REPORT

Spring 2015
Semi-Annual Monitoring Report

Waste Management of Canada
Richmond Landfill
Town of Greater Napanee, Ontario

Submitted to:

WASTE MANAGEMENT OF CANADA
1271 Beechwood Road
Napanee, ON K7R 3L1

Submitted by:

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BluMetric File No.: K-B13060-00-02

July 2015

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WASTE MANAGEMENT OF CANADA
RICHMOND LANDFILL
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1. INTRODUCTION

The purpose of this document is to present results and to provide an interpretation of the data that were collected during the spring 2015 semi-annual monitoring event at the Waste Management of Canada Corporation (WM) Richmond Landfill.

The WM Richmond Landfill is approved as a 16.2 hectare waste disposal (landfilling) facility within a total site area of 138 hectares, located on parts of Lots 1, 2 and 3, Concession IV of the former Township of Richmond, now in the Town of Greater Napanee, Ontario.

2. MONITORING PROGRAM

2.1 PROGRAM METHODOLOGY

The spring 2015 semi-annual monitoring event was conducted in accordance with Environmental Compliance Approval (ECA) number A371203, issued by the Ministry of Environment and Climate Change (MOECC) on January 9, 2012 and amended on May 3, 2013. Additionally, some changes have been made to the Environmental Monitoring Program (EMP) resulting from the Environmental Review Tribunal (ERT) order dated April 26, 2013.

It should be noted that an amended EMP has been developed based on the results from ongoing investigations, undertaken since 2012 and aimed at establishing the extents of leachate derived impacts in groundwater downgradient from the Richmond Landfill. In particular, the investigations are aimed at establishing a contaminant attenuation zone (CAZ) downgradient from the site based on the known extents of groundwater impacts, which extend beyond the current approved site boundaries. The latest drafts of the CAZ investigation and proposed EMP were introduced in March 2015 as part of the ERT hearing proceedings. Once approved by MOECC, it is anticipated that the new EMP will be integrated into an amended ECA for the facility that will replace the EMP currently in place.

The site layout and monitoring locations are shown on Figure 1. The monitoring programs for groundwater, surface water, leachate, and landfill gas are summarized in Table 1.

The spring monitoring event was conducted between April 16 and 24, 2015. The activities completed included:

- Water levels were recorded at groundwater monitoring wells on April 16, 2015, except from groundwater monitors OW57 and M19 (both damaged);

- Pond water levels were measured on April 16, 2015 at the three ponds on the south side of the landfill;
- Leachate samples were collected from the North Chamber, South Chamber, and leachate monitoring wells LW-P1 and LW-P2 on April 21, 2015, and analyzed for the suite of leachate inorganic and general parameters, polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs);
- Seven off-site domestic water supply wells were sampled between April 20 and 23, 2015[1], and analyzed for groundwater inorganic and general parameters, as well as VOCs;
- A total of 44 groundwater monitors were sampled between April 21 and 24, 2015. Three groundwater monitoring wells could not be sampled because they (a) had insufficient recovery for sampling after purging (M29) or (b) were damaged (the standpipe in M58-4 and M71 was broken below the ground surface and contained bentonite). Monitoring wells M75 and M49-1 were sampled despite integrity concerns due to the presence of bentonite fines in the purge water. Samples were analyzed for the suite of groundwater inorganic and general parameters, and a subset of wells were analyzed for VOCs (Table 1);
- Surface water sampling was conducted on April 21, 2015 from locations S2, S3, S4R, S5, S6, S7 and S8R. Surface water samples were analyzed for the surface water inorganic and general parameters;
- Landfill gas migration monitoring was conducted on April 24, 2015. Field measurements were made with a RKI Eagle probe calibrated to methane gas response at seven gas monitors (GM1, GM2, GM3, GM4-1, GM4-2, GM5 and GM6); and
- Six field duplicate samples, three field blanks, four trip blanks and two equipment blanks were collected during the spring sampling event, for a total of 15 Quality Assurance/Quality Control (QA/QC) samples. Deionised water for analysis of blank samples was supplied by the laboratory.

2.2 Water/Leachate Sample Collection and Laboratory Analysis

Groundwater and surface water samples were collected in accordance with accepted industry protocols. Groundwater samples were collected using dedicated Waterra inertial lift pumps connected to dedicated polyethylene tubing. Where possible, a minimum of three casing volumes of water were purged from each monitoring well prior to the collection of groundwater samples. During purging, readings for pH, conductivity and temperature were recorded on a regular basis. For poor producing wells, the stabilization of the parameters after purging a minimum of one well volume was used to assess when well purging was complete. Some wells were purged dry

[1] 1121 Beechwood Road was not sampled as it is now on whole-house supplied water, and the well head (sampling point) is no longer accessible.

and were allowed to recover prior to sampling. If the monitoring well had not recovered sufficiently for sampling within 24 hours, the monitor was considered dry and a sample was not collected.

Domestic supply wells were sampled at an access point before any treatment system. A typical sampling location was a tap or access located near the pressure tank or when access to the treatment system was not available, the sample was collected from the kitchen tap (with the aerator screen removed). Prior to collecting the water sample, the water was allowed to run for a minimum of five but more typically closer to 10 minutes to ensure the volume of the pressure tank and supply line was purged and that the sample would be representative of well water conditions.

Surface water samples were collected using a clean bottle where water depth was sufficient; at sampling locations where water depth was an issue, a 50 cc syringe was used to carefully collect the surface water as not to disturb the bottom sediments. Surface water sampling locations were sampled from downstream to upstream to prevent any re-suspension of sediment impacting the downstream sampling locations. The pH, temperature, and conductivity of the surface water were measured in the field at all surface water sampling points while minimizing disturbance of the bottom sediment.

Leachate samples were collected from the North Chamber and South Chamber collection sumps, as well as leachate monitoring wells LW-P1 and LW-P2. The North Chamber sample was collected by lowering a 20L bucket into the vault allowing it to fill and then lifting it to surface. The sample was placed in laboratory supplied preserved bottles by filling one of the non-preserved bottles and carefully decanting into the smaller sampling bottles. The South Chamber sample was collected from the pump out valve system at surface. The flow valve was partially opened to fill one of the non-preserved bottles provided by the laboratory, and used to decant into the other sampling bottles. Samples were collected from leachate monitoring wells LW-P1 and LW-P2 using disposable bailers.

All water/leachate samples were placed in bottles supplied and prepared by the laboratory. The samples were packed in coolers with ice and shipped by courier to the laboratory. All samples were analysed by Maxxam Analytics Inc. of Mississauga, ON, which is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). Table 2 presents a summary of groundwater, surface water and leachate analytical parameters.

2.3 GROUNDWATER ELEVATIONS

Prior to collecting groundwater samples, water levels were recorded to the nearest 0.01 m using an electronic water level meter. Table 3 presents groundwater elevation monitoring locations.

3. MONITORING RESULTS AND DISCUSSION

Background information concerning the site geology and hydrogeology was described in detail in the Site Conceptual Model (SCM) report[2], and is summarized here. The SCM report describes the groundwater flow conditions at the Richmond Landfill. Based on the results from extensive studies conducted previously at the site, the basic hydrogeological framework for the facility has been defined as follows:

- the active groundwater flow zone at the site extends to a depth of approximately 30 metres below the top of bedrock;
- the shallow groundwater flow zone is conceptualized as the overburden, the overburden-bedrock contact and the upper one to two metres of bedrock;
- the direction of groundwater flow in the shallow flow zone is strongly influenced by topography;
- the intermediate bedrock flow zone extends from one to two metres below top of bedrock to a depth of approximately 30 metres below top of bedrock;
- groundwater flows through a well-connected network of fractures in the upper 30 metres of bedrock;
- the dominant fracture orientation is horizontal to sub-horizontal; however, vertical to subvertical fractures are present providing hydraulic connection between horizontal fractures;
- hydraulic connection of fractures exists in the intermediate bedrock flow zone to the west, south and east of the site (horizontal and vertical connections);
- intermediate bedrock flownets show that groundwater generally flows to the west from the western edge of the landfill, to the south-southeast from the southeastern edge of the landfill, to the southwest from the southwest corner of the landfill and north to northwest from the northwest portion of the landfill;
- the hydraulic conductivity of the intermediate bedrock is lower to the north and east of the landfill compared to other areas of the site, implying that the rate of groundwater flow is lower than in areas south, southeast and west of the landfill; and,
- flow directions in the intermediate bedrock zone are variable with season.

[2] Site Conceptual Model Report, WM Richmond Landfill, prepared by Dr. B.H. Kueper and WESA Inc., October 2009

3.1 LEACHATE RESULTS

3.1.1 Leachate Generation

An estimate of the amount of leachate generated at the site is provided by the site records of the volume of leachate hauled to the Napanee and Cobourg municipal sewer systems and treated at the wastewater treatment plants. The volume of leachate collected from the landfill and hauled to the Napanee and Cobourg municipal sewer systems from January to May 2015 was 5,679 m^3.

3.1.2 Liquid Levels in Leachate Wells

Liquid levels were measured in the two landfill leachate wells on April 16, 2015:

- The liquid level at LW-P1 was 149.79 metres above sea level (masl); and
- The liquid level at LW-P2 was 152.00 masl.

3.1.3 Leachate Chemistry

The leachate chemistry results for April 21, 2015 are summarized in Table 4. Leachate at the Richmond Landfill is characterized by elevated concentrations of general water quality parameters such as alkalinity, ammonia, chloride, conductivity, DOC, hardness, sodium and TKN, as well as selected VOCs. Generally, the inorganic and general parameters that characterize the leachate were more elevated in the samples collected from the leachate wells compared to the leachate chambers. VOC concentrations were below the laboratory reporting limit (RL) for most parameters, with a few exceptions where VOC concentrations were measured at low concentrations in leachate. Similarly, PAHs were measured at low concentrations or below the laboratory RL. Concentrations were generally higher in leachate well LW-P2 compared to LW-P1, and were higher in the South Chamber compared to the North Chamber where leachate is diluted by shallow groundwater.

3.2 GROUNDWATER RESULTS

3.2.1 Groundwater Elevations

Groundwater elevations from program monitoring wells were measured on April 16, 2015 and are presented in Table 5. An inventory of monitoring well locations is provided in Appendix A. Groundwater elevation contours within the shallow and intermediate bedrock groundwater flow zones are shown on Figures 2 and 3, respectively. Groundwater flow directions were inferred by

interpolating the hydraulically responsive wells screened within the corresponding groundwater flow zone, and are consistent with historical results.

The spring 2015 shallow groundwater contours (Figure 2) are consistent with historical results and shows that the Empey Hill drumlin southwest from the landfill creates a flow divide with shallow groundwater being directed both to the north and the south. The northerly flowing groundwater is oriented toward Marysville Creek, while shallow groundwater to the south flows towards Beechwood Ditch. Shallow groundwater south of Beechwood Road flows locally to the north-northwest, towards an area of lower hydraulic head that may be influenced by the pond system in the south part of the site (see Figure 2). Shallow groundwater east of the landfill is influenced by a local zone of higher water levels in the vicinity of monitoring well M96. Shallow groundwater north of M96 flows to the north-northwest while groundwater south of M96 flows to the south-southwest.

The spring 2015 intermediate bedrock zone contours are presented on Figure 3, and are also consistent with historical results. As was the case in previous monitoring events, monitoring wells M49-2 and M52-1 were not used to generate the interpolated potentiometric surface, believed not to be representative of static groundwater conditions within the intermediate bedrock flow zone. On the landfill property, groundwater in the intermediate bedrock flow zone generally flows to the north, west, and south relative to the landfill. Further to the south (i.e., south of Beechwood Road), the direction of groundwater flow within the intermediate flow zone is consistent with the regional direction of groundwater flow, towards the south.

3.2.2 Groundwater Analytical Results

Results from the groundwater monitoring wells sampled in spring 2015 are presented in Table 6a. Groundwater quality data for the spring 2015 monitoring event are consistent with historical results, and discussed in this section.

Slightly elevated concentrations of a number of water quality parameters (e.g., alkalinity, chloride, conductivity, DOC, iron, manganese, sodium and/or TDS) were observed in some shallow groundwater zone monitoring wells located in close proximity to the landfill footprint (M41 and M54-4 to the south; M101 and M103 to the northwest; M66-2 to the north). All VOCs were below the laboratory reporting limit, with the exception of the following low but detectable concentrations:

- 1,1-dichloroethane at M41;
- Toluene at M53-4, M66-2 and M67-2;
- 1,1-dichloroethane at M41, M54-4 and M101; and

- 1,1,1-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, tetrachloroethylene, trichloroethylene and vinyl chloride at M54-4.

In other areas of the site, there is no evidence of groundwater impacts away from the landfill footprint in the shallow groundwater flow zone. Isolated occurrences of elevated concentrations of water quality parameters (i.e., one or two parameters per sample) are seen elsewhere on the Site. No indications of elevated concentrations related to impacts are identified at the property boundary in the shallow flow zone.

Analytical results from intermediate bedrock groundwater monitors sampled in spring 2015 are generally consistent with historical results. North of the landfill, elevated concentrations of water quality parameters are noted at M6-3 and OW4, which are in close proximity to the footprint. These results indicate the presence of leachate impacts at these locations. However, further north of the footprint and along Marysville Creek (e.g., at M5-3, M75, M82-1, M82-2 and OW1), as well as north of the creek at M59-2, M59-3 and M59-4, the concentrations are lower and impacts from the landfill are not evident.

South of the landfill, slightly elevated concentrations of alkalinity, DOC, chloride and TDS at M10-1, M105 and M107 indicate impacts from the landfill. Other locations south and southeast of the landfill with elevated concentrations (e.g., M49-1, M49-2 and M70-1) represent areas where the deeper saline groundwater is affecting the water quality. These pockets of more saline groundwater are isolated and do not reflect any widespread or significant upwelling of saline groundwater.

Elsewhere to the west (M58-3, M72, M74, M91-1 and M95-1), southwest (M56-2 and M80-1) and east (M52-1) of the landfill, the concentrations of water quality parameters are relatively low and continue to reflect background conditions.

VOCs in spring 2015 were below the laboratory reporting limit at most intermediate bedrock monitors, with the exception of select VOCs such as 1,1-dichloroethane, 1,1-dichloroethylene, chlorobenzene, chloroethane, cis-1,2-dichloroethylene, styrene, vinyl chloride and/or BTEX, which were detected at the following locations: M-5, M6-3, M9-3, M10-1, M49-2, M52-1, M70-1, M80-1, M82-1, M91-1, M105, M107, OW1 and OW4.

Alkalinity and ammonia results are shown for the shallow and intermediate bedrock flow zones on Figures 4 and 5, respectively.

3.2.3 Guideline B-7 Reasonable Use Limits (RULs)

Selected monitoring wells within the low-head areas of the WM Richmond Landfill in both the Shallow and Intermediate Bedrock Groundwater Flow Zones are compared to the RULs derived from laboratory analytical results (Table 6b). Proposed RULs for leachate indicator parameters and trigger monitors were presented in the EMP dated June 29, 2010. These will be re-examined as part of ongoing investigations, but are used here on an interim basis.

Slightly elevated concentrations of a number of inorganic or general water quality parameters (e.g., alkalinity, iron, manganese and/or TDS) were observed in some shallow groundwater flow zone monitoring wells (M54-4, M66-2, M67-2, M80-2 and OW37-s).

Slightly elevated concentrations of a number of water quality parameters (e.g alkalinity, boron, chloride, DOC, iron, manganese, sodium, TDS and/or benzene) were observed in some intermediate groundwater flow zone monitoring wells (M10-1, M49-1, M56-2, M70-1, M82-1, M82-2 and M107).

None of the parameters exceedances relative to their respective RUL in Table 6b are new, having been observed in the past on at least one occasion (typically several times) at these monitoring wells. Once adopted, the amended EMP will be used to monitor the extent of landfill leachate impacted groundwater, including beyond the current permitted property boundary based on the delineated CAZ that will result from ongoing investigations. This assessment will be based on an updated set of monitoring (compliance) points and leachate indicator parameters.

3.2.4 Status of Monitoring Wells and Compliance with Ontario Regulation 903

The conditions of groundwater monitoring wells that were tested as part of the EMP were inspected during the spring monitoring event. Any repairs, such as new locks, labels or well caps, etc. were made as necessary. Watertight casings and seals remain in place at all monitors to ensure that surface water or foreign materials do not infiltrate the wells in accordance with O. Reg 903. All groundwater monitoring wells on site are locked to provide protection against vandalism as per Waste Management standard operating procedure and in line with industry best practices.

