



**Final Report: Environmental
Monitoring – Meadowview
Landfill**

2020 Monitoring Program

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1.0 INTRODUCTION

1.1 GENERAL

Stantec Consulting Ltd. (Stantec) was retained by the Municipality of the County of Kings (the Municipality) to perform environmental compliance monitoring at the former Meadowview Landfill (the Site). The 2020 program is comprised of field data collection, analysis, and reporting of groundwater and surface water monitoring, completed in general accordance with Stantec's proposal dated March 28, 2016.

The scope of the 2020 monitoring program differs from previous years and follows the recommendations to reduce the monitoring program (Stantec 2018a) and to add new surface water sampling locations (Stantec 2020) as put forward by Stantec. These scope changes were confirmed with the Municipality and are summarized in Section 1.2.1.

1.2 BACKGROUND

The Town of Kentville established a landfill at the Site in the late 1960s. The Municipality took over operations and continued to operate the landfill until it closed on June 30, 1999. Upon closure, the Municipality implemented a Closure Plan, which drew on specifications outlined in the Site Closure Report (Porter Dillon 1995). The Closure Plan set out the requirements for an environmental monitoring program, which have recently been updated (Section 1.2.1).

1.2.1 Monitoring Plan Updates

The environmental monitoring program for the Site was updated twice during 2017 based on a review of available data and to better align with regulatory requirements (Stantec 2017). As environmental compliance monitoring is no longer required from a regulatory perspective for Class 1 Landfills (as informed by Nova Scotia Environment (NSE)), the need for an ongoing monitoring program was re-examined from a due diligence perspective and Stantec recommended that the Municipality adjust the ongoing monitoring to focus on areas where potential impacts from the Site have been observed.

Groundwater sampling for 2020 was recommended for metals and general chemistry parameters at annual monitoring locations (MW-4A, MW-22A, MW-22B, MW-22C, MW-25B, TH-1) (Stantec 2020).

In our report on the 2018 environmental monitoring program, Stantec recommended two new surface water monitoring locations be added in Palmer Brook for the 2019 program, one downstream and one upstream of SW7 and SW7A, to provide further information on potential interactions between the Site and Palmer Brook (Stantec 2018b). Two new locations were added to the 2019 monitoring plan: SW19A (downstream) and SW19B (upstream); however, SW19A was inaccessible in 2019. Another attempt to sample SW19A was recommended for the 2020 event, (Stantec 2020) but this location remained inaccessible due to thick vegetation and uneven ground. Sampling of SW19B was retained within the 2020 sampling plan.



1.3 SITE DESCRIPTION

The Site is located between Lanzy Road and Brooklyn Street, south of Camp Aldershot in the Town of Kentville, NS (Figure 1, Appendix A), and is described by Service Nova Scotia and Municipal Relations' Property Online as PIDs No. 55047310, 55058325, 55047328, 55047369, 55047351, 55049035, 55047336, and 55047476. The current monitoring locations are situated on land owned by the Municipality and historical monitoring locations are also located on land owned by the Department of National Defence (DND).

The topography of the Site and surrounding areas slopes south towards the Cornwallis River. The landscape surrounding the Site is comprised of forested areas intersected by several roads, with marsh and river habitat to the south.

1.4 REGULATORY FRAMEWORK

The regulatory standards and guidelines used in 2020 were adopted from the 2019 monitoring report and are described in the sections below.

The historical groundwater data presented prior to the 2017 annual monitoring report were screened against the Guidelines for Canadian Drinking Water Quality (GCDWQ) (Health Canada 2019). As described in Stantec's 2017 program review, the Site is no longer considered potable due to the connection of the local dwellings to municipal water supply (Stantec 2017). Therefore, GCDWQ are no longer applied.

Surface water data presented prior to the 2017 annual monitoring report was screened against the Canadian Environmental Quality Guidelines issued by the Canadian Council of Ministers of the Environment (CCME - updates) for Freshwater Aquatic Life (FAL) (CCME 1999).

1.4.1 Groundwater

Groundwater chemistry analytical results are compared to the following specific standards that are applicable to non-potable sites in Nova Scotia, given local soil conditions and the separation distances between monitoring wells and surface water features:

- NS Tier 1 Environmental Quality Standards (EQS) for groundwater (commercial/industrial, non-potable, coarse grained) (Nova Scotia Environment 2013b)
- NS Tier 2 Pathway Specific Standards (PSS) for groundwater >10 m from a fresh surface water body (Nova Scotia Environment 2013a).

1.4.2 Surface Water

Surface water chemistry analytical results are compared to NS Tier 1 EQS for surface water. CCME FAL guidelines are also included for comparison because they include general chemistry parameters that do not have provincial standards. In general, the NS Tier 1 EQS and CCME FAL metals guidelines are identical for common parameters (with some exceptions), but the NS Tier 1 EQS includes a more comprehensive list of parameters.



1.5 OBJECTIVES AND SCOPE

The scope of the 2020 monitoring program generally consisted of:

- groundwater sampling at six monitoring wells (MW)
- surface water sampling at five locations (SW) - six locations were originally planned; however, SW19A was inaccessible.

The locations of current and historical sampling points are shown on Figure 1 (Appendix A). The overall objective of the monitoring program is to track the influence of water emanating from the landfill and identify if concentrations exceed guideline values established to protect relevant receptors. By monitoring the groundwater and surface water over time, trends or changes can be identified and, where necessary, alterations to the monitoring program can be implemented.

2.0 FIELD INVESTIGATION

2.1 HEALTH AND SAFETY

Stantec prepared and reviewed a project specific risk management strategy prior to the commencement of field work. Relevant safe work practices were reviewed by all Stantec staff who completed field work on this project. During field work, a site safety meeting was conducted by Stantec staff each morning at which a last-minute risk assessment (LMRA) was completed and site conditions assessed. This LMRA form identified potential health and safety risks at the Site that might not have been previously identified during project planning. Copies of all signed health and safety documentation are retained by Stantec in the project file. No health and safety incidents occurred while Stantec was on the Site conducting field work.

2.2 METHODOLOGY

Figure 1 (Appendix A) provides the location of all sampling points assessed in 2020, along with historical locations that were not sampled. Field work was conducted on July 16, 2020 and reporting was completed in late 2020. Table 1 provides a summary of laboratory analyses conducted.

Table 1 Meadowview Landfill Monitoring Locations and Analysis

Location	Easting (m)	Northing (m)	General Chemistry and Metals
Groundwater			
MW-4A	380795	4993550	X
MW-22A	380036	4993547	X
MW-22B	380036	4993546	X
MW-22C	380034	4993546	X
MW-23A	379827	4993726	Not sampled in 2020
MW-23B	379828	4993729	Not sampled in 2020



Table 1 Meadowview Landfill Monitoring Locations and Analysis

Location	Easting (m)	Northing (m)	General Chemistry and Metals
Groundwater			
MW-23C	379824	4993728	Not sampled in 2020
MW-25B	380242	4993537	X
MW-29B	380288	4994102	Not sampled in 2020
MW-29C	380291	4994103	Not sampled in 2020
MW-31A	380079	4994174	Not sampled in 2020
TH-1	380612	4993546	X
MW-40D (MW22A field duplicate)	-	-	X
Surface Water			
SW3	380817	4993379	X
SW7	380015	4993519	X
SW7A	380033	4993444	X
SWA	379969	4993211	X
SW19B	379864	4993666	X

2.2.1 Groundwater

Field staff conducted groundwater sampling in general accordance with Stantec’s Standard Operating Procedures (SOPs). Static water levels were measured in each monitoring well from the top of the PVC well casing using a water level probe. Monitoring well conditions were noted and the stickup height was measured from the top of the PVC well casing to ground. Water levels were measured prior to purging or sampling. Each monitoring well was purged using the existing dedicated Waterra tubing and foot valve until dry or three well volumes were removed.

In situ physical water quality parameters of temperature, pH, dissolved oxygen, and conductivity were measured using a YSI 556 multi meter. Qualitative groundwater descriptions of colour, turbidity, and sheen were also recorded by field staff. Metals samples were field filtered using single-use 0.45 µm disposable filters. Samples were collected in laboratory-supplied containers and preserved in insulated coolers provided by Bureau Veritas of Bedford, NS (BV).

2.2.2 Surface Water

Field staff conducted surface water sampling in general accordance with Stantec’s SOPs. Special care was taken at the sampling locations to not disturb the substrate in order to minimize the amount of sediment that entered sample containers. *In situ* physical water quality parameters of temperature, pH, dissolved oxygen, and conductivity were measured using a YSI 556 multi meter. Grab samples were collected in laboratory-supplied containers and preserved in insulated coolers provided by BV.



2.2.3 Quality Assurance and Quality Control

Quality assurance and quality control (QA/QC) procedures included following appropriate field methodologies and SOPs. All samples were uniquely labelled, and control was maintained using chain of custody forms. The laboratories reported the results from their own internal QA/QC process, which are included in certificates of analyses provided in Appendix E.

One blind field duplicate sample (MW-40D, duplicate of MW-22A) was submitted as part of the groundwater monitoring program. Relative percent difference (RPD) analysis between duplicates is discussed under Section 3.1.5.

3.0 RESULTS

The following sections summarize the results of the 2020 monitoring program.

3.1 GROUNDWATER

3.1.1 Field Results

Table B-1 (Appendix B) provides the *in situ* physical parameters and observations collected during well purging. These are summarized as follows:

- Downgradient wells:
 - Groundwater elevations ranged from 7.22 to 8.86 masl.
 - pH ranged from 6.05 to 7.91.
 - Dissolved oxygen ranged from 1.11 to 6.33 mg/L.
 - Water temperature ranged from 9.2 to 10.5 °C.
 - Conductivity ranged from 0.142 to 1.056 mS/cm.
 - No requirements to repair monitoring wells were noted.
 - Water had no observed odour or sheen and generally had no or little silt. Water ranged from cloudy to clear. Water was brown or light brown in MW-4A, MW-25B, and TH-1.

Upgradient wells (MW-29B, MW-29C, MW-31A) were not sampled in 2020.

3.1.2 Analytical Results

Analytical results for the 2020 monitoring program are presented in Tables B-3 and B-4 (Appendix B) and are discussed below. Laboratory certificates are provided in Appendix E. Additionally, results from historical monitoring events at the monitoring wells sampled in 2019 are provided in Tables C-1 through C-12 (Appendix C). Historical analytical chemistry results were provided to Stantec by the consultant responsible for the 2012–2015 monitoring events, WSP Canada Inc., and have not been verified by Stantec (WSP 2015).



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Results for general chemistry are listed in Table B-3 and results for metals are listed in Table B-4, both in Appendix B. Concentrations for general chemistry and metals analysis are below the applicable Tier 1 EQS and Tier 2 PSS in 2020, with the following exceptions:

- Arsenic exceeds Tier 2 PSS in MW-4A and MW-22A.
- Cadmium exceeds Tier 2 PSS in MW-22B.
- Iron exceeds Tier 2 PSS in MW-4A, MW-22A, and TH-1.

Naturally occurring water quality problems in Nova Scotia include arsenic and cadmium, along with chloride, hardness, iron, manganese, radionuclides, radon, sulphate and uranium (Nova Scotia Environment 2017b) (Nova Scotia Environment 2017a). Arsenic is “very likely” to be naturally occurring in known areas in Nova Scotia, including in the Site area (Nova Scotia Environment 2018). The Nova Scotia Groundwater Atlas shows the relative risk of arsenic in bedrock wells to be “medium” in the Site area (Nova Scotia Department of Natural Resources 2015). No further spatial or source details regarding naturally occurring cadmium in groundwater are provided by NSE.

According to the Canadian Groundwater Inventory’s hydrogeological characterization of Annapolis Valley aquifers, iron is naturally relatively elevated in the Site area (Geological Survey of Canada 2012).

In summary, based on NSE’s resources including a survey of groundwater studies provided for the region, elevated arsenic and iron are known to be naturally occurring in groundwater in the Site area. Elevated cadmium is likely also naturally occurring in groundwater in the Site area.

3.1.3 Trend Analysis

Trends in indicator parameters associated with landfill leachate were analyzed in all monitoring wells sampled in 2020. Indicator parameters were identified in the Site Closure Report (Porter Dillon 1995) and were further refined in the Monitoring Plan Evaluation (Stantec 2017). The leachate indicator parameters included ammonia, chloride, and conductivity.

Historical analytical results for these three parameters have been plotted according to the monitoring area that the well is located in (Areas 1 to 3 on Figure 1, Appendix A) and can be seen in leachate indicator Figures D-1 to D-6 (Appendix D). The areas are summarized as follows:

- Areas 1 and 2 are considered downgradient of the Site.
 - Area 1 includes MW-25B, MW-4A and TH-1.
 - Area 2 includes MW-22A/B/C.
- Area 3 is considered upgradient of the Site and was not sampled or analysed in 2020.



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Trends for locations sampled in 2020 noted through a visual assessment of the leachate indicator figures are summarized below:

- Ammonia:
 - Area 1 – Ammonia concentrations show generally stable trends (no long-term distinct increase or decrease) with TH-1 and MW-4A showing similar, elevated levels compared to the lower MW-25B.
 - Area 2 – Ammonia concentrations show generally stable trends (occasional spikes or drops with no long-term distinct increase or decrease) with concentrations in recent years decreasing with depth: higher concentrations in the shallow well (MW-22A), lower in the medium wells (MW-22B), to lowest concentrations in the deep well (MW-22C). MW-22B has decreased over the last two years; whether this is a sign of an overall trend cannot be determined yet.
- Chloride:
 - Area 1 – Chloride concentrations continue to show a generally decreasing trend in TH-1 and MW-4A while MW-25B concentrations are more variable. MW-25B is on the downgradient side of Brooklyn Street and may be influenced by road salt.
 - Area 2 – Chloride concentrations continue to show a slight increasing trend in MW-22C while MW-22B and MW-22A generally show slight decreasing trends. Within these trends, the shallow well (MW-22A) is the most variable year to year. Again, these MWs are downgradient of Brooklyn Street and may be influenced by road salt, with that effect likely to be most pronounced in the shallow well (MW22A).
- Conductivity:
 - Area 1 – Conductivity values generally show a slightly decreasing trend in TH-1, are stable in MW-4A, and have more variability in MW-25B with a stable to recent (since 2014) decreasing trend. The conductivity trend in MW-25B correlates well to the chloride concentration trend.
 - Area 2 – Conductivity levels generally show a decreasing trend in MW-22A and a slight increasing trend in MW-22C, with MW-22B appearing generally stable (no long-term distinct increase or decrease).

Groundwater elevations over the history of the monitoring program were also evaluated for trends and are shown in Figure D-7 for monitoring wells downgradient of the Site (Areas 1 and 2), Appendix D. Results do not show a long-term discernible trend, indicating that the closed landfill is not influencing groundwater elevations downgradient of it.

3.1.4 Action Levels

As described in the Monitoring Plan Evaluation (Stantec 2017), action levels were developed for each of the indicator parameters. Action levels are concentration values for indicator parameters that would initiate further response. The generic definition of an action level is an indicator parameter concentration that increases more than three standard deviations from the mean of the historical data (defined here as data collected in 2007 through 2017, or 2007 through 2016 for wells that were not sampled in 2017; the calculation is made using half of the reportable detection limit, where applicable). Table 2 below shows that no indicator parameters exceeded their respective action levels for the monitoring well locations sampled in 2020.



Table 2 2020 Data and Action Level Comparison for Indicator Parameters

Monitoring Location	Dissolved Chloride (mg/L)	Nitrogen (ammonia nitrogen) (mg/L)	Conductivity (µS/cm)
MW-4A			
MW-4A - Action Level	139	109	2463
MW-4A - 2020 Data	30	39	1200
MW-22A			
MW-22A - Action Level	204	48	1506
MW-22A - 2020 Data	55	16	890
MW-22B			
MW-22B - Action Level	291	3.3	2251
MW-22B - 2020 Data	130	0.21	1500
MW-22C			
MW-22C - Action Level	51	14	755
MW-22C - 2020 Data	47	<0.050	500
MW-25B			
MW-25B - Action Level	178	0.50	1654
MW-25B - 2020 Data	53	<0.050	410
TH1			
TH1 - Action Level	60	79	1565
TH1 - 2020 Data	21	31	1000

3.1.5 QA/QC Duplicates

QA/QC measures included collection of a field duplicate sample from MW-22A. Analysis of the field duplicate was completed for general chemistry and metals. Relative percent differences (RPD) between results from MW-22A and MW-40D (the duplicate) are shown in Tables B-5 and B-6 (Appendix B). RPD values calculated are below 40%, the acceptable limit for groundwater blind field duplicates (Bureau Veritas 2020). These results do not suggest that there is any issue with the analytical quality that would affect dependence on this data.

3.2 SURFACE WATER

3.2.1 Field Results

Table B-2 (Appendix B) includes *in situ* physical parameters measured at all surface water sampling locations using a YSI 556 multi meter. These are summarized as follows:

- pH ranges from 6.62 to 7.17.
- Dissolved oxygen ranges from 6.08 to 7.30 mg/L at Palmer Brook location, and 8.25 and 8.81 mg/L at Cornwallis River locations.
- Water temperature ranges from 12.7 to 15.8 °C.



- Conductivity ranges from 0.158 to 0.304 mS/cm.
- Water had no observed odour or sheen. Water was generally moderate to low flow, brown, and silty.

3.2.2 Analytical Results

Analytical results for the 2020 monitoring program are provided in Table B-7 (Appendix B) and are discussed below. Laboratory certificates are provided in Appendix E. Additionally, results from historical monitoring events are provided in Tables C-13 through C-17, Appendix C. CCME FAL for zinc and manganese were updated in 2018 and 2019, respectively. These and other CCME FAL are dependent upon water parameters such as pH and hardness as shown in Table B-7. Stantec did not recalculate dependent standards for samples from historical monitoring events. Historical analytical chemistry results were provided to Stantec by the consultant responsible for the 2012–2015 monitoring events, WSP Canada Inc., and have not been verified by Stantec.

Results from the 2020 sampling event showed concentrations for general chemistry and metals analysis below the applicable Tier 1 EQS (fresh water) and CCME FAL (fresh water, long term exposure), with the following exceptions:

- Nitrite as nitrogen exceeded the CCME FAL at SWA and SW3 (both samples within the Cornwallis River).
- Aluminum exceeded the Tier 1 EQS at all five surface water sampling locations and the CCME FAL at SWA and SW3 (both samples within the Cornwallis River).
- Arsenic exceeded the Tier 1 EQS and CCME FAL at SW7 and SW7A (two of three samples within Palmer Brook).
- Cadmium exceeded the Tier 1 EQS at SW19B (one of three samples within Palmer Brook).
- Iron exceeded the Tier 1 EQS and CCME FAL at all five surface water sampling locations.
- Manganese exceeded Tier 1 EQS and the pH- and hardness-dependent CCME FAL at SW19B, SW7, and SW7A (all samples within Palmer Brook).
- Phosphorus does not have an applicable guideline but exceeded the trigger range for further investigation within the CCME FAL guidance framework at SWA, SW3, SW7, and SW7A.

3.2.3 Trends Analysis

3.2.3.1 Indicator Parameters

Trends in indicator parameters associated with landfill leachate were analyzed at the surface water sites sampled in 2020. Indicator parameters were identified in the Site Closure Report (Porter Dillon 1995) and were further refined in the Monitoring Plan Evaluation (Stantec 2017). The leachate indicator parameters included ammonia, chloride, and conductivity. Historical analytical results for these three parameters can be seen in Figures D-8 to D-10 (Appendix D).

Trends for locations sampled in 2020, as noted through a visual assessment of the leachate indicator figures, are summarized below. (Locations SW19B and SWA have only two and three monitoring events, respectively, and no trends are discussed.)

- Ammonia: Locations SW7 and SW3 have over 20 years of data and generally appear to have low concentrations and no discernable trends. A large spike at location SW7A was reported in 2016 but concentrations have declined in the subsequent four monitoring events.



- Chloride: Locations SW7 and SW3 have over 20 years of data and generally appear to have no discernible trends. A spike at SW7 is noted in 2007 and 2008 but levels have returned to historical norms in the last six monitoring events.
- Conductivity: Locations SW7 and SW3 have over 20 years of data and generally appear to have no discernible trends. A large spike at SW7 is noted in 2007 and 2008 but levels have returned to historical norms in the last several monitoring events. A possible upward trend at SW7A is likely based on an anomalously low initial sampling result.

3.2.3.2 General Trends

Water quality in the Cornwallis River upgradient of the Site is represented by SWA. Levels in this background location show elevated levels of nitrite, aluminum, and iron but has otherwise generally lower levels of metals than other locations.

Water quality in the Cornwallis River downgradient of the Site is represented by SW3. In 2019, SW3 showed elevated concentration of several substances including copper, cadmium, lead, vanadium, and zinc exceeding CCME FAL. These substances differed from those found at elevated levels in Palmer Brook. In 2020, these levels have diminished to levels below the applicable FAL, and levels at upgradient SWA and downgradient SW3 are similar.

Water quality in Palmer Brook is represented by SW19B, SW7, and SW7A, in order of their location up- to downstream. Between these locations, several parameters over the last three years have shown an increase moving downstream (ammonia, arsenic, barium, calcium, and strontium from 2018 to 2020, and iron in 2020), and several others show an increase specifically between SW7 and SW7A (iron in 2019, electrical conductivity from 2018 to 2020, and potassium in 2018 and 2020). SW7A generally exhibited the highest concentrations of metals of the Palmer Brook locations. These parameter trends for 2018 to 2020, upstream to downstream, are shown on Figures D-11 to D-18, Appendix D.

These levels may indicate that surface water in Palmer Brook is influenced by the Site, that the influence is strongest between SW7 and SW7A, and that impacts (i.e., elevated levels of some parameters) are spatially restricted as their influence is not detected downstream in the Cornwallis River. Results in 2020 do not indicate a separate source of contamination influencing south into the Cornwallis River, as was suggested by results in 2019.

4.0 CONCLUSIONS

The following conclusions were developed based on the results of the 2020 sampling program and historical data.

4.1 GROUNDWATER

Based on the results of the 2020 groundwater monitoring program, the following conclusions were made:

- Water level elevations were consistent with the range of historical water level elevations.
- Indicator parameter concentrations were below Action Levels at all monitoring locations.
- Groundwater quality and trends were generally consistent with historical monitoring events.



- The analytical results generally fall below applicable guidelines (Tier 1 EQS and Tier 2 PSS) other than arsenic, cadmium, and iron, all of which can be naturally elevated in groundwater in Nova Scotia.

4.2 SURFACE WATER

Based on the results of the 2020 surface water monitoring program, the following conclusions were made:

- Surface water quality in Palmer Brook (particularly between SW7 and SW7A) continues to show some likely influence from the Site, with multiple parameters reporting concentrations above applicable standards and guidelines.
- Surface water quality downgradient in the Cornwallis River (SW3) is generally similar to upgradient (SWA) and does not suggest an influence from the Site as it did in 2019.
- Metals parameters in surface water were generally at lower levels than 2019.

5.0 RECOMMENDATIONS

Stantec recommends that the Municipality continue with the ongoing monitoring following the updated scope that was used in 2020. This will focus environmental monitoring on areas where potential impacts from the Site have historically been observed.

Additionally, if possible, one new surface water monitoring location is recommended to provide further information on potential interactions between the Site and Palmer Brook (i.e., at SW19A), although this location is likely not accessible by land and access by boat should be considered.

Monitoring to be completed in 2021 is recommended to include the following:

- Surface water: Sampling for metals and general chemistry parameters at annual sampling locations (SW7, SW7A, SW3, and SWA) plus SW19B is recommended. A new sampling location, SW19A, is also recommended for Palmer Brook downstream of SW7 and SW7A and prior to the confluence with the Cornwallis River, if an accessible sampling location can be found.
- Groundwater: Sampling for metals and general chemistry parameters at annual monitoring locations (MW-4A, MW-22A, MW-22B, MW-22C, MW-25B, TH-1) is recommended.

6.0 CLOSURE

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential liabilities associated with the identified property.

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Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. They are not a certification of the property's environmental condition. This report should not be construed as legal advice.

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This report was prepared by Gillian Manley, P.Eng. with review by Don Carey, M. Sc., P.Eng.

Regards,

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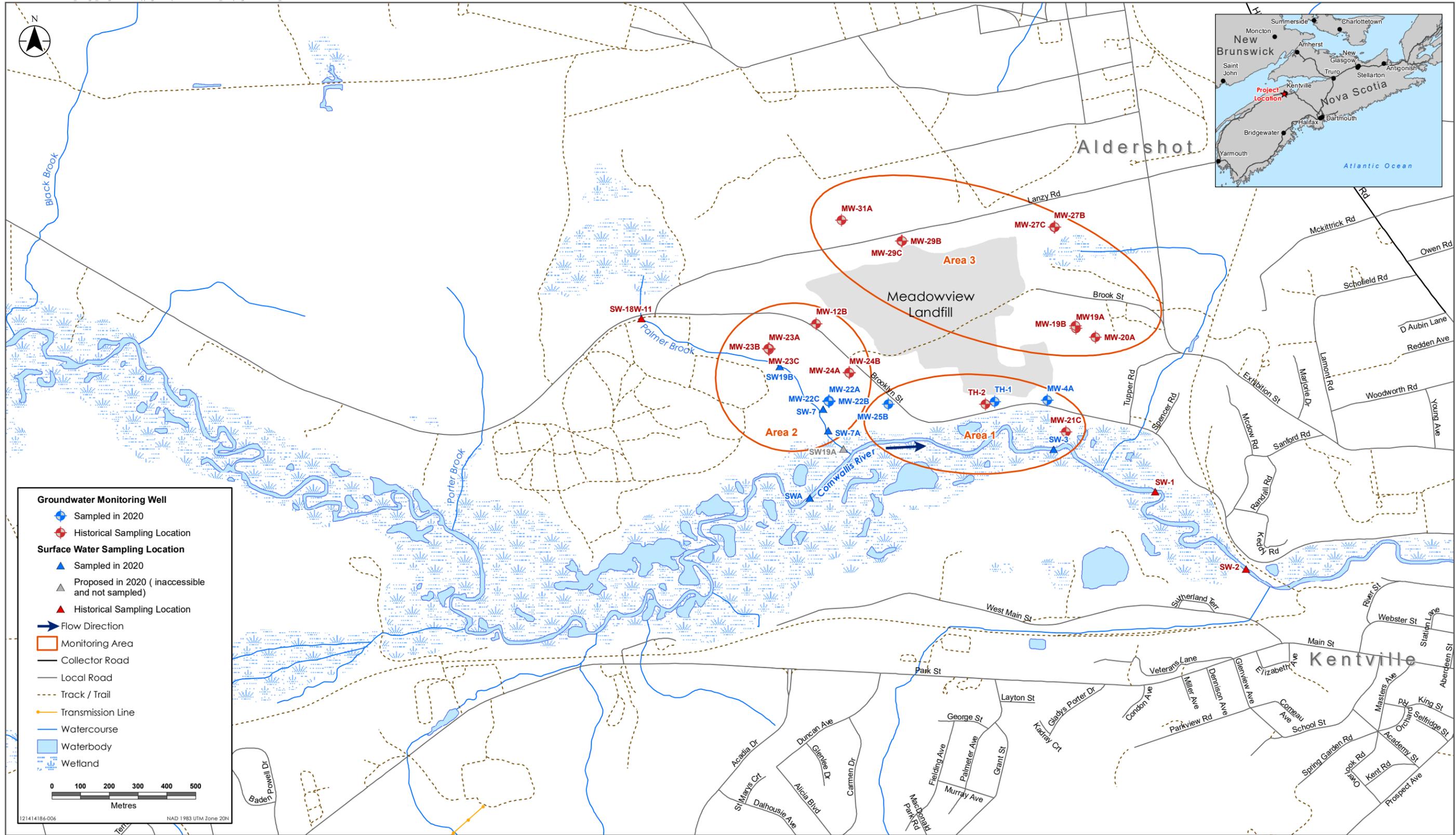
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APPENDIX A

Location Figure



Sources: Government of Canada and Nova Scotia



Sampling Locations

Figure 1

APPENDIX B

Chemistry Tables

**Table B-1 Summary of Groundwater Field Measurements
Municipality of Kings County
Meadowview Landfill
Stantec Consulting Ltd. Project No. 121414186**

Well ID	Up-gradient or Down-gradient	Well Depth (m)	Top of Casing Elevation* (masl)	Date Sampled	Depth to Water in Well (m)	Water Elevation (masl)	Depth of Water in Well (m)	pH	Dissolved Oxygen (mg/L)	Temperature (°C)	Conductivity (mS/cm)	Observations
MW-29B	Up-gradient	-	23.07	-	-	-	-	-	-	-	-	-
MW-29C	Up-gradient	-	23.20	-	-	-	-	-	-	-	-	-
MW-31A	Up-gradient	-	25.64	-	-	-	-	-	-	-	-	-
MW-4A	Down-gradient	10.45	11.70	16-Jul-2020	4.25	7.45	6.20	6.08	4.91	10.5	0.499	Brown, cloudy, no sheen or odour. Well in good condition.
MW-22A	Down-gradient	8.53	11.02	16-Jul-2020	2.17	8.86	6.37	6.05	1.63	9.3	0.650	Clear, no sheen or odour. Well in good condition.
MW-22B	Down-gradient	13.22	11.08	16-Jul-2020	2.47	8.61	10.75	6.52	2.20	9.6	1.056	Clear, no sheen or odour. Well in good condition.
MW-22C	Down-gradient	24.95	11.05	16-Jul-2020	3.66	7.39	21.29	7.20	1.11	9.4	0.318	Clear, no sheen or odour. Well in good condition.
MW-23A	Down-gradient	-	12.90	-	-	-	-	-	-	-	-	-
MW-23B	Down-gradient	-	12.95	-	-	-	-	-	-	-	-	-
MW-23C	Down-gradient	-	12.62	-	-	-	-	-	-	-	-	-
MW-25B	Down-gradient	13.65	11.46	16-Jul-2020	4.24	7.22	9.41	7.91	6.33	9.4	0.142	Brown, cloudy, no sheen or odour. Well in good condition.
TH-1	Down-gradient	9.25	13.25	16-Jul-2020	5.36	7.89	3.89	6.53	2.44	9.2	0.668	Brown, cloudy, no sheen or odour. Well in good condition.

Notes:

*Top of casing elevations taken from Terms of Reference

Table B-2 Summary of Surface Water Field Measurements
Municipality of Kings County
Meadowview Landfill
Stantec Consulting Ltd. Project No. 121414186

Sample Location ID	Date Sampled	pH	Dissolved Oxygen (mg/L)	Temperature (°C)	Conductivity (mS/cm)	Observations
SWA	16-Jul-2020	7.08	8.81	15.8	0.220	Not field-filtered, brown, silty, no sheen or odour
SW3	16-Jul-2020	7.17	8.25	15.5	0.221	Not field-filtered, brown, silty, no sheen or odour
SW19B	16-Jul-2020	6.78	6.08	15.7	0.201	Not field-filtered, brown, silty, no sheen or odour
SW7	16-Jul-2020	6.74	7.30	12.7	0.158	Not field-filtered, brown, silty, no sheen or odour
SW7A	16-Jul-2020	6.62	6.96	13.6	0.304	Not field-filtered, brown, silty, no sheen or odour

Table B-3

**2020 General Chemistry Analytical Results for the Groundwater Monitoring Program
Municipality of Kings County
Meadowview Landfill
Stantec Consulting Ltd. Project No. 121414186**

Sample Location				MW-4A	MW-22A	MW-22B	MW-22C	MW-25B	TH-1	
Sample Date				16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	
Sample ID				MW-4A	MW-22A	MW-40D	MW-22B	MW-22C	MW-25B	TH-1
Sampling Company				STANTEC						
Laboratory				BV						
Sample Type	Units	Tier 1 EQS	Tier 2 PSS	Field Sample						
Anion Sum	me/L	-	-	12.4	8.97	9.32	11.6	5.06	3.86	11.0
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	580	370	390	390	190	120	520
Calculated TDS	mg/L	-	-	660	520	530	700	260	210	590
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	<1.0	<1.0	<1.0	1.2	1.8	<1.0	1.2
Cation Sum	me/L	-	-	12.2	10.1	10.1	15.6	4.74	3.99	10.7
Hardness (CaCO3)	mg/L	-	-	320	240	240	620	200	170	270
Ion Balance (% Difference)	%	-	-	0.770	5.73	4.12	14.8	3.27	1.66	1.47
Langelier Index (@ 20C)	-	-	-	0.228	-0.328	-0.372	0.927	0.685	0.141	0.535
Langelier Index (@ 4C)	-	-	-	-0.0190	-0.576	-0.620	0.680	0.435	-0.108	0.288
Nitrate (N)	mg/L	-	-	0.15	<0.050	<0.050	0.81	<0.050	<0.050	<0.050
Saturation pH (@ 20C)	Units	-	-	6.76	7.03	7.01	6.60	7.33	7.57	6.84
Saturation pH (@ 4C)	Units	-	-	7.01	7.28	7.26	6.85	7.58	7.82	7.08
Total Alkalinity (Total as CaCO3)	mg/L	-	-	580	370	390	390	190	120	520
Dissolved Chloride (Cl)	mg/L	-	15000	30	55	57	130	47	53	21
Colour	TCU	-	-	9.4	72	96	12	<5.0	<5.0	6.4
Nitrate + Nitrite (N)	mg/L	-	-	0.16	<0.050	<0.050	0.87	<0.050	<0.050	0.063
Nitrite (N)	mg/L	-	-	0.010	<0.010	<0.010	0.059	<0.010	<0.010	0.014
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	39	16	15	0.21	<0.050	<0.050	31
Total Organic Carbon (C)	mg/L	-	-	9.4	8.9	8.9	10	2.7	3.0	6.7
Orthophosphate (P)	mg/L	-	-	<0.010	<0.010	<0.010	0.032	<0.010	<0.010	<0.010
pH	Units	-	-	6.99	6.70	6.64	7.53	8.01	7.71	7.37
Reactive Silica (SiO2)	mg/L	-	-	33	17	17	20	11	9.9	29
Dissolved Sulphate (SO4)	mg/L	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU	-	-	>1000	530	550	36	62	450	290
Conductivity	µS/cm	-	-	1200	890	910	1500	500	410	1000

Notes:

Tier 1 EQS - Tier 1 Environmental Quality Standards for Groundwater from Nova Scotia's Contaminated Sites Regulations (July 2013) Notification of Contamination Protocol, Table 1
 Tier 2 PSS - Tier 2 Pathway Specific Standards for Groundwater from Nova Scotia's Contaminated Sites Regulations (July 2013) Remediation Levels Protocol, Table 3, groundwater
Bold - indicates value exceeds Tier 2 PSS

Table B-4 **2020 Metals Analytical Results for the Groundwater Monitoring Program**
Municipality of Kings County
Meadowview Landfill
Stantec Consulting Ltd. Project No. 121414186

Sample Location				MW-4A	MW-22A	MW-22B	MW-22C	MW-25B	TH-1	
Sample Date				16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	16-Jul-2020	
Sample ID				MW-4A	MW-22A	MW-40D	MW-22B	MW-22C	MW-25B	TH-1
Sampling Company				STANTEC						
Laboratory				BV						
Sample Type	Units	Tier 1 EQS	Tier 2 PSS	Field Sample						
Aluminum	µg/L	-	50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Antimony	µg/L	-	200	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<1.0
Arsenic	µg/L	-	50	60	83	92	<1.0	1.4	1.6	23
Barium	µg/L	-	10000	2500	980	1000	570	9.4	5.5	900
Beryllium	µg/L	-	53	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bismuth	µg/L	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Boron	µg/L	-	12000	240	280	300	420	<50	<50	160
Cadmium	µg/L	-	0.1	<0.010	<0.010	<0.010	0.84	0.014	<0.010	<0.010
Calcium	µg/L	-	-	95000	74000	76000	210000	65000	57000	86000
Chromium	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	1.8	<1.0
Cobalt	µg/L	-	100	10	19	19	8.3	<0.40	<0.40	3.4
Copper	µg/L	-	20	<0.50	<0.50	<0.50	0.74	<0.50	<0.50	<0.50
Iron	µg/L	-	3000	18000	57000	56000	110	230	<50	12000
Lead	µg/L	-	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Magnesium	µg/L	-	-	21000	13000	13000	25000	9800	8000	14000
Manganese	µg/L	-	8200	690	3900	3800	2500	58	3.8	1000
Mercury	µg/L	-	0.26	-	-	-	-	-	-	-
Molybdenum	µg/L	-	730	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Nickel	µg/L	-	250	15	13	14	22	17	7.8	3.6
Phosphorus	µg/L	-	-	140	330	350	<100	<100	<100	<100
Potassium	µg/L	-	-	43000	17000	18000	7600	6300	5900	28000
Selenium	µg/L	-	10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Silver	µg/L	-	1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	µg/L	-	-	27000	39000	40000	68000	11000	8200	45000
Strontium	µg/L	-	210000	670	400	400	1900	910	720	370
Thallium	µg/L	-	8	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	µg/L	-	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium	µg/L	-	3000	<0.10	<0.10	<0.10	9.4	35	8.7	<0.10
Vanadium	µg/L	-	60	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	µg/L	-	300	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Notes:
Tier 1 EQS - Tier 1 Environmental Quality Standards for Groundwater from Nova Scotia's Contaminated Sites Regulations (July 2013) Notification of Contamination Protocol, Table 4, commercial/industrial, non-potable, coarse grained
Tier 2 PSS - Tier 2 Pathway Specific Standards for Groundwater from Nova Scotia's Contaminated Sites Regulations (July 2013) Remediation Levels Protocol, Table 3, groundwater discharge to surface water > 10 m from surface water body
Bold - indicates value exceeds Tier 2 PSS

Table B-5

**Field Duplicate Analysis for Relative Percent Difference
for General Chemistry
Municipality of Kings County
Meadowview Landfill
Stantec Consulting Ltd. Project No. 121414186**

Sample Location		MW-22A		
		16-Jul-2020	16-Jul-2020	
Sample Date		MW-22A	MW-40D	
Sample ID		STANTEC	STANTEC	
		BV	BV	
Sample Type	Units	Field Sample	Field Sample	RPD
Anion Sum	me/L	8.97	9.32	4%
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	370	390	5%
Calculated TDS	mg/L	520	530	2%
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	<1.0	NC
Cation Sum	me/L	10.1	10.1	0%
Hardness (CaCO3)	mg/L	240	240	0%
Ion Balance (% Difference)	%	5.73	4.12	33%
Langelier Index (@ 20C)	-	-0.328	-0.372	13%
Langelier Index (@ 4C)	-	-0.576	-0.62	7%
Nitrate (N)	mg/L	<0.050	<0.050	NC
Saturation pH (@ 20C)	Units	7.03	7.01	0%
Saturation pH (@ 4C)	Units	7.28	7.26	0%
Total Alkalinity (Total as CaCO3)	mg/L	370	390	5%
Dissolved Chloride (Cl)	mg/L	55	57	4%
Colour	TCU	72	96	29%
Nitrate + Nitrite (N)	mg/L	<0.050	<0.050	NC
Nitrite (N)	mg/L	<0.010	<0.010	NC
Nitrogen (Ammonia Nitrogen)	mg/L	16	15	6%
Total Organic Carbon (C)	mg/L	8.9	8.9	0%
Orthophosphate (P)	mg/L	<0.010	<0.010	NC
pH	Units	6.70	6.64	1%
Reactive Silica (SiO2)	mg/L	17	17	0%
Dissolved Sulphate (SO4)	mg/L	<2.0	<2.0	NC
Turbidity	NTU	530	550	4%
Conductivity	µS/cm	890	910	2%

Notes:

RPD - Relative Percent Difference

NC - Not Calculated due to result(s) below detection limits

Grey indicates RPD >40%



Table B-6

**Field Duplicate Analysis for Relative Percent Difference for Metals
Municipality of Kings County
Meadowview Landfill
Stantec Consulting Ltd. Project No. 121414186**

Sample Location		MW-22A		
		16-Jul-2020	16-Jul-2020	
Sample Date		MW-22A	MW-40D	
Sample ID		STANTEC	STANTEC	
		BV	BV	
Sample Type	Units	Field Sample	Field Sample	RPD
Aluminum	µg/L	<5.0	<5.0	NC
Antimony	µg/L	<1.0	<1.0	NC
Arsenic	µg/L	83	92	10%
Barium	µg/L	980	1000	2%
Beryllium	µg/L	<1.0	<1.0	NC
Bismuth	µg/L	<2.0	<2.0	NC
Boron	µg/L	280	300	7%
Cadmium	µg/L	<0.010	<0.010	NC
Calcium	µg/L	74000	76000	3%
Chromium	µg/L	<1.0	<1.0	NC
Cobalt	µg/L	19	19	0%
Copper	µg/L	<0.50	<0.50	NC
Iron	µg/L	57000	56000	2%
Lead	µg/L	<0.50	<0.50	NC
Magnesium	µg/L	13000	13000	0%
Manganese	µg/L	3900	3800	3%
Molybdenum	µg/L	<2.0	<2.0	NC
Nickel	µg/L	13	14	7%
Phosphorus	µg/L	330	350	6%
Potassium	µg/L	17000	18000	6%
Selenium	µg/L	<0.50	<0.50	NC
Silver	µg/L	<0.10	<0.10	NC
Sodium	µg/L	39000	40000	3%
Strontium	µg/L	400	400	0%
Thallium	µg/L	<0.10	<0.10	NC
Tin	µg/L	<2.0	<2.0	NC
Titanium	µg/L	<2.0	<2.0	NC
Uranium	µg/L	<0.10	<0.10	NC
Vanadium	µg/L	<2.0	<2.0	NC
Zinc	µg/L	<5.0	<5.0	NC

