280	-	300	300
D	Hardness (as CaCO3)	HARDNESS	mg/L	MGC-GC	n/v	n/v	33	-	<1.0	-	19.7	20.0	120	-	130	-	130	-	136	134
N	Ion Balance % Difference	IONBAL%	%	MGC-GC	n/v	n/v	21.1	-	90.2	-	20.0	15.2	4.23	-	6.27	-	5.18	-	2.99	0.160
N	Langelier Index (at 20 C)	LANG20	none	MGC-GC	n/v	n/v	-2.20	-	NC	-	-2.83	-2.85	0.402	-	0.323	-	0.282	-	0.408	0.475
N	Langelier Index (at 4 C)	LANG4	none	MGC-GC	n/v	n/v	-2.45	-	NC	-	-3.08	-3.10	0.152	-	0.0730	-	0.0310	-	0.158	0.224
N	Nitrate (as N)	14797-55-8-N	mg/L	MGC-GC	n/v	130 ^B	<0.050	-	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.050	<0.050
N	Nitrate + Nitrite (as N)	14797650/558-N	mg/L	MGC-GC	n/v	n/v	<0.050	-	<0.050	-	<0.050	<0.050	<0.050	-	<0.050	-	<0.050	-	<0.050	<0.050
N	Nitrite (as N)	14797-65-0-N	mg/L	MGC-GC	n/v	0.6 ^B	<0.010	-	<0.010	-	<0.010	<0.010	<0.010	-	<0.010	-	<0.010	-	<0.010	<0.010
N	Orthophosphate (as P)	ORTHOPHOS	mg/L	MGC-GC	n/v	n/v	0.059	-	0.063	-	0.036	0.018	<0.010	-	<0.010	-	<0.010	-	<0.010	<0.010
N	pH, lab	PHLAB	S.U.	MGC-GC	6.5-9.5 ^A	6.5-9 ^B	6.65	-	5.57 ^{AB}	-	6.22 ^{AB}	6.49 ^{AB}	8.12	-	8.05	-	8.02	-	8.10	8.18
N	Phenols-4AAP	64743-03-9-4AAP	mg/L	MGC-GC	n/v	n/v	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	<0.0010	<0.0010	-	<0.0010	-	0.0016	-	<0.0010	<0.0010
D	Phosphorus, Dissolved Organic	7723-14-0TOTAL	mg/L	MGC-GC	n/v	n/v	-	-	-	-	0.032	0.021	-	-	-	-	-	-	<0.004	<0.004
N	Reactive Silica (SiO2)	7631-86-9-REAC	mg/L	MGC-GC	n/v	n/v	6.2	-	10	-	5.4	4.8	13	-	13	-	13	-	11	11
N	Saturation pH (at 20 C)	SATPH20	none	MGC-GC	n/v	n/v	8.85	-	NC	-	9.05	9.34	7.72	-	7.73	-	7.74	-	7.70	7.70
N	Saturation pH (at 4 C)	SATPH4	none	MGC-GC	n/v	n/v	9.10	-	NC	-	9.30	9.59	7.97	-	7.98	-	7.99	-	7.95	7.95
N	Sulfate	14808-79-8	mg/L	MGC-GC	n/v	1.280 ^B	<2.0	-	5.3	-	<20 NI	1.5	15	-	14	-	16	-	18	22
N	Sulfide	18496-25-8	mg/L	MGC-GC	n/v	n/v	0.11	-	0.13	-	0.11	0.059	0.15	-	0.031	-	0.12	-	<0.020	0.13
D	Total Dissolved Solids (Calculated)	TDS-CALC	mg/L	MGC-GC	n/v	n/v	44	-	25	-	45	30	180	-	170	-	160	-	160	170
T	Total Organic Carbon	7440-44-0-ORG	mg/L	MGC-GC	n/v	n/v	<50 IA	-	<50 IA	-	<500 IA	<50 IA	1.3	-	0.67	-	<0.50	<0.50	<0.50	1.4
N	Total Suspended Solids	TSS	mg/L	MGC-GC	15.00 ^A	n/v	2,600 ^A	-	2,200 ^A	-	13,000 ^A	16,000 ^A	2.4	-	2.6	-	8.4	-	7.2	55 ^A
N	Turbidity, Lab	TURBLAB	NTU	MGC-GC	n/v	n/v	670	-	>1000	-	> 1,000	> 1,000	0.52	0.63	0.81	-	0.69	-	3.5	1.6
	Fluoride		mg/L			1.2														
Metals																				
D	Aluminum	7429-90-5	µg/L	MGC-MET	n/v	50 ^B	540 ^B	-	<5.0	-	618 ^B	479 ^B	<5.0	-	<5.0	-	7.5	-	1.98	1.80
D	Antimony	7440-36-0	µg/L	MGC-MET	n/v	90 ^B	<1.0	-	<1.0	-	1.71	2.01	<1.0	-	<1.0	-	<1.0	-	0.142	0.142
D	Arsenic	7440-38-2	µg/L	MGC-MET	100 ^A	50 ^B	13	-	<1.0	-	32.0	34.9	1.4	-	2.3	-	1.2	-	1.35	0.856
D	Barium	7440-39-3	µg/L	MGC-MET	n/v	10,000 ^B	12	-	<1.0	-	10.0	9.40	60	-	62	-	57	-	57.5	59.2
D	Beryllium	7440-41-7	µg/L	MGC-MET	n/v	1.5 ^B	<0.10	-	<0.10	-	0.040	0.029	<0.10	-	<0.10	-	<0.10	-	<0.010	<0.010
D	Bismuth	7440-69-9	µg/L	MGC-MET	n/v	n/v	<2.0	-	<2.0	-	0.132	0.141	<2.0	-	<2.0	-	<2.0	-	<0.0050	<0.0050
D	Boron	7440-42-8	µg/L	MGC-MET	n/v	15,000 ^B	<50	-	<50	-	<5.0	<5.0	<50	-	<50	-	<50	-	<5.0	5.1
D	Cadmium	7440-43-9	µg/L	MGC-MET	n/v	0.9 ^B	0.28	-	<0.010	-	0.568	0.444	<0.010	-	<0.010	-	<0.010	-	<0.0050	<0.0050
D	Calcium	7440-70-2	µg/L	MGC-MET	n/v	n/v	11,000	-	<100	-	5,680	-	35,000	-	36,000	-	36,000	-	38,700	-
D	Calcium	7440-70-2	mg/L	MGC-MET	n/v	n/v	-	-	-	-	-	6.14	-	-	-	-	-	-	-	38.1
D	Chromium	7440-47-3	µg/L	MGC-MET	n/v	89 ^B	<1.0	-	<1.0	-	1.44	0.90	<1.0	-	<1.0	-	<1.0	-	<0.10	<0.10
D	Cobalt	7440-48-4	µg/L	MGC-MET	n/v	10 ^B	6.0	-	<0.40	-	6.23	6.46	0.67	-	<0.40	-	<0.40	-	0.763	0.533
D	Copper	7440-50-8	µg/L	MGC-MET	100 ^A	20 ^B	31 ^B	-	<0.50	-	68.3 ^B	51.2 ^B	<0.50	-	<0.50	-	0.58	-	0.962	0.938
D	Iron	7439-89-6	µg/L	MGC-MET	n/v	3,000 ^B	3,700 ^B	-	<50	-	2,280	2,110	<50	-	<50	-	<50	-	<1.0	<1.0
D	Lead	7439-92-1	µg/L	MGC-MET	80 ^A	10 ^B	4.3	-	<0.50	-	6.22	5.18	<0.50	-	<0.50	-	<0.50	-	<0.0050	<0.0050
D	Lithium	7439-93-2	µg/L	MGC-MET	n/v	n/v	-	-	-	-	1.97	1.20	-	-	-	-	-	-	<0.50	<0.50
D	Magnesium	7439-95-4	µg/L	MGC-MET	n/v	n/v	1,500	-	<100	-	1,340	-	8,800	-	9,500	-	10,000	-	9,620	-
D	Magnesium	7439-95-4	mg/L	MGC-MET	n/v	n/v	-	-	-	-	-	1.13	-	-	-	-	-	-	-	9.42
D	Manganese	7439-96-5	µg/L	MGC-MET	n/v	4,300 ^B	640	-	<2.0	-	329	338	200	-	260	-	190	-	114	111
D	Mercury	7439-97-6	µg/L	MGC-MET	n/v	0.26 ^B	<0.013	-	<0.013	-	<0.013	<0.013	<0.018 EHG	-	<0.013	-	<0.013	-	<0.013	<0.013
D	Molybdenum	7439-98-7	µg/L	MGC-MET	n/v	730 ^B	<2.0	-	<2.0	-	2.50	3.26	20	-	22	-	22	-	21.4	20.6
D	Nickel	7440-02-0	µg/L	MGC-MET	250 ^A	250 ^B	8.2	-	<2.0	-	8.81	9.13	<2.0	-	<2.0	-	<2.0	-	0.313	0.289
D	Phosphorus	7723-14-0	µg/L	MGC-MET	n/v	n/v	<100	-	<100	-	38.0	20.4	<100	-	<100	-	<100	-	<2.0	<2.0
D	Potassium	7440-09-7	µg/L	MGC-MET	n/v	n/v	1,000	-	<100	-	956	-	1,400	-	1,300	-	1,300	-	1,430	-
D	Potassium	7440-09-7	mg/L	MGC-MET	n/v	n/v	-	-	-	-	-	0.763	-	-	-	-	-	-	-	1.43
D	Selenium	7782-49-2	µg/L	MGC-MET	n/v	10 ^B	<0.50	-	<0.50	-	0.387	0.346	<0.50	-	<0.50	-	<0.50	-	<0.040	<0.040
D	Silicon	7440-21-3	µg/L	MGC-MET	n/v	n/v	-	-	-	-	2,800	2,310	-	-	-	-	-	-	5,980	5,870
D	Silver	7440-22-4	µg/L	MGC-MET	n/v	2.5 ^B	<0.10	-	<0.10	-	0.0172	0.0239	<0.10	-	<0.10	-	<0.10	-	<0.0050	<0.0050
D	Sodium	7440-23-5	µg/L	MGC-MET	n/v	n/v	1,800	-	<100	-	1,550	-	19,000	-	14,000	-	11,000	-	7,710	-
D	Sodium	7440-23-5	mg/L	MGC-MET	n/v	n/v	-	-	-	-	-	1.19	-	-	-	-	-	-	-	7.49
D	Strontium	7440-24-6	µg/L	MGC-MET	n/v	210,000 ^B	18	-	<2.0	-	10.7	11.5	180	-	190	-	180	-	182	206
D	Sulfur	7704-34-9	µg/L	MGC-MET	n/v	n/v	-	-	-	-	<3,000	-	-	-	-	-	-	-	6,500	-
D	Sulfur	7704-34-9	mg/L	MGC-MET	n/v	n/v	-	-	-	-	-	<3.0	-	-	-	-	-	-	-	7.2
D	Thallium	7440-28-0	µg/L	MGC-MET	n/v	8 ^B	<0.10	-	<0.10	-	0.0211	0.0122	<0.10	-	<0.10	-	<0.10	-	<0.0020	<0.0020
D	Tin	7440-31-5	µg/L	MGC-MET	n/v	n/v	<2.0	-	<2.0	-	<0.20	<0.20	<2.0	-	<2.0	-	<2.0	-	<0.20	<0.20