It is recommended that damaged monitors M19, M58-4, M71 and OW57, as well as M49-1 and M75 (integrity of the bentonite seals in monitors suspect due to the presence of bentonite in purge water), be decommissioned when a revised EMP is approved as they cannot be repaired.

3.2.5 Off-Site Domestic Water Supply Well Results

Results from off-site private water supply wells sampled in spring 2015 are presented in Table 7.

Comparison with Ontario Drinking Water Quality Objectives and Guidelines (ODWSOG, 2006) revealed all parameters were below their respective maximum acceptable concentrations (MAC) or interim maximum acceptable concentrations (IMAC) as specified in Table 2 of the ODWSOG, with the exception of lead at 1206 Beechwood Road and nitrate at 1144 Beechwood Road. The supply wells at these residences are not in use, and the groundwater is not being consumed. The elevated lead concentration may be related to a lack of water flushing through the systems since the groundwater supplies are no longer in use. The elevated nitrate result at 1144 Beechwood Road may reflect possible surface-borne infiltration at the well. Some inorganic parameters (chloride, DOC, hardness, iron, manganese, sulphate, sodium and TDS) were measured at concentrations exceeding their respective aesthetic objective (AO) or operational guideline (OG) from Table 4 of the ODWSOG. Figure 6 shows the alkalinity and ammonia results from the domestic well sampling program.

As was the case in previous sampling events, most volatile organic compounds (VOCs) in off-site supply wells were reported below the laboratory reporting limit (RL) at all locations, with the exception of some VOCs that were detected in measurable quantities above the RL at 1097, 1181, 1250, 1252 and 1264 Beechwood Road. In all cases, VOC concentrations were below the MAC or AO.

The moderate mineralization observed at the private water supply wells sampled (elevated chloride, hardness, TDS and sodium) is consistent with the local hydrogeological setting (carbonate aquifer with documented saline groundwater at depth). These wells are no longer in use and will be included within the CAZ.

3.2.6 Groundwater Chemistry Quality Assurance / Quality Control (QA/QC)

An evaluation of the QA/QC data (from duplicate and blank samples) is included in Appendix B, where analytical results are compared between regular samples and their corresponding field duplicate samples, submitted to the laboratory without identifying the location they were collected from. A standard margin of error of 20% (relative percent difference (RPD) between regular sample and duplicate) was deemed acceptable for field duplicates. In general, the comparison between samples and duplicates shows very good correlation for the majority of analyzed constituents. All parameters for groundwater duplicate QA/QC sampling were well within the 20% margin of error with the three exceptions as summarized in Appendix B. All parameters with RPD greater than 20% were measured at low concentrations (less than 5 times

the RDL) and are therefore within acceptable margin of error. All parameters were near or below the RDL in equipment and field blanks.

3.3 SURFACE WATER RESULTS

3.3.1 Pond Elevations

Staff gauges were installed in the three ponds on the south side of the landfill labeled SG1, SG2 and SG3. Staff gauge locations and pond elevations measured April 16, 2015 are shown on Figure 2.

3.3.2 Surface Water Monitoring Locations

The two water courses that may receive surface water/storm water runoff from the Richmond Landfill are Marysville Creek to the north of the waste mound and Beechwood Ditch to the south (Figure 1). The Beechwood Ditch is a man-made surface water course that flows from the east onto WM property. It then flows west across a portion of the site before again crossing Beechwood Road and travelling southwest to cross County Road 10, and joins Marysville Creek east of Highway 49 and north of Highway 401. Both the Beechwood Ditch and Marysville Creek flow intermittently in the vicinity of the landfill. Marysville Creek has some base flow locally, and flows on a continuous basis west of County Road 10 (Deseronto Road). Marysville Creek eventually discharges into the Bay of Quinte at Hungry Bay.

All surface water monitoring locations are shown on Figure 1.

3.3.3 Surface Water Flow Rates

Visual observations of surface water flow and general water characteristics for the spring sampling program are summarized in Table 8. In general, surface water flow rates were variable, ranging from 0 m^3/s (at S4R) to 0.7 m^3/s (at S6).

3.3.4 Surface Water Analytical Results

The results from the surface water locations sampled in spring 2015 are presented in Table 9, and are consistent with historical results.

Surface water quality from samples collected in spring 2015 was compared to the Provincial Water Quality Objectives (PWQO) (see Table 9). Background surface water quality was monitored from upstream station S2 for Marysville Creek, while background surface water

quality for Beechwood Ditch was monitored at station S5. Storm water runoff from the existing landfill area flows to one of three storm water sedimentation retention ponds, located to the northeast, northwest and south of the landfill footprint.

All constituents analysed in surface water samples were below their respective PWQO, with the exception of phenols and phosphorous at all surface water locations. Downstream location S8R also exceeded PWQO for unionized ammonia at the Beechwood Ditch. Elevated levels of phenols and phosphorus, as well as ammonia may be due to neighbouring agricultural activities.

Results from spring 2015 indicate that the landfill is not causing adverse impacts to surface water quality. Anomalous results at surface water monitoring locations S6 and S7 observed in October 2014 were believed to be associated with the presence of suspended solids; results from April 2015 are consistent with historical results and confirm that the fall 2014 results at locations S6 and S7 were indeed anomalous.

3.3.5 Surface Water Quality Assurance / Quality Control (QA/QC)

An evaluation of the QA/QC data (from duplicate and blank samples) is included in Appendix B, where analytical results are compared between regular samples and their corresponding field duplicate samples, submitted to the laboratory without identifying the location they were collected from. A standard margin of error of 20% was deemed acceptable for field duplicates. In general, the comparison between samples and duplicates shows very good correlation for the majority of analyzed constituents. All parameters for the surface water duplicate QA/QC sample (location S6) were well within the 20% margin of error, with the exception of iron which was measured at low concentrations (less than 5 times the RDL) and is therefore within acceptable margin of error.

3.4 Subsurface Gas Sampling

On April 24, 2015, BluMetric inspected the subsurface gas monitoring probes and obtained measurements at all locations. The location of the gas monitors and the measurement results are shown in Table 10. Measurements ranged from 0 to 15 ppm, well below the LEL for methane of 5% by volume in air, or 50,000 ppm.

4. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The spring 2015 monitoring program included the collection of groundwater, leachate and surface water samples, as well as landfill gas monitoring, in accordance with the site groundwater

monitoring requirements outlined in the revised EMP dated June 29, 2010, as specified in the Environmental Compliance Approval (ECA) issued on January 9, 2012 and amended May 3, 2013, as well as changes resulting from the ongoing Environmental Review Tribunal (ERT) settlement. Per the settlement agreement with CCCTE and the ERT Order issued April 26, 2013, the EMP is to be revised upon completion of the investigation that is currently underway at the site, in particular to define the extents of landfill leachate impacted groundwater beyond the current approved site boundary, and delineate a Contaminant Attenuation Zone (CAZ). The proposed EMP is currently under review by the MOECC and other stakeholders; once adopted, the new EMP will replace the current groundwater monitoring program, and will be used to assess potential impacts to groundwater from landfill leachate.

The following were completed between April 16 and 24, 2015:

- Water levels were measured from 74 groundwater monitoring wells: 39 in the shallow groundwater flow zone and 33 in the intermediate bedrock flow zone.
- Forty-four groundwater monitors (18 completed in the shallow zone and 26 in the intermediate bedrock) were sampled for analytical testing.
- Seven off-site domestic water supply wells located along Beechwood Road were sampled for analytical testing.
- Seven surface water locations were sampled for analytical testing.
- A total of 15 Quality Assurance/Quality Control (QA/QC) samples were collected (six field duplicates, three field blanks, four trip blanks and two equipment blanks).
- Subsurface gas concentrations were recorded from seven on-site gas monitoring wells.

4.1 GROUNDWATER

- Groundwater flow directions interpreted from monitors known to be hydraulically active were consistent with historical flownets:
  - Shallow groundwater flow is influenced by local topographic highs in the southwestern (Empey Hill Drumlin) and eastern (groundwater monitor M96 area) portions of the site, and is characterized by a flow divide with shallow groundwater being directed both to the north (toward Marysville Creek) and the south (toward Beechwood Ditch).
  - Groundwater in the intermediate bedrock flow zone generally flows to the north, west, and south relative to the landfill.
- Groundwater quality data from spring 2015 are generally consistent with historical results.
- Slightly elevated concentrations of a number of water quality parameters are seen in the shallow groundwater zone northwest and north of the Phase 1 landfill footprint, as well as south of the landfill. In other areas of the site, there is no evidence of groundwater impact away from the landfill footprint in the shallow groundwater flow zone.

- The geochemical results for the intermediate bedrock groundwater flow zone indicate higher concentrations of water quality parameters south and immediately north of the landfill relative to the concentrations west and east of the landfill. The higher concentrations are downgradient from the landfill footprint and occur in monitoring wells that are known to be hydraulically connected to each other.
- Further investigation of the groundwater conditions south of the landfill is underway in order to better define and delineate impacts from the landfill and to define the extent of a contaminant attenuation zone (CAZ).
- Continued groundwater monitoring within the shallow and intermediate bedrock groundwater flow zones between the landfill footprint and the low-head areas is warranted in order to further examine groundwater quality and any trends over time.
- It is recommended that the following groundwater monitoring wells be replaced, upgraded or removed from the monitoring program for the reasons stated below, as these wells have become unreliable for water level and/or quality monitoring as a result of these issues:
  - M29: low recovery small diameter (2.54 cm) overburden monitors that is often dry and/or cannot be sampled after being purged dry;
  - M75 and M49-1: integrity concerns with the bentonite seal (presence of bentonite in purge water); and
  - M58-4 and M71: damaged monitors.

Repair, upgrade or replacement of these wells will be subject to the outcome from the ongoing investigation, and will be documented in the revised EMP (as per Condition 8.5(b) of the Amended ECA).

4.2 Surface Water

- The concentrations observed are within the range of historical monitoring results.
- The concentrations of phenols and phosphorous were above PWQO at all surface water locations and concentrations of unionized ammonia was above PWQO at surface water location S8R; continued evaluation of further results is required to validate whether this is a one-time occurrence;
- The results indicate that surface water runoff from the site or discharge of contaminated groundwater is not affecting Marysville Creek or Beechwood Ditch and that elevated parameters may be due to neighbouring agricultural activities.

4.3 SUBSURFACE GAS

- Measurements for methane gas ranged from 0 to 15 ppm, well below the LEL of 5% by volume in air, or 50,000 ppm.

5. LIMITING CONDITIONS

The spring 2015 monitoring program involved the collection of leachate, groundwater (from on-site monitoring wells and off-site domestic supply wells) and surface water for analyses at the site monitoring locations. The data collected during this investigation represent the conditions at the sampled locations only.

The conclusions presented in this report represent our professional opinion and are based on the conditions observed on the dates set out in the report, the information available at the time this report was prepared, the scope of work, and any limiting conditions noted herein.

BluMetric provides no assurances regarding changes to conditions subsequent to the time of the assessment. BluMetric makes no warranty as to the accuracy or completeness of the information provided by others or of the conclusions and recommendations predicated on the accuracy of that information.

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TABLES

Table 1: Summary of Environmental Monitoring Program

Monitoring Locations		Parameter Suite	Monitoring Frequency
Shallow Groundwater Flow Zone Monitors			
M12, M14, M15, M16, M18, M19, M23, M27, M28, M29, M30, M31, M35, M38, M39, M41, M47-3, M53-4, M54-4, M58-4, M60-4, M66-2, M67-2, M68-4, M70-3, M77, M80-2, M81, M87-2, M88-2, M89-2, M96, M97, M98, M99-2, M100, M101, M102, M103, OW37-s, OW57		Groundwater Elevations	Spring, Summer and Fall
M29, M39, M41, M53-4, M54-4, M58-4, M66-2, M67-2, M68-4, M70-3, M80-2, M81, M87-2, M96, M97, M99-2, M101, M102, M103, OW37-s		Groundwater Inorganic & General	Semi-annual: Spring and Fall
M41, M58-4, M96, M97, M53-4, M54-4, M66-2, M67-2, M70-3, M80-2, M87-2, M101, M102, M103, OW37-s		VOCs	Annual: Spring
Intermediate Bedrock Groundwater Flow Zone Monitors			
M3A-3, M9-3, M10-1, M49-1, M49-2, M50-3, M52-1, M56-2, M58-3, M59-2, M59-3, M59-4, M60-1, M63-2, M64-2, M70-1, M71, M72, M73, M74, M80-1, M82-1, M82-2, M91-1, M95-1, M105, M106, M107*, M108, OW1, OW4, OW54-i, OW54-d		Groundwater Elevations	Spring, Summer and Fall
M5-3, M6-3, M9-3, M10-1, M49-1, M49-2, M52-1, M56-2, M58-3, M59-2, M59-3, M59-4, M70-1, M71, M72, M74, M75, M80-1, M82-1, M82-2, M91-1, M95-1, M105, M107*, OW1, OW4, OW54-d		Groundwater Inorganic & General	Semi-annual: Spring and Fall
M5-3, M6-3, M9-3, M10-1, M49-1, M49-2, M52-1, M56-2, M59-3, M70-1, M74, M75, M80-1, M82-1, M82-2, M91-1, M95-1, OW1, OW4		VOCs	Annual: Spring
Surface Water Sampling Locations			
Beechwood Ditch	S4R, S5 and S8R	Surface Water Inorganic and General	Semi-annual: Spring and Fall
Marysville Creek	S2, S3, S6 and S7	Surface Water Inorganic and General	Semi-annual: Spring and Fall
Leachate Monitoring Locations			
North Chamber, South Chamber, LW-P1 and LW-P2		Leachate Inorganic & General, VOCs, PAHs and NDMA	Annual: Spring
Landfill Gas Monitoring Wells			
GM1, GM3, GM4-1, GM4-2, GM5, GM6		% methane by volume	Semi-annual: Spring and Fall
Off-site Domestic Water Supply Wells			
1097 Beechwood Road 1121 Beechwood Road 1144 Beechwood Road 1181 Beechwood Road	1206 Beechwood Road 1250 Beechwood Road 1252 Beechwood Road 1264 Beechwood Road	Groundwater Inorganic & General, VOCs	Semi-annual: Spring and Fall

* M107: Originally labelled as M106 in EMP dated June 29, 2010

Table 2. Analytical Parameters for Water and Leachate Samples

Groundwater Inorganic and General Parameters		
Alkalinity	Conductivity	Nitrite
Ammonia (total)	Copper	pH
Arsenic	Dissolved organic carbon	Phenols
Barium	Hardness	Phosphorus (total)
Biological oxygen demand	Iron	Potassium
Boron	Lead	Sodium
Cadmium	Magnesium	Sulphate
Calcium	Manganese	Total dissolved solids
Chemical oxygen demand	Mercury	Total Kjeldahl Nitrogen
Chloride	Naphthalene	Zinc
Chromium (total)	Nitrate	
Surface Water Inorganic and General Parameters		
Alkalinity	Copper	Total dissolved solids
Ammonia (total)	Cyanide (free)	Total Kjeldahl nitrogen
Arsenic	Hardness	Total phosphorus
Barium	Iron	Total suspended solids
Biological oxygen demand	Lead	Un-ionized ammonia
Boron	Magnesium	Zinc
Cadmium	Mercury	
Calcium	Naphthalene	
Chemical oxygen demand	Nickel	*Field measured:*
Chloride	Nitrate	conductivity
Chromium (total)	Nitrite	dissolved oxygen
Chromium (III)	Phenols	estimated flow rate
Chromium (VI)	Potassium	pH
Cobalt	Sodium	temperature
Conductivity	Sulphate	
Leachate Inorganic and General Parameters		
Alkalinity	Conductivity	Nitrite
Ammonia (total)	Copper	pH
Arsenic	Dissolved organic carbon	Phenols
Barium	Hardness	Phosphorus (total)
Biological oxygen demand	Iron	Potassium
Boron	Lead	Sodium
Cadmium	Magnesium	Sulphate
Calcium	Manganese	Total dissolved solids
Chemical oxygen demand	Mercury	Total Kjeldahl Nitrogen
Chloride	Naphthalene	Zinc
Chromium (total)	Nickel	
Cobalt	Nitrate	
Volatile Organic Compounds (VOCs)		
1,1,1,2-Tetrachloroethane	Benzene	Ethylbenzene
1,1,1-Trichloroethane	Bromodichloromethane	m&p-Xylene
1,1,2,2-Tetrachloroethane	Bromoform	o-Xylene
1,1,2-Trichloroethane	Bromomethane	Styrene
1,1-Dichloroethane	Carbon tetrachloride	Toluene
1,1-Dichloroethylene	Chlorobenzene	Trans-1,2-Dichloroethylene
1,2-Dibromoethane	Chloroethane	Trans-1,3-Dichloropropylene
1,2-Dichlorobenzene	Chloroform	Tetrachloroethylene
1,2-Dichloroethane	Chloromethane	Trichloroethylene
1,2-Dichloropropane	Cis-1,2-Dichloroethylene	Trichlorofluoromethane
1,3,5-Trimethylbenzene	Cis-1,3-Dichloropropylene	Vinyl chloride
1,3-Dichlorobenzene	Dibromochloromethane	
1,4-Dichlorobenzene	Dichloromethane (methylene chloride)	
Polycyclic Aromatic Hydrocarbons (PAHs)		
1-Methylnaphthalene	Benzo(b)fluoranthene	Fluorene
2-Methylnaphthalene	Benzo(g,h,i)perylene	Indeno(1,2,3-cd)pyrene
Acenaphthene	Benzo(k)fluoranthene	Naphthalene
Acenaphthylene	Biphenyl	Phenanthrene
Anthracene	Chrysene	Pyrene
Benzo(a)anthracene	Dibenzo(a,h)anthracene	
Benzo(a)pyrene	Fluoranthene	