Notes:

RPD - Relative Percent Difference

NC - Not Calculated due to result(s) below detection limits

Grey indicates RPD >40%

Table B-7

2020 Surface Water Monitoring Analytical Results
Municipality of Kings County
Meadowview Landfill
Stantec Consulting Ltd. Project No. 121414186

Sample Water Body	Sample Location	Sample Date	Sample ID	Sampling Company	Laboratory	Cornwallis River			Palmer Brook	
						SWA	SW3	SW19B	SW7	SW7A
Sample Type	Unit	Tier 1 EQS	CCME FAL	Field Sample	Field Sample	Field Sample	Field Sample	Field Sample	Field Sample	
Calculated Parameters										
Anion Sum	me/L	-	-	2.63	2.68	2.40	2.03	3.32		
Bicarb. Alkalinity (as CaCO ₃)	mg/L	-	-	60	61	63	68	130		
Calculated TDS	mg/L	-	-	160	160	140	130	200		
Carb. Alkalinity (as CaCO ₃)	mg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0		
Cation Sum	me/L	-	-	2.42	2.45	2.18	2.36	3.65		
Hardness	mg/L	-	-	85	87	46	70	97		
% Difference/ Ion Balance (NS)	%	-	-	4.16	4.48	4.80	7.52	4.73		
Langelier Index (@20C)	NA	-	-	-0.547	-0.570	-1.06	-0.751	-0.543		
Langelier Index (@ 4C)	NA	-	-	-0.797	-0.821	-1.31	-1.00	-0.793		
Nitrate as N	mg/L	-	13	1.8	2.0	<0.050	0.11	0.14		
Saturation pH (@ 20C)	NA	-	-	8.13	8.12	8.42	8.16	7.78		
Saturation pH (@ 4C)	NA	-	-	8.38	8.37	8.67	8.41	8.03		
Inorganics										
Alkalinity (Total as CaCO ₃)	mg/L	-	-	60	61	63	68	130		
Chloride	mg/L	-	-	31	31	40	21	25		
True Colour	TCU	-	(1)	26	29	180	51	13		
Nitrate + Nitrite as N	mg/L	-	-	1.9	2.1	<0.050	0.11	0.14		
Nitrite as N	mg/L	-	0.06	0.078	0.077	<0.010	<0.010	<0.010		
Ammonia as N	mg/L	-	(3)	0.10	0.17	0.29	0.66	3.5		
<i>CCME ammonia guideline</i>		-	(3)	5.7	5.7	5.7	18.1	18.1		
Total Organic Carbon	mg/L	-	-	3.6	4.0	15	4.0	6.6		
Ortho-Phosphate as P	mg/L	-	-	0.073	0.072	0.013	0.013	<0.010		
pH	-	-	6.5-9.0	7.59	7.55	7.36	7.41	7.24		
Reactive Silica as SiO ₂	mg/L	-	-	10	11	7.8	11	13		
Sulphate	mg/L	-	-	20	21	<2.0	2.9	2.5		
Turbidity	NTU	-	(2)	6.8	9.6	30	5.2	87		
Electrical Conductivity	µS/cm	-	-	270	270	250	200	330		
Metals										
Total Aluminum	µg/L	5	5 or 100 (5)	170	210	73	46	56		
<i>CCME aluminum guideline</i>	µg/L	-	(5)	100	100	100	100	100		
Total Antimony	µg/L	20	-	<1.0	<1.0	<1.0	<1.0	<1.0		
Total Arsenic	µg/L	5	5	1.7	2.0	<1.0	9.6	29		
Total Barium	µg/L	1000	-	29	36	140	240	430		
Total Beryllium	µg/L	5.3	-	<1.0	<1.0	<1.0	<1.0	<1.0		
Total Bismuth	µg/L	-	-	<2.0	<2.0	<2.0	<2.0	<2.0		
Total Boron	µg/L	1200	1500	<50	<50	<50	<50	53		
Total Cadmium	µg/L	0.01	(6)	<0.010	0.010	0.019	<0.010	<0.010		
<i>CCME cadmium guideline</i>	µg/L	-	(6)	1.8	1.8	0.95	1.5	2.0		
Total Calcium	µg/L	-	-	29000	30000	14000	23000	31000		
Total Chromium	µg/L	-	-	<1.0	<1.0	<1.0	<1.0	<1.0		
Total Cobalt	µg/L	10	-	<0.40	<0.40	1.5	0.71	3.1		
Total Copper	µg/L	2	(6)	1.0	1.0	0.55	<0.50	<0.50		
<i>CCME copper guideline</i>	µg/L	-	(6)	2.1	2.1	2	2	2.3		
Total Iron	µg/L	300	300	690	900	4300	7800	17000		
Total Lead	µg/L	1	(6)	<0.50	<0.50	<0.50	<0.50	<0.50		
<i>CCME lead guideline</i>	µg/L	-	(6)	2.6	2.7	1	2.0	3.1		
Total Magnesium	µg/L	-	-	3200	3200	2800	2800	4600		
Total Manganese	µg/L	820	(7)	170	220	8300	2200	2400		
<i>CCME manganese guideline</i>		-	(7)	560	560	350	490	560		
Total Molybdenum	µg/L	73	73	<2.0	<2.0	<2.0	<2.0	<2.0		
Total Nickel	µg/L	25	(6)	<2.0	<2.0	<2.0	<2.0	<2.0		
<i>CCME nickel guideline</i>	µg/L	-	(6)	84	86	25	73	93		
Total Phosphorous	µg/L	-	(4)	190	200	<100	120	190		
Total Potassium	µg/L	-	-	2100	2300	1300	2100	5400		
Total Selenium	µg/L	1	1	<0.50	<0.50	<0.50	<0.50	<0.50		
Total Silver	µg/L	0.1	0.25	<0.10	<0.10	<0.10	<0.10	<0.10		
Total Sodium	µg/L	-	-	14000	14000	24000	13000	16000		
Total Strontium	µg/L	21000	-	100	110	45	60	120		
Total Thallium	µg/L	0.8	0.8	<0.10	<0.10	<0.10	<0.10	<0.10		
Total Tin	µg/L	-	-	<2.0	<2.0	<2.0	<2.0	<2.0		
Total Titanium	µg/L	-	-	5.3	6.3	<2.0	<2.0	<2.0		
Total Uranium	µg/L	300	15	0.79	0.82	<0.10	<0.10	<0.10		
Total Vanadium	µg/L	6	-	<2.0	<2.0	<2.0	<2.0	<2.0		
Total Zinc	µg/L	30	(8)	<5.0	<5.0	<5.0	<5.0	<5.0		
<i>CCME zinc guideline</i>	µg/L	-	(8)	13.2	12.6	9.4	14.5	21.8		

Notes:

Tier 1 EQS - Tier 1 Environmental Quality Standards for Surface Water from Nova Scotia's Contaminated Sites Regulations (July 2013) Notification of Contamination Protocol, Table 3, fresh water

CCME FAL - Canadian Council of Ministers of the Environment Water Quality Guidelines for the Protection of Aquatic Life, freshwater, long term exposure

Bold - indicates value exceeds Tier 1 EQS

Grey indicates value exceeds CCME FAL

(1) The mean absorbance of filtered water samples at 456 nm shall not be significantly higher than the seasonally adjusted expected value for the system under consideration

(2) Guideline depends upon sample type (high flow or turbid vs. clear flow) which was based on recorded field observations.

High flow or turbid waters (all samples in 2020): Maximum increase of 8 NTUs from background levels at any one time when background levels are between 8 and 80 NTUs. Should not increase more than

10% of background levels when background is > 80 NTUs.

Clear flow: Maximum increase of 8 NTUs from background levels for a short-term exposure (e.g., 24-h period). Maximum average increase of 2 NTUs from background levels for a

longer term exposure (e.g., 30-d period).

(3) Refer to CCME Fact Sheet: Ammonia. Guidelines were calculated using the Fact Sheet's Table 2 and converting to mg/L total ammonia-N using conservative values for field-measured pH and temperature.

(4) There are no set guidelines for phosphorus. Trigger range for potential further investigation is >100 µg/L. Refer to CCME Fact Sheet: Phosphorus.

(5) Guideline value is 100 for pH ≥ 6.5 and 5 for pH < 6.5. Field-measured pH value was used; all locations in 2020 had field-measured pH ≥ 6.5.

(6) These guidelines were calculated on the CCME website by equations using water hardness values.

See CCME Factsheets for cadmium, copper, lead, and nickel.

(7) Guideline was calculated by an equation using water hardness and field-measured pH values.

See Scientific Criteria Document for the Development of the Canadian Water Quality Guidelines for the Protection of Aquatic Life - Manganese (2019) - Appendix B.

(8) Guideline was calculated by an equation using water hardness, dissolved organic carbon (DOC), and field-measured pH values. DOC was not measured so a low conservative value of 0.3 mg/L was assumed.

(Equation valid for DOC 0.3-22.9 mg/L). See CCME Fact Sheet for zinc.

Yellow/Italics indicate values are sample-specific CCME guidelines

APPENDIX C

Historical Chemistry Tables

TABLE C-1

GROUNDWATER GENERAL CHEMISTRY - MW-4A
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	8-Mar-95	21-Mar-96	21-Mar-96	16-Apr-97	6-Apr-98	5-May-99	5-May-99	26-Jul-00	26-Jul-00 Field Dup.	Aug-01	Sep-02	19-Aug-03	19-Aug-03 MW-40D DUP	25-Aug-04	25-Aug-04 MW-40D	25-Aug-04 MW-40D DUP	18-Aug-05	18-Aug-05 MW-40D	23-Nov-06	1-Aug-07	1-Aug-07 MW-4ALF
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.8	23.1	22.8	19.2	20.8	18.6	19.4	16.2
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	737	621	452	429	696	681	720	718	685	664	737	679.49	739	799	799	911	911	810	890	753	812	649
Calculated TDS	mg/L	-	-	968	-	545	520	900	835	856	845	862	820	1150	907.36	1100	1170	1030	1190	1200	1080	1110	1060	1110	1030
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	0.28	0	0.2	0.2	< 1	0.3	0.3	0.3	< 1	< 1	1	0.51	< 1	1	< 1	9	9	ND	ND	1	< 1	< 1
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.8	22	22.7	22	21.4	22.2	23.5	24.1
Hardness (CaCO3)	mg/L	-	-	703	565	389	374	598	508	567	577	597	519	751	538.12	576	602	547	631	663	580	580	610	670	680
Ion Balance (% Difference)	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.57	2.42	0.13	6.68	1.52	8.76	9.7	19.8
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	1.72	1.74	0.329	0.374	0.751	0.638	0.575
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	1.32	1.34	0.083	0.128	0.506	0.393	0.329
Nitrate (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	<0.05	<0.05	ND	ND	ND	-	-
Saturation pH (@ 20C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.4	6.28	6.26	6.37	6.33	6.41	6.34	6.42
Saturation pH (@ 4C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.8	6.68	6.66	6.62	6.57	6.65	6.59	6.66
Total Alkalinity (Total as CaCO3)	mg/L	-	-	737	621	452	429	696	681	720	718	686	664	738	680	740	800	800	920	920	810	890	750	810	650
Dissolved Chloride (Cl)	mg/L	-	15000	109	110	31.9	32	99.2	83.1	72.9	72.1	86.8	84.8	222	157	150	160	130	160	150	95	94	120	110	110
Colour	TCU	-	-	160	55	130	70	17	20	100	93	11	10	15	98	26	37	18	19	19	34	31	25	23	21
Nitrate + Nitrite (N)	mg/L	-	-	< 0.05	< 0.05	0.11	0.17	0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.06	< 0.05	1.66	< 0.05	< 0.05	0.08	< 0.05	< 0.05	ND	ND	ND	< 0.05	< 0.05
Nitrite (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	< 0.01	< 0.01	ND	ND	ND	-	-
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	13.2	11.2	11.3	10.7	16.8	18.4	10.6	10.3	27.5	26.6	31.4	< 0.1	39	39	42	52	49	49	45	46	46	46
Total Organic Carbon (C)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	ND	22	22	19
Orthophosphate (P)	mg/L	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.04	< 0.3	0.04	0.01	0.06	0.06	< 0.01	ND	0.01	0.01	< 0.01	0.01
pH	Units	-	-	6.6	6.7	6.6	6.6	7	6.7	6.6	6.7	7	6.8	7.3	6.9	7	7.2	6.9	8	8	6.7	6.7	7.16	6.98	6.99
Reactive Silica (SiO2)	mg/L	-	-	49	49.5	26.5	27	48	44.4	44.4	44.8	38.4	37.5	41.1	44.1	37	36	35	36	36	38	37	38	40	40
Dissolved Sulphate (SO4)	mg/L	-	-	< 2	< 2	< 2	2	< 2	< 2	< 2	< 2	3	2	8	4.3	10	15	7	8	8	16	16	6	4	3
Turbidity	NTU	-	-	300	> 1000	3.2	3.9	1.6	3	20.9	18.8	0.4	0.4	> 1000	> 1000	755	322	55.1	> 1000	> 1000	> 1000	> 1000	350	290	210
Conductivity	µS/cm	-	-	1820	1680	968	963	1570	1580	1620	1580	1740	1650	2420	1630	1540	2260	2150	2350	2390	1800	1900	2100	2000	2000
Dissolved Organic Carbon	mg/L	-	-	24	22.2	7.5	7.5	19	15.8	1600	1570	17.1	17.6	19.1	-	-	-	< 50	< 500	< 500	-	-	-	-	-
Calcium	mg/L	-	-	210	173	128	120	179	158	179	176	191	164	227	169	182	191	170	196	207	190	190	190	210	210
Magnesium	mg/L	-	-	43.4	32.3	16.9	18	36.8	25.9	34.1	33.5	29.2	26.6	44.8	28.2	29.5	30.4	29.8	34.4	35.5	25	26	34	36	36
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.1	< 0.1	< 0.1	ND	ND	ND	-	-
Potassium	mg/L	-	-	8.8	7.9	14	11.8	11.9	9.6	7.9	7.6	19.9	26.2	14.7	18.3	15.7	17	17.7	17.5	18.3	17	17	26	23	22
Sodium	mg/L	-	-	87.8	83.2	39.7	37.6	83.6	78.4	70	64.4	46.1	45.7	107	76.8	181	192	102	120	127	140	140	140	130	140

Notes: See separate notes page

TABLE C-1

GROUNDWATER GENERAL CHEMISTRY - MW-4A
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	28-Jul-08	28-Jul-08 Dup-A	10-Aug-09	27-Jul-10	27-Jul-10 MW-40D	21-Sep-11	4-Oct-12	4-Jul-13	4-Jul-13 MW-40D	19-Aug-14	19-Aug-14 MW-40D	21-Jul-15	21-Jul-15 MW-40D	14-Jul-16	19-Jul-17	19-Jul-17 MW-40DDUP	20-Jul-18	20-Jul-18 MW-40D (DUP)	15-Jul-19	16-Jul-20	Action Level
Anion Sum	me/L	-	-	15.8	17.9	19.7	17.4	17.8	16	16.0	17.0	17.1	15.6	15.3	15.8	15.8	14.1	11.3	10.7	14.9	13.6	10.2	12.4	-
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	670	770	856	765	782	722	753	751	751	712	708	703	706	650	520	490	690	620	460	580	-
Calculated TDS	mg/L	-	-	943	1020	1050	885	892	865	902	898	897	875	868	920	911	780	610	570	790	740	510	660	-
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	<1	<1	<1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-
Cation Sum	me/L	-	-	20.6	21.1	19.9	17.3	17.1	18.3	20.8	18.3	18.2	19	19.3	21.2	20.7	15.6	11.4	10.3	14.8	14.1	8.68	12.2	-
Hardness (CaCO3)	mg/L	-	-	540	540	570	425	421	442	493	467	464	407	420	555	536	350	310	300	360	350	210	320	-
Ion Balance (% Difference)	%	-	-	13.3	8.11	0.280	0.3	1.9	1.9	13.0	3.7	3.3	9.9	11.6	14.6	13.3	5.360	0.4	1.81	0.540	1.91	8.10	0.77	-
Langelier Index (@ 20C)	-	-	-	0.443	0.624	0.459	0.51	0.42	0.5	0.52	0.42	0.56	0.49	0.5	0.18	0.25	0.508	0.138	0.371	0.433	0.275	0.0780	0.228	-
Langelier Index (@ 4C)	-	-	-	0.197	0.378	0.213	0.19	0.1	0.18	0.20	0.10	0.24	0.17	0.18	-0.14	-0.07	0.262	-0.11	0.123	0.186	0.0290	-0.169	-0.019	-
Nitrate (N)	mg/L	-	-	0.05	0.05	0.07	0.09	0.11	0.38	0.32	0.48	0.47	<0.05	<0.05	0.08	0.1	<0.050	0.76	0.93	0.054	0.054	0.61	0.15	-
Saturation pH (@ 20C)	Units	-	-	6.50	6.45	6.40	6.69	6.68	6.7	6.68	6.66	6.66	6.75	6.73	6.64	6.65	6.70	6.79	6.83	6.66	6.69	7.00	6.76	-
Saturation pH (@ 4C)	Units	-	-	6.74	6.69	6.65	7.01	7	7.02	7.00	6.98	6.98	7.07	7.05	6.96	6.97	6.95	7.04	7.08	6.90	6.94	7.25	7.01	-
Total Alkalinity (Total as CaCO3)	mg/L	-	-	670	770	860	765	782	722	753	751	751	712	708	703	706	650	520 (2)	490 (1)	690	620	460	580	-
Dissolved Chloride (Cl)	mg/L	-	15000	84	88	92	71	72	54	33	68	69	49	40	59	58	38	31	27	40	40	31	30	139
Colour	TCU	-	-	17	19	21	11	14	17	18	17	18	6	12	10	18	11	27	22	8.9	9.7	9.8	9.4	-
Nitrate + Nitrite (N)	mg/L	-	-	0.05	0.05	0.07	0.09	0.11	0.38	0.32	0.48	0.47	<0.05	<0.05	0.08	0.1	<0.050	0.78	0.95	0.054	0.054	0.64	0.16	-
Nitrite (N)	mg/L	-	-	<0.01	<0.01	ND	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.010	0.02	0.025	<0.010	<0.010	0.026	0.01	-
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	49	47	38	60.4	65	63.2	85.9	59.0	58.6	76.3	76.4	64.2	63.8	74	32	32	56	47	32	39	109
Total Organic Carbon (C)	mg/L	-	-	26	27	21 (1)	23.7	83.7	30	<0.5	80.1	72.8	23.9	19.6	<0.5	<0.5	19 (1)	30 (1)	27 (2)	<50 (2)	<50 (2)	<50 (1)	9.4	-
Orthophosphate (P)	mg/L	-	-	0.01	0.01	0.01	0.02	0.03	0.02	0.02	0.01	0.02	0.02	0.02	<0.01	<0.01	0.034	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-
pH	Units	-	-	6.94	7.07	6.86	7.2	7.1	7.1	7.2	7.1	7.2	7.24	7.23	6.82	6.9	7.21	6.93	7.2	7.09	6.97	7.08	6.99	-
Reactive Silica (SiO2)	mg/L	-	-	37	37	37	36.1	34.1	34.1	35.5	38.9	37.7	34.6	33.7	36	35.2	35	28	29	34	33	23	33	-
Dissolved Sulphate (SO4)	mg/L	-	-	<2	<2	ND	5	5	2	<10	3	3	<2	<2	2	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-
Turbidity	NTU	-	-	>1000	>1000	480	176	3930	3200	640	5610	5150	869	1150	3730	5750	>1000	>1000	>1000	>1000	>1000	>1000	>1000	-
Conductivity	µS/cm	-	-	1900	1900	1900	1760	1950	1480	1550	1640	1650	1640	1620	1610	1550	1400	1000	1000	1400	1300	930	1200	2463
Dissolved Organic Carbon	mg/L	-	-	-	-	-	8.9	54.2	54.2	<0.5	10.4	<0.5	23.9	18	<0.5	<0.5	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	170	170	170	127	129	132	135	140	139	121	125	158	152	100	96	91	110	110	64	95	-
Magnesium	mg/L	-	-	31	31	36	26.1	23.9	27.2	37.9	28.4	28.3	25.4	26.2	39	38.1	23	18	17	22	22	13	21	-
Phosphorus	mg/L	-	-	0.2	0.1	0.1	0.1	<0.1	<0.1	<0.02	0.06	0.06	0.18	0.22	<0.02	<0.02	0.12	<0.10	<0.10	<0.100	<0.100	<0.1	0.14	-
Potassium	mg/L	-	-	37	43	45	30.5	29	41.9	52.2	40.8	40.8	61.7	62.9	63	63	50	36	35	42	19	24	43	-
Sodium	mg/L	-	-	110	120	93	73.1	63.7	75	79.4	70.7	70.7	75.9	75.7	67	66.3	33	33	26	47	46	27	27	-

Notes: See separate notes page

TABLE C-2

GROUNDWATER GENERAL CHEMISTRY - MW-22A
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	8-Mar-95	20-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	26-Jul-00 Lab Dup.	Aug-01	Sept-02	19-Aug-03	25-Aug-04	18-Aug-05	18-Aug-05 MW-22A Dup	23-Nov-06	16-Aug-07	28-Jul-08	10-Aug-09	27-Jul-10	21-Sep-11	4-Oct-12	5-Jul-13	19-Aug-14	22-Jul-15	14-Jul-16	18-Jul-17	
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	-	22.8	15.7	-	15	13	10.3	10.4	7.79	9.13	347	9.46	6.95	8.43	4.53	9.9	
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	309	1080	1020	1010	1030	1130	1020	1020	1170	931.24	99	879	689	-	597	524	460	450	72	395	347	411	328	379	170	440	
Calculated TDS	mg/L	-	-	495	-	1590	1610	1570	1620	1550	1560	1540	1215.26	133	1110	836	-	834	774	611	574	413	501	416	527	409	516	240	590	
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	0.07	0	0.6	< 1	0.8	2.7	< 1	2	3	1.75	< 1	< 1	ND	-	ND	< 1	< 1	< 1	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 1.0	
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	-	18.8	16	-	16.3	16.3	12.8	10.7	5.57	9.86	8.85	10.80	9.1	11.3	4.46	12.2	
Hardness (CaCO3)	mg/L	-	-	325	858	879	762	712	666	611	617	516	397.23	93.8	467	380	-	360	360	270	250	71.7	223	282	244	212	256	190	250	
Ion Balance (% Difference)	%	-	-	-	-	-	-	-	-	-	-	-	-	-	9.71	0.883	-	3.93	11.4	10.6	1.51	16.6	3.8	7.6	6.5	13.4	14.6	0.78	10.2	
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.38	-0.141	-	-0.101	0.19	-0.0290	-0.165	-1.61	-0.19	-0.22	-0.38	-0.37	-0.63	0.554	-0.138	
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.02	-0.388	-	-0.348	-0.057	-0.276	-0.413	-1.93	-0.51	-0.54	-0.70	-0.69	-0.95	0.304	-0.386	
Nitrate (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	ND	-	ND	-	<0.05	<0.05	9.48	0.18	0.20	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050
Saturation pH (@ 20C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	-	6.52	6.68	-	6.76	6.8	6.96	6.97	8.51	7.19	7.22	7.18	7.33	7.13	7.39	6.96	
Saturation pH (@ 4C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	-	6.92	6.93	-	7.01	7.05	7.21	7.21	8.83	7.51	7.54	7.50	7.65	7.45	7.64	7.21	
Total Alkalinity (Total as CaCO3)	mg/L	-	-	309	1080	1020	1010	1030	1130	1020	1020	1170	933	100	880	690	710	600	520	460	450	72	395	-	411	328	379	170	450	
Dissolved Chloride (Cl)	mg/L	-	15000	99.3	330	312	350	309	311	273	278	223	176	13	180	68	68	110	89	39	50	193	43	23	44	14	30	40	35	
Colour	TCU	-	-	45	32	140	34	45	28	31	32	26	334	< 5	44	35	30	16	11	9	10	<5	132	<5	7	64	10	<5.0	63	
Nitrate + Nitrite (N)	mg/L	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.06	< 0.05	< 0.05	ND	-	ND	< 0.05	< 0.05	< 0.05	9.48	0.18	0.20	< 0.05	< 0.05	< 0.05	< 0.050	< 0.050	
Nitrite (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	ND	ND	ND	-	< 0.01	< 0.01	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.010	< 0.010	
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	4.4	32	34.5	39	60	69.5	69.5	71.4	72	< 0.1	< 0.05	58	42	-	31	31	27	19	6.02	22.3	-	19.4	20.4	12	< 0.050	23	
Total Organic Carbon (C)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	15	11	10	8	4.7	18.6	3.0	38.7	10	< 0.5	1.6	17 (1)	
Orthophosphate (P)	mg/L	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.07	0.01	< 0.01	< 0.3	< 0.01	< 0.01	ND	ND	ND	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.013	< 0.010	
pH	Units	-	-	6.4	6.6	6.8	7	6.9	7.4	7	7.2	7.4	7.3	7.9	6.9	6.54	-	6.66	6.99	6.93	6.8	6.9	7	7.0	6.8	6.96	6.5	7.94	6.82	
Reactive Silica (SiO2)	mg/L	-	-	14.2	23	24	21	19.5	20.3	18	18	17.6	20.5	8.5	19	21	20	21	19	20	19	12.1	17.2	18.6	18.4	18.1	16.8	10	17	
Dissolved Sulphate (SO4)	mg/L	-	-	4	< 2	< 2	3	< 2	< 2	5	7	2	3.5	< 2	7	ND	ND	ND	< 2	< 2	< 2	11	< 2	< 2	< 2	< 2	< 2	< 2.0	< 2.0	
Turbidity	NTU	-	-	342	671	66	6.3	6.4	3.1	4	4.8	> 1000	96	0.6	666	490	-	400	500	400	450	469	256	272	385	233	4780	0.87	850	
Conductivity	µS/cm	-	-	971	2860	2840	3130	3180	3510	3140	3190	3260	2180	235	2000	1400	-	1500	1300	1000	990	887	852	707	920	740	854	440	890	
Dissolved Organic Carbon	mg/L	-	-	36.3	44.5	35.1	38.5	34	3270	41.5	41	31.1	49	-	294	-	-	-	-	-	-	2.3	12.6	< 0.5	13.2	< 0.5	< 0.5	-	-	
Calcium	mg/L	-	-	105	229	230	201	179	163	156	158	127	104	30.3	117	100	100	98	99	74	73	19.3	73.4	77.2	73.4	62.8	89.3	61	75	
Magnesium	mg/L	-	-	15.2	69.6	74	63.2	64.3	63	53.8	54	48.7	33.4	4.4	42.5	30	30	28	28	20	17	5.7	9.6	21.6	14.7	13.4	7.9	9.2	15	
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.1	ND	ND	ND	-	0.2	0.2	< 0.1	< 0.01	< 0.02	0.18	0.31	< 0.02	< 0.1	0.34	
Potassium	mg/L	-	-	5.9	23.9	34.1	38.2	50.7	68.6	69	70.3	72.8	51	4.9	52.3	43	43	42	37	36	30	14.5	25.3	25.6	21.9	25.6	22.1	6.3	23	
Sodium	mg/L	-	-	59.9	208	252	276	254	225	270	267	258	267	9.4	91.2	83	82	120	96	78	50	76.2	22.4	52.7	41.4	30.3	41.9	12	74	

Notes: See separate notes page

TABLE C-2

GROUNDWATER GENERAL CHEMISTRY - MW-22A
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	18-Jul-17	20-Jul-18	15-Jul-19	15-Jul-19	16-Jul-20	Action Level
				Lab-Dup			Lab-Dup		
Anion Sum	me/L	-	-	-	10.3	7.71	-	8.97	-
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	450	360	-	370	-
Calculated TDS	mg/L	-	-	-	580	440	-	520	-
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	<1.0	-	<1.0	-
Cation Sum	me/L	-	-	-	11.2	8.69	-	10.1	-
Hardness (CaCO3)	mg/L	-	-	-	230	220	-	240	-
Ion Balance (% Difference)	%	-	-	-	3.91	5.98	-	5.73	-
Langelier Index (@ 20C)	-	-	-	-	-0.366	-0.486	-	-0.328	-
Langelier Index (@ 4C)	-	-	-	-	-0.614	-0.735	-	-0.576	-
Nitrate (N)	mg/L	-	-	-	<0.050	<0.050	-	<0.050	-
Saturation pH (@ 20C)	Units	-	-	-	6.99	7.08	-	7.03	-
Saturation pH (@ 4C)	Units	-	-	-	7.24	7.33	-	7.28	-
Total Alkalinity (Total as CaCO3)	mg/L	-	-	440	450	360	-	370	-
Dissolved Chloride (Cl)	mg/L	-	15000	35	46	19	-	55	204
Colour	TCU	-	-	68	8.0	67	-	72	-
Nitrate + Nitrite (N)	mg/L	-	-	<0.050	<0.050	<0.050	-	<0.050	-
Nitrite (N)	mg/L	-	-	<0.010	<0.010	<0.010	-	<0.010	-
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	-	22	15	15	16	48
Total Organic Carbon (C)	mg/L	-	-	-	11 (2)	6.5 (1)	-	8.9	-
Orthophosphate (P)	mg/L	-	-	<0.010	<0.010	<0.010	-	<0.010	-
pH	Units	-	-	-	6.62	6.59	-	6.7	-
Reactive Silica (SiO2)	mg/L	-	-	17	18	17	-	17	-
Dissolved Sulphate (SO4)	mg/L	-	-	<2.0	<2.0	<2.0	-	<2.0	-
Turbidity	NTU	-	-	-	800	610	-	530	-
Conductivity	µS/cm	-	-	-	950	680	-	890	1506
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-
Calcium	mg/L	-	-	-	69	66	-	74	-
Magnesium	mg/L	-	-	-	13	13	-	13	-
Phosphorus	mg/L	-	-	-	0.36	0.3	-	0.33	-
Potassium	mg/L	-	-	-	24	16	-	17	-
Sodium	mg/L	-	-	-	62	25	-	39	-

Notes: See separate notes page

TABLE C-3

GROUNDWATER GENERAL CHEMISTRY - MW-22B
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	20-Dec-94	8-Mar-95	20-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	Aug-01	Sept-02	19-Aug-03	25-Aug-04	18-Aug-05	23-Nov-06	16-Aug-07	28-Jul-08	10-Aug-09	27-Jul-10	21-Sep-11	4-Oct-12	5-Jul-13	19-Aug-14	22-Jul-15	14-Jul-16	18-Jul-17	20-Jul-18	15-Jul-19	16-Jul-20	Action Level
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	-	23.2	22.8	10.2	14.6	14.5	16.5	20	19	19.8	18.9	15.7	16.9	17.9	15.3	17.3	15.8	11.6	-
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	683	703	856	725	762	596	445	710	683	780.66	399	789	797	444	404	428	519	704	693	710	691	632	612	690	550	670	600	390	-
Calculated TDS	mg/L	-	-	1010	-	-	982	1090	972	831	1180	1110	1109.66	987	1190	1210	549	982	929	954	1070	1020	1050	982	887	939	930	830	910	850	700	-
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	0.51	1	1	2.7	3.6	0.9	1.1	1	2	2.32	1	<1	ND	ND	<1	<1	<1	<10	<10	<10	<10	<10	<10	1.3	1.3	<1.0	1.4	1.2	-
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	-	21.8	23.6	10.2	24.5	21.9	20.2	22.1	21	21.5	19.2	19.8	19.9	17.6	16.2	17.3	16.7	15.6	-
Hardness (CaCO3)	mg/L	-	-	624	726	865	793	882	812	661	968	845	684.38	892	856	940	260	950	830	780	842	812	827	724	762	746	690	610	670	650	620	-
Ion Balance (% Difference)	%	-	-	-	-	-	-	-	-	-	-	-	-	-	2.97	1.68	0.148	25.3	20.2	10.1	4.8	5	4.0	0.9	11.5	8.2	0.76	2.76	0.0300	2.71	14.8	-
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.92	0.796	-0.252	0.913	0.786	0.713	0.9	0.99	1.19	0.84	1.04	0.52	0.965	0.914	0.756	0.988	0.927	-
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.52	0.551	-0.5	0.667	0.540	0.467	0.58	0.67	0.87	0.52	0.72	0.2	0.719	0.667	0.510	0.742	0.68	-
Nitrate (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	0.05	1.5	-	<0.05	0.08	0.14	0.08	0.33	0.59	<0.05	<0.05	0.12	0.072	<0.050	0.055	0.81	-
Saturation pH (@ 20C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	-	6.18	6.14	6.97	6.44	6.46	6.41	6.4	6.41	6.41	6.46	6.47	6.47	6.34	6.48	6.36	6.41	6.6	-
Saturation pH (@ 4C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	-	6.58	6.39	7.22	6.68	6.71	6.65	6.72	6.73	6.73	6.78	6.79	6.79	6.58	6.73	6.60	6.66	6.85	-
Total Alkalinity (Total as CaCO3)	mg/L	-	-	684	704	857	728	766	597	446	711	685	783	400	790	800 (1)	440	400	430	520	704	693	710	691	632	612	690	550 (2)	670	610	390	-
Dissolved Chloride (Cl)	mg/L	-	15000	166	143	162	152	215	224	231	282	287	287	280	260	240	42	230	210	220	210	182	199	178	110	165	150	150	140	130	130	291
Colour	TCU	-	-	13	86	12	15	8	15	10	11	19	90	43	13	22	7	16	10	13	15	14	9	11	10	<5	13	6.8	11	8.3	12	-
Nitrate + Nitrite (N)	mg/L	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.06	< 0.05	< 0.05	0.07	1.5	< 0.05	< 0.05	0.080	0.14	0.08	0.33	0.59	< 0.05	< 0.05	0.12	0.072	< 0.050	0.055	0.87	-
Nitrite (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.01	0.02	0.03	-	< 0.01	< 0.01	< 0.05	< 0.05	< 0.25	< 0.05	< 0.05	< 0.05	< 0.010	< 0.010	< 0.010	< 0.010	0.059	-
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	4.1	0.48	0.08	0.17	< 0.05	0.15	< 0.05	0.37	< 0.05	< 0.1	0.18	0.62	0.06	27	0.28	0.38	0.24	1.1	1.34	1.95	2.25	1.56	1.82	1.2	1.6	2.1	1.3	0.21	3.3
Total Organic Carbon (C)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	9.3	20	17	19	38	24.6	< 0.5	32.6	23.2	9.2	1.3	14 (1)	14	14 (1)	10	-
Orthophosphate (P)	mg/L	-	-	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.3	< 0.01	0.01	ND	ND	< 0.01	< 0.01	< 0.01	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.019	< 0.010	< 0.010	< 0.010	0.032	-
pH	Units	-	-	6.9	7	7.1	7.6	7.7	7.2	7.4	7.3	7.5	7.5	7.1	6.94	6.72	7.35	7.25	7.12	7.3	7.4	7.4	7.6	7.3	7.51	6.99	7.3	7.39	7.11	7.40	7.53	-
Reactive Silica (SiO2)	mg/L	-	-	13.6	13.6	15.5	17.1	17.1	16.2	15	16.2	14.8	17.1	12	17	18	19	17	18	18	18.5	20.3	18.6	18.9	17.8	15.9	19	19	19	20	20	-
Dissolved Sulphate (SO4)	mg/L	-	-	14	< 2	< 2	< 2	< 2	< 2	< 2	2	3	< 2.0	11	< 2	ND	ND	< 2	< 2	< 2	< 2	< 2	< 10	< 2	< 2	< 2	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	-
Turbidity	NTU	-	-	459	< 1000	420	14.7	0.4	2.4	1.7	0.3	> 1000	26	> 1000	> 1000	180	390	190	180	330	265	147	69.6	138.0	4170	589	120	90	250	310	36	-
Conductivity	µS/cm	-	-	1810	1770	2190	1810	1900	2050	1840	2520	2450	2150	2500	2490	1900	1100	1800	1900	1800	2070	1680	1720	1740	1670	1440	1600	1500	1600	1500	1500	2251
Dissolved Organic Carbon	mg/L	-	-	106	99	250	12.1	18.4	14.7	1710	24.4	16.4	28.3	-	< 500	-	-	-	-	-	37.6	27	< 0.5	< 0.5	23.4	9.2	-	-	-	-	-	
Calcium	mg/L	-	-	207	242	291	262	293	270	209	316	270	219	298	286	320	72	320	280	260	280	274	270	245	259	270	230	200	230	220	210	-
Magnesium	mg/L	-	-	26	29.5	33.7	33.1	36.5	33.4	33.7	43.4	41.5	33.4	36	34.4	36	18	37	33	31	34.7	31.1	37.2	27.3	28.1	17.5	27	26	26	27	25	-
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	< 0.1	ND	ND	-	< 0.1	< 0.1	< 0.1	< 0.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.1	< 0.10	< 0.100	< 0.1	< 0.10	-
Potassium	mg/L	-	-	14.1	7.5	7.5	7.7	8	7.4	8.5	9.4	8.4	8.3	11.4	8.3	8	35	8.7	14	8.2	5.6	5.6	6.1	8.4	9.4	4.9	8.1	8.6	8.1	8.3	7.6	-
Sodium	mg/L	-	-	152	90.1	76.8	71.1	59.7	60.2	64.4	80.8	69.8	73	98.5	103	100	46	110	100	92	98.1	89.7	103	84.8	84.7	93.1	78	79	72	71	68	-

Notes: See separate notes page

TABLE C-4

GROUNDWATER GENERAL CHEMISTRY - MW-22C
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	8-Mar-95	20-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	Aug-01	Sept-02	19-Aug-03	25-Aug-04	18-Aug-05	23-Nov-06	16-Aug-07	28-Jul-08	10-Aug-09	27-Jul-10	21-Sep-11	4-Oct-12	5-Jul-13	19-Aug-14	22-Jul-15	14-Jul-16	18-Jul-17	20-Jul-18	15-Jul-19	16-Jul-20	Action Level	
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	2.28	2.4	2.82	3.09	3.49	3.56	3.46	3.26	3.87	3.94	3.41	3.68	7.69	4.9	4.80	4.96	5.06	-	
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	41.6	42	43.5	67.7	75.4	87.4	117	97	101.99	819	95	99.4	112	123	137	137	133	126	147	145	131	133	350	180	180	180	190	-	
Calculated TDS	mg/L	-	-	60	-	58	91	102	117	148	128	131.53	1110	128	137	158	175	195	193	173	176	199	207	193	202	450	260	250	260	260	-	
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	0.31	0	0.4	<1	0.6	0.5	<1	<1	0.96	<1	<1	ND	ND	<1	1	<1	<10	<10	<10	<10	<10	<10	<1.0	1.3	1.0	1.4	1.8	-	
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	2.36	2.65	3.03	3.42	3.78	3.62	3.24	3.74	3.90	4.12	4.34	4.35	8.89	4.57	4.65	4.67	4.74	-	
Hardness (CaCO3)	mg/L	-	-	29	32	42	59.4	69	82	113	86.3	88.59	506	89.5	100	120	130	150	150	134	162	162	163	183	190	190	190	200	200	200	-	
Ion Balance (% Difference)	%	-	-	-	-	-	-	-	-	-	-	-	-	1.55	4.92	3.71	5.07	3.99	0.84	3.2	6.9	0.4	2.2	12	8.4	7.24	3.48	1.59	3.01	3.27	-	
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.41	-0.306	-0.102	0.19	0.417	0.047	0.15	0.33	0.17	0.25	0.35	0.03	-0.139	0.52	0.429	0.566	0.685	-	
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.81	-0.557	-0.352	-0.06	0.167	-0.203	-0.17	0.01	-0.15	-0.07	0.03	-0.29	-0.388	0.27	0.179	0.317	0.435	-	
Nitrate (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	ND	ND	-	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	-	
Saturation pH (@ 20C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	8.01	7.83	7.73	7.68	7.58	7.57	7.85	7.77	7.73	7.74	7.73	7.68	7.13	7.36	7.35	7.34	7.33	-	
Saturation pH (@ 4C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	8.41	8.08	7.98	7.93	7.83	7.82	8.17	8.09	8.05	8.06	8.05	8	7.38	7.61	7.60	7.59	7.58	-	
Total Alkalinity (Total as CaCO3)	mg/L	-	-	42	42	44	68	76	88	118	98	103	820	95	100	110	120	140	140	133	126	147	145	131	133	350	180 (2)	180	180	190	-	
Dissolved Chloride (Cl)	mg/L	-	15000	4.4	5	5.4	6.3	8.1	10.1	11.8	11.9	11.2	140	12	14	20	22	26	29	28	26	33	37	28	36	25	46	45	45	47	51	
Colour	TCU	-	-	<3	5	15	21	24	7	<5	<5	68	25	8	ND	ND	<5	<5	<5	<5	<5	<5	<5	<5	<5	26	<5.0	<5.0	<5.0	<5.0	-	
Nitrate + Nitrite (N)	mg/L	-	-	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	0.08	<0.06	<0.05	<0.05	ND	ND	<0.05	<0.05	<0.05	0.09	0.07	<0.05	<0.05	<0.05	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	-	
Nitrite (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	ND	ND	-	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	-	
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	<0.1	49	<0.05	ND	ND	<0.05	<0.05	<0.05	0.07	<0.05	<0.03	0.04	<0.03	<0.03	14	<0.050	<0.050	<0.050	<0.050	14	
Total Organic Carbon (C)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	0.9	1.1	1.5	<5	2.9	2.6	0.8	7.9	4.6	3.6	9.5	<5.0 (1)	1.9	2.1	2.7	-	
Orthophosphate (P)	mg/L	-	-	<0.01	<0.01	0.02	0.02	<0.01	<0.01	0.02	0.02	<0.3	<0.01	0.11	ND	ND	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.010	<0.010	<0.010	<0.010	-	
pH	Units	-	-	7.9	7.9	8	7.7	7.9	7.8	7.7	8	8	7	7.6	7.52	7.63	7.87	8.00	7.62	8	8.1	7.9	8.0	8.08	7.71	7	7.88	7.78	7.91	8.01	-	
Reactive Silica (SiO2)	mg/L	-	-	8.3	8.1	8.3	9	8.3	8.1	7.6	8.4	8.8	19	8.6	8.7	8.9	9	9.4	9.4	9.7	9.5	9.9	9.8	9.6	9.2	15	10	10	11	11	-	
Dissolved Sulphate (SO4)	mg/L	-	-	2	2	<2	<2	2	2	2	2	3.5	6	<2	ND	ND	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0	-
Turbidity	NTU	-	-	1.5	505	41	17	5.2	3.8	0.2	398	12	322	3.2	2.2	1.3	3.8	1.1	16	1.3	15.8	4.9	41.5	8.6	70.1	450	54	0.82	1.0	62	-	
Conductivity	µS/cm	-	-	99	98	107	155	174	205	262	224	230	2330	230	230	280	300	350	360	367	312	372	395	385	382	730	470	480	460	500	755	
Dissolved Organic Carbon	mg/L	-	-	9.9	0.8	<0.5	<0.05	<0.05	214	<0.5	<0.5	1.2	-	1.2	-	-	-	-	-	1.5	2.7	<0.5	1.7	<0.5	3.4	-	-	-	-	-		
Calcium	mg/L	-	-	9.2	10.4	13.7	19	22.2	26.1	36.5	27.3	28.6	132	28.9	34	39	41	46	47	43.8	55.2	52.5	52.4	59.1	64.9	60	62	64	63	65	-	
Magnesium	mg/L	-	-	1.4	1.5	2	2.9	3.3	4.1	5.4	4.4	4.17	42.8	4.2	4.8	5.9	6	7.1	7.1	6.1	5.9	7.5	7.8	8.5	6.9	8.6	9.3	9.5	9.9	9.8	-	
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	ND	ND	-	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	0.02	<0.02	0.28	<100	<0.100	<0.1	<0.10	-	
Potassium	mg/L	-	-	2.9	2.9	2.9	3.6	4.2	4.1	5	4.4	4.5	61.7	4.7	4.9	5.4	5.8	8.1	6.1	4.8	5	5.3	6.5	6.9	5.1	16	6.6	6.5	6.6	6.3	-	
Sodium	mg/L	-	-	7.1	6	6.8	7.6	8.1	9.9	8.8	8.2	8.9	151	10.2	10	11	17	15	12	9.6	8.3	12.1	15.7	11.6	9.3	52	12	12	12	11	-	

