

October 29, 2018



Nova Scotia Lands
45 Wabana Court
Harbourside Commercial Park
Sydney, Nova Scotia
B1P 6H2

ATTENTION: Mr. Frank Potter
Executive Director

*Long Term Maintenance and Monitoring
Semi-Annual Surface Water Quality Monitoring Program - July 2018
Final Report*

Following completion of the Sydney Tar Ponds and Coke Ovens Remediation Project, surface water quality monitoring was implemented as part of the long term maintenance and monitoring (LTMM) program to provide ongoing data and compliance commitments to regulatory agencies and/or stakeholders. Nova Scotia Lands (NS Lands) is a Crown Corporation of the Province of Nova Scotia responsible for the LTMM semi-annual surface water quality program. NS Lands retained Dillon Consulting Limited (Dillon) to conduct the July 2018 LTMM Surface Water Quality Monitoring Program, the details of which are provided herein.

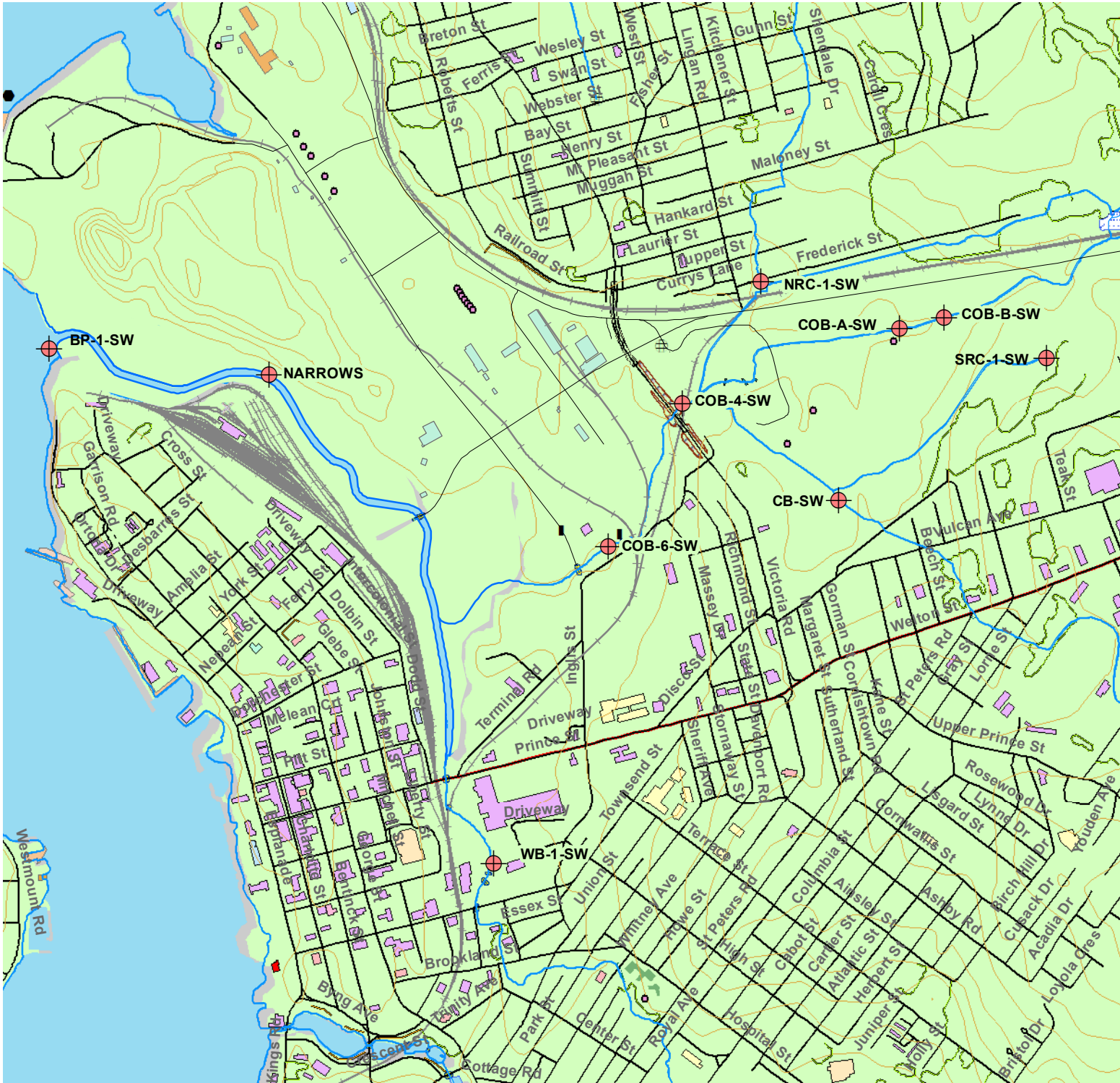
PROJECT METHODOLOGY

The summer surface water quality monitoring program, which was completed on July 25, 2018, was scheduled to consist of the collection of surface water samples at ten stations (i.e., CB-SW, NRC-1-SW, SRC-1-SW, COB-A-SW, COB-B-SW, COB-4-SW, COB-6-SW, WB-1-SW, Narrows and BP-1-SW) (see Figure 1). A GPS unit was used to confirm that the monitoring locations sampled as part of the LTMM surface water quality monitoring program were the same as those used during historical surface water monitoring events (i.e., the Environmental Effects Monitoring and Surface Water Monitoring (EEMSWM) Program associated with the Sydney Tar Ponds remediation and past LTMM program events). Tasks associated with the July 2018 surface water monitoring included:

- Documenting ecological activity in the surface water bodies, if observed;
- Recording of physical conditions and potential contaminants (i.e., debris, precipitate);
- Measurement of field parameters (e.g., pH, conductivity, temperature, salinity and turbidity);
- Flow calculation; and,
- Collection of surface water samples for polycyclic aromatic hydrocarbons (PAHs), general chemistry and total metals (including mercury) (RCApMS) analysis. As concentrations of petroleum hydrocarbons (PHC) and polychlorinated biphenyls (PCBs) had remained below laboratory detection limits, the surface water program was modified in July 2016 to consist of PAH and RCapMS analysis only (following approval from Nova Scotia Environment (NSE) and NS Lands).

275
Charlotte Street
Sydney
Nova Scotia
Canada
B1P 1C6

Telephone
(902) 562-9880
Fax
(902) 562-9890



LONG TERM MAINTENANCE
AND MONITORING
SURFACE WATER QUALITY MONITORING PROGRAM
July 2018

SURFACE WATER LOCATIONS

FIGURE 1

LEGEND

 Surface Water Locations



MAP DRAWING INFORMATION:
Province of Nova Scotia Mapping

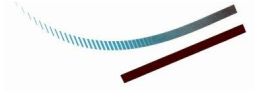
MAP CREATED BY: SCM
MAP CHECKED BY: NJW
MAP PROJECTION: NAD 1983 UTM Zone 20N

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PROJECT: 14-1360

Date: 2018-09-27



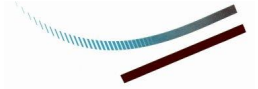
A summary of the surface water stations included in the July 2018 monitoring program is presented in Table 1.

| Monitoring Station ID | Water Body | Rationale for Sampling |
|-----------------------|--|--|
| CB-SW | Cagney Brook | To characterize surface water quality within the urban area of Sydney upstream of CO7/CO8 ¹ . |
| NRC-1-SW | North Realigned Channel | To characterize surface water quality within the urban area of Whitney Pier upstream of CO7/CO8. |
| SRC-1-SW | South Realigned Channel | To characterize surface water quality related to runoff from the municipal landfill upstream of CO7/CO8. |
| COB-A-SW | Coke Ovens Brook - concrete riffles upstream of Stable Drive | To characterize surface water quality from runoff and leachate associated with the municipal landfill upstream of CO1 ² , CO6 ³ and CO7/CO8. |
| COB-B-SW ⁴ | Coke Oven Brook along SPAR Road, east of COB-A-SW | To further characterize the potential for impacts from the municipal landfill to COB-A-SW. |
| COB-4-SW | COB-A-SW | To characterize surface water quality from the upstream areas of CO1, CO6 and CO7/CO8. This sampling location is also upstream of TP6B ⁵ . |
| COB-6-SW | Coke Ovens Brook | To further characterize surface water quality from the upstream areas of CO1, CO6 and CO7/CO8. This sampling location is also upstream of TP6B. |
| WB-1-SW | Coke Ovens Brook | To characterize surface water quality within the urban area of Sydney upstream of TP6B and TP7 ⁶ . |
| NARROWS | Wash Brook | To characterize surface water quality downgradient of the majority of the remediated sites. |
| BP-1-SW ⁷ | North Channel, Open Hearth Park | To further characterize surface water quality downgradient of the remediation sites and as it discharges to Sydney Harbour. |

Notes:

- 1 CO7/CO8: Collection System (CO7)/Water Treatment Plant (CO8).
- 2 CO1: Coke Oven Brook.
- 3 CO6: Surface Cap.
- 4 Upstream monitoring station COB-B-SW was added to the monitoring program in 2015 to further characterize the potential for impacts from the municipal landfill to COB-A-SW.
- 5 TP6B: Solidification/Stabilization/Channel.
- 6 TP7: Tar Ponds Cap.
- 7 The LTMM location of surface water station BP-1-SW is similar to the location used during Pre-Construction activities associated with the EEM Program and is approximately 40 meters (m) upstream from the collection point utilized during the Construction period of the EEM Program.

Field data was recorded on site specific data sheets. Stream flow measurements were calculated by measuring the width of the stream at the sampling location and by measuring the depth of the stream at ¼, ½ and ¾ width intervals. The stream flow velocity was also measured at ¼, ½ and ¾ intervals. Using a spreadsheet formula, the approximate stream flow was calculated for



each monitoring station. Due to the depth of surface water station BP-1-SW, it was not possible to obtain field measurements across the entire stream width. Dillon personnel collected as much field data at this deeper location as safely possible (i.e., from the stream banks/shoreline). Stream flow velocity for this location was calculated using the Muggah Creek North Channel Survey (CBCL Limited, October 2014) provided by NS Lands.

Sample containers were pre-labelled by the laboratory with the sample identification, analysis required and the project number. The date and time of sample collection were noted on the sample containers in the field at the time of collection. New nitrile gloves were worn by field staff for each sample to avoid cross-contamination between sampling stations. Samples were collected by opening the container facing upstream. Where samples were collected directly into the sample bottles containing preservative, the container was not fully submerged during sampling to avoid washing the preservative out of the container. Metals sample bottles contained nitric acid preservative so that dissolved metals remained in solution.

WEATHER CONDITIONS

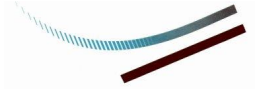
Weather information obtained from Environment Canada's climate station at the Sydney Airport indicates that accumulated precipitation for the 30 days preceding the July 2018 surface water monitoring program was approximately 103.2 millimeters (mm). No significant rainfall was recorded on the day of, or the three days leading up to, the sampling event.

Tidal information obtained from Meteo365 (<https://www.tide-forecast.com>) for July 25, 2018, indicated a high tide level of 1.07 m and a low tide level of 0.33 m.

FIELD OBSERVATIONS AND MEASUREMENTS

Observations at the ten surface water stations during the July 2018 monitoring program are summarized in Table 2. Field measurements are summarized in Table 3.

| Monitoring Station ID | Field Observations | Corresponding Photograph Number |
|-----------------------|--|---------------------------------|
| CB-SW | Surface water station was dry. | 1 |
| NRC-1-SW | Debris (i.e., cardboard, paper and plastic) observed in the channel and on the channel banks. A new culvert has been installed beneath Frederick Street immediately up gradient of this surface water station. | 2 |
| SRC-1-SW | Minnows, tadpoles and algae observed in the channel. Concrete channel walls had extensive spray painted graffiti visibly dissolving at the high water point. | 3 |
| COB-A-SW | Algae observed in stream and on stream banks. | 4 |
| COB-B-SW | No flow was observed; pockets of standing water only. Vegetation observed in brook. The groundwater observed flowing from the ground and into the brook down gradient of the surface water sampling point during the December 2016 and 2017 monitoring events was not present (i.e., dry). | 5 |



| Monitoring Station ID | Field Observations | Corresponding Photograph Number |
|-----------------------|--|---------------------------------|
| COB-4-SW | Minor vegetation growth was observed in the brook. Although there was flow at COB-4-SW from the north tributary, the tributary to the east was observed to be dry. | 6 |
| COB-6-SW | Algae growth, moss and vegetation were observed in the brook. | 7 |
| WB-1-SW | Tadpoles and minnows observed in brook. Debris (i.e., concrete, glass, metal, plastic) observed in the brook and on the brook banks. | 8 |
| NARROWS | Fish, snails, barnacles, seaweed and moss observed in the channel and on the banks. Ducks observed swimming in the channel. | 9 |
| BP-1-SW | Mussels, snails, barnacles, seaweed and moss observed in the channel and on the banks. Wood debris observed in the channel. | 10 |

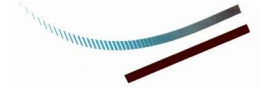
Note:
 1 Photographs are presented in Appendix A.

| Monitoring Station ID | pH | Turbidity (NTU) | Conductivity (mS/cm) | Salinity (%) | Stream Flow ¹ (m ³ /s) |
|-----------------------|-------------------------------|-----------------|----------------------|--------------|--|
| CB-SW | Dry | | | | |
| NRC-1-SW | 7.94 | 0 | 0.198 | 0 | 0.04 |
| SRC-1-SW | 9.05 | 0 | 0.409 | 0 | 0.003 |
| COB-A-SW | 8.63 | 0 | 0.458 | 0 | No Recorded Flow |
| COB-B-SW ² | No Flow – Standing Water Only | | | | |
| COB-4-SW | 8.71 | 0 | 0.476 | 0.31 | 0.03 |
| COB-6-SW | 9.66 | 0 | 0.549 | 0.37 | 0.41 |
| WB-1-SW | 9.10 | 0 | 1.48 | 0.89 | No Recorded Flow |
| NARROWS | 9.29 | 0 | 64.5 | 27.53 | 1.66 |
| BP-1-SW ³ | 8.95 | 0 | 68.9 | 28.60 | 4.08 |

Notes:
 1 Stream flow is an approximate calculated value.
 2 COB-B-SW had only standing water on the day of the event.
 3 Collected during low tide conditions.

REGULATORY FRAMEWORK

As specified in Section 4.2, page 21 of the NS Lands LTMM Plan, the remedial criteria used for eight of the ten surface water stations included in the LTMM monitoring program (i.e., CB-SW, NRC-1-SW, SRC-1-SW, COB-A-SW, COB-B-SW, COB-4-SW, COB-6-SW and WB-1-SW) were the Nova Scotia Contaminated Sites Regulations (NS CSRs) Tier I Environmental Quality Standards (EQS) (which came into effect July 6, 2013) for surface water (fresh water) and the Canadian Council of Ministers of the Environment (CCME) for the protection of fresh water aquatic life (FWAL) (accessed online 2018). Analytical results for the remaining two surface water stations included in the monitoring program (i.e., Narrows and BP-1-SW) were compared to the NS CSRs



Tier I EQS for surface water (marine) and the CCME guidelines for the protection of aquatic life (marine).

Additionally, as specified in Section 4.2, page 21 of the NS Lands LTMM Plan, analytical results for surface water samples collected at the upstream sampling stations were compared to previously calculated 95% upper confidence limits (UCL) of available Pre-Construction/Baseline analytical data from the EEMSWCM Program associated with the Sydney Tar Ponds remediation. Furthermore, analytical results for the upstream sampling stations were also compared to calculated 95% UCLs of available historical upstream analytical data (i.e., the Upstream Calculated 95% UCL). Analytical results for the two sampling stations near Sydney Harbour were compared to the calculated 95% UCLs of available Pre-Construction/Baseline analytical data for the Battery Point sampling station.

SURFACE WATER QUALITY TREND ANALYSIS – MANN KENDALL

Mann-Kendall analysis as a non-parametric statistic test routinely used to assess the stability of a solute plume (i.e., are concentration trends stable, decreasing, or increasing). At least four independent sampling events are required to evaluate surface water quality trends via Mann-Kendall analysis. The Mann-Kendall test procedure starts by comparing the most recent round of water quality data with the results of earlier rounds. Non-detect data values are typically assigned a value that is half the laboratory detection limit. The Mann-Kendall test is not designed to account for seasonal variation in data.

Based on a review of the analytical results from the 2018 monitoring event and historical monitoring events, select parameters, with concentrations above (or historically above) applicable guidelines were selected for Mann-Kendall analysis. These include PAH indicator parameters anthracene, pyrene and benzo(a)pyrene, and inorganic chemistry indicator parameters boron, cadmium, strontium, sulphate and zinc.

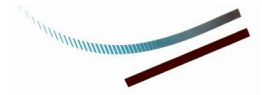
In certain situations, Mann-Kendall analysis results may be biased due to elevated laboratory detection limits. Non-detected data on the Mann-Kendall analysis of indicator parameters was identified and confirmed the influence of non-detected data is minimal.

SURFACE WATER RESULTS

The surface water quality results for the July 2018 event, and available post-remediation surface water data, are presented in the attached Tables B-1 and B-2 in Appendix B. Laboratory certificates of analysis are presented in Appendix C. As stated above, surface water samples were analyzed for PAHs and RCapMS. Samples were delivered to Maxxam Analytics in Sydney, Nova Scotia (Maxxam) for analysis. Maxxam is accredited through the Standard Council of Canada (SCC) and is a member of the Canadian Association for Laboratory Accreditation (CALA).

Review of the July 2018 data indicates:

- PAH results:
 - The concentrations of benzo(a)anthracene (0.024 ug/L); benzo(a)pyrene (0.034 ug/L); fluoranthene (0.073 ug/L); and, pyrene (0.06 ug/L), in SRC-1-SW, each exceeded their corresponding NSE Tier I EQS and CCME FWAL guidelines of 0.018 ug/L, 0.015 ug/L, 0.04 ug/L and 0.025 ug/L, respectively. This is the first exceedance of benzo(a)anthracene at SRC-1-SW. The fluoranthene and pyrene concentrations in the field duplicate sample collected from SRC-1-SW also exceeded the respective Tier I EQS and CCME FWAL guidelines; however, the detected benzo(a)anthracene and benzo(a)pyrene concentrations were detected at, or slightly below, the Tier I EQS and CCME FWAL guidelines.



The remaining PAH parameters analyzed were below criteria. A summary of concentrations of select organic parameters (i.e., naphthalene and benzo(a)pyrene) at each station recorded during the July 2018 event relative to the calculated 95% UCLs is provided in Table 4. There were no exceedances of the relative calculated 95% UCLs for naphthalene and benzo(a)pyrene during the July 2018 monitoring event.

- General chemistry and metals results:
 - Concentrations of aluminum ranging from 23 ug/L to 2500 ug/L exceeded the Tier I EQS (fresh water) standard of 5 ug/L in NRC-1-SW, SRC-1-SW, the field duplicate sample of SRC-1-SW, COB-A-SW, COB-4-SW, COB-6-SW and WB-1-SW. Aluminum concentrations ranging from 120 ug/L to 2500 ug/L at NRC-1-SW, SRC-1-SW, the field duplicate sample of SRC-1-SW, COB-A-SW and WB-1-SW exceeded the CCME FWAL guideline of 100 ug/L. Aluminum concentrations ranging from 270 ug/L to 2500 ug/L in NRC-1-SW, SRC-1-SW, the field duplicate sample of SRC-1-SW and COB-A-SW also exceeded the Upstream Calculated 95% UCL of 220 ug/L;
 - The concentrations of arsenic ranging from 2.6 ug/L to 4.9 ug/L at SRC-1-SW, the field duplicate sample of SRC-1-SW and COB-A-SW exceeded both the Upstream Calculated 95% UCL of 1.6 ug/L and Pre-Construction/Baseline Calculated 95% UCL of 1.98 ug/L;
 - The boron concentrations of 2800 ug/L and 3500 ug/L in BP-1-SW and the Narrows, respectively, exceeded the Tier I EQS (marine) standard of 1200 ug/L;
 - The chloride concentration of 460 mg/L in WB-1-SW exceeded the CCME FWAL standard of 120 mg/L;
 - Cadmium concentrations ranging from 0.012 ug/L to 0.26 ug/L in NRC-1-SW, SRC-1-SW, the field duplicate sample of SRC-1-SW, COB-A-SW and WB-1-SW exceeded the Tier I EQS (fresh water) standard of 0.01 ug/L. The cadmium concentration of 0.26 ug/L in SRC-1-SW and 0.18 ug/L in the field duplicate of SRC-1-SW also exceeded the CCME FWAL guideline of 0.09 ug/L and the Upstream Calculated 95% UCL of 0.1 ug/L;
 - The chromium concentration of 4.0 ug/L in SRC-1-SW and 2.5 ug/L in the field duplicate of SRC-1-SW exceeded the CCME FWAL of 1 ug/L. The laboratory detection limit for chromium was elevated above the CCME (marine) guideline for Battery Point and the Narrows;
 - The cobalt concentration of 1.9 ug/L in SRC-1-SW and 1.6 ug/L in COB-A-SW exceeded the Pre-Construction/Baseline Calculated 95% UCL of 1.3 ug/L. The cobalt concentration in the field duplicate sample of SRC-1-SW was just below the Pre-Construction/Baseline Calculated 95% UCL value. The laboratory detection limit for chromium was elevated above the Battery Point/Narrows Calculated 95% UCL;
 - The concentrations of copper ranging from 2.2 ug/L to 7.9 ug/L in NRC-1-SW, SRC-1-SW, the field duplicate sample of SRC-1-SW, COB-A-SW and WB-1-SW exceeded the Tier I EQS and CCME FWAL guideline of 2 ug/L;
 - Iron concentrations ranging from 330 ug/L to 9100 ug/L in NRC-1-SW, SRC-1-SW, the field duplicate sample of SRC-1-SW, COB-A-SW and WB-1-SW exceeded the Tier I EQS (fresh water) and CCME FWAL concentration of 300 ug/L. Iron concentrations ranging from 3400 ug/L to 9100 ug/L in SRC-1-SW, the field duplicate sample of SRC-1-SW and COB-A-SW also exceeded the Upstream Calculated 95% UCL of 3318 ug/L and Pre-Construction/Baseline Calculated 95% UCL of 1900 ug/L. The iron concentration of 1000 ug/L in BP-1-SW exceeded the Battery Point/Narrows Calculated 95% UCL of 190 ug/L. The laboratory detection limit for iron was elevated above the Battery Point/Narrows Calculated 95% UCL for the Narrows;

Table 4 - Summary of Organic Surface Water Indicator Parameter Concentrations relative to Calculated 95% (ug/L)

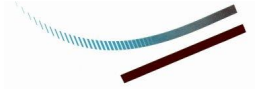
| Parameter | Pre-Construction/ Baseline Calculated 95% UCL ¹ | Date | Sample Location | | | | | | | | | | |
|----------------|--|------------|-----------------|--------------|----------|----------|-----------------------|-------------|----------|---------|---------|---------|--------|
| | | | CB-SW | NRC-1-SW | SRC-1-SW | COB-A-SW | COB-B-SW ² | COB-4-SW | COB-6-SW | WB-1-SW | NARROWS | BP-1-SW | |
| Naphthalene | 1.8 | 12/22/2014 | <0.20 | <0.20 | <0.20 | <0.20 | - | <0.20 | <0.20 | <0.20 | <0.20 | 0.22 | <0.20 |
| | | 7/27/2015 | <0.20 | <0.20 | <0.20 | Dry | Dry | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| | | 11/18/2015 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| | | 7/22/2016 | <0.20 | <0.20 | <0.20 | Dry | Dry | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| | | 12/8/2016 | <0.20 | 0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | 0.38 | <0.20 | 0.21 | <0.20 |
| | | 8/3/2017 | <0.20 | Dry | <0.20 | Dry | Dry | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 |
| | | 12/18/2017 | <0.20 | <0.20 | <0.20 | Dry | <0.20 | <0.20 | <0.20 | 0.54 | <0.20 | 0.30 | 0.33 |
| | | 7/25/2018 | Dry | <0.20 | <0.20 | <0.20 | <0.20 | Dry | <0.20 | <0.20 | <0.20 | <0.20 | 0.41 |
| Benzo(a)pyrene | 0.05 | 12/22/2014 | <0.010 | <0.010 | <0.010 | <0.010 | - | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | | 7/27/2015 | <0.010 | <0.010 | <0.010 | Dry | Dry | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | | 11/18/2015 | <0.010 | 0.068 | <0.010 | <0.010 | <0.010 | 0.39 | 0.015 | <0.010 | <0.010 | <0.010 | <0.010 |
| | | 7/22/2016 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | 0.025 | <0.010 | <0.010 |
| | | 12/8/2016 | <0.010 | 0.011 | <0.010 | <0.010 | <0.010 | <0.010 | 0.028 | 0.027 | <0.010 | <0.010 | <0.010 |
| | | 8/3/2017 | <0.010 | Dry | <0.010 | Dry | Dry | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | | 12/18/2018 | <0.010 | <0.010 | 0.016 | Dry | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| | | 7/25/2018 | Dry | <0.010 | 0.034 | <0.010 | Dry | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |

Notes:

¹Pre-Construction/Baseline Calculated 95% UCL are from the EEMSWCM Program

² Added to the program in July 2015

Bold indicates the concentration exceeds the Pre-Construction/Baseline Calculated 95% UCL



- Lead concentrations ranging from 1.4 ug/L to 12 ug/L in SRC-1-SW, the field duplicate sample of SRC-1-SW, COB-A-SW and WB-1-SW, exceeded the Tier I EQS and CCME FWAL of 1 ug/L and the Upstream Calculated 95% UCL of 1.2 ug/L;
- The manganese concentrations ranging from 2600 ug/L to 2900 ug/L in SRC-1-SW, the field duplicate for SRC-1-SW and COB-A-SW exceeded the Tier I EQS of 820 ug/L, the Upstream Calculated 95% UCL of 583 ug/L and the Pre-Construction/Baseline Calculated 95% UCL of 800 ug/L. The manganese concentrations ranging of 94 ug/L and 100 ug/L in BP-1-SW and the Narrows, respectively, exceeded the Battery Point/Narrows Calculated 95% UCL of 70 ug/L;
- Mercury concentrations of 0.04 ug/L in SRC-1-SW and the field duplicate sample of SRC-1-SW exceeded the Tier I EQS and CCME FWAL of 0.026 ug/L. These concentrations are the only recorded exceedances for mercury since 2014, with the exception of one instance in November 2015 when mercury exceeded the Tier I EQS and CCME FWAL at COB-4-SW.
- The laboratory detection limits for nickel and selenium were elevated above the NSE Tier I EQS for Battery Point and the Narrows;
- Concentrations of strontium ranging from 170 ug/L to 430 ug/L in SRC-1-SW, the field duplicate of SRC-1-SW, COB-A-SW, COB-4-SW, COB-6-SW and WB-1-SW were above the Upstream 95% UCL of 132 ug/L. Strontium concentrations ranging from 270 ug/L to 350 ug/L in COB-A-SW, COB-4-SW, COB-6-SW and WB-1-SW were also above the Pre-Construction/Baseline 95% UCL of 210 ug/L;
- Sulphate concentrations ranging from 43 mg/L to 100 mg/L at SRC-1-SW, the field duplicate of SRC-1-SW, COB-A-SW, COB-4-SW, COB-6-SW and WB-1-SW exceeded the Upstream Calculated 95% UCL of 26 mg/L. Sulphate concentrations ranging from 95 mg/L to 100 mg/L at COB-A-SW, COB-4-SW and COB-6-SW were also above the Pre-Construction/Baseline Calculated 95% UCL of 84 mg/L;
- The vanadium concentrations of 7.4 ug/L and 4.9 ug/L in SRC-1-SW and the field duplicate of SRC-1-SW, respectively, exceeded the Tier I EQS of 6 ug/L; and,
- The zinc concentrations of 47 ug/L and 30 mg/L in SRC-1-SW and the field duplicate sample of SRC-1-SW exceeded the Tier I EQS of 7 ug/L. The zinc concentration of 47 ug/L in SRC-1-SW also exceeded the CCME FWAL of 30 ug/L, with the concentration of the field duplicate sample of SRC-1-SW the same as the CCME FWAL guideline.

The remaining general chemistry parameters were below applicable criteria. Table 5 provides a summary of concentrations for select inorganic parameters from the July 2018 sampling event relative to the calculated 95% UCLs. Inorganic parameter exceedances relative to the calculated 95% UCLs were noted in each of the analyzed samples from the July 2018 monitoring event.

TREND ANALYSIS

The groundwater quality trend analysis for the July 2018 monitoring event was based on the available analytical results (i.e., four rounds of sampling events are required) for select parameters, including PAH indicator parameters anthracene, pyrene and benzo(a)pyrene and inorganic chemistry indicator parameters boron, cadmium, strontium, sulphate and zinc. Trend analysis results for these select parameters were generally stable or indicated fluctuations with no trend or a generally declining trend. Mann-Kendall results are presented in Appendix D.

| Table 5 – Summary of Inorganic Surface Water Indicator Parameter Concentrations relative to Calculated 95% UCLs | | | | | | | | | | | | |
|---|------------|--------------|--------------|------------|-------------|------|------------|---------------|------------|--------------|-------|--------------|
| Sample Location | Date | SO4 | Al | As | Cd | Cr | Co | Fe | Pb | Mn | Se | Sr |
| | | Units (mg/L) | (ug/L) | | | | | | | | | |
| Upstream Calculated 95% UCL ¹ | | 26 | 220 | 1.6 | 0.1 | 8.3 | - | 3,318 | 1.2 | 583 | 1.9 | 132 |
| Pre-Construction/Baseline Calculated 95% UCL ¹ | | 84 | - | 1.98 | - | - | 1.3 | 1,900 | - | 800 | - | 210 |
| CB-SW | 12/22/2014 | 26 | 110 | <1.0 | 0.018 | <1.0 | <0.40 | 290 | <0.50 | 190 | <1.0 | 130 |
| | 7/27/2015 | 16 | 28 | <1.0 | <0.010 | <1.0 | <0.40 | 260 | <0.50 | 61 | <1.0 | 320 |
| | 11/18/2015 | 24 | 130 | <1.0 | 0.011 | <1.0 | <0.40 | 280 | <0.50 | 140 | <1.0 | 140 |
| | 7/22/2016 | 10 | 55 | 1.4 | <0.010 | <1.0 | <0.40 | 640 | <0.50 | 71 | <1.0 | 160 |
| | 12/8/2016 | 23 | 84 | <1.0 | 0.017 | <1.0 | <0.40 | 330 | <0.50 | 310 | <1.0 | 110 |
| | 8/3/2017 | 12 | 150 | 1.4 | <0.010 | 1.0 | <0.40 | 750 | 0.61 | 380 | <1.0 | 340 |
| | 12/18/2017 | 24 | 91 | <1.0 | 0.015 | <1.0 | <0.40 | 300 | <0.50 | 200 | <1.0 | 130 |
| | 7/25/2018 | Dry | | | | | | | | | | |
| NRC-1-SW | 12/22/2014 | 20 | 58 | <1.0 | 0.022 | <1.0 | <0.40 | 150 | <0.50 | 85 | <1.0 | 32 |
| | 7/27/2015 | 22 | 45 | <1.0 | 0.019 | <1.0 | <0.40 | 1,300 | <0.50 | 75 | <1.0 | 54 |
| | 11/18/2015 | 15 | 1,500 | 3.5 | 0.14 | 1.9 | 1.5 | 3,800 | 9.5 | 1,100 | <1.0 | 36 |
| | 7/22/2016 | 15 | 31 | <1.0 | 0.016 | <1.0 | <0.40 | 970 | 0.61 | 47 | <1.0 | 52 |
| | 12/8/2016 | 16 | 110 | <1.0 | 0.025 | <1.0 | <0.40 | 360 | 0.8 | 200 | <1.0 | 34 |
| | 8/3/2017 | Dry | | | | | | | | | | |
| | 12/18/2017 | 21 | 34 | <1.0 | 0.016 | <1.0 | <0.40 | 140 | <0.50 | 87 | <1.0 | 31 |
| | 7/25/2018 | 12 | 270 | <1.0 | 0.012 | <1.0 | <0.40 | 460 | 0.99 | 62 | <1.0 | 60 |
| SRC-1-SW | 12/22/2014 | 54 | 290 | <1.0 | 0.035 | <1.0 | <0.40 | 340 | 1.2 | 190 | <1.0 | 150 |
| | 7/27/2015 | 47 | 51 | 1.0 | 0.013 | <1.0 | <0.40 | 210 | 1.1 | 260 | <1.0 | 150 |
| | 11/18/2015 | 43 | 240 | <1.0 | 0.023 | 1.2 | <0.40 | 310 | 0.75 | 230 | <1.0 | 150 |
| | 7/22/2016 | 51 | 50 | 1.9 | 0.018 | <1.0 | <0.40 | 350 | <0.50 | 350 | <1.0 | 170 |
| | 12/8/2016 | 42 | 300 | <1.0 | 0.039 | 1.0 | <0.40 | 400 | 1.6 | 200 | <1.0 | 140 |
| | 8/3/2017 | 54 | 24 | 1.8 | <0.010 | <1.0 | <0.40 | 150 | <0.50 | 91 | <1.0 | 190 |
| | 12/18/2017 | 50 | 3,000 | 4.1 | 0.31 | 4.9 | 1.7 | 4,600 | 10 | 2,200 | <1.0 | 140 |
| | 7/25/2018 | 43 | 2,500 | 4.2 | 0.26 | 4.0 | 1.2 | 5,500 | 12 | 2,600 | <1.0 | 170 |
| COB-A-SW | 12/22/2014 | 160 | 16 | <1.0 | <0.010 | <1.0 | <0.40 | 51 | <0.50 | 25 | <1.0 | 260 |
| | 7/27/2015 | Dry | | | | | | | | | | |
| | 11/18/2015 | 170 | 5.1 | <1.0 | <0.010 | <1.0 | <0.40 | 82 | <0.50 | 74 | <1.0 | 260 |
| | 7/22/2016 | Dry | | | | | | | | | | |
| | 12/8/2016 | 150 | 8.5 | <1.0 | <0.010 | <1.0 | <0.40 | 68 | <0.50 | 92 | <1.0 | 250 |
| | 8/3/2017 | Dry | | | | | | | | | | |
| | 12/18/2017 | Dry | | | | | | | | | | |
| | 7/25/2018 | 100 | 300 | 2.6 | 0.058 | <1.0 | 1.6 | 9,100 | 1.4 | 2,900 | <1.0 | 270 |
| COB-B-SW ² | 7/27/2015 | Dry | | | | | | | | | | |
| | 11/18/2015 | 190 | 7.9 | <1.0 | <0.010 | <1.0 | <0.40 | <50 | <0.50 | 21 | <1.0 | 250 |
| | 7/22/2016 | Dry | | | | | | | | | | |
| | 12/8/2016 | 440 | 13 | <1.0 | 0.027 | <1.0 | 0.90 | 130 | <0.50 | 1,400 | <1.0 | 480 |
| | 8/3/2017 | Dry | | | | | | | | | | |
| | 12/18/2017 | 120 | 6.7 | <1.0 | <0.010 | <1.0 | 0.42 | 110 | <0.50 | 490 | <1.0 | 190 |
| COB-4-SW | 12/22/2014 | 47 | 82 | <1.0 | 0.014 | <1.0 | <0.40 | 210 | <0.50 | 95 | <1.0 | 140 |
| | 7/27/2015 | 100 | 51 | <1.0 | <0.010 | <1.0 | <0.40 | 460 | <0.50 | 110 | <1.0 | 250 |
| | 11/18/2015 | 41 | 7,100 | 13 | 0.29 | 8.0 | 4.6 | 14,000 | 37 | 1,500 | <1.0 | 150 |
| | 7/22/2016 | 74 | 28 | <1.0 | <0.010 | <1.0 | <0.40 | 300 | <0.50 | 140 | <1.0 | 270 |
| | 12/8/2016 | 39 | 120 | <1.0 | 0.014 | <1.0 | <0.40 | 390 | 0.99 | 180 | <1.0 | 110 |
| | 8/3/2017 | 110 | 14 | <1.0 | 0.011 | <1.0 | <0.40 | 83 | <0.50 | 130 | <1.0 | 450 |
| | 12/18/2017 | 42 | 53 | <1.0 | 0.010 | <1.0 | <0.40 | 270 | <0.50 | 120 | <1.0 | 110 |
| | 7/25/2018 | 100 | 43 | 1.0 | <0.010 | <1.0 | <0.40 | 51 | 0.75 | 23 | <1.0 | 430 |
| COB-6-SW | 12/22/2014 | 56 | 61 | <1.0 | 0.01 | <1.0 | <0.40 | 170 | <0.50 | 56 | <1.0 | 180 |
| | 7/27/2015 | 91 | 39 | <1.0 | <0.010 | <1.0 | <0.40 | 160 | <0.50 | 23 | <1.0 | 300 |
| | 11/18/2015 | 44 | 220 | <1.0 | 0.018 | <1.0 | <0.40 | 490 | 1.5 | 79 | <1.0 | 180 |
| | 7/22/2016 | 64 | 46 | 1.0 | <0.010 | <1.0 | <0.40 | 180 | <0.50 | 37 | <1.0 | 300 |
| | 12/8/2016 | 41 | 200 | <1.0 | 0.015 | <1.0 | <0.40 | 360 | 1.0 | 110 | <1.0 | 160 |
| | 8/3/2017 | 110 | 42 | 1.3 | 0.011 | <1.0 | <0.40 | <50 | <0.50 | 35 | <1.0 | 500 |
| | 12/18/2017 | 48 | 130 | <1.0 | 0.010 | <1.0 | <0.40 | 260 | <0.50 | 73 | <1.0 | 160 |
| | 7/25/2018 | 95 | 23 | <1.0 | <0.010 | <1.0 | <0.40 | 140 | <0.50 | 110 | <1.0 | 350 |
| WB-1-SW | 12/22/2014 | 7.9 | 160 | <1.0 | 0.038 | <1.0 | <0.40 | 270 | 0.71 | 95 | <1.0 | 53 |
| | 7/27/2015 | 10 | 89 | <1.0 | 0.012 | <1.0 | <0.40 | 480 | <0.50 | 41 | <1.0 | 100 |
| | 11/18/2015 | 8.3 | 63 | <1.0 | <0.010 | <1.0 | <0.40 | 200 | <0.50 | 43 | <1.0 | 73 |
| | 7/22/2016 | 410 | 87 | <1.0 | 0.035 | <1.0 | <0.40 | 590 | 0.56 | 160 | <1.0 | 1300 |
| | 12/8/2016 | 8.4 | 100 | <1.0 | 0.026 | <1.0 | <0.40 | 220 | <0.50 | 100 | <1.0 | 61 |
| | 8/3/2017 | 230 | 28 | 1.0 | 0.027 | <1.0 | <0.40 | 680 | <0.50 | 450 | <1.0 | 940 |
| | 12/18/2017 | 8.0 | 110 | <1.0 | 0.022 | <1.0 | <0.40 | 190 | <0.50 | 63 | <1.0 | 49 |
| | 7/25/2018 | 71 | 120 | <1.0 | 0.024 | <1.0 | <0.40 | 330 | 1.8 | 140 | <1.0 | 320 |
| Battery Point/ Narrows Calculated 95% UCL ¹ | | 2,180 | - | - | - | - | 0.9 | 190 | - | 70 | - | 7,000 |
| NARROWS | 12/22/2014 | 270 | 110 | <1.0 | 0.027 | <1.0 | <0.40 | 250 | <0.50 | 63 | <1.0 | 610 |
| | 7/27/2015 | 1,500 | 86 | <1.0 | <0.10 | <1.0 | <4.0 | <500 | <5.0 | 100 | <1.0 | 5,400 |
| | 11/18/2015 | 110 | 76 | <1.0 | 0.012 | <1.0 | <0.40 | 320 | <0.50 | 45 | <1.0 | 370 |
| | 7/22/2016 | 1,400 | 51 | <1.0 | <0.10 | <1.0 | <4.0 | <500 | <5.0 | 120 | <1.0 | 5,400 |
| | 12/8/2016 | 270 | 75 | <1.0 | 0.029 | <1.0 | <0.40 | 250 | <0.50 | 110 | <1.0 | 890 |
| | 8/3/2017 | 2,000 | <50 | <1.0 | <0.10 | <1.0 | <4.0 | <500 | <5.0 | 110 | <1.0 | 6,100 |
| | 12/18/2017 | 150 | 110 | <1.0 | 0.018 | <1.0 | <0.40 | 280 | <0.50 | 72 | <1.0 | 450 |
| 7/25/2018 | 1,700 | 56 | <1.0 | <0.10 | <1.0 | <4.0 | <500 | <5.0 | 100 | <1.0 | 5,000 | |
| BP-1-SW | 12/22/2014 | 170 | 110 | <1.0 | 0.028 | <1.0 | <0.40 | 240 | <0.50 | 61 | <1.0 | 950 |
| | 7/27/2015 | 1,300 | 140 | <1.0 | <0.10 | <1.0 | <4.0 | <500 | <5.0 | 59 | <1.0 | 5,300 |
| | 11/18/2015 | 190 | 140 | <1.0 | 0.014 | <1.0 | <0.40 | 410 | <0.50 | 57 | <1.0 | 580 |
| | 7/22/2016 | 1,600 | 63 | <1.0 | <0.10 | <1.0 | <4.0 | <500 | <5.0 | 71 | <1.0 | 5,500 |
| | 12/8/2016 | 290 | 86 | <1.0 | 0.025 | <1.0 | <0.40 | 280 | <0.50 | 100 | <1.0 | 1,000 |
| | 8/3/2017 | 2,000 | <50 | <1.0 | <0.10 | <1.0 | <4.0 | <500 | <5.0 | 110 | <1.0 | 6,100 |
| | 12/18/2017 | 210 | 95 | <1.0 | 0.020 | <1.0 | <0.40 | 220 | <0.50 | 60 | <1.0 | 630 |
| | 7/25/2018 | 1,900 | 58 | <1.0 | <0.10 | <1.0 | <4.0 | 1,000 | <5.0 | 94 | <1.0 | 5,900 |

Notes:

¹Upstream, Pre-Construction/Baseline and Battery Point/Narrows Calculated 95% UCLs are from the EEMSWCM Program

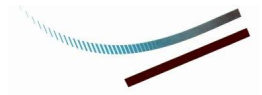
²Added to the program in July 2015

Bold indicates the concentration exceeds the Upstream Calculated 95% UCL

Underline indicates exceedance of the Pre-Construction/Baseline Calculated 95% UCL

Italics Bold indicates exceedance of the Battery Point/Narrows Calculated 95% UCL

Italics indicates that the laboratory detection limit is greater than the comparison criteria



QUALITY CONTROL PROCESS

The laboratory analytical certificate has been reviewed for quality assurance/quality control purposes. The laboratory completed quality control analysis including duplicates, blanks, spikes, surrogate recoveries and spiked blanks to assess accuracy and precision as well as the potential for bias, contamination and degradation or matrix effects. Review of the laboratory report indicated the following:

- A poor RCap ion balance, due to sample matrix, was reported for WB-1-SW, BP-1-SW and the Narrows;
- Elevated reporting limits for trace metals due to sample matrix was reported for the BP-1-SW and the Narrows;
- There was an increase in the reporting limit for total organic carbon (TOC) in SRC-1-SW and the field duplicate sample of SRC-1-SW due to turbidity; however, the reporting limit remained below the applicable comparison criteria; and,
- The laboratory reporting limit for TOC at the Narrows was elevated due to sample matrix; however, the reporting limit remained below the applicable comparison criteria.

One field duplicate of sample SRC-1-SW was collected during the July 2018 monitoring event. The relative percent difference (RPD) was calculated between the sample and associated field duplicate results. The RPD was not calculated for those parameters where one or both of the results associated with the original and/or field duplicate sample exhibited concentrations less than five times the laboratory reportable detection limit (RDL). Calculations indicate that the RPDs for eleven (i.e., total organic carbon, turbidity, aluminum, arsenic, barium, cadmium, iron, lead, tin, vanadium and zinc) of the seventy-four analyzed parameters were above the acceptable RPD (i.e., 40% for organics and 25% for inorganics) with calculated RPDs ranging from 34.1% to 84.40%.

Further review of the concentrations for these eleven parameters indicate that although the RPD was above the recommended criteria, the findings for both the original sample and the duplicate sample were consistent (i.e., both the original and the duplicate sample results were either both below the comparison criteria or both exceeded the same comparison criteria). Overall, the data quality is considered acceptable and the results representative. There were no holding time exceedances.

SUMMARY

Analytical results of the July 2018 surface water monitoring program indicate that concentrations of the majority of the analyzed parameters are below the applicable criteria and respective 95% UCLs. Criteria and 95% UCL exceedances are summarized in Table 6.

Table 6 - Summary of Surface Water Station Criteria and 95 % UCL Exceedances July 2018

| Parameter | Location (Criteria and/or 95% UCL Exceedance) |
|--------------------|--|
| Benzo(a)anthracene | • SRC-1-SW (Tier I EQS (fresh water) and CCME FWAL) |
| Benzo(a)pyrene | • SRC-1-SW (Tier I EQS (fresh water) and CCME FWAL) |
| Fluoranthene | • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water) and CCME FWAL) |
| Pyrene | • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water) and CCME FWAL) |

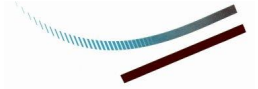


Table 6 - Summary of Surface Water Station Criteria and 95 % UCL Exceedances July 2018

| Parameter | Location (Criteria and/or 95% UCL Exceedance) |
|-----------|--|
| Aluminum | <ul style="list-style-type: none"> • NRC-1-SW (Tier I EQS (fresh water), CCME FWAL and the Upstream Calculated 95% UCL) • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water) CCME FWAL and Upstream Calculated 95% UCL) • COB-A-SW (Tier I EQS (fresh water), CCME FWAL and the Upstream Calculated 95% UCL) • COB-4-SW (Tier I EQS (fresh water)) • COB-6-SW (Tier I EQS (fresh water)) • WB-1-SW (and the field duplicate sample of WB-1-SW) (Tier I EQS (fresh water) and CCME FWAL) |
| Arsenic | <ul style="list-style-type: none"> • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Upstream Calculated 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) • COB-A-SW (Upstream Calculated 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) |
| Boron | <ul style="list-style-type: none"> • BP-1-SW (Tier I EQS (marine)) • Narrows (Tier I EQS (marine)) |
| Chloride | <ul style="list-style-type: none"> • WB-1-SW (CCME FWAL) |
| Cadmium | <ul style="list-style-type: none"> • NRC-1-SW (Tier I EQS (fresh water)) • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water), CCME FWAL and the Upstream Calculated 95% UCL) • COB-A-SW (Tier I EQS (fresh water)) • WB-1-SW (Tier I EQS (fresh water)) |
| Chromium | <ul style="list-style-type: none"> • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (CCME FWAL) |
| Cobalt | <ul style="list-style-type: none"> • SRC-1-SW (Pre-Construction/Baseline Calculated 95% UCL) • COB-A-SW (Pre-Construction/Baseline Calculated 95% UCL) |
| Copper | <ul style="list-style-type: none"> • NRC-1-SW (Tier I EQS (fresh water) and CCME FWAL) • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water) and CCME FWAL) • COB-A-SW (Tier I EQS (fresh water) and CCME FWAL) • WB-1-SW (Tier I EQS (fresh water) and CCME FWAL) |
| Iron | <ul style="list-style-type: none"> • NRC-1-SW (Tier I EQS (fresh water) and CCME FWAL) • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water), CCME FWAL, Upstream Calculated 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) • COB-A-SW (Tier I EQS (fresh water), CCME FWAL, Upstream Calculated 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) • WB-1-SW (Tier I EQS (fresh water) and CCME FWAL) • BP-1-SW (Battery Point/Narrows Calculated 95% UCL) |
| Lead | <ul style="list-style-type: none"> • SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water), CCME FWAL and the Upstream Calculated 95% UCL) • COB-A-SW (Tier I EQS (fresh water), CCME FWAL and the Upstream Calculated 95% UCL) |

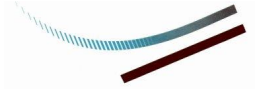
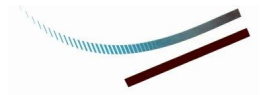


Table 6 - Summary of Surface Water Station Criteria and 95 % UCL Exceedances July 2018

| Parameter | Location (Criteria and/or 95% UCL Exceedance) |
|-----------|--|
| | <ul style="list-style-type: none"> WB-1-SW (Tier I EQS (fresh water), CCME FWAL and the Upstream Calculated 95% UCL) |
| Manganese | <ul style="list-style-type: none"> SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water), Upstream Calculated 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) COB-A-SW (Tier I EQS (fresh water), Upstream Calculated 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) BP-1-SW (Battery Point/Narrows Calculated 95% UCL) Narrows (Battery Point/Narrows Calculated 95% UCL) |
| Mercury | <ul style="list-style-type: none"> SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water) and CCME FWAL) |
| Strontium | <ul style="list-style-type: none"> SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Upstream Calculated 95% UCL) COB-A-SW (Upstream 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) COB-4-SW (Upstream 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) COB-6-SW (Upstream 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) WB-1-SW (Upstream 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) |
| Sulphate | <ul style="list-style-type: none"> SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Upstream 95% UCL) COB-A-SW (Upstream 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) COB-4-SW (Upstream 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) COB-6-SW (Upstream 95% UCL and Pre-Construction/Baseline Calculated 95% UCL) WB-1-SW (Upstream 95% UCL) |
| Vanadium | <ul style="list-style-type: none"> SRC-1-SW (and the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water)) |
| Zinc | <ul style="list-style-type: none"> SRC-1-SW (and/or the field duplicate sample of SRC-1-SW) (Tier I EQS (fresh water) and CCME FWAL) |

Review of the surface water analytical data from the July 2018 monitoring event indicates findings are generally consistent with past LTMM events, with the following exceptions:

- Historical PAH concentrations in surface water at SRC-1-SW were below regulatory criteria since the commencement of the LTMM. However, during the December 2017 and July 2018 sampling events concentrations of PAHs (i.e., benzo(a)anthracene, benzo(a)pyrene, fluoranthene and/or pyrene) exceeded the Tier I EQS and the CCME FWAL. It is noted that the July 2018 benzo(a)anthracene exceedance of the Tier I EQS and CCME FWAL at SRC-1-SW was the first time this parameter exceeded regulatory criteria since the LTMM commenced. Additionally, increases in concentrations of some



- metals parameters have also been observed at SRC-1-SW during the December 2017 and July 2018 monitoring events, including an exceedance of the Tier I EQS and CCME FWAL for mercury. This is the first time mercury has exceeded at this sampling location and only the second observed mercury exceedance since the LTMM commenced (i.e., the first exceedance of the Tier I EQS and CCME FWAL for mercury was at COB-4-SW in November 2015);
- During the July 2018 sampling program, elevated metals concentrations were reported for surface water station COB-A-SW. Specifically, aluminum and zinc exceeded the CCME FWAL guideline for the first time; arsenic exceeded the Pre-Construction/Baseline Calculated 95% Upper Concentration Limit and the Upstream Calculated 95% UCL for the first time; cadmium exceeded the Tier I EQS for the first time; cobalt exceeded the Pre-Construction/Baseline Calculated 95% Upper Concentration Limit for the first time; copper and lead exceeded the Tier I EQS and the CCME FWAL for the first time, with lead also exceeding the Upstream Calculated 95% UCL for the first time; iron exceeded the Tier I EQS, CCME FWAL, Pre-Construction/Baseline Calculated 95% Upper Concentration Limit and the Upstream Calculated 95% UCL for the first time; and manganese exceeded the Tier I EQS, Pre-Construction/Baseline Calculated 95% Upper Concentration Limit and the Upstream Calculated 95% UCL for the first time; and,
 - Copper and lead exceedances of the Tier I EQS and CCME FWAL were reported for surface water station WB-1-SW. The lead concentration also exceeded the Upstream Calculated 95% UCL. This was the first time that copper and lead exceeded criteria since the LTMM commenced.