Table 3. Groundwater Elevation Monitoring Locations

Location	Shallow Groundwater Flow Zone			Intermediate Groundwater Flow Zone		
West of landfill footprint	M27	M58-4	M98	M3A-3	M59-4	M82-1
	M28	M67-2	M99-2	M56-2	M72	M82-2
	M29	M87-2	M100	M58-3	M73	M91-1
	M30	M88-2	M101	M59-2	M74	M95-1
	M31	M89-2	M102	M59-3		
	M38	M97	OW37-s			
North of landfill footprint	M35	M66-2		M60-1		
	M39	M103		OW1		
	M60-4			OW4		
South of landfill footprint	M12	M18	M80-2	M9-3	M64-2	M105
	M14	M41	M81	M10-1	M71	M106
	M15	M53-4	OW57	M49-1	M80-1	M107*
	M16	M54-4		M49-2	OW54-i	M108
				M63-2	OW54-d	
East of landfill footprint	M19	M68-4	M96	M50-3		
	M23	M70-3		M52-1		
	M47-3	M77		M70-1		

* M107: Originally labelled as M106 in EMP dated June 29, 2010

Table 4: Leachate Chemistry Results - April 21, 2015

		North Chamber 2015-04-21	South Chamber 2015-04-21	LW-P1 2015-04-21	LW-P2 2015-04-21
General and Inorganic Parameters					
Alkalinity	mg/L	2200	6300	6500	6400
Ammonia	mg/L	276	1430	1400	1170
Arsenic	mg/L	0.0058	0.039	0.14	0.033
Barium	mg/L	0.24	0.32	2.4	0.61
Biochemical Oxygen Demand	mg/L	53	150	230	270
Boron	mg/L	2.5	8.7	13	17
Cadmium	mg/L	< 0.0001	< 0.0005	0.00056	< 0.0005
Calcium	mg/L	180	99	59	48
Chemical Oxygen Demand	mg/L	450	2300	3600	3200
Chloride	mg/L	580	2100	2500	2900
Chromium	mg/L	0.029	0.25	0.13	0.14
Cobalt	mg/L	0.013	0.061	0.068	0.071
Conductivity	μS/cm	6060	18500	19600	21000
Copper	mg/L	0.0055	0.092	< 0.005	< 0.005
Dissolved Organic Carbon	mg/L	150	680	1100	890
Hardness	mg/L	880	700	460	630
Iron	mg/L	12	8.4	4.4	5.6
Lead	mg/L	0.0015	0.0085	0.024	0.0052
Magnesium	mg/L	110	110	76	120
Manganese	mg/L	0.96	0.32	0.05	0.061
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Nickel	mg/L	0.061	0.21	0.22	0.32
Nitrate	mg/L	< 1	< 2	< 2	< 2
Nitrite	mg/L	< 0.1	0.23	0.24	0.39
pH (Lab)	unitless	7.12	7.8	7.91	7.81
Phenols	mg/L	0.51	3.1	0.94	0.59
Phosphorus (total)	mg/L	1.5	11	5.2	5.2
Potassium	mg/L	160	470	450	690
Sodium	mg/L	580	1800	1900	2300
Sulphate	mg/L	< 20	330	< 100	< 100
Total Dissolved Solids	mg/L	2600	7040	7370	9140
Total Kjeldahl Nitrogen	mg/L	310	1300	1600	1200
Zinc	mg/L	0.015	0.081	0.026	0.054

Table 4: Leachate Chemistry Results - April 21, 2015

		North Chamber 2015-04-21	South Chamber 2015-04-21	LW-P1 2015-04-21	LW-P2 2015-04-21
Volatile Organic Compounds (VOCs)					
1,1,1,2-Tetrachloroethane	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
1,1,1-Trichloroethane	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
1,1,2,2-Tetrachloroethane	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
1,1,2-Trichloroethane	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
1,1-Dichloroethane	mg/L	0.0013	< 0.0005	< 0.001	< 0.001
1,1-Dichloroethylene	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
1,2-Dibromoethane	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
1,2-Dichlorobenzene (o)	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
1,2-Dichloroethane	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
1,2-Dichloropropane	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
1,3,5-Trimethylbenzene	mg/L	0.0045	0.0022	0.0075	0.011
1,3-Dichlorobenzene (m)	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
1,4-Dichlorobenzene (p)	mg/L	0.0064	0.0054	0.0071	0.0083
Benzene	mg/L	0.0065	0.0026	0.0045	0.0027
Bromodichloromethane	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
Bromoform	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
Bromomethane	mg/L	< 0.005	< 0.0025	< 0.005	< 0.005
Carbon Tetrachloride	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
Chlorobenzene	mg/L	0.0038	0.0013	0.025	0.0019
Chloroethane	mg/L	0.0031	< 0.001	< 0.002	< 0.002
Chloroform	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
Chloromethane	mg/L	< 0.005	< 0.0025	< 0.005	< 0.005
Cis-1,2-Dichloroethylene	mg/L	< 0.001	0.00064	0.013	0.0032
Cis-1,3-Dichloropropylene	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
Dibromochloromethane	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
Dichloromethane	mg/L	< 0.005	< 0.0025	< 0.005	< 0.005
Ethylbenzene	mg/L	0.024	0.0033	0.031	0.035
m+p-Xylene	mg/L	0.06	0.018	0.06	0.073
N-nitrosodimethylamine (NDMA)	mg/L	0.000015	0.00015	0.00012	0.00011
o-Xylene	mg/L	0.018	0.0093	0.033	0.034
Styrene	mg/L	< 0.002	< 0.001	< 0.0025	< 0.002
Tetrachloroethylene	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
Toluene	mg/L	0.016	0.011	0.024	0.081
Trans-1,2-dichloroethylene	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
Trans-1,3-dichloropropylene	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
Trichloroethylene	mg/L	< 0.001	< 0.0005	< 0.001	< 0.001
Trichlorofluoromethane	mg/L	< 0.002	< 0.001	< 0.002	< 0.002
Vinyl Chloride	mg/L	< 0.002	< 0.001	< 0.002	< 0.002

Table 4: Leachate Chemistry Results - April 21, 2015

		North Chamber 2015-04-21	South Chamber 2015-04-21	LW-P1 2015-04-21	LW-P2 2015-04-21
Polycyclic Aromatic Hydrocarbons (PAHs)					
1-Methylnaphthalene	mg/L	0.00091	0.0014	0.002	0.011
2-Methylnaphthalene	mg/L	0.0012	0.001	0.0029	0.021
Acenaphthene	mg/L	0.0011	0.003	0.0026	0.026
Acenaphthylene	mg/L	< 0.00005	< 0.00005	< 0.00005	< 0.0004
Anthracene	mg/L	< 0.0005	< 0.003	0.0022	0.016
Benzo(a)anthracene	mg/L	0.000075	0.00056	< 0.00005	0.0057
Benzo(a)pyrene	mg/L	0.000026	0.00022	< 0.00001	0.0023
Benzo(b)fluoranthene	mg/L	< 0.00005	0.00032	< 0.00005	0.0034
Benzo(g,h,i)perylene	mg/L	< 0.00005	0.00017	< 0.00005	0.00088
Benzo(k)fluoranthene	mg/L	< 0.00005	0.000095	< 0.00005	0.0011
Biphenyl	mg/L	0.00039	0.00041	0.00061	0.0058
Chrysene	mg/L	0.00006	0.00048	< 0.00005	0.0045
Dibenzo(a,h)anthracene	mg/L	< 0.00005	< 0.00005	< 0.00005	0.00024
Fluoranthene	mg/L	0.00039	0.0036	0.00041	0.04
Fluorene	mg/L	0.0006	0.0023	0.0053	0.026
Indeno(1,2,3-cd)pyrene	mg/L	< 0.00005	0.00006	< 0.00005	0.0012
Naphthalene	mg/L	0.0091	0.0028	0.013	0.077
Phenanthrene	mg/L	0.00091	0.0052	0.0095	0.078
Pyrene	mg/L	0.00032	0.0024	0.00023	0.028

Table 5: Groundwater Elevations - April 16, 2015

Monitoring Well	Water Level (masl)	Monitoring Well	Water Level (masl)	Monitoring Well	Water Level (masl)	Monitoring Well	Water Level (masl)
Shallow Groundwater Flow Zone							
M12	125.67	M31	124.32	M67-2	122.63	M98	130.32
M14	127.03	M35	124.39	M68-4	124.27	M99-2	130.55
M15	125.46	M38	125.42	M70-3	127.33	M100	125.34
M16	124.50	M39	123.74	M77	126.74	M101	124.10
M18	127.59	M41	125.41	M80-2	123.63	M102	124.20
M19	damaged	M47-3	124.87	M81	124.64	M103	123.83
M23	127.50	M53-4	125.43	M87-2	124.65	OW37-s	122.16
M27	126.27	M54-4	124.46	M88-2	128.59	OW57	damaged
M28	126.52	M58-4	125.07	M89-2	129.66		
M29	123.64	M60-4	124.42	M96	129.15		
M30	124.57	M66-2	123.29	M97	125.50		
Intermediate Bedrock Groundwater Flow Zone							
M3A-3	124.71	M58-3	123.47	M72	123.24	M105	124.87
M9-3	125.02	M59-2	123.54	M73	123.30	M106	123.38
M10-1	123.79	M59-3	123.50	M74	123.69	M107	124.74
M49-1	124.32	M59-4	123.51	M80-1	123.50	M108	122.84
M49-2	119.80	M60-1	123.29	M82-1	122.89	OW1	122.58
M50-3	124.23	M63-2	121.41	M82-2	123.07	OW4	123.73
M52-1	112.97	M64-2	119.05	M91-1	123.39	OW54-d	124.39
M56-2	123.44	M70-1	122.77	M95-1	123.31	OW54-i	124.41
		M71	124.51				