Notes: See separate notes page

TABLE C-5

GROUNDWATER GENERAL CHEMISTRY - MW-25B
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	8-Mar-95	19-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	Aug-01	Aug-01 Duplicate	Sept-02	19-Aug-03	25-Aug-04	18-Aug-05	23-Nov-06	16-Aug-07	16-Aug-07 Dup B	28-Jul-08	10-Aug-09	28-Jul-10	21-Sep-11	4-Oct-12	8-Jul-13	19-Aug-14	22-Jul-15	14-Jul-16	19-Jul-17	20-Jul-18	20-Jul-18 Lab-Dup
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	-	5.03	2.9	10	8.45	1.37	3.55	6.35	11.7	1.95	9.49	6.28	9.57	8.63	10.8	5.28	8.16	N/A
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	75.4	143	44.5	49.8	91.4	46	42	42	41	43.63	229	180	102	344	274	63	120	215	393	62	333	204	353	292	380	170	290	N/A
Calculated TDS	mg/L	-	-	111	-	67	69	137	74	74	68	68	69.17	369	261	164	541	480	89	232	352	560	100	454	331	515	484	560	280	420	N/A
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	0.56	1	0.4	<1	0.5	0.9	<1	<1	<1	0.33	1	<1	ND	ND	2	<1	<1	<1	<10	<10	<10	<10	<10	<10	<1.0	<1.0	<1.0	N/A
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	-	4.6	3.14	10.6	10	1.55	5.20	7.03	9.62	1.81	7.93	6.62	10.8	10.8	10.2	5.02	7.71	N/A
Hardness (CaCO3)	mg/L	-	-	71	166	44	40.8	105	47.3	52.3	40.7	40.4	41.33	321	199	130	470	440	5	190	300	421	74.8	337	279	460	466	440	220	340	N/A
Ion Balance (% Difference)	%	-	-	-	-	-	-	-	-	-	-	-	-	-	4.42	3.89	2.72	8.6	6.16	18.9	5.08	9.7	3.9	8.9	2.6	6.2	11.2	2.72	2.52	2.84	N/A
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-0.589	0.448	1.08	-1.36	-0.0140	0.267	0.59	-0.4	0.61	0.11	0.68	0.22	0.694	0.303	0.423	N/A
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.39	-0.84	0.2	0.836	-1.61	-0.264	0.018	0.27	-0.72	0.29	-0.21	0.36	-0.1	0.446	0.054	0.175	N/A
Nitrate (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	ND	ND	-	-	<0.05	<0.05	0.09	0.11	0.06	<0.05	<0.05	<0.05	<0.050	0.056	<0.050	N/A
Saturation pH (@ 20C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	-	7.39	7.7	6.74	6.86	9.33	7.53	7.1	6.91	8.4	7.09	7.36	6.93	7.01	6.73	7.32	6.95	N/A
Saturation pH (@ 4C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	-	7.79	7.95	6.99	7.1	9.58	7.78	7.35	7.23	8.72	7.41	7.68	7.25	7.33	6.98	7.57	7.20	N/A
Total Alkalinity (Total as CaCO3)	mg/L	-	-	76	144	45	50	92	47	42	42	41	44	230	180	100	340	280	64	120	220	393	62	333	204	353	292	380	170 (2)	290	280
Dissolved Chloride (Cl)	mg/L	-	15000	11.5	32.1	5.2	5.4	21	10.4	9.1	10.4	9.9	9.7	74	49	30	110	100	3	41	72	135	25	100	78	89	99	110	64	85	83
Colour	TCU	-	-	<3	5	8	40	6	24	15	<5	<5	176	6	5	ND	6	6	<5	9	6	8	<5	<5	<5	<5	5	<5.0	<5.0	<5.0	<5.0
Nitrate + Nitrite (N)	mg/L	-	-	<0.05	<0.05	0.08	0.06	<0.05	<0.05	0.06	<0.05	<0.05	0.52	<0.05	<0.05	ND	ND	<0.05	0.1	<0.05	<0.05	0.09	0.11	0.06	<0.05	<0.05	<0.05	<0.050	0.056	<0.050	<0.050
Nitrite (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	ND	ND	-	-	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.010	<0.010	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	0.09	0.22	0.06	ND	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.03	0.03	0.04	0.5	<0.050	0.052	<0.050	N/A
Total Organic Carbon (C)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	6	14	4	1.9	<5	12.6	1.2	<0.5	2.8	4.4	3.8	9.4 (2)	<5.0 (1)	6.8	N/A
Orthophosphate (P)	mg/L	-	-	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.3	0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	<0.010	<0.010	0.011
pH	Units	-	-	7.9	7.7	8	7.5	7.8	8.3	7.8	7.9	7.9	7.9	7.8	7.4	7.11	7.19	7.94	7.97	7.52	7.37	7.5	8	7.7	7.47	7.61	7.23	7.43	7.63	7.37	7.63
Reactive Silica (SiO2)	mg/L	-	-	9	11	7.8	8.1	9	7.8	7.2	7.8	7.7	7.6	13	11	9.2	15	14	11	9.5	12	15.9	8.4	14.3	11.7	15.1	11.8	15	11	13	13
Dissolved Sulphate (SO4)	mg/L	-	-	4	<2	2	<2	<2	<2	5	<2	4	<2.0	<2	<2	ND	ND	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0
Turbidity	NTU	-	-	0.8	798	8.3	22	4	30.4	4	835	339	95	99.2	95.4	220	330	210	190	290	160	55	111	113	4070	699	956	1.5	450	880	N/A
Conductivity	µS/cm	-	-	190	370	111	108	249	124	121	116	115	124	780	495	280	960	920	130	370	640	1190	197	889	614	1040	839	970	510	760	770
Dissolved Organic Carbon	mg/L	-	-	2.4	1.8	<0.5	<0.5	0.3	132	1.2	<0.5	0.6	0.6	-	<5	-	-	-	-	-	-	11.6	1.8	<0.5	<0.5	4.4	3.3	-	-	-	
Calcium	mg/L	-	-	23.3	55.1	14.4	13.2	33.7	15.3	17	13	12.9	13.5	107	65.5	45	160	150	1.6	61	100	144	25	109	92.3	153	152	150	71	110	N/A
Magnesium	mg/L	-	-	3.2	6.8	2	1.9	5.1	2.2	2.4	2	2	1.85	13.1	8.7	5.5	18	18	0.2	8.1	13	15	3	15.7	11.8	18.9	20.9	18	9.9	14	N/A
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	ND	ND	-	-	<0.1	<0.1	<0.1	<0.1	<0.02	0.02	0.04	<0.02	<0.1	<0.10	<0.100	N/A
Potassium	mg/L	-	-	5.3	6	3.5	3.6	4.8	3.4	3.9	3.6	3.6	3.8	6.4	5.8	4.7	7	7.7	1.8	14	7.6	5.2	4	4.6	7.0	8.6	5.1	6.6	6.6	7.1	N/A
Sodium	mg/L	-	-	9.3	6.1	4.6	3.9	5.6	4.6	3.8	3.6	3.5	3.8	15.5	10.4	7.5	24	24	32	26	18	24	4.8	24.5	19.6	28.8	30.2	29	11	19	N/A

Notes: See separate notes page

TABLE C-5

GROUNDWATER GENERAL CHEMISTRY - MW-25B
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	15-Jul-19	16-Jul-20	Action Level
Anion Sum	me/L	-	-	6.38	3.86	-
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	220	120	-
Calculated TDS	mg/L	-	-	320	210	-
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	1.0	<1.0	-
Cation Sum	me/L	-	-	5.50	3.99	-
Hardness (CaCO3)	mg/L	-	-	240	170	-
Ion Balance (% Difference)	%	-	-	7.41	1.66	-
Langelier Index (@ 20C)	-	-	-	0.508	0.141	-
Langelier Index (@ 4C)	-	-	-	0.259	-0.108	-
Nitrate (N)	mg/L	-	-	0.050	<0.050	-
Saturation pH (@ 20C)	Units	-	-	7.20	7.57	-
Saturation pH (@ 4C)	Units	-	-	7.45	7.82	-
Total Alkalinity (Total as CaCO3)	mg/L	-	-	220	120	-
Dissolved Chloride (Cl)	mg/L	-	15000	72	53	178
Colour	TCU	-	-	<5.0	<5.0	-
Nitrate + Nitrite (N)	mg/L	-	-	0.050	<0.050	-
Nitrite (N)	mg/L	-	-	<0.010	<0.010	-
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	<0.050	<0.050	0.50
Total Organic Carbon (C)	mg/L	-	-	3.8	3	-
Orthophosphate (P)	mg/L	-	-	<0.010	<0.010	-
pH	Units	-	-	7.71	7.71	-
Reactive Silica (SiO2)	mg/L	-	-	13	9.9	-
Dissolved Sulphate (SO4)	mg/L	-	-	<2.0	<2.0	-
Turbidity	NTU	-	-	31	450	-
Conductivity	µS/cm	-	-	620	410	1654
Dissolved Organic Carbon	mg/L	-	-	-	-	-
Calcium	mg/L	-	-	77	57	-
Magnesium	mg/L	-	-	11	8.0	-
Phosphorus	mg/L	-	-	<0.1	<0.10	-
Potassium	mg/L	-	-	6.6	5.9	-
Sodium	mg/L	-	-	13	8.2	-

Notes: See separate notes page

TABLE C-6

GROUNDWATER GENERAL CHEMISTRY - TH-1
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	8-Mar-95	19-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	Aug-01	Sept-02	19-Aug-03	25-Aug-04	25-Aug-04 DUP	18-Aug-05	18-Aug-05 THI Dup	23-Nov-06	16-Aug-07	28-Jul-08	10-Aug-09	27-Jul-10	21-Sep-11	4-Oct-12	4-Jul-13	19-Aug-14	22-Jul-15	14-Jul-16	19-Jul-17
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	17.1	17.1	16.9	-	15.1	11.8	13.7	12.9	12.2	11.4	11.6	11.0	9.55	9.49	10.2	10.5
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	1100	1020	1080	1140	999	995	934	836	937.77	655	741	743	755	-	666	516	625	588	552	529	537	502	453	442	470	490
Calculated TDS	mg/L	-	-	1450	-	1400	1430	1270	1240	1220	1160	1116.86	903	903	907	882	-	819	744	737	694	679	612	645	634	533	518	580	580
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	2.06	1	1.6	4.3	1.2	0.9	1	5	2.21	5	9	7	ND	-	ND	<1	1	<1	<10	<10	<10	<10	<10	<10	<1.0	<1.0
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-	-	-	16.6	16.9	16.3	-	15.6	16.9	13.6	12.5	14.1	12.6	14.1	13.9	11.5	10.4	11.6	11
Hardness (CaCO3)	mg/L	-	-	634	546	636	650	550	531	533	556	479.61	409	362	369	380	-	350	380	290	290	257	294	312	262	273	279	280	270
Ion Balance (% Difference)	%	-	-	-	-	-	-	-	-	-	-	-	-	1.64	0.69	1.78	-	1.5	17.8	0.400	1.85	7.4	5.2	9.8	11.6	9.3	4.4	6.1	2.32
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	1.41	0.346	-	0.361	0.453	0.563	0.446	0.45	0.62	0.42	0.46	0.48	0.09	0.451	0.454
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	1.01	0.099	-	0.114	0.206	0.317	0.199	0.13	0.3	0.10	0.14	0.16	-0.23	0.203	0.207
Nitrate (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	ND	-	0.55	-	<0.05	0.34	2.94	0.29	0.54	<0.05	<0.05	<0.05	<0.050	0.063
Saturation pH (@ 20C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	6.6	6.59	6.57	-	6.66	6.73	6.76	6.78	7.05	6.98	6.98	7.06	7.07	7.01	6.86	6.88
Saturation pH (@ 4C)	Units	-	-	-	-	-	-	-	-	-	-	-	-	7	6.99	6.82	-	6.91	6.97	7.00	7.03	7.37	7.3	7.30	7.38	7.39	7.33	7.11	7.12
Total Alkalinity (Total as CaCO3)	mg/L	-	-	1100	1020	1080	1140	1000	996	935	841	940	660	750	750	760	750	670	520	630	590	552	529	537	502	453	442	470	490 (2)
Dissolved Chloride (Cl)	mg/L	-	15000	203	198	169	164	150	143	133	136	117	91	74	73	62	61	60	51	41	36	31	26	28	34	15	23	27	26
Colour	TCU	-	-	31	90	70	27	27	27	20	21	128	25	16	17	18	18	15	13	15	21	11	9	13	11	<5	8	7.6	<5.0
Nitrate + Nitrite (N)	mg/L	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.06	<0.05	<0.05	<0.05	ND	-	0.57	<0.05	<0.05	1.3	2.94	0.29	0.69	<0.05	<0.05	<0.05	<0.050	0.063
Nitrite (N)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	0.01	ND	ND	0.02	-	<0.01	0.95	<0.05	<0.05	0.15	<0.05	<0.05	<0.05	<0.010	<0.010
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	48.9	71	67	62.5	72.5	72.1	73.4	72.4	<0.1	58	54	55	49	-	50	54	42	32	58.3	43.8	58.3	44.0	37.6	16.7	40	33
Total Organic Carbon (C)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	13	11	11	19	25.9	4.9	20.4	11.9	<0.5	<0.5	7.4 (1)	10 (1)
Orthophosphate (P)	mg/L	-	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.3	<0.01	0.01	<0.01	ND	ND	ND	<0.01	<0.01	<0.01	0.02	0.02	0.01	0.01	0.01	<0.01	0.027	<0.010
pH	Units	-	-	7.3	7	7.2	7.6	7.1	7.1	7.1	7.8	7.4	7.9	8.1	8	6.92	-	7.02	7.18	7.32	7.23	7.5	7.6	7.4	7.5	7.55	7.1	7.31	7.33
Reactive Silica (SiO2)	mg/L	-	-	19.8	27.6	28.5	28	26.9	27.9	27.8	29.5	31.1	30	30	30	30	30	31	32	32	30	28.8	22.6	30.9	32.5	28.6	24.5	31	30
Dissolved Sulphate (SO4)	mg/L	-	-	2	<2	<2	3	<2	<2	5	9	3.3	7	<2	<2	ND	ND	3	<2	2	3	4	2	2	2	3	<2	<2.0	<2.0
Turbidity	NTU	-	-	308	524	12.5	0.8	1.3	1.3	0.3	375	36	330	302	294	230	-	210	220	220	84	127	240	286	232	2880	1160	160	400
Conductivity	µS/cm	-	-	2980	2710	2700	2520	2590	2590	2590	2590	2050	1380	1800	1810	1500	-	1400	1400	1300	1200	1270	1080	1090	1080	1020	940	1000	1000
Dissolved Organic Carbon	mg/L	-	-	58	46	38.7	36	30	30	27	22.6	34.9	-	<50	<50	-	-	-	-	-	-	21.2	0.8	15.2	<0.5	<0.5	<0.5	-	-
Calcium	mg/L	-	-	248	169	197	199	171	167	164	170	152	126	112	114	120	-	110	120	91	89	76.2	92.6	91.6	81.6	85.4	100	88	83
Magnesium	mg/L	-	-	3.5	30.1	34.9	37.3	29.8	27.6	29.9	31.9	24.3	23	20.1	20.5	20	-	19	20	16	15	16.1	15.2	20.3	14.2	14.6	7.2	16	14
Phosphorus	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	ND	-	ND	-	<0.1	<0.1	<0.1	<0.1	<0.02	0.05	0.1	<0.02	0.1	<0.10
Potassium	mg/L	-	-	19.4	35.9	41.7	45.2	42.1	42	52.6	51.6	49.1	47.8	45.9	45.8	43	-	46	45	43	43	45	39	39.8	35.1	39	37.7	33	32
Sodium	mg/L	-	-	230	176	188	186	159	138	149	132	176	107	99	101	94	-	87	87	73	68	77.4	51.7	61.4	96.4	44.7	47.8	41	48

Notes: See separate notes page

TABLE C-6

GROUNDWATER GENERAL CHEMISTRY - TH-1
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS		20-Jul-18	15-Jul-19	16-Jul-20	Action Level
		NS Tier 1 EQS	NS Tier 2 PSS				
Anion Sum	me/L	-	-	10.2	10.2	11	-
Bicarb. Alkalinity (calc. as CaCO ₃)	mg/L	-	-	480	480	520	-
Calculated TDS	mg/L	-	-	540	550	590	-
Carb. Alkalinity (calc. as CaCO ₃)	mg/L	-	-	<1.0	<1.0	1.2	-
Cation Sum	me/L	-	-	9.87	10.1	10.7	-
Hardness (CaCO ₃)	mg/L	-	-	250	250	270	-
Ion Balance (% Difference)	%	-	-	1.50	0.390	1.47	-
Langelier Index (@ 20C)	-	-	-	0.323	0.406	0.535	-
Langelier Index (@ 4C)	-	-	-	0.0760	0.159	0.288	-
Nitrate (N)	mg/L	-	-	0.055	<0.050	<0.050	-
Saturation pH (@ 20C)	Units	-	-	6.89	6.90	6.84	-
Saturation pH (@ 4C)	Units	-	-	7.14	7.15	7.08	-
Total Alkalinity (Total as CaCO ₃)	mg/L	-	-	480	480	520	-
Dissolved Chloride (Cl)	mg/L	-	15000	20	19	21	60
Colour	TCU	-	-	7.4	6.8	6.4	-
Nitrate + Nitrite (N)	mg/L	-	-	0.055	0.059	0.063	-
Nitrite (N)	mg/L	-	-	<0.010	0.014	0.014	-
Nitrogen (Ammonia Nitrogen)	mg/L	-	-	29	28	31	79
Total Organic Carbon (C)	mg/L	-	-	7.6	7.8 (1)	6.7	-
Orthophosphate (P)	mg/L	-	-	<0.010	<0.010	<0.010	-
pH	Units	-	-	7.22	7.30	7.37	-
Reactive Silica (SiO ₂)	mg/L	-	-	29	30	29	-
Dissolved Sulphate (SO ₄)	mg/L	-	-	<2.0	<2.0	<2.0	-
Turbidity	NTU	-	-	570	320	290	-
Conductivity	µS/cm	-	-	940	940	1000	1565
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-
Calcium	mg/L	-	-	80	79	86	-
Magnesium	mg/L	-	-	13	14	14	-
Phosphorus	mg/L	-	-	<0.100	0.11	<0.10	-
Potassium	mg/L	-	-	29	28	28	-
Sodium	mg/L	-	-	36	43	45	-

Notes: See separate notes page

TABLE C-7 GROUNDWATER METALS CHEMISTRY - MW-4A
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	21-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	26-Jul-00 Dup.	Aug-01	Sep-02	Sep-02 Duplicate	19-Aug-03	25-Aug-04	25-Aug-04 MW-40D	25-Aug-04 Lab Dup	18-Aug-05	18-Aug-05 MW-40D	23-Nov-06	1-Aug-07	1-Aug-07 MW-4ALF	28-Jul-08	28-Jul-08 Dup-A
Aluminum	µg/L	-	50	9	13	33	33	< 5	4000	2500	14	<20	<20	< 100	<100	<100	<101	<100	<100	ND	<50	<50	<50	<50
Antimony	µg/L	-	200	3	< 2	< 2	< 2	< 2	< 20	< 20	<2	<0.4	<0.4	< 20	<20	<20	<21	<20	<20	ND	<20	<20	<20	<20
Arsenic	µg/L	-	50	170	39	93	81	59	100	67	33	61.9	64.4	23	<20	25	24	51	47	ND	76	69	68	68
Barium	µg/L	-	10000	2900	1800	2700	2300	2200	3300	2900	1400	4560	4570	2800	2800	3200	3200	3200	3200	3000	3760	3860	3740	3990
Beryllium	µg/L	-	53	< 5	< 5	< 5	< 5	< 5	< 50	< 50	<5	<0.5	<0.5	< 20	<20	<20	<20	<20	<20	ND	<20	<20	<20	<20
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	< 20	<20	<20	<20	<20	<20	ND	<20	<20	<20	<20
Boron	µg/L	-	12000	540	250	400	420	440	390	390	200	450	450	780	660	790	860	980	990	900	845	867	734	727
Cadmium	µg/L	-	0.1	< 0.5	< 0.3	< 0.3	< 0.3	< 0.3	1.6	1.1	0.09	<0.3	<0.3	< 3	<3	<3	<3	<3	<3	ND	0.21	<0.17	<0.17	<0.17
Chromium	µg/L	-	-	4	5	< 2	4	5	24	< 20	<2	2	3	< 20	<20	<20	<20	<20	<20	ND	<20	<20	<20	<20
Cobalt	µg/L	-	100	29	21	26	22	20	91	56	15	21	22	20	24	24	23	17	18	18	14.8	13.8	15.6	15.6
Copper	µg/L	-	20	< 10	3	3	4	< 2	63	37	2	10	11	< 20	<20	<20	<20	<20	<20	ND	<20	<20	35	<20
Iron	µg/L	-	3000	24800	20000	28000	22000	13000	210000	94000	14000	25000	25500	< 500	<500	1300	1300	11000	7800	ND	20500	20900	18800	18600
Lead	µg/L	-	10	0.1	0.4	0.4	0.5	< 0.5	51	29	<.5	<1	<1	< 5	<5	<5	<5	<5	<5	ND	<5.0	<5.0	<5.0	<5.0
Manganese	µg/L	-	8200	420	5400	900	890	450	33000	17000	3500	785	811	480	1100	550	550	480	470	540	493	481	497	515
Mercury	µg/L	-	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	730	< 2	< 2	< 2	< 2	< 2	< 20	< 20	<2	<4	<4	< 20	<20	<20	<20	<20	<20	ND	<20	<20	<20	<20
Nickel	µg/L	-	250	47	28	36	39	26	120	69	12	41	42	50	56	68	69	48	51	45	32	31	33	33
Selenium	µg/L	-	10	< 2	< 2	< 2	< 2	< 2	< 10	< 10	<1	2	3	< 20	<20	<20	<20	<20	<20	ND	<10	<10	<10	<10
Silver	µg/L	-	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 5	<0.1	<2	<2	< 5	<5	<5	<5	<5	<5	ND	<1.0	<1.0	<1.0	<1.0
Strontium	µg/L	-	210000	730	370	580	510	580	600	550	350	859	876	950	940	1100	1100	960	960	1000	1080	1090	970	1010
Thallium	µg/L	-	8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	< 1	<0.1	<0.8	<0.8	< 1	<1	<1	<1	<1	<1	ND	<1.0	<1.0	<1.0	<1.0
Tin	µg/L	-	-	< 2	< 2	< 2	< 2	< 2	< 20	< 20	<2	.20	<20	< 20	<20	<20	<20	<20	<20	ND	<20	<20	<20	<20
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	< 20	<20	<20	<20	<20	<20	ND	<20	<20	<20	<20
Uranium	µg/L	-	3000	0.1	0.1	0.2	0.2	0.1	6.6	3.5	0.2	0.21	0.21	< 1	<1	<1	<1	<1	<1	1	1.2	<1.0	<1.0	<1.0
Vanadium	µg/L	-	60	< 2	< 2	< 2	< 2	< 2	50	22	<2	4	5	< 20	<20	<20	<20	<20	<20	ND	<20	<20	<20	<20
Zinc	µg/L	-	300	< 10	43	21	14	12	< 200	< 200	22	7	7	< 50	<50	<50	<50	<50	<50	ND	<50	<50	<50	<50

Notes: See separate notes page

TABLE C-7 GROUNDWATER METALS CHEMISTRY - MW-4A
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	12-Aug-09	12-Aug-09 MW-40D	27-Jul-10	27-Jul-10 MW-40D	21-Sep-11	4-Oct-12	4-Jul-13	4-Jul-13 MW-40D	19-Aug-14	19-Aug-14 MW-40D	21-Jul-15	21-Jul-15 MW-40D	14-Jul-16	19-Jul-17	19-Jul-17 MW-40D	15-Jul-19	16-Jul-20
Aluminum	µg/L	-	50	<50	<50	<10	<10	<10	<5	347	62	10	10	<5	<5	<5.0	6.5	<5.0	17	<5.0
Antimony	µg/L	-	200	<20	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/L	-	50	67	62	122	117	57	43	66	64	89	90	84	82	64	47	6.4	28	60
Barium	µg/L	-	10000	4030	3760	2900	3000	3250	3420	3170	3200	4090	3980	4090	4110	3300	2300	1900	1500	2500
Beryllium	µg/L	-	53	<20	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	<1.0
Bismuth	µg/L	-	-	<20	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Boron	µg/L	-	12000	548	565	624	610	690	773	591	681	726	704	801	651	390	330	270	240	240
Cadmium	µg/L	-	0.1	<0.17	<0.17	<0.3	<0.3	<0.3	0.452	<0.017	0.029	<0.017	<0.017	<0.017	<0.017	<0.010	0.015	0.27	0.011	<0.010
Chromium	µg/L	-	-	<10	<10	2	3	<2	<1	3	<1	<1	<1	3	3	<1.0	<1.0	<1.0	2.2	<1.0
Cobalt	µg/L	-	100	15.8	15.5	6	7	7	9	11	11	10	10	6	6	12	10	11	7.8	10
Copper	µg/L	-	20	<20	<20	<2	<2	<2	<2	<2	3	4	<2	<2	<2	<2.0	<2.0	<2.0	0.68	<0.50
Iron	µg/L	-	3000	16600	17600	14400	15200	15900	<50	17400	17200	15600	14800	25900	24400	19000	13000	<50	9700	18000
Lead	µg/L	-	10	<5.0	<5.0	1.9	1.8	<0.5	<0.5	<0.5	<0.5	3.4	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Manganese	µg/L	-	8200	497	520	384	407	641	702	541	513	430	443	657	633	550	1200	1700	1200	690
Mercury	µg/L	-	0.26	-	-	-	-	-	-	0.101	<0.026	0.029	<0.026	<0.026	<0.026	-	-	-	-	-
Molybdenum	µg/L	-	730	<20	<20	<2	<2	<2	5	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Nickel	µg/L	-	250	32	28	17	15	15	39	27	25	19	18	9	9	18	16	22	13	15
Selenium	µg/L	-	10	<10	<10	3	3	<2	2	<1	<1	<1	<1	7	7	<1.0	<1.0	<1.0	<1.0	<0.50
Silver	µg/L	-	1	<1.0	<1.0	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium	µg/L	-	210000	1040	1040	865	875	823	872	980	974	845	853	974	936	770	620	550	410	670
Thallium	µg/L	-	8	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	-	-	<20	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	µg/L	-	-	<20	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium	µg/L	-	3000	<1.0	<1.0	<0.1	0.1	<0.1	0.6	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.10	<0.10	0.27	0.16	<0.10
Vanadium	µg/L	-	60	<20	<20	4	4	2	<2	<2	<2	<2	<2	2	3	<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	µg/L	-	300	<50	<50	10	<5	<5	<5	35	20	9	<5	9	8	7.2	11	15	27	<5.0

Notes: See separate notes page

TABLE C-8

GROUNDWATER METALS CHEMISTRY - MW-22A
 Municipality of the County of Kings
 Meadowview Landfill, Kentville, NS
 Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	20-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	26-Jul-00 Lab Dup.	Aug-01	Sept-02	19-Aug-03	25-Aug-04	18-Aug-05	23-Nov-06	16-Aug-07	28-Jul-08	10-Aug-09	27-Jul-10	21-Sep-11	4-Oct-12	5-Jul-13	19-Aug-14
Aluminum	µg/L	-	50	5	< 100	< 10	< 10	< 10	1000	3700	120	20	< 10	<10	<100	ND	<5.0	<5.0	12.4	<10	<10	<5	21	<5
Antimony	µg/L	-	200	9	< 20	< 2	< 2	< 2	< 20	< 20	<2	<0.4	< 2	<2	<20	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2
Arsenic	µg/L	-	50	36	< 20	100	110	97	61	92	110	106	2	<2	27	ND	101	104	111	<2	107	<2	75	88
Barium	µg/L	-	10000	990	1800	4100	4000	4000	4300	4600	3500	602	6	150	1300	920	1230	1080	1090	357	815	730	938	910
Beryllium	µg/L	-	53	< 5	< 50	< 5	< 5	< 5	< 50	< 50	<5	<0.5	< 2	<2	<20	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	-	< 2	<2	<20	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2
Boron	µg/L	-	12000	160	1000	1300	1400	1600	1800	1800	2100	830	7	780	470	630	387	429	295	135	212	336	291	229
Cadmium	µg/L	-	0.1	< 0.5	< 0.5	< 0.3	< 0.3	< 0.3	< 1	< 1	0.05	<0.3	< 0.3	<0.3	<3	ND	0.023	<0.017	0.358	<0.3	<0.3	<0.017	0.022	<0.017
Chromium	µg/L	-	-	5	< 20	2	10	6	< 20	< 20	2	3	< 2	<2	<20	ND	2.2	3.3	1.4	3	<2	1	<1	<1
Cobalt	µg/L	-	100	35	50	48	33	37	38	45	26	21	< 1	3	26	28	23	19.3	23.3	<1	18	18	26	17
Copper	µg/L	-	20	10	< 20	< 2	2	7	40	90	4	21	< 2	<2	<20	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2
Iron	µg/L	-	3000	118000	1500	76000	50000	50000	30000	53000	39000	41500	< 50	1100	22000	16000	45900	33700	37000	<50	56100	990	56000	36900
Lead	µg/L	-	10	0.2	< 1	0.5	< 0.5	< 0.5	11	29	1.1	<1	< 0.5	<0.5	<5	ND	<0.50	<0.50	<0.50	1.4	0.5	<0.5	<0.5	<0.5
Manganese	µg/L	-	8200	2290	4800	7200	4100	4300	3700	4800	3200	2740	39	350	3600	3300	4220	2570	4330	656	4800	5030	4220	3020
Mercury	µg/L	-	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.049	<0.026
Molybdenum	µg/L	-	730	< 2	< 20	3	3	3	< 20	< 20	3	<4	< 2	<2	<20	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2
Nickel	µg/L	-	250	29	60	48	47	49	53	60	44	30	< 2	4	25	25	18	17.3	15.4	3	9	12	19	10
Selenium	µg/L	-	10	< 2	< 20	< 2	< 2	< 2	< 10	< 10	<1	1	< 2	<2	<20	ND	<1.0	<1.0	<1.0	<2	<2	<1	<1	<1
Silver	µg/L	-	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	< 5	<0.1	<2	< 0.5	<0.5	<5	ND	<0.10	<0.10	<0.10	<0.5	<0.5	<0.1	<0.1	<0.1
Strontium	µg/L	-	210000	300	940	1100	1100	1200	1000	1100	1000	906	420	84	670	560	521	475	436	154	411	415	418	327
Thallium	µg/L	-	8	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 1	< 1	0.1	<0.8	< 0.1	<0.1	<1	ND	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	-	-	< 2	< 20	< 2	< 2	< 2	< 20	< 20	<2	<20	< 2	<2	<20	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	-	< 2	<2	<20	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2
Uranium	µg/L	-	3000	0.1	< 0.1	0.2	0.3	0.4	3.2	5	1.2	1.04	10	0.1	<1	ND	<0.10	<0.10	0.12	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	µg/L	-	60	< 2	< 2	3	3	2	< 20	< 20	4	6	< 2	<2	<20	ND	<2.0	<2.0	<2.0	<2	3	3	<2	<2
Zinc	µg/L	-	300	20	< 50	9	11	24	< 200	< 200	10	10	< 5	<5	160	ND	22.4	5.5	<5.0	5	5	<5	23	8

Notes: See separate notes page

TABLE C-8 **GROUNDWATER METALS CHEMISTRY - MW-22A**
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	22-Jul-15	14-Jul-16	19-Jul-17	15-Jul-19	15-Jul-19 Lab-Dup	16-Jul-20
Aluminum	µg/L	-	50	<5	<5.0	<5.0	<5.0	<5.0	<5.0
Antimony	µg/L	-	200	<2	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/L	-	50	106	1.4	95	67	66	83
Barium	µg/L	-	10000	1110	8.6	1100	880	880	980
Beryllium	µg/L	-	53	<2	<1.0	<1.0	<1.0	<1.0	<1.0
Bismuth	µg/L	-	-	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Boron	µg/L	-	12000	322	<50	440	220	220	280
Cadmium	µg/L	-	0.1	<0.017	<0.010	75000	<0.010	<0.010	<0.010
Chromium	µg/L	-	-	2	<1.0	<1.0	1.0	1.0	<1.0
Cobalt	µg/L	-	100	16	<0.40	19	18	17	19
Copper	µg/L	-	20	<2	<2.0	<2.0	<0.50	<0.50	<0.50
Iron	µg/L	-	3000	74400	200	49000	47000	47000	57000
Lead	µg/L	-	10	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Manganese	µg/L	-	8200	7770	57	4000	3600	3600	3900
Mercury	µg/L	-	0.26	<0.026	-	-	-	-	-
Molybdenum	µg/L	-	730	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Nickel	µg/L	-	250	10	<2.0	16	12	11	13
Selenium	µg/L	-	10	2	<1.0	<1.0	<1.0	<1.0	<0.50
Silver	µg/L	-	1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium	µg/L	-	210000	392	850	420	340	340	400
Thallium	µg/L	-	8	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	-	-	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	µg/L	-	-	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium	µg/L	-	3000	<0.1	33	<0.10	<0.10	<0.10	<0.10
Vanadium	µg/L	-	60	2	<2.0	<2.0	<2.0	<2.0	<2.0
Zinc	µg/L	-	300	<5	<5.0	<5.0	5.5	6.9	<5.0

Notes: See separate notes page

TABLE C-9

GROUNDWATER METALS CHEMISTRY - MW-22B
 Municipality of the County of Kings
 Meadowview Landfill, Kentville, NS
 Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	20-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	Aug-01	Sept-02	19-Aug-03	25-Aug-04	18-Aug-05	23-Nov-06	16-Aug-07	28-Jul-08	10-Aug-09	27-Jul-10	21-Sep-11	4-Oct-12	5-Jul-13	19-Aug-14
Aluminum	µg/L	-	50	5	260	26	< 20	30	2300	<50	<20	< 100	<100	<100	ND	<50	<50	<50	<10	<10	<5	29	<5
Antimony	µg/L	-	200	12	< 2	< 2	< 2	< 2	< 20	<20	<0.4	< 20	<20	<20	ND	<20	<20	<20	<2	<2	<2	<2	<2
Arsenic	µg/L	-	50	10	13	15	4	7	22	<20	14.2	< 20	<20	<20	ND	<20	<20	<20	41	57	12	23	26
Barium	µg/L	-	10000	1400	420	520	350	510	900	580	548	720	590	510	1000	596	581	572	735	3250	672	734	896
Beryllium	µg/L	-	53	< 5	< 5	< 5	< 5	< 5	< 50	<50	<0.5	< 20	<20	<20	ND	<20	<20	<20	<2	<2	<2	<2	<2
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	< 20	<20	<20	ND	<20	<20	<20	<2	<2	<2	<2	<2
Boron	µg/L	-	12000	320	120	160	180	250	330	370	280	440	600	500	350	567	504	470	601	690	726	541	480
Cadmium	µg/L	-	0.1	< 0.5	< 0.5	< 0.3	< 0.3	< 0.3	< 1	0.5	< 0.3	< 3	<3	<3	ND	<0.17	<0.17	0.8	<0.3	<0.3	0.023	<0.017	<0.017
Chromium	µg/L	-	-	2	8	< 2	< 2	2	< 20	<20	<2	< 20	<20	<20	3	<20	<20	<10	4	<2	3	<1	<1
Cobalt	µg/L	-	100	34	22	11	5	8	23	10	6	17	15	13	24	10.4	9.5	9.6	10	7	10	16	13
Copper	µg/L	-	20	10	14	< 2	2	4	31	<20	9	< 20	<20	<20	ND	<20	<20	<20	<2	<2	<2	<2	<2
Iron	µg/L	-	3000	3200	9900	14000	720	1600	18000	8800	11500	1300	<500	2400	7100	10100	8820	8690	15500	15900	<50	14200	10400
Lead	µg/L	-	10	0.2	2	1.1	< 0.5	0.9	22	<5.0	<1	< 5	<5	<5	ND	<5.0	<5.0	<5.0	2	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	-	8200	5280	3100	4300	270	1700	6900	2400	736	4300	4400	4500	4100	4070	4180	3650	4490	641	4520	4260	4270
Mercury	µg/L	-	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.026	<0.026
Molybdenum	µg/L	-	730	20	6	5	3	4	< 20	<20	<4	23	<20	<20	ND	<20	<20	<20	<2	<2	<2	<2	<2
Nickel	µg/L	-	250	80	20	15	14	28	38	26	24	77	36	30	17	32	28	27	22	15	22	35	25
Selenium	µg/L	-	10	4	< 2	< 2	< 2	< 2	< 10	<10	3	< 20	<20	<20	ND	<10	<10	<10	5	<2	3	2	<1
Silver	µg/L	-	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	<1	<2	< 5	<5	<5	ND	<1.0	<1.0	<1.0	<0.5	<0.5	<0.1	<0.1	<0.1
Strontium	µg/L	-	210000	1500	2400	2500	2400	2300	3000	2900	2840	3100	2800	2500	450	2540	2460	2410	2280	823	2190	1990	2030
Thallium	µg/L	-	8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	<1	<0.8	< 1	<1	<1	ND	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.1
Tin	µg/L	-	-	< 2	< 2	< 2	< 2	< 2	< 20	<20	<20	< 20	<20	<20	ND	<20	<20	<20	<2	<2	<2	<2	<2
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	< 20	<20	<20	ND	<20	<20	<20	<2	<2	<2	<2	<2
Uranium	µg/L	-	3000	2	2.8	3.9	1.8	7.6	13	7.1	4.1	75	15	9.6	0.1	9.9	12.0	11	3.3	<0.1	22.2	5.0	11.5
Vanadium	µg/L	-	60	< 2	3	< 2	< 2	< 2	< 20	<20	3	< 20	<20	<20	ND	<20	<20	<20	5	2	3	<2	<2
Zinc	µg/L	-	300	20	53	9	11	18	170	24	7	< 50	<50	<50	14	<50	<50	<50	<5	<5	<5	12	17