Notes:

MDMER	Metal and Diamond Mining Effluent Regulations (SOR/2002-222 Last amended on June 9, 2023)
A	Schedule 4 - Maximum Authorized Concentrations of Prescribed Deleterious Substances - Table 1 - Maximum Authorized Monthly Mean Concentration
Atlantic RBCA	Atlantic RBCA Environmental Quality Standards and Pathway Specific Standards (July 2021)
B	Ecological Tier II Pathway-Specific Standards (PSS) for Groundwater (> 10 metres from Surface Water Body) - Freshwater
6.5 ^A	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
e,d,var3	Guideline is the lowest of all applicable pathways. / The freshwater aquatic life guidelines vary depending on water pH, hardness etc. Therefore, see Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME 1999) to determine the appropriate water quality guideline applicable to the site and calculate the groundwater guidelines using formulas provided in Appendix B. /
>	Ammonia is pH and temperature dependent, see CCME guidelines for further instructions. CCME provides the guideline as ammonia (as NH ₃), and was converted to ammonia (as N) by multiplying the guideline by 0.8224. Greater than.
EHG	Elevated reporting limit for mercury due to low sample volume used in the digestion. Insufficient sample for re-digest.
EZ	Elevated reporting limit due to sample matrix.
IA	Reporting limit was increased due to turbidity.
NC	Not calculated.
NI	Due to colour interferences, sample required dilution. Detection limit was adjusted accordingly.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 40%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table B.2 Summary Statistics for Groundwater Samples Collected from Monitoring Wells Completed in the Overburden and Shallow Bedrock