Table 6a: Groundwater Quality Results - April 21 - 24, 2015

Name	Date	Alkalinity	Ammonia	Arsenic	Barium	Biochemical Oxygen Demand	Boron	Cadmium	Calcium	Chemical Oxygen Demand	Chloride	Chromium	Cobalt	Conductivity	Copper	Dissolved Organic Carbon	Hardness	Iron	Lead	Magnesium	Manganese	Mercury	Naphthalene	Nickel	Nitrate	Nitrite	pH (Lab)	Phenols	Phosphorus (total)	Potassium	Sodium	Sulphate	Total Dissolved Solids	Total Kjeldahl Nitrogen	Zinc
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	unitless	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Shallow Groundwater Flow Zone[1]																																			
M39	04/22/2015	530	< 0.15	< 0.001	0.1	< 2	0.014	< 0.0001	83	4.9	8	< 0.005	0.0013	955	< 0.001	2	460	0.88	< 0.0005	62	0.13	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.02	< 0.001	< 0.03	0.4	35	16	564	< 0.7	0.0093
M41	04/22/2015	430	< 0.15	< 0.001	0.083	< 2	0.072	< 0.0001	140	7.8	180	< 0.005	< 0.0005	1550	0.0015	3.5	710	0.19	< 0.0005	85	0.043	< 0.0002	< 0.0005	0.0049	< 0.1	< 0.01	7.9	< 0.001	< 0.03	14	45	93	902	< 0.7	< 0.005
M53-4	04/23/2015	420	< 0.15	< 0.001	0.05	< 2	0.025	< 0.0001	140	9	3	< 0.005	< 0.0005	867	< 0.001	3.7	470	< 0.1	< 0.0005	27	0.021	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.76	< 0.001	0.17	0.24	34	65	534	< 0.7	< 0.005
M54-4	04/23/2015	430	< 0.15	< 0.001	0.18	< 2	0.03	< 0.0001	140	4.7	74	0.0052	< 0.0005	1090	< 0.001	2.5	470	< 0.1	< 0.0005	27	0.019	< 0.0002	< 0.0005	0.0017	< 0.1	< 0.01	7.68	< 0.001	0.49	1.4	52	51	628	< 0.7	< 0.005
M66-2	04/23/2015	320	< 0.15	0.0013	0.025	< 2	0.33	< 0.0001	120	8.3	100	0.0086	< 0.0005	1330	< 0.001	1.9	470	0.74	< 0.0005	40	0.069	< 0.0002	< 0.013	0.0014	< 0.1	< 0.01	7.92	0.014	0.11	4	100	240	834	< 0.7	< 0.005
M67-2	04/22/2015	350	0.55	0.0014	0.24	< 2	0.79	< 0.0001	49	7.5	6	0.0067	< 0.0005	682	< 0.001	2.2	250	0.59	< 0.0005	30	0.052	< 0.0002	< 0.01	< 0.001	< 0.1	0.035	8.18	0.0096	0.06	7.8	62	20	410	< 0.7	< 0.005
M68-4	04/24/2015	330	< 0.15	< 0.001	0.084	< 2	< 0.01	< 0.0001	110	26	11	0.074	< 0.0005	690	< 0.001	4.1	360	0.16	< 0.0005	19	0.13	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.73	< 0.001	8.2	< 0.2	15	38	396	< 0.7	< 0.005
M70-3	04/23/2015	390	< 0.15	0.0021	0.036	< 2	0.023	< 0.0001	140	5.6	40	0.0068	0.0019	1020	< 0.001	2.7	530	3.7	< 0.0005	41	0.2	< 0.0002	< 0.0005	0.0028	< 0.1	< 0.01	7.72	< 0.001	0.08	0.51	22	98	632	< 0.7	< 0.005
M80-2	04/24/2015	330	< 0.15	< 0.001	0.11	< 2	0.042	< 0.0001	94	< 4	84	< 0.005	< 0.0005	913	< 0.001	1.9	460	< 0.1	< 0.0005	54	< 0.002	< 0.0002	< 0.0005	0.0011	< 0.1	< 0.01	7.91	< 0.001	< 0.03	4	17	37	532	< 0.7	0.0063
M81	04/24/2015	340	< 0.15	< 0.001	0.2	< 2	0.025	< 0.0001	100	< 4	80	< 0.005	< 0.0005	929	< 0.001	1.6	490	< 0.1	< 0.0005	55	0.011	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.93	< 0.001	0.03	2.5	12	39	498	< 0.7	< 0.005
M87-2	04/23/2015	210	< 0.15	0.0011	0.052	< 2	0.042	< 0.0001	55	< 4	29	0.0087	< 0.0005	585	< 0.001	1.3	280	< 0.1	< 0.0005	36	0.0034	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.98	< 0.001	0.34	2.1	12	50	330	< 0.7	< 0.005
M96	04/23/2015	300	< 0.15	< 0.001	0.097	< 2	0.074	< 0.0001	65	< 4	4	< 0.005	< 0.0005	631	< 0.001	1.5	290	< 0.1	< 0.0005	32	< 0.002	< 0.0002	< 0.0005	< 0.001	1.27	< 0.01	7.97	< 0.001	< 0.03	4.6	21	39	356	< 0.7	< 0.005
M97	04/22/2015	220	< 0.15	0.001	0.078	< 2	0.081	< 0.0001	31	< 4	6	0.0052	< 0.0005	538	< 0.001	2.2	220	< 0.1	< 0.0005	34	< 0.002	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.02	< 0.001	0.11	2.2	36	56	330	< 0.7	< 0.005
M99-2	04/23/2015	300	0.15	0.0011	0.043	< 2	0.073	< 0.0001	66	5.8	26	0.011	< 0.0005	833	< 0.001	2.6	410	0.16	< 0.0005	59	0.017	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.93	0.0012	1.6	2.6	17	120	528	< 0.7	< 0.005
M101	04/23/2015	480	< 0.15	< 0.001	0.17	< 2	0.075	< 0.0001	170	5.5	86	0.005	< 0.0005	1220	< 0.001	3	640	< 0.1	< 0.0005	55	0.0066	< 0.0002	< 0.0005	0.0012	< 0.1	< 0.01	7.66	< 0.001	0.09	3.8	15	63	742	< 0.7	< 0.005
M102	04/23/2015	440	< 0.15	< 0.001	0.12	< 2	0.021	< 0.0001	150	< 4	26	< 0.005	0.0026	934	< 0.001	3.5	490	0.94	< 0.0005	28	0.3	< 0.0002	< 0.0005	0.001	< 0.1	< 0.01	7.69	< 0.001	< 0.03	1.9	22	38	536	< 0.7	< 0.005
M103	04/23/2015	750	< 0.15	< 0.001	0.18	< 2	0.29	< 0.0001	150	9.3	180	< 0.005	< 0.0005	1920	< 0.001	4.8	770	< 0.1	< 0.0005	97	0.0037	< 0.0002	< 0.0005	0.012	< 0.1	< 0.01	7.67	< 0.001	0.05	6.4	150	46	1120	< 0.7	0.0082
OW37-s	04/22/2015	260	0.3	< 0.001	0.16	< 2	0.15	< 0.0001	57	< 4	79	< 0.005	< 0.0005	756	< 0.001	2.3	250	5.6	< 0.0005	27	0.14	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.23	< 0.001	< 0.03	13	51	18	412	< 0.7	< 0.005
Intermediate BedrockGroundwater Flow Zone																																			
M5-3	04/22/2015	460	1.3	< 0.001	0.16	11	1.2	< 0.0001	31	13	40	< 0.005	< 0.0005	974	< 0.001	1.4	190	< 0.1	< 0.0005	27	0.0032	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.26	0.031	0.05	13	140	23	604	1.3	< 0.005
M6-3	04/22/2015	650	4.35	< 0.002	1.1	6	0.31	< 0.0001	640	130	1400	0.016	< 0.0025	7330	0.0017	46	1600	< 0.1	< 0.0005	1.2	< 0.002	< 0.0002	< 0.001	0.038	< 0.1	< 0.01	11.9	0.018	0.04	47	610	84	3790	7.5	< 0.005
M9-3	04/24/2015	260	1.09	< 0.001	0.046	< 2	0.54	< 0.0001	43	4.6	89	< 0.005	< 0.0005	777	< 0.001	2.6	230	0.11	< 0.0005	29	0.027	< 0.0002	< 0.01	< 0.001	< 0.1	< 0.01	8	0.019	< 0.03	15	78	8	416	1.2	< 0.005
M10-1	04/23/2015	470	0.72	0.0011	0.26	< 2	0.22	< 0.0001	140	19	140	< 0.005	< 0.0005	1270	< 0.001	7.9	500	20	< 0.0005	34	0.65	< 0.0002	< 0.0005	0.0045	< 0.1	< 0.01	7.32	< 0.001	< 0.03	5.5	91	9	760	1.6	< 0.005
M49-1	04/23/2015	360	0.87	< 0.001	0.041	< 2	1	< 0.0001	13	6.6	290	< 0.005	< 0.0005	1740	< 0.001	2.5	58	< 0.1	< 0.0005	6.2	0.0099	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.19	< 0.001	0.09	8.2	340	27	940	1	< 0.005
M49-2	04/23/2015	670	1.4	< 0.001	0.057	27	2.3	< 0.0001	14	75	230	< 0.005	< 0.0005	2210	< 0.001	1.6	74	< 0.1	< 0.0005	9.3	< 0.002	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.4	0.12	< 0.15	12	510	150	1290	1.6	< 0.005
M52-1	04/23/2015	410	1.49	< 0.001	0.29	< 2	1.3	< 0.0001	34	5.9	220	< 0.005	< 0.0005	1540	< 0.001	2	160	1.5	< 0.0005	19	0.013	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.87	< 0.001	0.03	13	260	2	834	1.6	< 0.005
M56-2	04/22/2015	290	0.17	< 0.001	0.19	< 2	0.079	< 0.0001	71	4.2	19	< 0.005	< 0.0005	746	< 0.001	1.7	370	< 0.1	< 0.0005	47	0.063	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.09	< 0.001	< 0.03	3.2	13	90	460	< 0.7	< 0.005
M58-3	04/23/2015	310	< 0.15	< 0.001	0.15	< 2	0.019	< 0.0001	92	< 4	4	< 0.005	< 0.0005	654	< 0.001	1.2	370	< 0.1	< 0.0005	33	0.005	< 0.0002	< 0.0005	< 0.001	0.1	< 0.01	7.83	< 0.001	< 0.03	1.8	8.7	41	370	< 0.7	< 0.005
M59-2	04/22/2015	420	0.49	< 0.001	0.21	< 2	0.25	< 0.0001	120	20	63	< 0.005	< 0.0005	1020	< 0.001	7.3	450	< 0.1	< 0.0005	38	0.014	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.89	0.0063	< 0.03	5.5	35	39	618	0.8	< 0.005
M59-3	04/22/2015	270	< 0.15	< 0.001	0.11	< 2	0.055	< 0.0001	110	6.5	40	< 0.005	< 0.0005	726	< 0.001	3.2	330	0.24	< 0.0005	15	0.023	< 0.0002	< 0.0005	< 0.001	0.41	< 0.01	7.9	< 0.001	< 0.03	2.3	19	40	402	< 0.7	< 0.005
M59-4	04/22/2015	270	0.2	< 0.001	0.097	< 2	0.45	< 0.0001	63	4	8	< 0.005	< 0.0005	645	< 0.001	2.1	300	0.54	< 0.0005	34	0.037	< 0.0002	< 0.0005	< 0.001	< 0.1	0.062	8.06	< 0.001	0.03	5.9	18	61	400	< 0.7	< 0.005
M70-1	04/23/2015	490	1.86	< 0.005	0.076	< 2	1.8	< 0.0005	230	31	2100	< 0.005	< 0.0025	7930	< 0.005	6.3	1300	3.4	< 0.0025	170	0.11	< 0.0002	< 0.0005	< 0.005	< 0.1	< 0.01	7.73	< 0.001	0.03	22	1300	460	4840	2.1	< 0.025
M72	04/22/2015	270	0.55	< 0.001	0.17	4	0.46	< 0.0001	55	21	25	< 0.005	< 0.0005	629	< 0.001	1.7	280	< 0.1	< 0.0005	36	0.0027	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.21	0.037	< 0.03	8.2	19	45	366	< 0.7	< 0.005
M74	04/23/2015	330	1.95	0.0026	0.088	< 2	0.95	< 0.0001	37	32	59	< 0.005	< 0.0005	970	< 0.001	1.9	180	< 0.1	< 0.0005	22	0.026	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.1	< 0.001	0.66	15	130	80	548	2.1	< 0.005
M75	04/23/2015	420	1.49	< 0.001	0.081	3	1.2	< 0.0001	35	22	63	< 0.005	< 0.0005	1120	< 0.001	1.4	190	< 0.1	< 0.0005	24	0.011	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.98	0.031	0.11	15	170	80	636	1.4	< 0.005
M80-1	04/24/2015	130	0.42	< 0.001	0.04	6	0.37	< 0.0001	23	9.4	28	< 0.005	< 0.0005	381	< 0.001	1.3	110	< 0.1	< 0.0005	14	0.0049	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.61	0.039	< 0.03	4.6	38	15	206	< 0.7	< 0.005
M82-1	04/22/2015	330	1.09	< 0.001	0.17	< 2	1.1	< 0.0001	46	24	46	< 0.005	< 0.0005	878	< 0.001	2.6	230	< 0.1	< 0.0005	28	0.0027	< 0.0002	< 0.0005	< 0.001	< 0.1	0.014	8.02	0.036	0.05	11	99	60	512	1.2	< 0.005
M82-2	04/22/2015	330	0.28	< 0.001	0.14	< 2	0.17	< 0.0001	100	4.3	24	< 0.005	< 0.0005	795	< 0.001	2.5	380	< 0.1	< 0.0005	31	0.019	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.99	0.0029	< 0.03	4	19	66	500	< 0.7	< 0.005
M91-1	04/23/2015	270	0.69	< 0.001	0.085	< 2	0.8	< 0.0001	44	4.1	12	< 0.005	< 0.0005	658	< 0.001	1.2	200	< 0.1	< 0.0005	23	0.0056	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.89	0.0015	0.04	7.4	60	54	384	0.7	< 0.005
M95-1	04/23/2015	320	< 0.15	< 0.001	0.14	< 2	0.027	< 0.0001	110	< 4	8	< 0.005	< 0.0005	717	< 0.001	1.5	390	< 0.1	< 0.0005	27	0.0024	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	7.77	< 0.001	< 0.03	2.3	6.7	55	458	< 0.7	< 0.005
M105	04/21/2015	600	0.67	< 0.001	0.21	< 2	0.38	< 0.0001	160	24	170	< 0.005	< 0.0005	1640	< 0.001	7.1	620	< 0.1	< 0.0005	57	0.0095	< 0.0002	< 0.0005	0.0052	< 0.1	< 0.01	7.74	0.0059	< 0.03	7.7	110	9	908	1.1	< 0.005
M107	04/21/2015	480	0.28	< 0.001	0.14	< 2	0.2	< 0.0001	130	17	98	< 0.005	< 0.0005	1180	< 0.001	6.7	460	9	< 0.0005	34	0.43	< 0.0002	< 0.0005	0.0043	< 0.1	< 0.01	7.76	0.0014	< 0.03	4.1	79	12	668	1.2	< 0.005
OW1	04/22/2015	420	1.73	< 0.001	0.092	3	1.2	< 0.0001	40	19	49	< 0.005	< 0.0005	1030	< 0.001	2.1	230	< 0.1	< 0.0005	31	0.0051	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8.03	0.038	0.11	13	140	45	596	1.8	0.014
OW4	04/23/2015	1000	1.42	0.0013	0.15	< 2	1.6	< 0.0001	130	100	420	< 0.005	< 0.0005	3180	< 0.001	41	680	6.7	< 0.0005	86	0.15	< 0.0002	< 0.0005	0.041	< 0.1	< 0.01	7.85	0.0033	0.03	13	470	30	1860	3.8	< 0.005
OW54-d	04/24/2015	270	1.25	< 0.001	0.07	< 2	0.56	< 0.0001	58	5.9	130	< 0.005	< 0.0005	1000	< 0.001	1.5	290	< 0.1	< 0.0005	36	0.054	< 0.0002	< 0.0005	< 0.001	< 0.1	< 0.01	8	< 0.001	< 0.03	14	88	24	508	1.4	< 0.005

NOTE: M29, M58-4 and M71 not sampled (see text for details)

Table 6a: Groundwater Quality Results - April 21 - 24, 2015

Name	Date	1,1,1,2-Tetrachloroethane mg/L	1,1,1-Trichloroethane mg/L	1,1,2,2-Tetrachloroethane mg/L	1,1,2-Trichloroethane mg/L	1,1-Dichloroethane mg/L	1,1-Dichloroethylene mg/L	1,2-Dibromoethane mg/L	1,2-Dichlorobenzene mg/L	1,2-Dichloroethane mg/L	1,2-Dichloropropane mg/L	1,3,5-Trimethylbenzene mg/L	1,3-Dichlorobenzene mg/L	1,4-Dichlorobenzene mg/L	Benzene mg/L	Bromodichloromethane mg/L	Bromoform mg/L	Bromomethane mg/L	Carbon Tetrachloride mg/L	Chlorobenzene mg/L	Chloroethane mg/L	Chloroform mg/L	Chloromethane mg/L	Cis-1,2-Dichloroethylene mg/L	Cis-1,3-Dichloropropylene mg/L	Dibromochloromethane mg/L	Dichloromethane mg/L	Ethylbenzene mg/L	m&p-Xylene mg/L	o-Xylene mg/L	Styrene mg/L	Tetrachloroethylene mg/L	Toluene mg/L	Trans-1,2-dichloroethylene mg/L	Trans-1,3-dichloropropylene mg/	Trichloroethylene mg/L	Trichlorofluoromethane mg/L	Vinyl Chloride mg/L
Shallow Groundwater Flow Zone[1]																																						
M39	04/22/2015																																					
M41	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	0.00011	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0002
M53-4	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	0.0019	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M54-4	04/23/2015	< 0.0002	0.0028	< 0.0002	< 0.0002	0.0014	0.00012	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	0.0016	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	0.0054	< 0.0002	< 0.0001	< 0.0002	0.00075	< 0.0002	0.00055
M66-2	04/23/2015	< 0.005	< 0.0025	< 0.005	< 0.005	< 0.0025	< 0.0025	< 0.005	< 0.005	< 0.005	< 0.0025	< 0.005	< 0.005	< 0.005	< 0.0025	< 0.0025	< 0.005	< 0.013	< 0.0025	< 0.0025	< 0.005	< 0.0025	< 0.013	< 0.0025	< 0.005	< 0.005	< 0.013	< 0.0025	< 0.0025	< 0.0025	< 0.005	< 0.0025	0.26	< 0.0025	< 0.005	< 0.0025	< 0.005	< 0.005
M67-2	04/22/2015	< 0.004	< 0.002	< 0.004	< 0.004	< 0.002	< 0.002	< 0.004	< 0.004	< 0.004	< 0.002	< 0.004	< 0.004	< 0.004	< 0.002	< 0.002	< 0.004	< 0.01	< 0.002	< 0.002	< 0.004	< 0.002	< 0.01	< 0.002	< 0.004	< 0.004	< 0.01	< 0.002	< 0.002	< 0.002	< 0.004	< 0.002	0.13	< 0.002	< 0.004	< 0.002	< 0.004	< 0.004
M68-4	04/24/2015																																					
M70-3	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M80-2	04/24/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	0.00036	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M81	04/24/2015																																					
M87-2	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M96	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M97	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M99-2	04/23/2015																																					
M101	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	0.00051	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M102	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M103	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
OW37-s	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
Intermediate BedrockGroundwater Flow Zone																																						
M5-3	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.00015	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	0.00015	0.00014	< 0.0002	< 0.0001	0.00027	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M6-3	04/22/2015	< 0.0004	< 0.0002	< 0.0004	< 0.0004	< 0.0002	< 0.0002	< 0.0004	< 0.0004	< 0.0004	< 0.0002	< 0.0004	< 0.0004	< 0.0004	0.00098	< 0.0002	< 0.0004	< 0.001	< 0.0002	< 0.0002	< 0.0004	< 0.0002	< 0.001	< 0.0002	< 0.0004	< 0.0004	< 0.001	< 0.0002	0.0014	0.00043	< 0.0004	< 0.0002	0.0096	< 0.0002	< 0.0004	< 0.0002	< 0.0004	< 0.0004
M9-3	04/24/2015	< 0.004	< 0.002	< 0.004	< 0.004	< 0.002	< 0.002	< 0.004	< 0.004	< 0.004	< 0.002	< 0.004	< 0.004	< 0.004	< 0.002	< 0.002	< 0.004	< 0.01	< 0.002	< 0.002	< 0.02	< 0.002	< 0.01	< 0.002	< 0.004	< 0.004	< 0.01	< 0.002	< 0.002	< 0.002	< 0.004	< 0.002	0.1	< 0.002	< 0.004	< 0.004	< 0.004	< 0.004
M10-1	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	0.0027	0.00028	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.00011	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	0.011	< 0.0001	< 0.0005	0.00012	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	0.00061
M49-1	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M49-2	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.00022	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M52-1	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.01	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	0.00034	0.0012	0.0005	< 0.0002	< 0.0001	0.00028	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M56-2	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M58-3	04/23/2015																																					
M59-2	04/22/2015																																					
M59-3	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M59-4	04/22/2015																																					
M70-1	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.0094	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	0.00025	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M72	04/22/2015																																					
M74	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M75	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M80-1	04/24/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.00084	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	0.0001	0.00032	0.00013	< 0.0002	< 0.0001	0.00031	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M82-1	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.00011	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M82-2	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M91-1	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.00079	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M95-1	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M105	04/21/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	0.0024	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
M107	04/21/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	0.0011	0.00016	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	0.0072	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	0.00041
OW1	04/22/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0005	< 0.0001	< 0.0001	< 0.0002	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	0.0023	0.0001	0.00019	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
OW4	04/23/2015	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0001	< 0.0001	< 0.0002	< 0.0002	< 0.0002	< 0.0001	< 0.0002	< 0.0002	< 0.0002	0.00087	< 0.0001	< 0.0002	< 0.0005	< 0.0001	0.0019	< 0.001	< 0.0001	< 0.0005	< 0.0001	< 0.0002	< 0.0002	< 0.0005	0.0028	0.00015	0.00012	< 0.0002	< 0.0001	0.00032	< 0.0001	< 0.0002	< 0.0001	< 0.0002	< 0.0002
OW54-d	04/24/2015																																					