Notes: See separate notes page

TABLE C-9

GROUNDWATER METALS CHEMISTRY - MW-22B
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	Standards		22-Jul-15	14-Jul-16	19-Jul-17	15-Jul-19	16-Jul-20
		NS Tier 1 EQS	NS Tier 2 PSS					
Aluminum	µg/L	-	50	<5	<5.0	<5.0	<5.0	<5.0
Antimony	µg/L	-	200	<2	<1.0	<1.0	<1.0	1.4
Arsenic	µg/L	-	50	36	4.1	9.5	9.9	<1.0
Barium	µg/L	-	10000	814	700	690	620	570
Beryllium	µg/L	-	53	<2	<1.0	<1.0	<1.0	<1.0
Bismuth	µg/L	-	-	<2	<2.0	<2.0	<2.0	<2.0
Boron	µg/L	-	12000	449	460	490	450	420
Cadmium	µg/L	-	0.1	<0.017	0.052	0.018	0.16	0.84
Chromium	µg/L	-	-	8	<1.0	<1.0	1.4	<1.0
Cobalt	µg/L	-	100	9	9.5	8.4	9.7	8.3
Copper	µg/L	-	20	<2	<2.0	<2.0	<0.50	0.74
Iron	µg/L	-	3000	14200	2700	5100	5200	110
Lead	µg/L	-	10	<0.5	<0.50	<0.50	<0.50	<0.50
Manganese	µg/L	-	8200	4870	3400	1200	3500	2500
Mercury	µg/L	-	0.26	<0.026	-	-	-	-
Molybdenum	µg/L	-	730	<2	<2.0	<2.0	<2.0	<2.0
Nickel	µg/L	-	250	16	25	25	23	22
Selenium	µg/L	-	10	11	<1.0	<1.0	<1.0	<0.50
Silver	µg/L	-	1	<0.1	<0.10	<0.10	<0.10	<0.10
Strontium	µg/L	-	210000	1970	2000	2000	2000	1900
Thallium	µg/L	-	8	<0.1	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	-	-	<2	<2.0	<2.0	<2.0	<2.0
Titanium	µg/L	-	-	<2	<2.0	<2.0	<2.0	<2.0
Uranium	µg/L	-	3000	7.8	12	9.6	11	9.4
Vanadium	µg/L	-	60	3	<2.0	<2.0	<2.0	<2.0
Zinc	µg/L	-	300	<5	8	<5.0	7.5	<5.0

Notes: See separate notes page

TABLE C-10

GROUNDWATER METALS CHEMISTRY - MW-22C
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	20-Mar-96	16-Apr-97	8-Apr-98	5-May-99	26-Jul-00	Aug-01	Sept-02	19-Aug-03	25-Aug-04	18-Aug-05	23-Nov-06	16-Aug-07	28-Jul-08	10-Aug-09	27-Jul-10	21-Sep-11	4-Oct-12	5-Jul-13	19-Aug-14	22-Jul-15	14-Jul-16	19-Jul-17	15-Jul-19	16-Jul-20
Aluminum	µg/L	-	50	18	170	170	69	110	260	19	<20	<100	<10	ND	44	5.2	<5.0	<5.0	<10	<10	<5	18	6	<5	<5.0	<5.0	<5.0	<5.0
Antimony	µg/L	-	200	6	<2	<2	<2	<2	<2	<2	<0.4	<20	<2	ND	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/L	-	50	<20	2	<2	2	2	3	2	2	32	2	ND	ND	<2.0	2.2	<2.0	2	<2	<2	<2	<2	2	62	1.3	1.4	1.4
Barium	µg/L	-	10000	6	13	6	5	61	19	11	12	1900	8	6.7	9	10.9	8.5	7.5	7	5	6	25	8	7	710	8.8	8.7	9.4
Beryllium	µg/L	-	53	<5	<5	<5	<5	<5	<5	<5	<0.5	<20	<2	ND	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	<20	<2	ND	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0
Boron	µg/L	-	12000	10	12	9	12	21	<20	12	<100	1200	9	8.9	9	13.5	9.9	9.4	10	10	25	48	12	17	370	<50	<50	<50
Cadmium	µg/L	-	0.1	<0.5	<0.5	<0.3	<0.3	<0.3	<0.1	0.02	<0.3	<3	<0.3	ND	0.3	0.019	0.027	0.025	<0.3	<0.3	<0.017	<0.017	<0.017	<0.017	<0.010	62000	<0.010	0.014
Chromium	µg/L	-	-	<2	3	<2	<2	<2	<2	<2	<2	<20	<2	ND	ND	<2.0	<2.0	2.5	<2	<2	1	<1	<1	1	<1.0	<1.0	<1.0	<1.0
Cobalt	µg/L	-	100	<1	1	1	1	1	1	0.4	<1	28	<1	ND	ND	<0.40	<0.40	<0.40	<1	<1	<1	<1	<1	<1	15	<0.40	<0.40	<0.40
Copper	µg/L	-	20	10	15	2	4	9	14	<2	6	<20	<2	ND	ND	<2.0	<2.0	<2.0	2	<2	<2	35	<2	<2	<2.0	<2.0	<0.50	<0.50
Iron	µg/L	-	3000	60	210	120	120	230	250	20	110	23000	<50	ND	ND	109	156	145	176	135	<50	150	156	94	41000	230	200	230
Lead	µg/L	-	10	0.1	1.1	0.6	0.7	0.5	1.2	<0.5	<1	<5	<0.5	ND	ND	<0.50	<0.50	<0.50	1.5	<0.5	<0.5	2	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50
Manganese	µg/L	-	8200	40	41	15	15	93	94	100	83	3800	24	ND	46	62.4	54.2	51.4	47	47	10	51	44	43	3300	57	56	58
Mercury	µg/L	-	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.087	<0.026	<0.026	-	-	-	-
Molybdenum	µg/L	-	730	<2	<2	<2	<2	<2	<2	<2	<4	<20	<2	ND	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0
Nickel	µg/L	-	250	<2	2	<2	<2	2	2	<2	<3	35	<2	ND	ND	<2.0	<2.0	<2.0	<2	<2	<2	3	<2	<2	12	<2.0	<2.0	17
Selenium	µg/L	-	10	<2	<2	<2	<2	<2	<1	<1	<1	<20	<2	ND	ND	<1.0	<1.0	<1.0	<2	<2	<1	<1	<1	2	<1.0	<1.0	<1.0	<0.50
Silver	µg/L	-	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<2	<5	<0.5	ND	ND	<0.10	<0.10	<0.10	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Strontium	µg/L	-	210000	130	150	230	270	330	460	380	429	850	400	400	470	534	589	630	580	753	721	740	697	786	280	12000	900	910
Thallium	µg/L	-	8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<1	<0.1	ND	ND	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	870	<0.10	<0.10
Tin	µg/L	-	-	<2	<2	<2	<2	<2	<2	<2	<20	<20	<2	ND	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<0.10	<2.0	<2.0
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	<20	<2	ND	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0
Uranium	µg/L	-	3000	1.5	5.1	8.3	7.2	8.7	12	40	20.8	<1	8.6	28	24	19.4	18.7	23.8	17	25.2	26.5	27.4	33.6	34.7	<0.10	<2.0	34	35
Vanadium	µg/L	-	60	<2	2	<2	<2	<2	6	4	3	<20	<2	6.4	ND	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	34	<2.0	<2.0
Zinc	µg/L	-	300	<10	37	5	22	18	13	6	7	<50	<5	ND	5	50.8	10.8	<5.0	<5	<5	<5	29	6	<5	<5.0	<2.0	<5.0	<5.0

Notes: See separate notes page

TABLE C-11 GROUNDWATER METALS CHEMISTRY - MW-25B
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	19-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	Aug-01	Aug-01 Duplicate	Sept-02	19-Aug-03	25-Aug-04	18-Aug-05	23-Nov-06	16-Aug-07	16-Aug-07 Dup A	28-Jul-08	10-Aug-09	28-Jul-10	21-Sep-11	4-Oct-12	8-Jul-13	19-Aug-14	22-Jul-15	14-Jul-16	19-Jul-17	15-Jul-19	16-Jul-20	
Aluminum	µg/L	-	50	7	22	160	39	50	450	26	19	<20	<10	<10	ND	ND	6.3	98.4	<5.0	<5.0	<10	<10	<5	15	9	<5	<5.0	<5.0	<5.0	<5.0	
Antimony	µg/L	-	200	2	<2	<2	<2	<2	<2	<2	<2	<0.4	<2	<2	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	
Arsenic	µg/L	-	50	<2	2	2	<2	2	2	2	2	1.5	<2	<2	ND	3	2	<2.0	<2.0	2.8	5	<2	3	3	5	8	3.6	1.9	1.4	1.6	
Barium	µg/L	-	10000	12	23	5	11	16	11	6	5	5.3	24	13	7.2	42	22.1	<5.0	11.3	12.7	29	<5	27	14	77	35	27	7.6	8.7	5.5	
Beryllium	µg/L	-	53	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<2	<2	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	-	<2	<2	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2.0	
Boron	µg/L	-	12000	14	11	10	12	18	7	7	6	<100	63	41	21	140	93.4	11.8	44.0	78.9	186	18	170	100	162	165	160	56	<50	<50	
Cadmium	µg/L	-	0.1	<0.5	<0.5	<0.3	<0.3	<0.3	0.1	0.03	0.03	<0.3	<0.3	<0.3	ND	ND	0.029	<0.017	<0.017	0.065	<0.3	1	0.512	0.449	<0.017	0.02	0.021	0.019	<0.010	<0.010	
Chromium	µg/L	-	-	2	<2	<2	<2	2	<2	<2	<2	<2	<2	<2	ND	2	<2.0	<2.0	<2.0	<1.0	3	<2	3	<1	<1	4	<1.0	<1.0	<1.0	1.8	
Cobalt	µg/L	-	100	<0.1	<1	1	1	<1	<1	<0.4	<0.4	<1	<1	<1	ND	ND	0.5	<0.40	<0.40	<0.40	<1	<1	<1	<1	2	1	0.84	<0.40	<0.40	<0.40	
Copper	µg/L	-	20	<10	6	<2	4	2	21	9	6	5	<2	<2	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2	<2	<0.50	<0.50	
Iron	µg/L	-	3000	30	18	130	57	80	200	<20	<20	<100	<50	<50	ND	ND	<50	57	<50	<50	<50	<50	<50	<50	<50	3270	83	<50	<50	200	<50
Lead	µg/L	-	10	0.1	0.4	0.4	<0.5	<0.5	1.4	<0.5	<0.5	<1	<0.5	<0.5	ND	ND	<0.50	<0.50	<0.50	<0.50	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	
Manganese	µg/L	-	8200	150	3	16	7	56	32	34	32	7	30	17	19	140	86.2	10.3	60.4	35.8	250	8	283	<2	1410	435	300	11	56	3.8	
Mercury	µg/L	-	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.026	<0.026	<0.026	-	-	-	-	
Molybdenum	µg/L	-	730	35	<2	<2	<2	<2	<2	<2	<2	<4	<2	<2	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	
Nickel	µg/L	-	250	8	<2	<2	<2	<2	2	<2	<2	<3	3	2	ND	8	7.2	<2.0	3.8	6	10	<2	8	10	11	9	11	6600	<2.0	7.8	
Selenium	µg/L	-	10	<2	<2	<2	<2	<2	<1	<1	<1	<1	<2	<2	ND	ND	<1.0	<1.0	<1.0	<1.0	4	<2	2	<1	<1	10	<1.0	<1.0	<1.0	<0.50	
Silver	µg/L	-	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.1	<2	<0.5	<0.5	ND	ND	<0.1	<0.10	<0.10	<0.10	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	
Strontium	µg/L	-	210000	240	140	150	370	180	190	170	160	230	1100	780	440	1500	1310	23.2	632	1180	1510	262	1030	917	1520	1480	1600	880	900	720	
Thallium	µg/L	-	8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.8	<0.1	<0.1	ND	ND	<0.1	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	
Tin	µg/L	-	-	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	-	<2	<2	ND	2	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	
Uranium	µg/L	-	3000	1	3	2.9	4.3	2.7	3	3	2.8	2.98	9.8	5.9	4.6	15	13	<0.10	4.40	10.6	18.2	3.1	9.5	9.6	14	15.9	17	9.8	34	8.7	
Vanadium	µg/L	-	60	<2	2	2	<2	2	2	<2	<2	<2	<2	<2	ND	ND	<2.0	<2.0	<2.0	<2.0	3	<2	2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	
Zinc	µg/L	-	300	<10	18	5	11	6	14	7	6	4	5	<5	ND	ND	12.5	<5.0	23.3	<5.0	<5	8	6	10	6	<5	<5.0	<5.0	<5.0	<5.0	

Notes: See separate notes page

TABLE C-12 GROUNDWATER METALS CHEMISTRY - TH-1
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	NS Tier 1 EQS	NS Tier 2 PSS	Sep-93	19-Mar-96	16-Apr-97	6-Apr-98	5-May-99	26-Jul-00	Aug-01	Sept-02	19-Aug-03	25-Aug-04	25-Aug-04 Lab DUP	18-Aug-05	23-Nov-06	16-Aug-07	28-Jul-08	28-Jul-08 Dup-B	10-Aug-09	27-Jul-10	21-Sep-11	4-Oct-12	4-Jul-13	20-Aug-14	22-Jul-15	14-Jul-16	19-Jul-17	15-Jul-19	16-Jul-20	
				Aluminum	µg/L	-	50	5	70	< 10	< 10	< 10	130	<50	<20	< 10	<100	<100	ND	ND	<5.0	<5.0	<5.0	<5.0	<10	<10	<5	37	5	<5	<5.0
Antimony	µg/L	-	200	4	< 2	< 2	< 2	< 2	< 20	<20	<0.4	< 2	<20	<20	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	
Arsenic	µg/L	-	50	43	26	34	8	27	27	30	22.6	10	<20	<20	11	4	35.9	49.7	43.1	36	35	25	10	28	33	21	26	24	23	23	
Barium	µg/L	-	10000	3800	3300	3400	2800	2800	3100	3100	2460	2000	1600	1700	1400	1200	1500	1400	1400	1370	1030	1210	1090	1030	1170	1130	1000	970	870	900	
Beryllium	µg/L	-	53	< 5	< 5	< 5	< 5	< 5	< 50	<50	<0.5	< 2	<20	<20	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<1.0	<1.0	<1.0	<1.0	
Bismuth	µg/L	-	-	-	-	-	-	-	-	-	-	< 2	<20	<20	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0
Boron	µg/L	-	12000	1200	1000	950	1000	920	900	870	650	610	630	670	500	450	351	344	350	323	363	254	365	2210	244	240	220	210	180	160	
Cadmium	µg/L	-	0.1	0.5	1	< 0.3	< 0.3	< 0.3	< 1	0.1	<0.3	< 0.3	<3	<3	ND	ND	<0.017	0.059	0.047	0.089	<0.3	1	<0.017	<0.017	<0.017	0.023	<0.010	<0.010	<0.010	<0.010	
Chromium	µg/L	-	-	7	5	5	4	7	< 20	<20	<2	3	<20	<20	3.3	3	<2.0	3.4	2.2	1.7	<2	<2	1	7	<1	1	<1.0	<1.0	<1.0	<1.0	
Cobalt	µg/L	-	100	21	17	18	14	14	12	16	10	16	12	13	9.9	16	7.89	11.2	10.7	8.29	4	5	4	6	6	4	6.3	4.1	4.0	3.4	
Copper	µg/L	-	20	< 10	7	< 2	2	< 2	< 20	<20	15	< 2	<20	<20	ND	ND	<2.0	4.1	2.1	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<0.50	<0.50	
Iron	µg/L	-	3000	25300	13000	23000	120	13000	23000	26000	15200	80	<500	<500	1700	78	14100	12100	11900	11600	8630	9710	<50	11800	10400	14000	12000	13000	12000	12000	
Lead	µg/L	-	10	0.3	1	0.2	< 0.5	< 0.5	< 5	<5	<1	< 0.5	<5	<5	ND	ND	<0.50	<0.50	<0.50	<0.50	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.50	<0.50	<0.50	<0.50	
Manganese	µg/L	-	8200	1740	1400	1600	1400	1300	1500	1500	1280	1100	990	1000	950	750	855	774	759	841	774	1030	1000	913	914	1200	1100	990	1000	1000	
Mercury	µg/L	-	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.026	<0.026	<0.026	-	-	-	-	
Molybdenum	µg/L	-	730	2	2	2	< 2	< 2	< 20	<20	<4	2	<20	<20	ND	4	<2.0	4.9	4.8	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	
Nickel	µg/L	-	250	41	29	33	21	18	< 20	21	16	25	<20	<20	15	25	10.8	21.8	20.3	8.9	6	5	5	9	5	4	6.5	4.7	4.1	3.6	
Selenium	µg/L	-	10	< 2	< 2	< 2	< 2	< 2	< 10	<10	2	< 2	<20	<20	ND	ND	<1.0	<1.0	<1.0	<1.0	<2	<2	1	<1	<1	4	<1.0	<1.0	<1.0	<0.50	
Silver	µg/L	-	1	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5	<1	<2	< 0.5	<5	<5	ND	ND	<0.10	<0.10	<0.10	<0.10	<0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	
Strontium	µg/L	-	210000	920	790	840	800	770	860	840	873	690	570	590	520	470	439	429	415	425	430	434	413	384	376	400	400	380	360	370	
Thallium	µg/L	-	8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 1	<1	<0.8	< 0.1	<1	<1	ND	ND	<0.10	<0.10	<0.10	<0.10	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	
Tin	µg/L	-	-	3	3	2	2	2	< 20	<20	<20	2	<20	<20	ND	3	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	
Titanium	µg/L	-	-	-	-	-	-	-	-	-	-	< 2	<20	<20	ND	ND	<2.0	<2.0	<2.0	<2.0	<2	<2	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	
Uranium	µg/L	-	3000	0.5	1	0.4	0.2	0.2	< 1	<1	0.18	0.2	<1	<1	0.1	0.5	<0.10	0.15	0.13	<0.10	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	
Vanadium	µg/L	-	60	2	2	3	< 2	< 2	< 20	<20	4	< 2	<20	<20	ND	ND	<2.0	<2.0	<2.0	<2.0	3	3	<2	<2	<2	<2	<2.0	<2.0	<2.0	<2.0	
Zinc	µg/L	-	300	180	44	12	6	9	27	<20	7	7	<50	<50	ND	ND	27.6	6.4	17.6	<5.0	8	<5	6	15	<5	<5	<5.0	<5.0	<5.0	<5.0	

Notes: See separate notes page

TABLE C-13

Surface Water Inorganic Chemistry and Metals - SWA
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	RDL	Tier 1 EQS Fresh Water	CCME- FAL	Jul-18	Jul-19	Jul-20
Alkalinity (as CaCO ₃)	mg/L	5	-	-	61	58	60
Ammonia (as N)	mg/L	0.05	-	1.83 (3)	0.055	<0.050	0.10
Anion Sum	me/L	-	-	-	2.68	2.54	2.63
Bicarbonate (as CaCO ₃)	mg/L	1	-	-	<1.0	58	60
Calcium	mg/L	0.1	-	-	30	31	29
Carbonate (as CaCO ₃)	mg/L	1	-	-	<1.0	<1.0	<1.0
Cation Sum	me/L	-	-	-	2.49	2.53	2.42
Chloride	mg/L	1	-	120	34	28	31
Color	TCU	5	-	(1)	10	17	26
Conductivity (RCap)	µS/cm	1	-	-	280	250	270
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-
Hardness (as CaCO ₃)	mg/L	-	-	-	89	91	85
Ion Balance	%	-	-	-	3.68	0.200	4.16
Langelier Index (@ 20C)	-	-	-	-	-0.336	-0.377	-0.797
Langelier Index (@ 4C)	-	-	-	-	-0.586	-0.627	-0.547
Magnesium	mg/L	0.1	-	-	3.4	3.5	3.2
Nitrate	mg/L	0.05	-	13	1.7	2.4	1.8
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	1.7	2.5	1.9
Nitrite	mg/L	0.01	-	0.06	0.013	0.057	0.078
Orthophosphate	mg/L	0.01	-	-	0.037	0.031	0.073
pH	-	-	-	-	7.77	7.74	7.59
Phosphorus	mg/L	0.2	-	(4)	0.11	0.14	0.19
Potassium	mg/L	0.1	-	-	2.1	2.2	2.1
Reactive Silica (as SiO ₂)	mg/L	0.5	-	-	4.6	8.1	10
Saturation pH (@ 20C)	-	-	-	-	8.10	8.12	8.13
Saturation pH (@ 4C)	-	-	-	-	8.35	8.37	8.38
Sodium	mg/L	0.1	-	-	15.0	14	14
Sulphate	mg/L	2	-	-	18	20	20
TDS (Calculated)	mg/L	1	-	-	150	150	160
Total Organic Carbon (C)	mg/L	0.5	-	-	2.5	3.5	3.6
Turbidity	NTU	0.1	-	(2)	3.4	7.9	6.8
Aluminum	µg/L	10	5	100 (5)	67	240	170
Antimony	µg/L	2	20	-	<1.0	<1.0	<1.0
Arsenic	µg/L	2	5	5	1.3	1.3	1.7
Barium	µg/L	5	1000	-	26	32	29
Beryllium	µg/L	2	5.3	-	<1.0	<1.0	<1.0
Bismuth	µg/L	2	-	-	<2.0	<2.0	<2.0
Boron	µg/L	5	1200	1500	<50	<50	<50
Cadmium	µg/L	0.3	0.01	(6)	<0.010	<0.010	<0.010
Chromium	µg/L	2	-	8.9	<1.0	1.5	<1.0
Cobalt	µg/L	1	10	-	<0.40	<0.40	<0.40
Copper	µg/L	2	2	(6)	<2.0	0.73	1.0
Iron	µg/L	50	300	300	310	690	690
Lead	µg/L	0.5	1	(6)	<0.50	<0.50	<0.50
Manganese	µg/L	2	820	(7)	79	120	170
Molybdenum	µg/L	2	73	73	<2.0	<2.0	<2.0
Nickel	µg/L	2	25	(6)	<2.0	<2.0	<2.0
Selenium	µg/L	2	1	1	<1.0	<1.0	<0.50
Silver	µg/L	0.5	0.1	0.25	<0.10	<0.10	<0.10
Strontium	µg/L	5	21000	-	110	110	100
Thallium	µg/L	0.1	0.8	0.8	<0.10	<0.10	<0.10
Tin	µg/L	2	-	-	<2.0	<2.0	<2.0
Titanium	µg/L	2	-	-	<2.0	6.6	5.3
Uranium	µg/L	0.1	300	15	0.95	0.96	0.79
Vanadium	µg/L	2	6	-	<2.0	<2.0	<2.0
Zinc	µg/L	5	30	(8)	<5.0	<5.0	<5.0

Notes: See separate notes page

TABLE C-14

Surface Water Inorganic Chemistry and Metals - SW3
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	DL	Tier 1 EQS Fresh Water	CCME- FAL	May-96	Sept.-96	Nov.-96	May-97	Oct.-97	Sept.-98	Jul-00	Jul-00 Dup
Alkalinity (as CaCO3)	mg/L	5	-	-	36	6	38	38	53	56	63	61
Ammonia (as N)	mg/L	0.05	-	1.83 (3)	<0.05	<0.05	0.05	<0.05	0.07	0.09	0.07	0.07
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-	-
Bicarbonate (as CaCO3)	mg/L	1	-	-	35.9	62.9	37.9	37.9	52.9	55.7	63	61
Calcium	mg/L	0.1	-	-	22.8	31.4	23.4	23.1	33.4	31.9	32.2	32.9
Carbonate (as CaCO3)	mg/L	1	-	-	<0.1	<1	<1	<1	0.1	0.3	<1	<1
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	1	-	120	19	31.2	19.2	18.4	49.6	54	29.6	29.6
Color	TCU	5	-	(1)	33	20	28	33	20	11	14	14
Conductivity (RCAp)	µS/cm	1	-	-	187	267	203	199	377	375	274	274
Dissolved Organic Carbon	mg/L	-	-	-	5.8	-	3.9	4.6	1.3	2.8	3	3.2
Hardness (as CaCO3)	mg/L	-	-	-	68.5	92.4	70.8	69.2	102	99.4	95.6	97.4
Ion Balance	%	-	-	-	-	-	-	-	-	-	-	-
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-	-
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.1	-	-	2.8	3.4	3	2.8	4.5	4.8	3.7	3.7
Nitrate	mg/L	0.05	-	13	-	-	-	-	-	-	-	-
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	1.68	1.78	1.6	1.16	1.87	0.5	1.4	1.38
Nitrite	mg/L	0.01	-	0.06	-	-	-	-	-	-	-	-
Orthophosphate	mg/L	0.01	-	-	0.04	0.11	0.05	0.04	0.06	0.12	0.06	0.06
pH	-	-	-	-	7.3	7.3	7.2	7.5	7.4	7.7	7.7	7.5
Phosphorus	mg/L	0.2	-	(4)	-	-	-	-	-	-	-	-
Potassium	mg/L	0.1	-	-	1.6	2.5	1.9	1.6	3.3	3.5	1.9	1.9
Reactive Silica (as SiO2)	mg/L	0.5	-	-	5.2	7.3	8.9	4.2	5.4	7.4	4.1	4.1
Saturation pH (@ 20C)	-	-	-	-	-	-	-	-	-	-	-	-
Saturation pH (@ 4C)	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.1	-	-	9.8	14.1	9.6	-	-	-	-	-
Sulphate	mg/L	2	-	-	19	21	24	17	30	24	20	20
TDS (Calculated)	mg/L	1	-	-	-	-	-	-	-	-	149	149
Total Organic Carbon (C)	mg/L	0.5	-	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	(2)	3.9	1.9	1	1.4	4	1.9	<0.1	<0.1
Aluminum	µg/L	10	5	100 (5)	100	97	110	38	253	500	10	10
Antimony	µg/L	2	20	-	<2	<2	<2	<2	-	<20	<2	<2
Arsenic	µg/L	2	5	5	<2	2	<2	<2	-	<20	<2	<2
Barium	µg/L	5	1000	-	24	37	3000	19	39	<50	33	32
Beryllium	µg/L	2	5.3	-	<5	<5	<5	<5	<5	<50	<5	<5
Bismuth	µg/L	2	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	5	1200	1500	10	18	10	8	20	<50	15	15
Cadmium	µg/L	0.3	0.01	(6)	<0.3	<0.3	<0.3	<0.3	<5	<3	<0.1	<0.1
Chromium	µg/L	2	-	8.9	<2	<2	<2	<2	<5	<20	<2	<2
Cobalt	µg/L	1	10	-	<1	<1	<1	<1	<5	<10	<1	<1
Copper	µg/L	2	2	(6)	<2	<2	<2	<2	<10	<20	<2	<2
Iron	µg/L	50	300	300	340	500	280	320	340	1100	320	330
Lead	µg/L	0.5	1	(6)	0.2	0.5	0.5	0.3	<2.5	<5	<0.5	<0.5
Manganese	µg/L	2	820	(7)	40	110	39	33	130	120	60	59
Molybdenum	µg/L	2	73	73	<2	<2	<2	<2	<10	<20	<2	<2
Nickel	µg/L	2	25	(6)	<2	<2	<2	<2	<10	<20	<2	<2
Selenium	µg/L	2	1	1	<2	<2	<2	<2	-	<20	<1	<1
Silver	µg/L	0.5	0.1	0.25	<0.5	<0.5	<0.5	<0.5	<3	<5	<0.5	<0.5
Strontium	µg/L	5	21000	-	68	0.1	77	71	-	130	120	120
Thallium	µg/L	0.1	0.8	0.8	<0.1	<0.1	<0.1	<0.1	-	<1	<0.1	<0.1
Tin	µg/L	2	-	-	<2	<2	<2	<2	<50	<20	<2	<2
Titanium	µg/L	2	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	0.1	300	15	0.5	0.7	0.5	0.5	-	<1	0.6	0.6
Vanadium	µg/L	2	6	-	<2	<2	<2	<2	<10	<20	<2	<2
Zinc	µg/L	5	30	(8)	5	12	15	21	<10	<20	6	4

Notes: See separate notes page

TABLE C-14

Surface Water Inorganic Chemistry and Metals - SW3
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	DL	Tier 1 EQS Fresh Water	CCME- FAL	Aug-01	Sep-02	Aug-03	Aug-04	Jan-06	Nov-06	Aug-07	Aug-09
Alkalinity (as CaCO ₃)	mg/L	5	-	-	60	52	57	60	27	46	180	210
Ammonia (as N)	mg/L	0.05	-	1.83 (3)	0.17	<0.1	0.08	<0.05	0.09	0.13	13	6.1
Anion Sum	me/L	-	-	-	-	-	-	3.38	1.52	2.19	5.59	5.69
Bicarbonate (as CaCO ₃)	mg/L	1	-	-	60	51.66	57	60	27	46	179	215
Calcium	mg/L	0.1	-	-	29.8	30.9	30.3	39.5	18	29	99	50
Carbonate (as CaCO ₃)	mg/L	1	-	-	<1	0.31	<1	<1	ND	ND	<1	<1
Cation Sum	me/L	-	-	-	-	-	-	3.5	1.61	2.35	18.6	8.27
Chloride	mg/L	1	-	120	37.4	32.7	30	43	21	25	71	50
Color	TCU	5	-	(1)	9	68	22	9	23	19	9	72
Conductivity (RCAp)	µS/cm	1	-	-	284	291	283	388	160	220	590	510
Dissolved Organic Carbon	mg/L	-	-	-	1.9	8.6	-	2.2	-	-	-	-
Hardness (as CaCO ₃)	mg/L	-	-	-	90.1	90.83	91.3	116	54	88	340	160
Ion Balance	%	-	-	-	-	-	-	1.67	2.94	3.37	53.8	18.5
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-0.38	-1.87	-0.824	-0.411	-0.555
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-0.78	-2.12	-1.08	-0.658	-0.804
Magnesium	mg/L	0.1	-	-	3.8	3.32	3.8	4.1	2.5	3.7	22	7.5
Nitrate	mg/L	0.05	-	13	-	-	-	1.84	1.6	2.0	-	<0.05
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	1.93	2.08	1.9	1.9	1.6	2.0	0.05	0.05
Nitrite	mg/L	0.01	-	0.06	-	-	-	0.06	ND	0.02	-	0.01
Orthophosphate	mg/L	0.01	-	-	0.04	<0.3	0.09	0.18	0.04	0.07	<0.01	0.01
pH	-	-	-	-	7.9	7.8	7.6	7.7	6.79	7.41	6.84	6.86
Phosphorus	mg/L	0.2	-	(4)	-	-	-	0.2	<0.1	0.2	-	1.5
Potassium	mg/L	0.1	-	-	2.2	2.9	2.8	3.4	1.9	2.3	25	15
Reactive Silica (as SiO ₂)	mg/L	0.5	-	-	5.1	9	10	5.8	6.4	9.5	23	18
Saturation pH (@ 20C)	-	-	-	-	-	-	-	8.08	8.66	8.23	7.25	7.42
Saturation pH (@ 4C)	-	-	-	-	-	-	-	8.48	8.91	8.49	7.5	7.66
Sodium	mg/L	0.1	-	-	-	-	-	25.2	11	11	35	35
Sulphate	mg/L	2	-	-	19	28.4	19	40	13	20	<2	<2
TDS (Calculated)	mg/L	1	-	-	159	153.8	155	205	97	139	652	395
Total Organic Carbon (C)	mg/L	0.5	-	-	-	-	-	-	4.8	3.4	59	27
Turbidity	NTU	0.1	-	(2)	1.9	12	4.3	2.3	14	5.6	740	580
Aluminum	µg/L	10	5	100 (5)	26	110	10	10	130	240	38800	1360
Antimony	µg/L	2	20	-	<2	<0.4	<2	<2	ND	ND	<20	<2.0
Arsenic	µg/L	2	5	5	<2	1.8	2	2	ND	ND	359	105
Barium	µg/L	5	1000	-	43	55.1	32	38	24	31	2870	1070
Beryllium	µg/L	2	5.3	-	<5	<0.5	<2	<2	ND	ND	<20	<2.0
Bismuth	µg/L	2	-	-	-	-	<2	<2	ND	ND	<20	<2.0
Boron	µg/L	5	1200	1500	18	<100	16	21	11	13	179	135
Cadmium	µg/L	0.3	0.01	(6)	0.02	<0.3	<0.3	<0.3	ND	ND	2.05	0.380
Chromium	µg/L	2	-	8.9	<2	<2	<2	<2	ND	ND	47	2.1
Cobalt	µg/L	1	10	-	<0.4	<1	<1	<1	ND	ND	20.2	1.91
Copper	µg/L	2	2	(6)	<2	4	<2	<2	ND	ND	123	6.2
Iron	µg/L	50	300	300	440	810	590	150	190	670	235000	78700
Lead	µg/L	0.5	1	(6)	<0.5	<1	<0.5	<0.5	ND	ND	76.7	3.78
Manganese	µg/L	2	820	(7)	160	238	290	51	14	87	7700	4860
Molybdenum	µg/L	2	73	73	3	<4	<2	<2	ND	ND	<20	<2.0
Nickel	µg/L	2	25	(6)	<2	<3	<2	<2	ND	ND	49	3.3
Selenium	µg/L	2	1	1	<1	<1	<2	<2	ND	ND	<10	<1.0
Silver	µg/L	0.5	0.1	0.25	<0.1	<2	<0.5	<0.5	ND	ND	<1.0	<0.10
Strontium	µg/L	5	21000	-	100	160	110	170	58	91	415	257
Thallium	µg/L	0.1	0.8	0.8	<0.1	<0.8	<0.1	<0.1	ND	ND	<1.0	<0.10
Tin	µg/L	2	-	-	<2	<20	<2	<2	ND	ND	<20	<2.0
Titanium	µg/L	2	-	-	-	-	<2	<2	5	7	146	25.7
Uranium	µg/L	0.1	300	15	0.8	0.62	0.5	1	0.2	0.8	4.4	0.28
Vanadium	µg/L	2	6	-	<2	<2	<2	<2	ND	ND	139	8.5
Zinc	µg/L	5	30	(8)	24	8	<5	<5	8	5	395	36.3

Notes: See separate notes page

TABLE C-14

Surface Water Inorganic Chemistry and Metals - SW3
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	DL	Tier 1 EQS Fresh Water	CCME- FAL	Jul-13	Jul-17	Jul-17 Lab-Dup	Jul-18	Jul-19	Jul-20
Alkalinity (as CaCO ₃)	mg/L	5	-	-	-	65	N/A	66	61	61
Ammonia (as N)	mg/L	0.05	-	1.83 (3)	-	0.10	N/A	0.15	0.12	0.17
Anion Sum	me/L	-	-	-	-	2.79	N/A	2.84	2.60	2.68
Bicarbonate (as CaCO ₃)	mg/L	1	-	-	-	64	N/A	66	61	61
Calcium	mg/L	0.1	-	-	-	32000	N/A	33	32	30
Carbonate (as CaCO ₃)	mg/L	1	-	-	-	<1.0	N/A	<1.0	<1.0	<1.0
Cation Sum	me/L	-	-	-	-	2.60	N/A	2.75	2.88	2.45
Chloride	mg/L	1	-	120	-	32	N/A	36	30	31
Color	TCU	5	-	(1)	-	13	N/A	13	20	29
Conductivity (RCAp)	µS/cm	1	-	-	-	270	N/A	300	260	270
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-
Hardness (as CaCO ₃)	mg/L	-	-	-	-	94	N/A	96	97	87
Ion Balance	%	-	-	-	-	3.53	N/A	1.61	5.11	4.48
Langelier Index (@ 20C)	-	-	-	-	-	-0.424	N/A	-0.575	-0.616	-0.821
Langelier Index (@ 4C)	-	-	-	-	-	-0.674	N/A	-0.826	-0.868	-0.57
Magnesium	mg/L	0.1	-	-	-	3.5	N/A	3.7	4.4	3.2
Nitrate	mg/L	0.05	-	13	-	0.012	N/A	1.7	2.3	2.0
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	-	2.0	N/A	1.7	2.4	2.1
Nitrite	mg/L	0.01	-	0.06	-	2.0	N/A	0.016	0.074	0.077
Orthophosphate	mg/L	0.01	-	-	-	0.013	N/A	0.36	0.024	0.072
pH	-	-	-	-	-	7.64	N/A	7.47	7.47	7.55
Phosphorus	mg/L	0.2	-	(4)	-	<0.100	N/A	0.110	0.520	0.2
Potassium	mg/L	0.1	-	-	-	1.9	N/A	2.2	2.8	2.3
Reactive Silica (as SiO ₂)	mg/L	0.5	-	-	-	6.6	N/A	4.8	7.0	11
Saturation pH (@ 20C)	-	-	-	-	-	8.06	N/A	8.04	8.09	8.12
Saturation pH (@ 4C)	-	-	-	-	-	8.31	N/A	8.29	8.34	8.37
Sodium	mg/L	0.1	-	-	-	15	N/A	17	15	14
Sulphate	mg/L	2	-	-	-	21	N/A	18	18	21
TDS (Calculated)	mg/L	1	-	-	-	160	N/A	160	160	160
Total Organic Carbon (C)	mg/L	0.5	-	-	-	2.7	N/A	2.6	7.7 (1)	4.0
Turbidity	NTU	0.1	-	(2)	-	26	30	2.9	140	9.6
Aluminum	µg/L	10	5	100 (5)	210	120	N/A	140	3000	210
Antimony	µg/L	2	20	-	<2	<1.0	N/A	<1.0	<1.0	<1.0
Arsenic	µg/L	2	5	5	<2	1.5	N/A	1.6	5.0	2.0
Barium	µg/L	5	1000	-	31	31	N/A	35	71	36
Beryllium	µg/L	2	5.3	-	<2	<1.0	N/A	<1.0	<1.0	<1.0
Bismuth	µg/L	2	-	-	<2	<2.0	N/A	<2.0	<2.0	<2.0
Boron	µg/L	5	1200	1500	20	<50	N/A	<50	<50	<50
Cadmium	µg/L	0.3	0.01	(6)	0.018	<0.010	N/A	<0.010	0.046	0.01
Chromium	µg/L	2	-	8.9	<1	<1.0	N/A	<1.0	5.6	<1.0
Cobalt	µg/L	1	10	-	<1	<0.40	N/A	<0.40	2.2	<0.40
Copper	µg/L	2	2	(6)	3	<2.0	N/A	<2.0	3.4	1.0
Iron	µg/L	50	300	300	830	560	N/A	600	5900	900
Lead	µg/L	0.5	1	(6)	<0.5	<0.50	N/A	<0.50	3.1	<0.50
Manganese	µg/L	2	820	(7)	130	120	N/A	140	760	220
Molybdenum	µg/L	2	73	73	<2	-	-	<2.0	<2.0	<2.0
Nickel	µg/L	2	25	(6)	<2	<2.0	N/A	<2.0	4.2	<2.0
Selenium	µg/L	2	1	1	<1	<1.0	N/A	<1.0	<1.0	<0.50
Silver	µg/L	0.5	0.1	0.25	<0.1	<0.10	N/A	<0.10	<0.10	<0.10
Strontium	µg/L	5	21000	-	104	120	N/A	120	110	110
Thallium	µg/L	0.1	0.8	0.8	<0.1	<0.10	N/A	<0.10	<0.10	<0.10
Tin	µg/L	2	-	-	<2	<2.0	N/A	<2.0	<2.0	<2.0
Titanium	µg/L	2	-	-	7	3.3	N/A	6.0	70	6.3
Uranium	µg/L	0.1	300	15	0.7	1.0	N/A	1.0	1.7	0.82
Vanadium	µg/L	2	6	-	<2	<2.0	N/A	<2.0	7.0	<2.0
Zinc	µg/L	5	30	(8)	8	<5.0	N/A	<5.0	18	<5.0