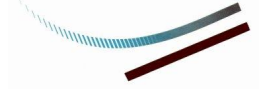
As noted above in Table 1, monitoring of SRC-1-SW is undertaken to characterize surface water quality related to runoff from the upstream municipal landfill and monitoring of COB-A-SW is undertaken to characterize surface water quality from runoff and leachate associated with the municipal landfill upstream of CO1, CO6 and CO7/CO8. There is potential that the above noted concentration changes at SRC-1-SW and COB-A-SW are related to upstream operations associated with the landfill; however, further investigation would be required to confirm this.

RECOMMENDATIONS

The next surface water monitoring event will be conducted in the fall (e.g., November 2018). It is recommended that fall 2018 sampling program include the collection of surface water samples at ten stations (i.e., CB-SW, NRC-1-SW, SRC-1-SW, COB-A-SW, COB-B-SW, COB-4-SW, COB-6-SW, WB-1-SW, Narrows and BP-1-SW) for PAH and RCAPMS analysis.

DISCLAIMER

This report was prepared exclusively for the purposes, project and site location outlined in the report. The report is based on information provided to, or obtained by Dillon Consulting Limited ("Dillon") as indicated in the report, and applies solely to site conditions existing at the time of the site investigation. Although a reasonable investigation was conducted by Dillon, Dillon's investigation was by no means exhaustive and cannot be construed as a certification of the absence of any contaminants from the site. Rather, Dillon's report represents a reasonable review of available information within an agreed work scope, schedule and budget. It is therefore possible that currently unrecognized contamination or potentially hazardous materials may exist at the site, and that the levels of contamination or hazardous materials may vary across the site. Further review and updating of the report may be required as local and site conditions, and the regulatory and planning frameworks, change over time.



CLOSING

We trust this information is adequate for your needs. Please, however, contact the undersigned if you have any comments or questions regarding the content of this report.

Yours truly,

DILLON CONSULTING LIMITED

A handwritten signature in blue ink that reads "Nadine J. Wambolt". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Nadine J. Wambolt, B. Tech., CET
Project Manager

NJW:kme
Our File: 14-1360-1800

APPENDIX A
SITE PHOTOGRAPHS



PHOTO 1: View of CB-SW looking southeast.



PHOTO 2: View looking from NRC-1-SW to the southeast.



PHOTO 3: View of SRC-1-SW looking northeast.



PHOTO 4: View of COB-A-SW looking west.



PHOTO 5: View of COB-B-SW looking southwest.



PHOTO 6: View of COB-4-SW looking northeast.



PHOTO 7: View of COB-6-SW looking northeast.



PHOTO 8: View of WB-1-SW looking southwest.



PHOTO 9: View of the NARROWS looking southeast.



PHOTO 10: View of BP-1-SW looking southeast.

APPENDIX B
TABLES

APPENDIX C
LABORATORY CERTIFICATE

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/08/09
Report #: R5348892
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B817512

Received: 2018/07/25, 15:46

Sample Matrix: Water
Samples Received: 9

| Analyses | Quantity | Date Extracted | Date Analyzed | Laboratory Method | Reference |
|--|-----------------|---------------------------|--------------------------|--------------------------|---------------------|
| Carbonate, Bicarbonate and Hydroxide (1) | 9 | N/A | 2018/08/02 | N/A | SM 22 4500-CO2 D |
| Alkalinity (1) | 9 | N/A | 2018/08/01 | ATL SOP 00013 | EPA 310.2 R1974 m |
| Benzo(b/j)fluoranthene Sum (water) (1) | 2 | N/A | 2018/08/07 | N/A | Auto Calc. |
| Benzo(b/j)fluoranthene Sum (water) (1) | 7 | N/A | 2018/08/09 | N/A | Auto Calc. |
| Chloride (1) | 2 | N/A | 2018/08/01 | ATL SOP 00014 | SM 23 4500-Cl- E m |
| Chloride (1) | 7 | N/A | 2018/08/02 | ATL SOP 00014 | SM 23 4500-Cl- E m |
| Colour (1) | 9 | N/A | 2018/08/01 | ATL SOP 00020 | SM 22 2120C m |
| Conductance - water (1) | 9 | N/A | 2018/08/01 | ATL SOP 00004 | SM 23 2510B m |
| Hardness (calculated as CaCO3) (1) | 6 | N/A | 2018/08/01 | ATL SOP 00048 | Auto Calc |
| Hardness (calculated as CaCO3) (1) | 3 | N/A | 2018/08/02 | ATL SOP 00048 | Auto Calc |
| Mercury - Total (CVAA,LL) (1) | 9 | 2018/07/31 | 2018/08/01 | ATL SOP 00026 | EPA 245.1 R3 m |
| Metals Water Total MS (1) | 6 | 2018/07/31 | 2018/07/31 | ATL SOP 00058 | EPA 6020A R1 m |
| Metals Water Total MS (1) | 3 | 2018/07/31 | 2018/08/01 | ATL SOP 00058 | EPA 6020A R1 m |
| Ion Balance (% Difference) (1) | 9 | N/A | 2018/08/03 | N/A | Auto Calc. |
| Anion and Cation Sum (1) | 9 | N/A | 2018/08/02 | N/A | Auto Calc. |
| Nitrogen Ammonia - water (1) | 9 | N/A | 2018/08/01 | ATL SOP 00015 | EPA 350.1 R2 m |
| Nitrogen - Nitrate + Nitrite (1) | 9 | N/A | 2018/08/01 | ATL SOP 00016 | USGS I-2547-11m |
| Nitrogen - Nitrite (1) | 9 | N/A | 2018/08/02 | ATL SOP 00017 | SM 23 4500-NO2- B m |
| Nitrogen - Nitrate (as N) (1) | 9 | N/A | 2018/08/02 | ATL SOP 00018 | ASTM D3867-16 |
| PAH in Water by GC/MS (SIM) (1) | 7 | 2018/07/30 | 2018/08/04 | ATL SOP 00103 | EPA 8270D 2014 m |
| PAH in Water by GC/MS (SIM) (1) | 1 | 2018/07/30 | 2018/08/05 | ATL SOP 00103 | EPA 8270D 2014 m |
| PAH in Water by GC/MS (SIM) (1) | 1 | 2018/07/31 | 2018/08/05 | ATL SOP 00103 | EPA 8270D 2014 m |
| pH (1, 2) | 9 | N/A | 2018/08/01 | ATL SOP 00003 | SM 23 4500-H+ B m |
| Phosphorus - ortho (1) | 9 | N/A | 2018/08/01 | ATL SOP 00021 | SM 23 4500-P E m |
| Sat. pH and Langelier Index (@ 20C) (1) | 9 | N/A | 2018/08/03 | ATL SOP 00049 | Auto Calc. |
| Sat. pH and Langelier Index (@ 4C) (1) | 9 | N/A | 2018/08/03 | ATL SOP 00049 | Auto Calc. |
| Reactive Silica (1) | 9 | N/A | 2018/08/01 | ATL SOP 00022 | EPA 366.0 m |
| Sulphate (1) | 9 | N/A | 2018/08/01 | ATL SOP 00023 | ASTM D516-16 m |
| Total Dissolved Solids (TDS calc) (1) | 9 | N/A | 2018/08/03 | N/A | Auto Calc. |
| Organic carbon - Total (TOC) (1, 3) | 1 | N/A | 2018/07/31 | ATL SOP 00203 | SM 23 5310B m |

Your Project #: 14-1360
Site Location: NS LANDS SW PROGRAM

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/08/09

Report #: R5348892

Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B817512

Received: 2018/07/25, 15:46

Sample Matrix: Water
Samples Received: 9

| Analyses | Date | | Laboratory Method | Reference |
|-------------------------------------|--------------------|----------|--------------------------|----------------|
| | Quantity Extracted | Analyzed | | |
| Organic carbon - Total (TOC) (1, 3) | 8 | N/A | 2018/08/01 ATL SOP 00203 | SM 23 5310B m |
| Turbidity (1) | 9 | N/A | 2018/08/01 ATL SOP 00011 | EPA 180.1 R2 m |

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

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

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing. Maxxam 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 Maxxam, 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 Maxxam Bedford

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

(3) TOC / DOC present in the sample should be considered as non-purgeable TOC / DOC.

Your Project #: 14-1360
Site Location: NS LANDS SW PROGRAM

Attention: Nadine Wambolt

Dillon Consulting Limited
275 Charlotte St
Sydney, NS
CANADA B1P 1C6

Report Date: 2018/08/09
Report #: R5348892
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B817512
Received: 2018/07/25, 15:46

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Natalie MacAskill, Key Account Specialist
Email: NMacAskill@maxxam.ca
Phone# (902)567-1255 Ext:17

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

RESULTS OF ANALYSES OF WATER

| Maxxam ID | | HHS869 | | | HHT084 | | HHT085 | | HHT086 | | |
|--|-------|------------|-------|----------|------------|-------|------------|-------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | | | 2018/07/25 | | 2018/07/25 | | 2018/07/25 | | |
| | UNITS | NRC-1-SW | RDL | QC Batch | SRC-1-SW | RDL | COB-A-SW | RDL | COB-4-SW | RDL | QC Batch |
| Calculated Parameters | | | | | | | | | | | |
| Anion Sum | me/L | 2.32 | N/A | 5647163 | 5.09 | N/A | 5.99 | N/A | 6.68 | N/A | 5647163 |
| Bicarb. Alkalinity (calc. as CaCO ₃) | mg/L | 48 | 1.0 | 5647147 | 110 | 1.0 | 140 | 1.0 | 71 | 1.0 | 5647147 |
| Calculated TDS | mg/L | 140 | 1.0 | 5647174 | 290 | 1.0 | 370 | 1.0 | 400 | 1.0 | 5647174 |
| Carb. Alkalinity (calc. as CaCO ₃) | mg/L | <1.0 | 1.0 | 5647147 | 1.4 | 1.0 | 1.5 | 1.0 | 4.6 | 1.0 | 5647147 |
| Cation Sum | me/L | 2.31 | N/A | 5647163 | 5.08 | N/A | 6.29 | N/A | 6.29 | N/A | 5647163 |
| Hardness (CaCO ₃) | mg/L | 59 | 1.0 | 5647152 | 140 | 1.0 | 240 | 1.0 | 170 | 1.0 | 5647152 |
| Ion Balance (% Difference) | % | 0.220 | N/A | 5647160 | 0.100 | N/A | 2.44 | N/A | 3.01 | N/A | 5647160 |
| Langelier Index (@ 20C) | N/A | -0.657 | | 5647170 | 0.447 | | 0.658 | | 1.02 | | 5647170 |
| Langelier Index (@ 4C) | N/A | -0.907 | | 5647172 | 0.197 | | 0.409 | | 0.772 | | 5647172 |
| Nitrate (N) | mg/L | 0.12 | 0.050 | 5647168 | 0.085 | 0.050 | <0.050 | 0.050 | <0.050 | 0.050 | 5647168 |
| Saturation pH (@ 20C) | N/A | 8.38 | | 5647170 | 7.69 | | 7.39 | | 7.81 | | 5647170 |
| Saturation pH (@ 4C) | N/A | 8.63 | | 5647172 | 7.94 | | 7.64 | | 8.06 | | 5647172 |
| Inorganics | | | | | | | | | | | |
| Total Alkalinity (Total as CaCO ₃) | mg/L | 48 | 5.0 | 5658397 | 110 | 25 | 140 | 25 | 76 | 5.0 | 5658397 |
| Dissolved Chloride (Cl ⁻) | mg/L | 39 | 1.0 | 5658398 | 69 | 1.0 | 37 | 1.0 | 110 | 1.0 | 5658398 |
| Colour | TCU | 24 | 5.0 | 5658401 | 18 | 5.0 | 8.2 | 5.0 | 12 | 5.0 | 5658401 |
| Nitrate + Nitrite (N) | mg/L | 0.12 | 0.050 | 5658417 | 0.085 | 0.050 | <0.050 | 0.050 | <0.050 | 0.050 | 5658417 |
| Nitrite (N) | mg/L | <0.010 | 0.010 | 5658418 | <0.010 | 0.010 | <0.010 | 0.010 | <0.010 | 0.010 | 5658418 |
| Nitrogen (Ammonia Nitrogen) | mg/L | <0.050 | 0.050 | 5656627 | <0.050 | 0.050 | <0.050 | 0.050 | <0.050 | 0.050 | 5656627 |
| Total Organic Carbon (C) | mg/L | 6.4 | 0.50 | 5656473 | 11 (1) | 5.0 | 3.3 | 0.50 | 4.0 | 0.50 | 5657551 |
| Orthophosphate (P) | mg/L | <0.010 | 0.010 | 5658416 | <0.010 | 0.010 | <0.010 | 0.010 | <0.010 | 0.010 | 5658416 |
| pH | pH | 7.73 | N/A | 5658382 | 8.14 | N/A | 8.05 | N/A | 8.84 | N/A | 5658382 |
| Reactive Silica (SiO ₂) | mg/L | 5.5 | 0.50 | 5658400 | 2.0 | 0.50 | 16 | 0.50 | 7.9 | 0.50 | 5658400 |
| Dissolved Sulphate (SO ₄) | mg/L | 12 | 2.0 | 5658399 | 43 | 2.0 | 100 | 10 | 100 | 2.0 | 5658399 |
| Turbidity | NTU | 1.7 | 0.10 | 5658518 | 140 | 1.0 | 2.4 | 0.10 | 0.42 | 0.10 | 5658518 |
| Conductivity | uS/cm | 260 | 1.0 | 5658384 | 540 | 1.0 | 600 | 1.0 | 720 | 1.0 | 5658384 |
| RDL = Reportable Detection Limit | | | | | | | | | | | |
| QC Batch = Quality Control Batch | | | | | | | | | | | |
| N/A = Not Applicable | | | | | | | | | | | |
| (1) Elevated reporting limit due to turbidity. | | | | | | | | | | | |

RESULTS OF ANALYSES OF WATER

| Maxxam ID | | HHT087 | | HHT088 | | HHT089 | | HHT090 | | |
|--|-------|------------|-------|------------|-------|------------|-------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | | 2018/07/25 | | 2018/07/25 | | 2018/07/25 | | |
| | UNITS | COB-6-SW | RDL | WB-1-SW | RDL | NARROWS | RDL | BP-1-SW | RDL | QC Batch |
| Calculated Parameters | | | | | | | | | | |
| Anion Sum | me/L | 6.41 | N/A | 15.8 | N/A | 334 | N/A | 377 | N/A | 5647163 |
| Bicarb. Alkalinity (calc. as CaCO ₃) | mg/L | 120 | 1.0 | 63 | 1.0 | 96 | 1.0 | 96 | 1.0 | 5647147 |
| Calculated TDS | mg/L | 370 | 1.0 | 870 | 1.0 | 20000 | 1.0 | 24000 | 1.0 | 5647174 |
| Carb. Alkalinity (calc. as CaCO ₃) | mg/L | 1.1 | 1.0 | <1.0 | 1.0 | 1.1 | 1.0 | 1.3 | 1.0 | 5647147 |
| Cation Sum | me/L | 6.09 | N/A | 13.7 | N/A | 372 | N/A | 464 | N/A | 5647163 |
| Hardness (CaCO ₃) | mg/L | 210 | 1.0 | 190 | 1.0 | 3900 | 1.0 | 4800 | 1.0 | 5647152 |
| Ion Balance (% Difference) | % | 2.56 | N/A | 7.17 | N/A | 5.38 | N/A | 10.3 | N/A | 5647160 |
| Langelier Index (@ 20C) | N/A | 0.499 | | -0.250 | | 0.641 | | 0.767 | | 5647170 |
| Langelier Index (@ 4C) | N/A | 0.250 | | -0.497 | | 0.404 | | 0.529 | | 5647172 |
| Nitrate (N) | mg/L | 0.14 | 0.050 | 0.16 | 0.050 | 0.064 | 0.050 | 0.051 | 0.050 | 5647168 |
| Saturation pH (@ 20C) | N/A | 7.49 | | 8.21 | | 7.44 | | 7.37 | | 5647170 |
| Saturation pH (@ 4C) | N/A | 7.74 | | 8.46 | | 7.68 | | 7.61 | | 5647172 |
| Inorganics | | | | | | | | | | |
| Total Alkalinity (Total as CaCO ₃) | mg/L | 130 | 25 | 63 | 5.0 | 97 | 5.0 | 98 | 5.0 | 5658397 |
| Dissolved Chloride (Cl ⁻) | mg/L | 67 | 1.0 | 460 | 5.0 | 11000 | 120 | 12000 | 120 | 5658398 |
| Colour | TCU | 12 | 5.0 | 21 | 5.0 | 8.3 | 5.0 | 9.0 | 5.0 | 5658401 |
| Nitrate + Nitrite (N) | mg/L | 0.14 | 0.050 | 0.17 | 0.050 | 0.076 | 0.050 | 0.063 | 0.050 | 5658417 |
| Nitrite (N) | mg/L | <0.010 | 0.010 | 0.013 | 0.010 | 0.012 | 0.010 | 0.012 | 0.010 | 5658418 |
| Nitrogen (Ammonia Nitrogen) | mg/L | <0.050 | 0.050 | 0.051 | 0.050 | 0.090 | 0.050 | 0.076 | 0.050 | 5656627 |
| Total Organic Carbon (C) | mg/L | 4.1 | 0.50 | 4.3 | 0.50 | <5.0 (1) | 5.0 | 2.4 | 0.50 | 5657551 |
| Orthophosphate (P) | mg/L | <0.010 | 0.010 | <0.010 | 0.010 | 0.018 | 0.010 | 0.022 | 0.010 | 5658416 |
| pH | pH | 7.99 | N/A | 7.96 | N/A | 8.08 | N/A | 8.14 | N/A | 5658382 |
| Reactive Silica (SiO ₂) | mg/L | 9.7 | 0.50 | 4.0 | 0.50 | 2.0 | 0.50 | 0.81 | 0.50 | 5658400 |
| Dissolved Sulphate (SO ₄) | mg/L | 95 | 2.0 | 71 | 2.0 | 1700 | 60 | 1900 | 60 | 5658399 |
| Turbidity | NTU | 0.60 | 0.10 | 1.3 | 0.10 | 0.73 | 0.10 | 1.1 | 0.10 | 5658518 |
| Conductivity | uS/cm | 640 | 1.0 | 1800 | 1.0 | 34000 | 1.0 | 39000 | 1.0 | 5658384 |
| RDL = Reportable Detection Limit | | | | | | | | | | |
| QC Batch = Quality Control Batch | | | | | | | | | | |
| N/A = Not Applicable | | | | | | | | | | |
| (1) Elevated reporting limit due to sample matrix. | | | | | | | | | | |

RESULTS OF ANALYSES OF WATER

| Maxxam ID | | HHT091 | | |
|--|-------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | | |
| | UNITS | FD-08 | RDL | QC Batch |
| Calculated Parameters | | | | |
| Anion Sum | me/L | 5.06 | N/A | 5647163 |
| Bicarb. Alkalinity (calc. as CaCO ₃) | mg/L | 120 | 1.0 | 5647147 |
| Calculated TDS | mg/L | 290 | 1.0 | 5647174 |
| Carb. Alkalinity (calc. as CaCO ₃) | mg/L | 1.1 | 1.0 | 5647147 |
| Cation Sum | me/L | 5.23 | N/A | 5647163 |
| Hardness (CaCO ₃) | mg/L | 150 | 1.0 | 5647152 |
| Ion Balance (% Difference) | % | 1.65 | N/A | 5647160 |
| Langelier Index (@ 20C) | N/A | 0.348 | | 5647170 |
| Langelier Index (@ 4C) | N/A | 0.0990 | | 5647172 |
| Nitrate (N) | mg/L | 0.066 | 0.050 | 5647168 |
| Saturation pH (@ 20C) | N/A | 7.65 | | 5647170 |
| Saturation pH (@ 4C) | N/A | 7.90 | | 5647172 |
| Inorganics | | | | |
| Total Alkalinity (Total as CaCO ₃) | mg/L | 120 | 25 | 5658397 |
| Dissolved Chloride (Cl ⁻) | mg/L | 63 | 1.0 | 5658398 |
| Colour | TCU | 19 | 5.0 | 5658401 |
| Nitrate + Nitrite (N) | mg/L | 0.066 | 0.050 | 5658417 |
| Nitrite (N) | mg/L | <0.010 | 0.010 | 5658418 |
| Nitrogen (Ammonia Nitrogen) | mg/L | <0.050 | 0.050 | 5656627 |
| Total Organic Carbon (C) | mg/L | 8.5 (1) | 5.0 | 5657551 |
| Orthophosphate (P) | mg/L | <0.010 | 0.010 | 5658416 |
| pH | pH | 8.00 | N/A | 5658382 |
| Reactive Silica (SiO ₂) | mg/L | 1.8 | 0.50 | 5658400 |
| Dissolved Sulphate (SO ₄) | mg/L | 43 | 2.0 | 5658399 |
| Turbidity | NTU | 250 | 1.0 | 5658518 |
| Conductivity | uS/cm | 530 | 1.0 | 5658384 |
| RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable (1) Elevated reporting limit due to turbidity. | | | | |

MERCURY BY COLD VAPOUR AA (WATER)

| Maxxam ID | | HHS869 | HHT084 | HHT085 | HHT086 | HHT087 | HHT088 | HHT089 | | |
|----------------------------------|-------|------------|------------|------------|------------|------------|------------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | | |
| | UNITS | NRC-1-SW | SRC-1-SW | COB-A-SW | COB-4-SW | COB-6-SW | WB-1-SW | NARROWS | RDL | QC Batch |
| Metals | | | | | | | | | | |
| Total Mercury (Hg) | ug/L | <0.013 | 0.040 | <0.013 | <0.013 | <0.013 | <0.013 | <0.013 | 0.013 | 5656507 |
| RDL = Reportable Detection Limit | | | | | | | | | | |
| QC Batch = Quality Control Batch | | | | | | | | | | |

| Maxxam ID | | HHT090 | HHT091 | | |
|----------------------------------|-------|------------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | 2018/07/25 | | |
| | UNITS | BP-1-SW | FD-08 | RDL | QC Batch |
| Metals | | | | | |
| Total Mercury (Hg) | ug/L | <0.013 | 0.028 | 0.013 | 5656507 |
| RDL = Reportable Detection Limit | | | | | |
| QC Batch = Quality Control Batch | | | | | |

ELEMENTS BY ICP/MS (WATER)

| Maxxam ID | | HHS869 | HHT084 | HHT085 | HHT086 | HHT087 | HHT088 | | |
|----------------------------------|-------|------------|------------|------------|------------|------------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | | |
| | UNITS | NRC-1-SW | SRC-1-SW | COB-A-SW | COB-4-SW | COB-6-SW | WB-1-SW | RDL | QC Batch |
| Metals | | | | | | | | | |
| Total Aluminum (Al) | ug/L | 270 | 2500 | 300 | 43 | 23 | 120 | 5.0 | 5656109 |
| Total Antimony (Sb) | ug/L | <1.0 | 1.1 | <1.0 | <1.0 | <1.0 | <1.0 | 1.0 | 5656109 |
| Total Arsenic (As) | ug/L | <1.0 | 4.9 | 2.6 | 1.0 | <1.0 | <1.0 | 1.0 | 5656109 |
| Total Barium (Ba) | ug/L | 14 | 58 | 73 | 33 | 35 | 35 | 1.0 | 5656109 |
| Total Beryllium (Be) | ug/L | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | 1.0 | 5656109 |
| Total Bismuth (Bi) | ug/L | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | 2.0 | 5656109 |
| Total Boron (B) | ug/L | <50 | 120 | 58 | 57 | 62 | 110 | 50 | 5656109 |
| Total Cadmium (Cd) | ug/L | 0.012 | 0.26 | 0.058 | <0.010 | <0.010 | 0.024 | 0.010 | 5656109 |
| Total Calcium (Ca) | ug/L | 20000 | 48000 | 80000 | 60000 | 72000 | 33000 | 100 | 5656109 |
| Total Chromium (Cr) | ug/L | <1.0 | 4.0 | <1.0 | <1.0 | <1.0 | <1.0 | 1.0 | 5656109 |
| Total Cobalt (Co) | ug/L | <0.40 | 1.9 | 1.6 | <0.40 | <0.40 | <0.40 | 0.40 | 5656109 |
| Total Copper (Cu) | ug/L | 2.5 | 7.9 | 2.2 | <2.0 | <2.0 | 4.7 | 2.0 | 5656109 |
| Total Iron (Fe) | ug/L | 460 | 5500 | 9100 | 51 | 140 | 330 | 50 | 5656109 |
| Total Lead (Pb) | ug/L | 0.99 | 12 | 1.4 | 0.75 | <0.50 | 1.8 | 0.50 | 5656109 |
| Total Magnesium (Mg) | ug/L | 2400 | 5900 | 9300 | 5200 | 6600 | 26000 | 100 | 5656109 |
| Total Manganese (Mn) | ug/L | 62 | 2600 | 2900 | 23 | 110 | 140 | 2.0 | 5656109 |
| Total Molybdenum (Mo) | ug/L | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | 2.0 | 5656109 |
| Total Nickel (Ni) | ug/L | <2.0 | 3.4 | 3.0 | <2.0 | <2.0 | <2.0 | 2.0 | 5656109 |
| Total Phosphorus (P) | ug/L | <100 | 180 | 160 | <100 | <100 | <100 | 100 | 5656109 |
| Total Potassium (K) | ug/L | 770 | 2700 | 1600 | 2500 | 2800 | 8500 | 100 | 5656109 |
| Total Selenium (Se) | ug/L | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | 1.0 | 5656109 |
| Total Silver (Ag) | ug/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 5656109 |
| Total Sodium (Na) | ug/L | 25000 | 45000 | 27000 | 64000 | 43000 | 220000 | 100 | 5656109 |
| Total Strontium (Sr) | ug/L | 60 | 170 | 270 | 430 | 350 | 320 | 2.0 | 5656109 |
| Total Thallium (Tl) | ug/L | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | <0.10 | 0.10 | 5656109 |
| Total Tin (Sn) | ug/L | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 | 2.0 | 5656109 |
| Total Titanium (Ti) | ug/L | 7.0 | 50 | 4.6 | <2.0 | <2.0 | 2.7 | 2.0 | 5656109 |
| Total Uranium (U) | ug/L | 0.10 | 0.56 | 0.50 | 0.48 | 0.50 | 0.18 | 0.10 | 5656109 |
| Total Vanadium (V) | ug/L | <2.0 | 7.4 | <2.0 | <2.0 | <2.0 | <2.0 | 2.0 | 5656109 |
| Total Zinc (Zn) | ug/L | <5.0 | 47 | 14 | <5.0 | <5.0 | 6.0 | 5.0 | 5656109 |
| RDL = Reportable Detection Limit | | | | | | | | | |
| QC Batch = Quality Control Batch | | | | | | | | | |

ELEMENTS BY ICP/MS (WATER)

| Maxxam ID | | HHT089 | HHT090 | | HHT091 | | |
|----------------------------------|-------|------------|------------|------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | 2018/07/25 | | 2018/07/25 | | |
| | UNITS | NARROWS | BP-1-SW | RDL | FD-08 | RDL | QC Batch |
| Metals | | | | | | | |
| Total Aluminum (Al) | ug/L | 56 | 58 | 50 | 1600 | 5.0 | 5656109 |
| Total Antimony (Sb) | ug/L | <10 | <10 | 10 | <1.0 | 1.0 | 5656109 |
| Total Arsenic (As) | ug/L | <10 | <10 | 10 | 3.5 | 1.0 | 5656109 |
| Total Barium (Ba) | ug/L | 29 | 23 | 10 | 46 | 1.0 | 5656109 |
| Total Beryllium (Be) | ug/L | <10 | <10 | 10 | <1.0 | 1.0 | 5656109 |
| Total Bismuth (Bi) | ug/L | <20 | <20 | 20 | <2.0 | 2.0 | 5656109 |
| Total Boron (B) | ug/L | 2800 | 3500 | 500 | 120 | 50 | 5656109 |
| Total Cadmium (Cd) | ug/L | <0.10 | <0.10 | 0.10 | 0.18 | 0.010 | 5656109 |
| Total Calcium (Ca) | ug/L | 300000 | 330000 | 1000 | 50000 | 100 | 5656109 |
| Total Chromium (Cr) | ug/L | <10 | <10 | 10 | 2.5 | 1.0 | 5656109 |
| Total Cobalt (Co) | ug/L | <4.0 | <4.0 | 4.0 | 1.2 | 0.40 | 5656109 |
| Total Copper (Cu) | ug/L | <20 | <20 | 20 | 5.3 | 2.0 | 5656109 |
| Total Iron (Fe) | ug/L | <500 | 1000 | 500 | 3400 | 50 | 5656109 |
| Total Lead (Pb) | ug/L | <5.0 | <5.0 | 5.0 | 9.5 | 0.50 | 5656109 |
| Total Magnesium (Mg) | ug/L | 780000 | 980000 | 1000 | 6000 | 100 | 5656109 |
| Total Manganese (Mn) | ug/L | 100 | 94 | 20 | 1600 | 2.0 | 5656109 |
| Total Molybdenum (Mo) | ug/L | <20 | <20 | 20 | <2.0 | 2.0 | 5656109 |
| Total Nickel (Ni) | ug/L | <20 | <20 | 20 | 2.1 | 2.0 | 5656109 |
| Total Phosphorus (P) | ug/L | <1000 | <1000 | 1000 | 140 | 100 | 5656109 |
| Total Potassium (K) | ug/L | 240000 | 290000 | 1000 | 2700 | 100 | 5656109 |
| Total Selenium (Se) | ug/L | <10 | <10 | 10 | <1.0 | 1.0 | 5656109 |
| Total Silver (Ag) | ug/L | <1.0 | <1.0 | 1.0 | <0.10 | 0.10 | 5656109 |
| Total Sodium (Na) | ug/L | 6600000 | 8300000 | 1000 | 48000 | 100 | 5656109 |
| Total Strontium (Sr) | ug/L | 5000 | 5900 | 20 | 180 | 2.0 | 5656109 |
| Total Thallium (Tl) | ug/L | <1.0 | <1.0 | 1.0 | <0.10 | 0.10 | 5656109 |
| Total Tin (Sn) | ug/L | <20 | <20 | 20 | <2.0 | 2.0 | 5656109 |
| Total Titanium (Ti) | ug/L | <20 | <20 | 20 | 34 | 2.0 | 5656109 |
| Total Uranium (U) | ug/L | 2.0 | 2.5 | 1.0 | 0.54 | 0.10 | 5656109 |
| Total Vanadium (V) | ug/L | <20 | <20 | 20 | 4.9 | 2.0 | 5656109 |
| Total Zinc (Zn) | ug/L | <50 | <50 | 50 | 30 | 5.0 | 5656109 |
| RDL = Reportable Detection Limit | | | | | | | |
| QC Batch = Quality Control Batch | | | | | | | |

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

| Maxxam ID | | HHS869 | | HHT084 | HHT085 | HHT086 | HHT087 | HHT088 | | |
|----------------------------------|-------|------------|----------|------------|------------|------------|------------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | 2018/07/25 | | |
| | UNITS | NRC-1-SW | QC Batch | SRC-1-SW | COB-A-SW | COB-4-SW | COB-6-SW | WB-1-SW | RDL | QC Batch |
| Polyaromatic Hydrocarbons | | | | | | | | | | |
| 1-Methylnaphthalene | ug/L | <0.050 | 5656858 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | 0.050 | 5655463 |
| 2-Methylnaphthalene | ug/L | <0.050 | 5656858 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | 0.050 | 5655463 |
| Acenaphthene | ug/L | <0.010 | 5656858 | <0.010 | <0.010 | 0.011 | 0.012 | <0.010 | 0.010 | 5655463 |
| Acenaphthylene | ug/L | <0.010 | 5656858 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Anthracene | ug/L | <0.010 | 5656858 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Benzo(a)anthracene | ug/L | <0.010 | 5656858 | 0.024 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Benzo(a)pyrene | ug/L | <0.010 | 5656858 | 0.034 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Benzo(b)fluoranthene | ug/L | <0.010 | 5656858 | 0.036 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Benzo(b/j)fluoranthene | ug/L | <0.020 | 5646544 | 0.055 | <0.020 | <0.020 | <0.020 | <0.020 | 0.020 | 5646544 |
| Benzo(g,h,i)perylene | ug/L | <0.010 | 5656858 | 0.028 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Benzo(j)fluoranthene | ug/L | <0.010 | 5656858 | 0.019 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Benzo(k)fluoranthene | ug/L | <0.010 | 5656858 | 0.022 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Chrysene | ug/L | <0.010 | 5656858 | 0.034 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Dibenz(a,h)anthracene | ug/L | <0.010 | 5656858 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Fluoranthene | ug/L | <0.010 | 5656858 | 0.073 | <0.010 | 0.011 | <0.010 | 0.018 | 0.010 | 5655463 |
| Fluorene | ug/L | <0.010 | 5656858 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Indeno(1,2,3-cd)pyrene | ug/L | <0.010 | 5656858 | 0.018 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Naphthalene | ug/L | <0.20 | 5656858 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | 0.20 | 5655463 |
| Perylene | ug/L | <0.010 | 5656858 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Phenanthrene | ug/L | <0.010 | 5656858 | 0.047 | <0.010 | <0.010 | <0.010 | 0.023 | 0.010 | 5655463 |
| Pyrene | ug/L | 0.010 | 5656858 | 0.060 | <0.010 | <0.010 | <0.010 | <0.010 | 0.010 | 5655463 |
| Surrogate Recovery (%) | | | | | | | | | | |
| D10-Anthracene | % | 124 | 5656858 | 93 | 98 | 94 | 101 | 87 | | 5655463 |
| D14-Terphenyl | % | 103 | 5656858 | 88 | 100 | 102 | 113 | 97 | | 5655463 |
| D8-Acenaphthylene | % | 95 | 5656858 | 95 | 96 | 97 | 88 | 76 | | 5655463 |
| RDL = Reportable Detection Limit | | | | | | | | | | |
| QC Batch = Quality Control Batch | | | | | | | | | | |

SEMI-VOLATILE ORGANICS BY GC-MS (WATER)

| Maxxam ID | | HHT089 | HHT090 | | HHT091 | | |
|----------------------------------|-------|------------|------------|----------|------------|-------|----------|
| Sampling Date | | 2018/07/25 | 2018/07/25 | | 2018/07/25 | | |
| | UNITS | NARROWS | BP-1-SW | QC Batch | FD-08 | RDL | QC Batch |
| Polyaromatic Hydrocarbons | | | | | | | |
| 1-Methylnaphthalene | ug/L | 0.085 | <0.050 | 5655463 | <0.050 | 0.050 | 5656858 |
| 2-Methylnaphthalene | ug/L | <0.050 | <0.050 | 5655463 | <0.050 | 0.050 | 5656858 |
| Acenaphthene | ug/L | 0.11 | 0.028 | 5655463 | <0.010 | 0.010 | 5656858 |
| Acenaphthylene | ug/L | 0.10 | 0.033 | 5655463 | <0.010 | 0.010 | 5656858 |
| Anthracene | ug/L | <0.010 | <0.010 | 5655463 | <0.010 | 0.010 | 5656858 |
| Benzo(a)anthracene | ug/L | <0.010 | <0.010 | 5655463 | 0.018 | 0.010 | 5656858 |
| Benzo(a)pyrene | ug/L | <0.010 | <0.010 | 5655463 | 0.013 | 0.010 | 5656858 |
| Benzo(b)fluoranthene | ug/L | <0.010 | <0.010 | 5655463 | 0.023 | 0.010 | 5656858 |
| Benzo(b/j)fluoranthene | ug/L | <0.020 | <0.020 | 5646544 | 0.037 | 0.020 | 5646544 |
| Benzo(g,h,i)perylene | ug/L | <0.010 | <0.010 | 5655463 | 0.017 | 0.010 | 5656858 |
| Benzo(j)fluoranthene | ug/L | <0.010 | <0.010 | 5655463 | 0.014 | 0.010 | 5656858 |
| Benzo(k)fluoranthene | ug/L | <0.010 | <0.010 | 5655463 | 0.012 | 0.010 | 5656858 |
| Chrysene | ug/L | <0.010 | <0.010 | 5655463 | 0.028 | 0.010 | 5656858 |
| Dibenz(a,h)anthracene | ug/L | <0.010 | <0.010 | 5655463 | <0.010 | 0.010 | 5656858 |
| Fluoranthene | ug/L | 0.030 | 0.014 | 5655463 | 0.052 | 0.010 | 5656858 |
| Fluorene | ug/L | 0.098 | 0.036 | 5655463 | <0.010 | 0.010 | 5656858 |
| Indeno(1,2,3-cd)pyrene | ug/L | <0.010 | <0.010 | 5655463 | 0.013 | 0.010 | 5656858 |
| Naphthalene | ug/L | 0.41 | <0.20 | 5655463 | <0.20 | 0.20 | 5656858 |
| Perylene | ug/L | <0.010 | <0.010 | 5655463 | <0.010 | 0.010 | 5656858 |
| Phenanthrene | ug/L | 0.067 | 0.028 | 5655463 | 0.032 | 0.010 | 5656858 |
| Pyrene | ug/L | 0.013 | <0.010 | 5655463 | 0.048 | 0.010 | 5656858 |
| Surrogate Recovery (%) | | | | | | | |
| D10-Anthracene | % | 89 | 90 | 5655463 | 110 | | 5656858 |
| D14-Terphenyl | % | 105 | 96 | 5655463 | 105 | | 5656858 |
| D8-Acenaphthylene | % | 92 | 86 | 5655463 | 86 | | 5656858 |
| RDL = Reportable Detection Limit | | | | | | | |
| QC Batch = Quality Control Batch | | | | | | | |

GENERAL COMMENTS

Sample HHT088 [WB-1-SW] : Poor RCap Ion Balance due to sample matrix.

Sample HHT089 [NARROWS] : Elevated reporting limits for trace metals due to sample matrix.

Poor RCap Ion Balance due to sample matrix.

Sample HHT090 [BP-1-SW] : Elevated reporting limits for trace metals due to sample matrix.

Poor RCap Ion Balance due to sample matrix.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|------------------------|------------|--------------------------|------------------------|---------------|--------------|----------------|------------|-----------|
| 5655463 | KKE | Matrix Spike [HHT085-02] | D10-Anthracene | 2018/08/04 | | 90 | % | 50 - 130 |
| | | | D14-Terphenyl | 2018/08/04 | | 111 | % | 50 - 130 |
| | | | D8-Acenaphthylene | 2018/08/04 | | 96 | % | 50 - 130 |
| | | | 1-Methylnaphthalene | 2018/08/04 | | 96 | % | 50 - 130 |
| | | | 2-Methylnaphthalene | 2018/08/04 | | 103 | % | 50 - 130 |
| | | | Acenaphthene | 2018/08/04 | | 100 | % | 50 - 130 |
| | | | Acenaphthylene | 2018/08/04 | | 106 | % | 50 - 130 |
| | | | Anthracene | 2018/08/04 | | 103 | % | 50 - 130 |
| | | | Benzo(a)anthracene | 2018/08/04 | | 89 | % | 50 - 130 |
| | | | Benzo(a)pyrene | 2018/08/04 | | 95 | % | 50 - 130 |
| | | | Benzo(b)fluoranthene | 2018/08/04 | | 120 | % | 50 - 130 |
| | | | Benzo(g,h,i)perylene | 2018/08/04 | | 113 | % | 50 - 130 |
| | | | Benzo(j)fluoranthene | 2018/08/04 | | 104 | % | 50 - 130 |
| | | | Benzo(k)fluoranthene | 2018/08/04 | | 118 | % | 50 - 130 |
| | | | Chrysene | 2018/08/04 | | 98 | % | 50 - 130 |
| | | | Dibenz(a,h)anthracene | 2018/08/04 | | 108 | % | 50 - 130 |
| | | | Fluoranthene | 2018/08/04 | | 105 | % | 50 - 130 |
| | | | Fluorene | 2018/08/04 | | 104 | % | 50 - 130 |
| | | | Indeno(1,2,3-cd)pyrene | 2018/08/04 | | 109 | % | 50 - 130 |
| | | | Naphthalene | 2018/08/04 | | 96 | % | 50 - 130 |
| | | | Perylene | 2018/08/04 | | 99 | % | 50 - 130 |
| | | | Phenanthrene | 2018/08/04 | | 98 | % | 50 - 130 |
| | | | Pyrene | 2018/08/04 | | 104 | % | 50 - 130 |
| | | | 5655463 | KKE | Spiked Blank | D10-Anthracene | 2018/08/04 | |
| D14-Terphenyl | 2018/08/04 | | | | | 106 | % | 50 - 130 |
| D8-Acenaphthylene | 2018/08/04 | | | | | 92 | % | 50 - 130 |
| 1-Methylnaphthalene | 2018/08/04 | | | | | 96 | % | 50 - 130 |
| 2-Methylnaphthalene | 2018/08/04 | | | | | 101 | % | 50 - 130 |
| Acenaphthene | 2018/08/04 | | | | | 99 | % | 50 - 130 |
| Acenaphthylene | 2018/08/04 | | | | | 102 | % | 50 - 130 |
| Anthracene | 2018/08/04 | | | | | 110 | % | 50 - 130 |
| Benzo(a)anthracene | 2018/08/04 | | | | | 97 | % | 50 - 130 |
| Benzo(a)pyrene | 2018/08/04 | | | | | 105 | % | 50 - 130 |
| Benzo(b)fluoranthene | 2018/08/04 | | | | | 118 | % | 50 - 130 |
| Benzo(g,h,i)perylene | 2018/08/04 | | | | | 114 | % | 50 - 130 |
| Benzo(j)fluoranthene | 2018/08/04 | | | | | 104 | % | 50 - 130 |
| Benzo(k)fluoranthene | 2018/08/04 | | | | | 112 | % | 50 - 130 |
| Chrysene | 2018/08/04 | | | | | 94 | % | 50 - 130 |
| Dibenz(a,h)anthracene | 2018/08/04 | | | | | 96 | % | 50 - 130 |
| Fluoranthene | 2018/08/04 | | | | | 100 | % | 50 - 130 |
| Fluorene | 2018/08/04 | | | | | 103 | % | 50 - 130 |
| Indeno(1,2,3-cd)pyrene | 2018/08/04 | | | | | 98 | % | 50 - 130 |
| Naphthalene | 2018/08/04 | | | | | 99 | % | 50 - 130 |
| Perylene | 2018/08/04 | | | | | 106 | % | 50 - 130 |
| Phenanthrene | 2018/08/04 | | | | | 106 | % | 50 - 130 |
| Pyrene | 2018/08/04 | | | | | 98 | % | 50 - 130 |
| 5655463 | KKE | Method Blank | | | | D10-Anthracene | 2018/08/04 | |
| | | | D14-Terphenyl | 2018/08/04 | | 105 | % | 50 - 130 |
| | | | D8-Acenaphthylene | 2018/08/04 | | 93 | % | 50 - 130 |
| | | | 1-Methylnaphthalene | 2018/08/04 | <0.050 | | ug/L | |
| | | | 2-Methylnaphthalene | 2018/08/04 | <0.050 | | ug/L | |
| | | | Acenaphthene | 2018/08/04 | <0.010 | | ug/L | |
| Acenaphthylene | 2018/08/04 | <0.010 | | ug/L | | | | |

QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|-------------|------|-----------------|------------------------|---------------|--------|----------|-------|-----------|
| | | | Anthracene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(a)anthracene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(a)pyrene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(b)fluoranthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(g,h,i)perylene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(j)fluoranthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(k)fluoranthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Chrysene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Dibenz(a,h)anthracene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Fluoranthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Fluorene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Indeno(1,2,3-cd)pyrene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Naphthalene | 2018/08/04 | <0.20 | | ug/L | |
| | | | Perylene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Phenanthrene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Pyrene | 2018/08/04 | <0.010 | | ug/L | |
| 5655463 | KKE | RPD [HHT084-02] | 1-Methylnaphthalene | 2018/08/04 | NC | | % | 40 |
| | | | 2-Methylnaphthalene | 2018/08/04 | NC | | % | 40 |
| | | | Acenaphthene | 2018/08/04 | NC | | % | 40 |
| | | | Acenaphthylene | 2018/08/04 | NC | | % | 40 |
| | | | Anthracene | 2018/08/04 | NC | | % | 40 |
| | | | Benzo(a)anthracene | 2018/08/04 | 19 | | % | 40 |
| | | | Benzo(a)pyrene | 2018/08/04 | 30 | | % | 40 |
| | | | Benzo(b)fluoranthene | 2018/08/04 | 27 | | % | 40 |
| | | | Benzo(g,h,i)perylene | 2018/08/04 | 29 | | % | 40 |
| | | | Benzo(j)fluoranthene | 2018/08/04 | 15 | | % | 40 |
| | | | Benzo(k)fluoranthene | 2018/08/04 | 24 | | % | 40 |
| | | | Chrysene | 2018/08/04 | 17 | | % | 40 |
| | | | Dibenz(a,h)anthracene | 2018/08/04 | NC | | % | 40 |
| | | | Fluoranthene | 2018/08/04 | 23 | | % | 40 |
| | | | Fluorene | 2018/08/04 | NC | | % | 40 |
| | | | Indeno(1,2,3-cd)pyrene | 2018/08/04 | 18 | | % | 40 |
| | | | Naphthalene | 2018/08/04 | NC | | % | 40 |
| | | | Perylene | 2018/08/04 | NC | | % | 40 |
| | | | Phenanthrene | 2018/08/04 | 36 | | % | 40 |
| | | | Pyrene | 2018/08/04 | 24 | | % | 40 |
| 5656109 | BAN | Matrix Spike | Total Aluminum (Al) | 2018/07/31 | | 95 | % | 80 - 120 |
| | | | Total Antimony (Sb) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Arsenic (As) | 2018/07/31 | | 97 | % | 80 - 120 |
| | | | Total Barium (Ba) | 2018/07/31 | | 98 | % | 80 - 120 |
| | | | Total Beryllium (Be) | 2018/07/31 | | 101 | % | 80 - 120 |
| | | | Total Bismuth (Bi) | 2018/07/31 | | 100 | % | 80 - 120 |
| | | | Total Boron (B) | 2018/07/31 | | 104 | % | 80 - 120 |
| | | | Total Cadmium (Cd) | 2018/07/31 | | 103 | % | 80 - 120 |
| | | | Total Calcium (Ca) | 2018/07/31 | | 102 | % | 80 - 120 |
| | | | Total Chromium (Cr) | 2018/07/31 | | 96 | % | 80 - 120 |
| | | | Total Cobalt (Co) | 2018/07/31 | | 97 | % | 80 - 120 |
| | | | Total Copper (Cu) | 2018/07/31 | | 96 | % | 80 - 120 |
| | | | Total Iron (Fe) | 2018/07/31 | | 101 | % | 80 - 120 |
| | | | Total Lead (Pb) | 2018/07/31 | | 98 | % | 80 - 120 |
| | | | Total Magnesium (Mg) | 2018/07/31 | | 103 | % | 80 - 120 |
| | | | Total Manganese (Mn) | 2018/07/31 | | 97 | % | 80 - 120 |
| | | | Total Molybdenum (Mo) | 2018/07/31 | | 101 | % | 80 - 120 |

QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|-------------|------|--------------|-----------------------|---------------|--------|----------|-------|-----------|
| | | | Total Nickel (Ni) | 2018/07/31 | | 97 | % | 80 - 120 |
| | | | Total Phosphorus (P) | 2018/07/31 | | 103 | % | 80 - 120 |
| | | | Total Potassium (K) | 2018/07/31 | | 101 | % | 80 - 120 |
| | | | Total Selenium (Se) | 2018/07/31 | | 97 | % | 80 - 120 |
| | | | Total Silver (Ag) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Sodium (Na) | 2018/07/31 | | 95 | % | 80 - 120 |
| | | | Total Strontium (Sr) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Thallium (Tl) | 2018/07/31 | | 101 | % | 80 - 120 |
| | | | Total Tin (Sn) | 2018/07/31 | | 104 | % | 80 - 120 |
| | | | Total Titanium (Ti) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Uranium (U) | 2018/07/31 | | 104 | % | 80 - 120 |
| | | | Total Vanadium (V) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Zinc (Zn) | 2018/07/31 | | 98 | % | 80 - 120 |
| 5656109 | BAN | Spiked Blank | Total Aluminum (Al) | 2018/07/31 | | 97 | % | 80 - 120 |
| | | | Total Antimony (Sb) | 2018/07/31 | | 100 | % | 80 - 120 |
| | | | Total Arsenic (As) | 2018/07/31 | | 96 | % | 80 - 120 |
| | | | Total Barium (Ba) | 2018/07/31 | | 97 | % | 80 - 120 |
| | | | Total Beryllium (Be) | 2018/07/31 | | 102 | % | 80 - 120 |
| | | | Total Bismuth (Bi) | 2018/07/31 | | 102 | % | 80 - 120 |
| | | | Total Boron (B) | 2018/07/31 | | 104 | % | 80 - 120 |
| | | | Total Cadmium (Cd) | 2018/07/31 | | 103 | % | 80 - 120 |
| | | | Total Calcium (Ca) | 2018/07/31 | | 103 | % | 80 - 120 |
| | | | Total Chromium (Cr) | 2018/07/31 | | 97 | % | 80 - 120 |
| | | | Total Cobalt (Co) | 2018/07/31 | | 98 | % | 80 - 120 |
| | | | Total Copper (Cu) | 2018/07/31 | | 98 | % | 80 - 120 |
| | | | Total Iron (Fe) | 2018/07/31 | | 102 | % | 80 - 120 |
| | | | Total Lead (Pb) | 2018/07/31 | | 98 | % | 80 - 120 |
| | | | Total Magnesium (Mg) | 2018/07/31 | | 102 | % | 80 - 120 |
| | | | Total Manganese (Mn) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Molybdenum (Mo) | 2018/07/31 | | 104 | % | 80 - 120 |
| | | | Total Nickel (Ni) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Phosphorus (P) | 2018/07/31 | | 103 | % | 80 - 120 |
| | | | Total Potassium (K) | 2018/07/31 | | 102 | % | 80 - 120 |
| | | | Total Selenium (Se) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Silver (Ag) | 2018/07/31 | | 99 | % | 80 - 120 |
| | | | Total Sodium (Na) | 2018/07/31 | | 98 | % | 80 - 120 |
| | | | Total Strontium (Sr) | 2018/07/31 | | 101 | % | 80 - 120 |
| | | | Total Thallium (Tl) | 2018/07/31 | | 100 | % | 80 - 120 |
| | | | Total Tin (Sn) | 2018/07/31 | | 102 | % | 80 - 120 |
| | | | Total Titanium (Ti) | 2018/07/31 | | 102 | % | 80 - 120 |
| | | | Total Uranium (U) | 2018/07/31 | | 103 | % | 80 - 120 |
| | | | Total Vanadium (V) | 2018/07/31 | | 100 | % | 80 - 120 |
| | | | Total Zinc (Zn) | 2018/07/31 | | 98 | % | 80 - 120 |
| 5656109 | BAN | Method Blank | Total Aluminum (Al) | 2018/07/31 | <5.0 | | ug/L | |
| | | | Total Antimony (Sb) | 2018/07/31 | <1.0 | | ug/L | |
| | | | Total Arsenic (As) | 2018/07/31 | <1.0 | | ug/L | |
| | | | Total Barium (Ba) | 2018/07/31 | <1.0 | | ug/L | |
| | | | Total Beryllium (Be) | 2018/07/31 | <1.0 | | ug/L | |
| | | | Total Bismuth (Bi) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Boron (B) | 2018/07/31 | <50 | | ug/L | |
| | | | Total Cadmium (Cd) | 2018/07/31 | <0.010 | | ug/L | |
| | | | Total Calcium (Ca) | 2018/07/31 | <100 | | ug/L | |
| | | | Total Chromium (Cr) | 2018/07/31 | <1.0 | | ug/L | |

QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|-------------|------|--------------------------|-----------------------------|---------------|--------|----------|-------|-----------|
| | | | Total Cobalt (Co) | 2018/07/31 | <0.40 | | ug/L | |
| | | | Total Copper (Cu) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Iron (Fe) | 2018/07/31 | <50 | | ug/L | |
| | | | Total Lead (Pb) | 2018/07/31 | <0.50 | | ug/L | |
| | | | Total Magnesium (Mg) | 2018/07/31 | <100 | | ug/L | |
| | | | Total Manganese (Mn) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Molybdenum (Mo) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Nickel (Ni) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Phosphorus (P) | 2018/07/31 | <100 | | ug/L | |
| | | | Total Potassium (K) | 2018/07/31 | <100 | | ug/L | |
| | | | Total Selenium (Se) | 2018/07/31 | <1.0 | | ug/L | |
| | | | Total Silver (Ag) | 2018/07/31 | <0.10 | | ug/L | |
| | | | Total Sodium (Na) | 2018/07/31 | <100 | | ug/L | |
| | | | Total Strontium (Sr) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Thallium (Tl) | 2018/07/31 | <0.10 | | ug/L | |
| | | | Total Tin (Sn) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Titanium (Ti) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Uranium (U) | 2018/07/31 | <0.10 | | ug/L | |
| | | | Total Vanadium (V) | 2018/07/31 | <2.0 | | ug/L | |
| | | | Total Zinc (Zn) | 2018/07/31 | <5.0 | | ug/L | |
| 5656109 | BAN | RPD | Total Aluminum (Al) | 2018/07/31 | 2.6 | | % | 20 |
| 5656473 | LMP | Matrix Spike [HHS869-05] | Total Organic Carbon (C) | 2018/07/31 | | 96 | % | 85 - 115 |
| 5656473 | LMP | Spiked Blank | Total Organic Carbon (C) | 2018/07/31 | | 97 | % | 80 - 120 |
| 5656473 | LMP | Method Blank | Total Organic Carbon (C) | 2018/07/31 | <0.50 | | mg/L | |
| 5656473 | LMP | RPD [HHS869-05] | Total Organic Carbon (C) | 2018/07/31 | 1.6 | | % | 15 |
| 5656507 | CCR | Matrix Spike [HHT084-01] | Total Mercury (Hg) | 2018/08/01 | | 98 | % | 80 - 120 |
| 5656507 | CCR | Spiked Blank | Total Mercury (Hg) | 2018/08/01 | | 103 | % | 80 - 120 |
| 5656507 | CCR | Method Blank | Total Mercury (Hg) | 2018/08/01 | <0.013 | | ug/L | |
| 5656507 | CCR | RPD [HHS869-01] | Total Mercury (Hg) | 2018/08/01 | NC | | % | 20 |
| 5656627 | MCN | Matrix Spike | Nitrogen (Ammonia Nitrogen) | 2018/08/01 | | NC | % | 80 - 120 |
| 5656627 | MCN | Spiked Blank | Nitrogen (Ammonia Nitrogen) | 2018/08/01 | | 106 | % | 80 - 120 |
| 5656627 | MCN | Method Blank | Nitrogen (Ammonia Nitrogen) | 2018/08/01 | <0.050 | | mg/L | |
| 5656627 | MCN | RPD | Nitrogen (Ammonia Nitrogen) | 2018/08/01 | 0.47 | | % | 20 |
| 5656858 | ASW | Matrix Spike [HHT091-02] | D10-Anthracene | 2018/08/05 | | 114 | % | 50 - 130 |
| | | | D14-Terphenyl | 2018/08/05 | | 89 | % | 50 - 130 |
| | | | D8-Acenaphthylene | 2018/08/05 | | 85 | % | 50 - 130 |
| | | | 1-Methylnaphthalene | 2018/08/05 | | 84 | % | 50 - 130 |
| | | | 2-Methylnaphthalene | 2018/08/05 | | 93 | % | 50 - 130 |
| | | | Acenaphthene | 2018/08/05 | | 95 | % | 50 - 130 |
| | | | Acenaphthylene | 2018/08/05 | | 85 | % | 50 - 130 |
| | | | Anthracene | 2018/08/05 | | 78 | % | 50 - 130 |
| | | | Benzo(a)anthracene | 2018/08/05 | | 74 | % | 50 - 130 |
| | | | Benzo(a)pyrene | 2018/08/05 | | 79 | % | 50 - 130 |
| | | | Benzo(b)fluoranthene | 2018/08/05 | | 87 | % | 50 - 130 |
| | | | Benzo(g,h,i)perylene | 2018/08/05 | | 65 | % | 50 - 130 |
| | | | Benzo(j)fluoranthene | 2018/08/05 | | 78 | % | 50 - 130 |
| | | | Benzo(k)fluoranthene | 2018/08/05 | | 80 | % | 50 - 130 |
| | | | Chrysene | 2018/08/05 | | 87 | % | 50 - 130 |
| | | | Dibenz(a,h)anthracene | 2018/08/05 | | 63 | % | 50 - 130 |
| | | | Fluoranthene | 2018/08/05 | | 89 | % | 50 - 130 |
| | | | Fluorene | 2018/08/05 | | 98 | % | 50 - 130 |
| | | | Indeno(1,2,3-cd)pyrene | 2018/08/05 | | 59 | % | 50 - 130 |
| | | | Naphthalene | 2018/08/05 | | 85 | % | 50 - 130 |

QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|--------------|------------|-----------------|------------------------|---------------|----------|----------|-------|-----------|
| 5656858 | ASW | Spiked Blank | Perylene | 2018/08/05 | | 77 | % | 50 - 130 |
| | | | Phenanthrene | 2018/08/05 | | 89 | % | 50 - 130 |
| | | | Pyrene | 2018/08/05 | | 92 | % | 50 - 130 |
| | | | D10-Anthracene | 2018/08/04 | | 92 | % | 50 - 130 |
| | | | D14-Terphenyl | 2018/08/04 | | 101 | % | 50 - 130 |
| | | | D8-Acenaphthylene | 2018/08/04 | | 91 | % | 50 - 130 |
| | | | 1-Methylnaphthalene | 2018/08/04 | | 97 | % | 50 - 130 |
| | | | 2-Methylnaphthalene | 2018/08/04 | | 103 | % | 50 - 130 |
| | | | Acenaphthene | 2018/08/04 | | 106 | % | 50 - 130 |
| | | | Acenaphthylene | 2018/08/04 | | 91 | % | 50 - 130 |
| | | | Anthracene | 2018/08/04 | | 84 | % | 50 - 130 |
| | | | Benzo(a)anthracene | 2018/08/04 | | 79 | % | 50 - 130 |
| | | | Benzo(a)pyrene | 2018/08/04 | | 114 | % | 50 - 130 |
| | | | Benzo(b)fluoranthene | 2018/08/04 | | 125 | % | 50 - 130 |
| | | | Benzo(g,h,i)perylene | 2018/08/04 | | 129 | % | 50 - 130 |
| | | | Benzo(j)fluoranthene | 2018/08/04 | | 108 | % | 50 - 130 |
| | | | Benzo(k)fluoranthene | 2018/08/04 | | 124 | % | 50 - 130 |
| | | | Chrysene | 2018/08/04 | | 88 | % | 50 - 130 |
| | | | Dibenz(a,h)anthracene | 2018/08/04 | | 118 | % | 50 - 130 |
| | | | Fluoranthene | 2018/08/04 | | 90 | % | 50 - 130 |
| | | | Fluorene | 2018/08/04 | | 115 | % | 50 - 130 |
| | | | Indeno(1,2,3-cd)pyrene | 2018/08/04 | | 114 | % | 50 - 130 |
| | | | Naphthalene | 2018/08/04 | | 102 | % | 50 - 130 |
| Perylene | 2018/08/04 | | 109 | % | 50 - 130 | | | |
| Phenanthrene | 2018/08/04 | | 95 | % | 50 - 130 | | | |
| Pyrene | 2018/08/04 | | 95 | % | 50 - 130 | | | |
| 5656858 | ASW | Method Blank | D10-Anthracene | 2018/08/04 | | 100 | % | 50 - 130 |
| | | | D14-Terphenyl | 2018/08/04 | | 93 | % | 50 - 130 |
| | | | D8-Acenaphthylene | 2018/08/04 | | 74 | % | 50 - 130 |
| | | | 1-Methylnaphthalene | 2018/08/04 | <0.050 | | ug/L | |
| | | | 2-Methylnaphthalene | 2018/08/04 | <0.050 | | ug/L | |
| | | | Acenaphthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Acenaphthylene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Anthracene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(a)anthracene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(a)pyrene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(b)fluoranthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(g,h,i)perylene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(j)fluoranthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Benzo(k)fluoranthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Chrysene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Dibenz(a,h)anthracene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Fluoranthene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Fluorene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Indeno(1,2,3-cd)pyrene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Naphthalene | 2018/08/04 | <0.20 | | ug/L | |
| | | | Perylene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Phenanthrene | 2018/08/04 | <0.010 | | ug/L | |
| | | | Pyrene | 2018/08/04 | <0.010 | | ug/L | |
| 5656858 | ASW | RPD [HHS869-02] | 1-Methylnaphthalene | 2018/08/04 | NC | | % | 40 |
| | | | 2-Methylnaphthalene | 2018/08/04 | NC | | % | 40 |
| | | | Acenaphthene | 2018/08/04 | NC | | % | 40 |
| | | | Acenaphthylene | 2018/08/04 | NC | | % | 40 |

QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|-------------|------|--------------|-----------------------------------|---------------|-----------------|----------|-------|-----------|
| | | | Anthracene | 2018/08/04 | NC | | % | 40 |
| | | | Benzo(a)anthracene | 2018/08/04 | NC | | % | 40 |
| | | | Benzo(a)pyrene | 2018/08/04 | NC | | % | 40 |
| | | | Benzo(b)fluoranthene | 2018/08/04 | NC | | % | 40 |
| | | | Benzo(g,h,i)perylene | 2018/08/04 | NC | | % | 40 |
| | | | Benzo(j)fluoranthene | 2018/08/04 | NC | | % | 40 |
| | | | Benzo(k)fluoranthene | 2018/08/04 | NC | | % | 40 |
| | | | Chrysene | 2018/08/04 | NC | | % | 40 |
| | | | Dibenz(a,h)anthracene | 2018/08/04 | NC | | % | 40 |
| | | | Fluoranthene | 2018/08/04 | NC | | % | 40 |
| | | | Fluorene | 2018/08/04 | NC | | % | 40 |
| | | | Indeno(1,2,3-cd)pyrene | 2018/08/04 | NC | | % | 40 |
| | | | Naphthalene | 2018/08/04 | NC | | % | 40 |
| | | | Perylene | 2018/08/04 | NC | | % | 40 |
| | | | Phenanthrene | 2018/08/04 | NC | | % | 40 |
| | | | Pyrene | 2018/08/04 | 1.0 | | % | 40 |
| 5657551 | LMP | Matrix Spike | Total Organic Carbon (C) | 2018/08/01 | | 103 | % | 85 - 115 |
| 5657551 | LMP | Spiked Blank | Total Organic Carbon (C) | 2018/08/01 | | 100 | % | 80 - 120 |
| 5657551 | LMP | Method Blank | Total Organic Carbon (C) | 2018/08/01 | <0.50 | | mg/L | |
| 5657551 | LMP | RPD | Total Organic Carbon (C) | 2018/08/01 | 0.63 | | % | 15 |
| 5658382 | NHU | QC Standard | pH | 2018/08/01 | | 100 | % | 97 - 103 |
| 5658382 | NHU | RPD | pH | 2018/08/01 | 1.3 | | % | N/A |
| 5658384 | NHU | Spiked Blank | Conductivity | 2018/08/01 | | 103 | % | 80 - 120 |
| 5658384 | NHU | Method Blank | Conductivity | 2018/08/01 | 1.6, RDL=1.0 | | uS/cm | |
| 5658384 | NHU | RPD | Conductivity | 2018/08/01 | 0.76 | | % | 25 |
| 5658397 | NRG | Matrix Spike | Total Alkalinity (Total as CaCO3) | 2018/08/01 | | NC | % | 80 - 120 |
| 5658397 | NRG | Spiked Blank | Total Alkalinity (Total as CaCO3) | 2018/08/01 | | 99 | % | 80 - 120 |
| 5658397 | NRG | Method Blank | Total Alkalinity (Total as CaCO3) | 2018/08/01 | <5.0 | | mg/L | |
| 5658397 | NRG | RPD | Total Alkalinity (Total as CaCO3) | 2018/08/01 | 5.3 | | % | 25 |
| 5658398 | MCN | Matrix Spike | Dissolved Chloride (Cl-) | 2018/08/01 | | 103 | % | 80 - 120 |
| 5658398 | MCN | QC Standard | Dissolved Chloride (Cl-) | 2018/08/02 | | 104 | % | 80 - 120 |
| 5658398 | MCN | Spiked Blank | Dissolved Chloride (Cl-) | 2018/08/01 | | 98 | % | 80 - 120 |
| 5658398 | MCN | Method Blank | Dissolved Chloride (Cl-) | 2018/08/01 | <1.0 | | mg/L | |
| 5658398 | MCN | RPD | Dissolved Chloride (Cl-) | 2018/08/01 | 0.27 | | % | 25 |
| 5658399 | MCN | Matrix Spike | Dissolved Sulphate (SO4) | 2018/08/01 | | 96 | % | 80 - 120 |
| 5658399 | MCN | Spiked Blank | Dissolved Sulphate (SO4) | 2018/08/01 | | 97 | % | 80 - 120 |
| 5658399 | MCN | Method Blank | Dissolved Sulphate (SO4) | 2018/08/01 | <2.0 | | mg/L | |
| 5658399 | MCN | RPD | Dissolved Sulphate (SO4) | 2018/08/01 | 1.3 | | % | 25 |
| 5658400 | MCN | Matrix Spike | Reactive Silica (SiO2) | 2018/08/01 | | NC | % | 80 - 120 |
| 5658400 | MCN | Spiked Blank | Reactive Silica (SiO2) | 2018/08/01 | | 91 | % | 80 - 120 |
| 5658400 | MCN | Method Blank | Reactive Silica (SiO2) | 2018/08/01 | <0.50 | | mg/L | |
| 5658400 | MCN | RPD | Reactive Silica (SiO2) | 2018/08/01 | 2.5 | | % | 25 |
| 5658401 | MCN | Spiked Blank | Colour | 2018/08/01 | | 104 | % | 80 - 120 |
| 5658401 | MCN | Method Blank | Colour | 2018/08/01 | <5.0 | | TCU | |
| 5658401 | MCN | RPD | Colour | 2018/08/01 | NC | | % | 20 |
| 5658416 | MCN | Matrix Spike | Orthophosphate (P) | 2018/08/01 | | 94 | % | 80 - 120 |
| 5658416 | MCN | Spiked Blank | Orthophosphate (P) | 2018/08/01 | | 102 | % | 80 - 120 |
| 5658416 | MCN | Method Blank | Orthophosphate (P) | 2018/08/01 | <0.010 | | mg/L | |
| 5658416 | MCN | RPD | Orthophosphate (P) | 2018/08/01 | 2.1 | | % | 25 |
| 5658417 | MCN | Matrix Spike | Nitrate + Nitrite (N) | 2018/08/01 | | 93 | % | 80 - 120 |
| 5658417 | MCN | Spiked Blank | Nitrate + Nitrite (N) | 2018/08/01 | | 97 | % | 80 - 120 |
| 5658417 | MCN | Method Blank | Nitrate + Nitrite (N) | 2018/08/01 | <0.050 | | mg/L | |

QUALITY ASSURANCE REPORT(CONT'D)

| QA/QC Batch | Init | QC Type | Parameter | Date Analyzed | Value | Recovery | UNITS | QC Limits |
|-------------|------|--------------|-----------------------|---------------|--------|----------|-------|-----------|
| 5658417 | MCN | RPD | Nitrate + Nitrite (N) | 2018/08/01 | 0.64 | | % | 25 |
| 5658418 | NRG | Matrix Spike | Nitrite (N) | 2018/08/02 | | 89 | % | 80 - 120 |
| 5658418 | NRG | Spiked Blank | Nitrite (N) | 2018/08/02 | | 96 | % | 80 - 120 |
| 5658418 | NRG | Method Blank | Nitrite (N) | 2018/08/02 | <0.010 | | mg/L | |
| 5658418 | NRG | RPD | Nitrite (N) | 2018/08/02 | NC | | % | 20 |
| 5658518 | NHU | QC Standard | Turbidity | 2018/08/01 | | 100 | % | 80 - 120 |
| 5658518 | NHU | Spiked Blank | Turbidity | 2018/08/01 | | 99 | % | 80 - 120 |
| 5658518 | NHU | Method Blank | Turbidity | 2018/08/01 | <0.10 | | NTU | |
| 5658518 | NHU | RPD | Turbidity | 2018/08/01 | 6.9 | | % | 20 |

N/A = Not Applicable

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

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

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

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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).

VALIDATION SIGNATURE PAGE

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



Mike MacGillivray, Scientific Specialist (Inorganics)



Rosemarie MacDonald, Scientific Specialist (Organics)

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

APPENDIX D
MANN-KENDALL TABLES

Summary Table for Mann Kendall Plume Stability Analysis
 LTMM Surface Water Monitoring
 NSlands
 Sydney, Nova Scotia

| Well | Parameter | Trend (at 90% UCL) | | | | S Statistic | CV | Number of Events | Number of Non-detects | Maximum Concentration | Comment |
|----------|----------------|--------------------|--------|-----------|-------------|-------------|------|------------------|-----------------------|-----------------------|---|
| | | Declining | Stable | Expanding | Fluctuating | | | | | | |
| CB-SW | Anthracene | | X | | | 0 | 0.00 | 8 | 8 | 0.005 | All non detect. |
| CB-SW | Pyrene | | | | X | 8 | 2.11 | 8 | 1 | 0.33 | Fluctating with no trend. |
| CB-SW | Benzo(a)pyrene | | X | | | 0 | 0.00 | 8 | 8 | 0.005 | All non detect. |
| CB-SW | Cadmium | | X | | | -5 | 0.50 | 8 | 3 | 0.018 | |
| CB-SW | Strontium | | X | | | -3 | 0.47 | 8 | 0 | 340 | |
| CB-SW | Zinc | | X | | | -8 | 0.60 | 8 | 5 | 9 | |
| CB-SW | Boron | | X | | | 0 | 0.00 | 8 | 8 | 25 | All non detect. |
| CB-SW | Sulphate | | X | | | 3 | 0.43 | 8 | 0 | 26 | |
| NRC-1-SW | Anthracene | | X | | | 0 | 1.00 | 8 | 5 | 0.037 | |
| NRC-1-SW | Pyrene | | | | X | 2 | 1.63 | 8 | 4 | 0.14 | Fluctuating with no trend. |
| NRC-1-SW | Benzo(a)pyrene | | | | X | 1 | 1.69 | 8 | 6 | 0.075 | Generally non detect with a generally expanding trend. |
| NRC-1-SW | Cadmium | | | | X | -11 | 1.27 | 8 | 0 | 0.14 | Fluctuating with no trend. |
| NRC-1-SW | Strontium | X | | | | -6 | 0.30 | 8 | 0 | 64.7 | |
| NRC-1-SW | Zinc | | | | X | -10 | 1.08 | 8 | 4 | 27 | |
| NRC-1-SW | Boron | | X | | | 0 | 0.00 | 8 | 8 | 25 | All non detect. |
| NRC-1-SW | Suphate | | X | | | -7 | 0.20 | 8 | 0 | 22 | |
| SRC-1-SW | Anthracene | | X | | | 0 | 0.00 | 9 | 9 | 0.005 | All non detect. |
| SRC-1-SW | Pyrene | | X | | | 14 | 1.16 | 9 | 5 | 0.06 | Generally non detect with a generally expanding trend. |
| SRC-1-SW | Benzo(a)pyrene | | X | | | 11 | 0.95 | 9 | 6 | 0.034 | |
| SRC-1-SW | Cadmium | | | | X | 13 | 1.48 | 9 | 2 | 0.31 | |
| SRC-1-SW | Strontium | | X | | | 0 | 0.11 | 9 | 0 | 190 | |
| SRC-1-SW | Zinc | | X | | | 10 | 1.36 | 9 | 4 | 50 | |
| SRC-1-SW | Boron | | X | | | 10 | 0.34 | 90 | 0 | 130 | |
| SRC-1-SW | Sulphate | | X | | | 2 | 0.11 | 9 | 0 | 54 | |
| COB-4-SW | Anthracene | | | | X | -3 | 1.98 | 8 | 6 | 0.12 | Generally non detect with fluctuation and no trend. |
| COB-4-SW | Pyrene | | | | X | -6 | 2.53 | 8 | 5 | 0.74 | Generally non detect with fluctuation and no trend. |
| COB-4-SW | Benzo(a)pyrene | | | | X | -3 | 2.41 | 8 | 6 | 0.39 | Generally non detect with fluctuation and no trend. |
| COB-4-SW | Cadmium | | | | X | -8 | 2.25 | 8 | 3 | 0.29 | Fluctuating with no trend. |
| COB-4-SW | Strontium | | X | | | 5 | 0.58 | 8 | 0 | 450 | |
| COB-4-SW | Zinc | | | | X | -10 | 2.02 | 8 | 4 | 96 | Fluctuating with a generally declining trend. |
| COB-4-SW | Boron | | X | | | 4 | 0.48 | 8 | 5 | 63 | |
| COB-4-SW | Sulphate | | X | | | 3 | 0.44 | 8 | 0 | 110 | |
| COB-6-SW | Anthracene | | X | | | -7 | 0.53 | 9 | 7 | 0.015 | |
| COB-6-SW | Pyrene | | X | | | -7 | 0.72 | 9 | 3 | 0.038 | |
| COB-6-SW | Benzo(a)pyrene | | X | | | 1 | 0.90 | 9 | 7 | 0.027 | |
| COB-6-SW | Cadmium | | X | | | 1 | 0.52 | 9 | 4 | 0.018 | |
| COB-6-SW | Strontium | | X | | | -5 | 0.55 | 9 | 0 | 645 | |
| COB-6-SW | Zinc | | X | | | -9 | 0.55 | 9 | 7 | 7.4 | |
| COB-6-SW | Boron | | X | | | 0 | 0.46 | 9 | 5 | 66 | |
| COB-6-SW | Sulphate | | X | | | -4 | 0.52 | 9 | 0 | 170 | |
| WB-1-SW | Anthracene | | X | | | 0 | 0.00 | 9 | 9 | 0.005 | All non detect. |
| WB-1-SW | Pyrene | | | | X | 3 | 1.70 | 9 | 7 | 0.092 | Generally non detect with a generally fluctating trend. |
| WB-1-SW | Benzo(a)pyrene | | X | | | 0 | 0.92 | 9 | 8 | 0.025 | |
| WB-1-SW | Cadmium | | | | X | 3 | 1.20 | 9 | 1 | 0.6 | Fluctuating with no trend. |
| WB-1-SW | Strontium | | | | X | -6 | 1.79 | 9 | 0 | 4660 | Fluctuating with no trend. |
| WB-1-SW | Zinc | X | | | | -16 | 0.94 | 9 | 5 | 25 | |
| WB-1-SW | Boron | | X | | | -2 | 1.89 | 9 | 5 | 2470 | Generally non detect with fluctuation and no trend. |
| WB-1-SW | Sulphate | | | | X | -1 | 1.95 | 9 | 0 | 1500 | Fluctuating with no trend. |
| BP-1-SW | Anthracene | | X | | | 0 | 0.00 | 9 | 9 | 0.005 | All non detect. |
| BP-1-SW | Pyrene | | X | | | -8 | 0.79 | 9 | 4 | 0.036 | |
| BP-1-SW | Benzo(a)pyrene | | X | | | 0 | 0.00 | 9 | 9 | 0.005 | All non detect. |
| BP-1-SW | Cadmium | | X | | | -6 | 0.79 | 9 | 4 | 0.14 | |
| BP-1-SW | Strontium | | X | | | 0 | 0.74 | 9 | 0 | 6130 | |
| BP-1-SW | Zinc | | X | | | -5 | 0.65 | 9 | 7 | 41 | |
| BP-1-SW | Boron | | X | | | -3 | 0.77 | 9 | 0 | 3700 | |
| BP-1-SW | Sulphate | | X | | | 1 | 0.76 | 9 | 0 | 2000 | |
| Narrows | Anthracene | | X | | | -7 | 0.52 | 8 | 7 | 0.014 | |
| Narrows | Pyrene | | X | | | -9 | 0.54 | 8 | 2 | 0.03 | |
| Narrows | Benzo(a)pyrene | | X | | | 0 | 0.00 | 8 | 8 | 0.005 | All non detect. |
| Narrows | Cadmium | | X | | | 4 | 0.45 | 8 | 4 | 0.05 | |
| Narrows | Strontium | | X | | | 3 | 0.87 | 8 | 0 | 6100 | |
| Narrows | Zinc | | X | | | -2 | 0.74 | 8 | 4 | 63 | |
| Narrows | Boron | | X | | | 4 | 0.91 | 8 | 0 | 3600 | |
| Narrows | Sulphate | | X | | | 8 | 0.89 | 8 | 0 | 2000 | |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

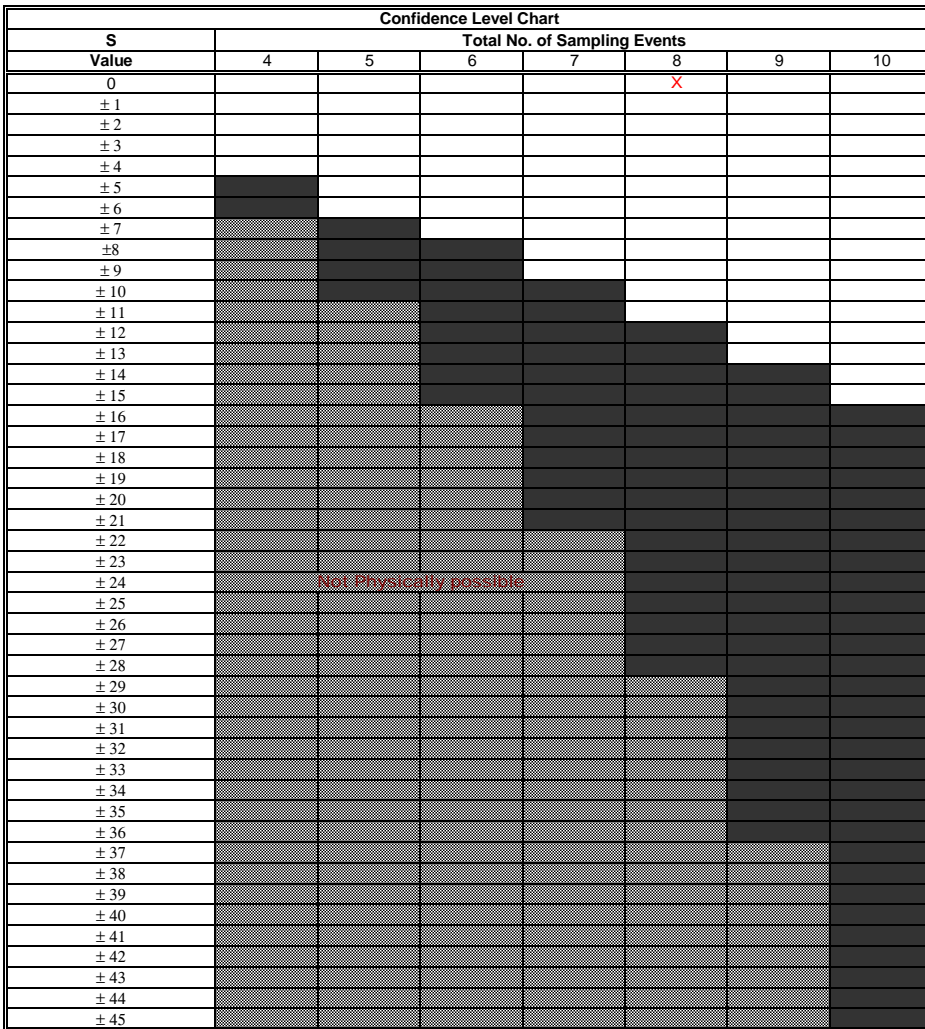
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | MONITORING WELL NO: CB-SW | | | | | | | | | | |
|--------------------------------|---------------------------|-----------|-----------|-----------|-----------|----------|----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Anthracene | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

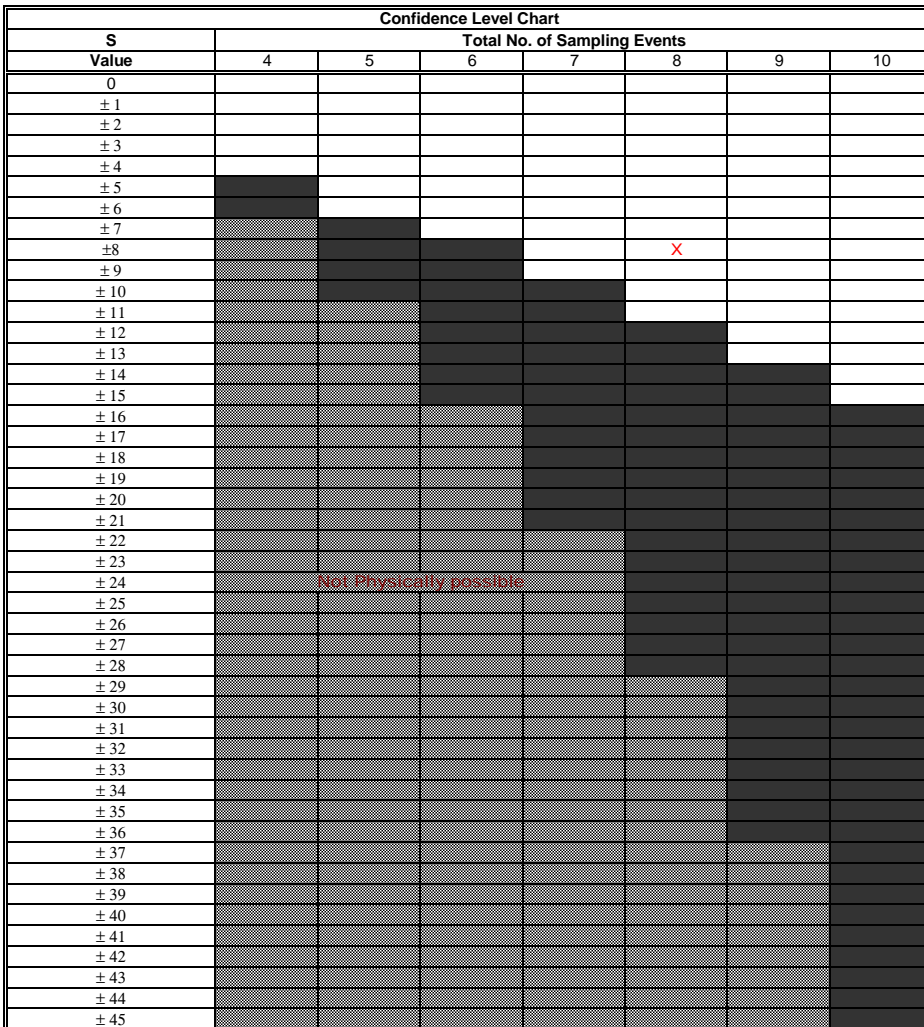
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: CB-SW | | | | | | | | | |
|--------------------------------|-----------|---------------------------|-----------|-----------|-----------|----------|----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Pyrene | 0.005 | 0.012 | 0.016 | 0.019 | 0.017 | 0.014 | 0.33 | 0.011 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 7 |
| Row 2: Compare to Event 2: | | | 1 | 1 | 1 | 1 | 1 | -1 | 0 | 0 | 4 |
| Row 3: Compare to Event 3: | | | | 1 | 1 | -1 | 1 | -1 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | 1 | -1 | 0 | 0 | -2 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | 0 | 0 | -1 |
| Row 6: Compare to Event 6: | | | | | | | 1 | -1 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **8**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

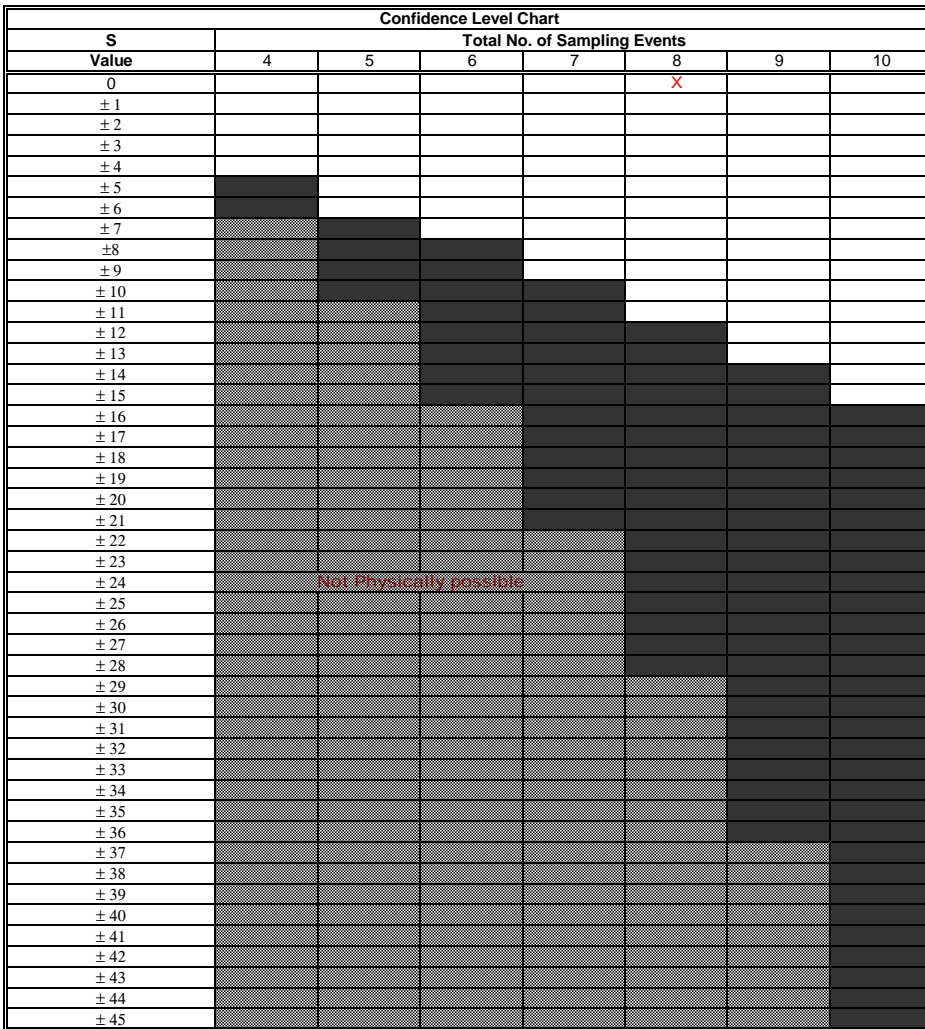
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: CB-SW | | | | | | | | | |
|--------------------------------|-----------|---------------------------|-----------|-----------|-----------|----------|----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzo(a)pyrene | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

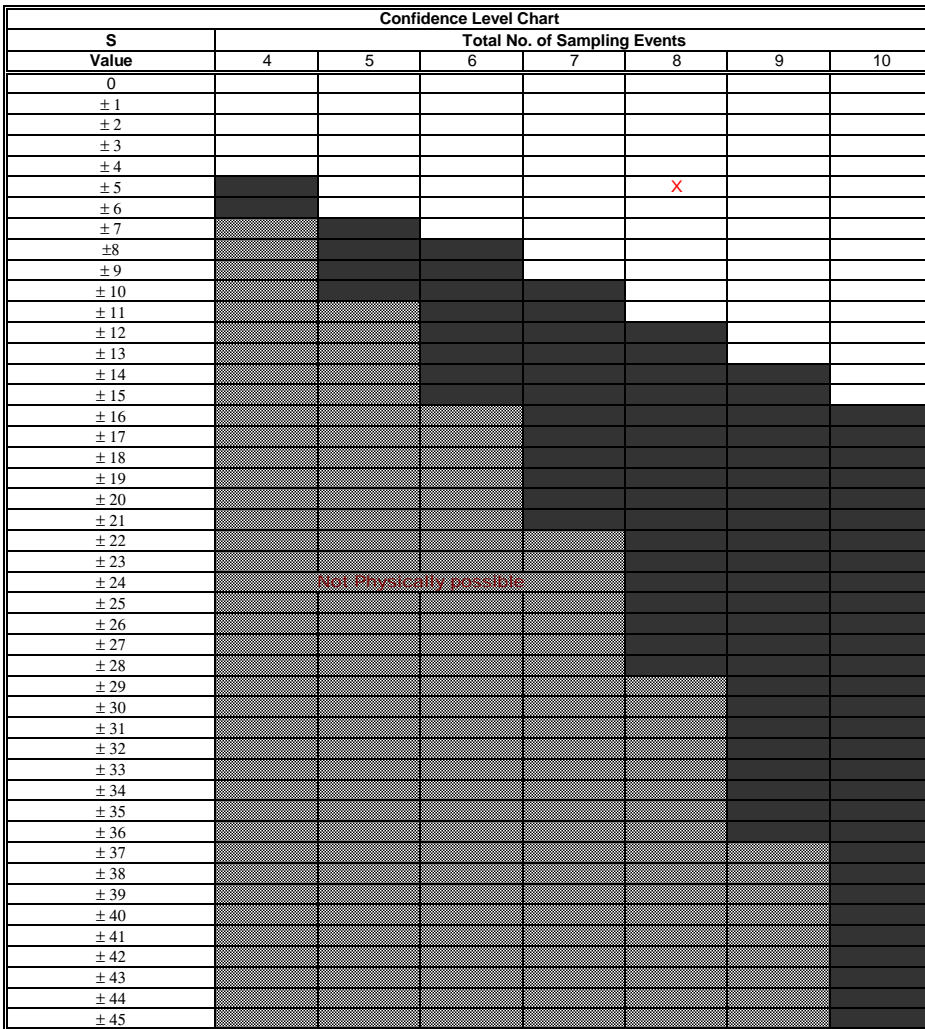
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: CB-SW | | | | | | | | | |
|--------------------------------|-----------|---------------------------|-----------|-----------|-----------|----------|----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Cadmium | 0.016 | 0.018 | 0.005 | 0.011 | 0.005 | 0.017 | 0.005 | 0.015 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | | | |
| Row 1: Compare to Event 1: | | 1 | -1 | -1 | -1 | 1 | -1 | -1 | 0 | 0 | -3 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -6 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 3 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | 1 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 1 | 0 | 0 | 2 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-5**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

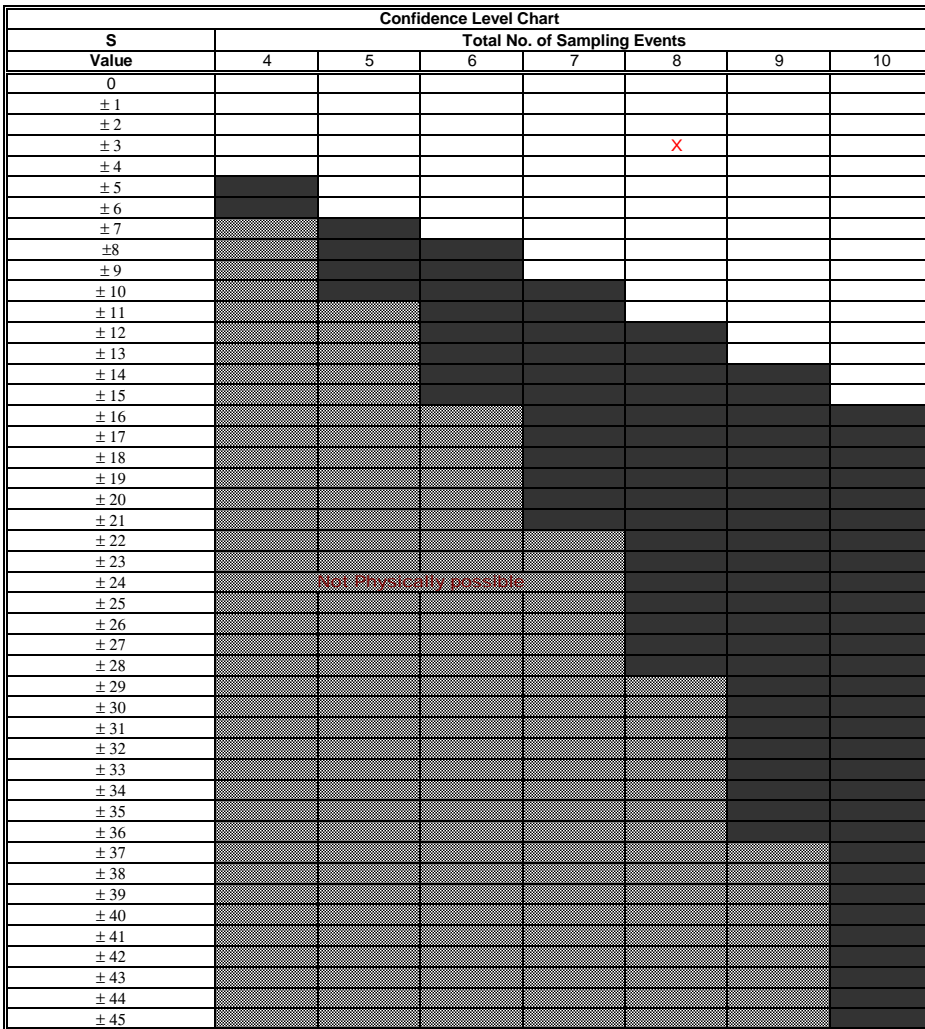
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | MONITORING WELL NO: CB-SW | | | | | | | | | | |
|--------------------------------|---------------------------|-----------|-----------|-----------|-----------|----------|----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Strontium | 196 | 130 | 320 | 140 | 160 | 110 | 340 | 130 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | | | |
| Row 1: Compare to Event 1: | | -1 | 1 | -1 | -1 | -1 | 1 | -1 | 0 | 0 | -3 |
| Row 2: Compare to Event 2: | | | 1 | 1 | 1 | -1 | 1 | 0 | 0 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | 1 | -1 | 0 | 0 | -3 |
| Row 4: Compare to Event 4: | | | | | 1 | -1 | 1 | -1 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | 0 | 0 | -1 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 1 | 0 | 0 | 2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -3



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

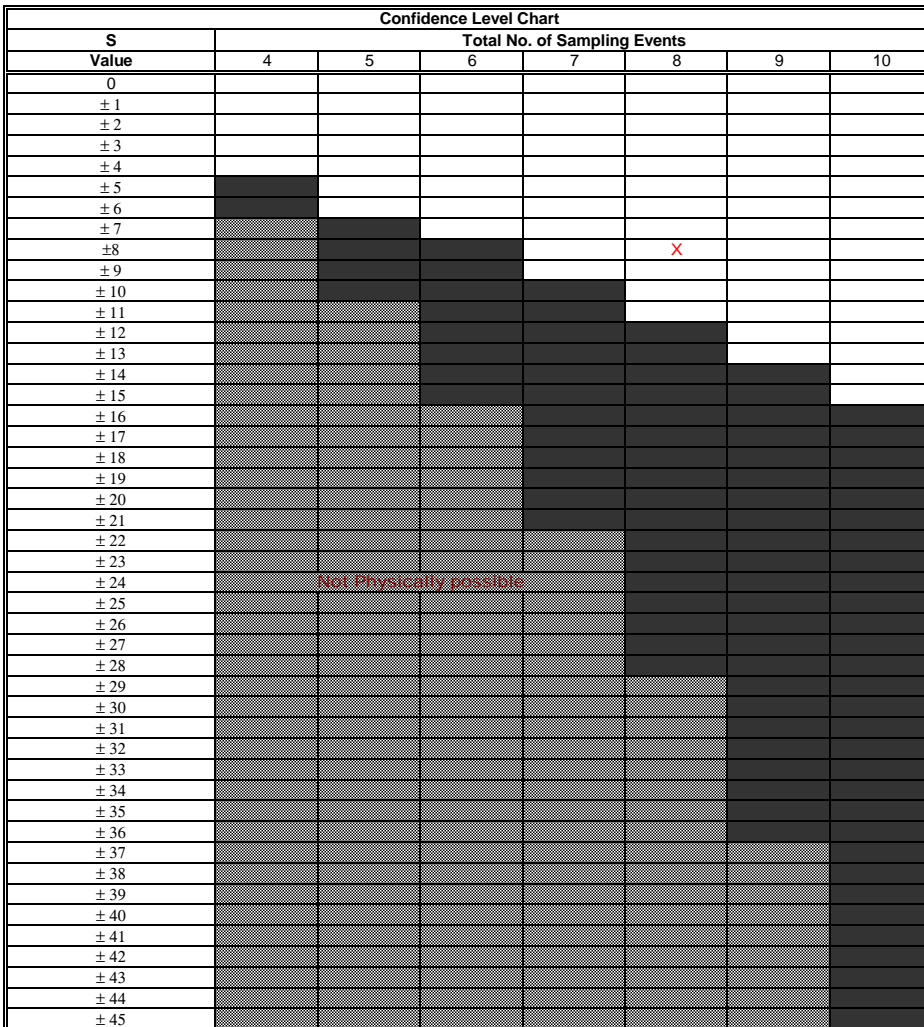
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: CB-SW | | | | | | | | | |
|--------------------------------|-----------|---------------------------|-----------|-----------|-----------|----------|----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Zinc | 2.5 | 6 | 9 | 6.1 | 2.5 | 2.5 | 2.5 | 2.5 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | 1 | 1 | -1 | -1 | -1 | -1 | 0 | 0 | -2 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | 0 | 0 | -4 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-8**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