Total/ Dissolved	Parameter	Units	Guideline		Sample Size	Minimum	Median	Maximum	Average
			MDMER	Atlantic RBCA					
General Chemistry									
N	Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	17	0.5	0.5	5	1.6
N	Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	17	2.2	18	124	35
N	Ammonia (as N)	mg/L	n/v	0.0173/190 _{e,d,var3} ^B	17	0.02	0.03	0.29	0.10
N	Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	14	2.2	16.5	124	25.1
N	Chloride	mg/L	n/v	1,200 ^B	17	1.1	3.5	8.2	3.7
N	Color	color unit (CU)	n/v	n/v	17	2.5	2.5	610.0	127.6
N	Cyanide	mg/L	0.50 ^A	0.05 ^B	9	0.0003	0.0003	0.0005	0.0003
N	Dissolved Organic Carbon (DOC)	mg/L	n/v	n/v	13	0.25	0.70	47.00	13.09
N	Electrical Conductivity, Lab	µS/cm	n/v	n/v	17	40	59	723	127
D	Hardness (as CaCO3), Dissolved	mg/L	n/v	n/v	17	0.5	19.6	113	32.1
N	Nitrate (as N)	mg/L	n/v	130 ^B	17	0.03	0.03	0.27	0.07
N	Nitrate + Nitrite (as N)	mg/L	n/v	n/v	17	0.03	0.03	0.27	0.07
N	Nitrite (as N)	mg/L	n/v	0.6 ^B	17	0.01	0.01	0.03	0.01
N	Orthophosphate (as P)	mg/L	n/v	n/v	17	0.01	0.01	0.08	0.02
N	pH, lab	S.U.	6.5-9.5 ^A	6.5-9 ^B	17	5.35	6.72	7.76	6.70
N	Phenols-4AAP	mg/L	n/v	n/v	13	0.0005	0.0005	0.0017	0.0006
D	Phosphorus, Dissolved Organic	mg/L	n/v	n/v	6	0.002	0.004	0.03	0.01
N	Reactive Silica (SiO2)	mg/L	n/v	n/v	17	3.7	7.3	10	7.0
N	Saturation pH (at 20 C)	none	n/v	n/v	16	7.84	9.25	10.40	9.06
N	Saturation pH (at 4 C)	none	n/v	n/v	16	8.16	9.53	10.60	9.33
N	Sulfate	mg/L	n/v	1,280 ^B	17	0.50	2.40	16	4.49
N	Sulfide	mg/L	n/v	n/v	13	0.01	0.01	0.13	0.04
D	Total Dissolved Solids (Calculated)	mg/L	n/v	n/v	13	25	32	47	34
T	Total Organic Carbon	mg/L	n/v	n/v	16	0.25	3.6	250	22.44
N	Total Suspended Solids	mg/L	15.00 ^A	n/v	17	2.5	450	16,000	2,497
N	Turbidity, Lab	NTU	n/v	n/v	17	1.5	78.0	670	255.4
D	Fluoride	mg/L			4	0.06	0.06	0.06	0.06
Metals									
D	Aluminum	µg/L	n/v	50 ^B	17	2.5	15.9	890	158.6
D	Antimony	µg/L	n/v	90 ^B	17	0.01	0.50	2.01	0.57
D	Arsenic	µg/L	100 ^A	50 ^B	17	0.05	0.5	64	8.9
D	Barium	µg/L	n/v	10,000 ^B	17	0.5	10.2	63	20.2
D	Beryllium	µg/L	n/v	1.5 ^B	17	0.01	0.05	0.25	0.09
D	Bismuth	µg/L	n/v	n/v	17	0.003	1.0	1	0.664
D	Boron	µg/L	n/v	15,000 ^B	17	2.5	5	25	12.8
D	Cadmium	µg/L	n/v	0.9 ^B	17	0.01	0.05	0.57	0.13
D	Calcium	µg/L	n/v	n/v	17	50	6,140	41,000	10,974
D	Chromium	µg/L	n/v	89 ^B	17	0.05	0.50	1.99	0.72
D	Cobalt	µg/L	n/v	10 ^B	17	0.03	1.36	9.60	2.43
D	Copper	µg/L	100 ^A	20 ^B	17	0.25	4.10	79.00	17.25
D	Iron	µg/L	n/v	3,000 ^B	17	1.10	25	3,700	663.95
D	Lead	µg/L	80 ^A	10 ^B	17	0.003	0.3	7.1	1.5
D	Lithium	µg/L	n/v	n/v	6	0.25	0.25	1.97	0.70
D	Magnesium	µg/L	n/v	n/v	17	50	1,080	2,500	1,139
D	Manganese	µg/L	n/v	4,300 ^B	17	1	150	640	206
D	Mercury	µg/L	n/v	0.26 ^B	17	0.01	0.01	0.01	0.01
D	Molybdenum	µg/L	n/v	730 ^B	16	0.06	1.00	7.40	2.21
D	Nickel	µg/L	250 ^A	250 ^B	17	0.5	1.1	15	4.1
D	Phosphorus	µg/L	n/v	n/v	17	0.03	20.4	120	28.65
D	Potassium	µg/L	n/v	n/v	17	50	160	1,700	461
D	Selenium	µg/L	n/v	10 ^B	17	0.02	0.25	0.39	0.16
D	Silicon	µg/L	n/v	n/v	6	2,310	3,325	3,830	3,230
D	Silver	µg/L	n/v	2.5 ^B	17	0.01	0.05	0.12	0.05
D	Sodium	µg/L	n/v	n/v	17	50	2,630	19,100	4,972
D	Strontium	µg/L	n/v	210,000 ^B	17	1	17	73	23

Table B.2 Summary Statistics for Groundwater Samples Collected from Monitoring Wells Completed in the Overburden and Shallow Bedrock

Total/ Dissolved	Parameter	Units	Guideline		Sample Size	Minimum	Median	Maximum	Average
			MDMER	Atlantic RBCA					
D	Sulfur	µg/L	n/v	n/v	6	1,500	1,500	1,500	1,500
D	Thallium	µg/L	n/v	8 ^B	17	0.001	0.05	0.15	0.06
D	Tin	µg/L	n/v	n/v	17	0.10	1.00	1.93	0.79
D	Titanium	µg/L	n/v	n/v	17	0.25	1.00	21	4.28
D	Uranium	µg/L	n/v	150 ^B	17	0.001	0.05	1.59	0.32
D	Vanadium	µg/L	n/v	1,200 ^B	17	0.1	1.00	7	1.4
D	Zinc	µg/L	400 ^A	70 ^B	17	1.49	2.5	440	44.83
D	Zirconium	µg/L	n/v	n/v	6	0.05	0.05	1.21	0.36
Radionuclides									
N	Radium-226	Bq/L	0.37 ^A	n/v	13	0.003	0.01	0.30	0.04