Notes: See separate notes page

TABLE C-15

Surface Water Inorganic Chemistry and Metals - SW19B
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	RDL	Tier 1 EQS Fresh Water	CCME- FAL	Jul-19	Jul-20
Alkalinity (as CaCO ₃)	mg/L	5	-	-	35	63
Ammonia (as N)	mg/L	0.05	-	1.83 (3)	0.12	0.29
Anion Sum	me/L	-	-	-	1.88	2.40
Bicarbonate (as CaCO ₃)	mg/L	1	-	-	35	63
Calcium	mg/L	0.1	-	-	9.1	14
Carbonate (as CaCO ₃)	mg/L	1	-	-	<1.0	<1.0
Cation Sum	me/L	-	-	-	2.04	2.18
Chloride	mg/L	1	-	120	39	40
Color	TCU	5	-	(1)	430	180
Conductivity (RCap)	µS/cm	1	-	-	190	250
Dissolved Organic Carbon	mg/L	-	-	-	-	-
Hardness (as CaCO ₃)	mg/L	-	-	-	32	46
Ion Balance	%	-	-	-	4.08	4.8
Langelier Index (@ 20C)	-	-	-	-	-2.23	-1.31
Langelier Index (@ 4C)	-	-	-	-	-1.98	-1.06
Magnesium	mg/L	0.1	-	-	2.1	2.8
Nitrate	mg/L	0.05	-	13	<0.050	<0.050
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	<0.050	<0.050
Nitrite	mg/L	0.01	-	0.06	<0.010	<0.010
Orthophosphate	mg/L	0.01	-	-	0.026	0.013
pH	-	-	-	-	6.88	7.36
Phosphorus	mg/L	0.2	-	(4)	<0.1	<0.1
Potassium	mg/L	0.1	-	-	1.5	1.3
Reactive Silica (as SiO ₂)	mg/L	0.5	-	-	7.2	7.8
Saturation pH (@ 20C)	-	-	-	-	8.85	8.42
Saturation pH (@ 4C)	-	-	-	-	9.1	8.67
Sodium	mg/L	0.1	-	-	25	24
Sulphate	mg/L	2	-	-	4.2	<2.0
TDS (Calculated)	mg/L	1	-	-	120	140
Total Organic Carbon (C)	mg/L	0.5	-	-	26	15
Turbidity	NTU	0.1	-	(2)	14	30
Aluminum	µg/L	10	5	100 (5)	290	73
Antimony	µg/L	2	20	-	<1.0	<1.0
Arsenic	µg/L	2	5	5	<1.0	<1.0
Barium	µg/L	5	1000	-	170	140
Beryllium	µg/L	2	5.3	-	<1.0	<1.0
Bismuth	µg/L	2	-	-	<2.0	<2.0
Boron	µg/L	5	1200	1500	<50	<50
Cadmium	µg/L	0.3	0.01	(6)	0.038	0.019
Chromium	µg/L	2	-	8.9	1.2	<1.0
Cobalt	µg/L	1	10	-	1.2	1.5
Copper	µg/L	2	2	(6)	1.2	0.55
Iron	µg/L	50	300	300	7300	4300
Lead	µg/L	0.5	1	(6)	0.65	<0.50
Manganese	µg/L	2	820	(7)	5400	8300
Molybdenum	µg/L	2	73	73	<2.0	<2.0
Nickel	µg/L	2	25	(6)	<2.0	<2.0
Selenium	µg/L	2	1	1	<1.0	<0.50
Silver	µg/L	0.5	0.1	0.25	<0.10	<0.10
Strontium	µg/L	5	21000	-	34	45
Thallium	µg/L	0.1	0.8	0.8	<0.10	<0.10
Tin	µg/L	2	-	-	<2.0	<2.0
Titanium	µg/L	2	-	-	3.1	<2.0
Uranium	µg/L	0.1	300	15	<0.10	<0.10
Vanadium	µg/L	2	6	-	<2.0	<2.0
Zinc	µg/L	5	30	(8)	7.9	<5.0

Notes: See separate notes page

TABLE C-16

Surface Water Inorganic Chemistry and Metals - SW7
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	RDL	Tier 1 EQS Fresh Water	CCME- FAL	May-93	Aug-93	Nov-93	May-96	Sep-96	Nov-96	May-97
Alkalinity (as CaCO ₃)	mg/L	5	-	-	76	85	66	48	84	58	66
Ammonia (as N)	mg/L	0.03	-	1.83 (3)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-
Bicarbonate (as CaCO ₃)	mg/L	5	-	-	75.9	84.8	65.9	47.9	83.7	57.9	65.7
Calcium	mg/L	0.1	-	-	25	30.9	24.3	20	28.7	24.7	23
Carbonate (as CaCO ₃)	mg/L	10	-	-	0.11	0.2	0.1	< 0.1	< 1	< 1	< 1
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	1	-	120	20.1	20.2	18.2	20.9	22.3	21.9	24.5
Color	TCU	5	-	(1)	64	29	24	31	30	53	58
Conductivity (RCAp)	µS/cm	1	-	-	233	229	186	177	226	210	215
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO ₃)	mg/L	-	-	-	76.8	91.6	71.8	59	83.6	72.8	68.1
Ion Balance	%	-	-	-	-	-	-	-	-	-	-
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.1	-	-	3.5	3.5	2.7	2.2	2.9	2.7	2.6
Nitrate	mg/L	0.05	-	13	-	-	-	-	-	-	-
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.06	< 0.05
Nitrite	mg/L	0.05	-	0.06	-	-	-	-	-	-	-
Orthophosphate	mg/L	0.01	-	-	< 0.01	< 0.01	0.01	0.01	0.01	0.01	< 0.01
pH	-	-	-	6.5-9.0	7.2	7.4	7.2	7.1	7.5	7	7.6
Phosphorus	mg/L	0.02	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.1	-	-	1.1	1	1	1	1.2	1.3	1.4
Reactive Silica (as SiO ₂)	mg/L	0.5	-	-	7.9	10.5	10.3	7.8	11.5	10	8.5
Saturation pH (@ 20C)	-	-	-	-	-	-	-	-	-	-	-
Saturation pH (@ 4C)	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.1	-	-	11.5	9.5	9.2	12.5	12.6	14	17
Sulphate	mg/L	2	-	-	< 2	< 2	4	8	6	10	< 2
TDS (Calculated)	mg/L	1	-	-	-	-	-	-	-	-	-
Total Organic Carbon (C)	mg/L	0.5	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	(2)	1.66	2.95	1.23	1.4	1.3	1	1.2
Aluminum	µg/L	5	5	100 (5)	28	< 5	14	22	27	31	40
Antimony	µg/L	2	20	-	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Arsenic	µg/L	2	5	5	3	3	2	2	2	< 2	2
Barium	µg/L	5	1000	-	180	160	3000	120	170	150	150
Beryllium	µg/L	2	5.3	-	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Bismuth	µg/L	2	-	-	-	-	-	-	-	-	-
Boron	µg/L	5	1200	1500	13	14	10	24	32	29	33
Cadmium	µg/L	0.017	0.01	(6)	< 0.5	< 0.5	< 0.5	< 0.3	< 0.3	< 0.3	< 0.3
Chromium	µg/L	1	-	8.9	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Cobalt	µg/L	1	10	-	1	1	< 1	< 1	< 1	< 1	< 1
Copper	µg/L	2	2	(6)	< 10	< 10	< 10	< 2	< 2	< 2	< 2
Iron	µg/L	50	300	300	2880	1650	1030	980	1500	1500	1700
Lead	µg/L	0.5	1	(6)	0.1	< 0.1	0.1	0.2	0.1	0.3	< 0.1
Manganese	µg/L	2	820	(7)	2050	1060	920	700	1000	930	860
Molybdenum	µg/L	2	73	73	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Nickel	µg/L	2	25	(6)	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Selenium	µg/L	1	1	1	< 2						
Silver	µg/L	0.1	0.1	0.25	< 0.5						
Strontium	µg/L	5	21000	-	70	74	73	43	57	48	47
Thallium	µg/L	0.1	0.8	0.8	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tin	µg/L	2	-	-	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Titanium	µg/L	2	-	-	-	-	-	-	-	-	-
Uranium	µg/L	0.1	300	15	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Vanadium	µg/L	2	6	-	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Zinc	µg/L	5	30	(8)	10	< 10	< 10	9	9	15	< 2

Notes: See separate notes page

TABLE C-16

Surface Water Inorganic Chemistry and Metals - SW7
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	RDL	Tier 1 EQS Fresh Water	CCME- FAL	Oct.-97	Sept.-98	Jul-00	Aug.-01	Sept.-02	Aug 19/03	Aug 19/03 Lab Dup
Alkalinity (as CaCO3)	mg/L	5	-	-	87	74	81	111	89	110	120
Ammonia (as N)	mg/L	0.03	-	1.83 (3)	< 0.05	< 0.05	0.59	1.66	<0.1	2.8	2.8
Anion Sum	me/L	-	-	-	-	-	-	-	-	-	-
Bicarbonate (as CaCO3)	mg/L	5	-	-	85.9	73.9	81	110	88.44	109	119
Calcium	mg/L	0.1	-	-	27.3	22.9	26.6	34.7	26.7	32.3	32.8
Carbonate (as CaCO3)	mg/L	10	-	-	1	0.1	< 1	1	0.52	< 1	< 1
Cation Sum	me/L	-	-	-	-	-	-	-	-	-	-
Chloride	mg/L	1	-	120	23.5	22.2	21.1	28.3	21.9	30	32
Color	TCU	5	-	(1)	30	22	20	27	54	59	58
Conductivity (RCAp)	µS/cm	1	-	-	250	220	233	306	252	349	348
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO3)	mg/L	-	-	-	80.5	67.5	77.5	102	76.68	97.1	98.4
Ion Balance	%	-	-	-	-	-	-	-	-	-	-
Langelier Index (@ 20C)	-	-	-	-	-	-	-	-	-	-	-
Langelier Index (@ 4C)	-	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	0.1	-	-	3	2.5	2.7	3.8	2.43	4	4
Nitrate	mg/L	0.05	-	13	-	-	-	-	-	-	-
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	< 0.05	< 0.05	< 0.05	<0.05	<0.06	0.18	0.16
Nitrite	mg/L	0.05	-	0.06	-	-	-	-	-	-	-
Orthophosphate	mg/L	0.01	-	-	< 0.01	< 0.01	0.01	<0.01	<0.3	0.01	0.01
pH	-	-	-	6.5-9.0	8.1	7.3	7.6	8.1	7.8	7.7	7.8
Phosphorus	mg/L	0.02	-	-	-	-	-	-	-	-	-
Potassium	mg/L	0.1	-	-	1.3	1.4	1.5	1.8	1.7	2.8	2.8
Reactive Silica (as SiO2)	mg/L	0.5	-	-	12	10.9	10.8	11.9	12	11	12
Saturation pH (@ 20C)	-	-	-	-	-	-	-	-	-	-	-
Saturation pH (@ 4C)	-	-	-	-	-	-	-	-	-	-	-
Sodium	mg/L	0.1	-	-	16.5	14.4	14.5	18.2	12.1	21.4	21.7
Sulphate	mg/L	2	-	-	5	< 2	6	4	4	10	< 5
TDS (Calculated)	mg/L	1	-	-	-	-	133	172	134.29	182	187
Total Organic Carbon (C)	mg/L	0.5	-	-	-	-	-	-	-	-	-
Turbidity	NTU	0.1	-	(2)	2.9	1.5	1.6	7.9	13	5	5.7
Aluminum	µg/L	5	5	100 (5)	< 25	< 50	10	6	20	10	30
Antimony	µg/L	2	20	-	-	< 20	< 2	< 2	< 0.4	< 2	< 2
Arsenic	µg/L	2	5	5	-	< 20	2	3	3.4	2	2
Barium	µg/L	5	1000	-	224	180	220	390	284	360	370
Beryllium	µg/L	2	5.3	-	< 5	< 50	< 5	< 5	< 0.5	< 2	< 2
Bismuth	µg/L	2	-	-	-	-	-	-	-	< 2	< 2
Boron	µg/L	5	1200	1500	50	< 50	42	56	< 100	47	46
Cadmium	µg/L	0.017	0.01	(6)	< 5	< 0.5	< 0.1	< 0.017	< 0.3	< 0.3	< 0.3
Chromium	µg/L	1	-	8.9	< 5	< 20	< 2	< 2	< 2	< 2	< 2
Cobalt	µg/L	1	10	-	< 5	< 10	< 1	1.3	< 1	2	2
Copper	µg/L	2	2	(6)	< 10	< 20	< 2	< 2	<	< 2	< 2
Iron	µg/L	50	300	300	2130	1800	1100	3100	2900	3000	3100
Lead	µg/L	0.5	1	(6)	< 2.5	< 5	< 0.5	< 0.5	< 1	< 0.5	< 0.5
Manganese	µg/L	2	820	(7)	1380	960	470	1800	771	5000	5100
Molybdenum	µg/L	2	73	73	< 10	< 20	< 2	< 2	< 4	< 2	< 2
Nickel	µg/L	2	25	(6)	< 10	< 20	< 2	2	< 3	2	2
Selenium	µg/L	1	1	1	-	< 20	< 1	< 1	< 1	< 2	< 2
Silver	µg/L	0.1	0.1	0.25	< 3	< 5	< 0.5	< 0.1	< 2	< 0.5	< 0.5
Strontium	µg/L	5	21000	-	-	52	56	80	80	84	84
Thallium	µg/L	0.1	0.8	0.8	-	< 1	< 0.1	< 0.1	< 0.8	< 0.1	< 0.1
Tin	µg/L	2	-	-	< 50	< 20	< 2	< 2	< 20	< 2	< 2
Titanium	µg/L	2	-	-	-	-	-	-	-	< 2	< 2
Uranium	µg/L	0.1	300	15	-	< 1	< 0.1	0.1	< 0.15	0.1	0.1
Vanadium	µg/L	2	6	-	< 10	< 20	< 2	< 2	< 2	< 2	< 2
Zinc	µg/L	5	30	(8)	< 10	< 20	4	2	5	< 5	< 5

Notes: See separate notes page

TABLE C-16

Surface Water Inorganic Chemistry and Metals - SW7
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	RDL	Tier 1 EQS Fresh Water	CCME- FAL	25-Aug-04	18-Aug-05	14-Jan-06	23-Nov-06	1-Aug-07	29-Jul-08	10-Aug-09
Alkalinity (as CaCO3)	mg/L	5	-	-	88	93	54	68	72	72	89
Ammonia (as N)	mg/L	0.03	-	1.83 (3)	2.5	2.5	1.3	1.8	1.9	1.4	1.1
Anion Sum	me/L	-	-	-	2.44	2.58	1.85	2.03	2.05	2.11	2.89
Bicarbonate (as CaCO3)	mg/L	5	-	-	88	93.1	54	68	72	72	89
Calcium	mg/L	0.1	-	-	25.2	28	18	23	23	23	28
Carbonate (as CaCO3)	mg/L	10	-	-	<1	ND	ND	ND	<1	<1	<1
Cation Sum	me/L	-	-	-	2.39	2.55	1.91	2.08	2.17	2.08	2.80
Chloride	mg/L	1	-	120	21	23	24	20	19	21	32
Color	TCU	5	-	(1)	27	22	31	20	12	19	69
Conductivity (RCAp)	µS/cm	1	-	-	244	250	180	200	210	220	270
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO3)	mg/L	-	-	-	74.9	82	56	68	69	69	87
Ion Balance	%	-	-	-	1.02	0.662	1.65	1.27	2.84	0.720	1.58
Langelier Index (@ 20C)	-	-	-	-	-0.9	-0.846	-1.5	-0.794	-0.731	-0.593	-1.24
Langelier Index (@ 4C)	-	-	-	-	-1.3	-1.1	-1.75	-1.05	-0.982	-0.844	-1.49
Magnesium	mg/L	0.1	-	-	2.9	3.3	2.5	2.7	2.6	2.7	4.2
Nitrate	mg/L	0.05	-	13	0.1	0.14	0.11	0.19	-	-	2.1
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	0.1	0.14	0.11	0.19	0.15	0.17	2.1
Nitrite	mg/L	0.05	-	0.06	<0.01	ND	ND	ND	-	-	0.02
Orthophosphate	mg/L	0.01	-	-	<0.01	0.01	ND	0.01	0.01	0.01	<0.01
pH	-	-	-	6.5-9.0	7.2	7.1	6.85	7.37	7.4	7.54	6.74
Phosphorus	mg/L	0.02	-	-	<0.1	<0.1	<0.1	ND	-	-	<0.1
Potassium	mg/L	0.1	-	-	2.4	2.5	2	2.5	2.4	2.2	3.9
Reactive Silica (as SiO2)	mg/L	0.5	-	-	12	12	8.8	11	12	12	12
Saturation pH (@ 20C)	-	-	-	-	8.1	7.95	8.35	8.16	8.13	8.13	7.98
Saturation pH (@ 4C)	-	-	-	-	8.5	8.2	8.6	8.42	8.38	8.38	8.23
Sodium	mg/L	0.1	-	-	15.1	14	14	11	13	12	16
Sulphate	mg/L	2	-	-	4	3.4	4	4	3	3	3
TDS (Calculated)	mg/L	1	-	-	139	149	110	120	123	123	169
Total Organic Carbon (C)	mg/L	0.5	-	-	-	1.7	4.6	1.9	1.6	2.1	27
Turbidity	NTU	0.1	-	(2)	3.7	3.4	2.2	1.2	1.6	2	260
Aluminum	µg/L	5	5	100 (5)	<10	19	27	13	8.4	10.1	15.5
Antimony	µg/L	2	20	-	<2	ND	ND	ND	<2.0	<2.0	<2.0
Arsenic	µg/L	2	5	5	2	2.7	ND	ND	2.3	<2.0	3.9
Barium	µg/L	5	1000	-	270	300	160	180	186	188	364
Beryllium	µg/L	2	5.3	-	<2	ND	ND	ND	<2.0	<2.0	<2.0
Bismuth	µg/L	2	-	-	<2	ND	ND	ND	<2.0	<2.0	<2.0
Boron	µg/L	5	1200	1500	35	26	20	19	15.5	11.9	19.6
Cadmium	µg/L	0.017	0.01	(6)	<0.3	ND	ND	ND	<0.017	0.049	<0.017
Chromium	µg/L	1	-	8.9	<2	ND	ND	ND	<2.0	<2.0	<1.0
Cobalt	µg/L	1	10	-	1	ND	ND	ND	0.41	<0.40	0.51
Copper	µg/L	2	2	(6)	<2	ND	ND	ND	<2.0	<2.0	<2.0
Iron	µg/L	50	300	300	850	2200	860	1200	1050	855	4510
Lead	µg/L	0.5	1	(6)	<0.5	ND	ND	ND	<0.50	<0.50	<0.50
Manganese	µg/L	2	820	(7)	1300	2000	480	670	571	514	1330
Molybdenum	µg/L	2	73	73	<2	ND	ND	ND	<2.0	<2.0	<2.0
Nickel	µg/L	2	25	(6)	<2	ND	ND	ND	<2.0	<2.0	<2.0
Selenium	µg/L	1	1	1	<2	ND	ND	ND	<10	<2.0	<0.10
Silver	µg/L	0.1	0.1	0.25	<0.5	ND	ND	ND	<1.0	<0.10	<0.10
Strontium	µg/L	5	21000	-	57	66	42	45	415	51.6	80.4
Thallium	µg/L	0.1	0.8	0.8	<0.1	ND	ND	ND	<1.0	<0.10	<0.10
Tin	µg/L	2	-	-	<2	ND	ND	ND	<20	<2.0	<2.0
Titanium	µg/L	2	-	-	<2	ND	ND	ND	146	<2.0	<2.0
Uranium	µg/L	0.1	300	15	0.1	ND	ND	ND	4.4	<0.10	<0.10
Vanadium	µg/L	2	6	-	<2	ND	ND	ND	139	<2.0	<2.0
Zinc	µg/L	5	30	(8)	<5	ND	11	6	395	9.2	<5.0

Notes: See separate notes page

TABLE C-16

Surface Water Inorganic Chemistry and Metals - SW7
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	RDL	Tier 1 EQS Fresh Water	CCME- FAL	10-Aug-10	Jul-13	Aug-14	Jul-16	Jul-17	Jul-17 Lab-Dup	Dec-17
Alkalinity (as CaCO ₃)	mg/L	5	-	-	66	-	-	85	71	N/A	46
Ammonia (as N)	mg/L	0.03	-	1.83 (3)	1.91	-	-	1.2	0.75	N/A	0.078
Anion Sum	me/L	-	-	-	2.26	-	-	2.52	71	N/A	1.1
Bicarbonate (as CaCO ₃)	mg/L	5	-	-	66	-	-	85	2.09	N/A	46
Calcium	mg/L	0.1	-	-	19.3	-	-	25	71	N/A	14
Carbonate (as CaCO ₃)	mg/L	10	-	-	<10	-	-	<1.0	<1.0	N/A	<1.0
Cation Sum	me/L	-	-	-	2.18	-	-	2.44	1.95	N/A	1.05
Chloride	mg/L	1	-	120	29	-	-	26	21	N/A	6.3
Color	TCU	5	-	(1)	19	-	-	46	30	N/A	53
Conductivity (RCap)	µS/cm	1	-	-	251	-	-	240	200	N/A	100
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-	-	-	-	-
Hardness (as CaCO ₃)	mg/L	-	-	-	57.3	-	-	76	63	N/A	40
Ion Balance	%	-	-	-	1.8	-	-	-	3.47	N/A	-
Langelier Index (@ 20C)	-	-	-	-	-0.99	-	-	-0.790	-0.742	N/A	-1.07
Langelier Index (@ 4C)	-	-	-	-	-1.31	-	-	-1.04	-0.993	N/A	-1.32
Magnesium	mg/L	0.1	-	-	2.2	-	-	3.2	2.4	N/A	1
Nitrate	mg/L	0.05	-	13	0.48	-	-	0.16	<0.010	N/A	<0.010
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	0.48	-	-	0.16	0.15	N/A	0.08
Nitrite	mg/L	0.05	-	0.06	<0.05	-	-	<0.010	0.15	N/A	0.08
Orthophosphate	mg/L	0.01	-	-	0.01	-	-	0.017	<0.010	N/A	0.023
pH	-	-	-	6.5-9.0	7.5	-	-	7.25	7.43	N/A	7.4
Phosphorus	mg/L	0.02	-	-	0.08	-	-	<0.100	<0.100	N/A	<0.100
Potassium	mg/L	0.1	-	-	2	-	-	2.7	1.9	N/A	0.67
Reactive Silica (as SiO ₂)	mg/L	0.5	-	-	11.7	-	-	11	11	N/A	12
Saturation pH (@ 20C)	-	-	-	-	8.49	-	-	8.04	8.18	N/A	8.51
Saturation pH (@ 4C)	-	-	-	-	8.81	-	-	8.29	8.43	N/A	8.76
Sodium	mg/L	0.1	-	-	13.4	-	-	15	12	N/A	5.2
Sulphate	mg/L	2	-	-	4	-	-	3.7	3.6	N/A	<2.0
TDS (Calculated)	mg/L	1	-	-	121	-	-	150	120	N/A	67
Total Organic Carbon (C)	mg/L	0.5	-	-	4.8	-	-	2.9	3.2	3.5	6
Turbidity	NTU	0.1	-	(2)	9.4	-	-	11	5.2	N/A	1.3
Aluminum	µg/L	5	5	100 (5)	45	52	31	21	19	N/A	64
Antimony	µg/L	2	20	-	<2	<2	<2	<1.0	<1.0	N/A	<1.0
Arsenic	µg/L	2	5	5	9	4	<2	3.1	2.2	N/A	1.4
Barium	µg/L	5	1000	-	220	160	257	250	160	N/A	25
Beryllium	µg/L	2	5.3	-	<2	<2	<2	<1.0	<1.0	N/A	<1.0
Bismuth	µg/L	2	-	-	<2	<2	<2	<2.0	<2.0	N/A	<2.0
Boron	µg/L	5	1200	1500	15	9	11	<50	<50	N/A	<50
Cadmium	µg/L	0.017	0.01	(6)	0.107	0.165	<0.017	<0.010	<0.010	N/A	<0.010
Chromium	µg/L	1	-	8.9	<1	74	<1	1.9	<1.0	N/A	<1.0
Cobalt	µg/L	1	10	-	<1	<1	<1	1.2	0.48	N/A	<0.40
Copper	µg/L	2	2	(6)	<2	<2	<1	<2.0	<2.0	N/A	<2.0
Iron	µg/L	50	300	300	5450	2680	1510	3400	1600	N/A	310
Lead	µg/L	0.5	1	(6)	0.8	<0.5	<0.5	<0.50	<0.50	N/A	<0.50
Manganese	µg/L	2	820	(7)	1670	1700	2780	2400	1800	N/A	59
Molybdenum	µg/L	2	73	73	<2	<2	<2	<2.0	<2.0	N/A	<2.0
Nickel	µg/L	2	25	(6)	<2	<2	<2	<2.0	<2.0	N/A	<2.0
Selenium	µg/L	1	1	1	<1	<1	<1	<1.0	<1.0	N/A	<1.0
Silver	µg/L	0.1	0.1	0.25	<0.1	<0.1	<0.1	<0.10	<0.10	N/A	<0.10
Strontium	µg/L	5	21000	-	57	42	70	61	47	N/A	34
Thallium	µg/L	0.1	0.8	0.8	<0.1	<0.1	<0.1	<0.10	<0.10	N/A	<0.10
Tin	µg/L	2	-	-	<2	<2	<2	<2.0	<2.0	N/A	<2.0
Titanium	µg/L	2	-	-	<2	<2	<2	<2.0	<2.0	N/A	<2.0
Uranium	µg/L	0.1	300	15	<0.1	<0.1	<0.1	<0.10	<0.10	N/A	<0.10
Vanadium	µg/L	2	6	-	<2	<2	<2	<2.0	<2.0	N/A	<2.0
Zinc	µg/L	5	30	(8)	<5	<5	<5	<5.0	<5.0	N/A	<5.0

Notes: See separate notes page

TABLE C-16

Surface Water Inorganic Chemistry and Metals - SW7
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	RDL	Tier 1 EQS Fresh Water	CCME- FAL	Jul-18	Jul-19	Jul-20
Alkalinity (as CaCO3)	mg/L	5	-	-	63	64	68
Ammonia (as N)	mg/L	0.03	-	1.83 (3)	0.46	0.46	0.66
Anion Sum	me/L	-	-	-	1.80	2.06	2.03
Bicarbonate (as CaCO3)	mg/L	5	-	-	63	64	68
Calcium	mg/L	0.1	-	-	20	20	23
Carbonate (as CaCO3)	mg/L	10	-	-	<1.0	<1.0	<1.0
Cation Sum	me/L	-	-	-	1.71	1.96	2.36
Chloride	mg/L	1	-	120	16	23	21
Color	TCU	5	-	(1)	14	87	51
Conductivity (RCap)	µS/cm	1	-	-	190	190	200
Dissolved Organic Carbon	mg/L	-	-	-	-	-	-
Hardness (as CaCO3)	mg/L	-	-	-	59	59	70
Ion Balance	%	-	-	-	2.56	2.49	7.52
Langelier Index (@ 20C)	-	-	-	-	-0.848	-0.910	-1.00
Langelier Index (@ 4C)	-	-	-	-	-1.10	-1.16	-0.751
Magnesium	mg/L	0.1	-	-	2	2.4	2.8
Nitrate	mg/L	0.05	-	13	0.17	0.11	0.11
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	0.17	0.11	0.11
Nitrite	mg/L	0.05	-	0.06	<0.010	<0.010	<0.010
Orthophosphate	mg/L	0.01	-	-	0.013	8.4	0.013
pH	-	-	-	6.5-9.0	7.39	7.34	7.41
Phosphorus	mg/L	0.02	-	-	<0.100	<0.1	0.12
Potassium	mg/L	0.1	-	-	1.8	1.9	2.1
Reactive Silica (as SiO2)	mg/L	0.5	-	-	11	11	11
Saturation pH (@ 20C)	-	-	-	-	8.24	8.25	8.16
Saturation pH (@ 4C)	-	-	-	-	8.49	8.5	8.41
Sodium	mg/L	0.1	-	-	10	14	13
Sulphate	mg/L	2	-	-	3.6	5.2	2.9
TDS (Calculated)	mg/L	1	-	-	110	120	130
Total Organic Carbon (C)	mg/L	0.5	-	-	2.0	8.4	4.0
Turbidity	NTU	0.1	-	(2)	1.7	14	5.2
Aluminum	µg/L	5	5	100 (5)	10	79	46
Antimony	µg/L	2	20	-	<1.0	<1.0	<1.0
Arsenic	µg/L	2	5	5	1.2	1.8	9.6
Barium	µg/L	5	1000	-	130	180	240
Beryllium	µg/L	2	5.3	-	<1.0	<1.0	<1.0
Bismuth	µg/L	2	-	-	<2.0	<2.0	<2.0
Boron	µg/L	5	1200	1500	<50	<50	<50
Cadmium	µg/L	0.017	0.01	(6)	<0.010	0.013	<0.010
Chromium	µg/L	1	-	8.9	<1.0	1.1	<1.0
Cobalt	µg/L	1	10	-	<0.40	0.48	0.71
Copper	µg/L	2	2	(6)	<2.0	<0.50	<0.50
Iron	µg/L	50	300	300	700	1900	7800
Lead	µg/L	0.5	1	(6)	<0.50	<0.50	<0.50
Manganese	µg/L	2	820	(7)	880	1600	2200
Molybdenum	µg/L	2	73	73	<2.0	<2.0	<2.0
Nickel	µg/L	2	25	(6)	<2.0	<2.0	<2.0
Selenium	µg/L	1	1	1	<1.0	<1.0	<0.50
Silver	µg/L	0.1	0.1	0.25	<0.10	<0.10	<0.10
Strontium	µg/L	5	21000	-	42	47	60
Thallium	µg/L	0.1	0.8	0.8	<0.10	<0.10	<0.10
Tin	µg/L	2	-	-	<2.0	<2.0	<2.0
Titanium	µg/L	2	-	-	<2.0	<2.0	<2.0
Uranium	µg/L	0.1	300	15	<0.10	<0.10	<0.10
Vanadium	µg/L	2	6	-	<2.0	<2.0	<2.0
Zinc	µg/L	5	30	(8)	<5.0	<5.0	<5.0

Notes: See separate notes page

TABLE C-17

Surface Water Inorganic Chemistry and Metals - SW7A
Municipality of the County of Kings
Meadowview Landfill, Kentville, NS
Stantec Consulting Ltd. Project No. 121414186

Compound	Units	RDL	Tier 1 EQS Fresh Water	CCME- FAL	Jul-13	Jul-15	Jul-17	Jul-17	Jul-18	Jul-19	Jul-20
Alkalinity (as CaCO ₃)	mg/L	5	-	-	5	24.1	150	290	140	130	130
Ammonia (as N)	mg/L	0.05	-	1.83 (3)	0.03	108	17	15	4.4	5.0	3.5
Anion Sum	me/L	-	-	-	-	3.52	3.89	6.76	3.45	3.45	3.32
Bicarbonate (as CaCO ₃)	mg/L	1	-	-	5	3.13	150	290	140	130	130
Calcium	mg/L	0.1	-	-	0.1	38.1	58	53	32	52	31
Carbonate (as CaCO ₃)	mg/L	1	-	-	10	214	<1.0	<1.0	<1.0	<1.0	<1.0
Cation Sum	me/L	-	-	-	-	<10	16.1	9.02	3.84	6.18	3.65
Chloride	mg/L	1	-	120	1	5.11	29	35	24	27	25
Color	TCU	5	-	(1)	5	26	<5.0	5.3	6.5	53	13
Conductivity (RCAp)	µS/cm	1	-	-	1	325	380	650	340	350	330
Dissolved Organic Carbon	mg/L	-	-	-	0.5	34	-	-	-	-	-
Hardness (as CaCO ₃)	mg/L	-	-	-	-	112	200	180	100	170	97
Ion Balance	%	-	-	-	-	3.2	61.1	14.3	5.35	28.4	4.73
Langelier Index (@ 20C)	-	-	-	-	-	-0.73	-0.442	-0.318	-0.506	-0.336	-0.793
Langelier Index (@ 4C)	-	-	-	-	-	-1.05	-0.689	-0.566	-0.755	-0.586	-0.543
Magnesium	mg/L	0.1	-	-	0.1	4.2	15	12	6.1	10	4.6
Nitrate	mg/L	0.05	-	13	0.05	0.09	<0.010	<0.050	0.14	0.13	0.14
Nitrate + Nitrite (as N)	mg/L	0.05	-	-	0.05	0.09	0.28	<0.050	0.14	0.13	0.14
Nitrite	mg/L	0.01	-	0.06	0.05	<0.05	0.28	<0.010	<0.010	<0.010	<0.010
Orthophosphate	mg/L	0.01	-	-	0.01	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010
pH	-	-	-	-	-	7.28	7.10	6.95	7.25	7.25	7.24
Phosphorus	mg/L	0.2	-	(4)	0.02	0.23	4.3	0.89	<100	0.27	0.19
Potassium	mg/L	0.1	-	-	0.1	5.3	24	21	8	1.4	5.4
Reactive Silica (as SiO ₂)	mg/L	0.5	-	-	0.5	9.5	12	17	12	14	13
Saturation pH (@ 20C)	-	-	-	-	-	8.01	7.54	7.27	7.76	7.58	7.78
Saturation pH (@ 4C)	-	-	-	-	-	8.33	7.79	7.51	8.01	7.83	8.03
Sodium	mg/L	0.1	-	-	0.1	28	32	31	17	24	16
Sulphate	mg/L	2	-	-	2	<2	2.8	<2.0	2.8	5.9	2.5
TDS (Calculated)	mg/L	1	-	-	1	108	540	430	210	260	200
Total Organic Carbon (C)	mg/L	0.5	-	-	0.5	3	76	20 ^a	7.0	6.5	6.6
Turbidity	NTU	0.1	-	(2)	0.1	98.3	>1000	330	400	29	87
Aluminum	µg/L	10	5	100 (5)	5	48	1800	210	5.8	16	56
Antimony	µg/L	2	20	-	2	<2	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic	µg/L	2	5	5	2	41	720	160	17	53	29
Barium	µg/L	5	1000	-	5	578	3000	1100	480	760	430
Beryllium	µg/L	2	5.3	-	2	<2	<1.0	<1.0	<1.0	<1.0	<1.0
Bismuth	µg/L	2	-	-	2	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Boron	µg/L	5	1200	1500	5	82	250	220	80	150	53
Cadmium	µg/L	0.3	0.01	(6)	0.017	<0.017	0.10	0.013	<0.010	<0.010	<0.010
Chromium	µg/L	2	-	8.9	1	<1	9.7	2.5	<1.0	1.6	<1.0
Cobalt	µg/L	1	10	-	1	2	35	10	2.7	10	3.1
Copper	µg/L	2	2	(6)	2	<1	6.4	<2.0	<2.0	1.3	<0.50
Iron	µg/L	50	300	300	50	31700	250000	68000	14000	27000	17000
Lead	µg/L	0.5	1	(6)	0.5	<0.5	5.4	0.82	<0.50	<0.50	<0.50
Manganese	µg/L	2	820	(7)	2	3270	5700	3100	2000	2500	2400
Molybdenum	µg/L	2	73	73	2	<2	-	<2.0	<2.0	<2.0	<2.0
Nickel	µg/L	2	25	(6)	2	<2	25	6	<2.0	7.1	<2.0
Selenium	µg/L	2	1	1	1	1	<1.0	<1.0	<1.0	<1.0	<0.50
Silver	µg/L	0.5	0.1	0.25	0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium	µg/L	5	21000	-	5	131	390	310	140	270	120
Thallium	µg/L	0.1	0.8	0.8	0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10
Tin	µg/L	2	-	-	2	<2	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium	µg/L	2	-	-	2	<2	39	4.4	<2.0	<2.0	<2.0
Uranium	µg/L	0.1	300	15	0.1	0.1	0.29	<0.10	<0.10	<0.10	<0.10
Vanadium	µg/L	2	6	-	2	<2	20	2.4	<2.0	<2.0	<2.0
Zinc	µg/L	5	30	(8)	5	<5	19	<5.0	<5.0	<5.0	<5.0