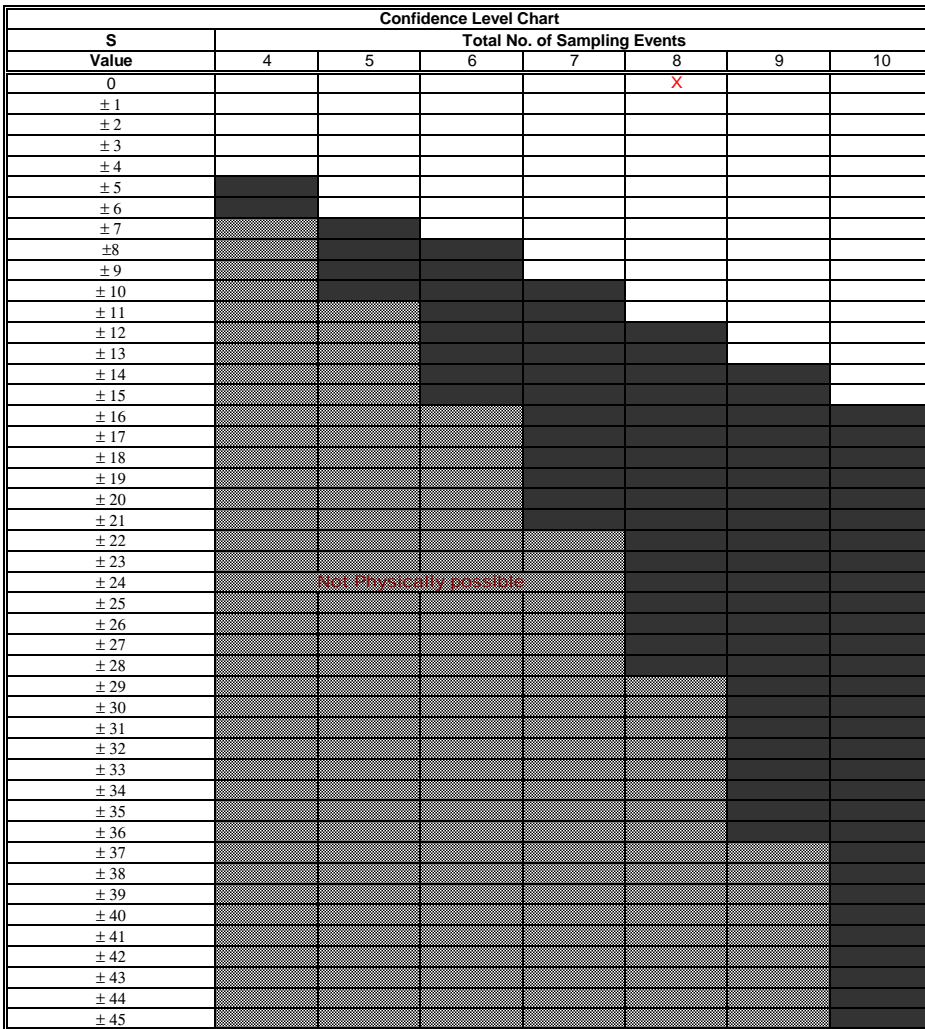
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: CB-SW | | | | | | | | | |
|--------------------------------|-----------|---------------------------|-----------|-----------|-----------|----------|----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Boron | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

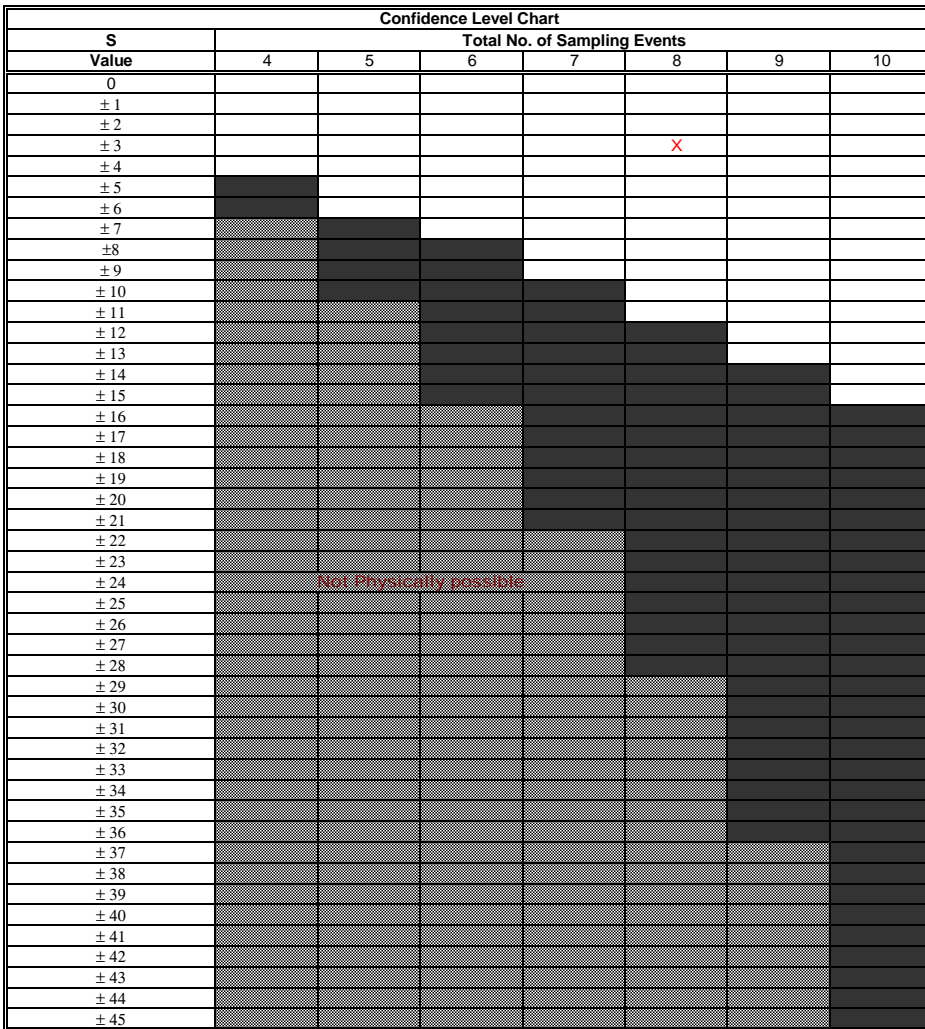
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: CB-SW | | | | | | | | | |
|--------------------------------|-----------|---------------------------|-----------|-----------|-----------|----------|----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Sulphate | 6.5 | 26 | 16 | 24 | 10 | 23 | 12 | 24 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 7 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -6 |
| Row 3: Compare to Event 3: | | | | 1 | -1 | 1 | -1 | 1 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | 0 | 0 | 0 | -3 |
| Row 5: Compare to Event 5: | | | | | | 1 | 1 | 1 | 0 | 0 | 3 |
| Row 6: Compare to Event 6: | | | | | | | -1 | 1 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

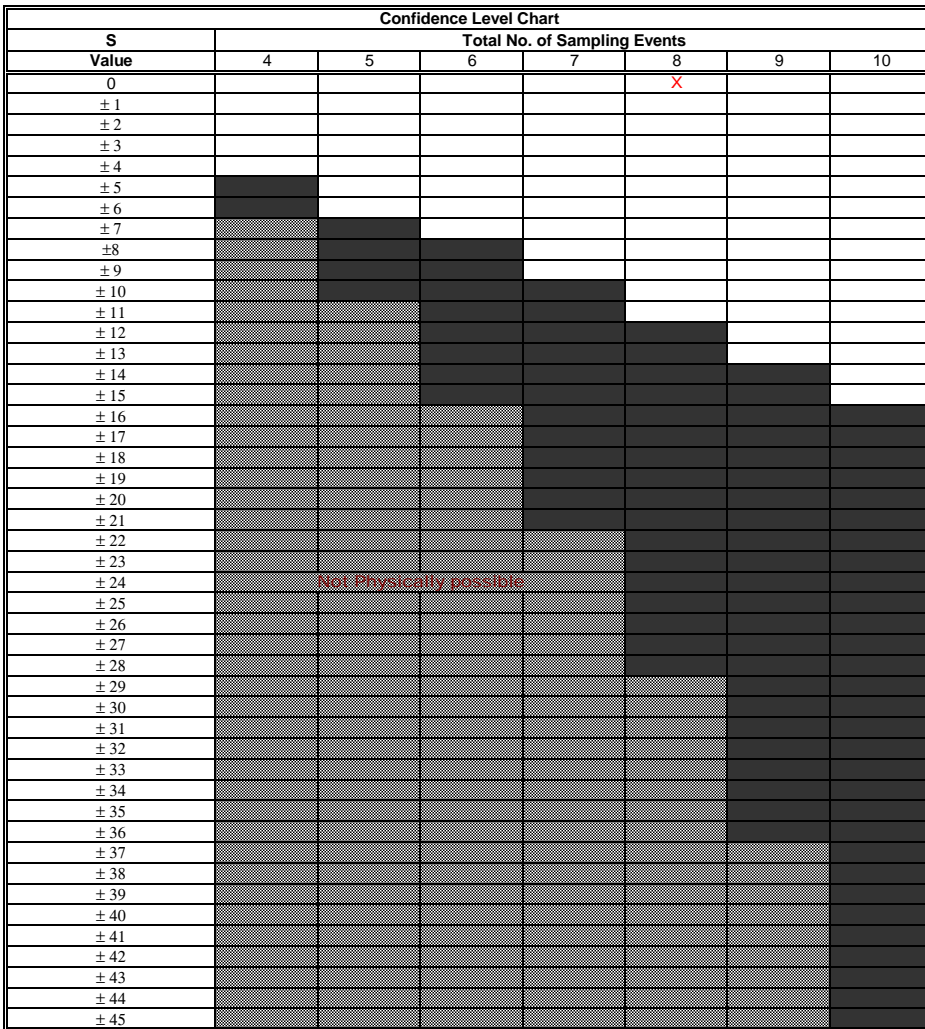
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: NRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Anthracene | 0.005 | 0.005 | 0.005 | 0.037 | 0.021 | 0.01 | 0.005 | 0.005 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | 0 | 0 | -4 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | 0 | 0 | -3 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

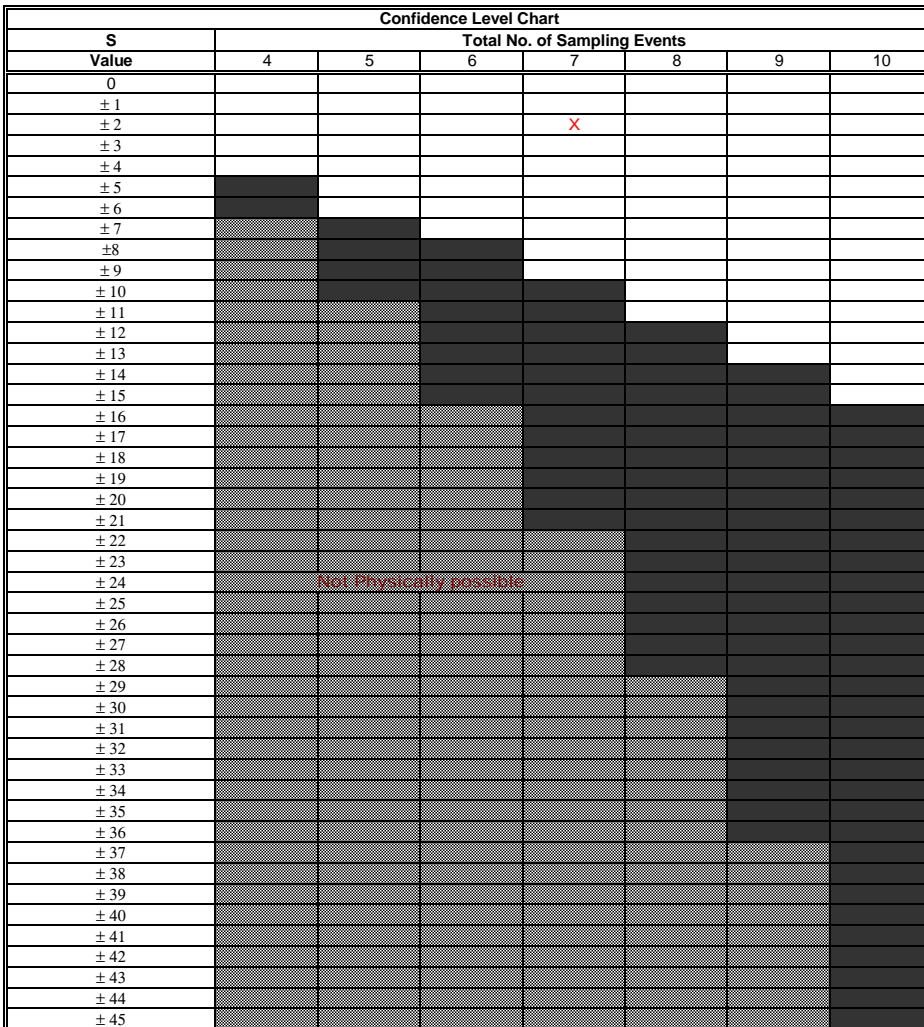
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: NRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Pyrene | 0.019 | 0.005 | 0.005 | 0.14 | 0.005 | 0.027 | 0.005 | 0.01 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | -1 | -1 | 1 | -1 | 1 | -1 | -1 | 0 | 0 | -3 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 3 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | 0 | 0 | -4 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 1 | 0 | 0 | 2 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

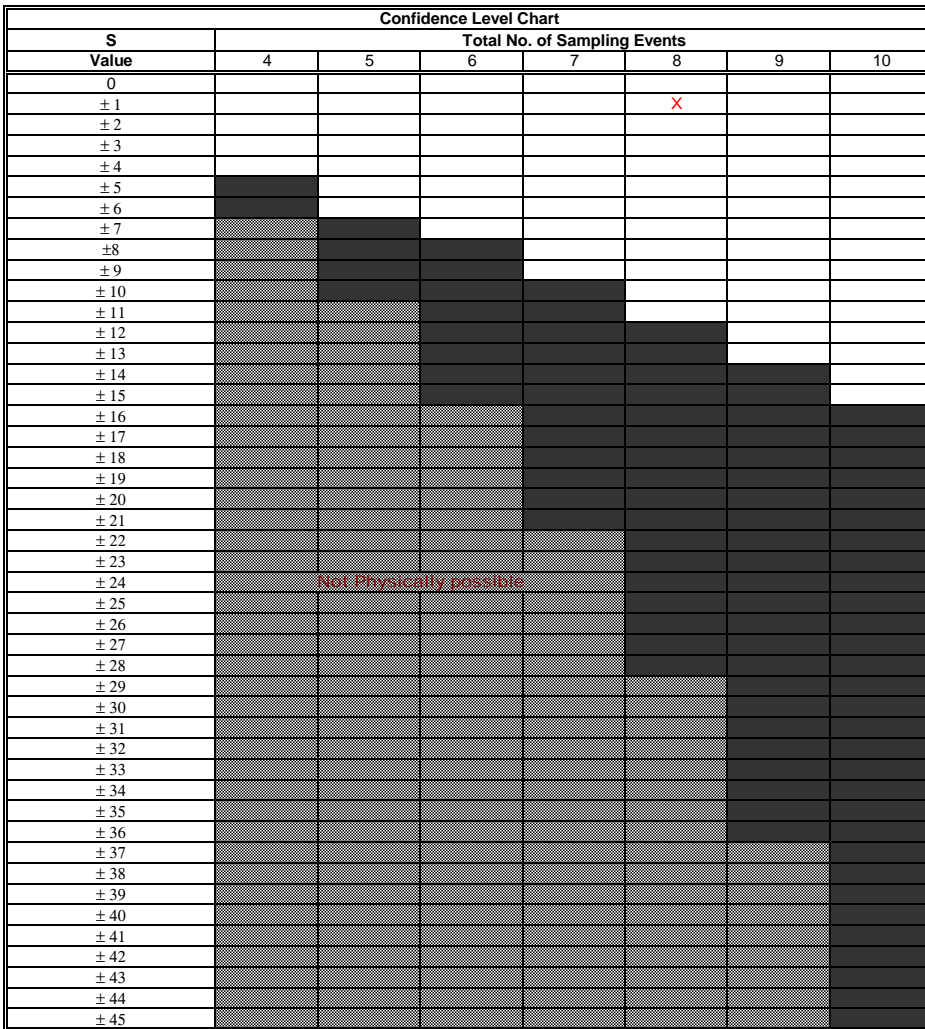
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: NRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzo(a)pyrene | 0.005 | 0.005 | 0.005 | 0.075 | 0.005 | 0.011 | 0.005 | 0.005 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | 0 | 0 | -4 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 0 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 1



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

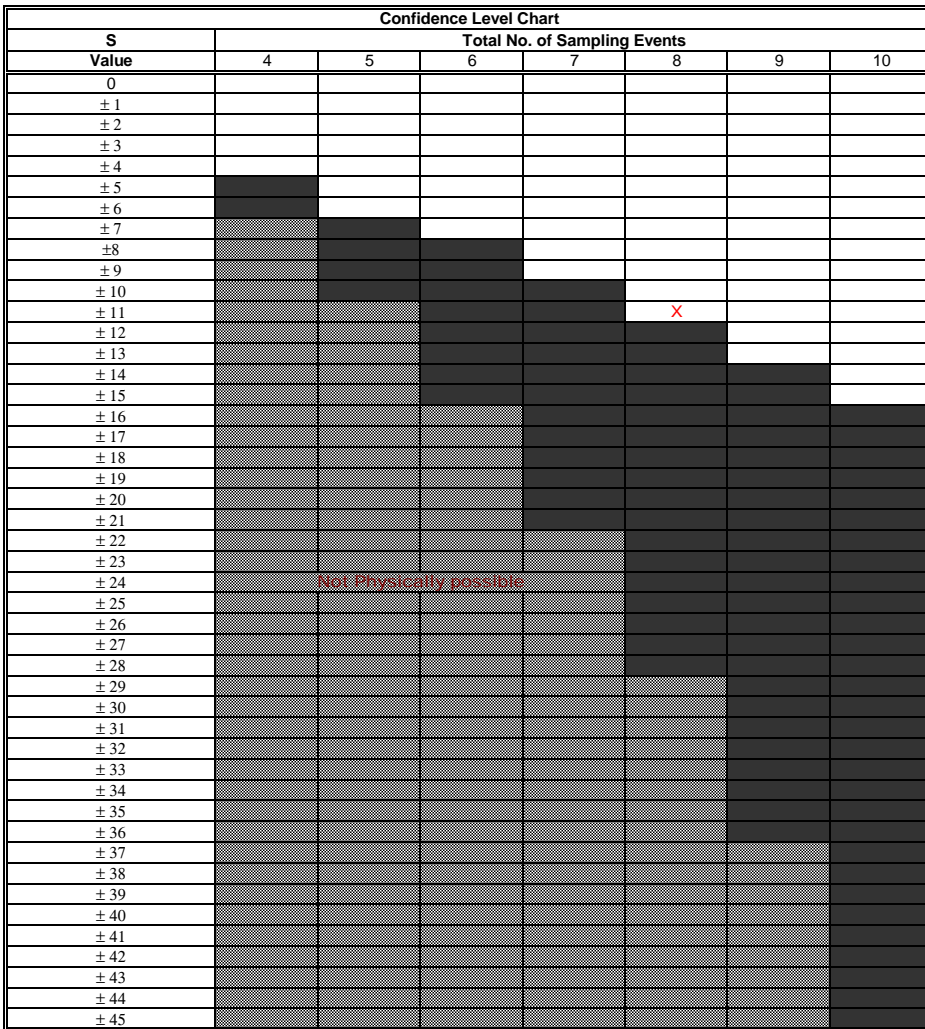
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: NRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Cadmium | 0.021 | 0.022 | 0.019 | 0.14 | 0.016 | 0.025 | 0.016 | 0.012 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | -1 | 1 | -1 | 1 | -1 | -1 | 0 | 0 | -1 |
| Row 2: Compare to Event 2: | | | -1 | 1 | -1 | 1 | -1 | -1 | 0 | 0 | -2 |
| Row 3: Compare to Event 3: | | | | 1 | -1 | 1 | -1 | -1 | 0 | 0 | -1 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | 0 | 0 | -4 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | -1 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-11**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

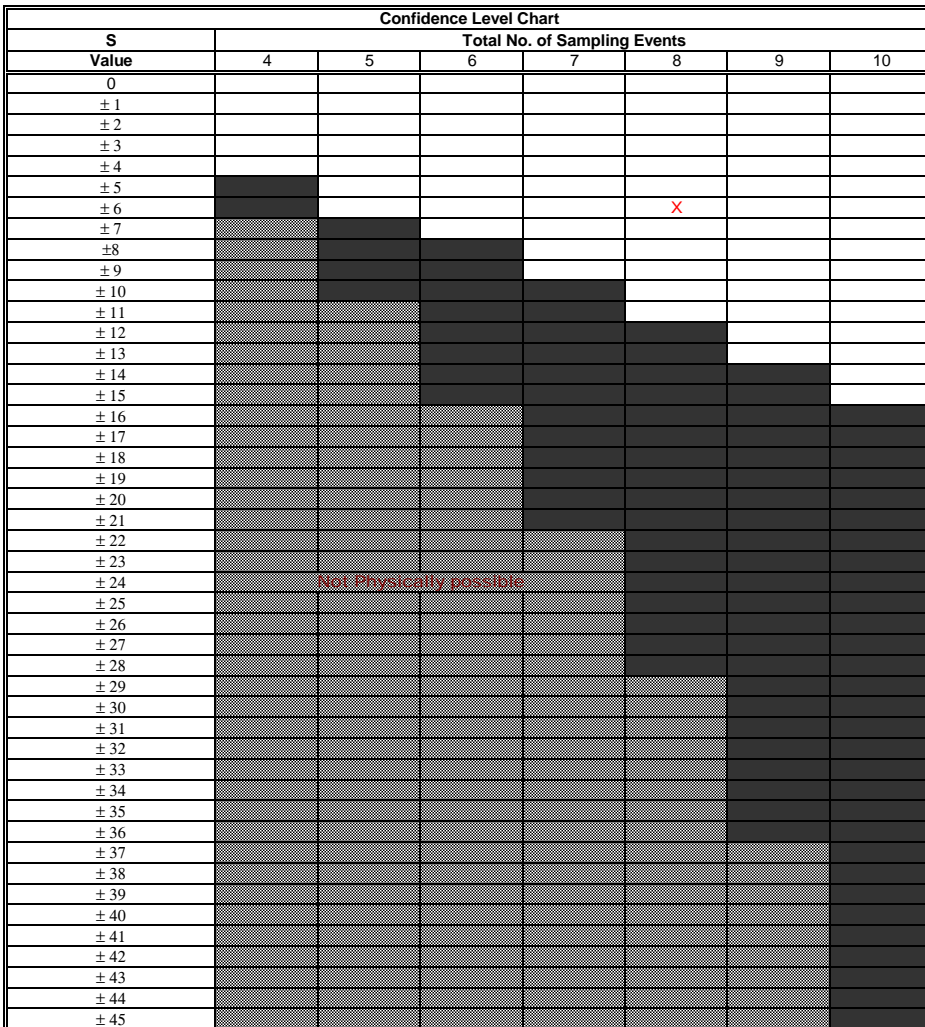
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: NRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Strontium | 64.7 | 32 | 54 | 36 | 52 | 34 | 31 | 60 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -7 |
| Row 2: Compare to Event 2: | | | 1 | 1 | 1 | 1 | -1 | 1 | 0 | 0 | 4 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | 1 | 0 | 0 | -3 |
| Row 4: Compare to Event 4: | | | | | 1 | -1 | -1 | 1 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | 1 | 0 | 0 | -1 |
| Row 6: Compare to Event 6: | | | | | | | -1 | 1 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -6



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

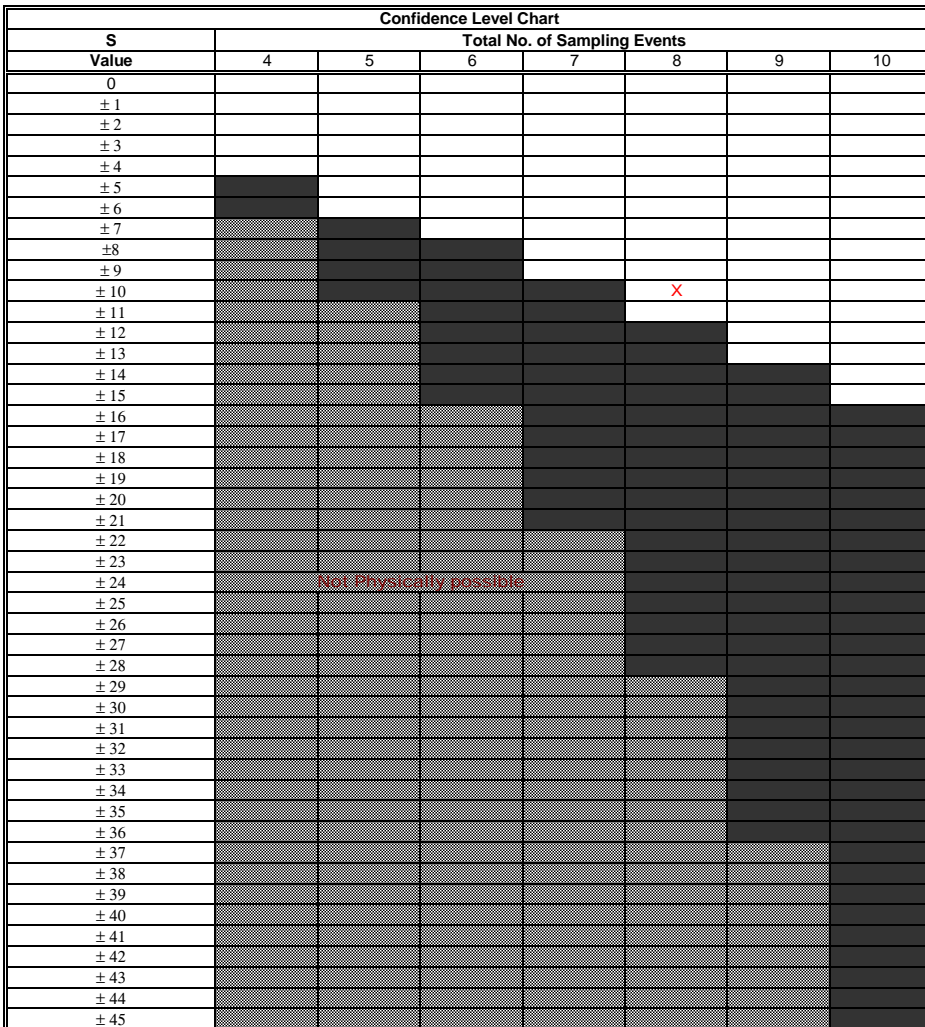
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: NRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|-----------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Zinc | 5.3 | 9.1 | 11 | 27 | 2.5 | 2.5 | 2.5 | 2.5 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 18-Dec-17 | | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 1 | -1 | -1 | -1 | -1 | 0 | 0 | -1 |
| Row 2: Compare to Event 2: | | | 1 | 1 | -1 | -1 | -1 | -1 | 0 | 0 | -2 |
| Row 3: Compare to Event 3: | | | | 1 | -1 | -1 | -1 | -1 | 0 | 0 | -3 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | 0 | 0 | -4 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-10**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

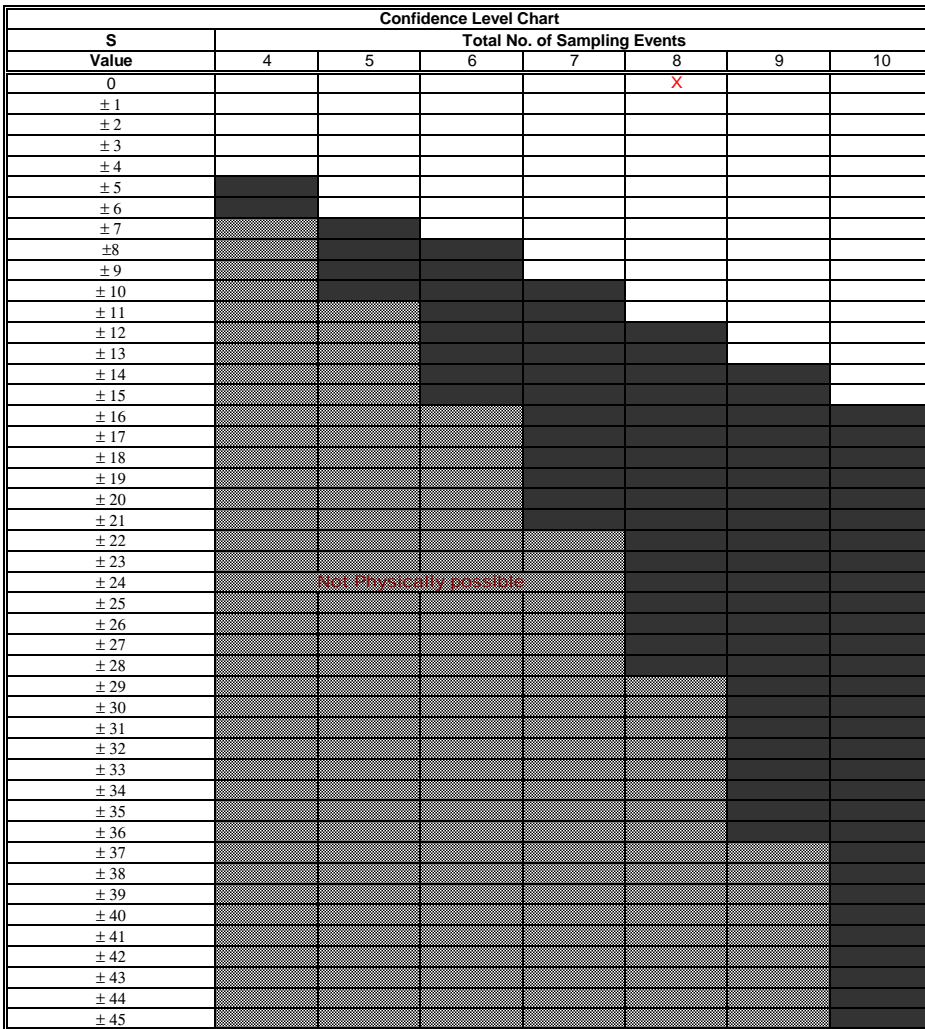
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: NRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Boron | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

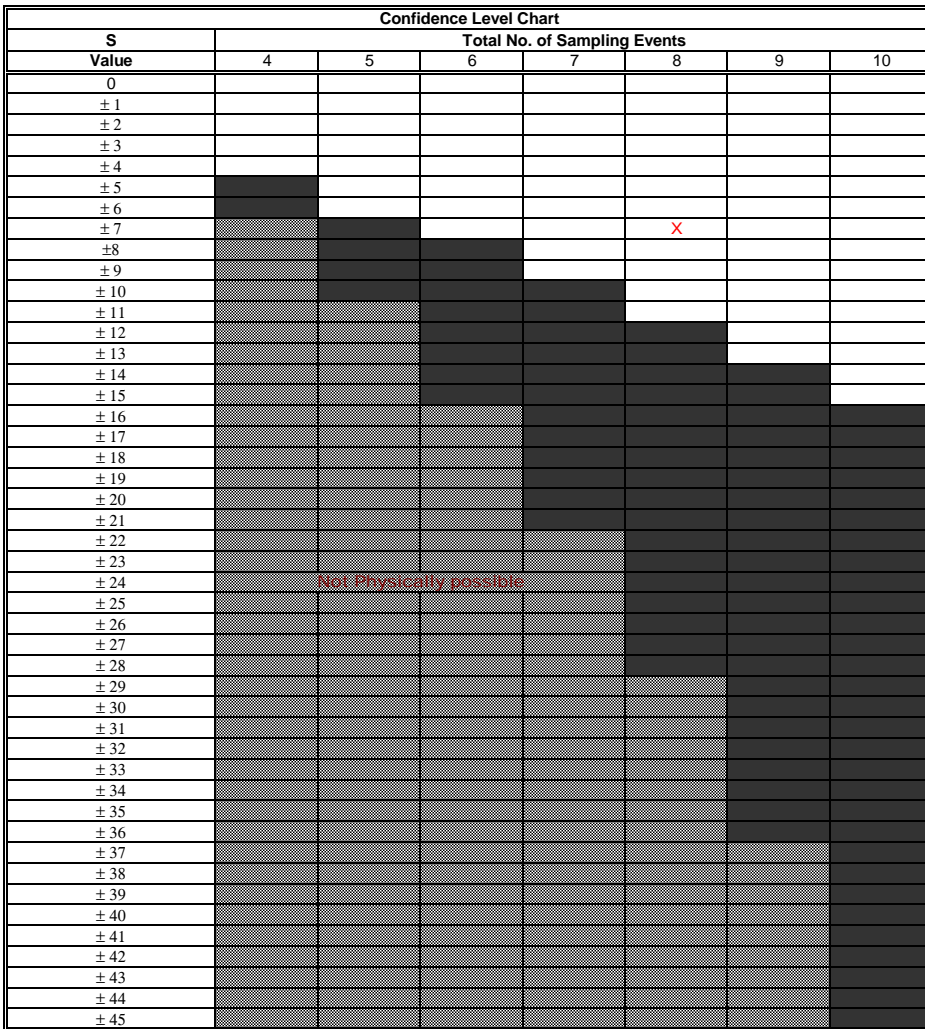
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: NRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Suphate | 19 | 20 | 22 | 15 | 15 | 16 | 21 | 12 | | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | -1 | -1 | -1 | 1 | -1 | 0 | 0 | -1 |
| Row 2: Compare to Event 2: | | | 1 | -1 | -1 | -1 | 1 | -1 | 0 | 0 | -2 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | 0 | 1 | 1 | -1 | 0 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | 1 | 1 | -1 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | 1 | -1 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -7



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

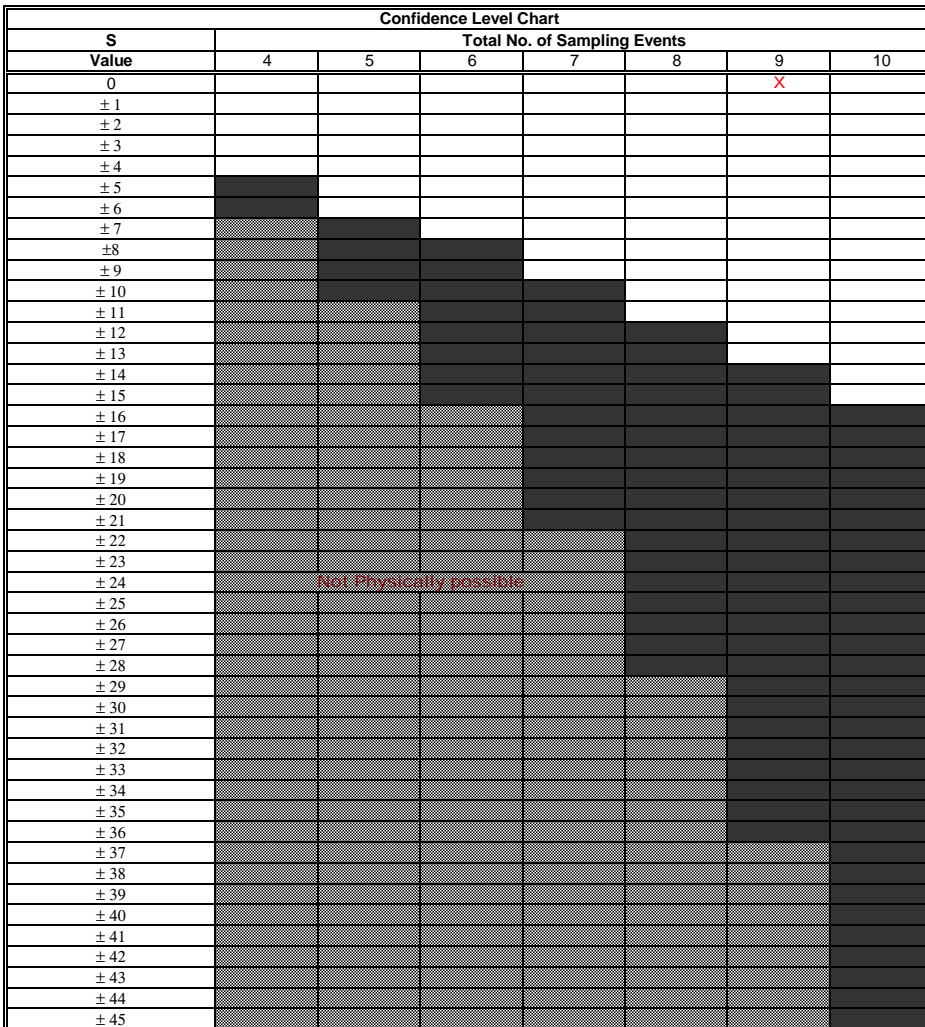
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: SRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Anthracene | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

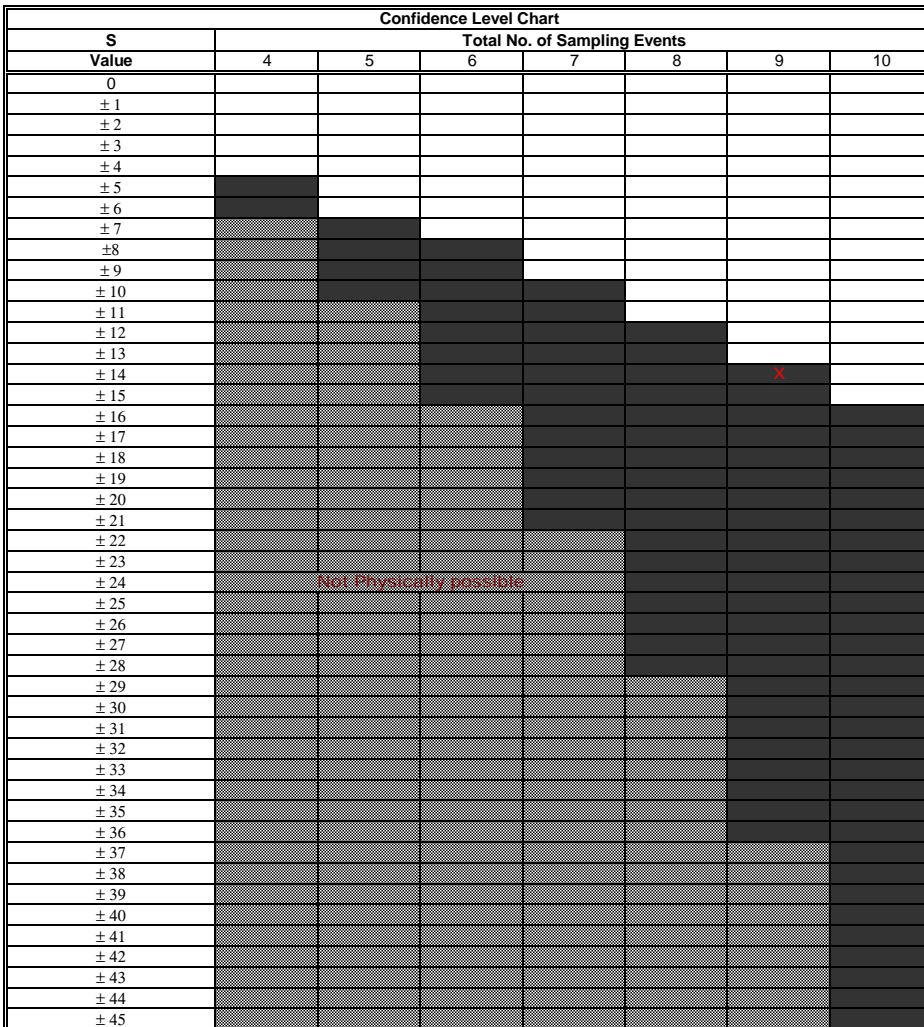
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: SRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Pyrene | 0.005 | 0.018 | 0.005 | 0.005 | 0.005 | 0.011 | 0.005 | 0.035 | 0.06 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 4 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | -1 | 1 | 1 | 0 | -3 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 3 |
| Row 4: Compare to Event 4: | | | | | 0 | 1 | 0 | 1 | 1 | 0 | 3 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 1 | 1 | 0 | 3 |
| Row 6: Compare to Event 6: | | | | | | | -1 | 1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 1 | 0 | 2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 14



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| □ | No Trend Indicated, Plume Not Diminishing or Expanding |
| □ | CV<=1 Plume is Stable |
| □ | CV>1 Plume is Fluctuating |
| X | Trend Is Present (≥90% Confidence) |
| □ | S < 0 Diminishing Plume |
| X | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

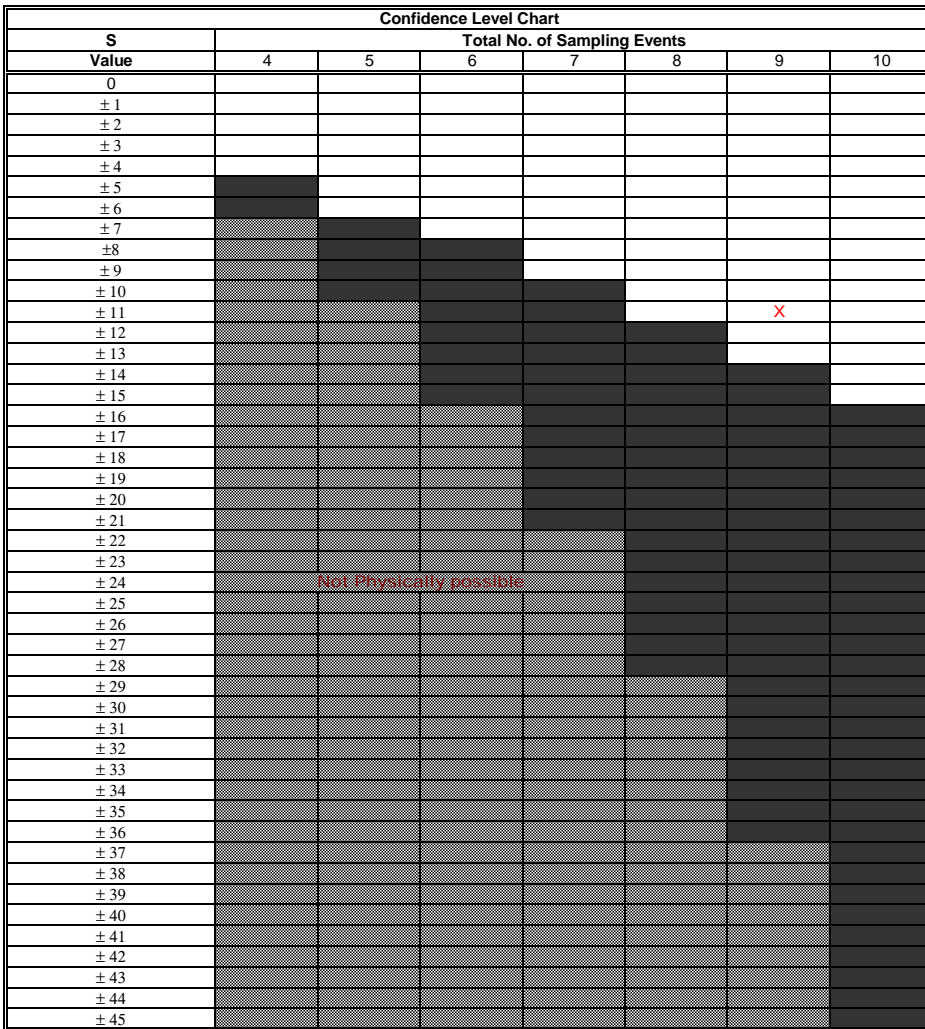
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: SRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzo(a)pyrene | 0.005 | 0.013 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.016 | 0.034 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 3 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | -1 | 1 | 1 | 0 | -3 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 1 | 1 | 0 | 2 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 1 | 1 | 0 | 2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 1 | 0 | 2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 11



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

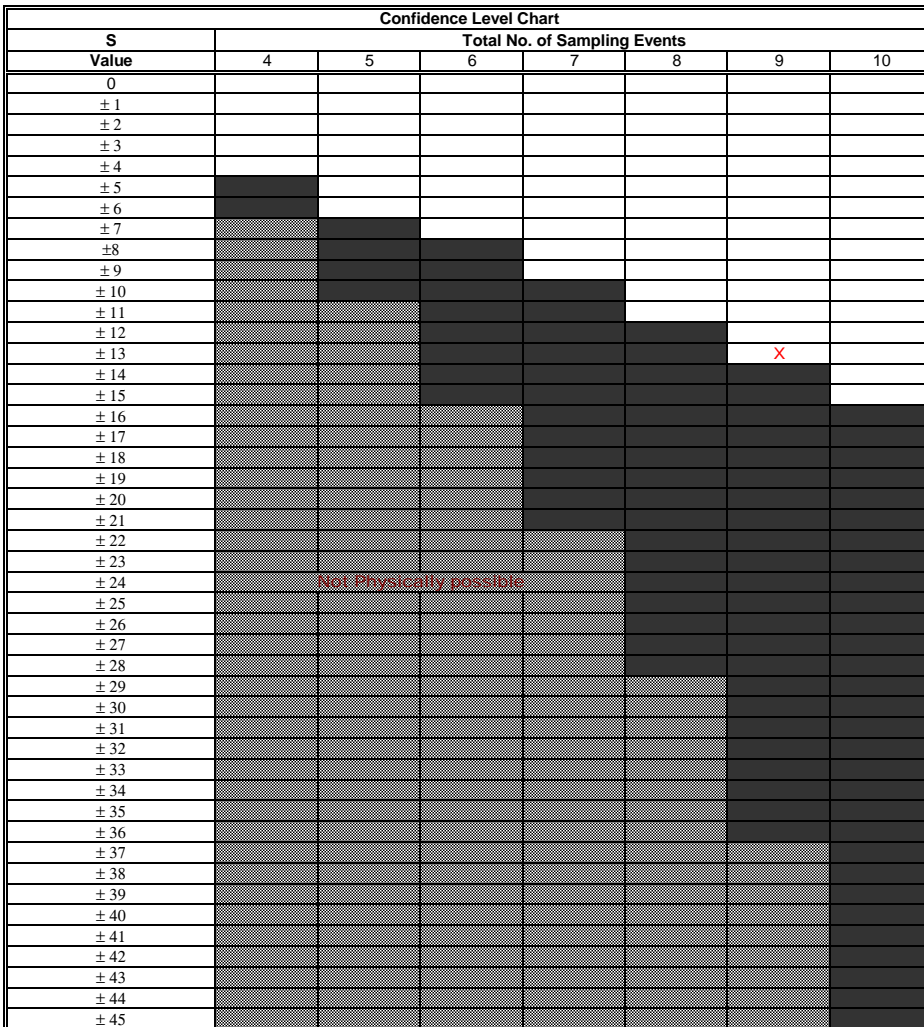
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: SRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Cadmium | 0.005 | 0.042 | 0.015 | 0.023 | 0.018 | 0.039 | 0.005 | 0.31 | 0.26 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 7 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | -1 | 1 | 1 | 0 | -3 |
| Row 3: Compare to Event 3: | | | | 1 | 1 | 1 | -1 | 1 | 1 | 0 | 4 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | 1 | 1 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | 1 | -1 | 1 | 1 | 0 | 2 |
| Row 6: Compare to Event 6: | | | | | | | -1 | 1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 1 | 0 | 2 |
| Row 8: Compare to Event 8: | | | | | | | | | -1 | 0 | -1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 13



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

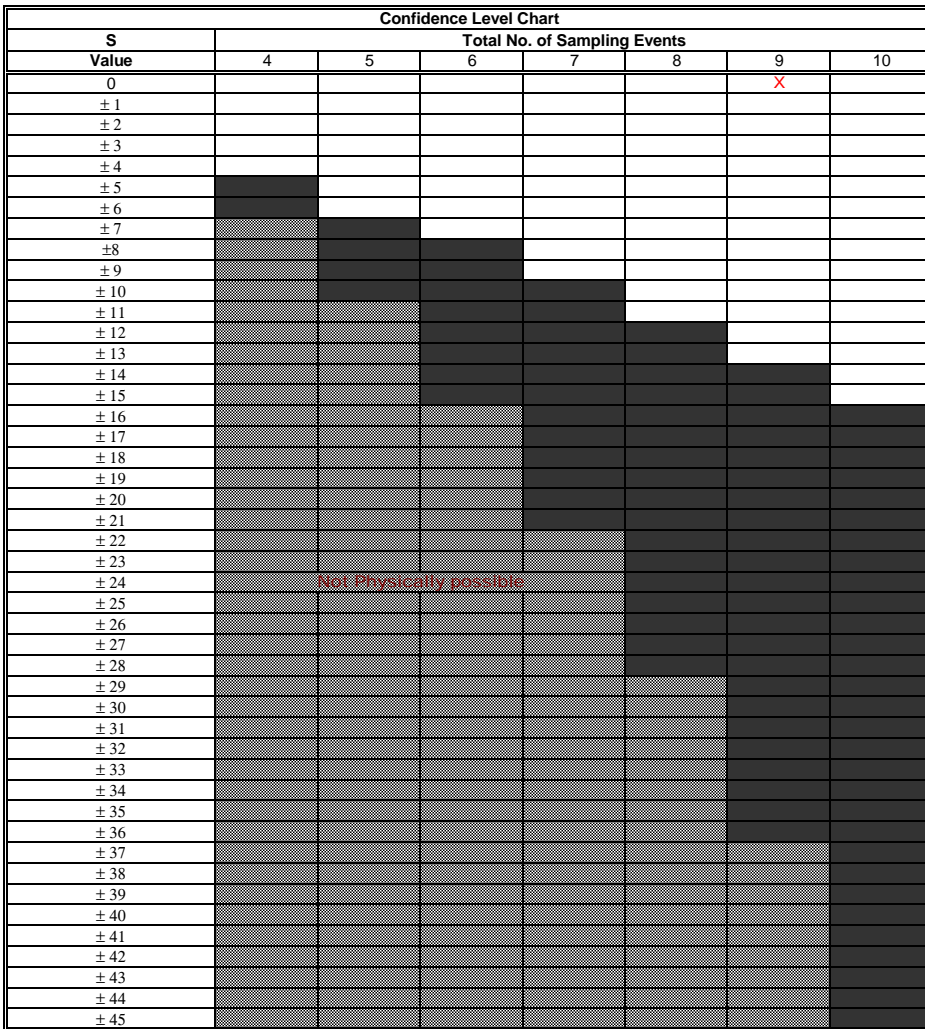
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: SRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Strontium | 174 | 150 | 150 | 150 | 170 | 140 | 190 | 140 | 180 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | 1 | -1 | 1 | 0 | -4 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 1 | -1 | 1 | -1 | 1 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 0 | 1 | -1 | 1 | -1 | 1 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 1 | -1 | 1 | -1 | 1 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 0 | 1 | 0 | 2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **0**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