Table B.3 Summary Statistics for Groundwater Samples Collected from Monitoring Wells Completed in the Deeper Bedrock

Total/ Dissolved	Parameter	Units	Guideline		Sample Size	Minimum	Maximum	Average	Median
			MDMER	Atlantic RBCA					
General Chemistry									
N	Alkalinity, Carbonate (as CaCO3)	mg/L	n/v	n/v	12	0.5	104	10.3	1.6
N	Alkalinity, Total (as CaCO3)	mg/L	n/v	n/v	12	119	170	132	130
N	Ammonia (as N)	mg/L	n/v	0.0173/190 _{e,d,var3} ^B	12	0.025	2.78	0.267	0.025
N	Bicarbonate(as CaCO3, Calculated)	mg/L	n/v	n/v	10	120	160	131	130
N	Chloride	mg/L	n/v	1,200 ^B	12	2.1	14	3.9	3
N	Color	color unit (CU)	n/v	n/v	12	2.5	2.5	2.5	2.5
N	Cyanide	mg/L	0.50 ^A	0.05 ^B	6	0.00025	0.00077	0.00034	0.00025
N	Dissolved Organic Carbon (DOC)	mg/L	n/v	n/v	10	0.25	1.3	0.46	0.25
N	Electrical Conductivity, Lab	µS/cm	n/v	n/v	12	270	416	303	290
D	Hardness (as CaCO3), Dissolved	mg/L	n/v	n/v	12	10.9	170	127	135
N	Nitrate (as N)	mg/L	n/v	130 ^B	12	0.025	0.150	0.062	0.025
N	Nitrate + Nitrite (as N)	mg/L	n/v	n/v	12	0.025	0.150	0.063	0.025
N	Nitrite (as N)	mg/L	n/v	0.6 ^B	12	0.005	0.025	0.009	0.005
N	Orthophosphate (as P)	mg/L	n/v	n/v	11	0.005	0.005	0.005	0.005
N	pH, lab	S.U.	6.5-9.5 ^A	6.5-9 ^B	12	7.84	10.11	8.23	8.075
N	Phenols-4AAP	mg/L	n/v	n/v	10	0.0005	0.0016	0.0006	0.0005
D	Phosphorus, Dissolved Organic	mg/L	n/v	n/v	4	0.002	0.002	0.002	0.002
N	Reactive Silica (SiO2)	mg/L	n/v	n/v	12	7.9	13	10.5	10
N	Saturation pH (at 20 C)	none	n/v	n/v	12	7.43	9.08	7.77	7.7
N	Saturation pH (at 4 C)	none	n/v	n/v	12	7.68	9.4	8.03	7.95
N	Sulfate	mg/L	n/v	1,280 ^B	12	3	29	12	10.8
N	Sulfide	mg/L	n/v	n/v	10	0.01	0.15	0.0491	0.01
D	Total Dissolved Solids (Calculated)	mg/L	n/v	n/v	10	140	190	166	165
T	Total Organic Carbon	mg/L	n/v	n/v	12	0.25	6.1	1.2	0.5
N	Total Suspended Solids	mg/L	15.00 ^A	n/v	12	2.4	55	13.1	8.6
N	Turbidity, Lab	NTU	n/v	n/v	12	0.3	23.8	5.29	1.8
D	Fluoride	mg/L			2	0.06	0.06	0.06	0.06
Metals									
D	Aluminum	µg/L	n/v	50 ^B	12	1.7	127	15.8	2.7
D	Antimony	µg/L	n/v	90 ^B	12	0.02	0.50	0.36	0.50
D	Arsenic	µg/L	100 ^A	50 ^B	12	0.09	2	0.8	0.5
D	Barium	µg/L	n/v	10,000 ^B	12	6.7	62	30.2	12.7
D	Beryllium	µg/L	n/v	1.5 ^B	12	0.01	0.25	0.06	0.01
D	Bismuth	µg/L	n/v	n/v	12	0.003	1	0.668	1.0
D	Boron	µg/L	n/v	15,000 ^B	12	2.5	25	14.4	15
D	Cadmium	µg/L	n/v	0.9 ^B	12	0.00	0.05	0.02	0.01
D	Calcium	µg/L	n/v	n/v	12	3,000	55,000	39,567	38,400
D	Chromium	µg/L	n/v	89 ^B	12	0.05	19.60	2.21	0.50
D	Cobalt	µg/L	n/v	10 ^B	12	0.01	0.76	0.29	0.20
D	Copper	µg/L	100 ^A	20 ^B	12	0.25	2.80	0.91	0.71
D	Iron	µg/L	n/v	3,000 ^B	12	0.50	25	14.81	21
D	Lead	µg/L	80 ^A	10 ^B	12	0.003	0.3	0.2	0.3
D	Lithium	µg/L	n/v	n/v	4	0.25	0.25	0.25	0.25
D	Magnesium	µg/L	n/v	n/v	12	870	10,000	6,705	6,710
D	Manganese	µg/L	n/v	4,300 ^B	12	1	260	80	39
D	Mercury	µg/L	n/v	0.26 ^B	12	0.01	0.01	0.01	0.01
D	Molybdenum	µg/L	n/v	730 ^B	12	1	22	11	9
D	Nickel	µg/L	250 ^A	250 ^B	12	0.2	1	0.8	1.0
D	Phosphorus	µg/L	n/v	n/v	12	0.03	50	25.4	26.2
D	Potassium	µg/L	n/v	n/v	12	199	24,600	2,805	1,025
D	Selenium	µg/L	n/v	10 ^B	12	0.02	0.50	0.22	0.25
D	Silicon	µg/L	n/v	n/v	4	3,440	5,980	4,985	5,260
D	Silver	µg/L	n/v	2.5 ^B	12	0.0025	0.05	0.03	0.05
D	Sodium	µg/L	n/v	n/v	12	2,410	68,700	12,753	7,300
D	Strontium	µg/L	n/v	210,000 ^B	12	52	277	138	131