*** Shallow groundwater monitoring wells not sampled: M29, M39, M58-4 (see text for details)**

**** M107: Originally labelled as M106 in EMP dated June 29, 2010**

Table 6b: Groundwater Quality Results and Reasonable Use Limits - April 21-24, 2015

Name	Date	Alkalinity	Boron	Chloride	Chromium	Dissolved Organic Carbon	Iron	Manganese	Sodium	Total Dissolved Solids	1,4-Dichlorobenzene	Benzene	Chlorobenzene	Ethylbenzene	m&p-Xylene	Tetrachloroethylene
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Shallow Groundwater Flow Zone*																
RUL		*386*	*1.27*	*128*	*0.014*	*3.1*	*0.18*	*0.028*	*104*	*415*	*0.0013*	*0.0014*	*0.02*	*0.0013*	*0.15*	*0.0121*
M54-4	04/23/2015	*430*	0.03	74	0.0052	2.5	<0.1	0.019	52	*628*	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0054
M66-2	04/23/2015	320	0.33	100	0.0086	1.9	*0.74*	*0.069*	100	*834*	<0.005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
M67-2	04/22/2015	350	0.79	6.0	0.0067	2.2	*0.59*	*0.052*	62	410	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002
M80-2	04/24/2015	330	0.042	84	<0.005	1.9	<0.1	<0.002	17	*532*	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
M87-2	04/23/2015	210	0.042	29	0.0087	1.3	<0.1	0.0034	12	330	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
OW37-s	04/22/2015	260.0	0.15	79.0	<0.005	2.3	*5.6*	*0.14*	51	412	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Intermediate BedrockGroundwater Flow Zone																
RUL		*403*	*1.3*	*130*	*0.014*	*3.4*	*0.18*	*0.037*	*106*	*478*	*0.0013*	*0.0014*	*-*	*0.0013*	*0.15*	*0.0121*
M10-1	04/23/2015	*470*	0.22	*140*	< 0.005	*7.9*	*20*	*0.65*	91	*760*	< 0.0002	0.00011	< 0.0001	< 0.0001	< 0.0001	< 0.0001
M49-1	04/23/2015	360	1	*290*	< 0.005	2.5	< 0.1	0.0099	*340*	*940*	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
M56-2	04/22/2015	290	0.079	19	< 0.005	1.7	< 0.1	*0.063*	13	460	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
M58-3	04/23/2015	310	0.019	4	< 0.005	1.2	< 0.1	0.005	8.7	370	-	-	-	-	-	-
M70-1	04/23/2015	*490*	*1.8*	*2100*	< 0.05	*6.3*	*3.4*	*0.11*	*1300*	*4840*	< 0.002	*0.0094*	< 0.0001	0.0001	< 0.001	< 0.0001
M80-1	04/24/2015	130	0.37	28	< 0.005	1.3	< 0.1	0.0049	38	206	< 0.0002	0.00084	< 0.0001	0.0001	0.00032	< 0.0001
M82-1	04/22/2015	330	1.1	46	< 0.005	2.6	< 0.1	0.0027	99	*512*	< 0.0002	0.00011	< 0.0001	< 0.0001	< 0.0001	< 0.0001
M82-2	04/22/2015	330	0.17	24	< 0.005	2.5	< 0.1	0.019	19	*500*	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
M91-1	05/07/2014	290	0.81	13	< 0.005	1.3	< 0.1	0.0053	64	388	< 0.0002	0.00054	< 0.0001	< 0.0001	< 0.0001	< 0.0001
M95-1	05/06/2014	320	0.024	7	< 0.005	1.6	< 0.1	< 0.002	7.1	386	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
M107	04/21/2015	*480*	0.2	98	< 0.005	*6.7*	*9*	*0.43*	79	*668*	< 0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001

Groundwater results exceed Reasonable Use Limits (RUL)

0.05

Table 7: Water Quality Results from Off-Site Domestic Supply Wells - April 20 - 23, 2015

		ODWSOG		1097 Beechwood Rd	1144 Beechwood Rd	1181 Beechwood Rd	1206 Beechwood Rd	1250 Beechwood Rd	1252 Beechwood Rd	1264 Beechwood Rd
Parameters										
Alkalinity (as CaCO3)	mg/L	30-500	OG	270	170	430	250	350	410	400
Ammonia	mg/L			< 0.15	< 0.15	2.55	1.27	0.41	0.27	0.95
Arsenic	mg/L	0.025	IMAC	< 0.001	< 0.001	< 0.001	< 0.001	0.0025	< 0.001	< 0.001
Barium	mg/L	1	MAC	0.092	0.028	0.21	0.053	0.15	0.14	0.077
Biochemical Oxygen Demand	mg/L			< 2	< 2	7	< 2	< 2	< 2	< 2
Boron	mg/L	5	IMAC	0.054	0.13	1.2	0.018	0.097	0.17	0.58
Cadmium	mg/L	0.005	IMAC	< 0.0001	< 0.0001	< 0.0001	0.00017	< 0.0001	< 0.0001	< 0.0001
Calcium	mg/L			93	110	140	85	110	120	110
Chemical Oxygen Demand	mg/L			6.3	25	23	12	18	10	9.4
Chloride	mg/L	250	AO	2	**340**	**700**	10	47	68	**390**
Chromium	mg/L	0.05	MAC	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cobalt	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.0012	0.00061	< 0.0005
Conductivity	µS/cm			557	1690	3160	533	836	1050	2020
Copper	mg/L	1	AO	0.0071	0.0031	< 0.001	0.15	< 0.001	0.0013	< 0.001
Dissolved Organic Carbon	mg/L	5	AO	2.6	**9.1**	4	4.9	**5.7**	2.8	4
Hardness (as CaCO3)	mg/L	80-100	OG	**260**	**400**	**710**	**260**	**340**	**430**	**450**
Iron	mg/L	0.3	AO	< 0.1	**0.6**	0.15	**0.88**	**17**	**2.3**	0.1
Lead	mg/L	0.01	MAC	0.00052	< 0.0005	< 0.0005	**0.032**	< 0.0005	< 0.0005	< 0.0005
Magnesium	mg/L			13	31	85	12	21	33	46
Manganese	mg/L	0.05	AO	< 0.002	0.012	0.016	**0.054**	**0.8**	**0.74**	**0.28**
Mercury	mg/L	0.001	MAC	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Naphthalene	mg/L	10	MAC	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Nickel	mg/L			< 0.001	0.0052	0.0035	0.0012	0.0043	0.0033	0.0019
Nitrate	mg/L	10	MAC	3.24	**11.9**	< 0.1	0.73	< 0.1	< 0.1	< 0.1
Nitrite	mg/L	1	MAC	< 0.01	0.263	< 0.01	0.021	< 0.01	< 0.01	< 0.01
pH (Lab)	unitless	6.5-8.5	OG	8	7.93	7.66	7.75	7.46	7.75	7.65
Phenols	mg/L			< 0.001	< 0.001	0.028	< 0.001	< 0.001	< 0.001	< 0.001
Phosphorus (total)	mg/L			0.04	0.14	0.03	0.07	< 0.03	< 0.03	< 0.03
Potassium	mg/L			9.1	21	18	4.7	3.4	4.3	9
Sodium	mg/L	200 20	AO (see note)	5.4	160	**340**	8.1	44	55	**210**
Sulphate	mg/L	500	AO	13	67	25	16	14	36	< 1
Total Dissolved Solids	mg/L	500	AO	318	**896**	**1740**	300	440	**526**	**1020**
Total Kjeldahl Nitrogen	mg/L			0.7	1.6	3	1.9	1.5	0.7	1.3
Zinc	mg/L	5	AO	0.018	0.012	<0.005	0.13	0.027	0.093	0.0065

Exceeds ODWSOG

ODWSOG: Ontario Drinking Water Objective Standards and Guidelines
OG: Operational Guidelines
MAC: Maximum Acceptable Concentration
IMAC: Interim Maximum Acceptable Concentration
AO: Asthetic Objectives

Note: The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Table 7: Water Quality Results from Off-Site Domestic Supply Wells - April 20 - 23, 2015

		ODWSOG		1097 Beechwood Rd	1144 Beechwood Rd	1181 Beechwood Rd	1206 Beechwood Rd	1250 Beechwood Rd	1252 Beechwood Rd	1264 Beechwood Rd
Compounds (VOC)										
1,1,1,2-Tetrachloroethane	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,1,1-Trichloroethane	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0069	< 0.0001
1,1,2,2-Tetrachloroethane	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,1,2-Trichloroethane	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,1-Dichloroethane	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.0026	0.013	< 0.0001
1,1-Dichloroethylene	mg/L	0.014	MAC	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.00013	0.0012	0.00027
1,2-Dibromoethane	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,2-Dichlorobenzene (o)	mg/L	0.2 0.003	MAC AO	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,2-Dichloroethane	mg/L	0.005	IMAC	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,2-Dichloropropane	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1,3,5-Trimethylbenzene	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,3-Dichlorobenzene (m)	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,4-Dichlorobenzene (p)	mg/L	0.005 0.001	MAC AO	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Benzene	mg/L	0.005	MAC	< 0.0001	< 0.0001	0.00013	< 0.0001	< 0.0001	< 0.0001	0.0016
Bromodichloromethane	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Bromoform	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bromomethane	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Carbon Tetrachloride	mg/L	0.005	MAC	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chlorobenzene	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chloroethane	mg/L			< 0.0002	< 0.0002	< 0.001	< 0.0002	0.00075	0.0019	0.0085
Chloroform	mg/L			0.00012	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chloromethane	mg/L			< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cis-1,2-Dichloroethylene	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Cis-1,3-Dichloropropylene	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dibromochloromethane	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dichloromethane	mg/L	0.05	MAC	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene	mg/L	0.002	AO	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
m+p-Xylene	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
o-Xylene	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Styrene	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Tetrachloroethylene	mg/L	0.03	MAC	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Toluene	mg/L	0.024	AO	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Trans-1,2-dichloroethylene	mg/L			< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Trans-1,3-dichloropropene	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Trichloroethylene	mg/L	0.005	MAC	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Trichlorofluoromethane	mg/L			< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vinyl Chloride	mg/L	0.002	MAC	< 0.0002	< 0.0002	< 0.0002	< 0.0002	0.00038	< 0.0002	< 0.0002

Exceeds ODWSOG

ODWSOG: Ontario Drinking Water Objective Standards and Guidelines
OG: Operational Guidelines
MAC: Maximum Acceptable Concentration
IMAC: Interim Maximum Acceptable Concentration
AO: Asthetic Objectives

Note: The aesthetic objective for sodium in drinking water is 200 mg/L. The local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/L so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.

Table 8: Surface Water Characteristics - April 21, 2015

Date	Parameter		Surface Water Station						
			S2	S3	S4R	S5	S6	S7	S8R
21-Apr-15	Velocity:	m/s	0.50	0.50	0.10	0.10	0.60	0.40	0.55
	Depth:	m	0.47	0.20	0.08	0.15	0.44	0.35	0.13
	Width:	m	2.20	3.50	0.50	1.50	2.50	3.00	0.40
	Flow Rate:	m^3/s	0.52	0.35	0.00	0.02	0.66	0.42	0.03

Table 9: Surface Water Quality Results - April 21, 2015

			Marysville Creek				Beechwood Ditch		
			S2	S3	S6	S7	S4R	S5	S8R
			(upstream)	(downstream)	(downstream)	(downstream)	(downstream)	(upstream)	(downstream)
		Date	04/21/2015	04/21/2015	04/21/2015	04/21/2015	04/21/2015	04/21/2015	04/21/2015
Reading Name	Units	PWQO							
Inorganic and General Parameters									
Alkalinity	mg/L		160	160	150	160	200	190	190
Ammonia	mg/L		< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	0.23	3.26
Ammonia (unionized)	mg/L	0.02	< 0.0014	< 0.0016	< 0.0016	< 0.0017	< 0.0029	0.0046	0.11
Arsenic	mg/L	0.1	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Barium	mg/L		0.039	0.036	0.036	0.037	0.035	0.038	0.048
Biochemical Oxygen Demand	mg/L		< 2	< 2	< 2	< 2	< 2	< 2	< 2
Boron	mg/L	0.2	< 0.02	< 0.02	< 0.02	< 0.02	0.026	< 0.02	0.03
Cadmium	mg/L	0.0002	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Calcium	mg/L		60	60	57	58	68	63	62
Chemical Oxygen Demand	mg/L		31	30	24	24	14	17	23
Chloride	mg/L		22	18	20	18	4	3	27
Chromium (III)	mg/L	0.0089	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chromium (VI)	mg/L	0.001	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Chromium (Total)	mg/L		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cobalt	mg/L	0.0009	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Conductivity	µS/cm		388	366	369	370	408	376	508
Copper	mg/L	0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Cyanide (free)	mg/L	0.005	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Hardness	mg/L		180	170	160	170	200	190	200
Iron	mg/L	0.3	0.12	0.16	0.17	0.16	0.07	0.15	0.07
Lead	mg/L	0.025	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Magnesium	mg/L		7.9	8.5	7.8	8.2	11	11	12
Mercury	mg/L	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Naphthalene	mg/L		< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Nickel	mg/L	0.025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Nitrate	mg/L		< 0.1	< 0.1	< 0.1	< 0.1	0.12	0.22	< 0.1
Nitrite	mg/L		< 0.01	< 0.01	< 0.01	< 0.01	0.036	0.083	0.027
Phenols	mg/L	0.001	0.0049	0.0046	0.0053	0.0045	0.0049	0.0045	0.0037
Phosphorus (total)	mg/L	0.03	0.042	0.039	0.033	0.032	0.039	0.055	0.046
Potassium	mg/L		3	2	2	2	4	2	5
Sodium	mg/L		12	11	11	11	5.1	4	21
Sulphate	mg/L		11	11	9	11	12	13	29
Total Dissolved Solids	mg/L		224	210	210	220	230	210	260
Total Kjeldahl Nitrogen	mg/L		0.8	< 0.7	0.7	0.7	0.9	1.1	4.8
Total Suspended Solids	mg/L		< 1	2	2	2	< 1	2	6
Zinc	mg/L	0.03	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Field Measured									
Conductivity (Field)	µS/cm		290	370	210	290	270	370	390
Dissoved Oxygen (Field)	mg/L		8.9	12	7.2	8.4	10	10	9.1
pH (Field)	unitless	6.5-8.5	7.66	7.75	7.93	7.84	7.72	7.75	8.1
Temperature (Field)	°C		11.06	10.66	12.88	13.26	10.88	10.82	12.9

Exceeds PWQO

Table 10: Subsurface Gas Monitoring Results - April 24, 2015

Gas Monitor	Location	Reading (ppm)
GM1	North of garage area, south of waste mound	5
GM2	Southwest corner of waste mound	10
GM3	Northeast corner of waste mound	5
GM4-1	Southeast corner of waste mound	0
GM4-2		5
GM5	Northwest corner of waste mound	0
GM6	North of waste mound	15