Notes: See separate notes page

APPENDIX D

Chemistry Trend Analysis Figures

Figure D-1: Area 1 - Ammonia
Meadowview Landfill, Kentville, NS

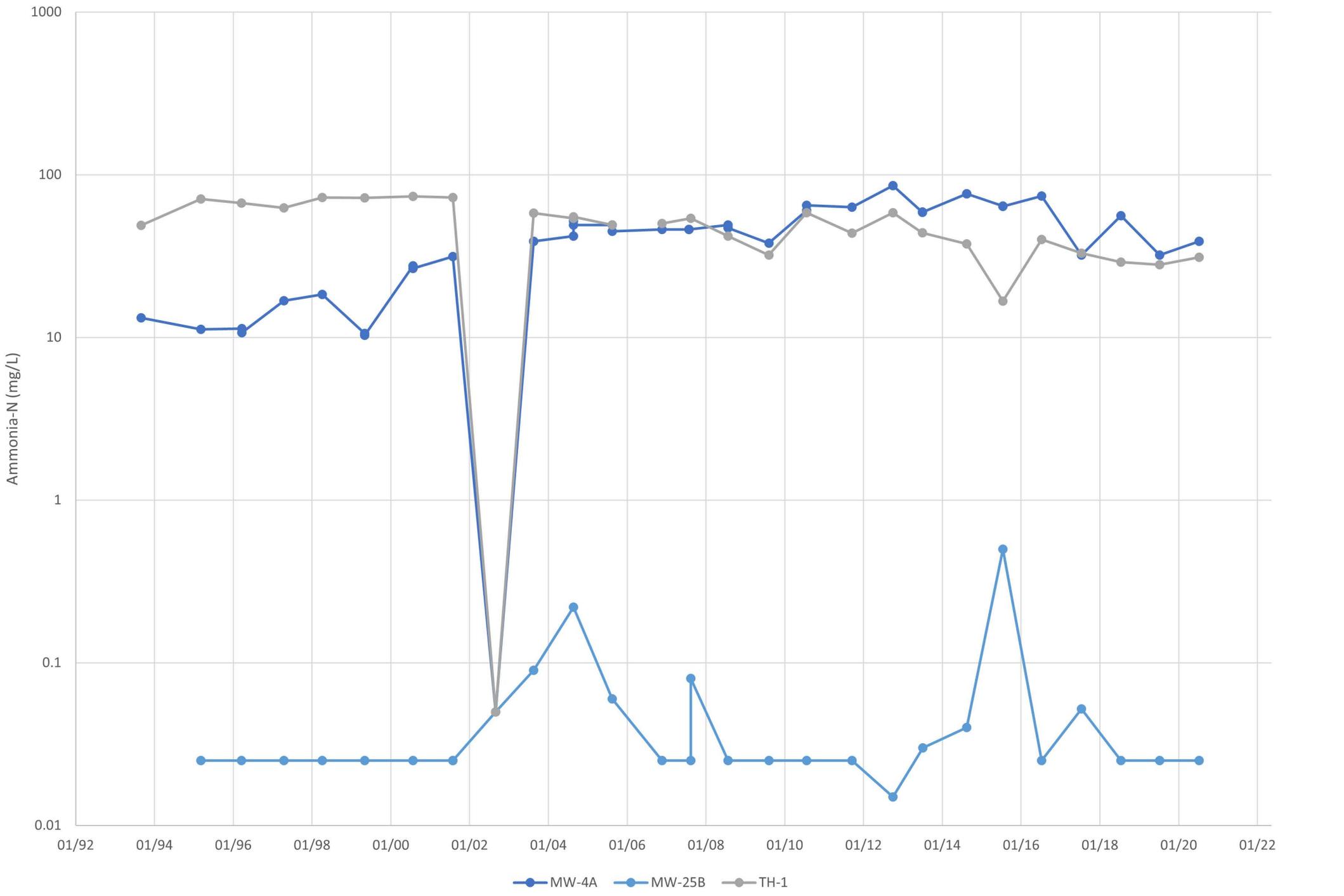


Figure D-2: Area 2 - Ammonia
Meadowview Landfill, Kentville, NS

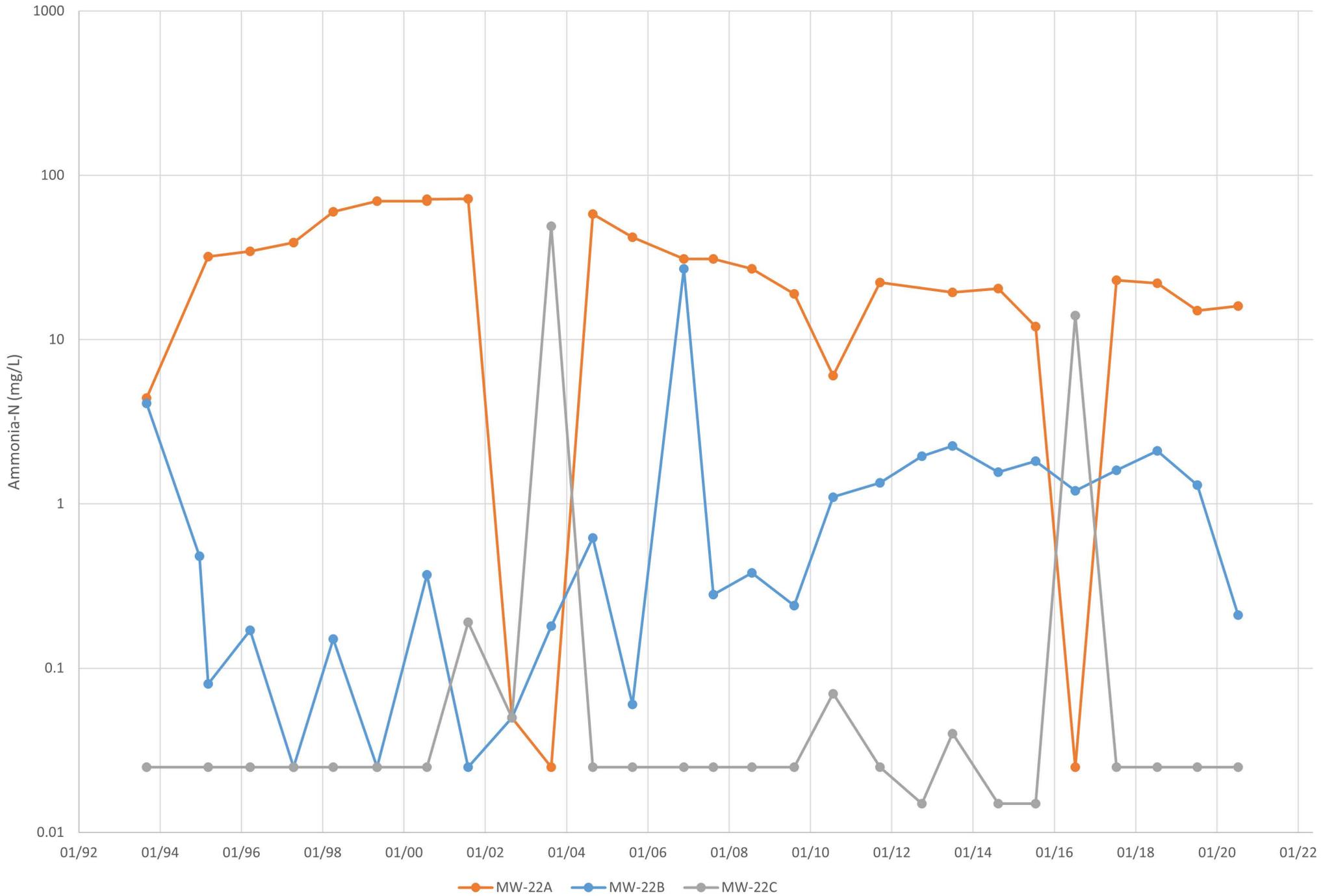


Figure D-3: Area 1 - Chloride
Meadowview Landfill, Kentville, NS

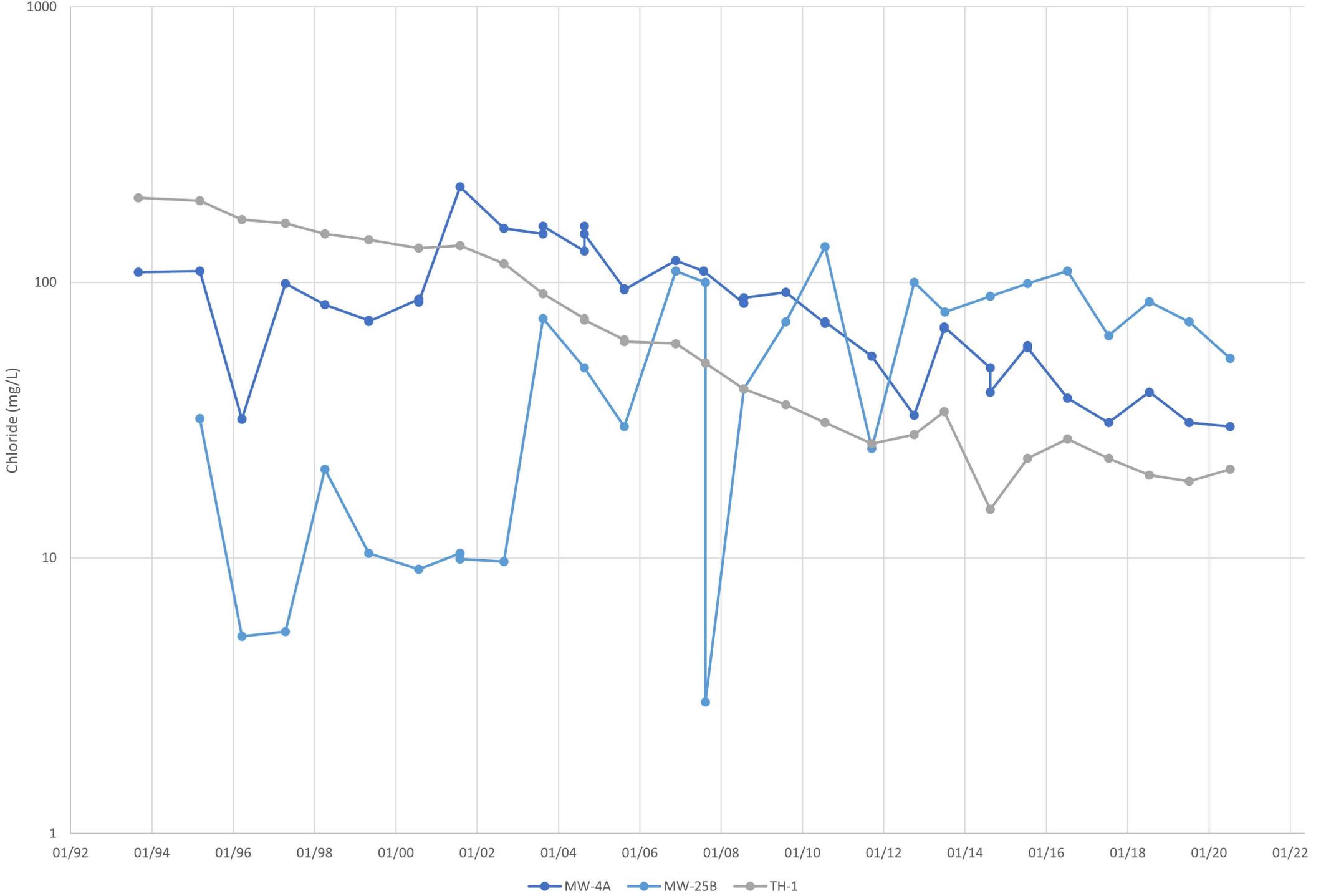


Figure D-4: Area 2 - Chloride
Meadowview Landfill, Kentville, NS

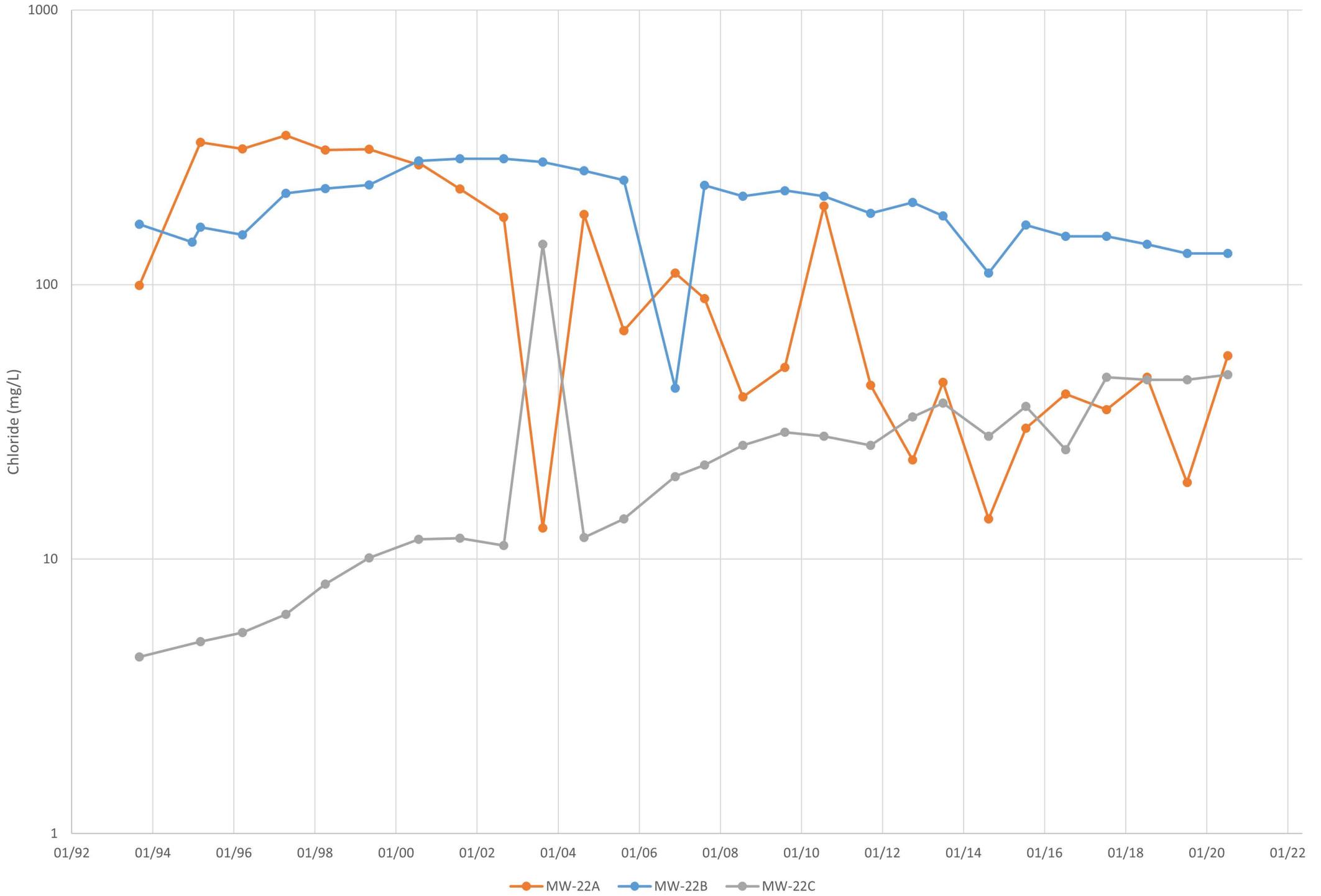


Figure D-5: Area 1 - Conductivity
Meadowview Landfill, Kentville, NS

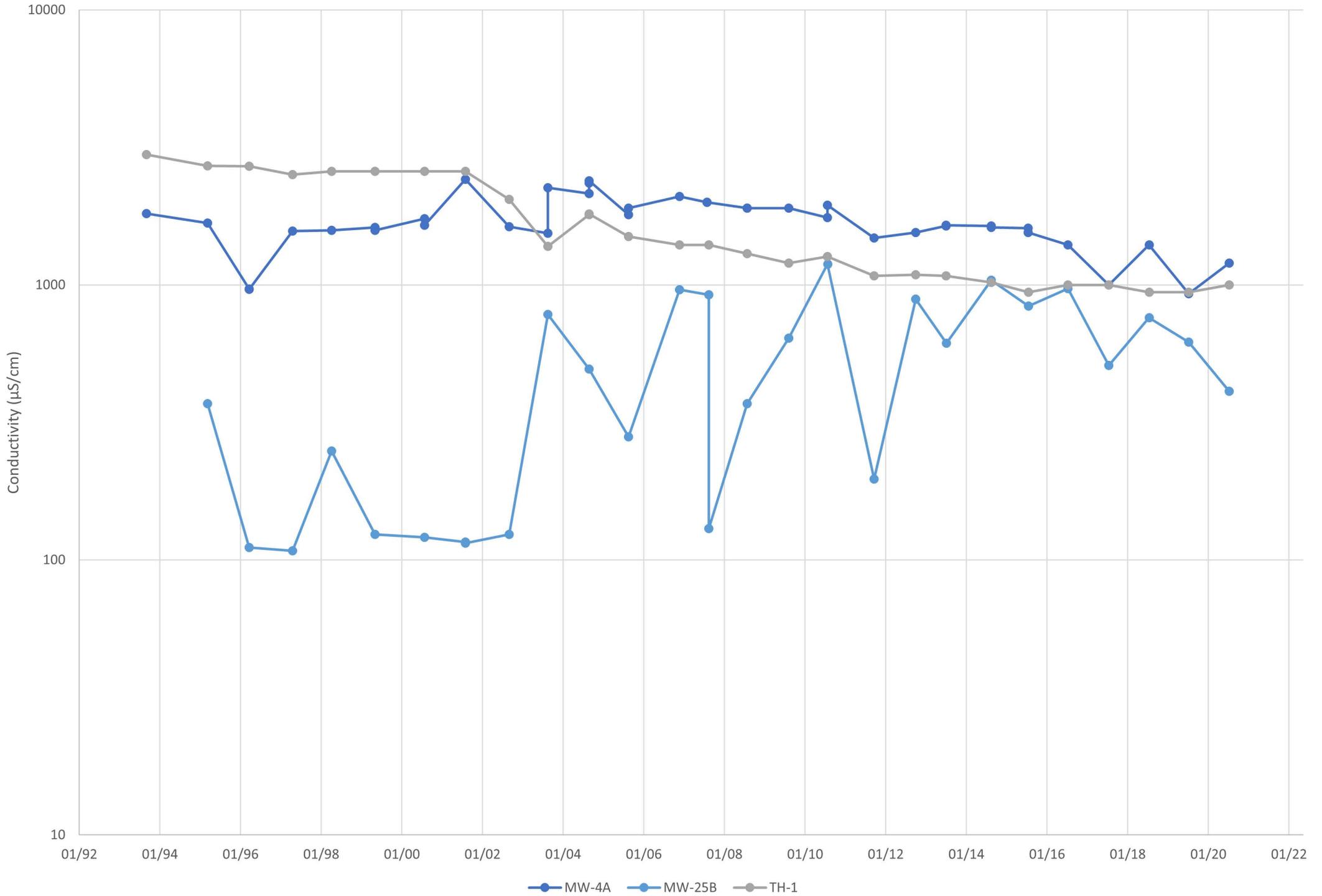


Figure D-6: Area 2 - Conductivity
Meadowview Landfill, Kentville, NS

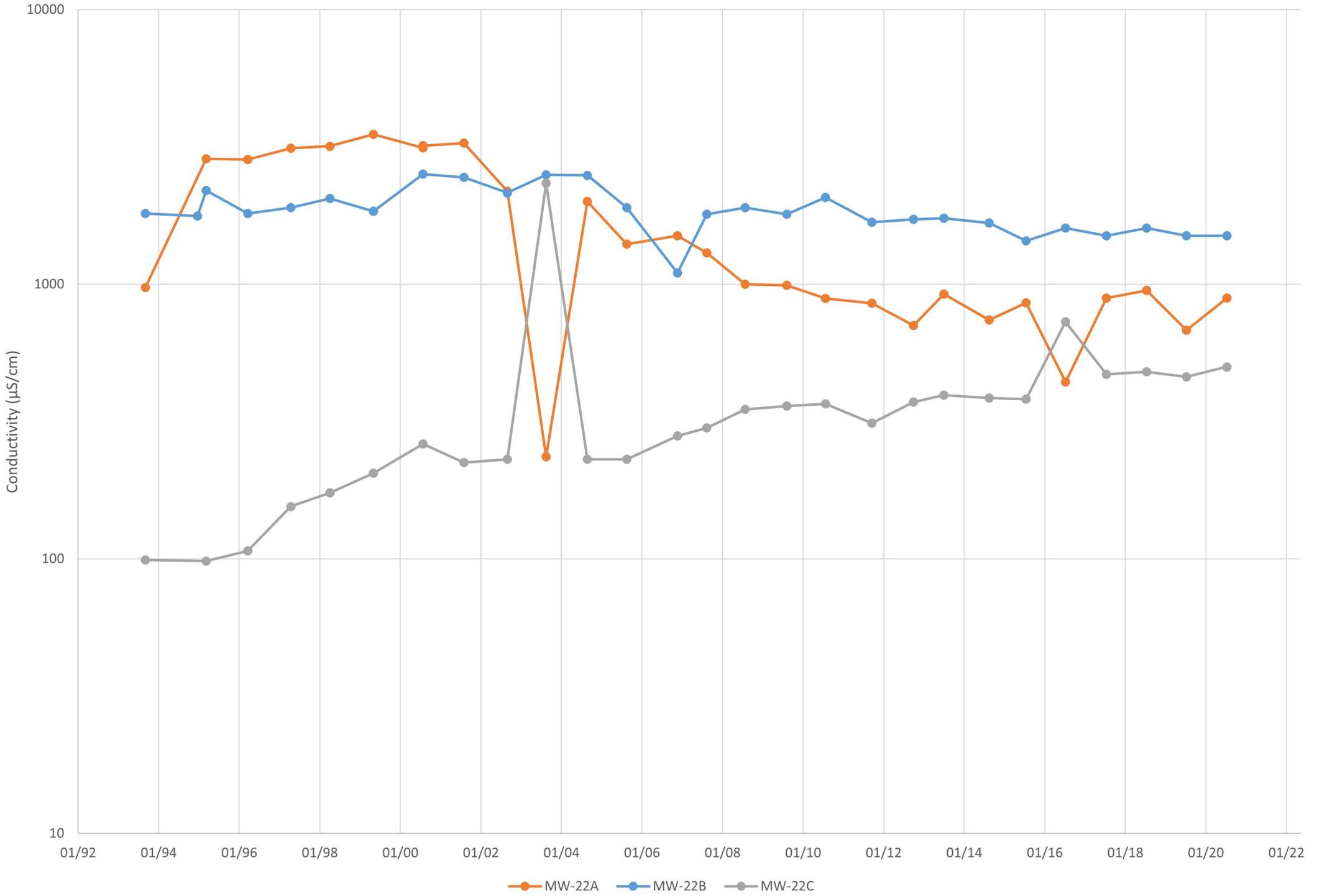


Figure D-7 - Historical Results of Groundwater Elevation in Downgradient Monitoring Wells



Figure D-8 Surface Water - Ammonia
Meadowview Landfill, Kentville, NS



Figure D-9 Surface Water - Chloride
Meadowview Landfill, Kentville, NS

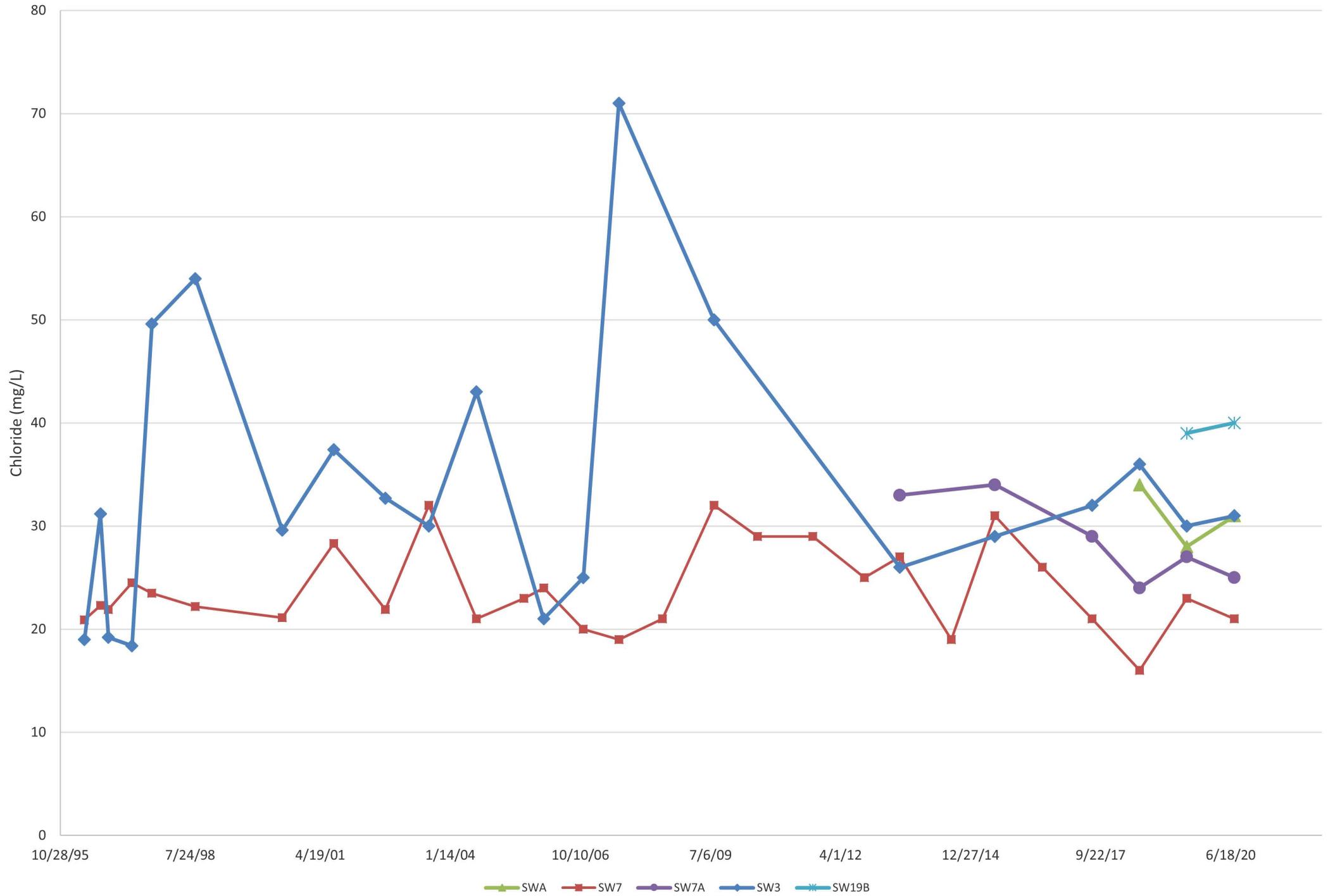


Figure D-10 Surface Water - Conductivity
Meadowview Landfill, Kentville, NS

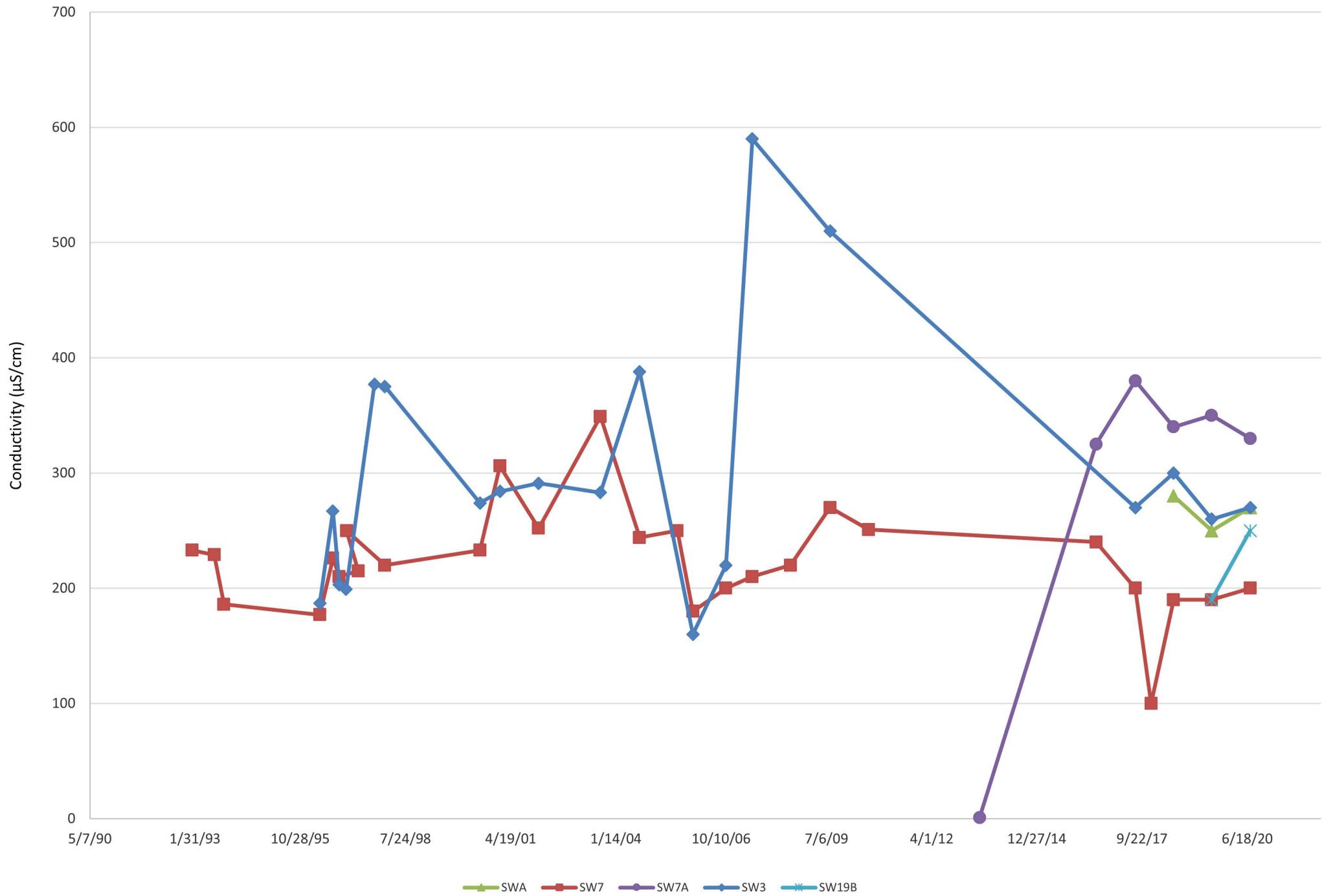


Figure D-11: Surface Water - Palmer Brook - Ammonia (as N)