Table B.3 Summary Statistics for Groundwater Samples Collected from Monitoring Wells Completed in the Deeper Bedrock									
Total/ Dissolved	Parameter	Units	Guideline		Sample Size	Minimum	Maximum	Average	Median
			MDMER	Atlantic RBCA					
D	Sulfur	µg/L	n/v	n/v	4	1,500	7,200	4,175	4,000
D	Thallium	µg/L	n/v	8 ^B	12	0.001	0.15	0.05	0.05
D	Tin	µg/L	n/v	n/v	12	0.10	1.00	0.70	1.00
D	Titanium	µg/L	n/v	n/v	12	0.25	1	0.75	1.00
D	Uranium	µg/L	n/v	150 ^B	12	0.250	6.21	1.12	0.72
D	Vanadium	µg/L	n/v	1,200 ^B	12	0.1	1	0.8	1.00
D	Zinc	µg/L	400 ^A	70 ^B	12	0.64	3	1.91	2.5
D	Zirconium	µg/L	n/v	n/v	4	0.05	0.05	0.05	0.05
Radionuclides									
N	Radium-226	Bq/L	0.37 ^A	n/v	8	0.003	0.01	0.005	0.01

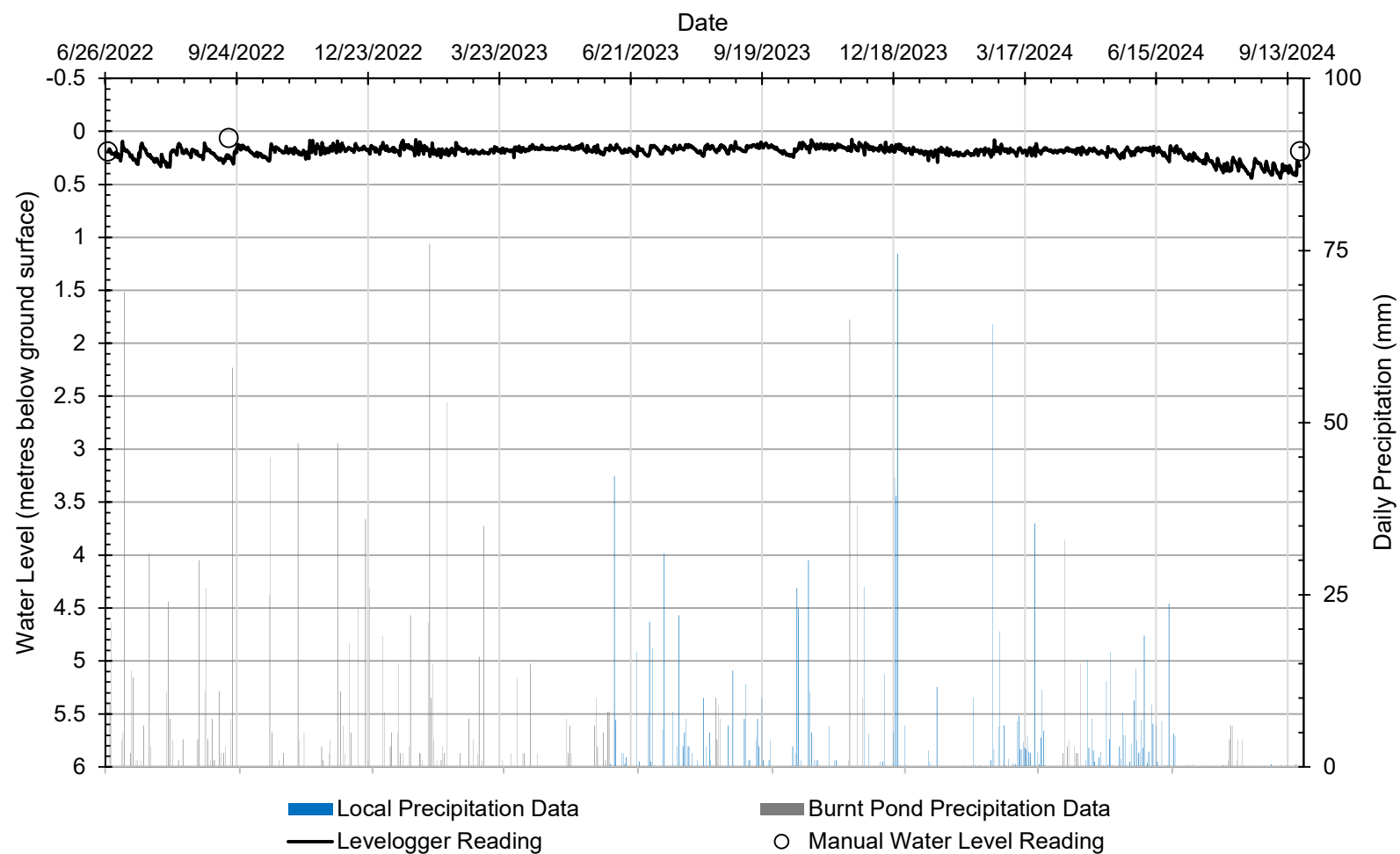


APPENDIX C

Time Series Groundwater Level Hydrographs

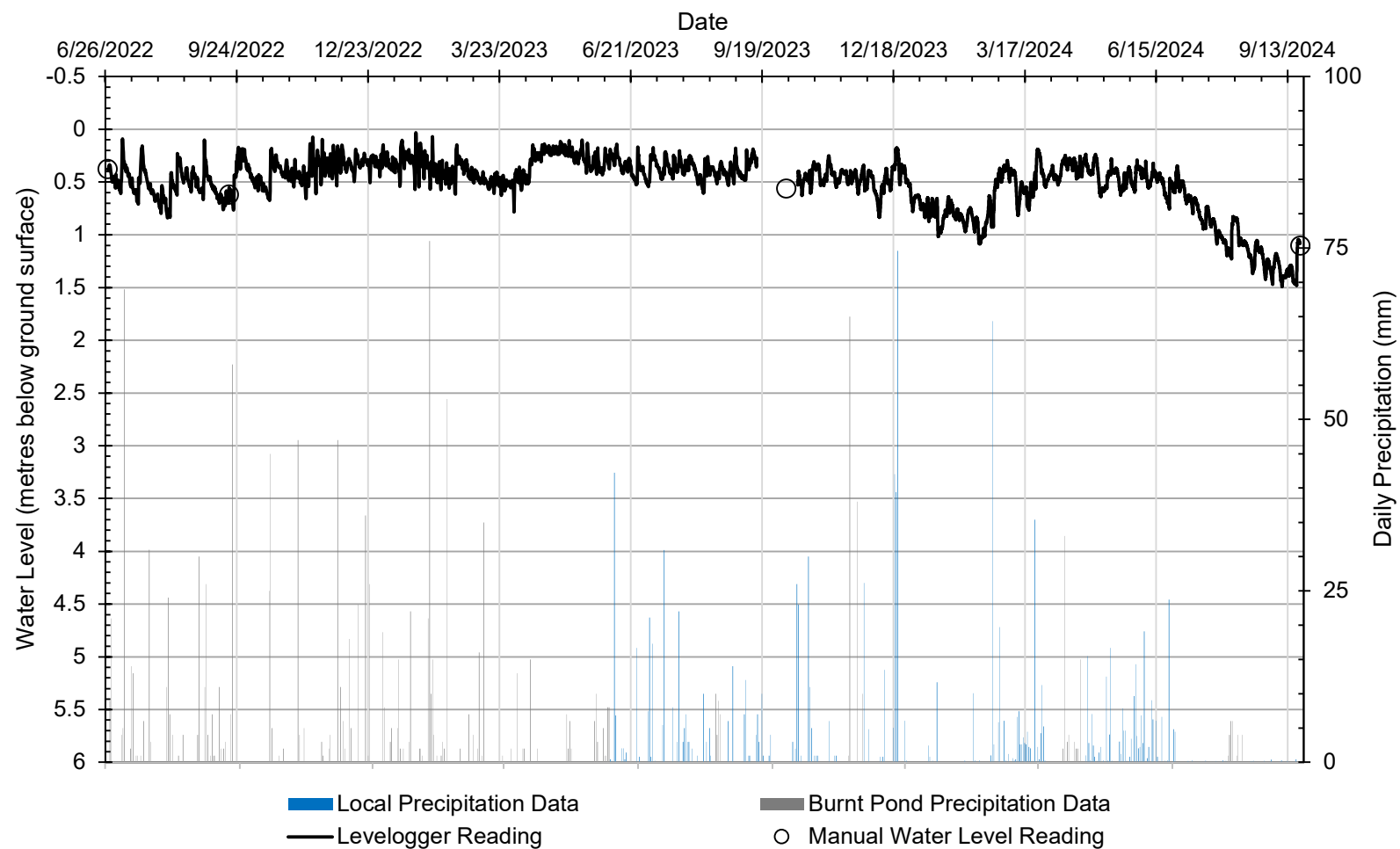
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Project: Updated Baseline Groundwater Quality and Quantity Report, Valentine Gold Project Berry Pit Area, Newfoundland and Labrador



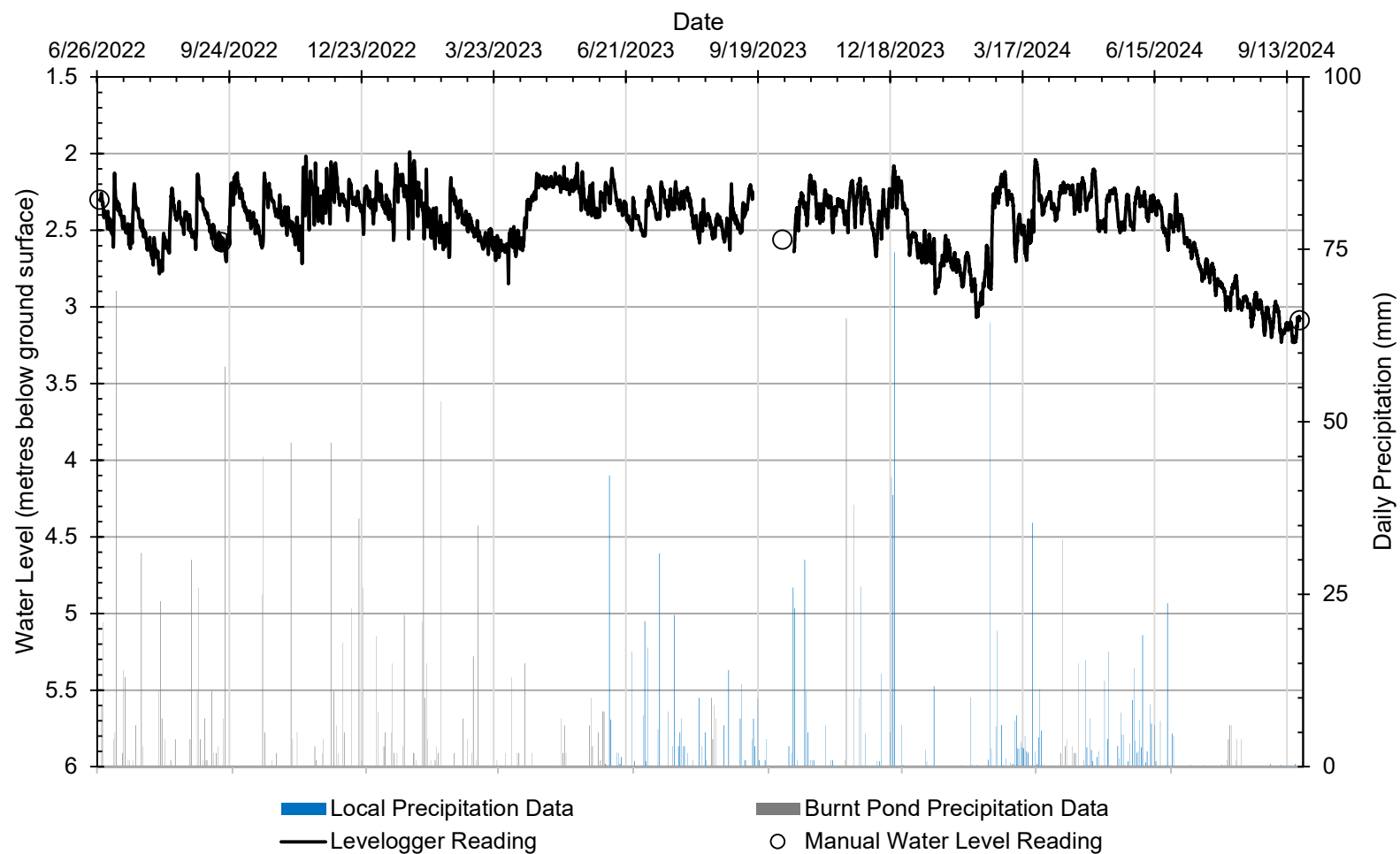
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Project: Updated Baseline Groundwater Quality and Quantity Report, Valentine Gold Project Berry Pit Area, Newfoundland and Labrador