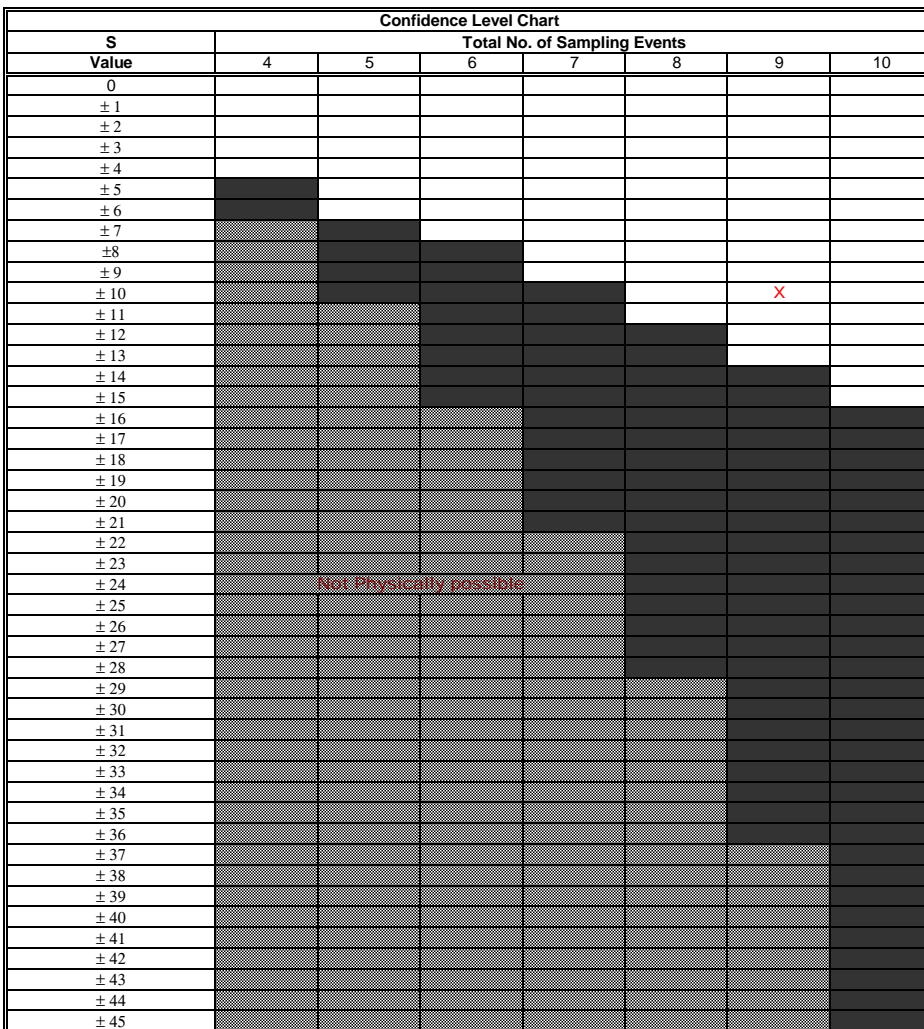
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: SRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Zinc | 2.5 | 7 | 9.5 | 2.5 | 2.5 | 5.7 | 2.5 | 50 | 47 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 5 |
| Row 2: Compare to Event 2: | | | 1 | -1 | -1 | -1 | -1 | 1 | 1 | 0 | -1 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | 1 | 1 | 0 | -2 |
| Row 4: Compare to Event 4: | | | | | 0 | 1 | 0 | 1 | 1 | 0 | 3 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 1 | 1 | 0 | 3 |
| Row 6: Compare to Event 6: | | | | | | | -1 | 1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 1 | 0 | 2 |
| Row 8: Compare to Event 8: | | | | | | | | | -1 | 0 | -1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **10**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

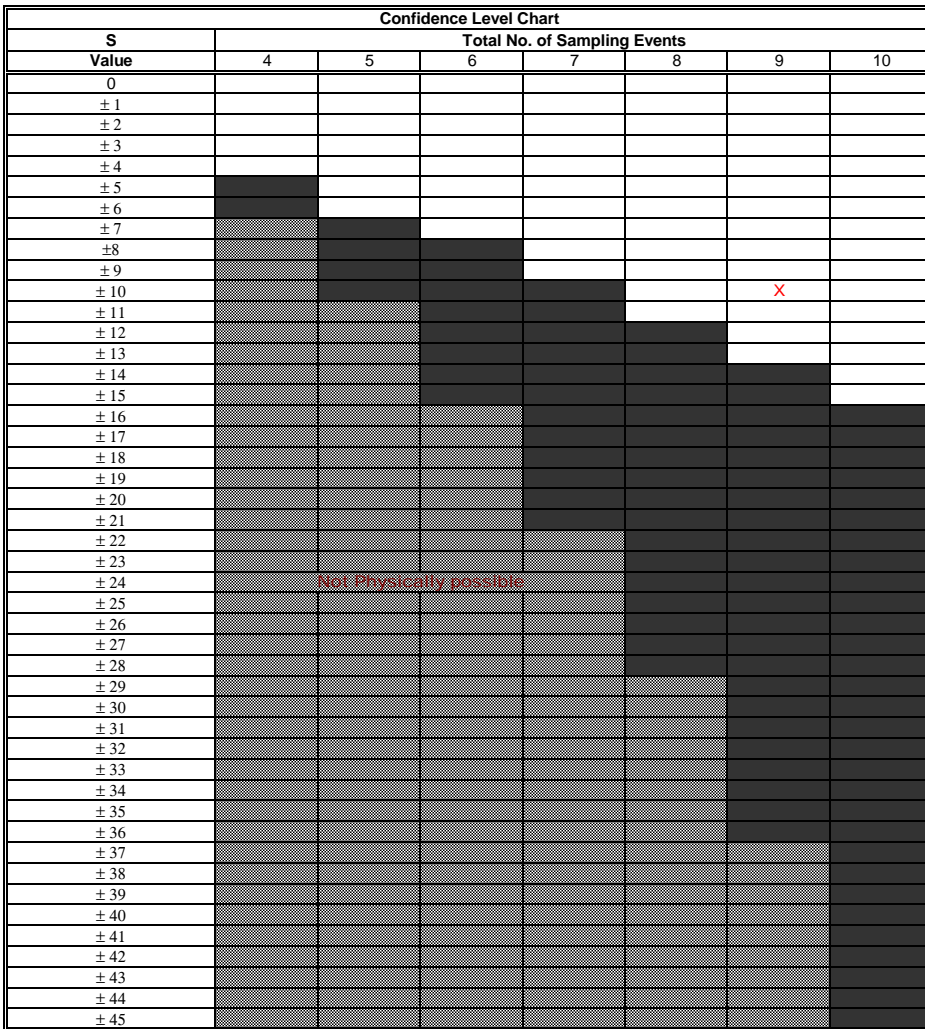
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: SRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Boron | 57 | 110 | 64 | 57 | 91 | 54 | 130 | 91 | 120 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 5 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | 1 | -1 | 1 | 0 | -3 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | -1 | 1 | 1 | 1 | 0 | 2 |
| Row 4: Compare to Event 4: | | | | | 1 | -1 | 1 | 1 | 1 | 0 | 3 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | 0 | 1 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 1 | 1 | 0 | 3 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 10



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

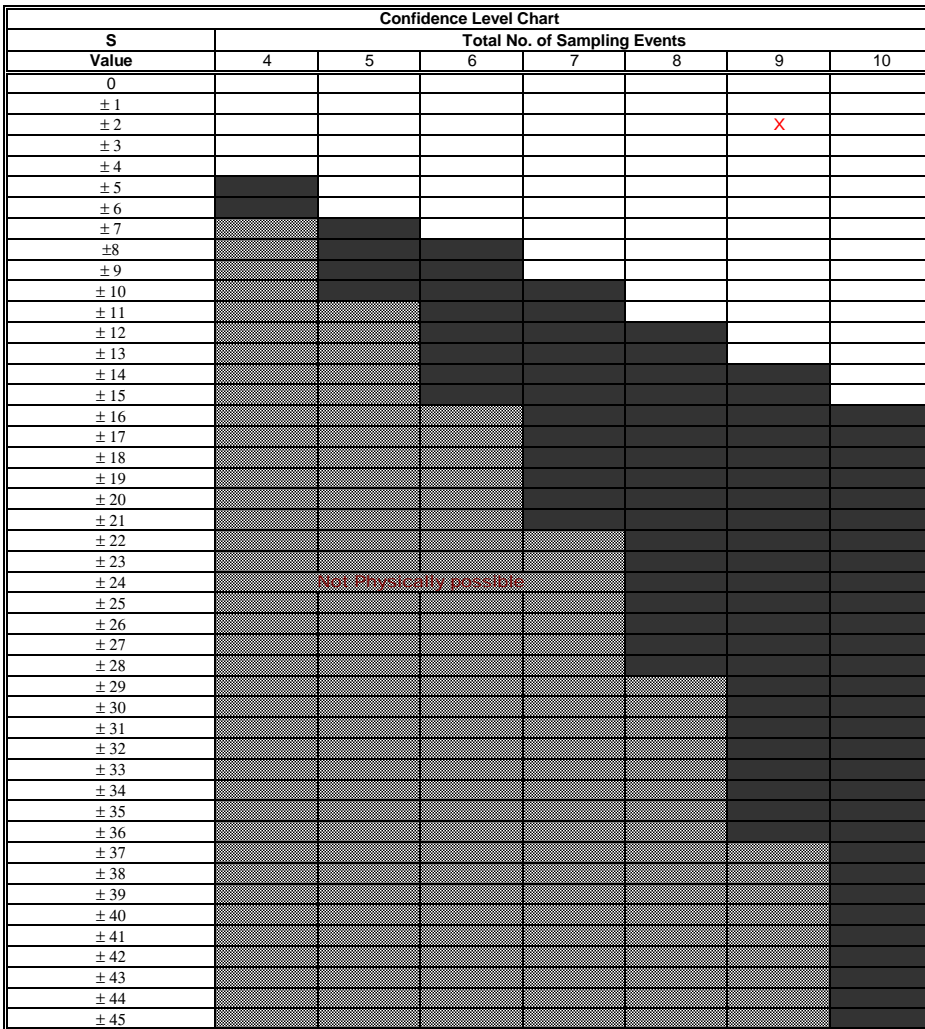
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: SRC-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Sulphate | 40 | 54 | 47 | 43 | 51 | 42 | 54 | 50 | 43 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 8 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | 0 | -1 | -1 | 0 | -6 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | -1 | 1 | 1 | -1 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 1 | -1 | 1 | 1 | 0 | 0 | 2 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | -1 | 0 | -2 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 1 | 1 | 0 | 3 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | -1 | 0 | -1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 2



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

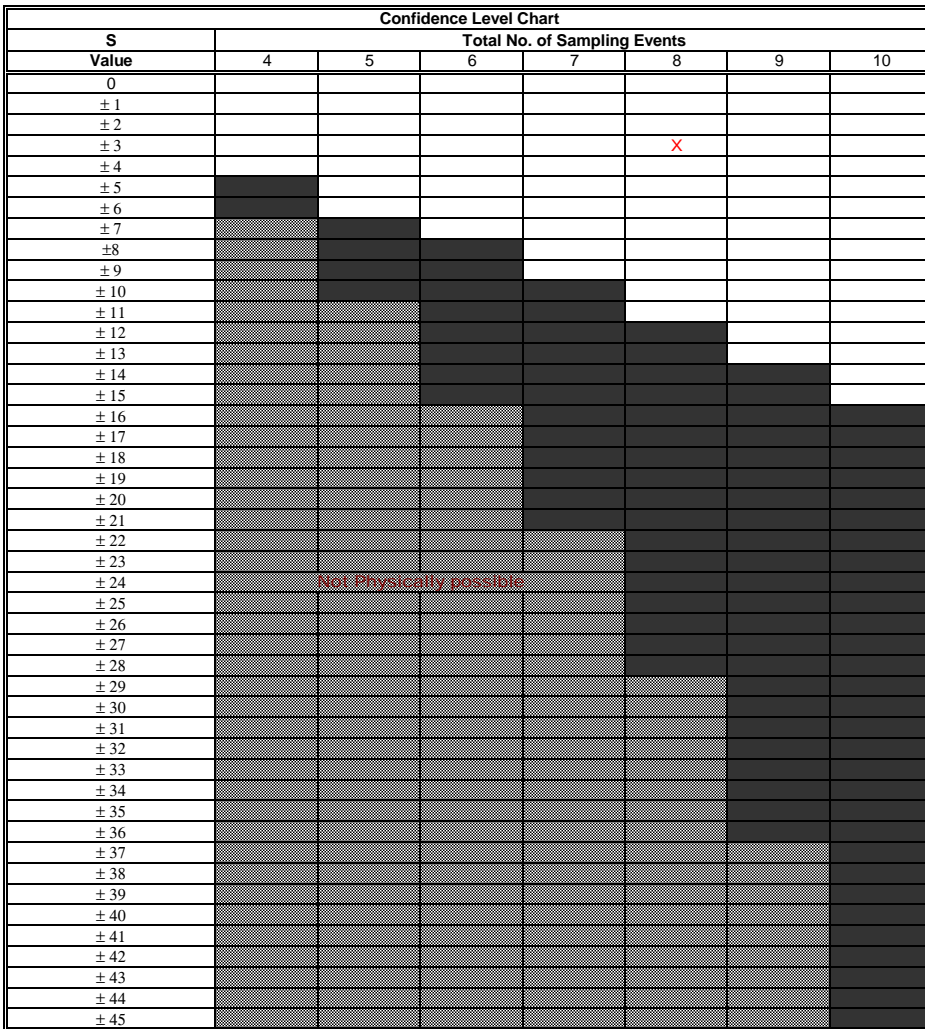
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-4-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Anthracene | 0.005 | 0.005 | 0.12 | 0.005 | 0.013 | 0.005 | 0.005 | 0.005 | 0.005 | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| Row 2: Compare to Event 2: | | | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | 0 | 0 | -3 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -3



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

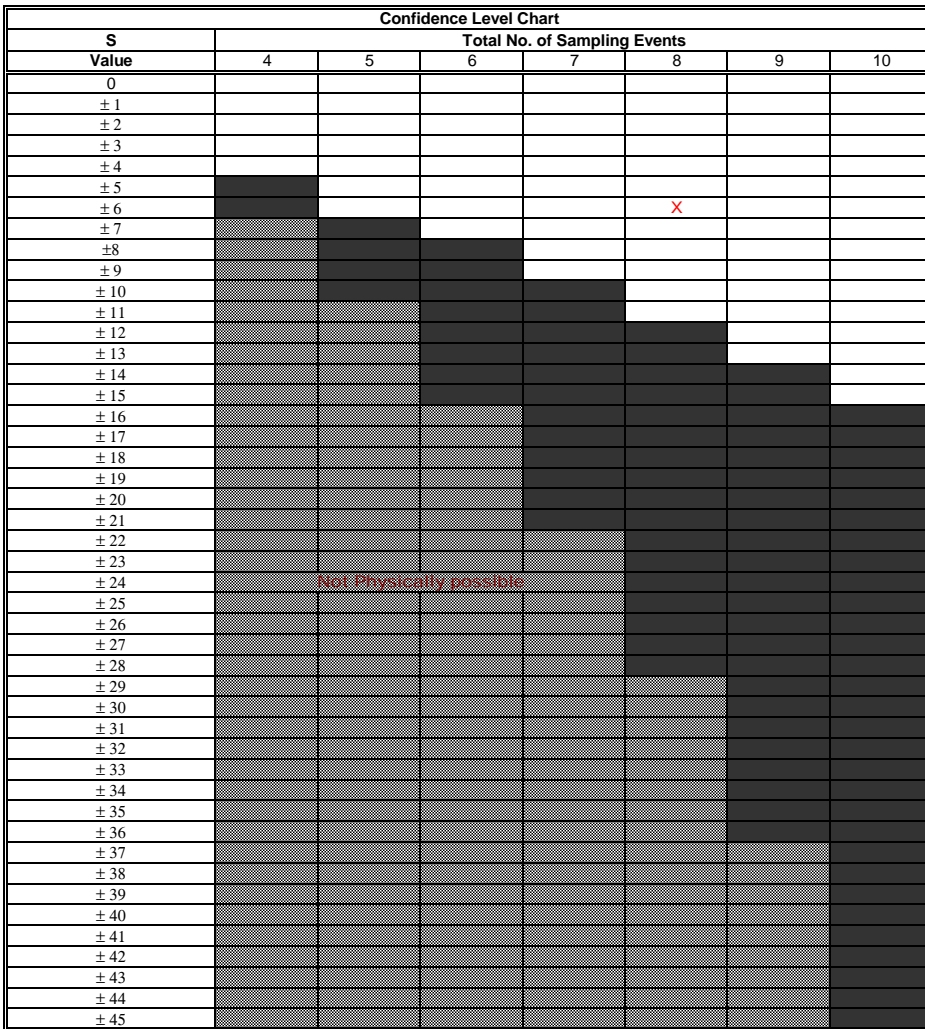
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-4-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Pyrene | 0.005 | 0.012 | 0.74 | 0.005 | 0.04 | 0.005 | 0.005 | 0.005 | 0.005 | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | 1 | -1 | 1 | -1 | -1 | -1 | 0 | 0 | -2 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | 0 | 0 | -3 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -6



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

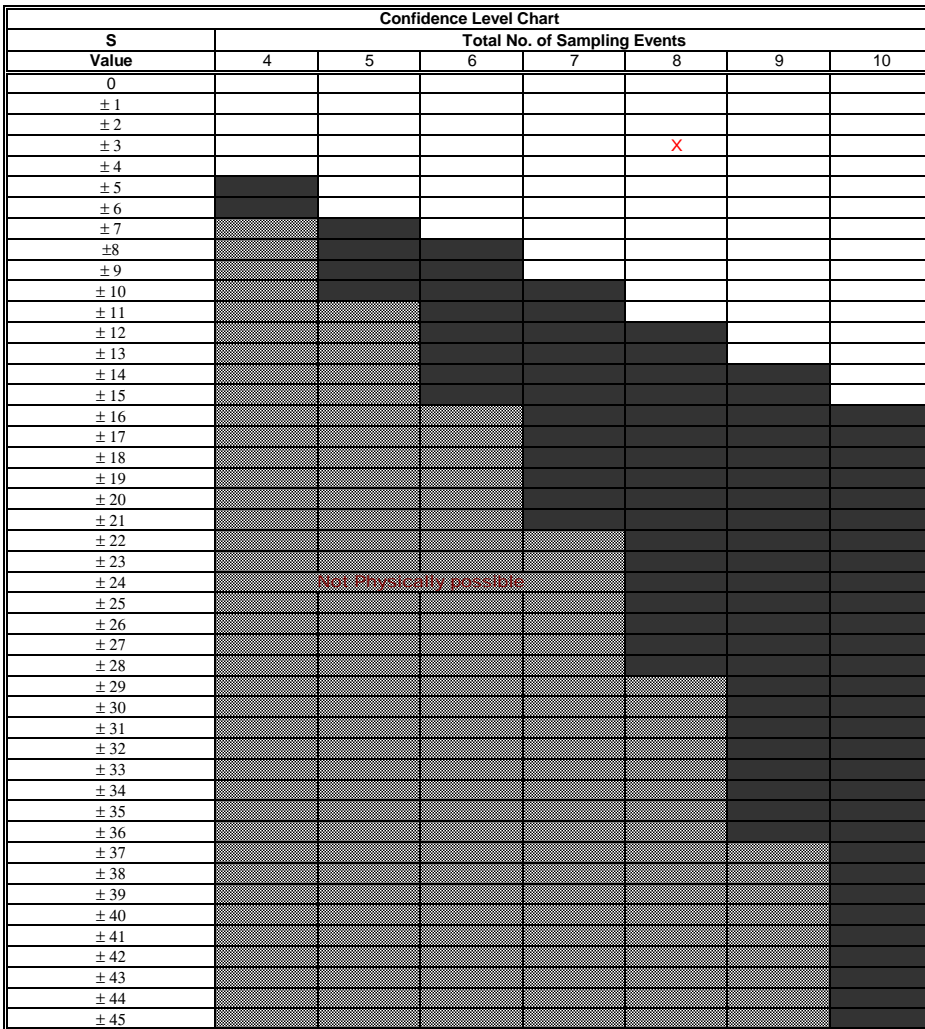
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-4-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzo(a)pyrene | 0.005 | 0.005 | 0.39 | 0.005 | 0.028 | 0.005 | 0.005 | 0.005 | 0.005 | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| Row 2: Compare to Event 2: | | | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | 0 | 0 | -3 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -3



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

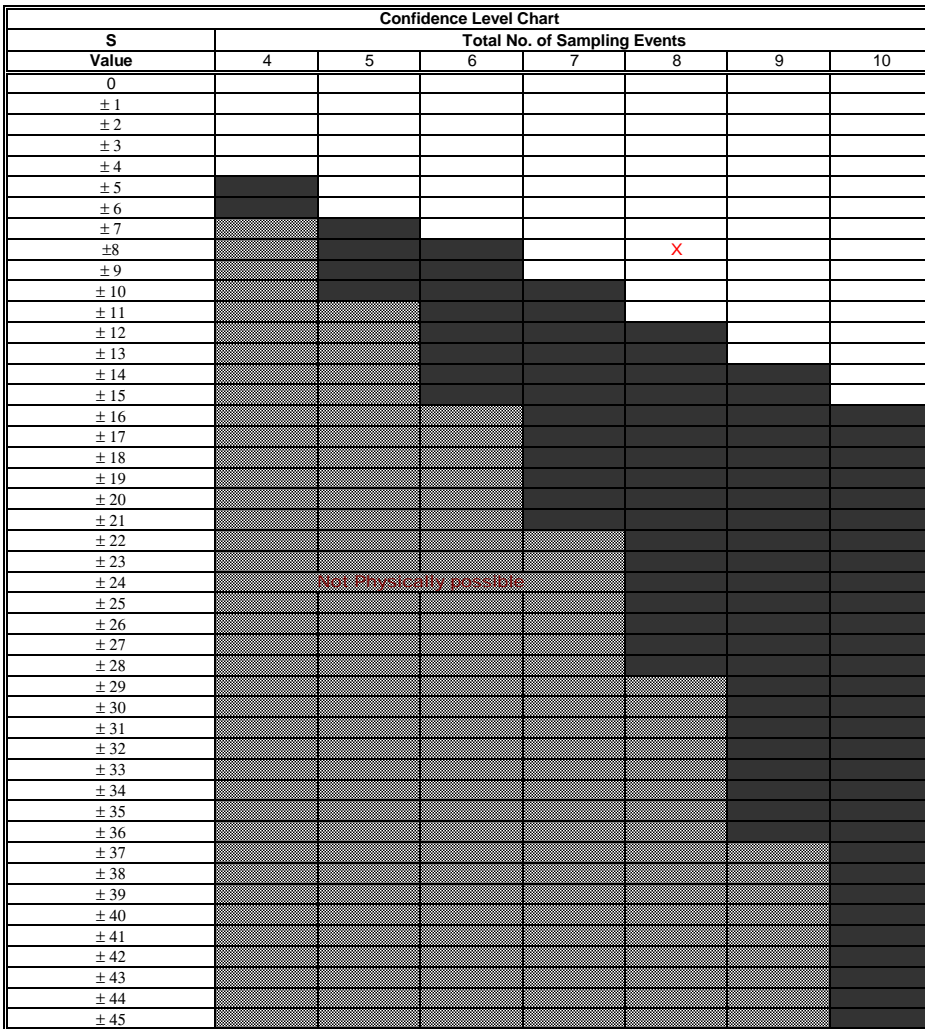
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-4-SW | | | | | | | | | |
|--------------------------------|-----------|-------------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Cadmium | 0.014 | 0.005 | 0.29 | 0.005 | 0.014 | 0.011 | 0.01 | 0.005 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | -1 | 1 | -1 | 0 | -1 | -1 | -1 | 0 | 0 | -4 |
| Row 2: Compare to Event 2: | | | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 4 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | 0 | 0 | -3 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-8**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

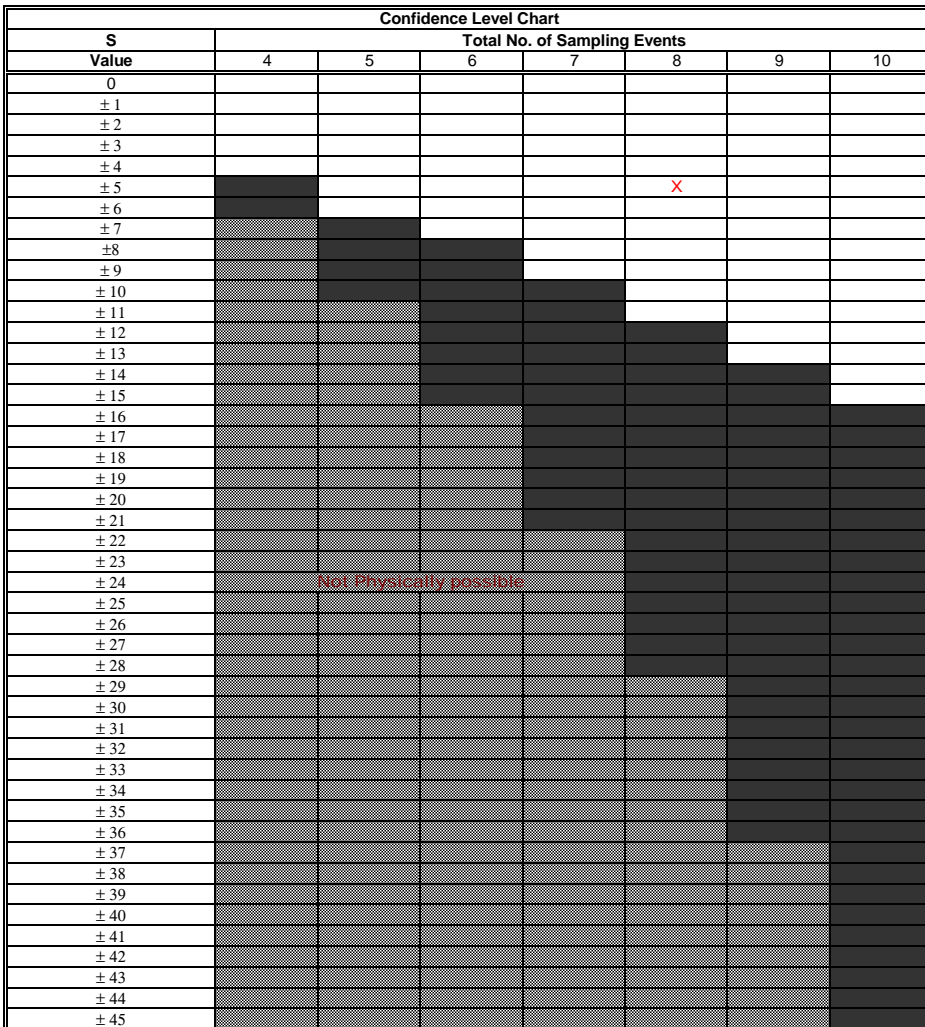
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-4-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Strontium | 140 | 250 | 150 | 280 | 110 | 450 | 110 | 430 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 1 | -1 | 1 | -1 | 1 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | 1 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 1 | 0 | 0 | 2 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 5



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

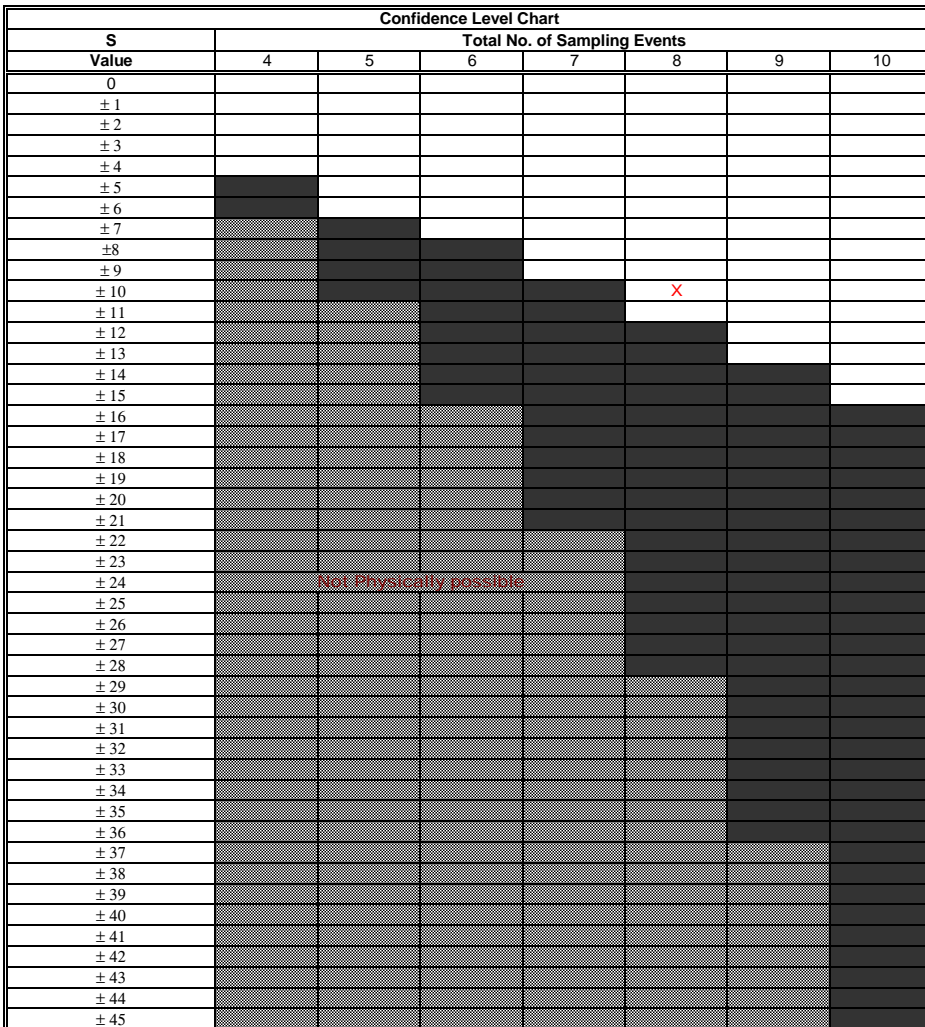
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-4-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Zinc | 7.2 | 10 | 96 | 2.5 | 2.5 | 2.5 | 5.1 | 2.5 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -3 |
| Row 2: Compare to Event 2: | | | 1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -4 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | 0 | 1 | 0 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 0 | 0 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-10**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

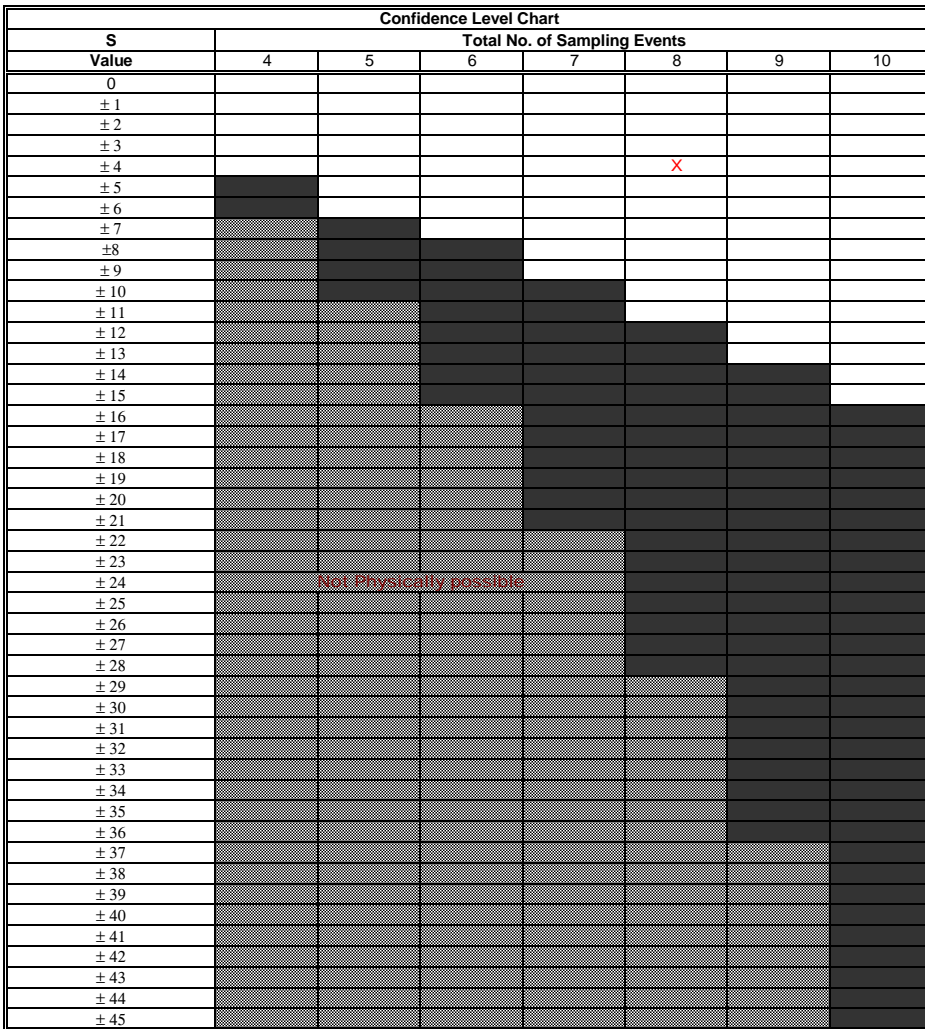
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-4-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Boron | 25 | 60 | 25 | 25 | 25 | 63 | 25 | 57 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | 1 | -1 | -1 | 0 | 0 | -4 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| Row 4: Compare to Event 4: | | | | | 0 | 1 | 0 | 1 | 0 | 0 | 2 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 1 | 0 | 0 | 2 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 4



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

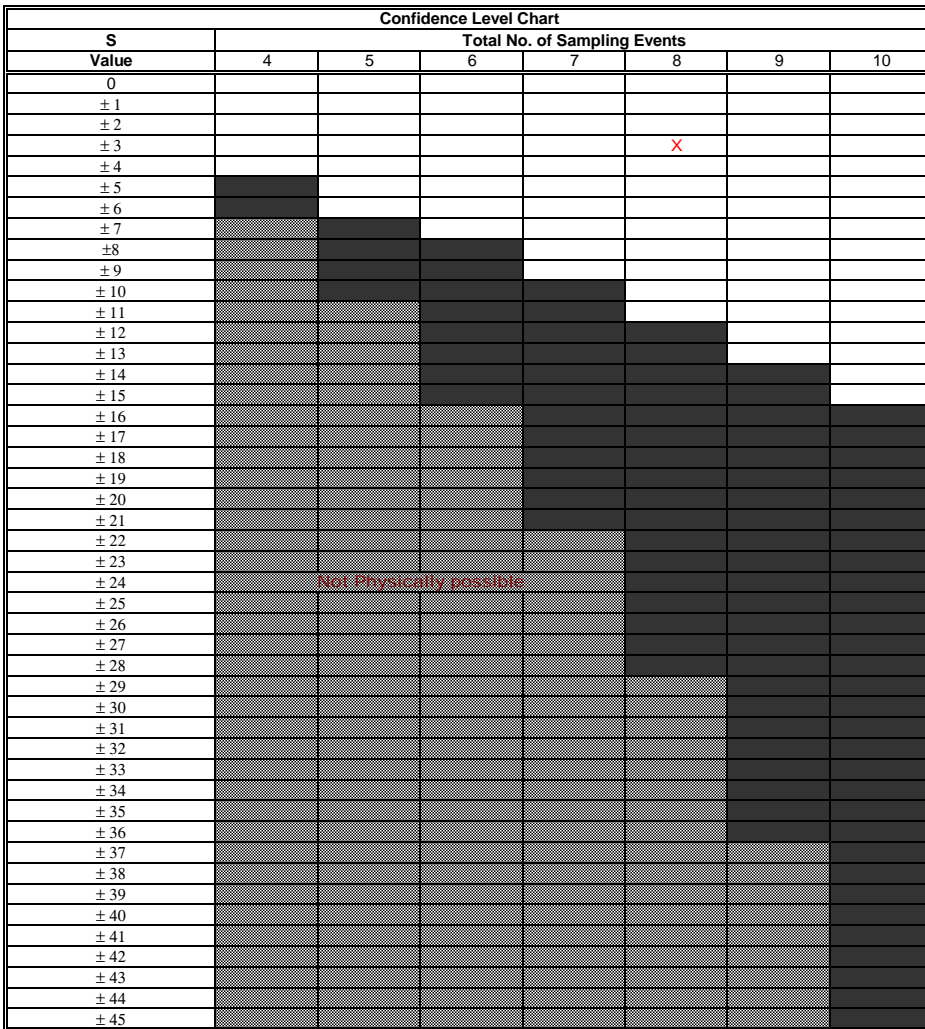
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-4-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Sulphate | 47 | 100 | 41 | 74 | 39 | 110 | 42 | 100 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | 1 | -1 | 0 | 0 | 0 | -3 |
| Row 3: Compare to Event 3: | | | | 1 | -1 | 1 | 1 | 1 | 0 | 0 | 3 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | 1 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 1 | 1 | 1 | 0 | 0 | 3 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

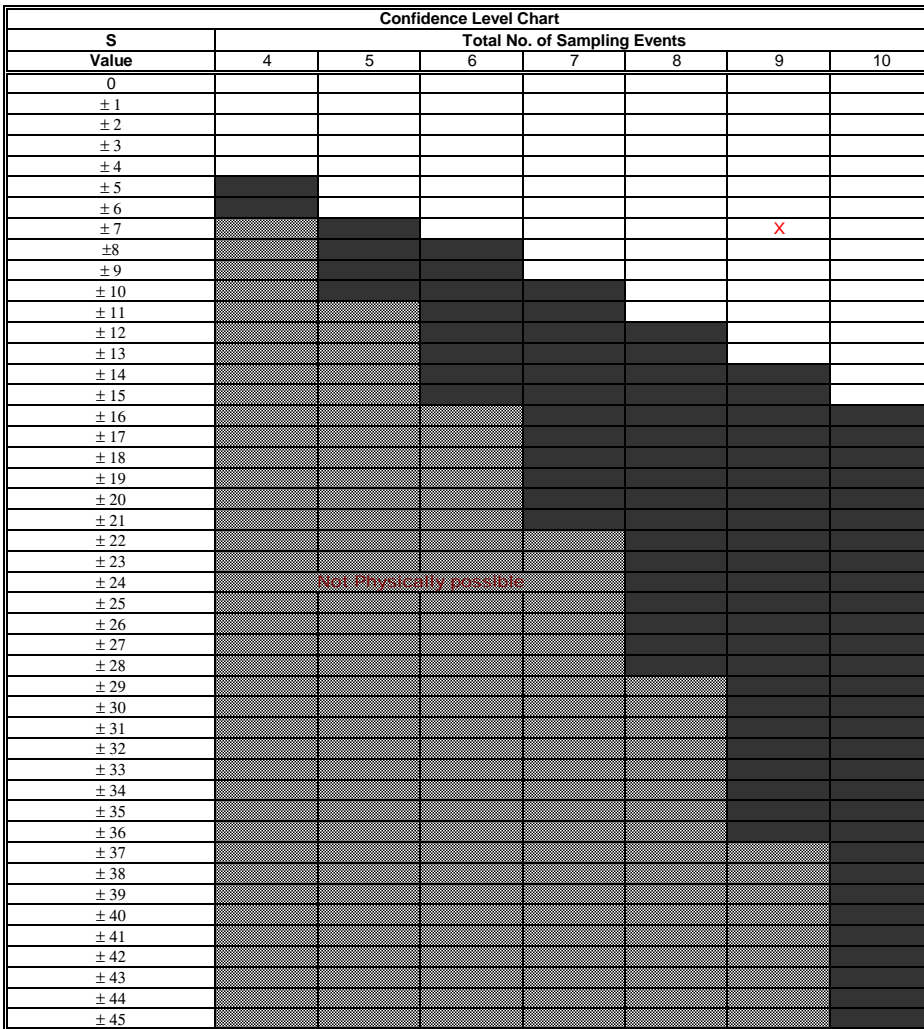
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-6-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Anthracene | 0.015 | 0.005 | 0.005 | 0.005 | 0.005 | 0.01 | 0.005 | 0.005 | 0.005 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | -1 | 0 | -3 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -7



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

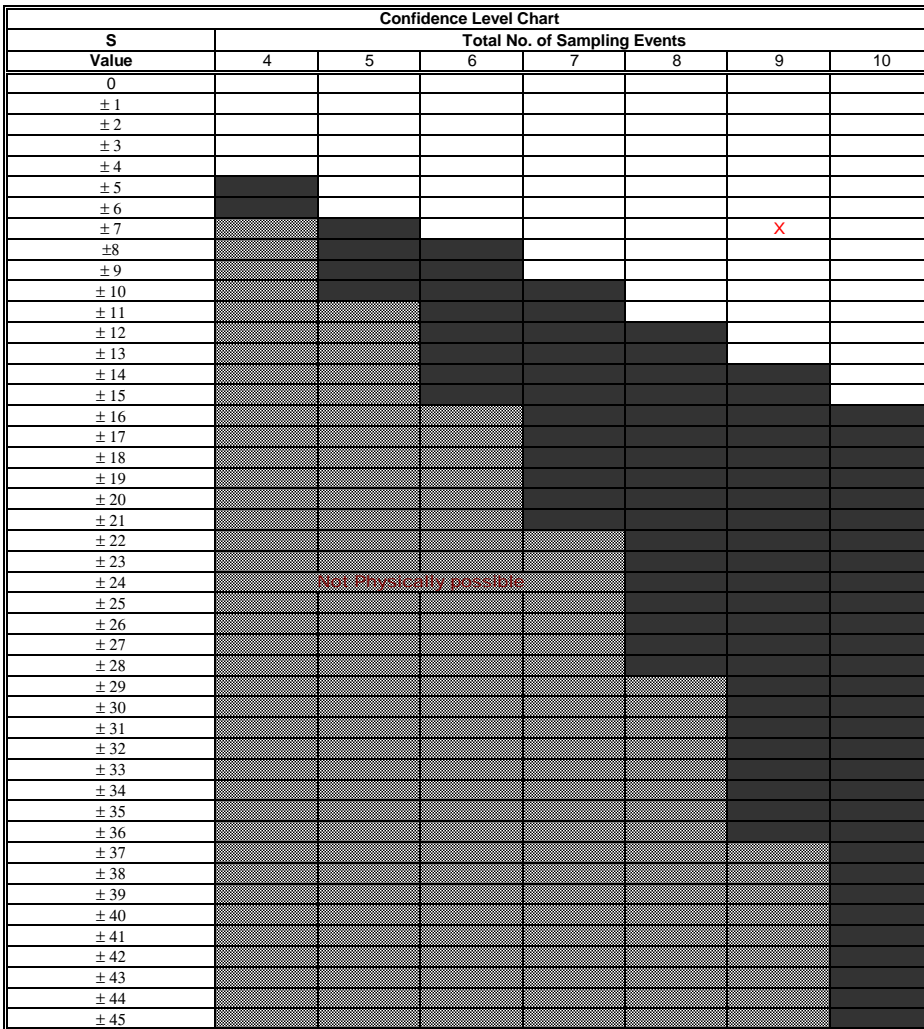
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-6-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Pyrene | 0.026 | 0.013 | 0.005 | 0.03 | 0.005 | 0.038 | 0.017 | 0.012 | 0.005 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | 1 | -1 | 1 | -1 | -1 | -1 | 0 | -4 |
| Row 2: Compare to Event 2: | | | -1 | 1 | -1 | 1 | 1 | -1 | -1 | 0 | -1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 4 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | -1 | -1 | 0 | -3 |
| Row 5: Compare to Event 5: | | | | | | 1 | 1 | 1 | 0 | 0 | 3 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | -1 | 0 | -3 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | -1 | 0 | -1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -7



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

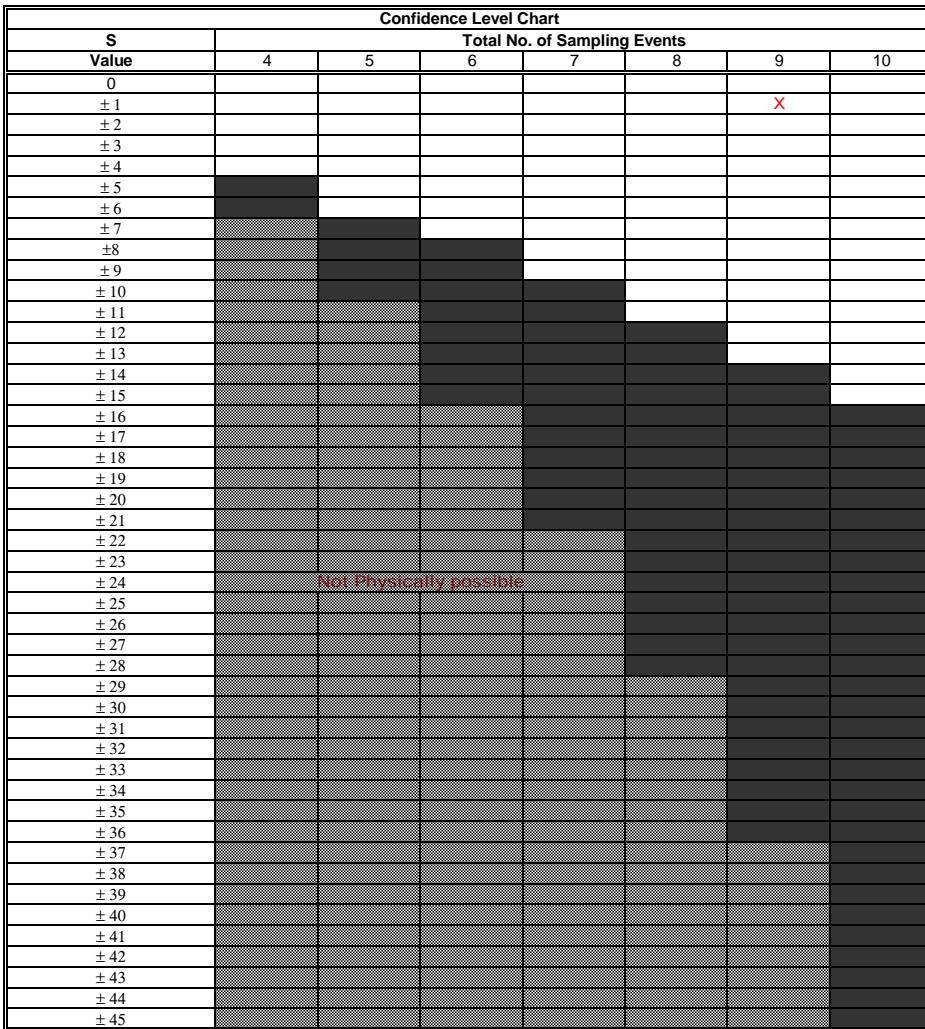
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | MONITORING WELL NO: COB-6-SW | | | | | | | | | | |
|--------------------------------|------------------------------|-----------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzo(a)pyrene | 0.005 | 0.005 | 0.005 | 0.015 | 0.005 | 0.027 | 0.005 | 0.005 | 0.005 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | -1 | -1 | 0 | -3 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 0 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | -1 | 0 | -3 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 1



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

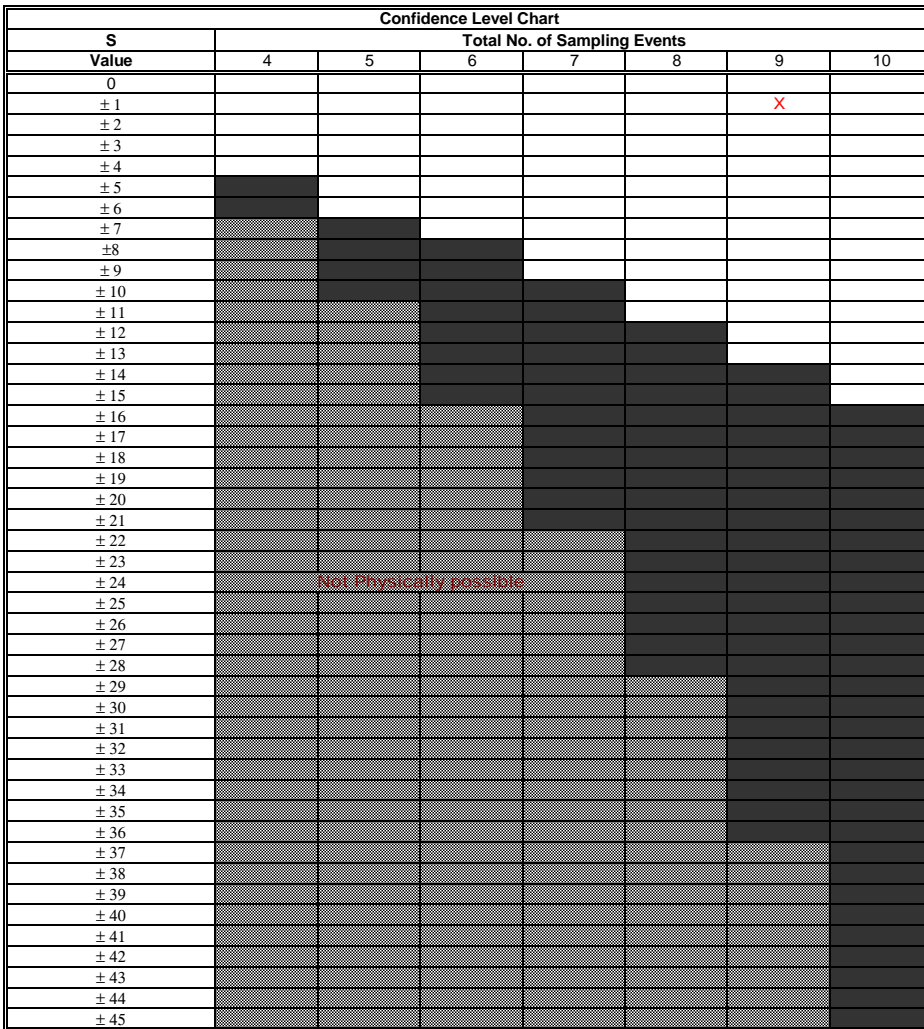
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-6-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Cadmium | 0.005 | 0.01 | 0.005 | 0.018 | 0.005 | 0.015 | 0.011 | 0.01 | 0.005 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 5 |
| Row 2: Compare to Event 2: | | | -1 | 1 | -1 | 1 | 1 | 0 | -1 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 4 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | -1 | 0 | -5 |
| Row 5: Compare to Event 5: | | | | | | 1 | 1 | 1 | 0 | 0 | 3 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | -1 | 0 | -3 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | -1 | 0 | -1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 1