FIGURES

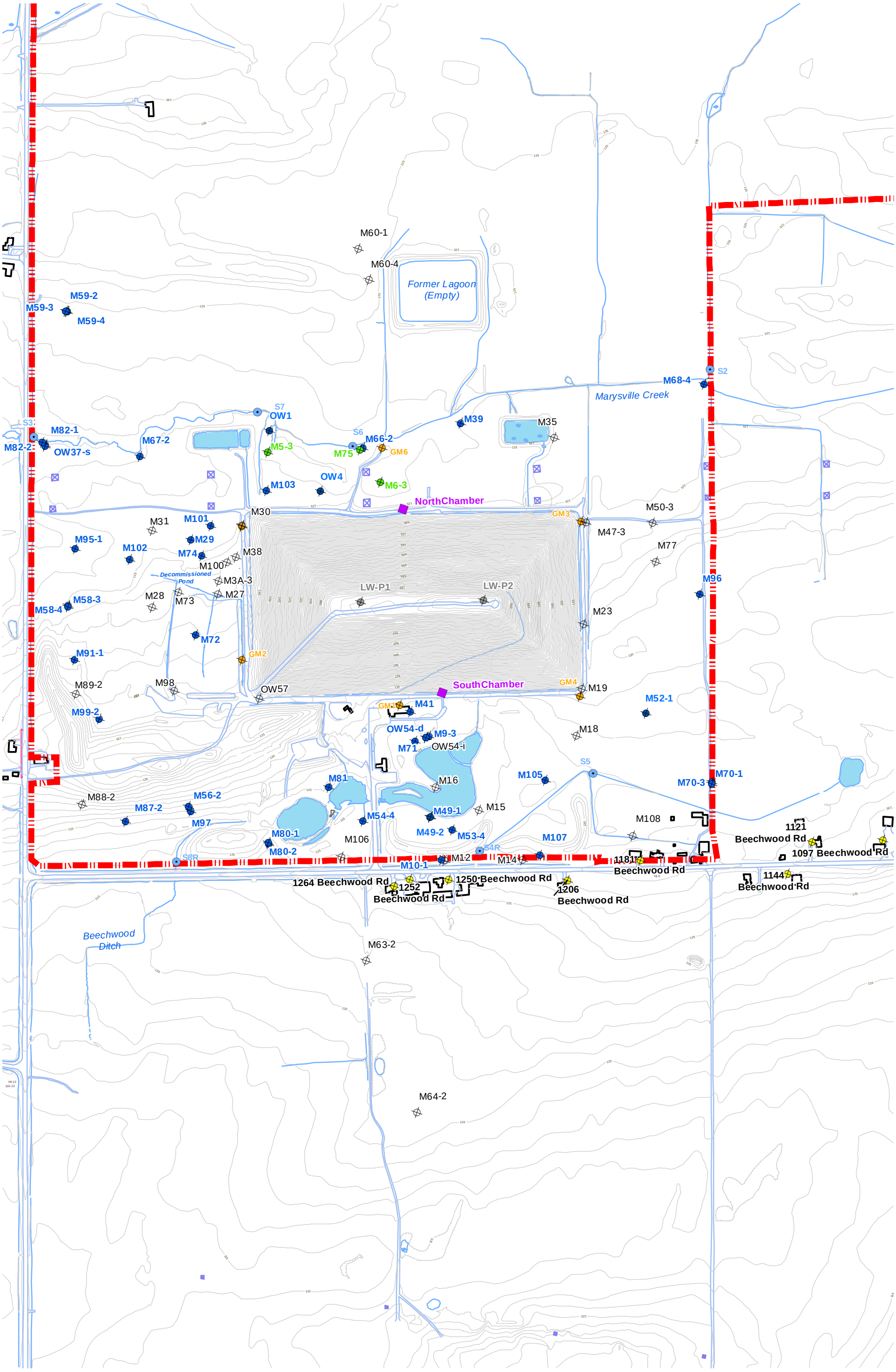

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Figure 1:
Site Plan and Monitoring Locations

M35 — Monitoring Well Used to Measure Water Level (Not Sampled)
M53-4 — Monitoring Well Used to Measure Water Level and Sampled for Chemistry
M5-3 — Monitoring Well Sampled for Chemistry (Not used for Water Levels)
1097 Beechwood — Domestic Water Supply Well Sampled for Chemistry
GM1 — Gas Monitoring Well
LW-P1 — Lechate Monitoring Well
S2 — Surface Water Monitoring Location
Property Boundary
Chambers

Project : K-B13060-00-02
Data Source: WM Canada, WESA, HPA Ltd. Base Mapping 2009
Date: June 2015
Units: UTM NAD 83 Zone 18
Scale: 1:6000

0 12.525 50 75 100
Metres

BluMetric Environmental

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Figure 2:
Shallow Groundwater Flow Zone Potentiometric Surface - April 16, 2015

M58-4 Shallow Groundwater Zone Elevation Monitor
Topographic Contour Lines
Surface Water
Hydro Tower
Potentiometric Surface (masl)
Property Boundary
SG-1 Pond Elevation
Leachate Monitoring Wells

Project : K-B13060-00-02
Data Source: WM Canada, WESA,
HPA Ltd. Base Mapping 2009
Date: June 30, 2015
Units:
UTM NAD 83 Zone 18
Scale: 1:5000

0 12.5 25 50 75 100
Meters

BluMetric Environmental
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M60-1
123.29

Former Lagoon
(Empty)

M59-2
123.54

M59-4
123.51

M59-3
123.50

OW1
122.58

M82-1
122.89

M82-2
123.07

OW4
123.73

M50-3
124.23

M95-1
123.31

M74
123.69

M3A-3
124.71

M73
123.30

M58-3
123.47

M72
123.24

M91-1
123.39

M52-1
112.97

M71
124.51

M9-3
125.02

OW54-d
124.39

OW54-i
124.40

M105
124.87

M70-1
122.77

M56-2
123.44

M49-1
124.32

M49-2
119.80

M108
122.84

M80-1
123.50

M106
123.38

M10-1
123.79

M107
124.74

M63-2
121.41

M64-2
119.05

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M58-3 Intermediate Groundwater Zone Elevation Monitor
Topographic Contour Lines
Potentiometric Surface (masl)
Hydro Tower
Surface Water
Property Boundary

Note:
M49-2, M52-1 :
Not used in contouring

Project : K-B13060-00-02
Data Source: WM Canada, WESA,
HPA Ltd. Base Mapping 2009
Date: June 30, 2015

Units:
UTM NAD 83 Zone 18

Scale: 1:5000

50 25 0 50 100
Meters

Figure 3:
Intermediate Bedrock Groundwater Flow Zone Potentiometric Surface - April 16, 2015

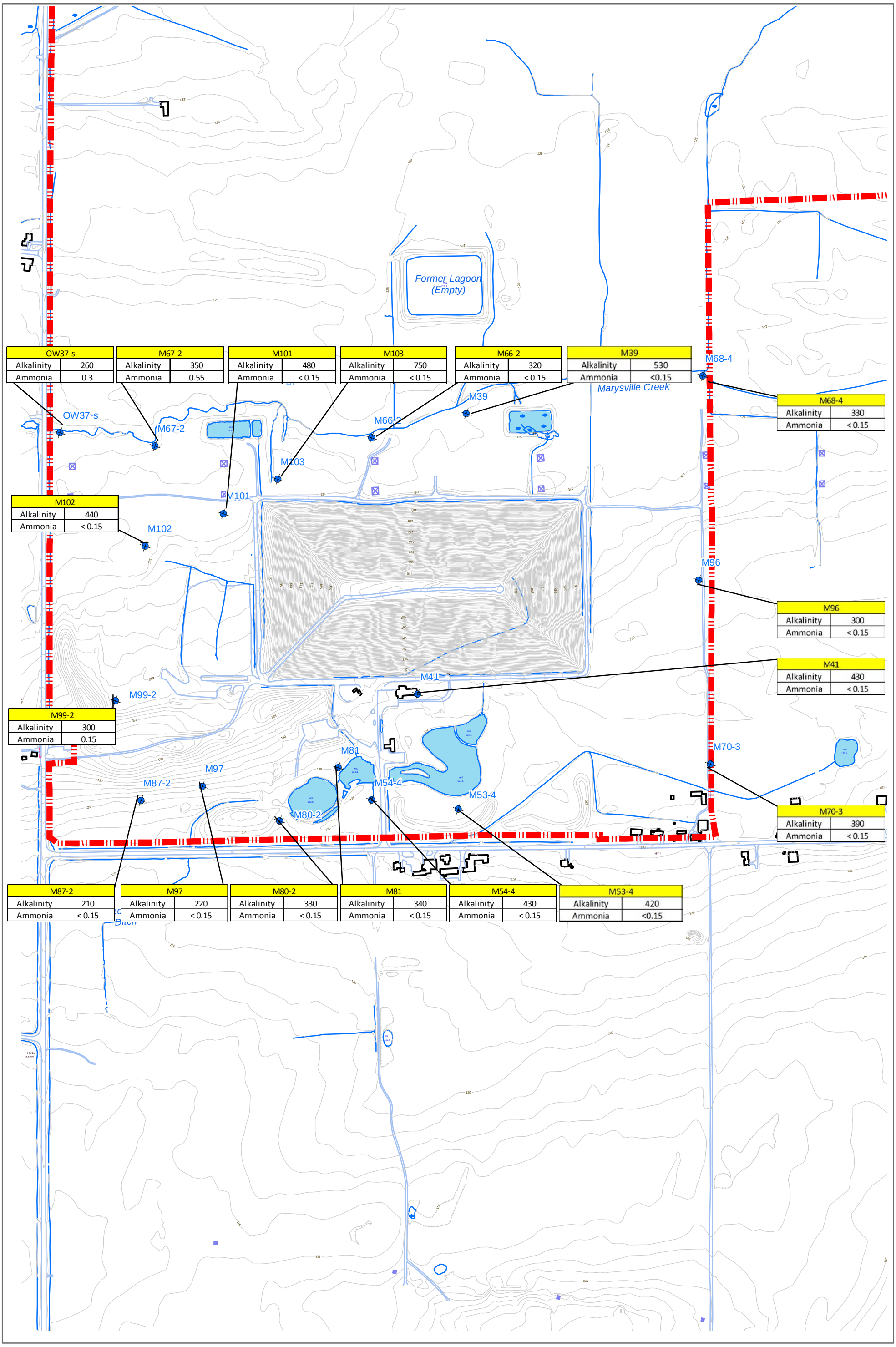

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Figure 4:
Shallow Flow Zone Concentrations

Groundwater samples were collected as part of the Spring 2015 monitoring event, during the period of April 19 - 23, 2015

Legend

M53-4 — Shallow Monitoring Well Sampled for Chemistry

Property Boundary

Parameter	Units
Alkalinity	mg/L CaCO3
Ammonia	mg/L

Project : K-B13060-00-02
Data Source: WM Canada, WESA, HPA Ltd. Base Mapping 2009
Date: June 30, 2015

Units: UTM NAD 83 Zone 18
Scale: 1:6000

0 12.5 25 50 75 100
Metres

BluMetric Environmental

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M59-2	
Alkalinity	420
Ammonia	0.49

M59-3	
Alkalinity	270
Ammonia	< 0.15

M59-4	
Alkalinity	270
Ammonia	0.2

M82-1	
Alkalinity	330
Ammonia	1.09

M95-1	
Alkalinity	320
Ammonia	< 0.15

OW1	
Alkalinity	420
Ammonia	1.73

M5-3	
Alkalinity	460
Ammonia	1.3

M75	
Alkalinity	420
Ammonia	1.49

M6-3	
Alkalinity	650
Ammonia	4.35

M82-2	
Alkalinity	330
Ammonia	0.28

M74	
Alkalinity	330
Ammonia	1.95

OW4	
Alkalinity	1000
Ammonia	1.42

M58-3	
Alkalinity	310
Ammonia	< 0.15

M72	
Alkalinity	270
Ammonia	0.55

M9-3	
Alkalinity	260
Ammonia	1.09

OW54-d	
Alkalinity	270
Ammonia	1.25

M52-1	
Alkalinity	410
Ammonia	1.49

M105	
Alkalinity	600
Ammonia	0.67

M70-1	
Alkalinity	490
Ammonia	1.86

M49-1	
Alkalinity	360
Ammonia	0.87

M49-2	
Alkalinity	670
Ammonia	1.4

M91-1	
Alkalinity	270
Ammonia	0.69

M56-2	
Alkalinity	290
Ammonia	0.17

M80-1	
Alkalinity	130
Ammonia	0.42

M71	
Alkalinity	610
Ammonia	1.38

M10-1	
Alkalinity	470
Ammonia	0.72

M107	
Alkalinity	480
Ammonia	0.28

M60-1
Former Lagoon (Empty)
M59-4
M59-3
M59-2
M82-1
M82-2
OW1
M5-3
M75
M6-3
OW4
M95-1
M74
M58-3
M72
M91-1
M71
M9-3
OW54-d
M52-1
M105
M70-1
M56-2
M49-2
M49-1
M80-1
M10-1
M107

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Figure 5:
Intermediate Flow Zone Concentrations
Groundwater samples were collected as part of the
Spring 2015 monitoring event, during the period of April 19 - 23, 2015

Legend

M53-4 Intermediate Monitoring Well Sampled for Chemistry

Property Boundary

Parameter	Units
Alkalinity	mg/L CaCO3
Ammonia	mg/L

Project : K-B13060-00-02
Data Source: WM Canada, WESA, HPA Ltd. Base Mapping 2009
Date: June 2015

Units:
UTM NAD 83 Zone 18

Scale: 1:6000

0 12.5 25 50 75 100
Metres

Former Lagoon (empty)

Marysville Creek

1264 Beechwood Rd	
Alkalinity	400
Ammonia	0.95

1206 Beechwood Rd	
Alkalinity	250
Ammonia	1.27

1181 Beechwood Rd	
Alkalinity	430
Ammonia	2.55

1097 Beechwood Rd	
Alkalinity	270
Ammonia	< 0.15

1252 Beechwood Rd	
Alkalinity	410
Ammonia	0.27

1250 Beechwood Rd	
Alkalinity	350
Ammonia	0.41

1144 Beechwood Rd	
Alkalinity	170
Ammonia	< 0.15

1252 Beechwood Rd
1250 Beechwood Rd
1206 Beechwood Rd
1264 Beechwood Rd
1181 Beechwood Rd
1121 Beechwood Rd
1097 Beechwood Rd
1144 Beechwood Rd

WASTE MANAGEMENT
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Figure 6:
Domestic Well Concentrations

Groundwater samples were collected as part of the
Spring 2015 monitoring event, during the period of April 20 and April 23, 2015

Legend

M53-4 Domestic Well Sampled for Chemistry

Property Boundary

Parameter	Units
Alkalinity	mg/L CaCO3
Ammonia	mg/L

Project : K-B13060-00-02
Data Source: WM Canada, WESA,
HPA Ltd. Base Mapping 2009

Date: June 30, 2015

Units:
UTM NAD 83 Zone 18

Scale: 1:6000

0 12.5 25 50 75 100
Metres

BluMetric Environmental

WM WASTE MANAGEMENT

APPENDIX A

Monitoring Well Inventory

APPENDIX A - Monitoring Well Inventory

Monitoring Well	Easting	Northing
2054	335293	4902797
2055	335402	4902782
M3A-1	334990	4902928
M3A-2	334990	4902930
M3A-3	334990	4902930
M4-1	335006	4903036
M4-2	335006	4903038
M4-3	335006	4903038
M5-1	335003	4903162
M5-2	335003	4903163
M5-3	335003	4903163
M6-1	335200	4903172
M6-2	335201	4903174
M6-3	335201	4903174
M9-1	335410	4902787
M9-2	335410	4902789
M9-3	335410	4902789
M9R-1	335400	4902787
M10-1	335494	4902596
M10-2	335494	4902596
M10-3	335494	4902594
M12	335500	4902596
M14	335625	4902637
M15	335528	4902695
M16	335447	4902710
M18	335648	4902866
M19	335632	4902944
M23	335602	4903049
M27	334997	4902908
M28	334897	4902853
M29	334924	4902983
M30	334999	4903033
M31	334857	4902977
M35	335458	4903336
M38	335006	4902978
M39	335299	4903310
M41	335368	4902818
M42-1	335006	4903006
M42-2	335007	4903008
M42-3	335007	4903008
M43-1	335475	4902588
M43-2	335476	4902590
M43-3	335476	4902590
M45-1	334790	4904582
M45-2	334790	4904582
M45-3	334790	4904582
M46-1	335185	4903230
M46-2	335185	4903232
M47-1	335552	4903214
M47-2	335552	4903215
M47-3	335552	4903215
M48-1	334838	4902564
M48-2	334839	4902565
M48-3	334839	4902565

APPENDIX A - Monitoring Well Inventory

Monitoring Well	Easting	Northing
M49-1	335454	4902658
M49-2	335455	4902660
M49-3	335455	4902660
M50-1	335660	4903247
M50-2	335660	4903248
M50-3	335660	4903248
M51-1	335714	4903073
M51-2	335714	4903075
M51-3	335714	4903075
M52-1	335748	4902939
M52-2	335748	4902940
M52-3	335748	4902940
M53-1	335501	4902651
M53-2	335499	4902650
M53-3	335498	4902650
M53-4	335496	4902649
M54-1	335346	4902623
M54-2	335347	4902622
M54-3	335347	4902620
M54-4	335348	4902618
M55-1	334961	4903151
M55-2	334962	4903149
M55-3	334962	4903148
M55-4	334963	4903146
M56-1	335066	4902508
M56-2	335065	4902545
M57	335418	4902623
M58-1	334760	4902816
M58-2	334760	4902814
M58-3	334761	4902812
M58-4	334761	4902811
M59-1	334609	4903287
M59-2	334607	4903287
M59-3	334606	4903287
M59-4	334604	4903287
M60-1	335044	4903538
M60-3	335079	4903494
M60-4	335077	4903494
M61-1	334457	4903750
M61-2	334456	4903749
M61-3	334455	4903748
M61-4	334454	4903747
M62-1	335166	4904438
M62-2	335168	4904441
M62-3	335166	4904441
M62-4	335165	4904440
M63-1	335424	4902393
M63-2	335425	4902394
M64-1	335585	4902174
M64-2	335585	4902176
M65-1	335297	4903314
M65-2	335298	4903316
M66-1	335154	4903218
M66-2	335155	4903219