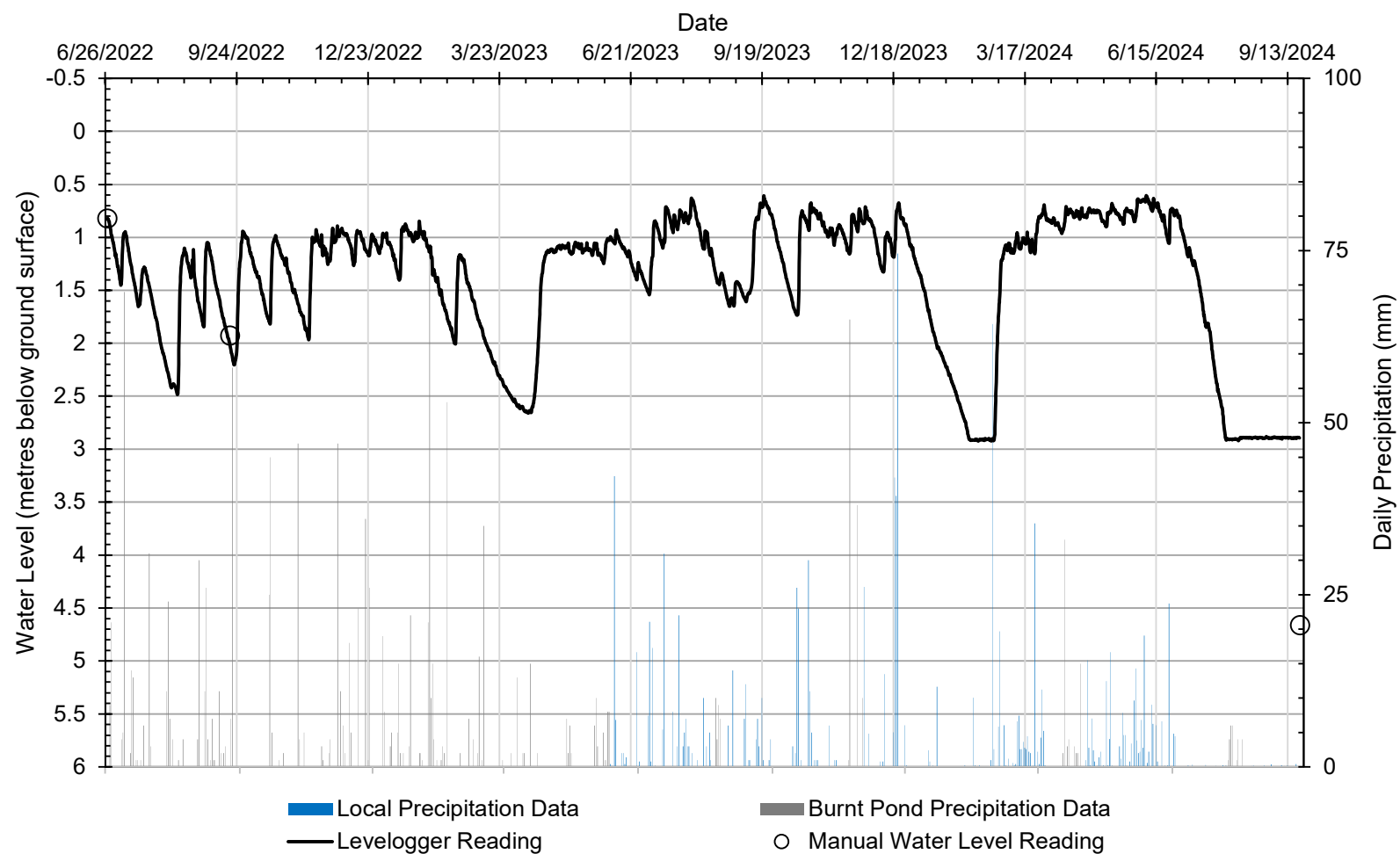
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Project: Updated Baseline Groundwater Quality and Quantity Report, Valentine Gold Project Berry Pit Area, Newfoundland and Labrador



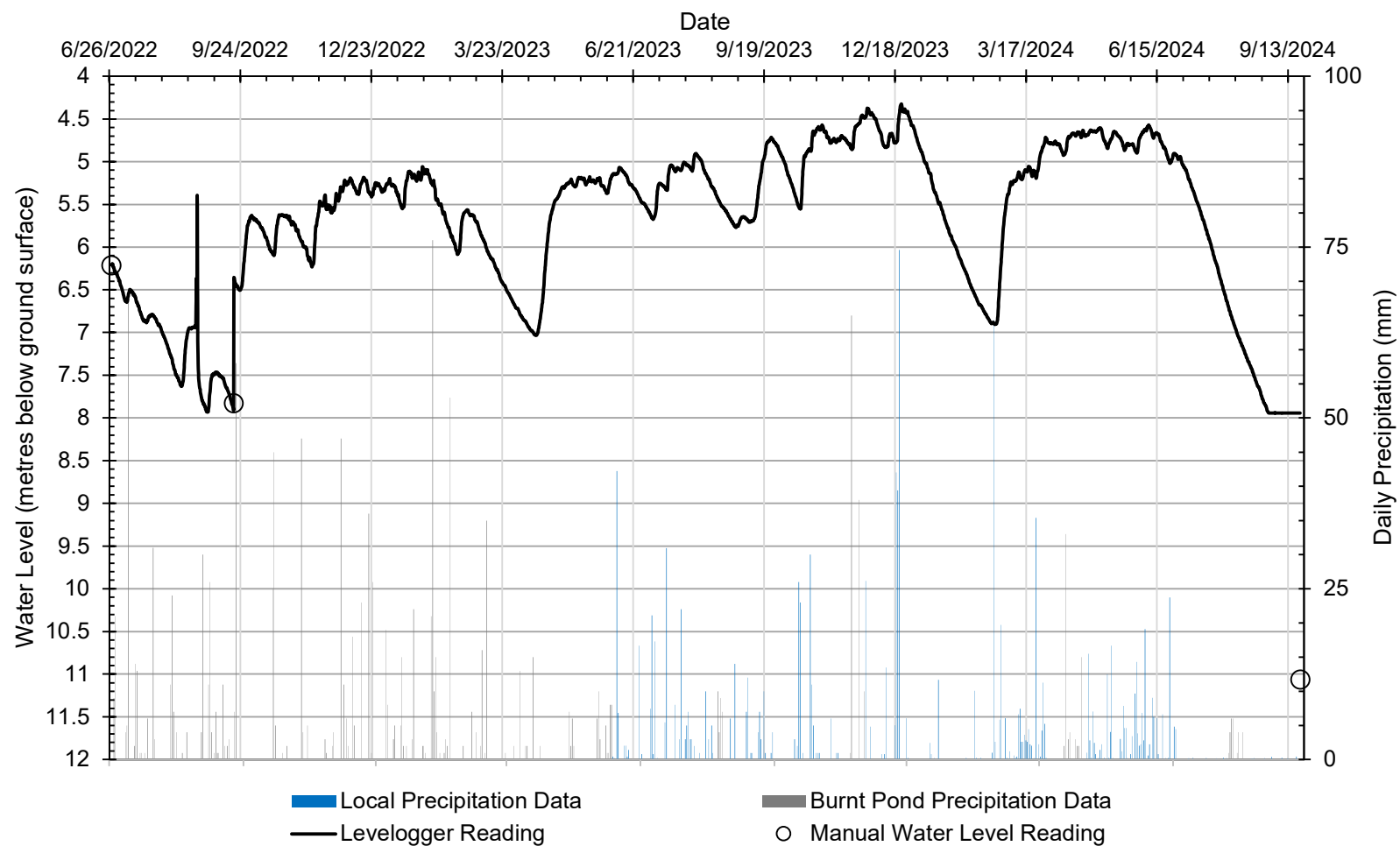
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Project: Updated Baseline Groundwater Quality and Quantity Report, Valentine Gold Project Berry Pit Area, Newfoundland and Labrador