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

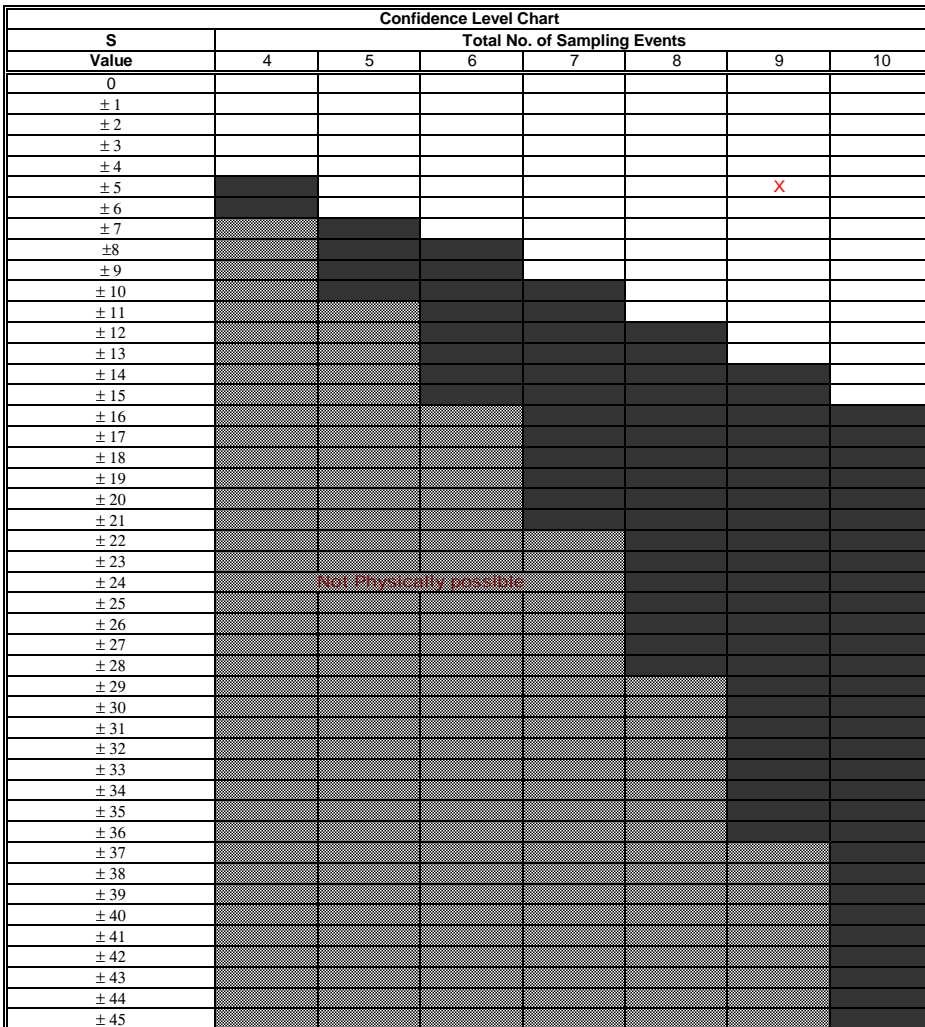
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-6-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Strontium | 645 | 180 | 300 | 180 | 300 | 160 | 500 | 160 | 350 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| Row 2: Compare to Event 2: | | | 1 | 0 | 1 | -1 | 1 | -1 | 1 | 0 | 2 |
| Row 3: Compare to Event 3: | | | | -1 | 0 | -1 | 1 | -1 | 1 | 0 | -1 |
| Row 4: Compare to Event 4: | | | | | 1 | -1 | 1 | -1 | 1 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 0 | 1 | 0 | 2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -5



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

NS Lands

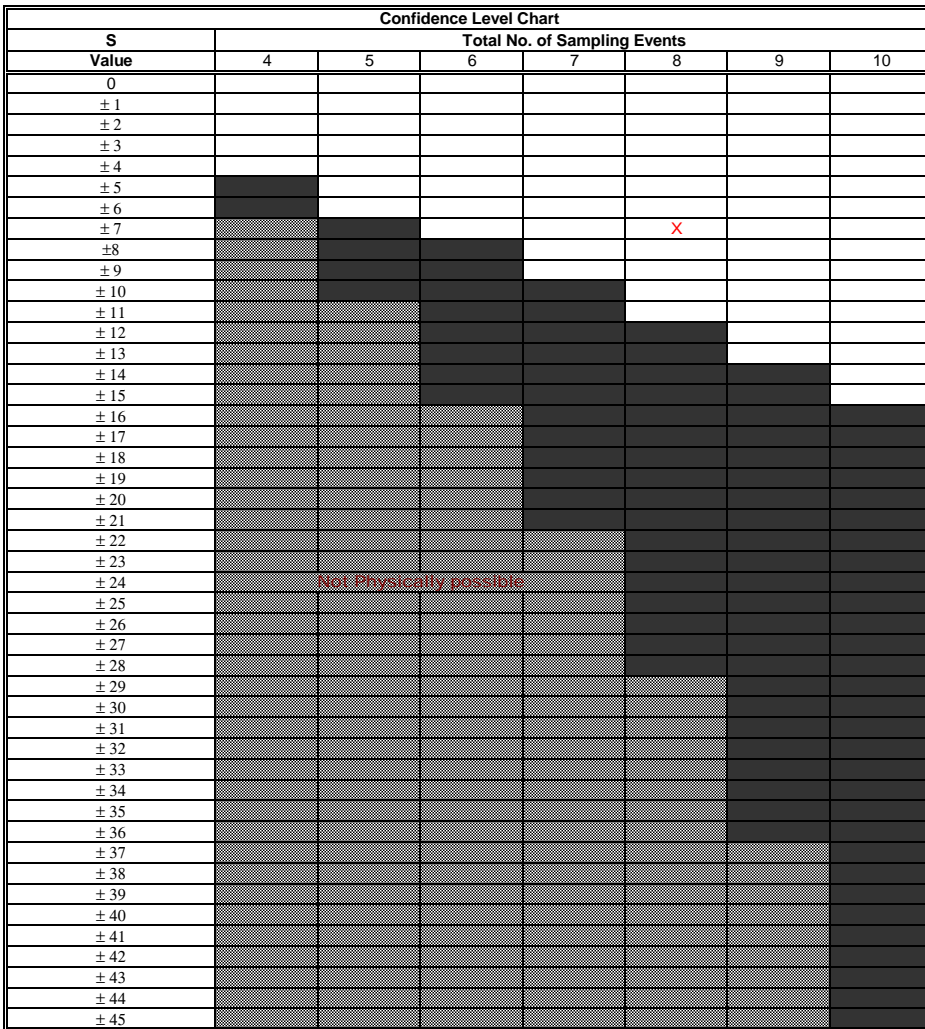
Sydney, Nova Scotia

MANN-KENDALL ANALYSIS OF PLUME MONITORING WELL NO: **COB-6-SW**

| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
|----------------------------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| Zinc | 2.5 | 6 | 7.4 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Row 2: Compare to Event 2: | | | 1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -5 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -6 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-9**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

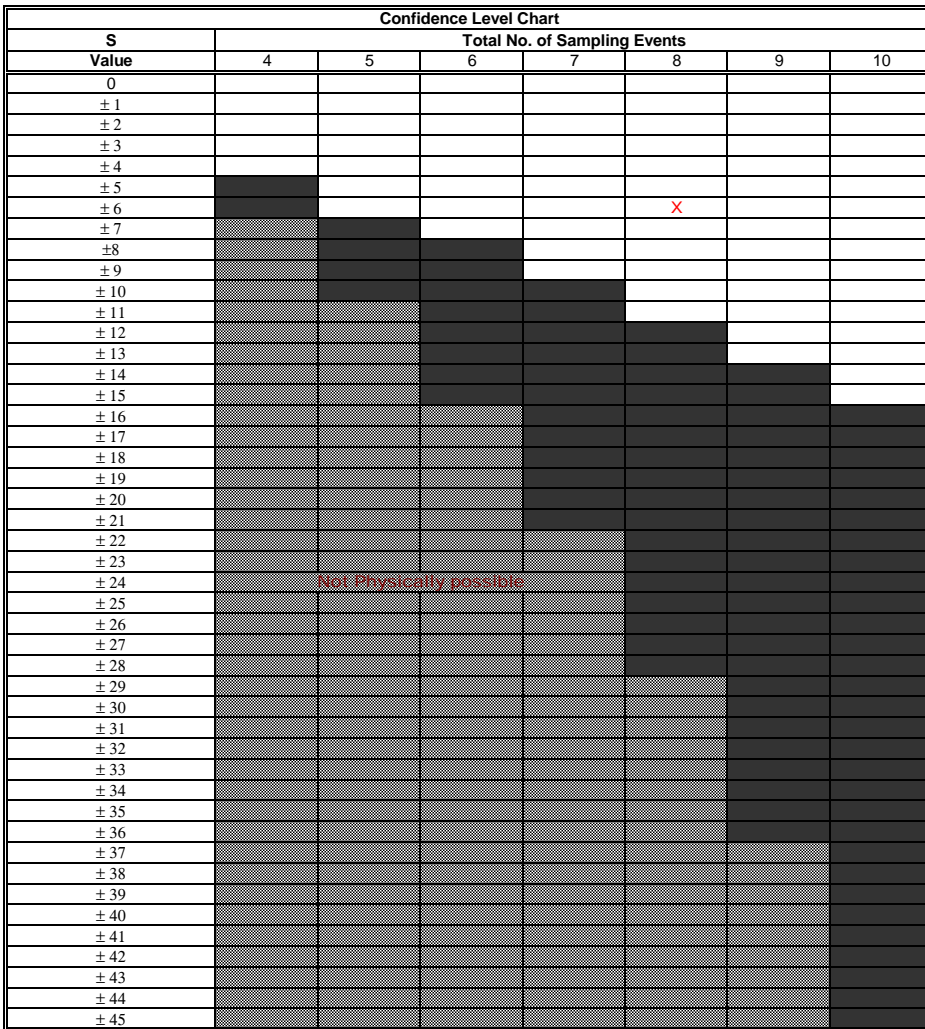
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-6-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Boron | 66 | 25 | 52 | 25 | 25 | 25 | 59 | 25 | 62 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -8 |
| Row 2: Compare to Event 2: | | | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | 1 | -1 | 1 | 0 | -2 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 1 | 0 | 1 | 0 | 2 |
| Row 5: Compare to Event 5: | | | | | | 0 | 1 | 0 | 1 | 0 | 2 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 0 | 1 | 0 | 2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 1 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **0**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

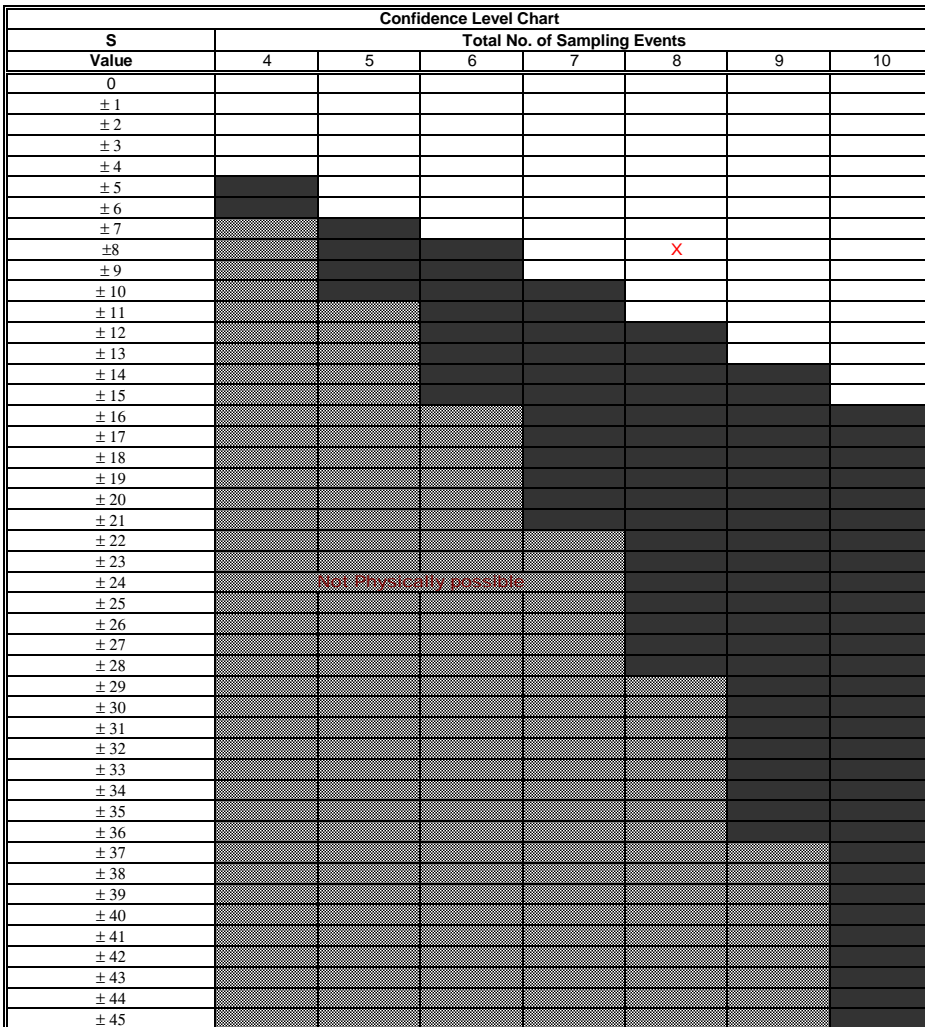
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: COB-6-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Sulphate | 170 | 56 | 91 | 44 | 64 | 41 | 110 | 48 | 95 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| Row 2: Compare to Event 2: | | | 1 | -1 | 1 | -1 | 1 | -1 | 1 | 1 | 0 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | 1 | -1 | 1 | 0 | -2 |
| Row 4: Compare to Event 4: | | | | | 1 | -1 | 1 | 1 | 1 | 0 | 3 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 1 | 1 | 0 | 3 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -4



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

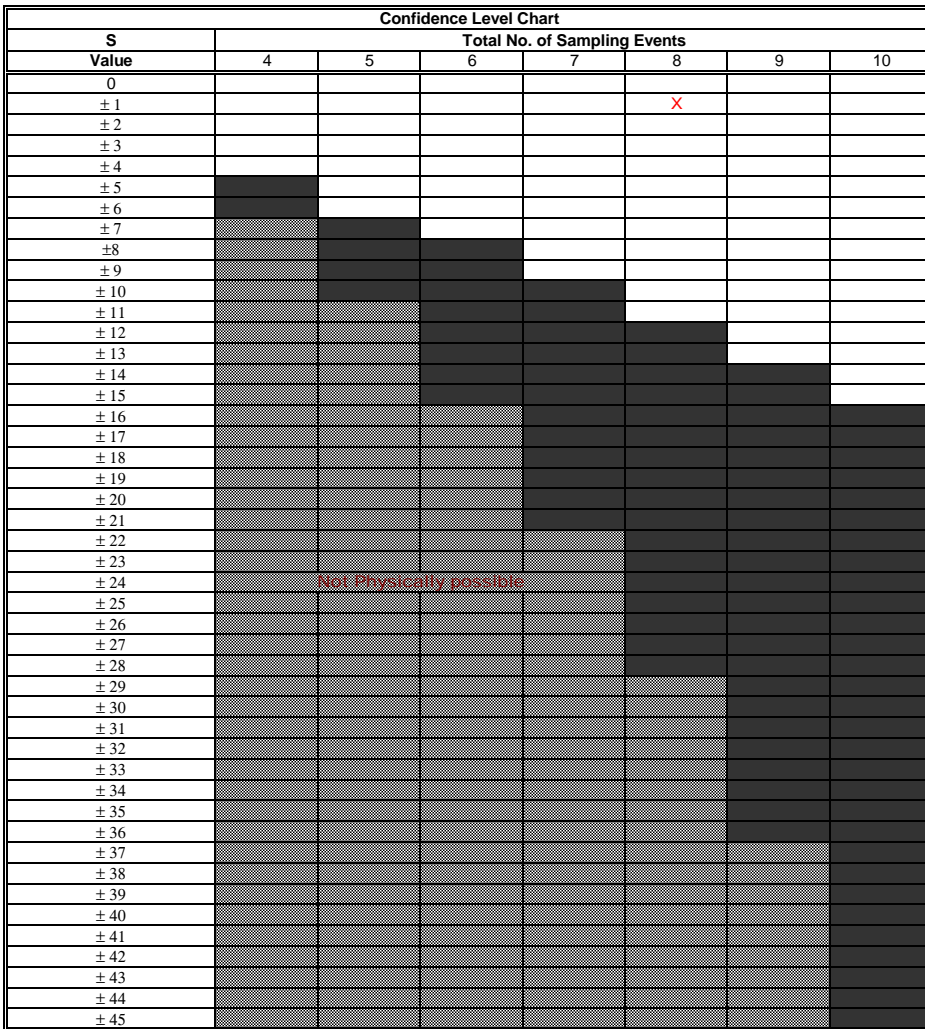
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: WB-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Anthracene | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV≤1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV≤1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

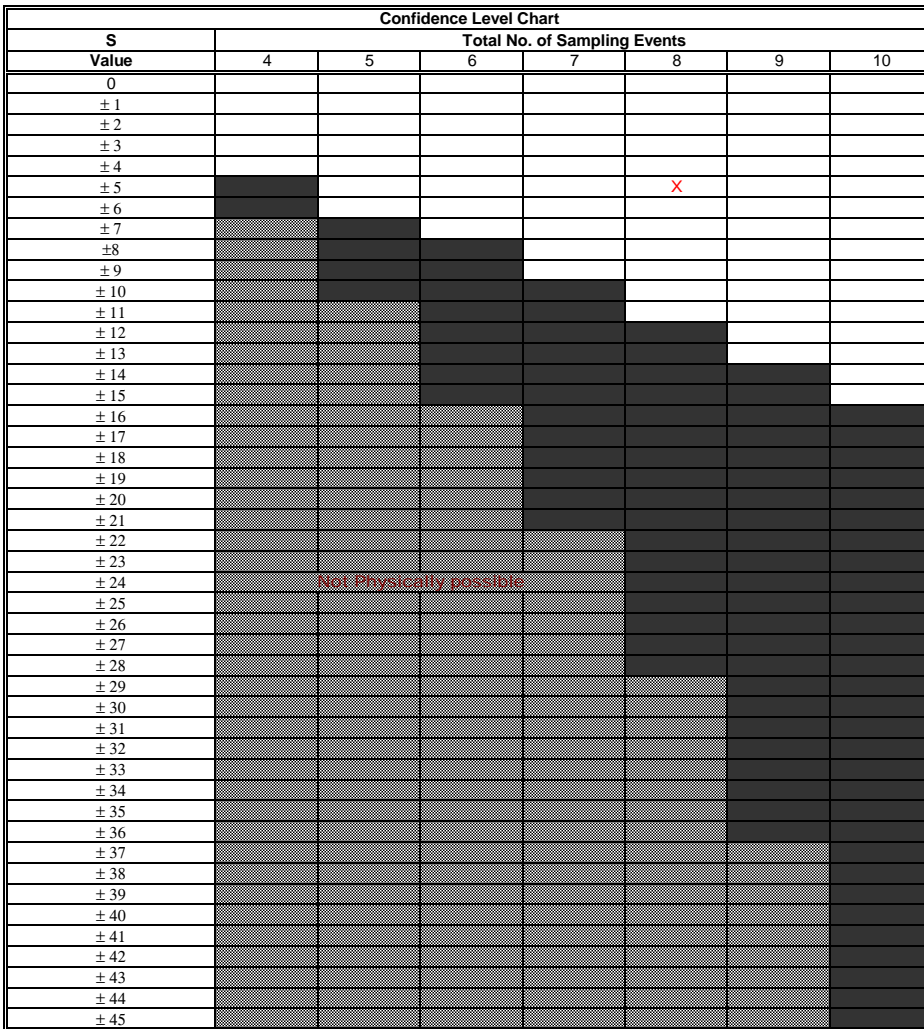
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: WB-1-SW | | | | | | | | | |
|--------------------------------|-----------|------------------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Pyrene | 0.005 | 0.005 | 0.005 | 0.005 | 0.092 | 0.005 | 0.027 | 0.005 | 0.005 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| Row 3: Compare to Event 3: | | | | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| Row 4: Compare to Event 4: | | | | | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | -1 | 0 | -4 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 0 | 0 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

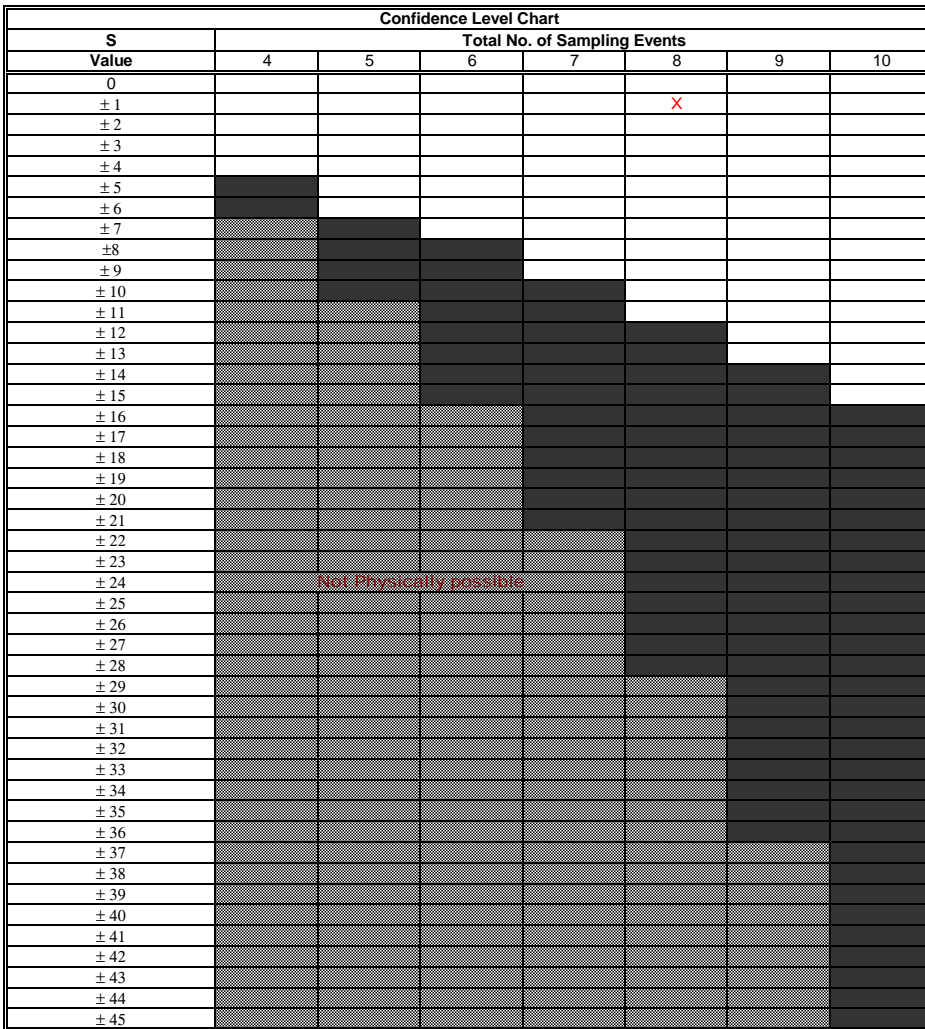
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: WB-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzo(a)pyrene | 0.005 | 0.005 | 0.005 | 0.005 | 0.025 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | -1 | 0 | -4 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

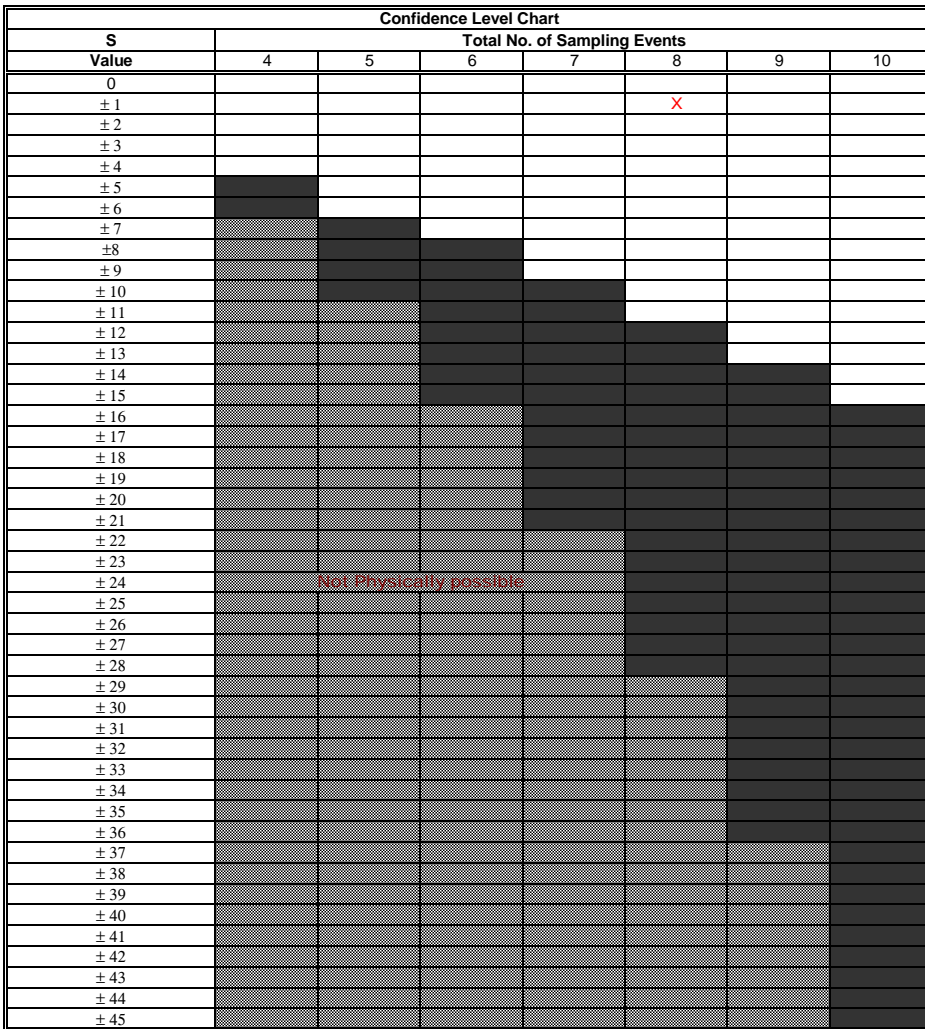
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: WB-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Cadmium | 0.6 | 0.038 | 0.012 | 0.005 | 0.035 | 0.026 | 0.27 | 0.27 | 0.24 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-16 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | 1 | 1 | 1 | 1 | 0 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| Row 4: Compare to Event 4: | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | 1 | 1 | 1 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 1 | 1 | 1 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | -1 | -1 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | -1 | -1 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

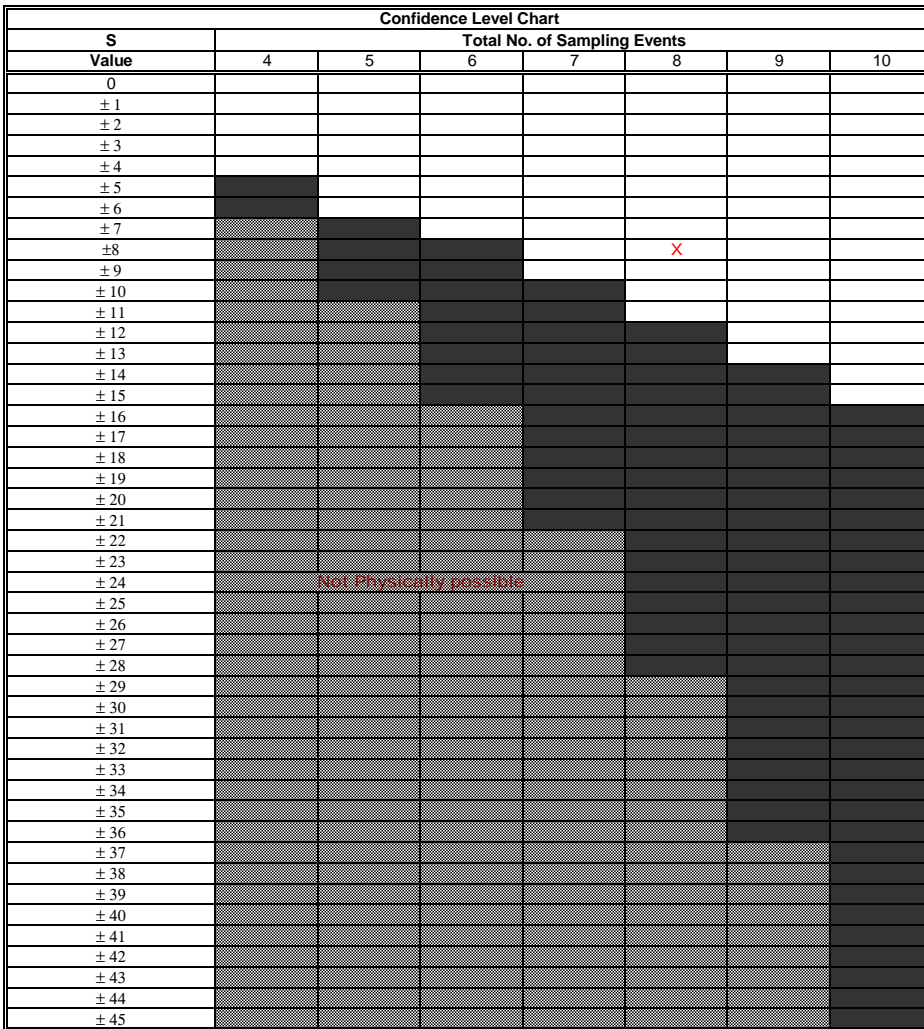
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: WB-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Strontium | 4660 | 53 | 100 | 73 | 1300 | 61 | 940 | 49 | 320 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -8 |
| Row 2: Compare to Event 2: | | | 1 | 1 | 1 | 1 | 1 | -1 | 1 | 0 | 5 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 1 | -1 | 1 | -1 | 1 | 0 | 1 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | -1 | 0 | -4 |
| Row 6: Compare to Event 6: | | | | | | | 1 | -1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -6



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

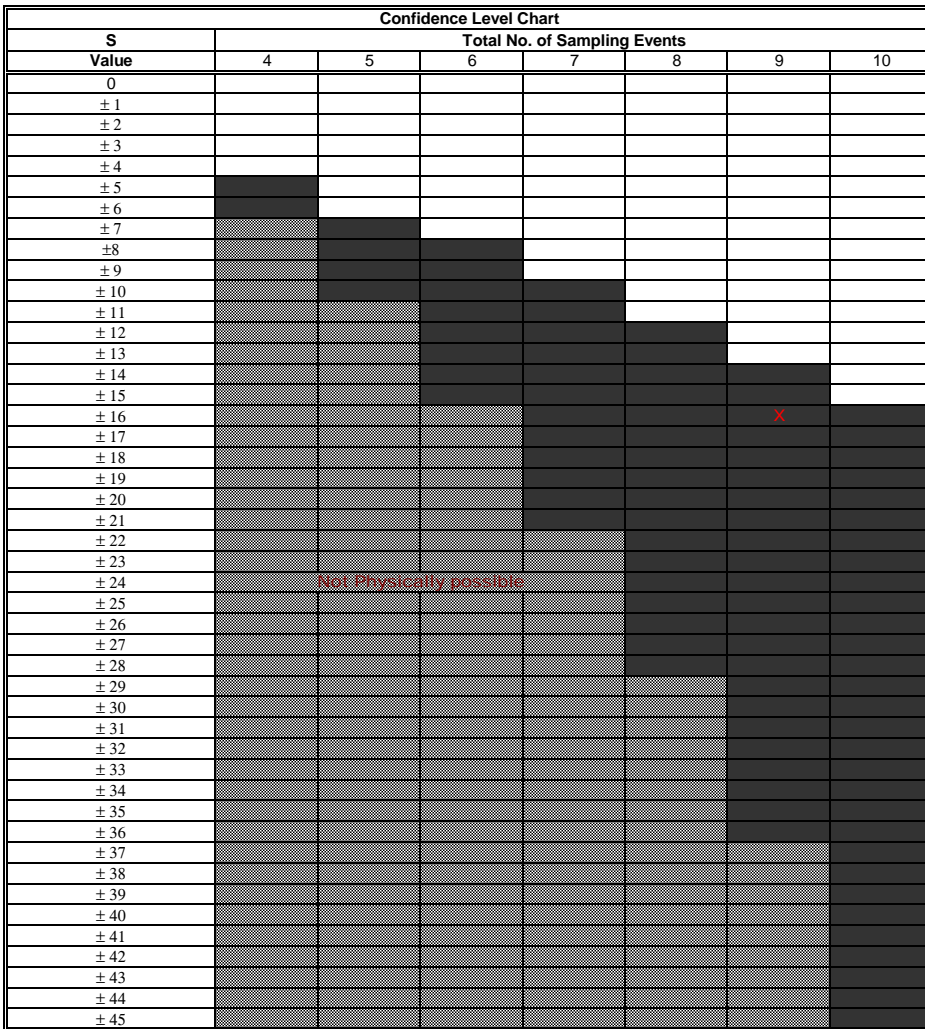
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: WB-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Zinc | 25 | 10 | 7.9 | 2.5 | 11 | 2.5 | 2.5 | 2.5 | 6 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -8 |
| Row 2: Compare to Event 2: | | | -1 | -1 | 1 | -1 | -1 | -1 | -1 | 0 | -5 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | -1 | -1 | -1 | -1 | 0 | -4 |
| Row 4: Compare to Event 4: | | | | | 1 | 0 | 0 | 0 | 1 | 0 | 2 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | -1 | 0 | -4 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 1 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -16



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|--|--|
| | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

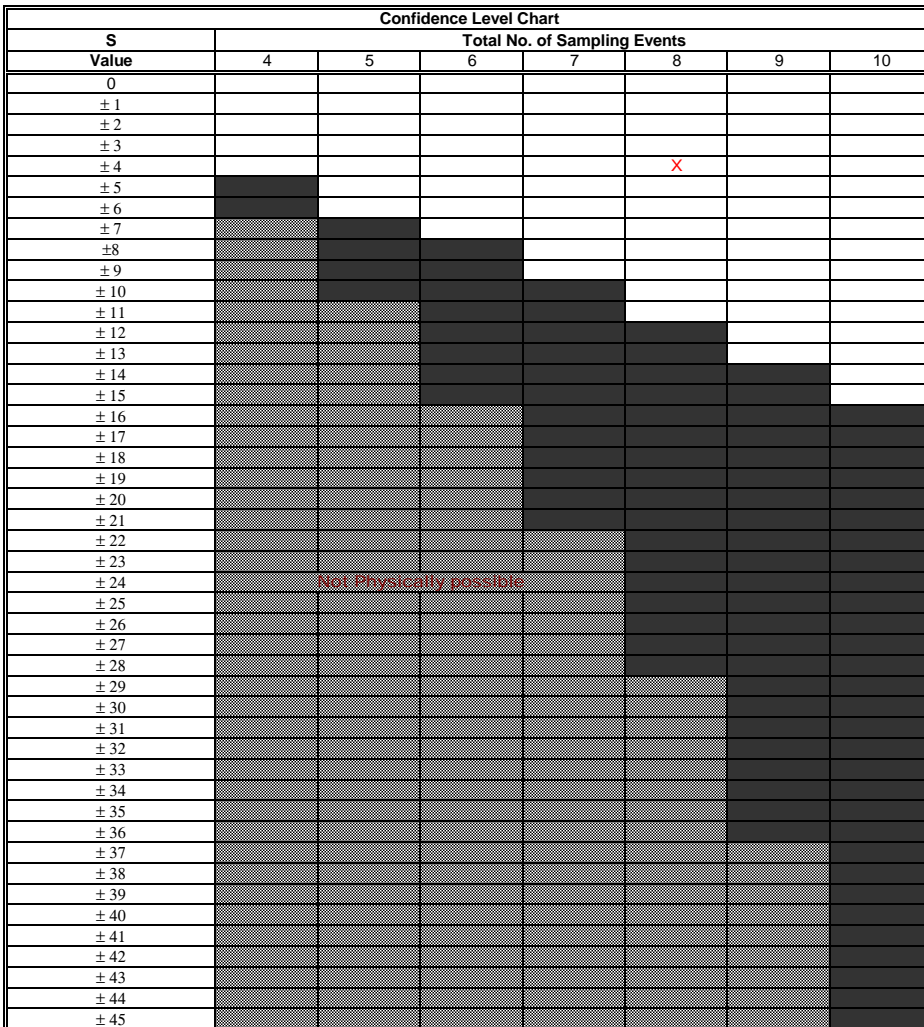
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: WB-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Boron | 2470 | 25 | 25 | 25 | 690 | 25 | 430 | 25 | 110 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| Row 4: Compare to Event 4: | | | | | 1 | 0 | 1 | 0 | 1 | 0 | 3 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | -1 | 0 | -4 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 0 | 1 | 0 | 2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -2



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

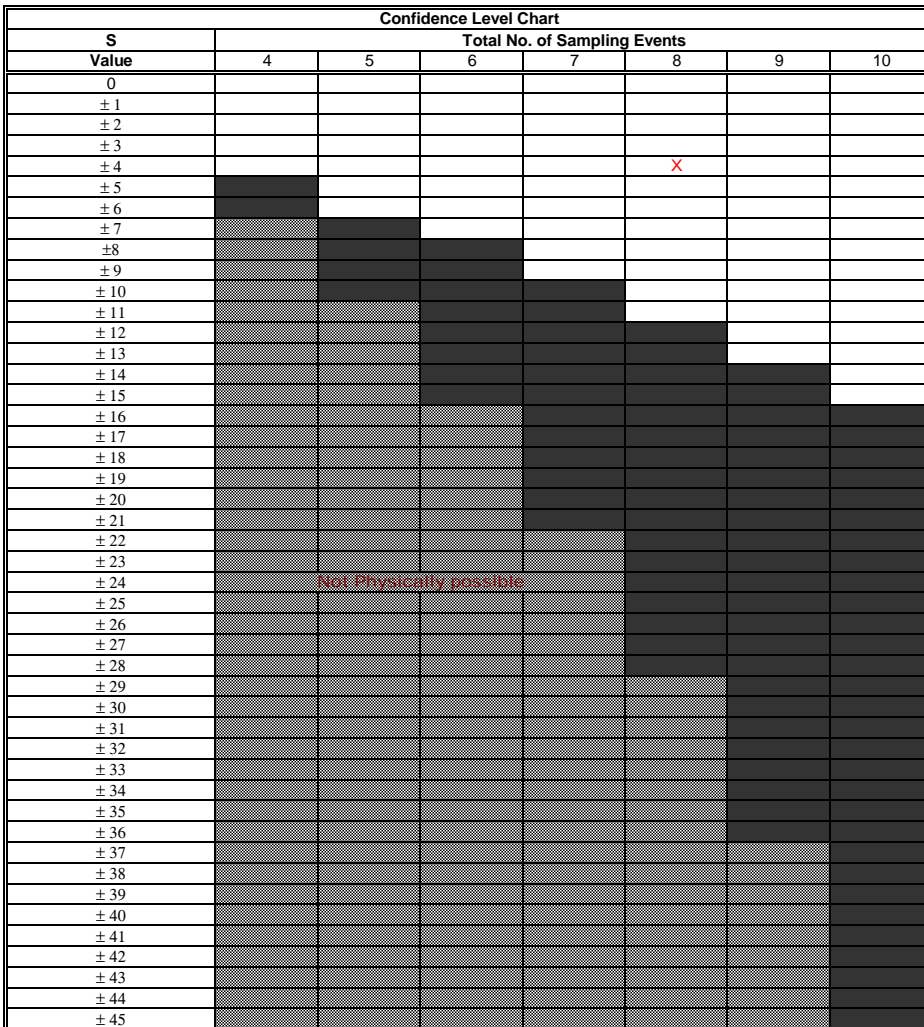
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: WB-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Sulphate | 1500 | 7.9 | 10 | 8.3 | 410 | 8.5 | 230 | 8.3 | 71 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -8 |
| Row 2: Compare to Event 2: | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 7 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 1 | 1 | 1 | 0 | 1 | 0 | 4 |
| Row 5: Compare to Event 5: | | | | | | -1 | -1 | -1 | -1 | 0 | -4 |
| Row 6: Compare to Event 6: | | | | | | | 1 | -1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -1



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

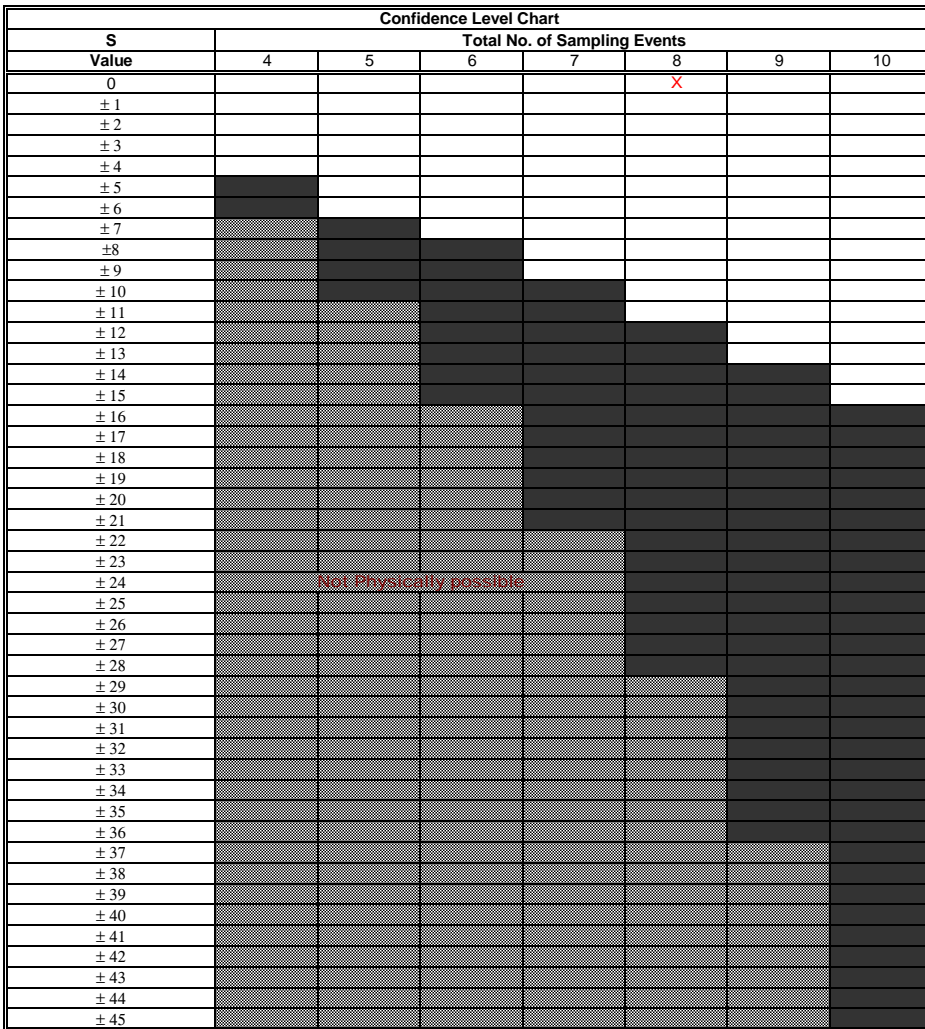
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: BP-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Anthracene | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

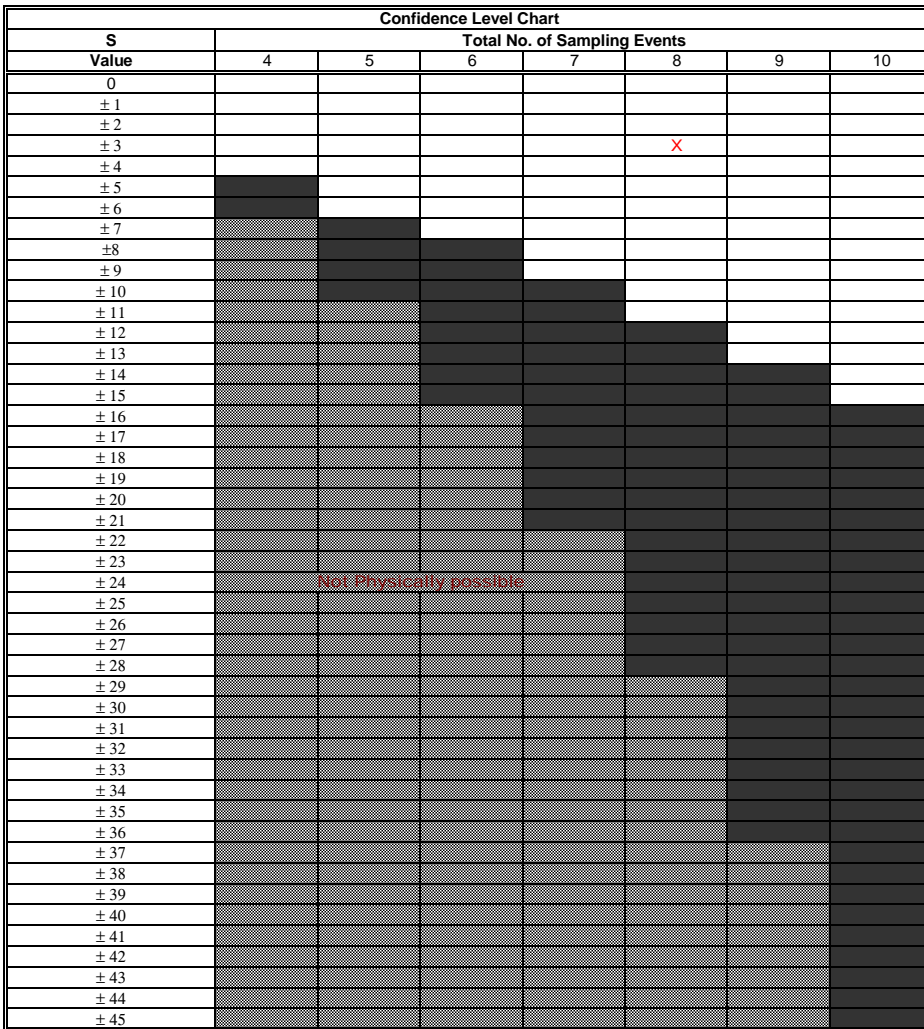
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: BP-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Pyrene | 0.01 | 0.036 | 0.005 | 0.022 | 0.005 | 0.016 | 0.005 | 0.018 | 0.005 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 1 | -1 | 1 | -1 | 1 | -1 | 1 | -1 | 0 | 0 |
| Row 2: Compare to Event 2: | | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -7 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 3 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | -1 | 0 | -5 |
| Row 5: Compare to Event 5: | | | | | | 1 | 0 | 1 | 0 | 0 | 2 |
| Row 6: Compare to Event 6: | | | | | | | -1 | 1 | -1 | 0 | -1 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | -1 | 0 | -1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -8



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

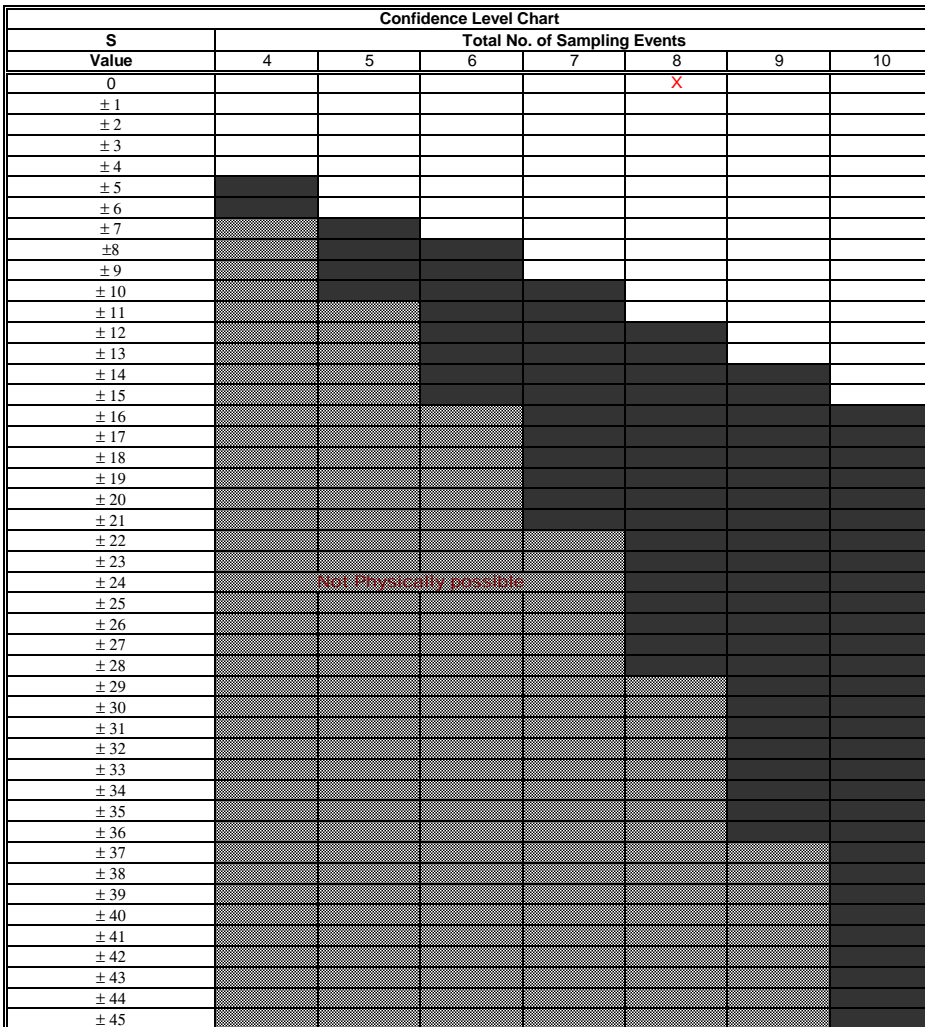
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: BP-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzo(a)anthracene | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV≤1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV≤1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