APPENDIX A - Monitoring Well Inventory

Monitoring Well	Easting	Northing
M67-1	334799	4903089
M67-2	334799	4903090
M68-1	335670	4903504
M68-2	335671	4903502
M68-3	335671	4903500
M68-4	335672	4903499
M69-1	335062	4904299
M69-2	335063	4904298
M69-3	335063	4904296
M69-4	335064	4904295
M70-1	335890	4902862
M70-2	335891	4902860
M70-3	335891	4902858
M71	335390	4902773
M72	334981	4902831
M73	334931	4902891
M74	334950	4902962
M75	335151	4903215
M76	335675	4903217
M77	335685	4903188
M78	335391	4902776
M79	335673	4903215
M80-1	335207	4902532
M80-2	335206	4902534
M81	335275	4902654
M82-1	334640	4903060
M82-2	334641	4903058
M83	335169	4903156
M84	334702	4903072
M85	334999	4903208
M86	335077	4903195
M87-1	334959	4902493
M87-2	334965	4902495
M88-1	334883	4902497
M88-2	334885	4902499
M89-1	334815	4902673
M89-2	334818	4902674
M90-1	334520	4903845
M90-2	334522	4903843
M91-1	334798	4902729
M91-2	334792	4902734
M93	335006	4903908
M94-1	335497	4903519
M94-2	335486	4903526
M95-1	334743	4902908
M95-2	334740	4902917
M96	335774	4903158
M97	335059	4902551
M98	334976	4902730
M99-1	334869	4902646
M99-2	334869	4902646
M100	334994	4902965
M101	334949	4903015
M102	334836	4902919

APPENDIX A - Monitoring Well Inventory

Monitoring Well	Easting	Northing
M103	335021	4903101
M104	335150	4903152
M105	335620	4902778
M106	335331	4902549
M107	335650	4902654
M108	335791	4902733
M109-1	335405	4902844
M109-2	335407	4902840
M110-1	335543	4902883
M110-2	335546	4902884
M111-1	335250	4902774
M111-2	335254	4902774
M112-1	335274	4902692
M112-2	335277	4902693
M113-1	335123	4902751
M113-2	335119	4902750
M114-1	335437	4902530
M114-2	335439	4902528
M115-1	335489	4902561
M115-2	335490	4902558
M116	335480	4902494
M117	335586	4902525
M121	335529	4902337
M122	335742	4902433
M123	335905	4902479
M125	335561	4902368
M166	336069	4902589
M167	336266	4902624
M168	336063	4902714
M170	335889	4902865
M171	335759	4903206
M172	335490	4902593
M173	335661	4901812
M174	335961	4901879
M176	336613	4902308
M177	335784	4902084
M178-1	336032	4902202
M178-2	336032	4902202
M178-3	336032	4902202
M179	336338	4902357
M180	336801	4902677
M181-1	335912	4901492
M181-2	335912	4901492
M182	336402	4901643
M183	336953	4901770
M184	336176	4901998
M185-1	336170	4902151
M185-2	336170	4902151
M186	336509	4902627
OW1	334995	4903200
OW4	335108	4903128
OW5	335113	4903134
OW36	334799	4903100
OW37-d	334630	4903063

APPENDIX A - Monitoring Well Inventory

Monitoring Well	Easting	Northing
OW37-s	334634	4903062
OW54-d	335406	4902785
OW54-i	335406	4902785
OW54-s	335406	4902785
OW55-d	335376	4903186
OW55-i	335376	4903186
OW55-s	335376	4903184
OW56-d	335106	4903131
OW56-i	335106	4903131
OW56-s	335106	4903129
OW57	335117	4902762
PW1	335465	4902639
PW2	334988	4903095
PW3	335620	4902778
PW4	335626	4902775
PW5	335066	4902547

APPENDIX B

Results from Analytical Quality Assurance / Quality Control (QA/QC) Program

Summary of Results with Relative Percent Difference (RPD[1]) greater than 20%

Location	Parameter	Unit	Regular Sample	Field Duplicate	RPD (%)	MDL[2]	Comment
S6	Iron	mg/L	0.17	0.06	95.65	0.1	Less than ~5 x MDL
M105	Nickel	mg/L	0.0052	0.007	29.51	0.001	Less than ~5 x MDL
M105	Sulphate	mg/L	9	7	25.00	1	Less than ~5 x MDL
M82-2	Phenols	mg/L	0.0029	0.0021	32.00	0.001	Less than ~5 x MDL
M80-1	Chemical Oxygen Demand	mg/L	9.4	16	51.97	4	Less than ~5 x MDL
M58-3	Boron	mg/L	0.019	0.014	30.30	0.01	Less than ~5 x MDL

Note 1: RPD (%) = 100 * ABS (Regular Sample - Duplicate Sample) / ([Regular Sample + Duplicate Sample] / 2)
Note 2: MDL = Laboratory Method Detection Limit

Detailed Results from Field Duplicate vs. Regular Samples - Spring 2015

Reading Name	Units	S6 2015-04-21 Regular Sample	S6 2015-04-21 Field Duplicate	RPD (%)
Alkalinity	mg/L	150	150	0.00
Ammonia	mg/L	< 0.15	< 0.15	0.00
Ammonia (unionized)	mg/L	< 0.0016	< 0.0016	0.00
Arsenic	mg/L	< 0.001	< 0.001	0.00
Barium	mg/L	0.036	0.037	2.74
Biochemical Oxygen Demand	mg/L	< 2	< 2	0.00
Boron	mg/L	< 0.02	< 0.02	0.00
Cadmium	mg/L	< 0.0001	< 0.0001	0.00
Calcium	mg/L	57	58	1.74
Chemical Oxygen Demand	mg/L	24	26	8.00
Chloride	mg/L	20	20	0.00
Chromium (III)	mg/L	< 0.005	< 0.005	0.00
Chromium (Total)	mg/L	< 0.005	< 0.005	0.00
Chromium (VI)	mg/L	< 0.0005	< 0.0005	0.00
Cobalt	mg/L	< 0.0005	< 0.0005	0.00
Conductivity	µS/cm	369	369	0.00
Copper	mg/L	< 0.002	< 0.002	0.00
Cyanide (free)	mg/L	< 0.002	< 0.002	0.00
Dissolved Oxygen	mg/L	10	10	0.00
Field Conductivity	µS/cm	270	270	0.00
Field Temperature	°C	10.88	10.88	0.00
Hardness	mg/L	160	180	11.76
Iron	mg/L	0.17	0.06	95.65
Lead	mg/L	< 0.0005	< 0.0005	0.00
Magnesium	mg/L	7.8	7.9	1.27
Mercury	mg/L	< 0.0002	< 0.0002	0.00
Naphthalene	mg/L	< 0.0005	< 0.0005	0.00
Nickel	mg/L	< 0.001	< 0.001	0.00
Nitrate	mg/L	< 0.1	< 0.1	0.00
Nitrite	mg/L	< 0.01	< 0.01	0.00
Nitrite + Nitrate	mg/L	< 0.1	< 0.1	0.00
pH (Field)	unitless	7.72	7.72	0.00
Phenols	mg/L	0.0053	0.0047	12.00
Phosphorus (total)	mg/L	0.033	0.034	2.99
Potassium	mg/L	2	2	0.00
Sodium	mg/L	11	11	**0.00**
Sulphate	mg/L	9	9	0.00
Total Dissolved Solids	mg/L	210	208	0.96
Total Kjeldahl Nitrogen	mg/L	0.7	0.8	13.33
Total Suspended Solids	mg/L	2	2	0.00
Zinc	mg/L	< 0.01	< 0.01	0.00

Detailed Results from Field Duplicate vs. Regular Samples - Spring 2015 (continued)

Reading Name	Units	M105 2015-04-21 Regular Sample	M105 2015-04-21 Field Duplicate	RPD (%)
1,1,1,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1,1-Trichloroethane	mg/L	< 0.0001	< 0.0001	0.00
1,1,2,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1,2-Trichloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1-Dichloroethane	mg/L	< 0.0001	< 0.0001	0.00
1,1-Dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
1,2-Dibromoethane	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichlorobenzene (o)	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichloropropane	mg/L	< 0.0001	< 0.0001	0.00
1,3,5-Trimethylbenzene	mg/L	< 0.0002	< 0.0002	0.00
1,3-Dichlorobenzene (m)	mg/L	< 0.0002	< 0.0002	0.00
1,4-Dichlorobenzene (p)	mg/L	< 0.0002	< 0.0002	0.00
Alkalinity	mg/L	600	600	0.00
Ammonia	mg/L	0.67	0.66	1.50
Arsenic	mg/L	< 0.001	< 0.001	0.00
Barium	mg/L	0.21	0.2	4.88
Benzene	mg/L	< 0.0001	< 0.0001	0.00
Biochemical Oxygen Demand	mg/L	< 2	< 2	0.00
Boron	mg/L	0.38	0.42	10.00
Bromodichloromethane	mg/L	< 0.0001	< 0.0001	0.00
Bromoform	mg/L	< 0.0002	< 0.0002	0.00
Bromomethane	mg/L	< 0.0005	< 0.0005	0.00
Cadmium	mg/L	< 0.0001	< 0.0001	0.00
Calcium	mg/L	160	150	6.45
Carbon Tetrachloride	mg/L	< 0.0001	< 0.0001	0.00
Chemical Oxygen Demand	mg/L	24	20	18.18
Chloride	mg/L	170	170	0.00
Chlorobenzene	mg/L	< 0.0001	< 0.0001	0.00
Chloroethane	mg/L	0.0024	0.0029	18.87
Chloroform	mg/L	< 0.0001	< 0.0001	0.00
Chloromethane	mg/L	< 0.0005	< 0.0005	0.00
Chromium (Total)	mg/L	< 0.005	< 0.005	0.00
Cis-1,2-Dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Cis-1,3-Dichloropropylene	mg/L	< 0.0002	< 0.0002	0.00
Cobalt	mg/L	< 0.0005	< 0.0005	0.00
Conductivity	µS/cm	1640	1640	0.00
Copper	mg/L	< 0.001	< 0.001	0.00
Dibromochloromethane	mg/L	< 0.0002	< 0.0002	0.00
Dichloromethane	mg/L	< 0.0005	< 0.0005	0.00
Dissolved Organic Carbon	mg/L	7.1	7.1	0.00
Ethylbenzene	mg/L	< 0.0001	< 0.0001	0.00
Hardness	mg/L	620	610	1.63
Iron	mg/L	< 0.1	< 0.1	0.00
Lead	mg/L	< 0.0005	< 0.0005	0.00
m+p-Xylene	mg/L	< 0.0001	< 0.0001	0.00
Magnesium	mg/L	57	59	3.45
Manganese	mg/L	0.0095	0.0091	4.30
Mercury	mg/L	< 0.0002	< 0.0002	0.00
Naphthalene	mg/L	< 0.0005	< 0.0005	0.00
Nickel	mg/L	0.0052	0.007	29.51
Nitrate	mg/L	< 0.1	< 0.1	0.00
Nitrite	mg/L	< 0.01	< 0.01	0.00
Nitrite + Nitrate	mg/L	< 0.1	< 0.1	0.00
o-Xylene	mg/L	< 0.0001	< 0.0001	0.00
pH (Lab)	unitless	7.74	7.77	0.39
Phenols	mg/L	0.0059	0.006	1.68
Phosphorus (total)	mg/L	< 0.03	< 0.03	0.00
Potassium	mg/L	7.7	7.9	2.56
Sodium	mg/L	110	110	0.00
Styrene	mg/L	< 0.0002	< 0.0002	0.00
Sulphate	mg/L	9	7	25.00
Tetrachloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Toluene	mg/L	< 0.0002	< 0.0002	0.00
Total Dissolved Solids	mg/L	908	922	1.53
Total Kjeldahl Nitrogen	mg/L	1.1	1.1	0.00
Total Xylenes	mg/L	< 0.0001	< 0.0001	0.00
Trans-1,2-dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Trans-1,3-dichloropropylene	mg/L	< 0.0002	< 0.0002	0.00
Trichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Trichlorofluoromethane	mg/L	< 0.0002	< 0.0002	0.00
Vinyl Chloride	mg/L	< 0.0002	< 0.0002	0.00
Zinc	mg/L	< 0.005	< 0.005	0.00

Detailed Results from Field Duplicate vs. Regular Samples - Spring 2015 (continued)

Reading Name	Units	M82-2 2015-04-22 Regular Sample	M82-2 2015-04-22 Field Duplicate	RPD (%)
1,1,1,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1,1-Trichloroethane	mg/L	< 0.0001	< 0.0001	0.00
1,1,2,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1,2-Trichloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1-Dichloroethane	mg/L	< 0.0001	< 0.0001	0.00
1,1-Dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
1,2-Dibromoethane	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichlorobenzene (o)	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichloropropane	mg/L	< 0.0001	< 0.0001	0.00
1,3,5-Trimethylbenzene	mg/L	< 0.0002	< 0.0002	0.00
1,3-Dichlorobenzene (m)	mg/L	< 0.0002	< 0.0002	0.00
1,4-Dichlorobenzene (p)	mg/L	< 0.0002	< 0.0002	0.00
Alkalinity	mg/L	330	320	3.08
Ammonia	mg/L	0.28	0.27	3.64
Arsenic	mg/L	< 0.001	< 0.001	0.00
Barium	mg/L	0.14	0.13	7.41
Benzene	mg/L	< 0.0001	< 0.0001	0.00
Biochemical Oxygen Demand	mg/L	< 2	< 2	0.00
Boron	mg/L	0.17	0.16	6.06
Bromodichloromethane	mg/L	< 0.0001	< 0.0001	0.00
Bromoform	mg/L	< 0.0002	< 0.0002	0.00
Bromomethane	mg/L	< 0.0005	< 0.0005	0.00
Cadmium	mg/L	< 0.0001	< 0.0001	0.00
Calcium	mg/L	100	100	0.00
Carbon Tetrachloride	mg/L	< 0.0001	< 0.0001	0.00
Chemical Oxygen Demand	mg/L	4.3	< 4	0.00
Chloride	mg/L	24	24	0.00
Chlorobenzene	mg/L	< 0.0001	< 0.0001	0.00
Chloroethane	mg/L	< 0.0002	< 0.0002	0.00
Chloroform	mg/L	< 0.0001	< 0.0001	0.00
Chloromethane	mg/L	< 0.0005	< 0.0005	0.00
Chromium (Total)	mg/L	< 0.005	< 0.005	0.00
Cis-1,2-Dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Cis-1,3-Dichloropropylene	mg/L	< 0.0002	< 0.0002	0.00
Cobalt	mg/L	< 0.0005	< 0.0005	0.00
Conductivity	µS/cm	795	793	0.25
Copper	mg/L	< 0.001	< 0.001	0.00
Dibromochloromethane	mg/L	< 0.0002	< 0.0002	0.00
Dichloromethane	mg/L	< 0.0005	< 0.0005	0.00
Dissolved Organic Carbon	mg/L	2.5	2.5	0.00
Ethylbenzene	mg/L	< 0.0001	< 0.0001	0.00
Hardness	mg/L	380	380	0.00
Iron	mg/L	< 0.1	< 0.1	0.00
Lead	mg/L	< 0.0005	< 0.0005	0.00
m+p-Xylene	mg/L	< 0.0001	< 0.0001	0.00
Magnesium	mg/L	31	31	0.00
Manganese	mg/L	0.019	0.018	5.41
Mercury	mg/L	< 0.0002	< 0.0002	0.00
Naphthalene	mg/L	< 0.0005	< 0.0005	0.00
Nickel	mg/L	< 0.001	< 0.001	0.00
Nitrate	mg/L	< 0.1	< 0.1	0.00
Nitrite	mg/L	< 0.01	< 0.01	0.00
Nitrite + Nitrate	mg/L	< 0.1	< 0.1	0.00
o-Xylene	mg/L	< 0.0001	< 0.0001	0.00
pH (Lab)	unitless	7.99	7.58	5.27
Phenols	mg/L	0.0029	0.0021	32.00
Phosphorus (total)	mg/L	< 0.03	< 0.03	0.00
Potassium	mg/L	4	4	0.00
Sodium	mg/L	19	19	0.00
Styrene	mg/L	< 0.0002	< 0.0002	0.00
Sulphate	mg/L	66	65	1.53
Tetrachloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Toluene	mg/L	< 0.0002	< 0.0002	0.00
Total Dissolved Solids	mg/L	500	486	2.84
Total Kjeldahl Nitrogen	mg/L	< 0.7	< 0.7	0.00
Total Xylenes	mg/L	< 0.0001	< 0.0001	0.00
Trans-1,2-dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Trans-1,3-dichloropropylene	mg/L	< 0.0002	< 0.0002	0.00
Trichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Trichlorofluoromethane	mg/L	< 0.0002	< 0.0002	0.00
Vinyl Chloride	mg/L	< 0.0002	< 0.0002	0.00
Zinc	mg/L	< 0.005	< 0.005	0.00