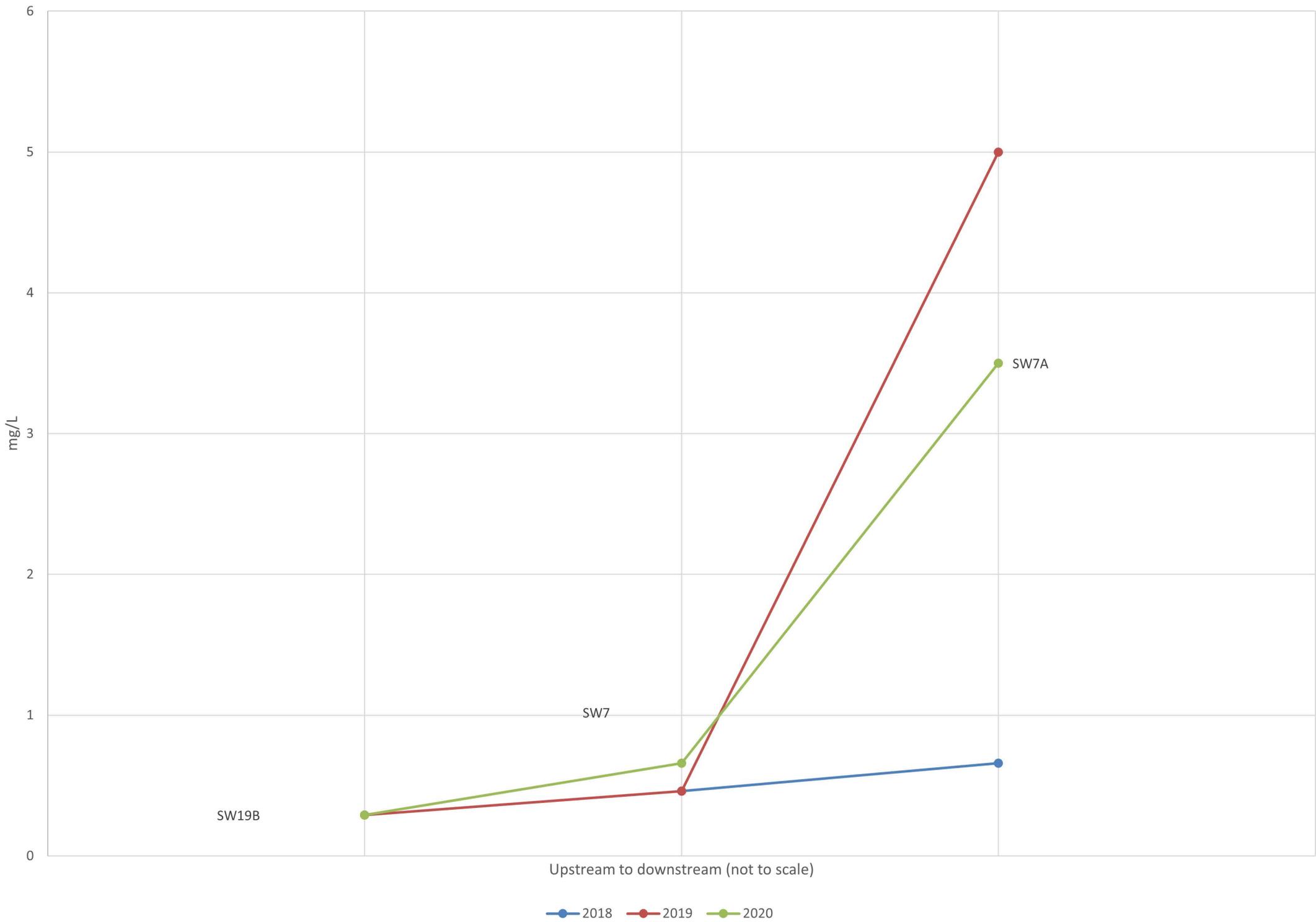


Figure D-12: Surface Water - Palmer Brook - Arsenic

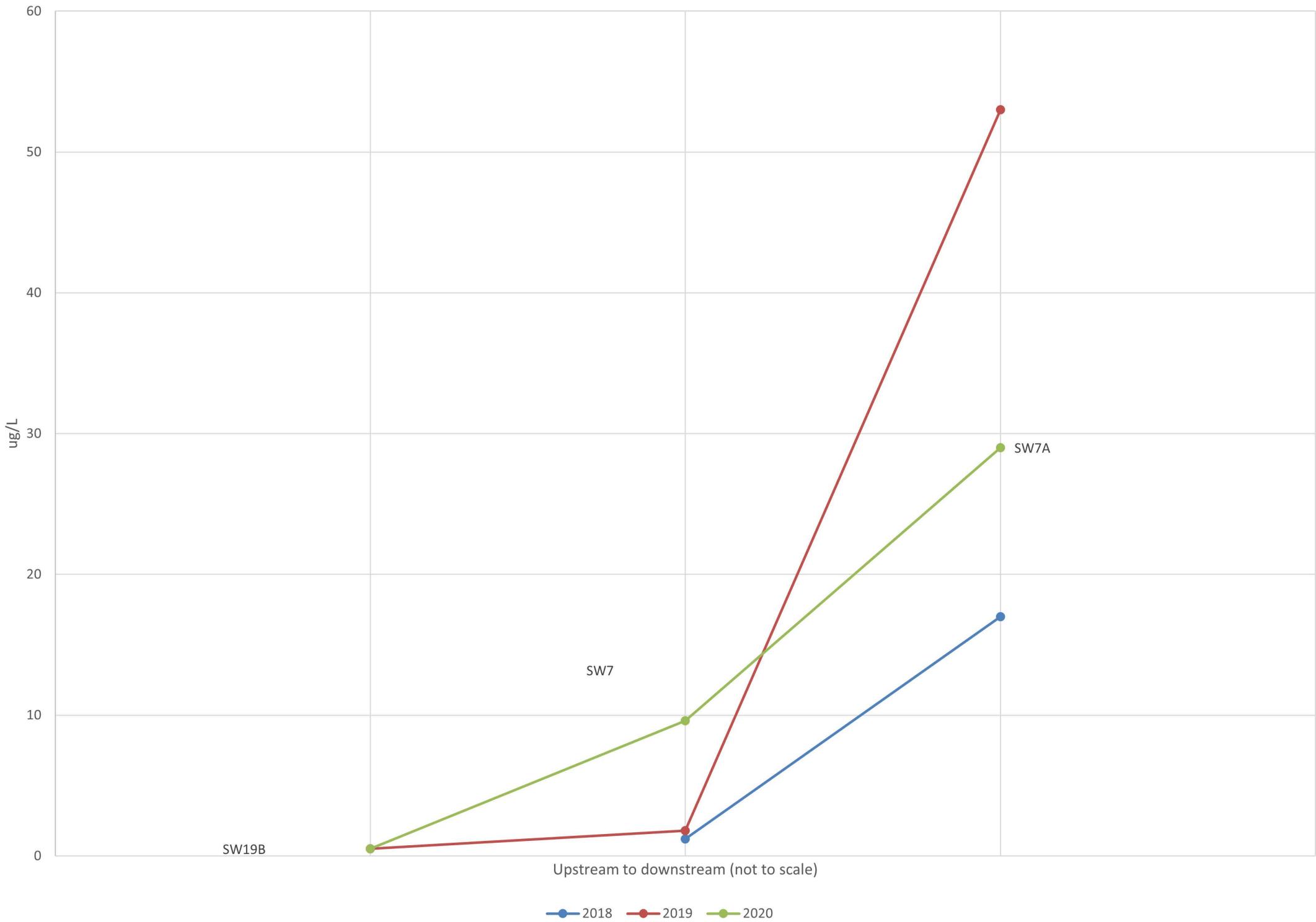


Figure D-13: Surface Water - Palmer Brook - Barium

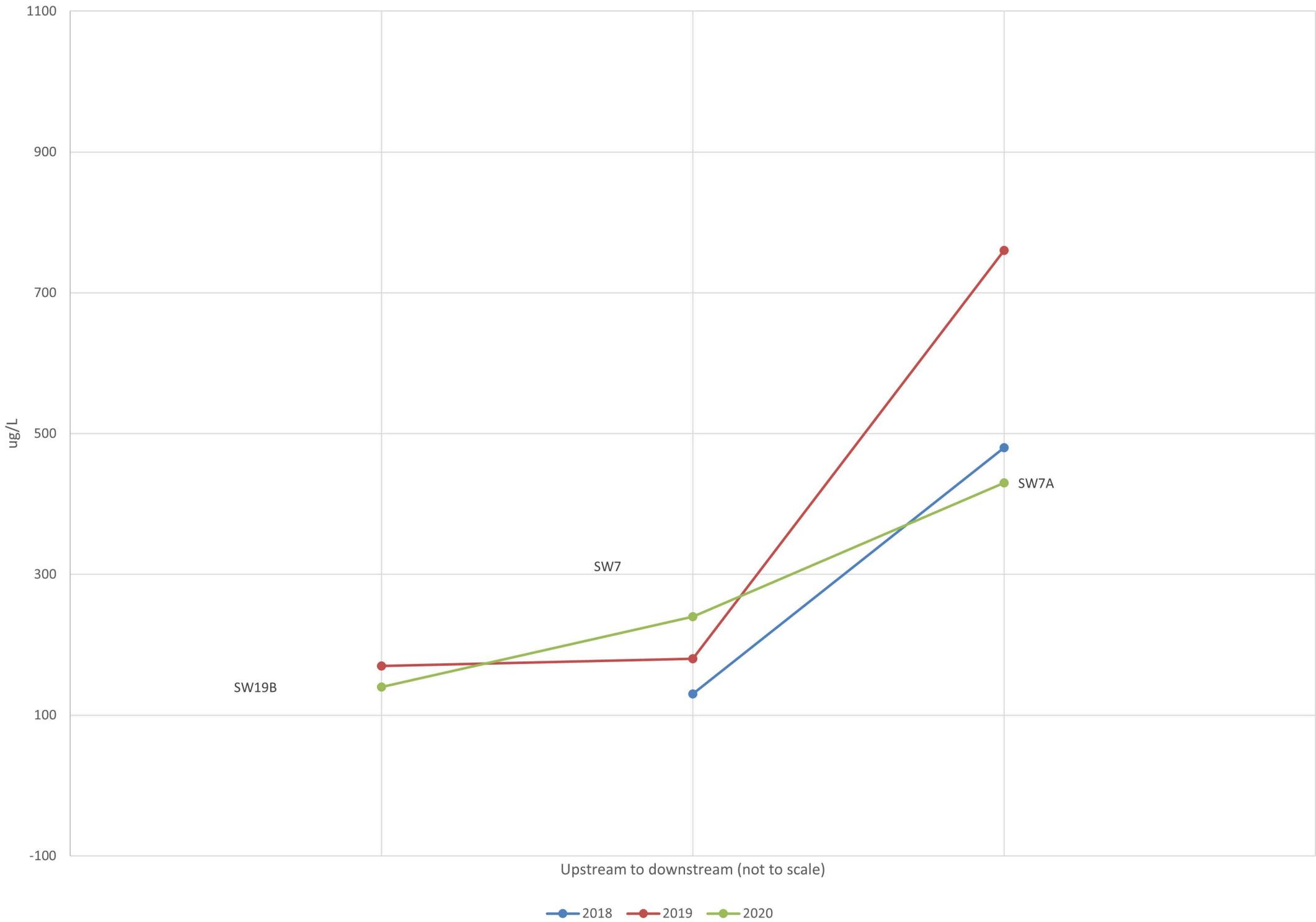


Figure D-14: Surface Water - Palmer Brook - Calcium

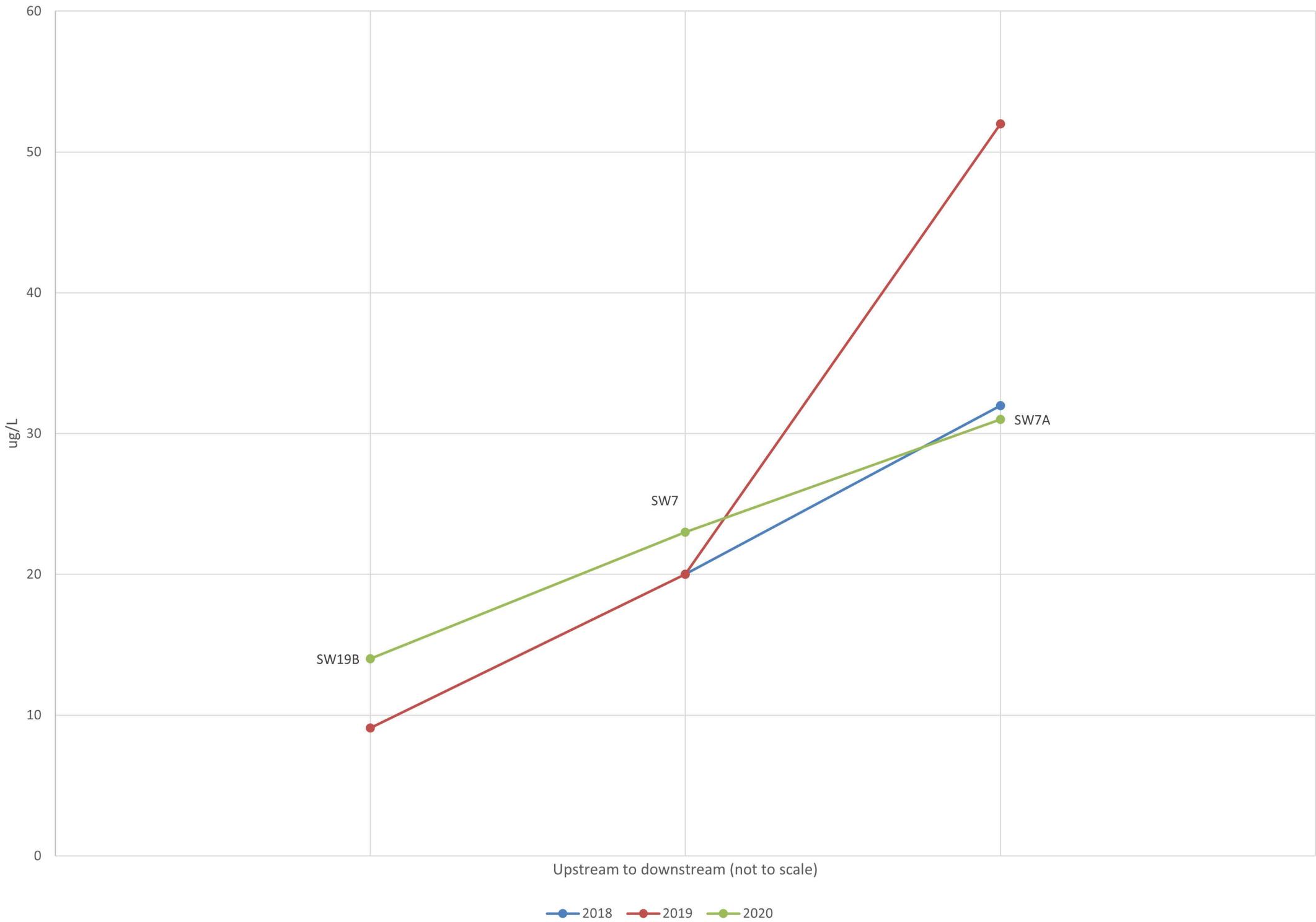


Figure D-15: Surface Water - Palmer Brook - Strontium

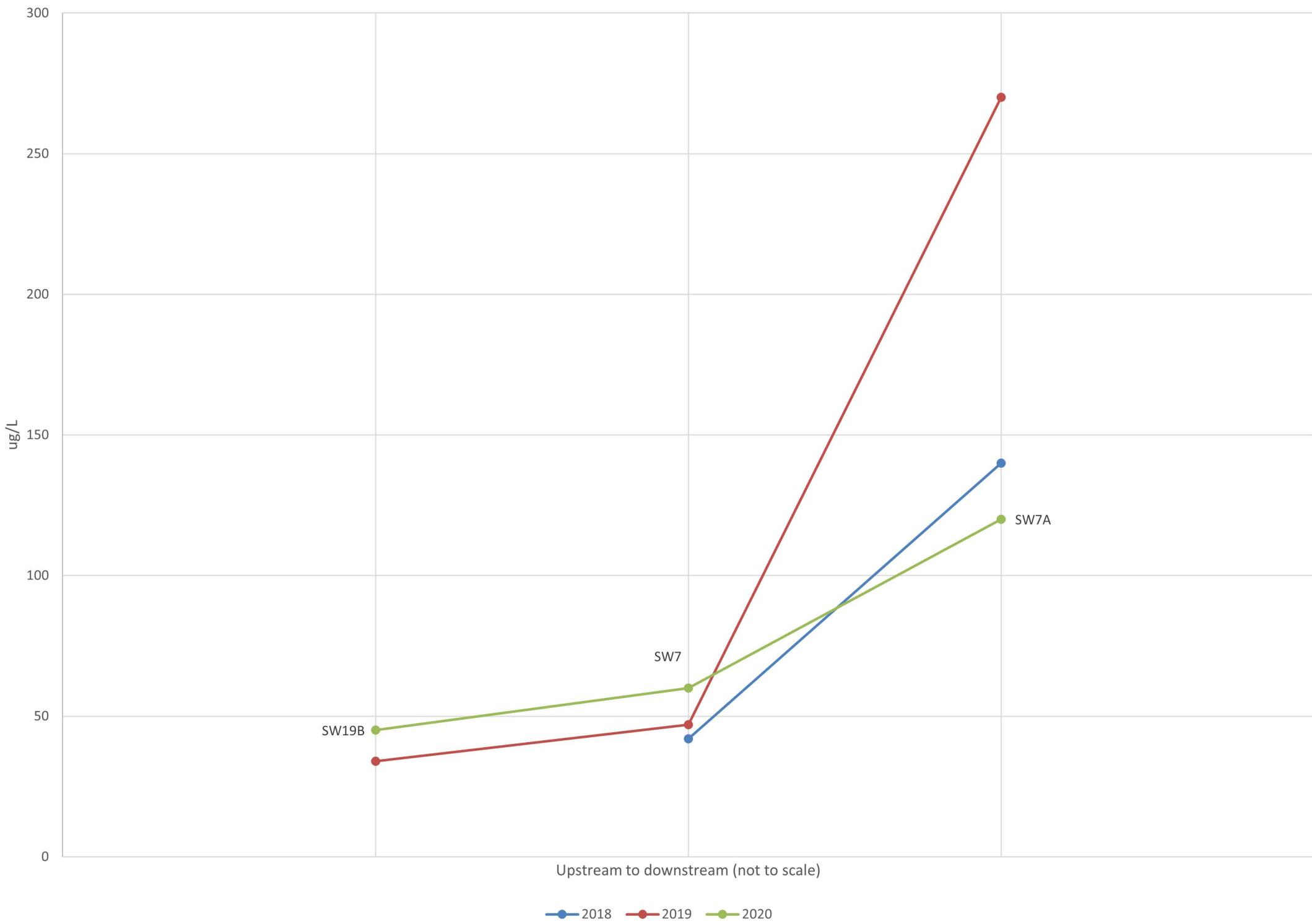


Figure D-16: Surface Water - Palmer Brook - Iron

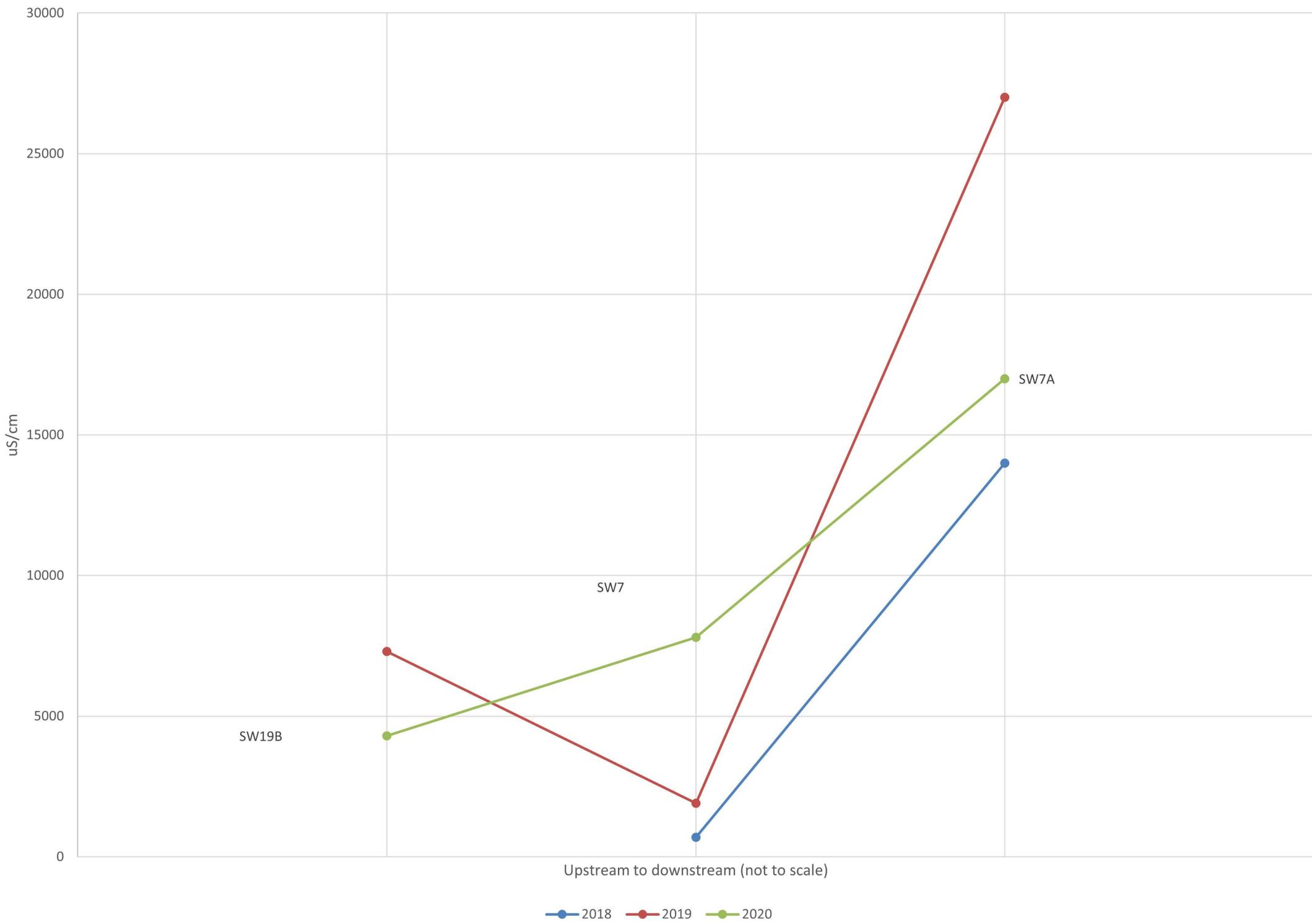


Figure D-17: Surface Water - Palmer Brook - Conductivity

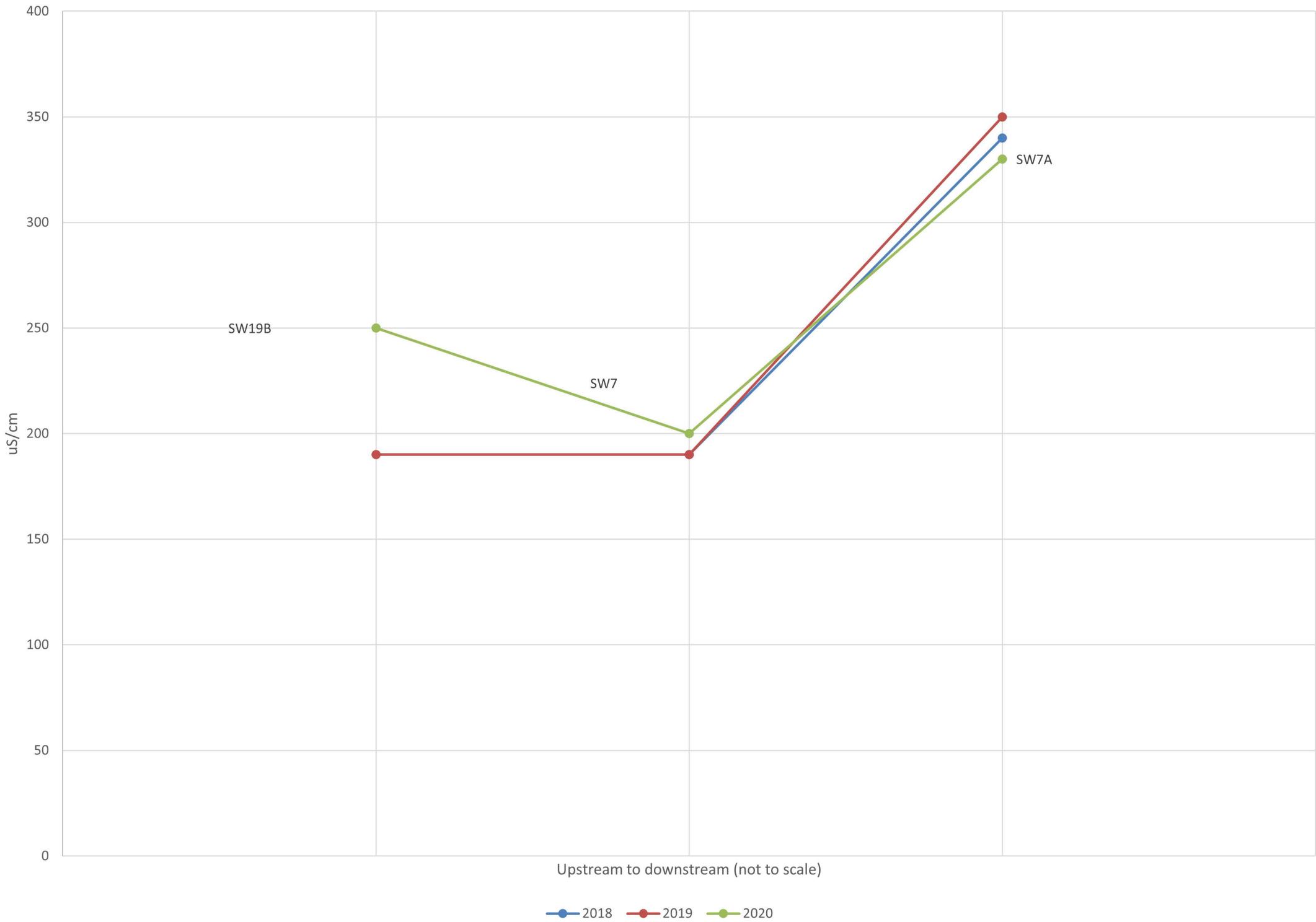
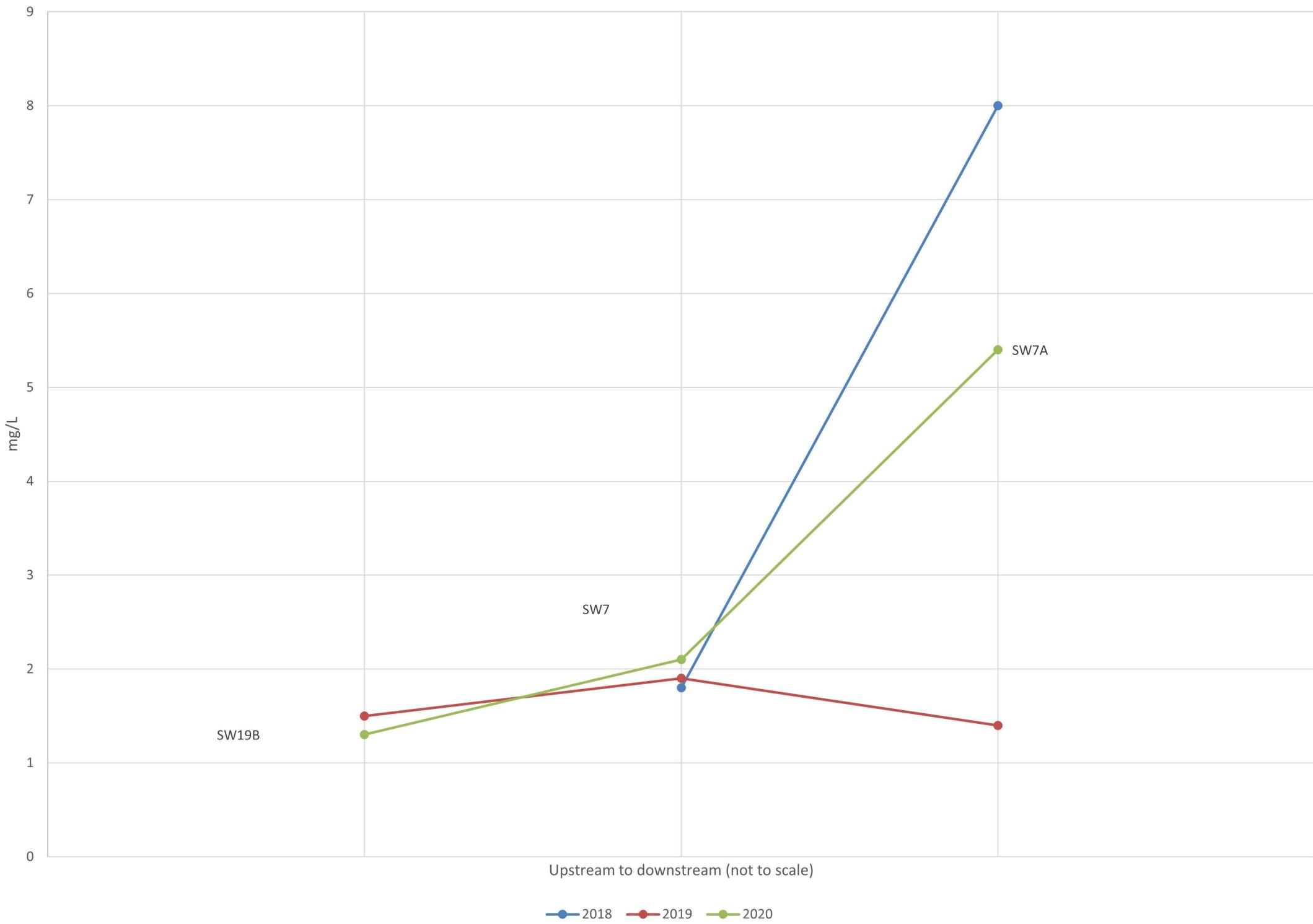


Figure D-18: Surface Water - Palmer Brook - Potassium



APPENDIX E

Laboratory Certificates of Analysis



Your Project #: 121414186
 Site Location: MEADOWVIEW
 Your C.O.C. #: 780972-01-01, 780972-02-01

Attention: Gillian Manley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2020/08/05
 Report #: R6280603
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0I0612

Received: 2020/07/16, 15:36

Sample Matrix: Water
 # Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbonate, Bicarbonate and Hydroxide	12	N/A	2020/07/22	N/A	SM 23 4500-CO2 D
Alkalinity	9	N/A	2020/07/23	ATL SOP 00013	EPA 310.2 R1974 m
Alkalinity	3	N/A	2020/07/24	ATL SOP 00013	EPA 310.2 R1974 m
Chloride	12	N/A	2020/07/23	ATL SOP 00014	SM 23 4500-Cl- E m
Colour	12	N/A	2020/07/23	ATL SOP 00020	SM 23 2120C m
Conductance - water	12	N/A	2020/07/22	ATL SOP 00004	SM 23 2510B m
Hardness (calculated as CaCO3)	5	N/A	2020/07/23	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	2	N/A	2020/07/24	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	4	N/A	2020/07/27	ATL SOP 00048	Auto Calc
Hardness (calculated as CaCO3)	1	N/A	2020/07/28	ATL SOP 00048	Auto Calc
Metals Water Diss. MS (as rec'd)	6	N/A	2020/07/23	ATL SOP 00058	EPA 6020B R2 m
Metals Water Diss. MS (as rec'd)	1	N/A	2020/07/28	ATL SOP 00058	EPA 6020B R2 m
Metals Water Total MS	1	2020/07/21	2020/07/23	ATL SOP 00058	EPA 6020B R2 m
Metals Water Total MS	4	2020/07/21	2020/07/25	ATL SOP 00058	EPA 6020B R2 m
Ion Balance (% Difference)	7	N/A	2020/07/24	N/A	Auto Calc.
Ion Balance (% Difference)	4	N/A	2020/07/27	N/A	Auto Calc.
Ion Balance (% Difference)	1	N/A	2020/07/28	N/A	Auto Calc.
Anion and Cation Sum	5	N/A	2020/07/23	N/A	Auto Calc.
Anion and Cation Sum	2	N/A	2020/07/24	N/A	Auto Calc.
Anion and Cation Sum	4	N/A	2020/07/27	N/A	Auto Calc.
Anion and Cation Sum	1	N/A	2020/07/28	N/A	Auto Calc.
Nitrogen Ammonia - water	12	N/A	2020/07/21	ATL SOP 00015	EPA 350.1 R2 m
Nitrogen - Nitrate + Nitrite	12	N/A	2020/07/23	ATL SOP 00016	USGS I-2547-11m
Nitrogen - Nitrite	12	N/A	2020/07/23	ATL SOP 00017	SM 23 4500-NO2- B m
Nitrogen - Nitrate (as N)	12	N/A	2020/07/24	ATL SOP 00018	ASTM D3867-16
pH (2)	12	N/A	2020/07/22	ATL SOP 00003	SM 23 4500-H+ B m
Phosphorus - ortho	12	N/A	2020/07/23	ATL SOP 00021	SM 23 4500-P E m
Sat. pH and Langelier Index (@ 20C)	7	N/A	2020/07/24	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 20C)	4	N/A	2020/07/27	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 20C)	1	N/A	2020/07/28	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	7	N/A	2020/07/24	ATL SOP 00049	Auto Calc.



Your Project #: 121414186
 Site Location: MEADOWVIEW
 Your C.O.C. #: 780972-01-01, 780972-02-01

Attention: Gillian Manley

Stantec Consulting Ltd
 40 Highfield Park Drive
 Suite 102
 Dartmouth, NS
 CANADA B3A 0A3

Report Date: 2020/08/05
 Report #: R6280603
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0I0612

Received: 2020/07/16, 15:36

Sample Matrix: Water
 # Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Sat. pH and Langelier Index (@ 4C)	4	N/A	2020/07/27	ATL SOP 00049	Auto Calc.
Sat. pH and Langelier Index (@ 4C)	1	N/A	2020/07/28	ATL SOP 00049	Auto Calc.
Reactive Silica	12	N/A	2020/07/23	ATL SOP 00022	EPA 366.0 m
Sulphate	12	N/A	2020/07/23	ATL SOP 00023	ASTM D516-16 m
Total Dissolved Solids (TDS calc)	7	N/A	2020/07/24	N/A	Auto Calc.
Total Dissolved Solids (TDS calc)	4	N/A	2020/07/27	N/A	Auto Calc.
Total Dissolved Solids (TDS calc)	1	N/A	2020/07/28	N/A	Auto Calc.
Total Organic Carbon (TOC) (1, 3)	12	N/A	2020/08/05	CAM SOP-00446	SM 23 5310B m
Turbidity	12	N/A	2020/07/21	ATL SOP 00011	EPA 180.1 R2 m

Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

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

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

(1) This test was performed by Bureau Veritas Laboratories Mississauga

(2) The APHA Standard Method require pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the APHA Standard Method holding time.



Your Project #: 121414186
Site Location: MEADOWVIEW
Your C.O.C. #: 780972-01-01, 780972-02-01

Attention: Gillian Manley

Stantec Consulting Ltd
40 Highfield Park Drive
Suite 102
Dartmouth, NS
CANADA B3A 0A3

Report Date: 2020/08/05
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CERTIFICATE OF ANALYSIS

BV LABS JOB #: C0I0612

Received: 2020/07/16, 15:36

(3) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Marie Muise, Key Account Specialist

Email: Marie.MUISE@bvlab.com

Phone# (902)420-0203 Ext:253

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This report has been generated and distributed using a secure automated process.

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

ATLANTIC RCAP-MS TOTAL METALS IN WATER (WATER)

BV Labs ID		NDL703			NDL704		NDL705	NDL705		
Sampling Date		2020/07/16 13:45			2020/07/16 13:25		2020/07/16 10:05	2020/07/16 10:05		
COC Number		780972-01-01			780972-01-01		780972-01-01	780972-01-01		
	UNITS	SW7	RDL	QC Batch	SW7A	RDL	SW3	SW3 Lab-Dup	RDL	QC Batch

Calculated Parameters

Anion Sum	me/L	2.03	N/A	6843221	3.32	N/A	2.68	N/A	N/A	6843221
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	68	1.0	6843216	130	1.0	61	N/A	1.0	6843216
Calculated TDS	mg/L	130	1.0	6843228	200	1.0	160	N/A	1.0	6843228
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	6843216	<1.0	1.0	<1.0	N/A	1.0	6843216
Cation Sum	me/L	2.36	N/A	6843221	3.65	N/A	2.45	N/A	N/A	6843221
Hardness (CaCO3)	mg/L	70	1.0	6843217	97	1.0	87	N/A	1.0	6843217
Ion Balance (% Difference)	%	7.52	N/A	6843218	4.73	N/A	4.48	N/A	N/A	6843218
Langelier Index (@ 20C)	N/A	-0.751	N/A	6843224	-0.543	N/A	-0.570	N/A	N/A	6843224
Langelier Index (@ 4C)	N/A	-1.00	N/A	6843226	-0.793	N/A	-0.821	N/A	N/A	6843226
Nitrate (N)	mg/L	0.11	0.050	6843222	0.14	0.050	2.0	N/A	0.25	6843222
Saturation pH (@ 20C)	N/A	8.16	N/A	6843224	7.78	N/A	8.12	N/A	N/A	6843224
Saturation pH (@ 4C)	N/A	8.41	N/A	6843226	8.03	N/A	8.37	N/A	N/A	6843226

Inorganics

Total Alkalinity (Total as CaCO3)	mg/L	68	5.0	6849620	130	25	61	N/A	5.0	6849664
Dissolved Chloride (Cl-)	mg/L	21	1.0	6849641	25	1.0	31	N/A	1.0	6849677
Colour	TCU	51	25	6849654	13	5.0	29	N/A	5.0	6849690
Nitrate + Nitrite (N)	mg/L	0.11	0.050	6849658	0.14	0.050	2.1	N/A	0.25	6849698
Nitrite (N)	mg/L	<0.010	0.010	6849661	<0.010	0.010	0.077	N/A	0.010	6849702
Nitrogen (Ammonia Nitrogen)	mg/L	0.66	0.050	6846703	3.5	0.25	0.17	N/A	0.050	6846703
Total Organic Carbon (TOC)	mg/L	4.0	0.40	6869668	6.6	0.40	4.0	N/A	0.40	6869668
Orthophosphate (P)	mg/L	0.013	0.010	6849657	<0.010	0.010	0.072	N/A	0.010	6849693
pH	pH	7.41	N/A	6848614	7.24	N/A	7.55	7.50	N/A	6848614
Reactive Silica (SiO2)	mg/L	11	0.50	6849653	13	0.50	11	N/A	0.50	6849681
Dissolved Sulphate (SO4)	mg/L	2.9	2.0	6849652	2.5	2.0	21	N/A	2.0	6849678
Turbidity	NTU	5.2	0.10	6846219	87	0.10	9.6	N/A	0.10	6846219
Conductivity	uS/cm	200	1.0	6848613	330	1.0	270	270	1.0	6848613

Metals

Total Aluminum (Al)	ug/L	46	5.0	6844856	56	5.0	210	N/A	5.0	6844856
Total Antimony (Sb)	ug/L	<1.0	1.0	6844856	<1.0	1.0	<1.0	N/A	1.0	6844856
Total Arsenic (As)	ug/L	9.6	1.0	6844856	29	1.0	2.0	N/A	1.0	6844856
Total Barium (Ba)	ug/L	240	1.0	6844856	430	1.0	36	N/A	1.0	6844856
Total Beryllium (Be)	ug/L	<1.0	1.0	6844856	<1.0	1.0	<1.0	N/A	1.0	6844856

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



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BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

ATLANTIC RCAP-MS TOTAL METALS IN WATER (WATER)

BV Labs ID		NDL703			NDL704			NDL705		
Sampling Date		2020/07/16 13:45			2020/07/16 13:25			2020/07/16 10:05		
COC Number		780972-01-01			780972-01-01			780972-01-01		
	UNITS	SW7	RDL	QC Batch	SW7A	RDL	SW3	SW3 Lab-Dup	RDL	QC Batch
Total Bismuth (Bi)	ug/L	<2.0	2.0	6844856	<2.0	2.0	<2.0	N/A	2.0	6844856
Total Boron (B)	ug/L	<50	50	6844856	53	50	<50	N/A	50	6844856
Total Cadmium (Cd)	ug/L	<0.010	0.010	6844856	<0.010	0.010	0.010	N/A	0.010	6844856
Total Calcium (Ca)	ug/L	23000	100	6844856	31000	100	30000	N/A	100	6844856
Total Chromium (Cr)	ug/L	<1.0	1.0	6844856	<1.0	1.0	<1.0	N/A	1.0	6844856
Total Cobalt (Co)	ug/L	0.71	0.40	6844856	3.1	0.40	<0.40	N/A	0.40	6844856
Total Copper (Cu)	ug/L	<0.50	0.50	6844856	<0.50	0.50	1.0	N/A	0.50	6844856
Total Iron (Fe)	ug/L	7800	50	6844856	17000	50	900	N/A	50	6844856
Total Lead (Pb)	ug/L	<0.50	0.50	6844856	<0.50	0.50	<0.50	N/A	0.50	6844856
Total Magnesium (Mg)	ug/L	2800	100	6844856	4600	100	3200	N/A	100	6844856
Total Manganese (Mn)	ug/L	2200	2.0	6844856	2400	2.0	220	N/A	2.0	6844856
Total Molybdenum (Mo)	ug/L	<2.0	2.0	6844856	<2.0	2.0	<2.0	N/A	2.0	6844856
Total Nickel (Ni)	ug/L	<2.0	2.0	6844856	<2.0	2.0	<2.0	N/A	2.0	6844856
Total Phosphorus (P)	ug/L	120	100	6844856	190	100	200	N/A	100	6844856
Total Potassium (K)	ug/L	2100	100	6844856	5400	100	2300	N/A	100	6844856
Total Selenium (Se)	ug/L	<0.50	0.50	6844856	<0.50	0.50	<0.50	N/A	0.50	6844856
Total Silver (Ag)	ug/L	<0.10	0.10	6844856	<0.10	0.10	<0.10	N/A	0.10	6844856
Total Sodium (Na)	ug/L	13000	100	6844856	16000	100	14000	N/A	100	6844856
Total Strontium (Sr)	ug/L	60	2.0	6844856	120	2.0	110	N/A	2.0	6844856
Total Thallium (Tl)	ug/L	<0.10	0.10	6844856	<0.10	0.10	<0.10	N/A	0.10	6844856
Total Tin (Sn)	ug/L	<2.0	2.0	6844856	<2.0	2.0	<2.0	N/A	2.0	6844856
Total Titanium (Ti)	ug/L	<2.0	2.0	6844856	<2.0	2.0	6.3	N/A	2.0	6844856
Total Uranium (U)	ug/L	<0.10	0.10	6844856	<0.10	0.10	0.82	N/A	0.10	6844856
Total Vanadium (V)	ug/L	<2.0	2.0	6844856	<2.0	2.0	<2.0	N/A	2.0	6844856
Total Zinc (Zn)	ug/L	<5.0	5.0	6844856	<5.0	5.0	<5.0	N/A	5.0	6844856

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



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VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

ATLANTIC RCAP-MS TOTAL METALS IN WATER (WATER)

BV Labs ID		NDL707			NDL708	NDL708		
Sampling Date		2020/07/16 12:50			2020/07/16 13:10	2020/07/16 13:10		
COC Number		780972-02-01			780972-02-01	780972-02-01		
	UNITS	SWA	RDL	QC Batch	SW19B	SW19B Lab-Dup	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	2.63	N/A	6843221	2.40	N/A	N/A	6843221
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	60	1.0	6843216	63	N/A	1.0	6843216
Calculated TDS	mg/L	160	1.0	6843228	140	N/A	1.0	6843228
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	6843216	<1.0	N/A	1.0	6843216
Cation Sum	me/L	2.42	N/A	6843221	2.18	N/A	N/A	6843221
Hardness (CaCO3)	mg/L	85	1.0	6843217	46	N/A	1.0	6843217
Ion Balance (% Difference)	%	4.16	N/A	6843218	4.80	N/A	N/A	6843218
Langelier Index (@ 20C)	N/A	-0.547	N/A	6843224	-1.06	N/A	N/A	6843224
Langelier Index (@ 4C)	N/A	-0.797	N/A	6843226	-1.31	N/A	N/A	6843226
Nitrate (N)	mg/L	1.8	0.10	6843222	<0.050	N/A	0.050	6843222
Saturation pH (@ 20C)	N/A	8.13	N/A	6843224	8.42	N/A	N/A	6843224
Saturation pH (@ 4C)	N/A	8.38	N/A	6843226	8.67	N/A	N/A	6843226
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	60	5.0	6849664	63	N/A	5.0	6849664
Dissolved Chloride (Cl-)	mg/L	31	1.0	6849677	40	N/A	1.0	6849677
Colour	TCU	26	5.0	6849690	180	N/A	25	6849690
Nitrate + Nitrite (N)	mg/L	1.9 (1)	0.10	6849698	<0.050	N/A	0.050	6849698
Nitrite (N)	mg/L	0.078	0.010	6849702	<0.010	N/A	0.010	6849702
Nitrogen (Ammonia Nitrogen)	mg/L	0.10	0.050	6846703	0.29	0.30	0.050	6846703
Total Organic Carbon (TOC)	mg/L	3.6	0.40	6869668	15	N/A	0.40	6869668
Orthophosphate (P)	mg/L	0.073	0.010	6849693	0.013	N/A	0.010	6849693
pH	pH	7.59	N/A	6848614	7.36	7.28	N/A	6848618
Reactive Silica (SiO2)	mg/L	10	0.50	6849681	7.8	N/A	0.50	6849681
Dissolved Sulphate (SO4)	mg/L	20	2.0	6849678	<2.0	N/A	2.0	6849678
Turbidity	NTU	6.8	0.10	6846219	30	N/A	0.10	6846219
Conductivity	uS/cm	270	1.0	6848613	250	250	1.0	6848616
Metals								
Total Aluminum (Al)	ug/L	170	5.0	6844856	73	N/A	5.0	6844856
Total Antimony (Sb)	ug/L	<1.0	1.0	6844856	<1.0	N/A	1.0	6844856
Total Arsenic (As)	ug/L	1.7	1.0	6844856	<1.0	N/A	1.0	6844856
Total Barium (Ba)	ug/L	29	1.0	6844856	140	N/A	1.0	6844856
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable (1) Elevated reporting limit due to sample matrix.								



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BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

ATLANTIC RCAP-MS TOTAL METALS IN WATER (WATER)

BV Labs ID		NDL707			NDL708		NDL708	
Sampling Date		2020/07/16 12:50			2020/07/16 13:10		2020/07/16 13:10	
COC Number		780972-02-01			780972-02-01		780972-02-01	
	UNITS	SWA	RDL	QC Batch	SW19B	SW19B Lab-Dup	RDL	QC Batch
Total Beryllium (Be)	ug/L	<1.0	1.0	6844856	<1.0	N/A	1.0	6844856
Total Bismuth (Bi)	ug/L	<2.0	2.0	6844856	<2.0	N/A	2.0	6844856
Total Boron (B)	ug/L	<50	50	6844856	<50	N/A	50	6844856
Total Cadmium (Cd)	ug/L	<0.010	0.010	6844856	0.019	N/A	0.010	6844856
Total Calcium (Ca)	ug/L	29000	100	6844856	14000	N/A	100	6844856
Total Chromium (Cr)	ug/L	<1.0	1.0	6844856	<1.0	N/A	1.0	6844856
Total Cobalt (Co)	ug/L	<0.40	0.40	6844856	1.5	N/A	0.40	6844856
Total Copper (Cu)	ug/L	1.0	0.50	6844856	0.55	N/A	0.50	6844856
Total Iron (Fe)	ug/L	690	50	6844856	4300	N/A	50	6844856
Total Lead (Pb)	ug/L	<0.50	0.50	6844856	<0.50	N/A	0.50	6844856
Total Magnesium (Mg)	ug/L	3200	100	6844856	2800	N/A	100	6844856
Total Manganese (Mn)	ug/L	170	2.0	6844856	8300	N/A	2.0	6844856
Total Molybdenum (Mo)	ug/L	<2.0	2.0	6844856	<2.0	N/A	2.0	6844856
Total Nickel (Ni)	ug/L	<2.0	2.0	6844856	<2.0	N/A	2.0	6844856
Total Phosphorus (P)	ug/L	190	100	6844856	<100	N/A	100	6844856
Total Potassium (K)	ug/L	2100	100	6844856	1300	N/A	100	6844856
Total Selenium (Se)	ug/L	<0.50	0.50	6844856	<0.50	N/A	0.50	6844856
Total Silver (Ag)	ug/L	<0.10	0.10	6844856	<0.10	N/A	0.10	6844856
Total Sodium (Na)	ug/L	14000	100	6844856	24000	N/A	100	6844856
Total Strontium (Sr)	ug/L	100	2.0	6844856	45	N/A	2.0	6844856
Total Thallium (Tl)	ug/L	<0.10	0.10	6844856	<0.10	N/A	0.10	6844856
Total Tin (Sn)	ug/L	<2.0	2.0	6844856	<2.0	N/A	2.0	6844856
Total Titanium (Ti)	ug/L	5.3	2.0	6844856	<2.0	N/A	2.0	6844856
Total Uranium (U)	ug/L	0.79	0.10	6844856	<0.10	N/A	0.10	6844856
Total Vanadium (V)	ug/L	<2.0	2.0	6844856	<2.0	N/A	2.0	6844856
Total Zinc (Zn)	ug/L	<5.0	5.0	6844856	<5.0	N/A	5.0	6844856
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable								



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BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

AT. RCAP-MS DISSOLVED (FIELDFIL) IN W

BV Labs ID		NDL696		NDL697		NDL698			NDL699		
Sampling Date		2020/07/16 08:40		2020/07/16 11:55		2020/07/16 12:15			2020/07/16 12:30		
COC Number		780972-01-01		780972-01-01		780972-01-01			780972-01-01		
	UNITS	MW-4A	RDL	MW-22A	RDL	MW-22B	RDL	QC Batch	MW-22C	RDL	QC Batch
Calculated Parameters											
Anion Sum	me/L	12.4	N/A	8.97	N/A	11.6	N/A	6843221	5.06	N/A	6843221
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	580	1.0	370	1.0	390	1.0	6843216	190	1.0	6843216
Calculated TDS	mg/L	660	1.0	520	1.0	700	1.0	6843228	260	1.0	6843228
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	1.2	1.0	6843216	1.8	1.0	6843216
Cation Sum	me/L	12.2	N/A	10.1	N/A	15.6	N/A	6843221	4.74	N/A	6843221
Hardness (CaCO3)	mg/L	320	1.0	240	1.0	620	1.0	6843217	200	1.0	6843217
Ion Balance (% Difference)	%	0.770	N/A	5.73	N/A	14.8	N/A	6843218	3.27	N/A	6843218
Langelier Index (@ 20C)	N/A	0.228	N/A	-0.328	N/A	0.927	N/A	6843224	0.685	N/A	6843224
Langelier Index (@ 4C)	N/A	-0.0190	N/A	-0.576	N/A	0.680	N/A	6843226	0.435	N/A	6843226
Nitrate (N)	mg/L	0.15	0.050	<0.050	0.050	0.81	0.050	6843222	<0.050	0.050	6843222
Saturation pH (@ 20C)	N/A	6.76	N/A	7.03	N/A	6.60	N/A	6843224	7.33	N/A	6843224
Saturation pH (@ 4C)	N/A	7.01	N/A	7.28	N/A	6.85	N/A	6843226	7.58	N/A	6843226
Inorganics											
Total Alkalinity (Total as CaCO3)	mg/L	580	50	370	25	390	50	6849620	190	25	6849620
Dissolved Chloride (Cl-)	mg/L	30	1.0	55	1.0	130	5.0	6849641	47	1.0	6849641
Colour	TCU	9.4	5.0	72	25	12	5.0	6849654	<5.0	5.0	6849654
Nitrate + Nitrite (N)	mg/L	0.16	0.050	<0.050	0.050	0.87	0.050	6849658	<0.050	0.050	6849658
Nitrite (N)	mg/L	0.010	0.010	<0.010	0.010	0.059	0.010	6849661	<0.010	0.010	6849661
Nitrogen (Ammonia Nitrogen)	mg/L	39	2.0	16	0.50	0.21	0.050	6846703	<0.050	0.050	6846703
Total Organic Carbon (TOC)	mg/L	9.4	0.40	8.9	0.40	10	0.40	6869668	2.7	0.40	6869668
Orthophosphate (P)	mg/L	<0.010	0.010	<0.010	0.010	0.032	0.010	6849657	<0.010	0.010	6849657
pH	pH	6.99	N/A	6.70	N/A	7.53	N/A	6848614	8.01	N/A	6848614
Reactive Silica (SiO2)	mg/L	33	1.0	17	0.50	20	0.50	6849653	11	0.50	6849653
Dissolved Sulphate (SO4)	mg/L	<2.0	2.0	<2.0	2.0	<2.0	2.0	6849652	<2.0	2.0	6849652
Turbidity	NTU	>1000	1.0	530	1.0	36	0.10	6846219	62	0.10	6846219
Conductivity	uS/cm	1200	1.0	890	1.0	1500	1.0	6848613	500	1.0	6848613
Metals											
Dissolved Aluminum (Al)	ug/L	<5.0	5.0	<5.0	5.0	<5.0	5.0	6847463	<5.0	5.0	6847476
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	<1.0	1.0	1.4	1.0	6847463	<1.0	1.0	6847476
Dissolved Arsenic (As)	ug/L	60	1.0	83	1.0	<1.0	1.0	6847463	1.4	1.0	6847476
Dissolved Barium (Ba)	ug/L	2500	10	980	1.0	570	1.0	6847463	9.4	1.0	6847476
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	6847463	<1.0	1.0	6847476
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	2.0	6847463	<2.0	2.0	6847476
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable											



BUREAU
VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

AT. RCAP-MS DISSOLVED (FIELDFIL) IN W

BV Labs ID		NDL696		NDL697		NDL698			NDL699		
Sampling Date		2020/07/16 08:40		2020/07/16 11:55		2020/07/16 12:15			2020/07/16 12:30		
COC Number		780972-01-01		780972-01-01		780972-01-01			780972-01-01		
	UNITS	MW-4A	RDL	MW-22A	RDL	MW-22B	RDL	QC Batch	MW-22C	RDL	QC Batch
Dissolved Boron (B)	ug/L	240	50	280	50	420	50	6847463	<50	50	6847476
Dissolved Cadmium (Cd)	ug/L	<0.010	0.010	<0.010	0.010	0.84	0.010	6847463	0.014	0.010	6847476
Dissolved Calcium (Ca)	ug/L	95000	100	74000	100	210000	100	6847463	65000	100	6847476
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	<1.0	1.0	<1.0	1.0	6847463	<1.0	1.0	6847476
Dissolved Cobalt (Co)	ug/L	10	0.40	19	0.40	8.3	0.40	6847463	<0.40	0.40	6847476
Dissolved Copper (Cu)	ug/L	<0.50	0.50	<0.50	0.50	0.74	0.50	6847463	<0.50	0.50	6847476
Dissolved Iron (Fe)	ug/L	18000	50	57000	50	110	50	6847463	230	50	6847476
Dissolved Lead (Pb)	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	6847463	<0.50	0.50	6847476
Dissolved Magnesium (Mg)	ug/L	21000	100	13000	100	25000	100	6847463	9800	100	6847476
Dissolved Manganese (Mn)	ug/L	690	2.0	3900	2.0	2500	2.0	6847463	58	2.0	6847476
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	2.0	6847463	<2.0	2.0	6847476
Dissolved Nickel (Ni)	ug/L	15	2.0	13	2.0	22	2.0	6847463	17	2.0	6847476
Dissolved Phosphorus (P)	ug/L	140	100	330	100	<100	100	6847463	<100	100	6847476
Dissolved Potassium (K)	ug/L	43000	100	17000	100	7600	100	6847463	6300	100	6847476
Dissolved Selenium (Se)	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	6847463	<0.50	0.50	6847476
Dissolved Silver (Ag)	ug/L	<0.10	0.10	<0.10	0.10	<0.10	0.10	6847463	<0.10	0.10	6847476
Dissolved Sodium (Na)	ug/L	27000	100	39000	100	68000	100	6847463	11000	100	6847476
Dissolved Strontium (Sr)	ug/L	670	2.0	400	2.0	1900	2.0	6847463	910	2.0	6847476
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	<0.10	0.10	<0.10	0.10	6847463	<0.10	0.10	6847476
Dissolved Tin (Sn)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	2.0	6847463	<2.0	2.0	6847476
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	2.0	6847463	<2.0	2.0	6847476
Dissolved Uranium (U)	ug/L	<0.10	0.10	<0.10	0.10	9.4	0.10	6847463	35	0.10	6847476
Dissolved Vanadium (V)	ug/L	<2.0	2.0	<2.0	2.0	<2.0	2.0	6847463	<2.0	2.0	6847476
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	<5.0	5.0	<5.0	5.0	6847463	<5.0	5.0	6847476

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch



BUREAU
VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

AT. RCAP-MS DISSOLVED (FIELDFIL) IN W

BV Labs ID		NDL700			NDL701	NDL701		
Sampling Date		2020/07/16 11:30			2020/07/16 12:15	2020/07/16 12:15		
COC Number		780972-01-01			780972-01-01	780972-01-01		
	UNITS	MW-25B	RDL	QC Batch	MW-40D	MW-40D Lab-Dup	RDL	QC Batch