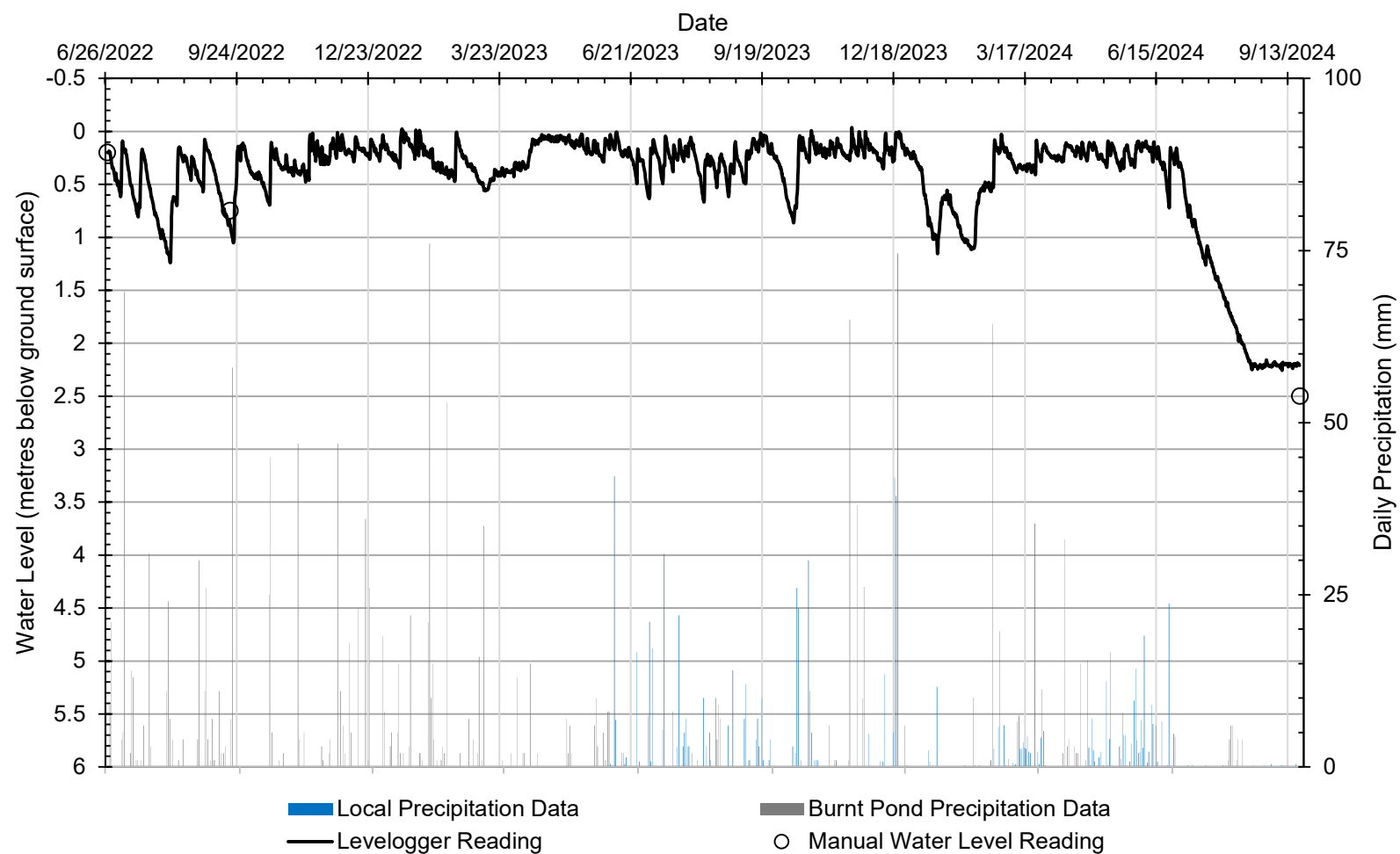
Title: 22BH-04B Long-Term Water Level Data - June 2022 to September 2024

Project: Updated Baseline Groundwater Quality and Quantity Report, Valentine Gold Project Berry Pit Area, Newfoundland and Labrador

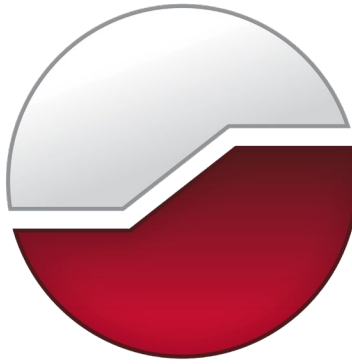


Title: 22BH-07 Long-Term Water Level Data - June 2022 to September 2024

Project: Updated Baseline Groundwater Quality and Quantity Report, Valentine Gold Project Berry Pit Area, Newfoundland and Labrador



experience • knowledge • integrity



civil	civil
geotechnical	géotechnique
environmental	environnement
structural	structures
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité