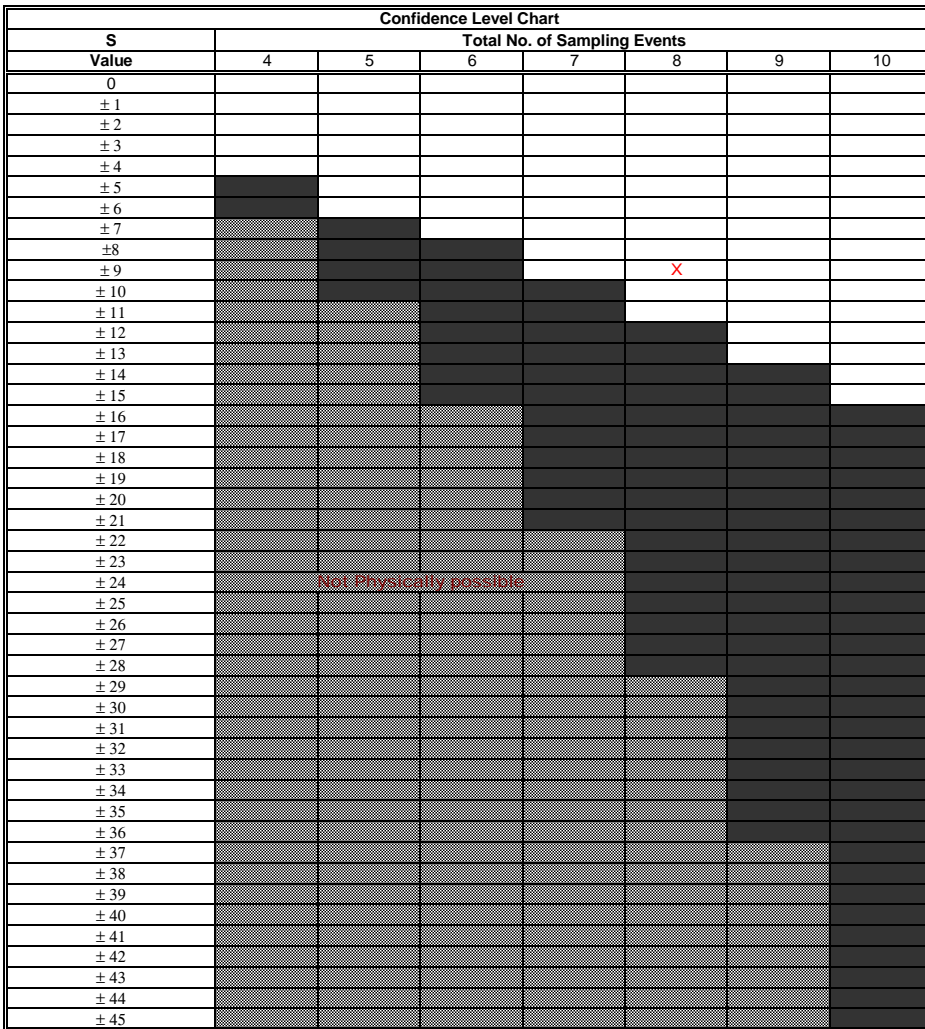
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: BP-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Cadmium | 0.14 | 0.028 | 0.05 | 0.014 | 0.05 | 0.025 | 0.05 | 0.02 | 0.05 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| Row 2: Compare to Event 2: | | | 1 | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | -1 | 0 | -1 | 0 | -1 | 0 | 0 | -3 |
| Row 4: Compare to Event 4: | | | | | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Row 5: Compare to Event 5: | | | | | | -1 | 0 | -1 | 0 | 0 | -2 |
| Row 6: Compare to Event 6: | | | | | | | 1 | -1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -6



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

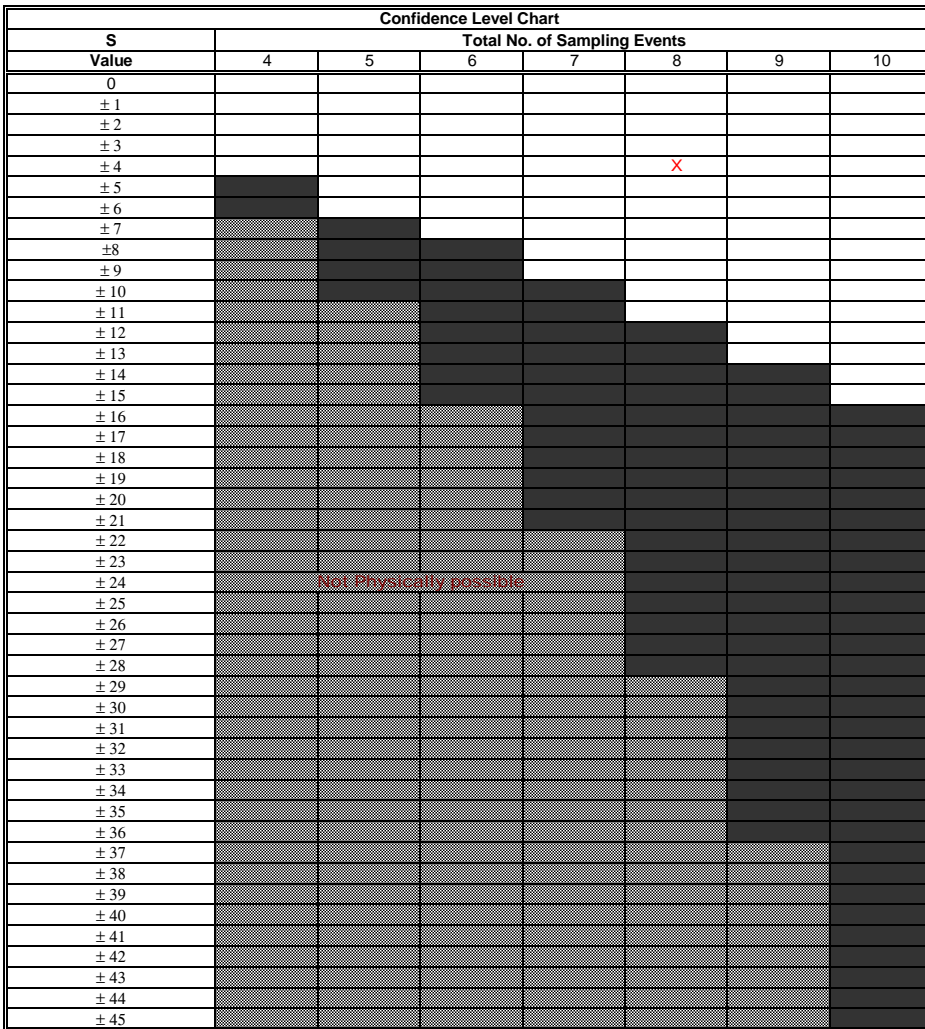
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: BP-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Strontium | 6130 | 950 | 5300 | 580 | 5500 | 1000 | 6100 | 630 | 5900 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -8 |
| Row 2: Compare to Event 2: | | | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 1 | -1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **0**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

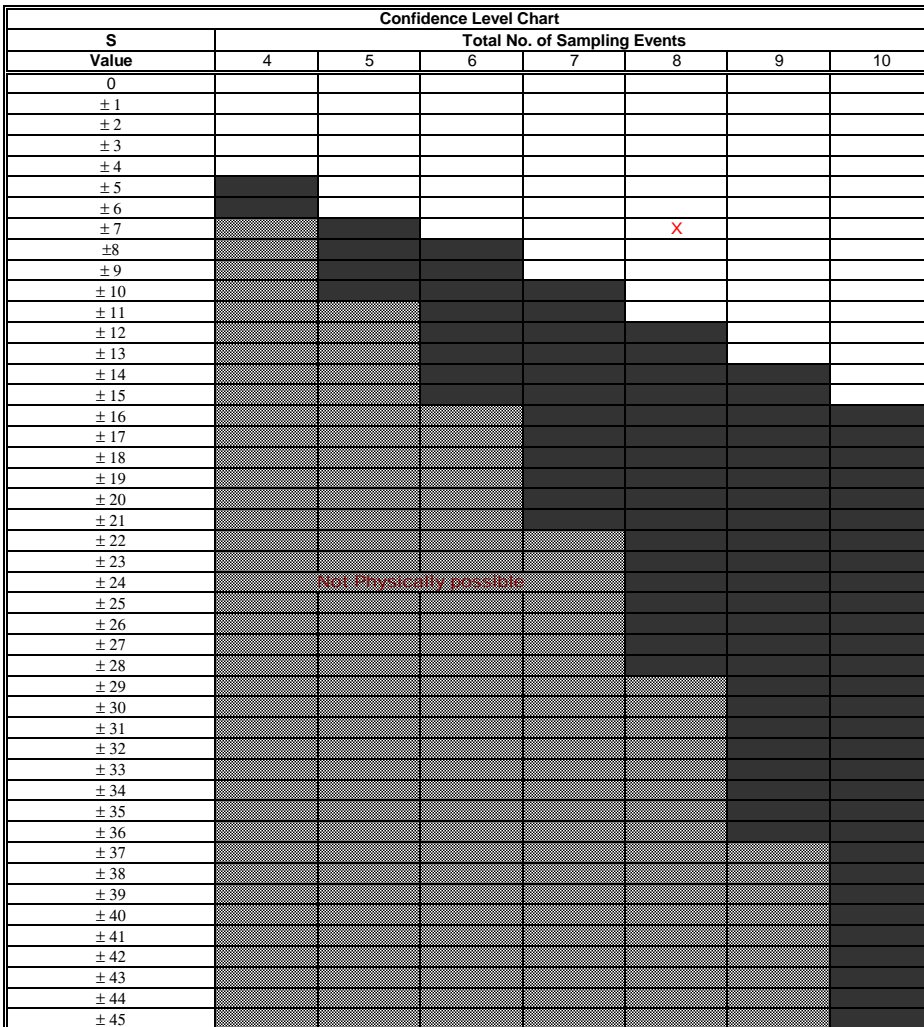
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: BP-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Zinc | 25 | 7.2 | 25 | 41 | 25 | 2.5 | 25 | 2.5 | 25 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | 0 | 1 | 0 | -1 | 0 | -1 | 0 | 0 | -2 |
| Row 2: Compare to Event 2: | | | 1 | 1 | 1 | -1 | 1 | -1 | 1 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | -1 | 0 | -1 | 0 | 0 | -1 |
| Row 4: Compare to Event 4: | | | | | -1 | -1 | -1 | -1 | -1 | 0 | -5 |
| Row 5: Compare to Event 5: | | | | | | -1 | 0 | -1 | 0 | 0 | -2 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 0 | 1 | 0 | 2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -5



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

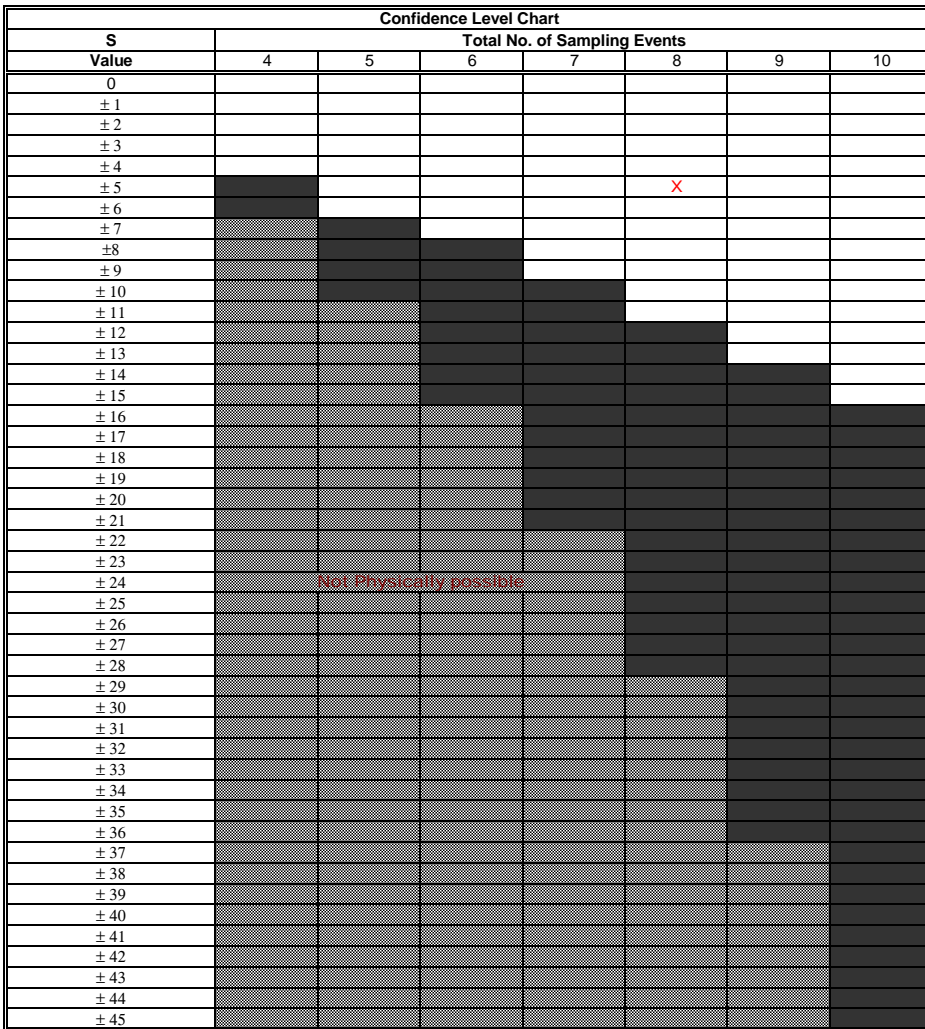
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: BP-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Boron | 3700 | 480 | 2900 | 330 | 3600 | 520 | 3600 | 340 | 3500 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -8 |
| Row 2: Compare to Event 2: | | | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Row 5: Compare to Event 5: | | | | | | -1 | 0 | -1 | -1 | 0 | -3 |
| Row 6: Compare to Event 6: | | | | | | | 1 | -1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -3



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

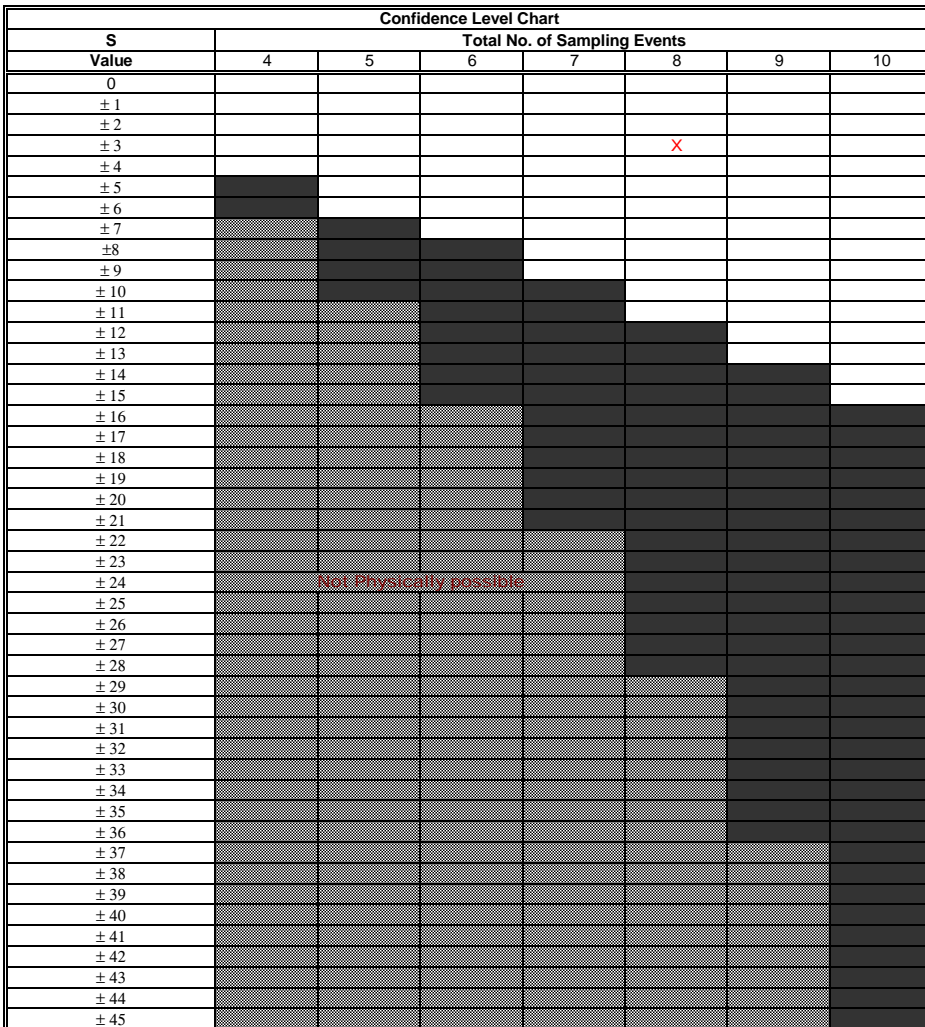
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: BP-1-SW | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Sulphate | 2000 | 270 | 1500 | 190 | 1600 | 290 | 2000 | 210 | 1900 | | |
| | 23-Jul-13 | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | 0 | -1 | -1 | 0 | -7 |
| Row 2: Compare to Event 2: | | | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 0 | 3 |
| Row 3: Compare to Event 3: | | | | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | 1 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 1 | -1 | 1 | 0 | 1 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | -1 | 0 | -2 |
| Row 8: Compare to Event 8: | | | | | | | | | 1 | 0 | 1 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 1



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

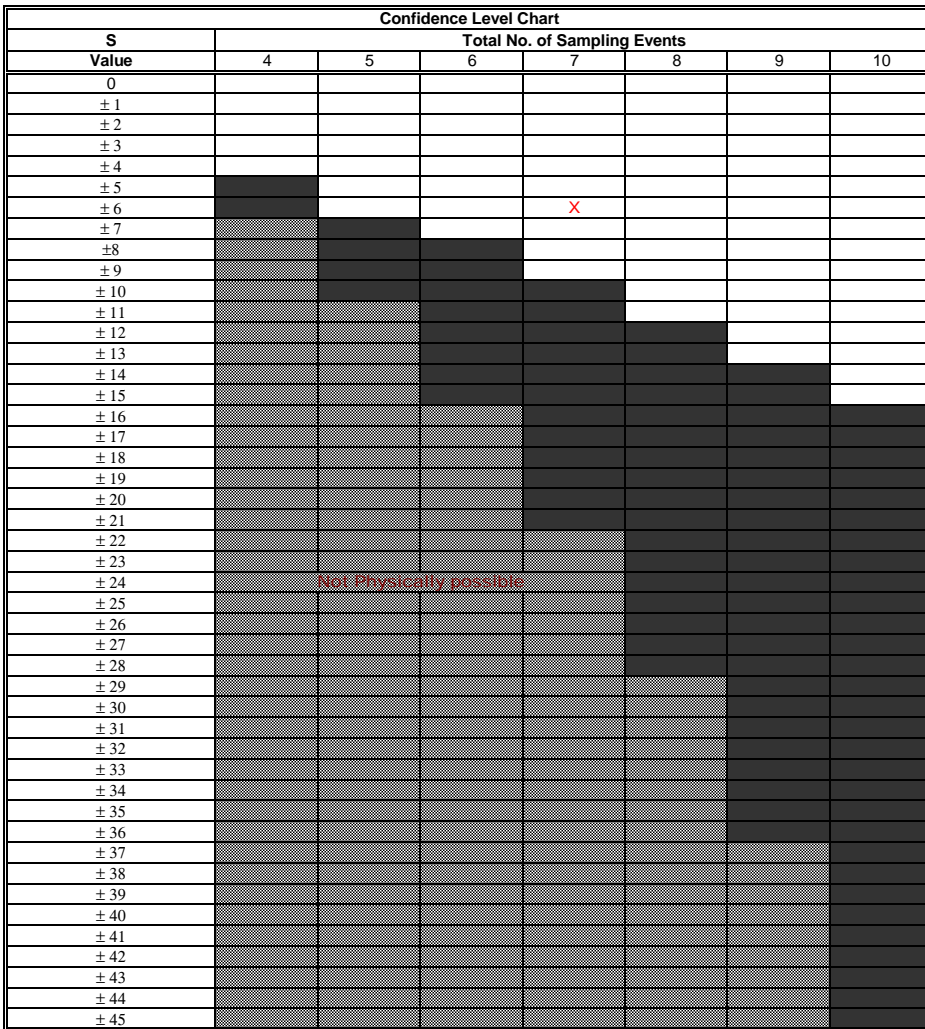
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: Narrows | | | | | | | | | |
|--------------------------------|-----------|-----------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Anthracene | 0.014 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -7 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = -7



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

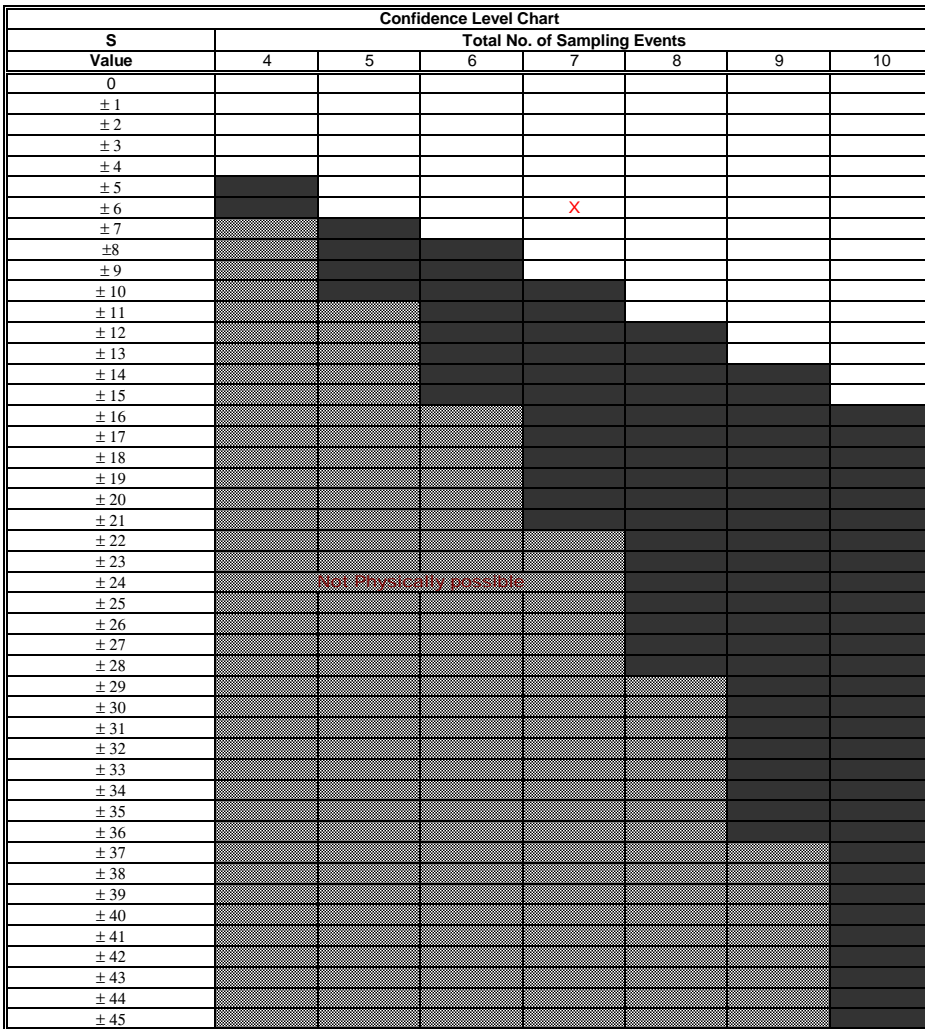
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | MONITORING WELL NO: Narrows | | | | | | | | | | |
|--------------------------------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Pyrene | 0.03 | 0.014 | 0.019 | 0.005 | 0.016 | 0.005 | 0.018 | 0.013 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -7 |
| Row 2: Compare to Event 2: | | | 1 | -1 | 1 | -1 | 1 | -1 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | 1 | 0 | 1 | 1 | 0 | 0 | 3 |
| Row 5: Compare to Event 5: | | | | | | -1 | 1 | -1 | 0 | 0 | -1 |
| Row 6: Compare to Event 6: | | | | | | | 1 | 1 | 0 | 0 | 2 |
| Row 7: Compare to Event 7: | | | | | | | | -1 | 0 | 0 | -1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-9**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

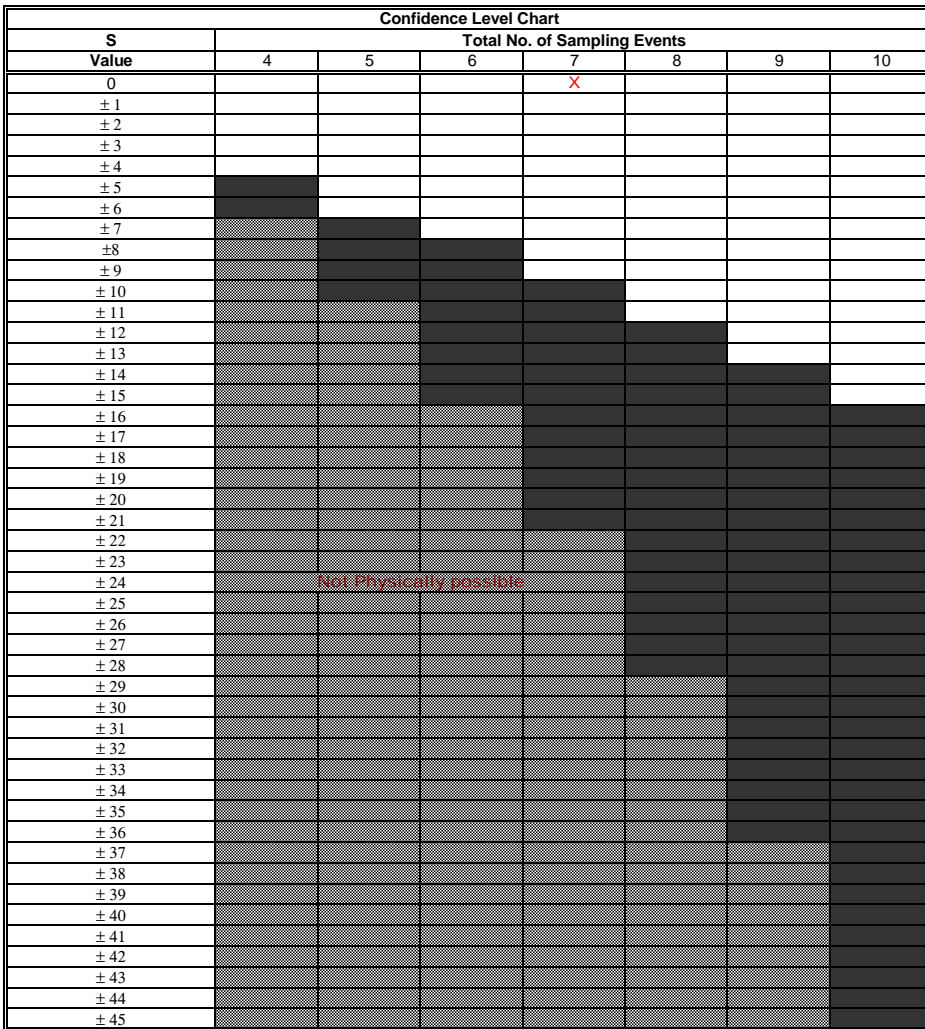
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | MONITORING WELL NO: Narrows | | | | | | | | | | |
|--------------------------------|-----------------------------|-----------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzo(a)pyrene | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 2: Compare to Event 2: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 0



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

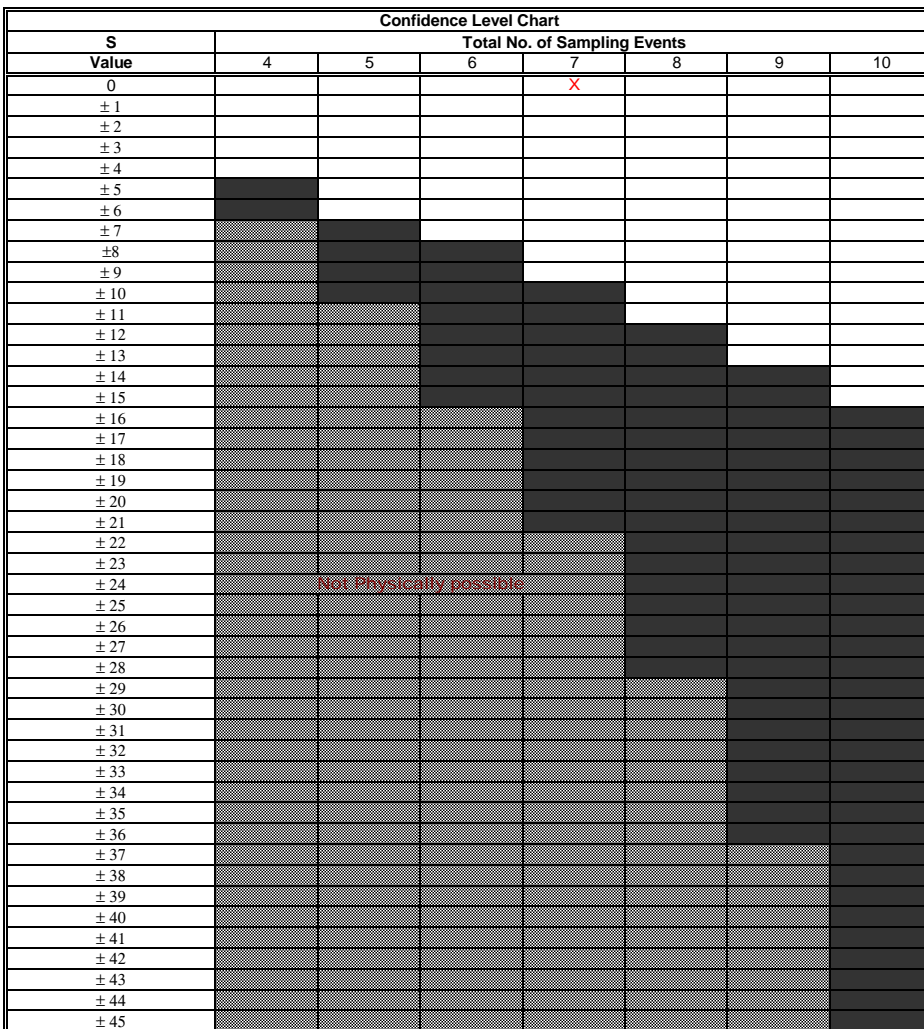
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: Narrows | | | | | | | | | |
|--------------------------------|-----------|------------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Cadmium | 0.027 | 0.05 | 0.012 | 0.05 | 0.029 | 0.05 | 0.018 | 0.05 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | -1 | 0 | -1 | 0 | -1 | 0 | 0 | 0 | -3 |
| Row 3: Compare to Event 3: | | | | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 5 |
| Row 4: Compare to Event 4: | | | | | -1 | 0 | -1 | 0 | 0 | 0 | -2 |
| Row 5: Compare to Event 5: | | | | | | 1 | -1 | 1 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | -1 | 0 | 0 | 0 | -1 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **4**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

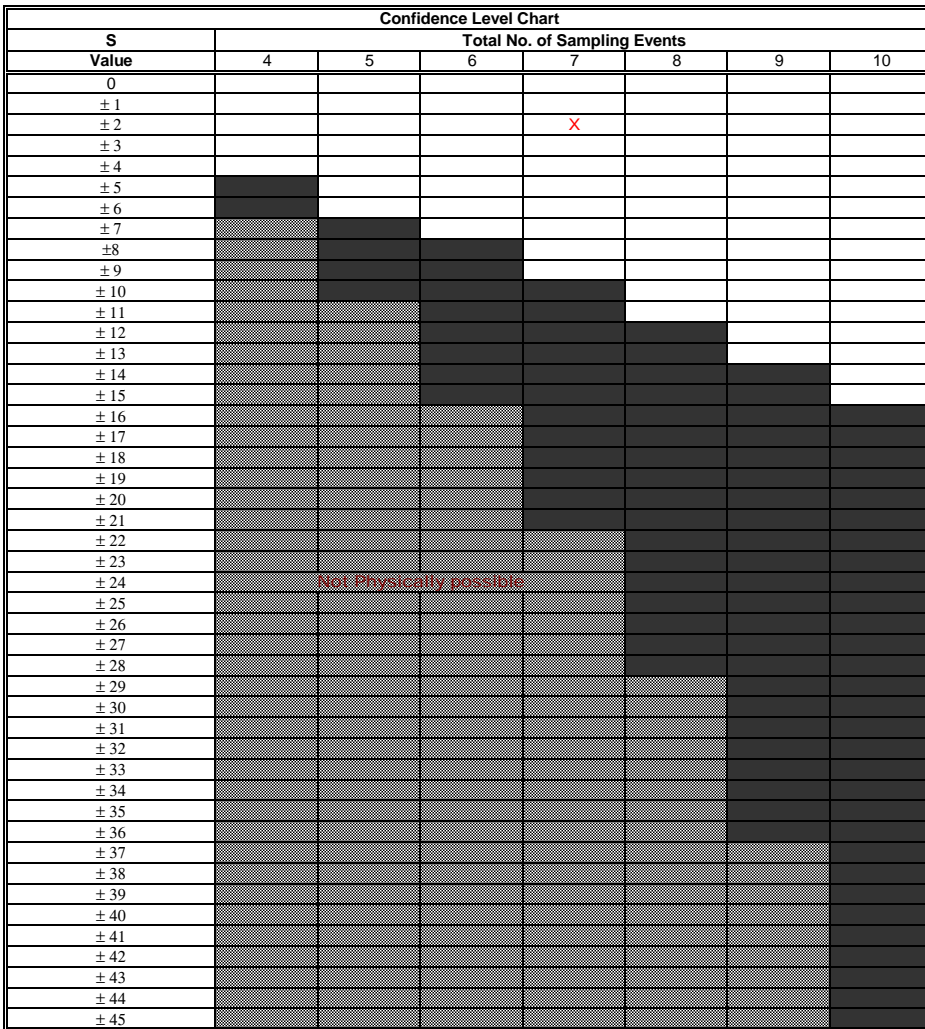
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: Narrows | | | | | | | | | |
|--------------------------------|-----------|------------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Strontium | 610 | 5400 | 370 | 5400 | 890 | 6100 | 450 | 5000 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | -1 | 0 | -1 | 1 | -1 | -1 | 0 | 0 | -3 |
| Row 3: Compare to Event 3: | | | | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 5 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | -1 | 0 | 0 | -2 |
| Row 5: Compare to Event 5: | | | | | | 1 | -1 | 1 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

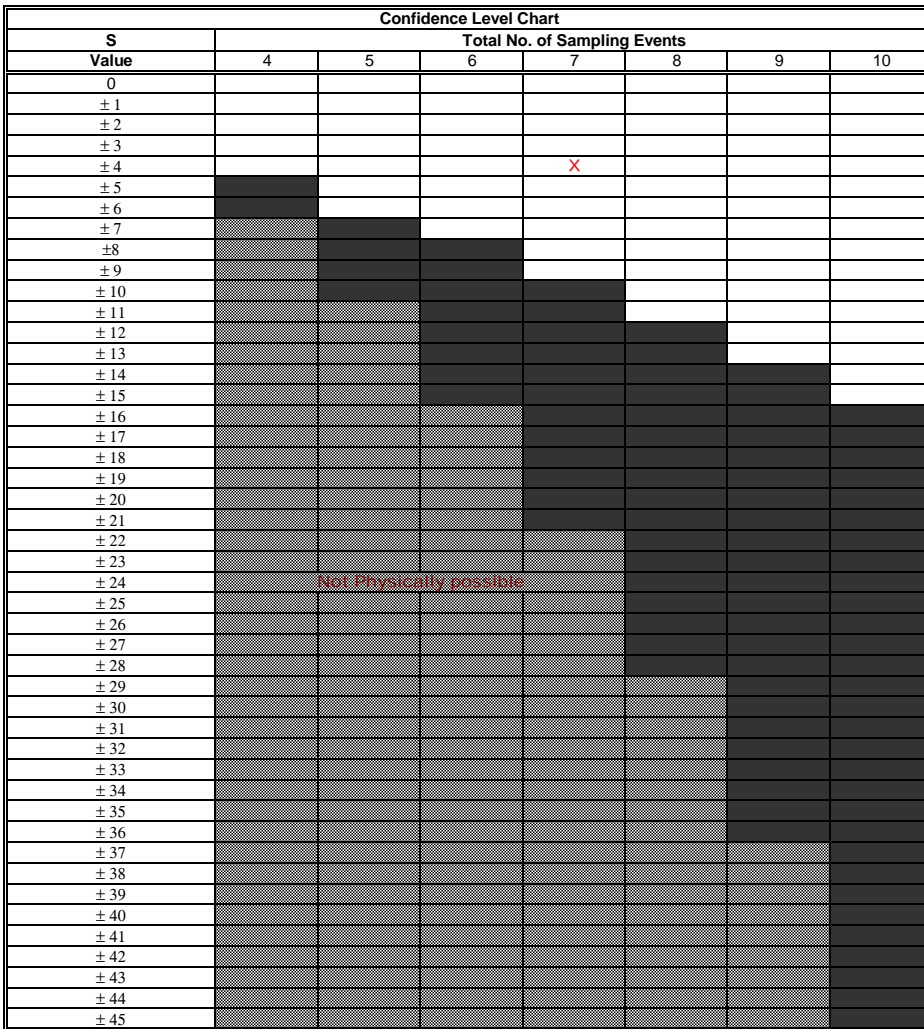
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: Narrows | | | | | | | | | |
|--------------------------------|-----------|------------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Zinc | 7.3 | 25 | 63 | 25 | 15 | 25 | 5.8 | 25 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | 1 | 1 | 1 | 1 | -1 | 1 | 0 | 0 | 5 |
| Row 2: Compare to Event 2: | | | 1 | 0 | -1 | 0 | -1 | 0 | 0 | 0 | -1 |
| Row 3: Compare to Event 3: | | | | -1 | -1 | -1 | -1 | -1 | 0 | 0 | -5 |
| Row 4: Compare to Event 4: | | | | | -1 | 0 | -1 | 0 | 0 | 0 | -2 |
| Row 5: Compare to Event 5: | | | | | | 1 | -1 | 1 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | -1 | 0 | 0 | 0 | -1 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **-2**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

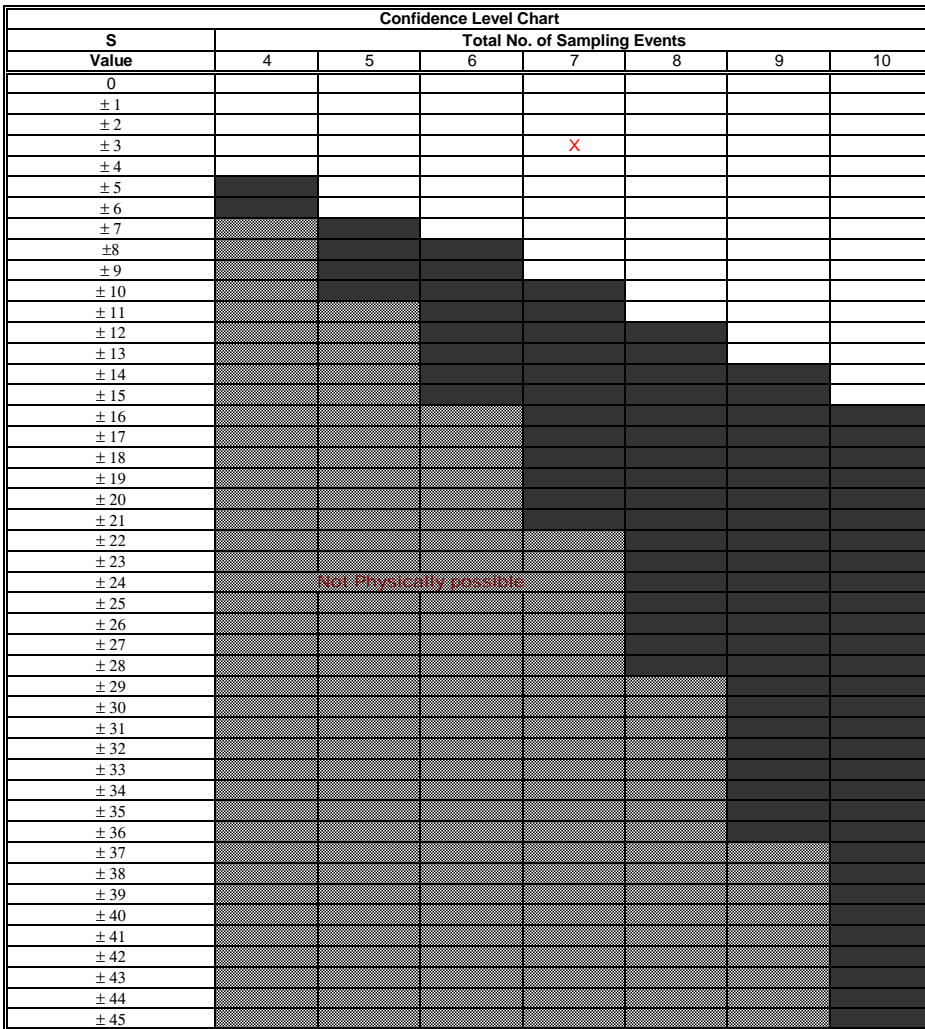
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: Narrows | | | | | | | | | |
|--------------------------------|-----------|------------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Boron | 300 | 3100 | 180 | 3500 | 460 | 3600 | 210 | 2800 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | -1 | 1 | -1 | 1 | -1 | -1 | 0 | 0 | -2 |
| Row 3: Compare to Event 3: | | | | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 5 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | -1 | 0 | 0 | -2 |
| Row 5: Compare to Event 5: | | | | | | 1 | -1 | 1 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **4**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

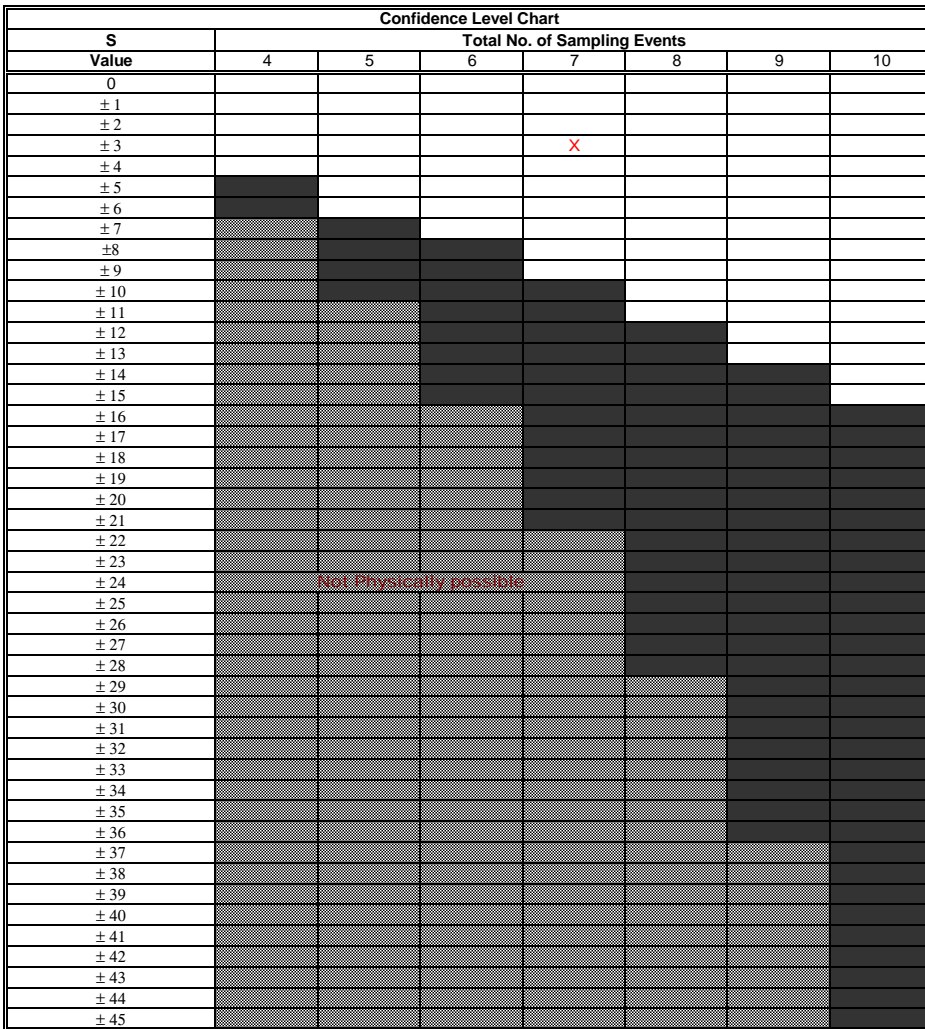
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: Narrows | | | | | | | | | |
|--------------------------------|-----------|------------------------------------|-----------|-----------|----------|----------|-----------|-----------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Sulphate | 170 | 1300 | 110 | 1400 | 270 | 2000 | 150 | 1700 | | | |
| | 22-Dec-14 | 27-Jul-15 | 18-Nov-15 | 22-Jul-16 | 8-Dec-16 | 3-Aug-17 | 18-Dec-17 | 25-Jul-18 | | | |
| Row 1: Compare to Event 1: | | 1 | -1 | 1 | 1 | 1 | -1 | 1 | 0 | 0 | 3 |
| Row 2: Compare to Event 2: | | | -1 | 1 | -1 | 1 | -1 | 1 | 0 | 0 | 0 |
| Row 3: Compare to Event 3: | | | | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 5 |
| Row 4: Compare to Event 4: | | | | | -1 | 1 | -1 | 1 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 1 | -1 | 1 | 0 | 0 | 1 |
| Row 6: Compare to Event 6: | | | | | | | -1 | -1 | 0 | 0 | -2 |
| Row 7: Compare to Event 7: | | | | | | | | 1 | 0 | 0 | 1 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **8**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
| | S > 0 Expanding Plume |

MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

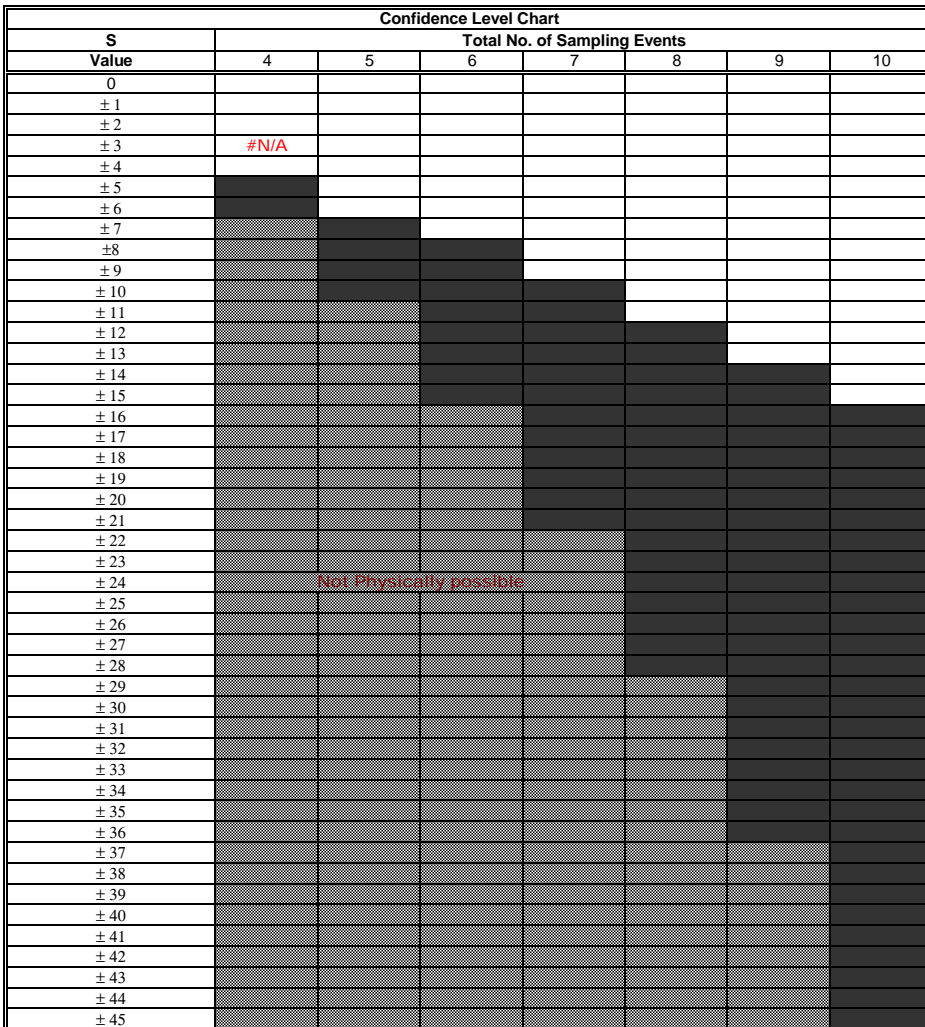
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzene | 0.001 | 0.001 | 0.001 | 0.002 | | | | | | | |
| | 10-Jun-05 | 16-Aug-05 | 24-Aug-05 | 13-Mar-06 | | | | | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
| X | CV>1 Plume is Fluctuating |
| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