Calculated Parameters								
Anion Sum	me/L	3.86	N/A	6843221	9.32	N/A	N/A	6843221
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	120	1.0	6843216	390	N/A	1.0	6843216
Calculated TDS	mg/L	210	1.0	6843228	530	N/A	1.0	6843228
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	6843216	<1.0	N/A	1.0	6843216
Cation Sum	me/L	3.99	N/A	6843221	10.1	N/A	N/A	6843221
Hardness (CaCO3)	mg/L	170	1.0	6843217	240	N/A	1.0	6843217
Ion Balance (% Difference)	%	1.66	N/A	6843218	4.12	N/A	N/A	6843218
Langelier Index (@ 20C)	N/A	0.141	N/A	6843224	-0.372	N/A	N/A	6843224
Langelier Index (@ 4C)	N/A	-0.108	N/A	6843226	-0.620	N/A	N/A	6843226
Nitrate (N)	mg/L	<0.050	0.050	6843222	<0.050	N/A	0.050	6843222
Saturation pH (@ 20C)	N/A	7.57	N/A	6843224	7.01	N/A	N/A	6843224
Saturation pH (@ 4C)	N/A	7.82	N/A	6843226	7.26	N/A	N/A	6843226
Inorganics								
Total Alkalinity (Total as CaCO3)	mg/L	120	25	6849620	390	390	25	6849664
Dissolved Chloride (Cl-)	mg/L	53	1.0	6849641	57	57	1.0	6849677
Colour	TCU	<5.0	5.0	6849654	96	110	25	6849690
Nitrate + Nitrite (N)	mg/L	<0.050	0.050	6849658	<0.050	<0.050	0.050	6849698
Nitrite (N)	mg/L	<0.010	0.010	6849661	<0.010	<0.010	0.010	6849702
Nitrogen (Ammonia Nitrogen)	mg/L	<0.050	0.050	6846703	15	N/A	0.50	6846703
Total Organic Carbon (TOC)	mg/L	3.0	0.40	6869668	8.9	N/A	0.40	6869668
Orthophosphate (P)	mg/L	<0.010	0.010	6849657	<0.010	<0.010	0.010	6849693
pH	pH	7.71	N/A	6848614	6.64	N/A	N/A	6848614
Reactive Silica (SiO2)	mg/L	9.9	0.50	6849653	17	17	0.50	6849681
Dissolved Sulphate (SO4)	mg/L	<2.0	2.0	6849652	<2.0	<2.0	2.0	6849678
Turbidity	NTU	450	1.0	6846219	550	550	1.0	6846219
Conductivity	uS/cm	410	1.0	6848613	910	N/A	1.0	6848613
Metals								
Dissolved Aluminum (Al)	ug/L	<5.0	5.0	6847476	<5.0	N/A	5.0	6847476
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	6847476	<1.0	N/A	1.0	6847476
Dissolved Arsenic (As)	ug/L	1.6	1.0	6847476	92	N/A	1.0	6847476
Dissolved Barium (Ba)	ug/L	5.5	1.0	6847476	1000	N/A	1.0	6847476
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	6847476	<1.0	N/A	1.0	6847476
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable								



BUREAU
VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

AT. RCAP-MS DISSOLVED (FIELDFIL) IN W

BV Labs ID		NDL700			NDL701	NDL701		
Sampling Date		2020/07/16 11:30			2020/07/16 12:15	2020/07/16 12:15		
COC Number		780972-01-01			780972-01-01	780972-01-01		
	UNITS	MW-25B	RDL	QC Batch	MW-40D	MW-40D Lab-Dup	RDL	QC Batch
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	6847476	<2.0	N/A	2.0	6847476
Dissolved Boron (B)	ug/L	<50	50	6847476	300	N/A	50	6847476
Dissolved Cadmium (Cd)	ug/L	<0.010	0.010	6847476	<0.010	N/A	0.010	6847476
Dissolved Calcium (Ca)	ug/L	57000	100	6847476	76000	N/A	100	6847476
Dissolved Chromium (Cr)	ug/L	1.8	1.0	6847476	<1.0	N/A	1.0	6847476
Dissolved Cobalt (Co)	ug/L	<0.40	0.40	6847476	19	N/A	0.40	6847476
Dissolved Copper (Cu)	ug/L	<0.50	0.50	6847476	<0.50	N/A	0.50	6847476
Dissolved Iron (Fe)	ug/L	<50	50	6847476	56000	N/A	50	6847476
Dissolved Lead (Pb)	ug/L	<0.50	0.50	6847476	<0.50	N/A	0.50	6847476
Dissolved Magnesium (Mg)	ug/L	8000	100	6847476	13000	N/A	100	6847476
Dissolved Manganese (Mn)	ug/L	3.8	2.0	6847476	3800	N/A	2.0	6847476
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	6847476	<2.0	N/A	2.0	6847476
Dissolved Nickel (Ni)	ug/L	7.8	2.0	6847476	14	N/A	2.0	6847476
Dissolved Phosphorus (P)	ug/L	<100	100	6847476	350	N/A	100	6847476
Dissolved Potassium (K)	ug/L	5900	100	6847476	18000	N/A	100	6847476
Dissolved Selenium (Se)	ug/L	<0.50	0.50	6847476	<0.50	N/A	0.50	6847476
Dissolved Silver (Ag)	ug/L	<0.10	0.10	6847476	<0.10	N/A	0.10	6847476
Dissolved Sodium (Na)	ug/L	8200	100	6847476	40000	N/A	100	6847476
Dissolved Strontium (Sr)	ug/L	720	2.0	6847476	400	N/A	2.0	6847476
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	6847476	<0.10	N/A	0.10	6847476
Dissolved Tin (Sn)	ug/L	<2.0	2.0	6847476	<2.0	N/A	2.0	6847476
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	6847476	<2.0	N/A	2.0	6847476
Dissolved Uranium (U)	ug/L	8.7	0.10	6847476	<0.10	N/A	0.10	6847476
Dissolved Vanadium (V)	ug/L	<2.0	2.0	6847476	<2.0	N/A	2.0	6847476
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	6847476	<5.0	N/A	5.0	6847476
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate N/A = Not Applicable								



BUREAU
VERITAS

BV Labs Job #: COI0612

Report Date: 2020/08/05

Stantec Consulting Ltd

Client Project #: 121414186

Site Location: MEADOWVIEW

Sampler Initials: DJC

AT. RCAP-MS DISSOLVED (FIELDFIL) IN W

BV Labs ID		NDL702		
Sampling Date		2020/07/16 09:05		
COC Number		780972-01-01		
	UNITS	TH-1	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	11.0	N/A	6843221
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	520	1.0	6843216
Calculated TDS	mg/L	590	1.0	6843228
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.2	1.0	6843216
Cation Sum	me/L	10.7	N/A	6843221
Hardness (CaCO3)	mg/L	270	1.0	6843217
Ion Balance (% Difference)	%	1.47	N/A	6843218
Langelier Index (@ 20C)	N/A	0.535	N/A	6843224
Langelier Index (@ 4C)	N/A	0.288	N/A	6843226
Nitrate (N)	mg/L	<0.050	0.050	6843222
Saturation pH (@ 20C)	N/A	6.84	N/A	6843224
Saturation pH (@ 4C)	N/A	7.08	N/A	6843226
Inorganics				
Total Alkalinity (Total as CaCO3)	mg/L	520	50	6849620
Dissolved Chloride (Cl-)	mg/L	21	1.0	6849641
Colour	TCU	6.4	5.0	6849654
Nitrate + Nitrite (N)	mg/L	0.063	0.050	6849658
Nitrite (N)	mg/L	0.014	0.010	6849661
Nitrogen (Ammonia Nitrogen)	mg/L	31	2.0	6846703
Total Organic Carbon (TOC)	mg/L	6.7	0.40	6869668
Orthophosphate (P)	mg/L	<0.010	0.010	6849657
pH	pH	7.37	N/A	6848614
Reactive Silica (SiO2)	mg/L	29	1.0	6849653
Dissolved Sulphate (SO4)	mg/L	<2.0	2.0	6849652
Turbidity	NTU	290	1.0	6846219
Conductivity	uS/cm	1000	1.0	6848613
Metals				
Dissolved Aluminum (Al)	ug/L	<5.0	5.0	6854111
Dissolved Antimony (Sb)	ug/L	<1.0	1.0	6854111
Dissolved Arsenic (As)	ug/L	23	1.0	6854111
Dissolved Barium (Ba)	ug/L	900	1.0	6854111
Dissolved Beryllium (Be)	ug/L	<1.0	1.0	6854111
Dissolved Bismuth (Bi)	ug/L	<2.0	2.0	6854111
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



BUREAU
VERITAS

BV Labs Job #: COI0612

Report Date: 2020/08/05

Stantec Consulting Ltd

Client Project #: 121414186

Site Location: MEADOWVIEW

Sampler Initials: DJC

AT. RCAP-MS DISSOLVED (FIELDFIL) IN W

BV Labs ID		NDL702		
Sampling Date		2020/07/16 09:05		
COC Number		780972-01-01		
	UNITS	TH-1	RDL	QC Batch
Dissolved Boron (B)	ug/L	160	50	6854111
Dissolved Cadmium (Cd)	ug/L	<0.010	0.010	6854111
Dissolved Calcium (Ca)	ug/L	86000	100	6854111
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	6854111
Dissolved Cobalt (Co)	ug/L	3.4	0.40	6854111
Dissolved Copper (Cu)	ug/L	<0.50	0.50	6854111
Dissolved Iron (Fe)	ug/L	12000	50	6854111
Dissolved Lead (Pb)	ug/L	<0.50	0.50	6854111
Dissolved Magnesium (Mg)	ug/L	14000	100	6854111
Dissolved Manganese (Mn)	ug/L	1000	2.0	6854111
Dissolved Molybdenum (Mo)	ug/L	<2.0	2.0	6854111
Dissolved Nickel (Ni)	ug/L	3.6	2.0	6854111
Dissolved Phosphorus (P)	ug/L	<100	100	6854111
Dissolved Potassium (K)	ug/L	28000	100	6854111
Dissolved Selenium (Se)	ug/L	<0.50	0.50	6854111
Dissolved Silver (Ag)	ug/L	<0.10	0.10	6854111
Dissolved Sodium (Na)	ug/L	45000	100	6854111
Dissolved Strontium (Sr)	ug/L	370	2.0	6854111
Dissolved Thallium (Tl)	ug/L	<0.10	0.10	6854111
Dissolved Tin (Sn)	ug/L	<2.0	2.0	6854111
Dissolved Titanium (Ti)	ug/L	<2.0	2.0	6854111
Dissolved Uranium (U)	ug/L	<0.10	0.10	6854111
Dissolved Vanadium (V)	ug/L	<2.0	2.0	6854111
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	6854111
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				



BUREAU
VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

TEST SUMMARY

BV Labs ID: NDL696
Sample ID: MW-4A
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849620	N/A	2020/07/24	Emily Matheson
Chloride	KONE	6849641	N/A	2020/07/23	Emily Matheson
Colour	KONE	6849654	N/A	2020/07/23	Emily Matheson
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/24	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	6847463	N/A	2020/07/23	Lynne Kempton
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/24	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/24	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849658	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrite	KONE	6849661	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849657	N/A	2020/07/23	Emily Matheson
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/24	Automated Statchk
Reactive Silica	KONE	6849653	N/A	2020/07/23	Emily Matheson
Sulphate	KONE	6849652	N/A	2020/07/23	Emily Matheson
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL697
Sample ID: MW-22A
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849620	N/A	2020/07/23	Emily Matheson
Chloride	KONE	6849641	N/A	2020/07/23	Emily Matheson
Colour	KONE	6849654	N/A	2020/07/23	Emily Matheson
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/23	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	6847463	N/A	2020/07/23	Lynne Kempton
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/24	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/23	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849658	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrite	KONE	6849661	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849657	N/A	2020/07/23	Emily Matheson
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/24	Automated Statchk



BUREAU
VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

TEST SUMMARY

BV Labs ID: NDL697
Sample ID: MW-22A
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Reactive Silica	KONE	6849653	N/A	2020/07/23	Emily Matheson
Sulphate	KONE	6849652	N/A	2020/07/23	Emily Matheson
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL698
Sample ID: MW-22B
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849620	N/A	2020/07/24	Emily Matheson
Chloride	KONE	6849641	N/A	2020/07/23	Emily Matheson
Colour	KONE	6849654	N/A	2020/07/23	Emily Matheson
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/23	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	6847463	N/A	2020/07/23	Lynne Kempton
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/24	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/23	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849658	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrite	KONE	6849661	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849657	N/A	2020/07/23	Emily Matheson
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/24	Automated Statchk
Reactive Silica	KONE	6849653	N/A	2020/07/23	Emily Matheson
Sulphate	KONE	6849652	N/A	2020/07/23	Emily Matheson
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL699
Sample ID: MW-22C
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849620	N/A	2020/07/23	Emily Matheson
Chloride	KONE	6849641	N/A	2020/07/23	Emily Matheson
Colour	KONE	6849654	N/A	2020/07/23	Emily Matheson
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/23	Automated Statchk



BUREAU
VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

TEST SUMMARY

BV Labs ID: NDL699
Sample ID: MW-22C
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals Water Diss. MS (as rec'd)	CICP/MS	6847476	N/A	2020/07/23	Lynne Kempton
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/24	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/23	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849658	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrite	KONE	6849661	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849657	N/A	2020/07/23	Emily Matheson
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/24	Automated Statchk
Reactive Silica	KONE	6849653	N/A	2020/07/23	Emily Matheson
Sulphate	KONE	6849652	N/A	2020/07/23	Emily Matheson
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL700
Sample ID: MW-25B
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849620	N/A	2020/07/23	Emily Matheson
Chloride	KONE	6849641	N/A	2020/07/23	Emily Matheson
Colour	KONE	6849654	N/A	2020/07/23	Emily Matheson
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/23	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	6847476	N/A	2020/07/23	Lynne Kempton
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/24	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/23	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849658	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrite	KONE	6849661	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849657	N/A	2020/07/23	Emily Matheson
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/24	Automated Statchk
Reactive Silica	KONE	6849653	N/A	2020/07/23	Emily Matheson
Sulphate	KONE	6849652	N/A	2020/07/23	Emily Matheson
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway



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VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

TEST SUMMARY

BV Labs ID: NDL701
Sample ID: MW-40D
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849664	N/A	2020/07/23	Mary Clancey
Chloride	KONE	6849677	N/A	2020/07/23	Mary Clancey
Colour	KONE	6849690	N/A	2020/07/23	Mary Clancey
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/23	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	6847476	N/A	2020/07/23	Lynne Kempton
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/24	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/23	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849698	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrite	KONE	6849702	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849693	N/A	2020/07/23	Mary Clancey
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/24	Automated Statchk
Reactive Silica	KONE	6849681	N/A	2020/07/23	Mary Clancey
Sulphate	KONE	6849678	N/A	2020/07/23	Mary Clancey
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL701 Dup
Sample ID: MW-40D
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	KONE	6849664	N/A	2020/07/23	Mary Clancey
Chloride	KONE	6849677	N/A	2020/07/23	Mary Clancey
Colour	KONE	6849690	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrate + Nitrite	KONE	6849698	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrite	KONE	6849702	N/A	2020/07/23	Mary Clancey
Phosphorus - ortho	KONE	6849693	N/A	2020/07/23	Mary Clancey
Reactive Silica	KONE	6849681	N/A	2020/07/23	Mary Clancey
Sulphate	KONE	6849678	N/A	2020/07/23	Mary Clancey
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL702
Sample ID: TH-1
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849620	N/A	2020/07/24	Emily Matheson



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VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

TEST SUMMARY

BV Labs ID: NDL702
Sample ID: TH-1
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride	KONE	6849641	N/A	2020/07/23	Emily Matheson
Colour	KONE	6849654	N/A	2020/07/23	Emily Matheson
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/28	Automated Statchk
Metals Water Diss. MS (as rec'd)	CICP/MS	6854111	N/A	2020/07/28	Bryon Angevine
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/28	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/28	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849658	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrite	KONE	6849661	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849657	N/A	2020/07/23	Emily Matheson
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/28	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/28	Automated Statchk
Reactive Silica	KONE	6849653	N/A	2020/07/23	Emily Matheson
Sulphate	KONE	6849652	N/A	2020/07/23	Emily Matheson
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/28	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL703
Sample ID: SW7
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849620	N/A	2020/07/23	Emily Matheson
Chloride	KONE	6849641	N/A	2020/07/23	Emily Matheson
Colour	KONE	6849654	N/A	2020/07/23	Emily Matheson
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/27	Automated Statchk
Metals Water Total MS	CICP/MS	6844856	2020/07/21	2020/07/25	Bryon Angevine
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/27	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/27	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849658	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrite	KONE	6849661	N/A	2020/07/23	Emily Matheson
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849657	N/A	2020/07/23	Emily Matheson
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/27	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/27	Automated Statchk
Reactive Silica	KONE	6849653	N/A	2020/07/23	Emily Matheson
Sulphate	KONE	6849652	N/A	2020/07/23	Emily Matheson



BUREAU
VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

TEST SUMMARY

BV Labs ID: NDL703
Sample ID: SW7
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/27	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL704
Sample ID: SW7A
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849664	N/A	2020/07/23	Mary Clancey
Chloride	KONE	6849677	N/A	2020/07/23	Mary Clancey
Colour	KONE	6849690	N/A	2020/07/23	Mary Clancey
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/27	Automated Statchk
Metals Water Total MS	CICP/MS	6844856	2020/07/21	2020/07/25	Bryon Angevine
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/27	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/27	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849698	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrite	KONE	6849702	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849693	N/A	2020/07/23	Mary Clancey
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/27	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/27	Automated Statchk
Reactive Silica	KONE	6849681	N/A	2020/07/23	Mary Clancey
Sulphate	KONE	6849678	N/A	2020/07/23	Mary Clancey
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/27	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL705
Sample ID: SW3
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849664	N/A	2020/07/23	Mary Clancey
Chloride	KONE	6849677	N/A	2020/07/23	Mary Clancey
Colour	KONE	6849690	N/A	2020/07/23	Mary Clancey
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/27	Automated Statchk
Metals Water Total MS	CICP/MS	6844856	2020/07/21	2020/07/25	Bryon Angevine
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/27	Automated Statchk



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VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

TEST SUMMARY

BV Labs ID: NDL705
Sample ID: SW3
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Anion and Cation Sum	CALC	6843221	N/A	2020/07/27	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849698	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrite	KONE	6849702	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849693	N/A	2020/07/23	Mary Clancey
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/27	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/27	Automated Statchk
Reactive Silica	KONE	6849681	N/A	2020/07/23	Mary Clancey
Sulphate	KONE	6849678	N/A	2020/07/23	Mary Clancey
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/27	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL705 Dup
Sample ID: SW3
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway

BV Labs ID: NDL707
Sample ID: SWA
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849664	N/A	2020/07/23	Mary Clancey
Chloride	KONE	6849677	N/A	2020/07/23	Mary Clancey
Colour	KONE	6849690	N/A	2020/07/23	Mary Clancey
Conductance - water	AT	6848613	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/24	Automated Statchk
Metals Water Total MS	CICP/MS	6844856	2020/07/21	2020/07/23	Bryon Angevine
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/24	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/24	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849698	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrite	KONE	6849702	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848614	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849693	N/A	2020/07/23	Mary Clancey
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/24	Automated Statchk



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BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

TEST SUMMARY

BV Labs ID: NDL707
Sample ID: SWA
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Reactive Silica	KONE	6849681	N/A	2020/07/23	Mary Clancey
Sulphate	KONE	6849678	N/A	2020/07/23	Mary Clancey
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL708
Sample ID: SW19B
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	6843216	N/A	2020/07/22	Automated Statchk
Alkalinity	KONE	6849664	N/A	2020/07/23	Mary Clancey
Chloride	KONE	6849677	N/A	2020/07/23	Mary Clancey
Colour	KONE	6849690	N/A	2020/07/23	Mary Clancey
Conductance - water	AT	6848616	N/A	2020/07/22	Savannah Hatheway
Hardness (calculated as CaCO3)		6843217	N/A	2020/07/27	Automated Statchk
Metals Water Total MS	CICP/MS	6844856	2020/07/21	2020/07/25	Bryon Angevine
Ion Balance (% Difference)	CALC	6843218	N/A	2020/07/27	Automated Statchk
Anion and Cation Sum	CALC	6843221	N/A	2020/07/27	Automated Statchk
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
Nitrogen - Nitrate + Nitrite	KONE	6849698	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrite	KONE	6849702	N/A	2020/07/23	Mary Clancey
Nitrogen - Nitrate (as N)	CALC	6843222	N/A	2020/07/24	Automated Statchk
pH	AT	6848618	N/A	2020/07/22	Savannah Hatheway
Phosphorus - ortho	KONE	6849693	N/A	2020/07/23	Mary Clancey
Sat. pH and Langelier Index (@ 20C)	CALC	6843224	N/A	2020/07/27	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6843226	N/A	2020/07/27	Automated Statchk
Reactive Silica	KONE	6849681	N/A	2020/07/23	Mary Clancey
Sulphate	KONE	6849678	N/A	2020/07/23	Mary Clancey
Total Dissolved Solids (TDS calc)	CALC	6843228	N/A	2020/07/27	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	6869668	N/A	2020/08/05	Nimarta Singh
Turbidity	TURB	6846219	N/A	2020/07/21	Savannah Hatheway

BV Labs ID: NDL708 Dup
Sample ID: SW19B
Matrix: Water

Collected: 2020/07/16
Shipped:
Received: 2020/07/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductance - water	AT	6848616	N/A	2020/07/22	Savannah Hatheway
Nitrogen Ammonia - water	KONE	6846703	N/A	2020/07/21	Emily Matheson
pH	AT	6848618	N/A	2020/07/22	Savannah Hatheway



GENERAL COMMENTS

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

Package 1	9.3°C
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Sample NDL697 [MW-22A] : Poor RCap Ion Balance due to sample matrix. Possibly due to fine particulate matter.

Sample NDL698 [MW-22B] : ortho-Phosphate > Total Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Poor RCap Ion Balance due to sample matrix. Possibly due to fine particulate matter.

Sample NDL703 [SW7] : Poor RCap Ion Balance due to sample matrix. Possibly due to fine particulate matter.

Sample NDL708 [SW19B] : ortho-Phosphate > Total Phosphorus: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.



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VERITAS

BV Labs Job #: C010612
Report Date: 2020/08/05

QUALITY ASSURANCE REPORT

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6844856	Total Aluminum (Al)	2020/07/23	100	80 - 120	103	80 - 120	<5.0	ug/L	NC	20		
6844856	Total Antimony (Sb)	2020/07/23	98	80 - 120	97	80 - 120	<1.0	ug/L	NC	20		
6844856	Total Arsenic (As)	2020/07/23	95	80 - 120	92	80 - 120	<1.0	ug/L	NC	20		
6844856	Total Barium (Ba)	2020/07/23	93	80 - 120	93	80 - 120	<1.0	ug/L	NC	20		
6844856	Total Beryllium (Be)	2020/07/23	100	80 - 120	97	80 - 120	<1.0	ug/L	NC	20		
6844856	Total Bismuth (Bi)	2020/07/23	98	80 - 120	98	80 - 120	<2.0	ug/L	NC	20		
6844856	Total Boron (B)	2020/07/23	97	80 - 120	106	80 - 120	<50	ug/L	NC	20		
6844856	Total Cadmium (Cd)	2020/07/23	95	80 - 120	91	80 - 120	<0.010	ug/L	NC	20		
6844856	Total Calcium (Ca)	2020/07/23	103	80 - 120	101	80 - 120	<100	ug/L	NC	20		
6844856	Total Chromium (Cr)	2020/07/23	97	80 - 120	96	80 - 120	<1.0	ug/L	NC	20		
6844856	Total Cobalt (Co)	2020/07/23	97	80 - 120	96	80 - 120	<0.40	ug/L	NC	20		
6844856	Total Copper (Cu)	2020/07/23	96	80 - 120	94	80 - 120	<0.50	ug/L	NC	20		
6844856	Total Iron (Fe)	2020/07/23	103	80 - 120	102	80 - 120	<50	ug/L	NC	20		
6844856	Total Lead (Pb)	2020/07/23	96	80 - 120	95	80 - 120	<0.50	ug/L	NC	20		
6844856	Total Magnesium (Mg)	2020/07/23	104	80 - 120	102	80 - 120	<100	ug/L	NC	20		
6844856	Total Manganese (Mn)	2020/07/23	99	80 - 120	97	80 - 120	<2.0	ug/L	NC	20		
6844856	Total Molybdenum (Mo)	2020/07/23	99	80 - 120	98	80 - 120	<2.0	ug/L	NC	20		
6844856	Total Nickel (Ni)	2020/07/23	99	80 - 120	98	80 - 120	<2.0	ug/L	NC	20		
6844856	Total Phosphorus (P)	2020/07/23	102	80 - 120	102	80 - 120	<100	ug/L	NC	20		
6844856	Total Potassium (K)	2020/07/23	101	80 - 120	100	80 - 120	<100	ug/L	NC	20		
6844856	Total Selenium (Se)	2020/07/23	97	80 - 120	96	80 - 120	<0.50	ug/L	NC	20		
6844856	Total Silver (Ag)	2020/07/23	99	80 - 120	99	80 - 120	<0.10	ug/L	NC	20		
6844856	Total Sodium (Na)	2020/07/23	100	80 - 120	99	80 - 120	<100	ug/L	2.3	20		
6844856	Total Strontium (Sr)	2020/07/23	99	80 - 120	98	80 - 120	<2.0	ug/L	NC	20		
6844856	Total Thallium (Tl)	2020/07/23	98	80 - 120	96	80 - 120	<0.10	ug/L	NC	20		
6844856	Total Tin (Sn)	2020/07/23	97	80 - 120	97	80 - 120	<2.0	ug/L	NC	20		
6844856	Total Titanium (Ti)	2020/07/23	102	80 - 120	99	80 - 120	<2.0	ug/L	NC	20		
6844856	Total Uranium (U)	2020/07/23	105	80 - 120	105	80 - 120	<0.10	ug/L	NC	20		
6844856	Total Vanadium (V)	2020/07/23	100	80 - 120	100	80 - 120	<2.0	ug/L	NC	20		
6844856	Total Zinc (Zn)	2020/07/23	99	80 - 120	96	80 - 120	<5.0	ug/L	NC	20		
6846219	Turbidity	2020/07/21			97	80 - 120	<0.10	NTU	0.55	20	97	80 - 120
6846703	Nitrogen (Ammonia Nitrogen)	2020/07/21	100	80 - 120	101	80 - 120	<0.050	mg/L	2.7	20		



BUREAU
VERITAS

BV Labs Job #: C0I0612
Report Date: 2020/08/05

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6847463	Dissolved Aluminum (Al)	2020/07/23	100	80 - 120	100	80 - 120	<5.0	ug/L	NC	20		
6847463	Dissolved Antimony (Sb)	2020/07/23	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		
6847463	Dissolved Arsenic (As)	2020/07/23	94	80 - 120	92	80 - 120	<1.0	ug/L	NC	20		
6847463	Dissolved Barium (Ba)	2020/07/23	97	80 - 120	96	80 - 120	<1.0	ug/L	0.93	20		
6847463	Dissolved Beryllium (Be)	2020/07/23	98	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		
6847463	Dissolved Bismuth (Bi)	2020/07/23	96	80 - 120	100	80 - 120	<2.0	ug/L	NC	20		
6847463	Dissolved Boron (B)	2020/07/23	98	80 - 120	97	80 - 120	<50	ug/L	NC	20		
6847463	Dissolved Cadmium (Cd)	2020/07/23	101	80 - 120	98	80 - 120	<0.010	ug/L	2.1	20		
6847463	Dissolved Calcium (Ca)	2020/07/23	98	80 - 120	99	80 - 120	<100	ug/L	0.31	20		
6847463	Dissolved Chromium (Cr)	2020/07/23	94	80 - 120	93	80 - 120	<1.0	ug/L	NC	20		
6847463	Dissolved Cobalt (Co)	2020/07/23	95	80 - 120	93	80 - 120	<0.40	ug/L	NC	20		
6847463	Dissolved Copper (Cu)	2020/07/23	93	80 - 120	93	80 - 120	<0.50	ug/L	NC	20		
6847463	Dissolved Iron (Fe)	2020/07/23	98	80 - 120	97	80 - 120	<50	ug/L	NC	20		
6847463	Dissolved Lead (Pb)	2020/07/23	97	80 - 120	95	80 - 120	<0.50	ug/L	NC	20		
6847463	Dissolved Magnesium (Mg)	2020/07/23	98	80 - 120	99	80 - 120	<100	ug/L	0.50	20		
6847463	Dissolved Manganese (Mn)	2020/07/23	NC	80 - 120	97	80 - 120	<2.0	ug/L	1.3	20		
6847463	Dissolved Molybdenum (Mo)	2020/07/23	100	80 - 120	100	80 - 120	<2.0	ug/L	NC	20		
6847463	Dissolved Nickel (Ni)	2020/07/23	95	80 - 120	95	80 - 120	<2.0	ug/L	NC	20		
6847463	Dissolved Phosphorus (P)	2020/07/23	102	80 - 120	102	80 - 120	<100	ug/L	NC	20		
6847463	Dissolved Potassium (K)	2020/07/23	100	80 - 120	99	80 - 120	<100	ug/L	1.3	20		
6847463	Dissolved Selenium (Se)	2020/07/23	97	80 - 120	96	80 - 120	<0.50	ug/L	NC	20		
6847463	Dissolved Silver (Ag)	2020/07/23	88	80 - 120	96	80 - 120	<0.10	ug/L	NC	20		
6847463	Dissolved Sodium (Na)	2020/07/23	92	80 - 120	91	80 - 120	<100	ug/L	0.047	20		
6847463	Dissolved Strontium (Sr)	2020/07/23	99	80 - 120	97	80 - 120	<2.0	ug/L	1.1	20		
6847463	Dissolved Thallium (Tl)	2020/07/23	99	80 - 120	100	80 - 120	<0.10	ug/L	NC	20		
6847463	Dissolved Tin (Sn)	2020/07/23	100	80 - 120	100	80 - 120	<2.0	ug/L	NC	20		
6847463	Dissolved Titanium (Ti)	2020/07/23	98	80 - 120	96	80 - 120	<2.0	ug/L	NC	20		
6847463	Dissolved Uranium (U)	2020/07/23	101	80 - 120	101	80 - 120	<0.10	ug/L	NC	20		
6847463	Dissolved Vanadium (V)	2020/07/23	99	80 - 120	97	80 - 120	<2.0	ug/L	NC	20		
6847463	Dissolved Zinc (Zn)	2020/07/23	100	80 - 120	99	80 - 120	<5.0	ug/L	10	20		
6847476	Dissolved Aluminum (Al)	2020/07/23	100	80 - 120	99	80 - 120	<5.0	ug/L	NC	20		
6847476	Dissolved Antimony (Sb)	2020/07/23	99	80 - 120	97	80 - 120	<1.0	ug/L	NC	20		



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VERITAS

BV Labs Job #: C0I0612
Report Date: 2020/08/05

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6847476	Dissolved Arsenic (As)	2020/07/23	95	80 - 120	94	80 - 120	<1.0	ug/L	NC	20		
6847476	Dissolved Barium (Ba)	2020/07/23	NC	80 - 120	99	80 - 120	<1.0	ug/L	1.3	20		
6847476	Dissolved Beryllium (Be)	2020/07/23	100	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
6847476	Dissolved Bismuth (Bi)	2020/07/23	97	80 - 120	99	80 - 120	<2.0	ug/L	NC	20		
6847476	Dissolved Boron (B)	2020/07/23	98	80 - 120	96	80 - 120	<50	ug/L	NC	20		
6847476	Dissolved Cadmium (Cd)	2020/07/23	99	80 - 120	98	80 - 120	<0.010	ug/L	NC	20		
6847476	Dissolved Calcium (Ca)	2020/07/23	NC	80 - 120	97	80 - 120	<100	ug/L	1.1	20		
6847476	Dissolved Chromium (Cr)	2020/07/23	93	80 - 120	93	80 - 120	<1.0	ug/L	NC	20		
6847476	Dissolved Cobalt (Co)	2020/07/23	93	80 - 120	94	80 - 120	<0.40	ug/L	NC	20		
6847476	Dissolved Copper (Cu)	2020/07/23	90	80 - 120	92	80 - 120	<0.50	ug/L	NC	20		
6847476	Dissolved Iron (Fe)	2020/07/23	96	80 - 120	96	80 - 120	<50	ug/L	NC	20		
6847476	Dissolved Lead (Pb)	2020/07/23	96	80 - 120	97	80 - 120	<0.50	ug/L	NC	20		
6847476	Dissolved Magnesium (Mg)	2020/07/23	NC	80 - 120	97	80 - 120	<100	ug/L	1.1	20		
6847476	Dissolved Manganese (Mn)	2020/07/23	95	80 - 120	97	80 - 120	<2.0	ug/L	0.75	20		
6847476	Dissolved Molybdenum (Mo)	2020/07/23	103	80 - 120	102	80 - 120	<2.0	ug/L	NC	20		
6847476	Dissolved Nickel (Ni)	2020/07/23	93	80 - 120	95	80 - 120	<2.0	ug/L	NC	20		
6847476	Dissolved Phosphorus (P)	2020/07/23	103	80 - 120	102	80 - 120	<100	ug/L	NC	20		
6847476	Dissolved Potassium (K)	2020/07/23	99	80 - 120	99	80 - 120	<100	ug/L	2.1	20		
6847476	Dissolved Selenium (Se)	2020/07/23	97	80 - 120	96	80 - 120	<0.50	ug/L	NC	20		
6847476	Dissolved Silver (Ag)	2020/07/23	95	80 - 120	95	80 - 120	<0.10	ug/L	NC	20		
6847476	Dissolved Sodium (Na)	2020/07/23	87	80 - 120	90	80 - 120	<100	ug/L	0.58	20		
6847476	Dissolved Strontium (Sr)	2020/07/23	97	80 - 120	97	80 - 120	<2.0	ug/L	1.6	20		
6847476	Dissolved Thallium (Tl)	2020/07/23	100	80 - 120	99	80 - 120	<0.10	ug/L	NC	20		
6847476	Dissolved Tin (Sn)	2020/07/23	102	80 - 120	99	80 - 120	<2.0	ug/L	NC	20		
6847476	Dissolved Titanium (Ti)	2020/07/23	97	80 - 120	96	80 - 120	<2.0	ug/L	NC	20		
6847476	Dissolved Uranium (U)	2020/07/23	102	80 - 120	100	80 - 120	<0.10	ug/L	2.4	20		
6847476	Dissolved Vanadium (V)	2020/07/23	98	80 - 120	97	80 - 120	<2.0	ug/L	NC	20		
6847476	Dissolved Zinc (Zn)	2020/07/23	97	80 - 120	98	80 - 120	<5.0	ug/L	NC	20		
6848613	Conductivity	2020/07/22			103	80 - 120	<1.0	uS/cm	1.1	10		
6848614	pH	2020/07/22			100	97 - 103			0.60	N/A		
6848616	Conductivity	2020/07/22			103	80 - 120	1.2, RDL=1.0	uS/cm	0.80	10		
6848618	pH	2020/07/22			100	97 - 103			1.1	N/A		



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VERITAS

BV Labs Job #: C0I0612
Report Date: 2020/08/05

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6849620	Total Alkalinity (Total as CaCO3)	2020/07/23	99	80 - 120	106	80 - 120	<5.0	mg/L	NC	20		
6849641	Dissolved Chloride (Cl-)	2020/07/23	100	80 - 120	101	80 - 120	<1.0	mg/L	NC	20		
6849652	Dissolved Sulphate (SO4)	2020/07/23	106	80 - 120	109	80 - 120	<2.0	mg/L	NC	20		
6849653	Reactive Silica (SiO2)	2020/07/23	95	80 - 120	99	80 - 120	<0.50	mg/L	NC	20		
6849654	Colour	2020/07/23			100	80 - 120	<5.0	TCU	NC	20		
6849657	Orthophosphate (P)	2020/07/23	95	80 - 120	99	80 - 120	<0.010	mg/L	NC	20		
6849658	Nitrate + Nitrite (N)	2020/07/23	99	80 - 120	100	80 - 120	<0.050	mg/L	NC	20		
6849661	Nitrite (N)	2020/07/23	100	80 - 120	103	80 - 120	<0.010	mg/L	NC	20		
6849664	Total Alkalinity (Total as CaCO3)	2020/07/23	NC	80 - 120	107	80 - 120	<5.0	mg/L	0.17	20		
6849677	Dissolved Chloride (Cl-)	2020/07/23	NC	80 - 120	102	80 - 120	<1.0	mg/L	0.27	20		
6849678	Dissolved Sulphate (SO4)	2020/07/23	104	80 - 120	106	80 - 120	<2.0	mg/L	NC	20		
6849681	Reactive Silica (SiO2)	2020/07/23	NC	80 - 120	101	80 - 120	<0.50	mg/L	2.9	20		
6849690	Colour	2020/07/23			95	80 - 120	<5.0	TCU	14	20		
6849693	Orthophosphate (P)	2020/07/23	90	80 - 120	95	80 - 120	<0.010	mg/L	NC	20		
6849698	Nitrate + Nitrite (N)	2020/07/23	95	80 - 120	100	80 - 120	<0.050	mg/L	NC	20		
6849702	Nitrite (N)	2020/07/23	97	80 - 120	104	80 - 120	<0.010	mg/L	NC	20		
6854111	Dissolved Aluminum (Al)	2020/07/28	101	80 - 120	100	80 - 120	<5.0	ug/L	NC	20		
6854111	Dissolved Antimony (Sb)	2020/07/28	98	80 - 120	101	80 - 120	<1.0	ug/L	NC	20		
6854111	Dissolved Arsenic (As)	2020/07/28	96	80 - 120	101	80 - 120	<1.0	ug/L	NC	20		
6854111	Dissolved Barium (Ba)	2020/07/28	96	80 - 120	105	80 - 120	<1.0	ug/L	0.78	20		
6854111	Dissolved Beryllium (Be)	2020/07/28	91	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		
6854111	Dissolved Bismuth (Bi)	2020/07/28	97	80 - 120	102	80 - 120	<2.0	ug/L	NC	20		
6854111	Dissolved Boron (B)	2020/07/28	NC	80 - 120	89	80 - 120	<50	ug/L	3.1	20		
6854111	Dissolved Cadmium (Cd)	2020/07/28	96	80 - 120	108	80 - 120	<0.010	ug/L	11	20		
6854111	Dissolved Calcium (Ca)	2020/07/28	NC	80 - 120	102	80 - 120	<100	ug/L	0.13	20		
6854111	Dissolved Chromium (Cr)	2020/07/28	92	80 - 120	102	80 - 120	<1.0	ug/L	NC	20		
6854111	Dissolved Cobalt (Co)	2020/07/28	94	80 - 120	101	80 - 120	<0.40	ug/L	16	20		
6854111	Dissolved Copper (Cu)	2020/07/28	94	80 - 120	103	80 - 120	<0.50	ug/L	NC	20		
6854111	Dissolved Iron (Fe)	2020/07/28	86	80 - 120	101	80 - 120	<50	ug/L	NC	20		
6854111	Dissolved Lead (Pb)	2020/07/28	96	80 - 120	105	80 - 120	<0.50	ug/L	NC	20		
6854111	Dissolved Magnesium (Mg)	2020/07/28	NC	80 - 120	101	80 - 120	<100	ug/L	2.6	20		
6854111	Dissolved Manganese (Mn)	2020/07/28	95	80 - 120	104	80 - 120	<2.0	ug/L	5.8	20		



BUREAU
VERITAS

BV Labs Job #: C010612
Report Date: 2020/08/05

QUALITY ASSURANCE REPORT(CONT'D)

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6854111	Dissolved Molybdenum (Mo)	2020/07/28	98	80 - 120	105	80 - 120	<2.0	ug/L	NC	20		
6854111	Dissolved Nickel (Ni)	2020/07/28	91	80 - 120	104	80 - 120	<2.0	ug/L	NC	20		
6854111	Dissolved Phosphorus (P)	2020/07/28	103	80 - 120	104	80 - 120	<100	ug/L	NC	20		
6854111	Dissolved Potassium (K)	2020/07/28	98	80 - 120	104	80 - 120	<100	ug/L	3.0	20		
6854111	Dissolved Selenium (Se)	2020/07/28	98	80 - 120	104	80 - 120	<0.50	ug/L	NC	20		
6854111	Dissolved Silver (Ag)	2020/07/28	92	80 - 120	102	80 - 120	<0.10	ug/L	NC	20		
6854111	Dissolved Sodium (Na)	2020/07/28	88	80 - 120	94	80 - 120	<100	ug/L	0.72	20		
6854111	Dissolved Strontium (Sr)	2020/07/28	NC	80 - 120	108	80 - 120	<2.0	ug/L	6.2	20		
6854111	Dissolved Thallium (Tl)	2020/07/28	99	80 - 120	102	80 - 120	<0.10	ug/L	NC	20		
6854111	Dissolved Tin (Sn)	2020/07/28	101	80 - 120	104	80 - 120	<2.0	ug/L	NC	20		
6854111	Dissolved Titanium (Ti)	2020/07/28	97	80 - 120	102	80 - 120	<2.0	ug/L	NC	20		
6854111	Dissolved Uranium (U)	2020/07/28	104	80 - 120	111	80 - 120	<0.10	ug/L	NC	20		
6854111	Dissolved Vanadium (V)	2020/07/28	99	80 - 120	105	80 - 120	<2.0	ug/L	NC	20		
6854111	Dissolved Zinc (Zn)	2020/07/28	97	80 - 120	106	80 - 120	<5.0	ug/L	NC	20		
6869668	Total Organic Carbon (TOC)	2020/08/05	97	80 - 120	99	80 - 120	<0.40	mg/L	0.26	20		

N/A = Not Applicable

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

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

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

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

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

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



BUREAU
VERITAS

BV Labs Job #: COI0612
Report Date: 2020/08/05

Stantec Consulting Ltd
Client Project #: 121414186
Site Location: MEADOWVIEW
Sampler Initials: DJC

VALIDATION SIGNATURE PAGE

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

Brad Newman, Scientific Service Specialist

Eric Dearman, Scientific Specialist

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.