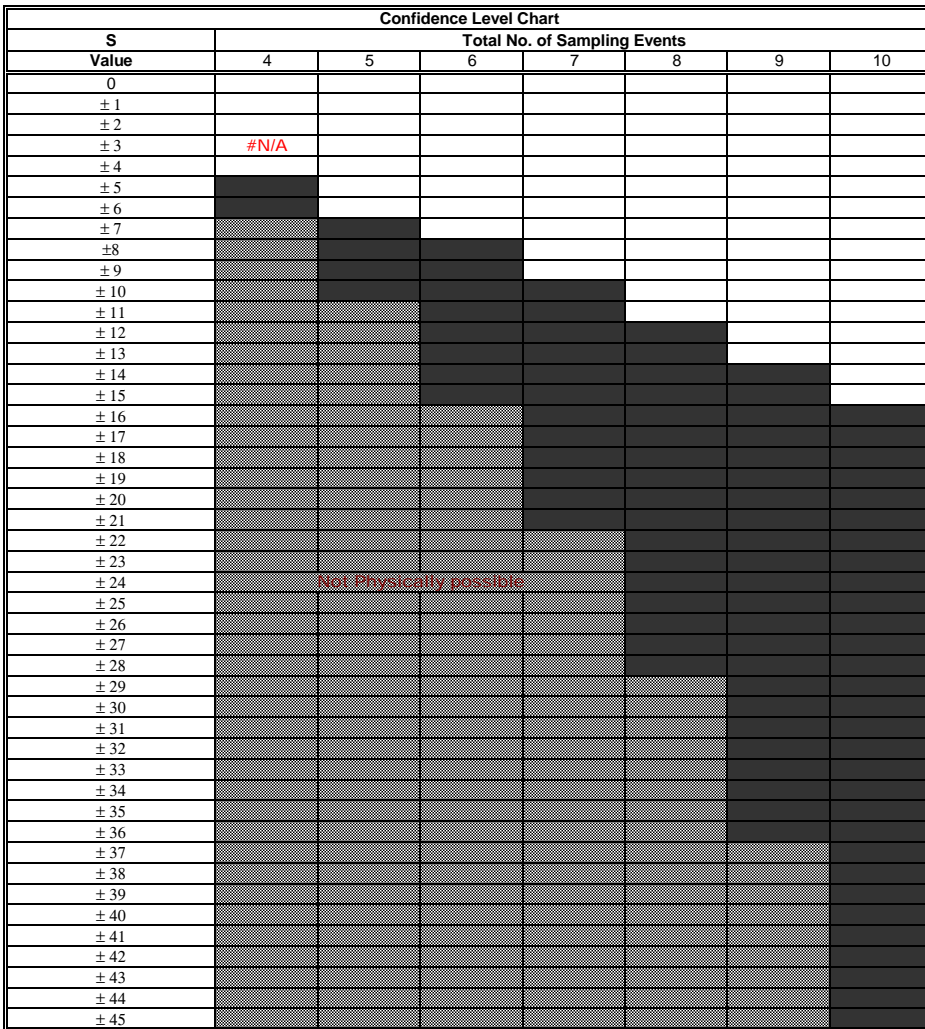
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzene | 0.001 | 0.001 | 0.001 | 0.002 | | | | | | | |
| | 10-Jun-05 | 16-Aug-05 | 24-Aug-05 | 13-Mar-06 | | | | | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
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| X | CV>1 Plume is Fluctuating |
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

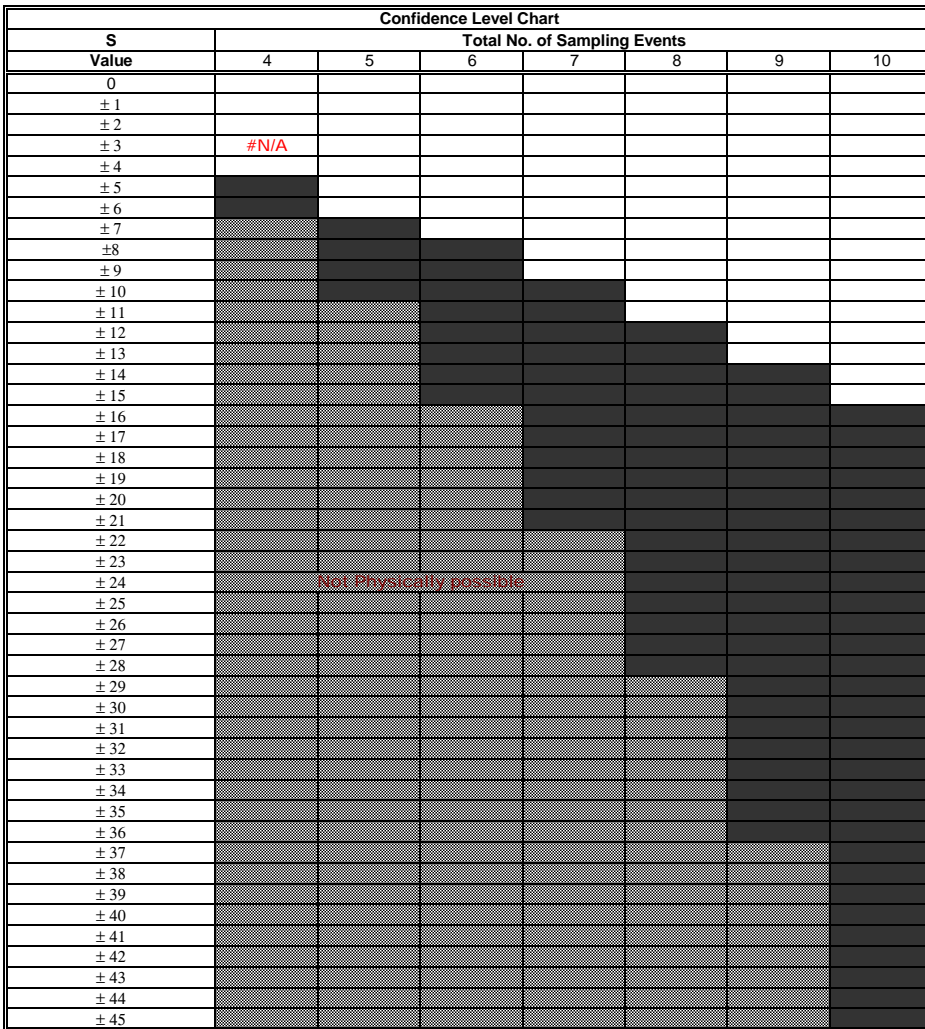
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzene | 0.001 | 0.001 | 0.001 | 0.002 | | | | | | | |
| | 10-Jun-05 | 16-Aug-05 | 24-Aug-05 | 13-Mar-06 | | | | | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
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| | |
|---|--|
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

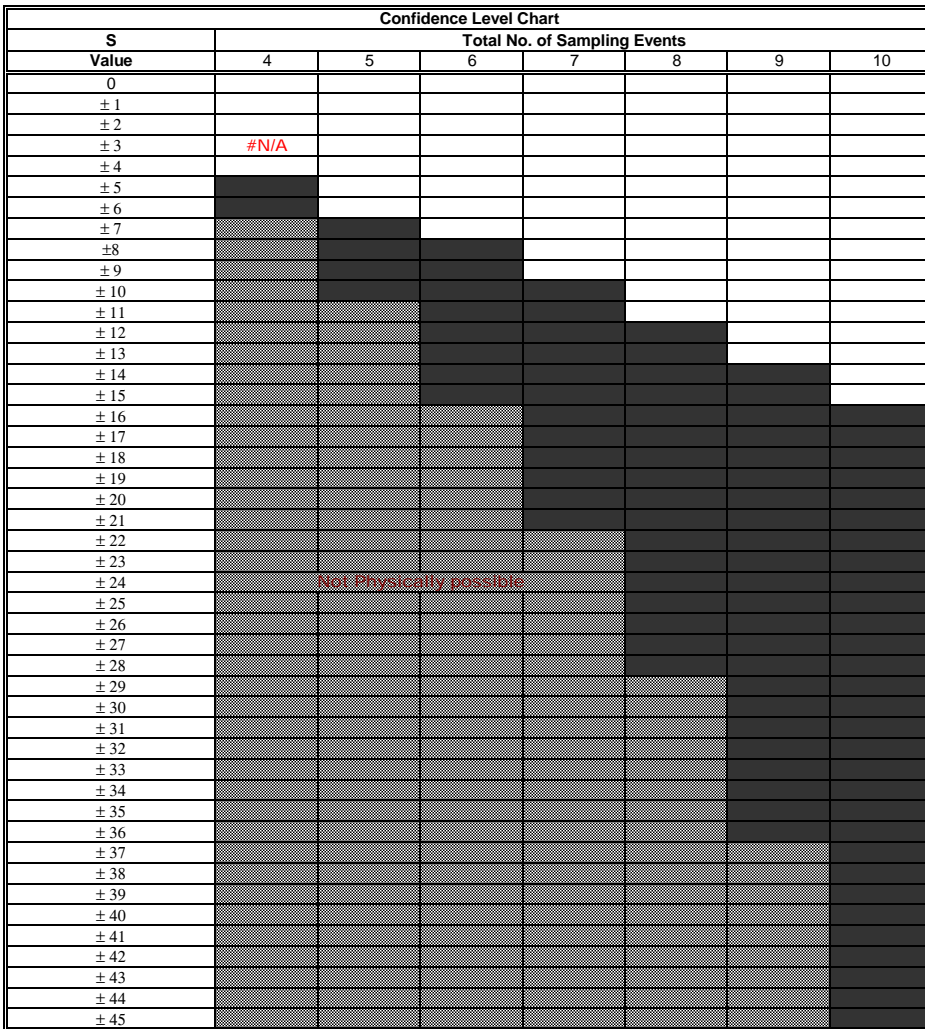
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzene | 0.001 | 0.001 | 0.001 | 0.002 | | | | | | | |
| | 10-Jun-05 | 16-Aug-05 | 24-Aug-05 | 13-Mar-06 | | | | | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



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| Stability Evaluation Results | |
|------------------------------|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

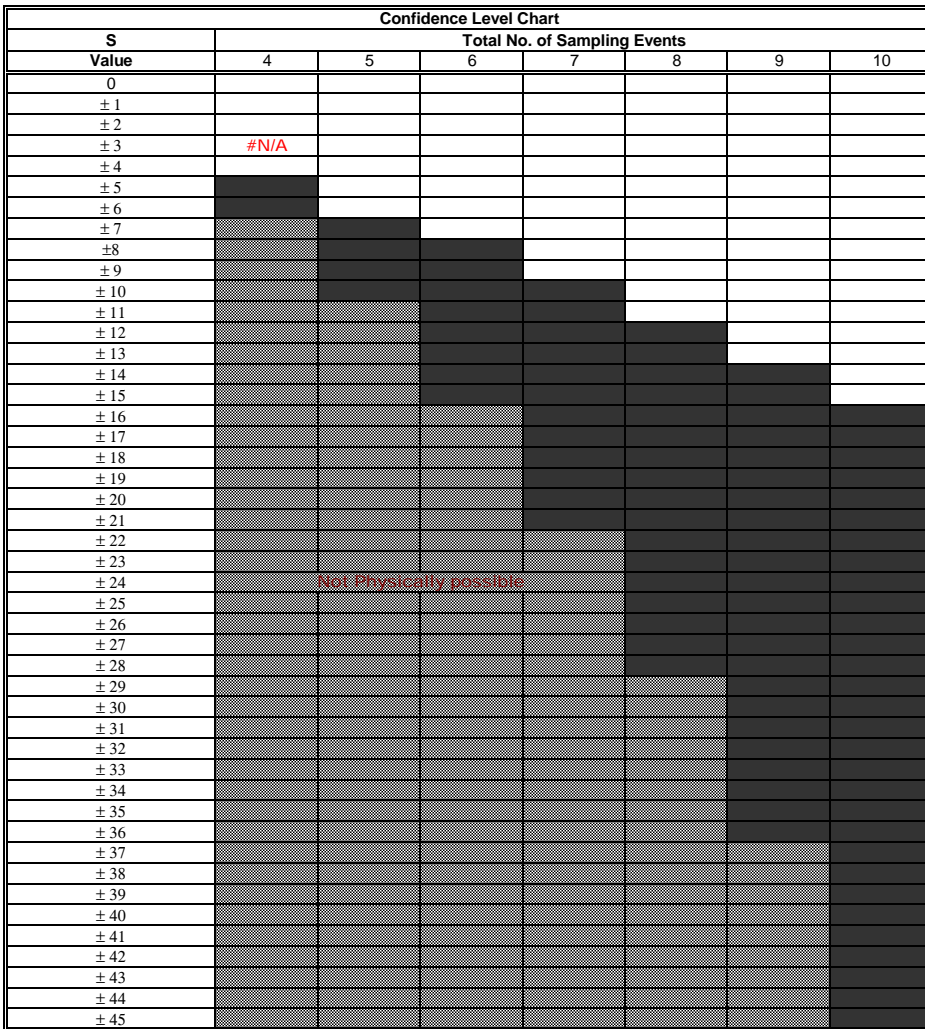
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzene | 0.001 | 0.001 | 0.001 | 0.002 | | | | | | | |
| | 10-Jun-05 | 16-Aug-05 | 24-Aug-05 | 13-Mar-06 | | | | | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

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| Stability Evaluation Results | |
|------------------------------|--|
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

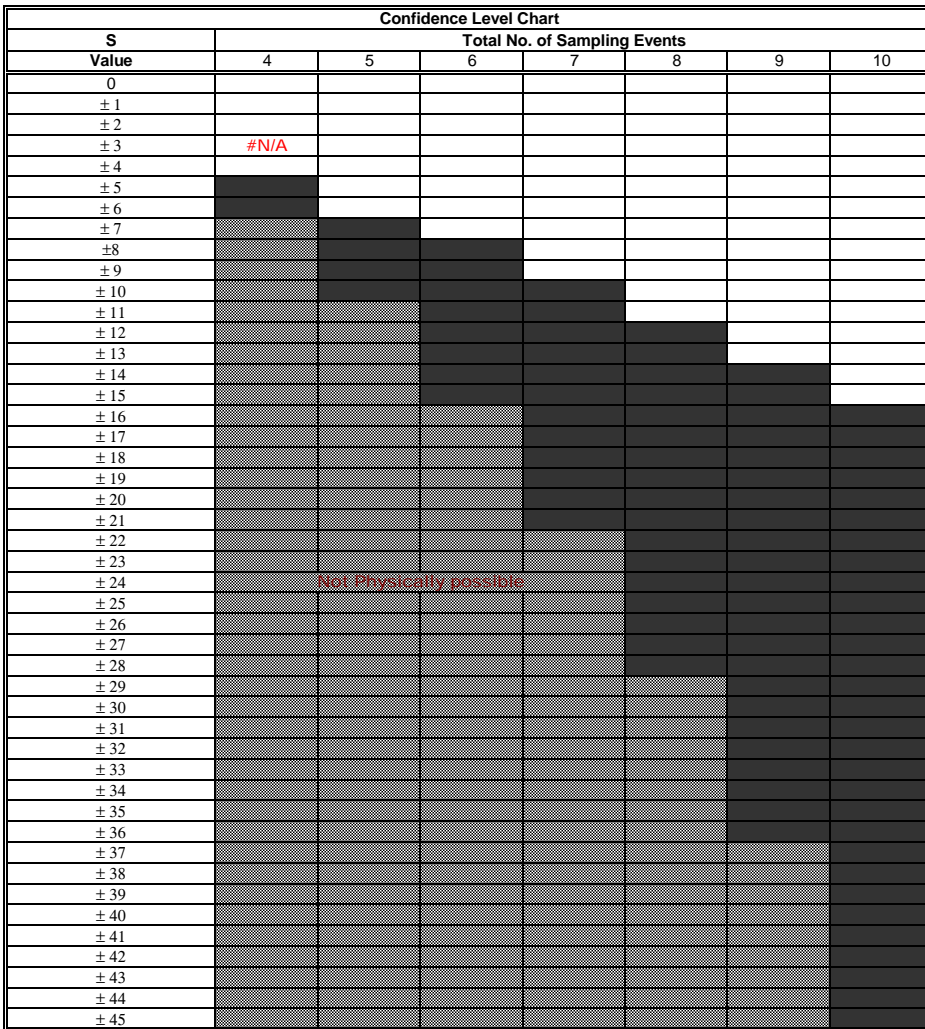
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzene | 0.001 | 0.001 | 0.001 | 0.002 | | | | | | | |
| | 10-Jun-05 | 16-Aug-05 | 24-Aug-05 | 13-Mar-06 | | | | | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



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stable trend (if CV<=1)
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Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
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| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

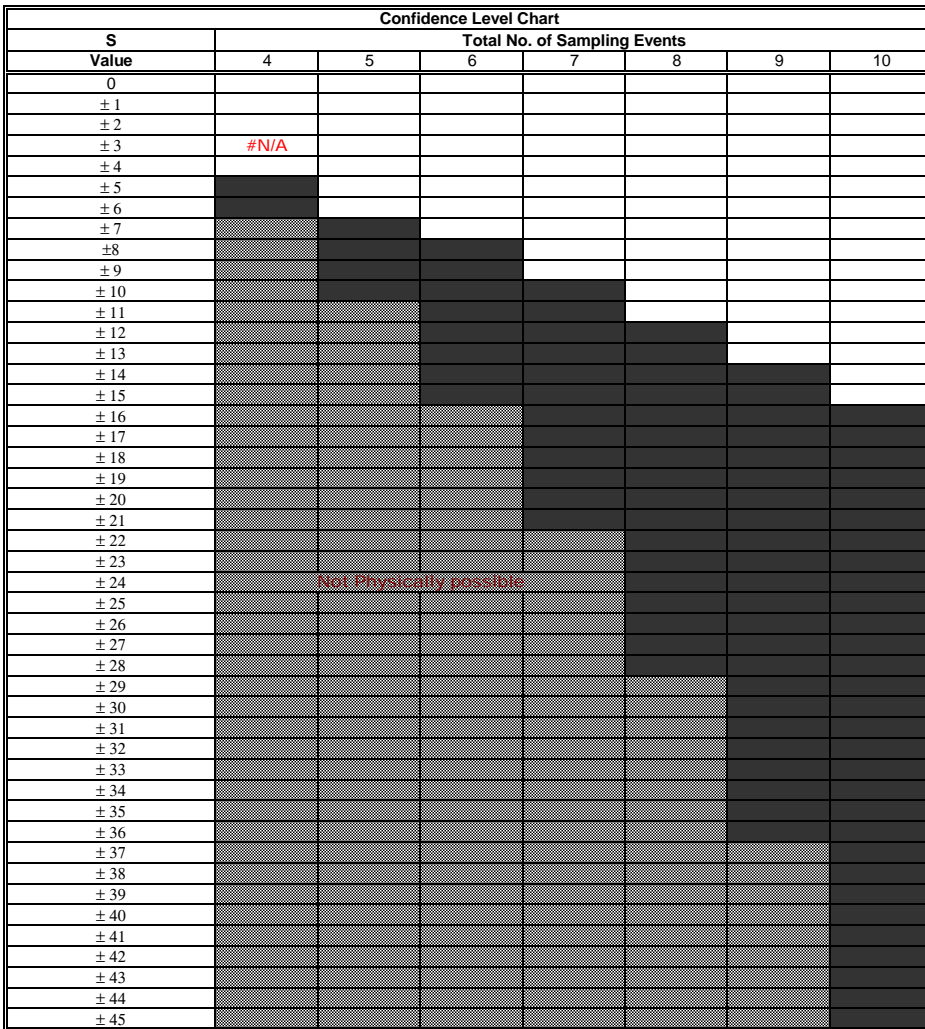
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzene | 0.001 | 0.001 | 0.001 | 0.002 | | | | | | | |
| | 10-Jun-05 | 16-Aug-05 | 24-Aug-05 | 13-Mar-06 | | | | | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = 3



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| | |
|---|--|
| X | No Trend Indicated, Plume Not Diminishing or Expanding |
| X | CV<=1 Plume is Stable |
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| | Trend Is Present (≥90% Confidence) |
| | S < 0 Diminishing Plume |
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

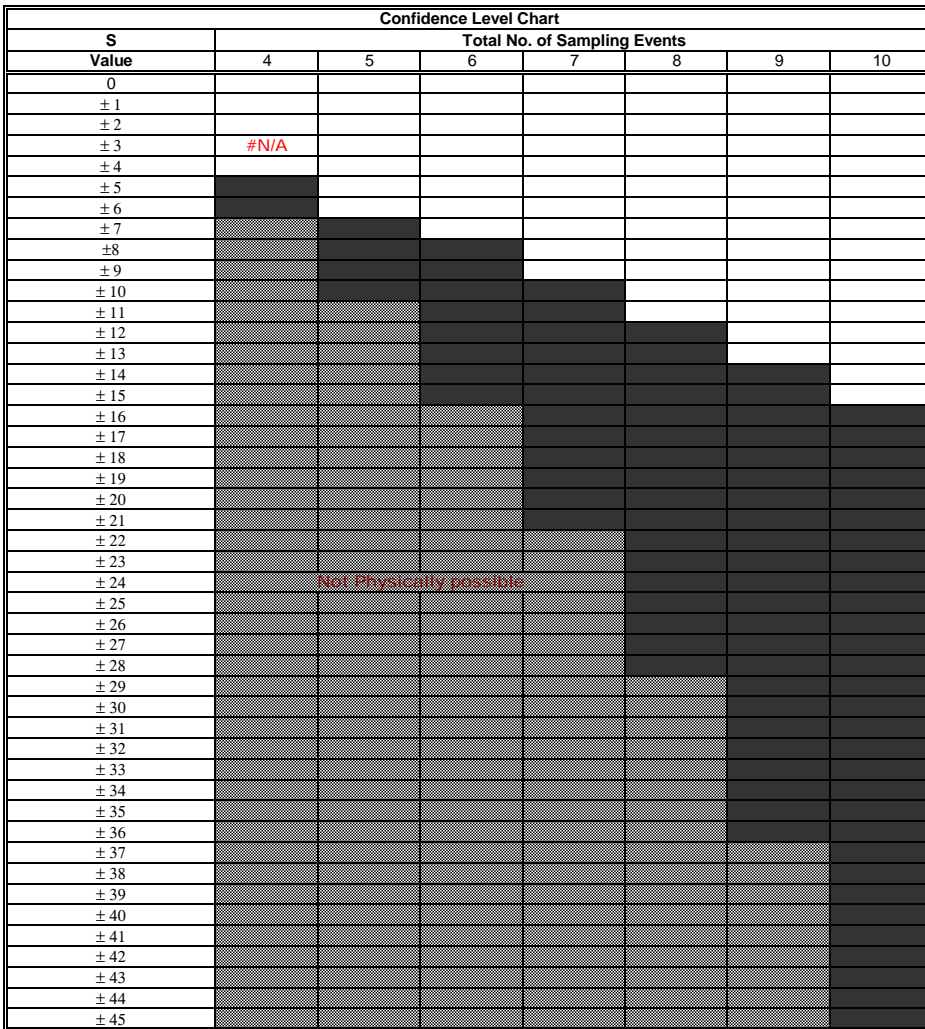
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
| | Event 1 | Event 2 | Event 3 | Event 4 | Event 5 | Event 6 | Event 7 | Event 8 | Event 9 | Event 10 | Sum Rows |
| Benzene | 0.001 | 0.001 | 0.001 | 0.002 | | | | | | | |
| | 10-Jun-05 | 16-Aug-05 | 24-Aug-05 | 13-Mar-06 | | | | | | | |
| Row 1: Compare to Event 1: | | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
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| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
stable trend (if CV<=1)
fluctuating (if CV>1)

Shaded area indicates
Expanding trend if S>0
Declining trend if S<0

| Stability Evaluation Results | |
|------------------------------|--|
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

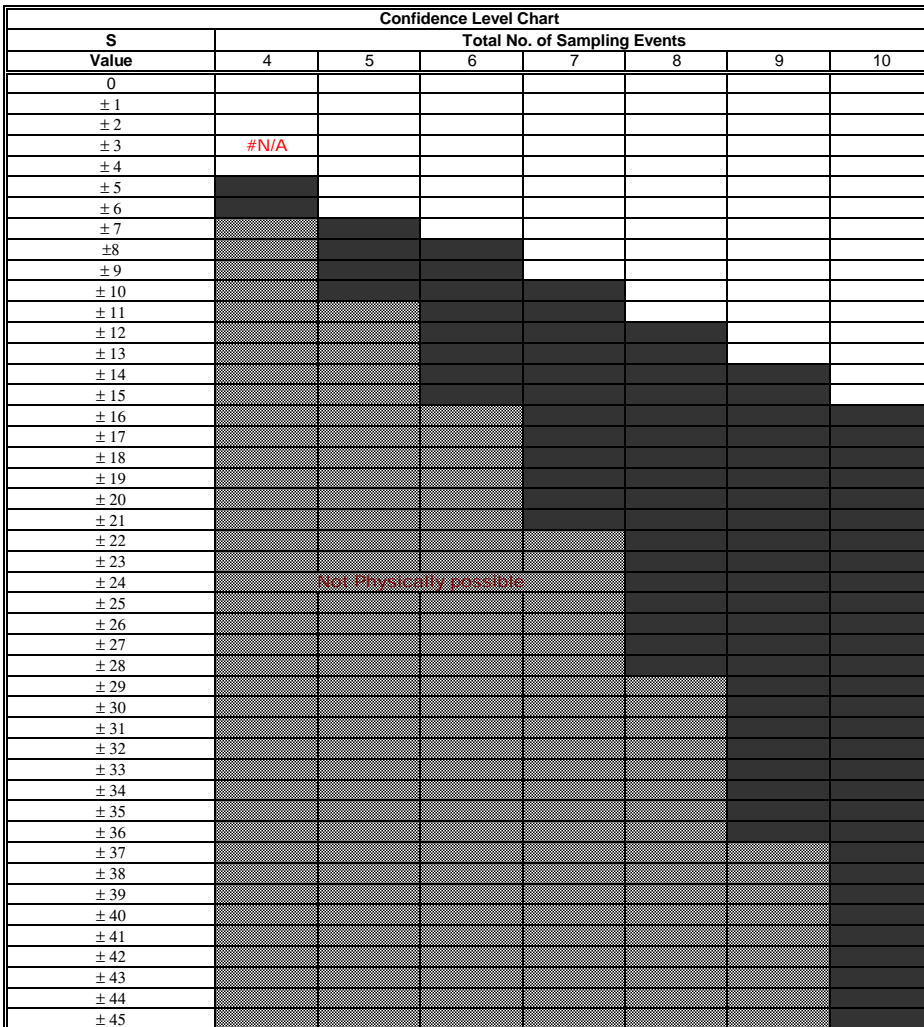
NS Lands

Sydney, Nova Scotia

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| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

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| Stability Evaluation Results | |
|------------------------------|--|
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

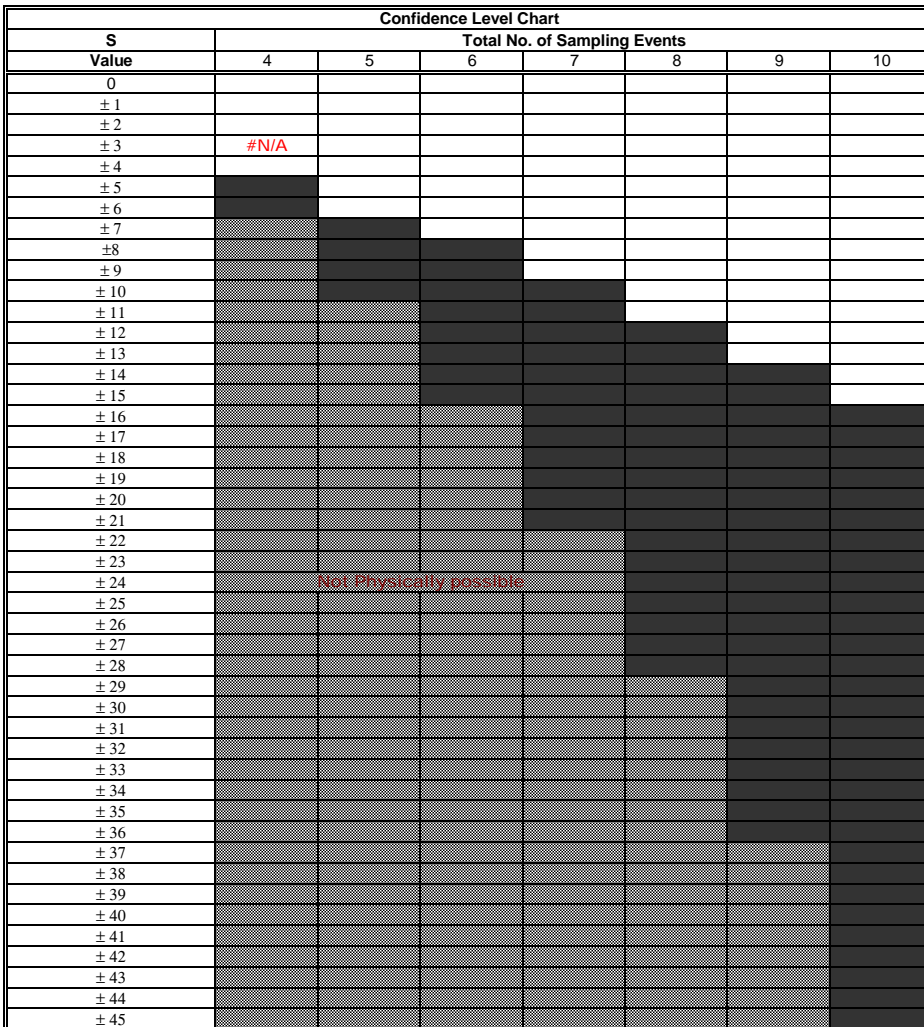
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
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| Row 2: Compare to Event 2: | | | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

Mann-Kendall (S) Statistic = **3**



Unshaded area indicates no trend
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Declining trend if S<0

| | |
|---|--|
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

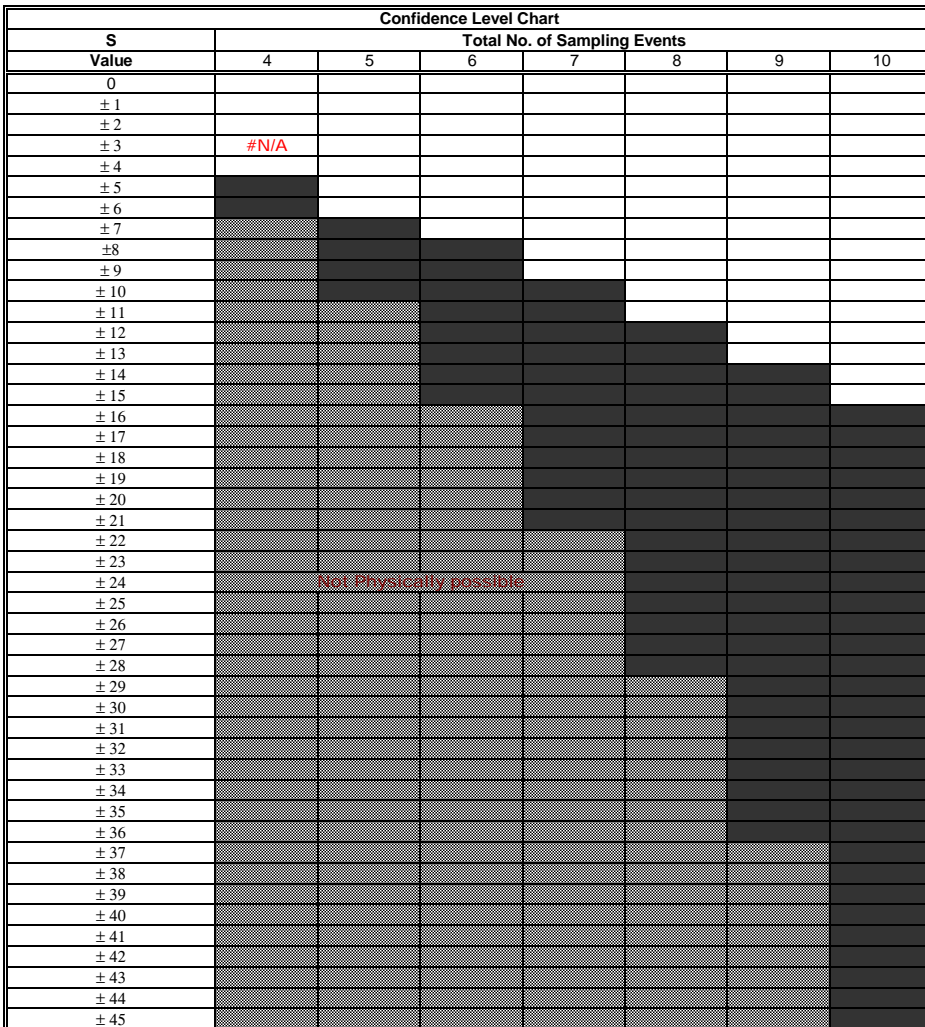
NS Lands

Sydney, Nova Scotia

| MANN-KENDALL ANALYSIS OF PLUME | | MONITORING WELL NO: MW1 | | | | | | | | | |
|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
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| Row 3: Compare to Event 3: | | | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
| Row 9: Compare to Event 9: | | | | | | | | | | 0 | 0 |

1/2 detection limit used for analytical results having no concentrations detected; historical data assumed EQL of 0.001 mg/L

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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

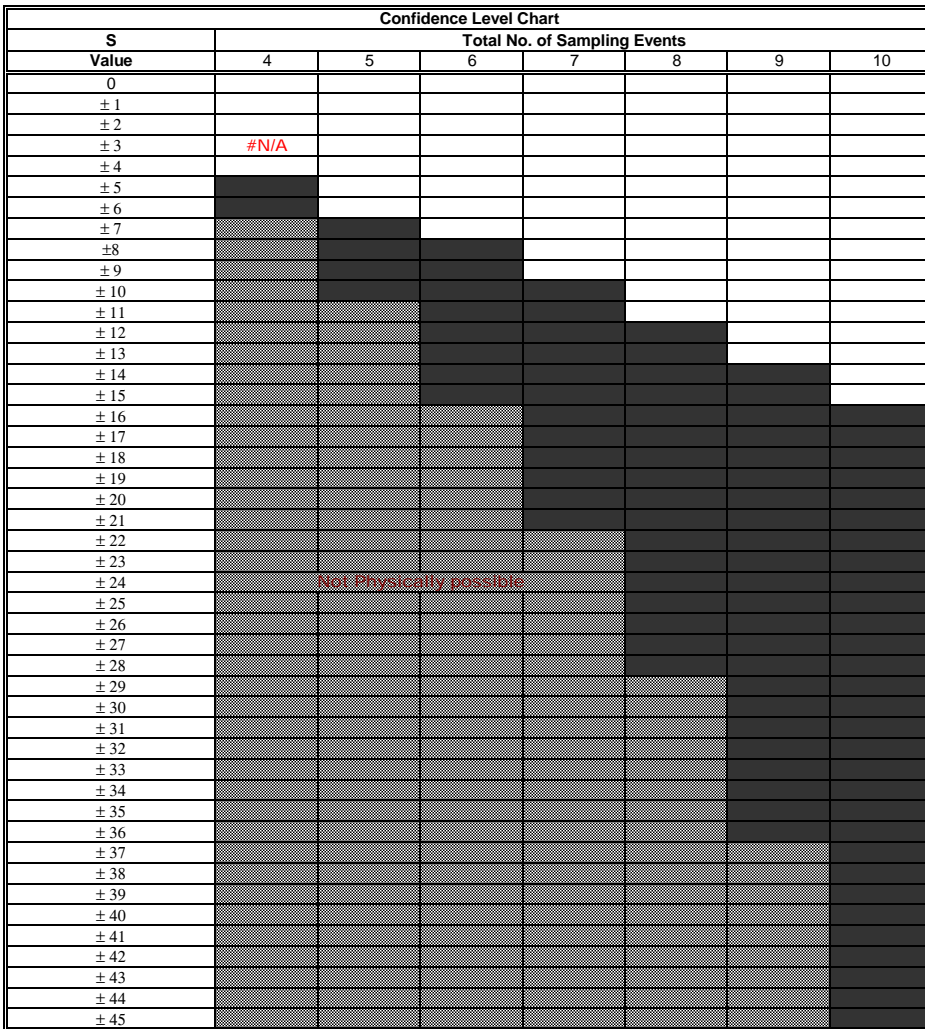
NS Lands

Sydney, Nova Scotia

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|--------------------------------|-----------|-------------------------|-----------|-----------|---------|---------|---------|---------|---------|----------|----------|
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| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
| Row 7: Compare to Event 7: | | | | | | | | 0 | 0 | 0 | 0 |
| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
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LTMM Surface Water Monitoring

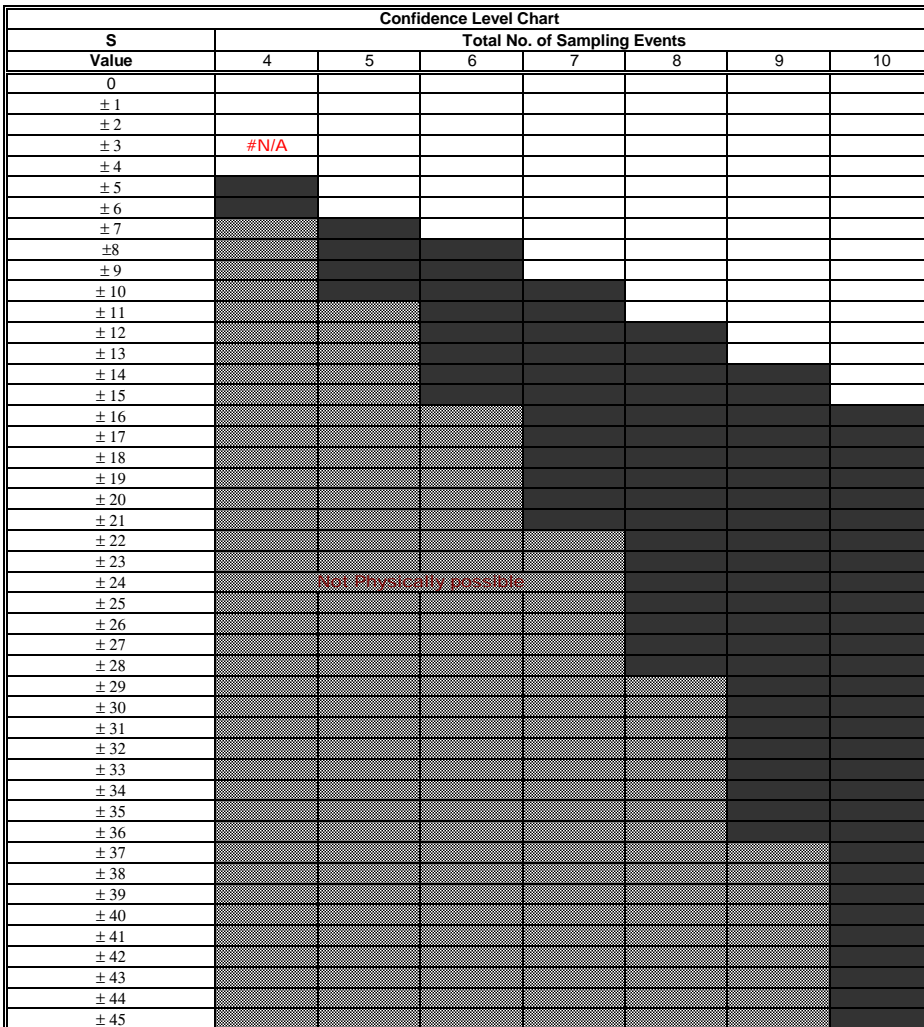
NS Lands

Sydney, Nova Scotia

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| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
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MANN-KENDALL PLUME STABILITY ANALYSIS

LTMM Surface Water Monitoring

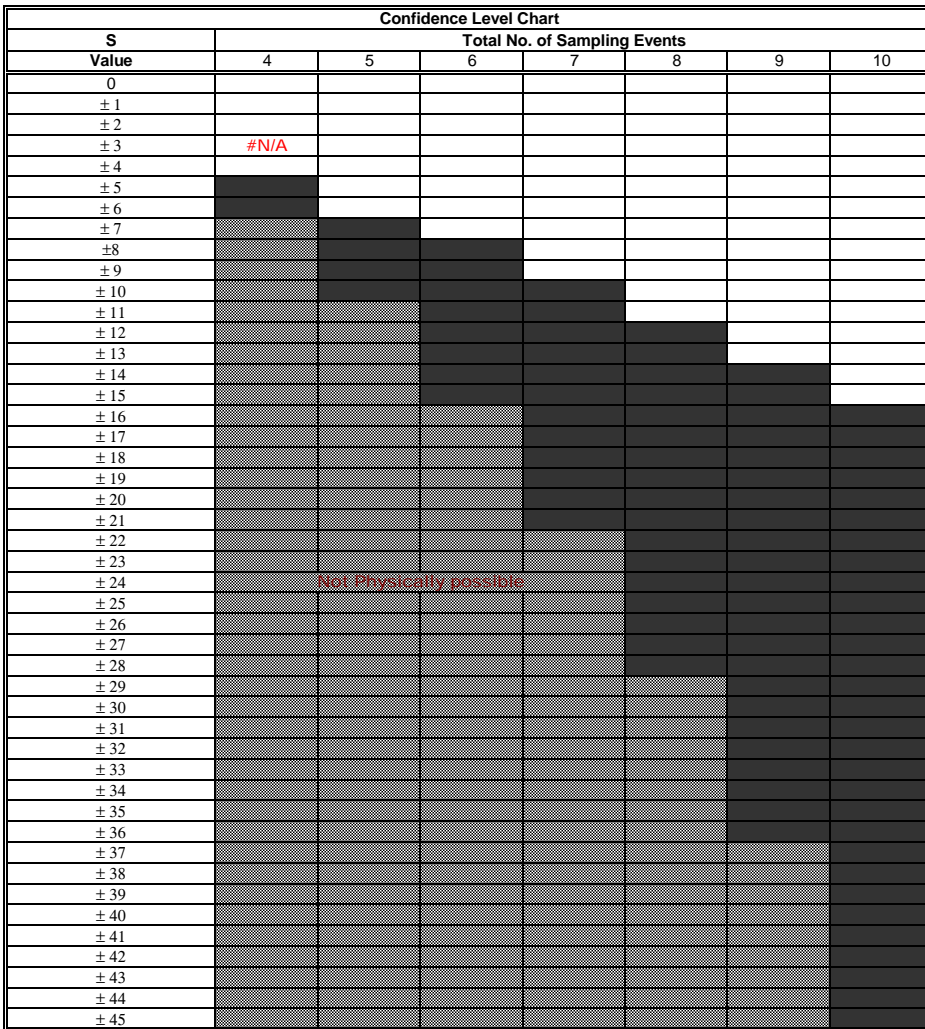
NS Lands

Sydney, Nova Scotia

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| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
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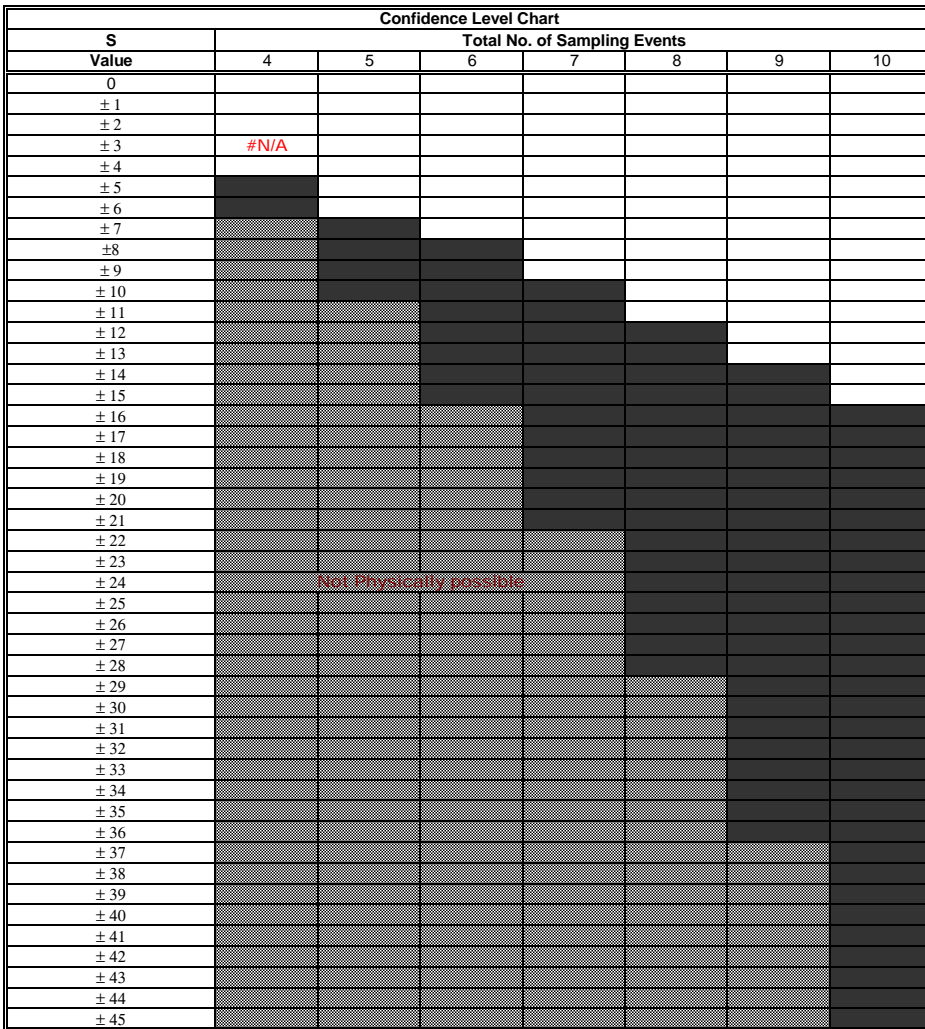
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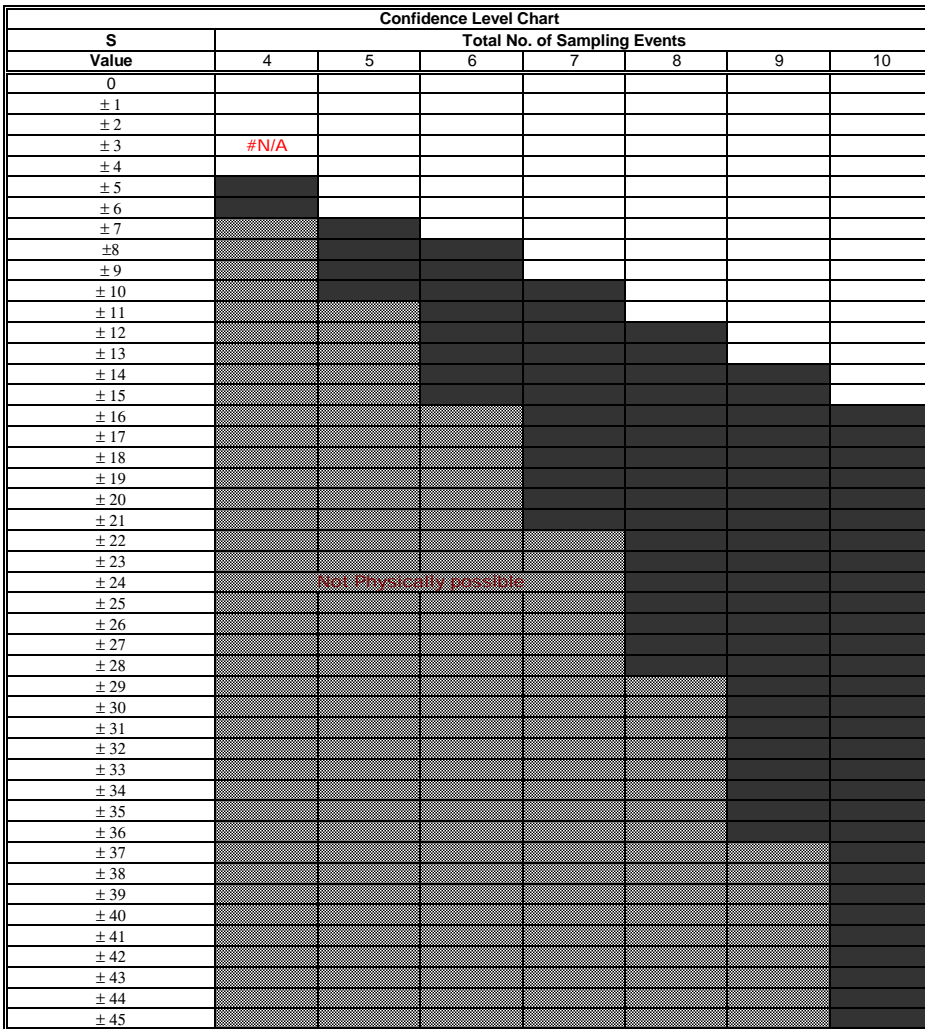
NS Lands

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| Row 4: Compare to Event 4: | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 5: Compare to Event 5: | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Row 6: Compare to Event 6: | | | | | | | 0 | 0 | 0 | 0 | 0 |
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| Row 8: Compare to Event 8: | | | | | | | | | 0 | 0 | 0 |
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