Detailed Results from Field Duplicate vs. Regular Samples - Spring 2015 (continued)

Reading Name	Units	M80-1 2015-04-24 Regular Sample	M80-1 2015-04-24 Field Duplicate	RPD (%)
1,1,1,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1,1-Trichloroethane	mg/L	< 0.0001	< 0.0001	0.00
1,1,2,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1,2-Trichloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1-Dichloroethane	mg/L	< 0.0001	< 0.0001	0.00
1,1-Dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
1,2-Dibromoethane	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichlorobenzene (o)	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichloropropane	mg/L	< 0.0001	< 0.0001	0.00
1,3,5-Trimethylbenzene	mg/L	< 0.0002	< 0.0002	0.00
1,3-Dichlorobenzene (m)	mg/L	< 0.0002	< 0.0002	0.00
1,4-Dichlorobenzene (p)	mg/L	< 0.0002	< 0.0002	0.00
Alkalinity	mg/L	130	130	0.00
Ammonia	mg/L	0.42	0.43	2.35
Arsenic	mg/L	< 0.001	< 0.001	0.00
Barium	mg/L	0.04	0.038	5.13
Benzene	mg/L	0.00084	0.00093	10.17
Biochemical Oxygen Demand	mg/L	6	< 2	0.00
Boron	mg/L	0.37	0.36	2.74
Bromodichloromethane	mg/L	< 0.0001	< 0.0001	0.00
Bromoform	mg/L	< 0.0002	< 0.0002	0.00
Bromomethane	mg/L	< 0.0005	< 0.0005	0.00
Cadmium	mg/L	< 0.0001	< 0.0001	0.00
Calcium	mg/L	23	21	9.09
Carbon Tetrachloride	mg/L	< 0.0001	< 0.0001	0.00
Chemical Oxygen Demand	mg/L	9.4	16	51.97
Chloride	mg/L	28	28	0.00
Chlorobenzene	mg/L	< 0.0001	< 0.0001	0.00
Chloroethane	mg/L	< 0.0002	< 0.0002	0.00
Chloroform	mg/L	< 0.0001	< 0.0001	0.00
Chloromethane	mg/L	< 0.0005	< 0.0005	0.00
Chromium (Total)	mg/L	< 0.005	< 0.005	0.00
Cis-1,2-Dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Cis-1,3-Dichloropropylene	mg/L	< 0.0002	< 0.0002	0.00
Cobalt	mg/L	< 0.0005	< 0.0005	0.00
Conductivity	µS/cm	381	380	0.26
Copper	mg/L	< 0.001	< 0.001	0.00
Dibromochloromethane	mg/L	< 0.0002	< 0.0002	0.00
Dichloromethane	mg/L	< 0.0005	< 0.0005	0.00
Dissolved Organic Carbon	mg/L	1.3	1.2	8.00
Ethylbenzene	mg/L	0.0001	0.00011	9.52
Hardness	mg/L	110	110	0.00
Iron	mg/L	< 0.1	< 0.1	0.00
Lead	mg/L	< 0.0005	< 0.0005	0.00
m+p-Xylene	mg/L	0.00032	0.00031	3.17
Magnesium	mg/L	14	13	7.41
Manganese	mg/L	0.0049	0.0047	4.17
Mercury	mg/L	< 0.0002	< 0.0002	0.00
Naphthalene	mg/L	< 0.0005	< 0.0005	0.00
Nickel	mg/L	< 0.001	< 0.001	0.00
Nitrate	mg/L	< 0.1	< 0.1	0.00
Nitrite	mg/L	< 0.01	< 0.01	0.00
Nitrite + Nitrate	mg/L	< 0.1	< 0.1	0.00
o-Xylene	mg/L	0.00013	0.00013	0.00
pH (Lab)	unitless	7.61	7.64	0.39
Phenols	mg/L	0.039	0.033	16.67
Phosphorus (total)	mg/L	< 0.03	< 0.03	0.00
Potassium	mg/L	4.6	4.4	4.44
Sodium	mg/L	38	36	5.41
Styrene	mg/L	< 0.0002	< 0.0002	0.00
Sulphate	mg/L	15	15	0.00
Tetrachloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Toluene	mg/L	0.00031	0.00031	0.00
Total Dissolved Solids	mg/L	206	216	4.74
Total Kjeldahl Nitrogen	mg/L	< 0.7	< 0.7	0.00
Total Xylenes	mg/L	0.00045	0.00045	0.00
Trans-1,2-dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Trans-1,3-dichloropropylene	mg/L	< 0.0002	< 0.0002	0.00
Trichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Trichlorofluoromethane	mg/L	< 0.0002	< 0.0002	0.00
Vinyl Chloride	mg/L	< 0.0002	< 0.0002	0.00
Zinc	mg/L	< 0.005	< 0.005	0.00

Detailed Results from Field Duplicate vs. Regular Samples - Spring 2015 (continued)

Reading Name	Units	M58-3 2015-04-23 Regular Sample	M58-3 2015-04-23 Field Duplicate	RPD (%)
Alkalinity	mg/L	310	310	0.00
Ammonia	mg/L	< 0.15	< 0.15	0.00
Arsenic	mg/L	< 0.001	< 0.001	0.00
Barium	mg/L	0.15	0.15	0.00
Biochemical Oxygen Demand	mg/L	< 2	< 2	0.00
Boron	mg/L	0.019	0.014	30.30
Cadmium	mg/L	< 0.0001	< 0.0001	0.00
Calcium	mg/L	92	90	2.20
Chemical Oxygen Demand	mg/L	< 4	< 4	0.00
Chloride	mg/L	4	4	0.00
Chromium (Total)	mg/L	< 0.005	< 0.005	0.00
Cobalt	mg/L	< 0.0005	< 0.0005	0.00
Conductivity	µS/cm	654	653	0.15
Copper	mg/L	< 0.001	< 0.001	0.00
Dissolved Organic Carbon	mg/L	1.2	1.2	0.00
Hardness	mg/L	370	350	5.56
Iron	mg/L	< 0.1	< 0.1	0.00
Lead	mg/L	< 0.0005	< 0.0005	0.00
Magnesium	mg/L	33	31	6.25
Manganese	mg/L	0.005	0.0049	2.02
Mercury	mg/L	< 0.0002	< 0.0002	0.00
Naphthalene	mg/L	< 0.0005	< 0.0005	0.00
Nickel	mg/L	< 0.001	< 0.001	0.00
Nitrate	mg/L	0.1	< 0.1	0.00
Nitrite	mg/L	< 0.01	< 0.01	0.00
Nitrite + Nitrate	mg/L	0.1	< 0.1	0.00
pH (Lab)	unitless	7.83	7.81	0.26
Phenols	mg/L	< 0.001	< 0.001	0.00
Phosphorus (total)	mg/L	< 0.03	< 0.03	0.00
Potassium	mg/L	1.8	1.8	0.00
Sodium	mg/L	8.7	8.4	3.51
Sulphate	mg/L	41	41	0.00
Total Dissolved Solids	mg/L	370	368	0.54
Total Kjeldahl Nitrogen	mg/L	< 0.7	< 0.7	0.00
Zinc	mg/L	< 0.005	< 0.005	0.00

Detailed Results from Field Duplicate vs. Regular Samples - Spring 2015 (continued)

Reading Name	Units	M56-2 2015-04-22 Regular Sample	M56-2 2015-04-22 Field Duplicate	RPD (%)
1,1,1,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1,1-Trichloroethane	mg/L	< 0.0001	< 0.0001	0.00
1,1,2,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1,2-Trichloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,1-Dichloroethane	mg/L	< 0.0001	< 0.0001	0.00
1,1-Dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
1,2-Dibromoethane	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichlorobenzene (o)	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichloroethane	mg/L	< 0.0002	< 0.0002	0.00
1,2-Dichloropropane	mg/L	< 0.0001	< 0.0001	0.00
1,3,5-Trimethylbenzene	mg/L	< 0.0002	< 0.0002	0.00
1,3-Dichlorobenzene (m)	mg/L	< 0.0002	< 0.0002	0.00
1,4-Dichlorobenzene (p)	mg/L	< 0.0002	< 0.0002	0.00
Alkalinity	mg/L	290	290	0.00
Ammonia	mg/L	0.17	0.17	0.00
Arsenic	mg/L	< 0.001	< 0.001	0.00
Barium	mg/L	0.19	0.19	0.00
Benzene	mg/L	< 0.0001	< 0.0001	0.00
Biochemical Oxygen Demand	mg/L	< 2	< 2	0.00
Boron	mg/L	0.079	0.078	1.27
Bromodichloromethane	mg/L	< 0.0001	< 0.0001	0.00
Bromoform	mg/L	< 0.0002	< 0.0002	0.00
Bromomethane	mg/L	< 0.0005	< 0.0005	0.00
Cadmium	mg/L	< 0.0001	< 0.0001	0.00
Calcium	mg/L	71	71	0.00
Carbon Tetrachloride	mg/L	< 0.0001	< 0.0001	0.00
Chemical Oxygen Demand	mg/L	4.2	4.4	4.65
Chloride	mg/L	19	19	0.00
Chlorobenzene	mg/L	< 0.0001	< 0.0001	0.00
Chloroethane	mg/L	< 0.0002	< 0.0002	0.00
Chloroform	mg/L	< 0.0001	< 0.0001	0.00
Chloromethane	mg/L	< 0.0005	< 0.0005	0.00
Chromium (Total)	mg/L	< 0.005	< 0.005	0.00
Cis-1,2-Dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Cis-1,3-Dichloropropylene	mg/L	< 0.0002	< 0.0002	0.00
Cobalt	mg/L	< 0.0005	< 0.0005	0.00
Conductivity	µS/cm	746	747	0.13
Copper	mg/L	< 0.001	< 0.001	0.00
Dibromochloromethane	mg/L	< 0.0002	< 0.0002	0.00
Dichloromethane	mg/L	< 0.0005	< 0.0005	0.00
Dissolved Organic Carbon	mg/L	1.7	1.8	5.71
Ethylbenzene	mg/L	< 0.0001	< 0.0001	0.00
Hardness	mg/L	370	370	0.00
Iron	mg/L	< 0.1	< 0.1	0.00
Lead	mg/L	< 0.0005	< 0.0005	0.00
m+p-Xylene	mg/L	< 0.0001	< 0.0001	0.00
Magnesium	mg/L	47	47	0.00
Manganese	mg/L	0.063	0.06	4.88
Mercury	mg/L	< 0.0002	< 0.0002	0.00
Naphthalene	mg/L	< 0.0005	< 0.0005	0.00
Nickel	mg/L	< 0.001	< 0.001	0.00
Nitrate	mg/L	< 0.1	< 0.1	0.00
Nitrite	mg/L	< 0.01	< 0.01	0.00
Nitrite + Nitrate	mg/L	< 0.1	< 0.1	0.00
o-Xylene	mg/L	< 0.0001	< 0.0001	0.00
pH (Lab)	unitless	8.09	8.1	0.12
Phenols	mg/L	< 0.001	< 0.001	0.00
Phosphorus (total)	mg/L	< 0.03	< 0.03	0.00
Potassium	mg/L	3.2	3.2	0.00
Sodium	mg/L	13	13	0.00
Styrene	mg/L	< 0.0002	< 0.0002	0.00
Sulphate	mg/L	90	89	1.12
Tetrachloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Toluene	mg/L	< 0.0002	< 0.0002	0.00
Total Dissolved Solids	mg/L	460	472	2.58
Total Kjeldahl Nitrogen	mg/L	< 0.7	< 0.7	0.00
Total Xylenes	mg/L	< 0.0001	< 0.0001	0.00
Trans-1,2-dichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Trans-1,3-dichloropropylene	mg/L	< 0.0002	< 0.0002	0.00
Trichloroethylene	mg/L	< 0.0001	< 0.0001	0.00
Trichlorofluoromethane	mg/L	< 0.0002	< 0.0002	0.00
Vinyl Chloride	mg/L	< 0.0002	< 0.0002	0.00
Zinc	mg/L	< 0.005	< 0.005	0.00

Detailed Results from Field Blank Samples - Spring 2015

Reading Name	Units	Blank - Field 2015-04-22	Blank - Field 2015-04-23	Blank - Field 2015-04-24
Alkalinity	mg/L	2.1	1.9	1.5
Ammonia	mg/L	< 0.15	< 0.15	< 0.15
Arsenic	mg/L	< 0.001	< 0.001	< 0.001
Barium	mg/L	< 0.002	< 0.002	< 0.002
Biochemical Oxygen Demand	mg/L	< 2	< 2	< 2
Boron	mg/L	< 0.01	< 0.01	< 0.01
Cadmium	mg/L	< 0.0001	< 0.0001	< 0.0001
Calcium	mg/L	< 0.2	< 0.2	< 0.2
Chemical Oxygen Demand	mg/L	< 4	< 4	< 4
Chloride	mg/L	< 1	< 1	< 1
Chromium (Total)	mg/L	< 0.005	< 0.005	< 0.005
Cobalt	mg/L	< 0.0005	< 0.0005	< 0.0005
Conductivity	µS/cm	1	1	1
Copper	mg/L	< 0.001	< 0.001	< 0.001
Dissolved Organic Carbon	mg/L	0.4	0.4	0.4
Hardness	mg/L	< 1	< 1	< 1
Iron	mg/L	< 0.1	< 0.1	< 0.1
Lead	mg/L	< 0.0005	< 0.0005	< 0.0005
Magnesium	mg/L	< 0.05	< 0.05	< 0.05
Manganese	mg/L	< 0.002	< 0.002	< 0.002
Mercury	mg/L	< 0.0002	< 0.0002	< 0.0002
Naphthalene	mg/L	< 0.0005	< 0.0005	< 0.0005
Nickel	mg/L	< 0.001	< 0.001	< 0.001
Nitrate	mg/L	< 0.1	< 0.1	< 0.1
Nitrite	mg/L	< 0.01	< 0.01	< 0.01
Nitrite + Nitrate	mg/L	< 0.1	< 0.1	< 0.1
pH (Lab)	unitless	6.57	6.56	6.22
Phenols	mg/L	< 0.001	< 0.001	< 0.001
Phosphorus (total)	mg/L	< 0.03	< 0.03	< 0.03
Potassium	mg/L	< 0.2	< 0.2	< 0.2
Sodium	mg/L	< 0.1	< 0.1	< 0.1
Sulphate	mg/L	< 1	< 1	< 1
Total Dissolved Solids	mg/L	< 10	< 10	< 10
Total Kjeldahl Nitrogen	mg/L	< 0.7	< 0.7	< 0.7
Zinc	mg/L	< 0.005	< 0.005	< 0.005

Detailed Results from Trip Blank Sample - Spring 2015

Reading Name	Units	Blank - Trip 2015-04-20	Blank - Trip 2015-04-22	Blank - Trip 2015-04-23	Blank - Trip 2015-04-24
1,1,1,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,1,1-Trichloroethane	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1,1,2,2-Tetrachloroethane	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,1,2-Trichloroethane	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,1-Dichloroethane	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1,1-Dichloroethylene	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1,2-Dibromoethane	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,2-Dichlorobenzene (o)	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,2-Dichloroethane	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,2-Dichloropropane	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
1,3,5-Trimethylbenzene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,3-Dichlorobenzene (m)	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
1,4-Dichlorobenzene (p)	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bromodichloromethane	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Bromoform	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Bromomethane	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Carbon Tetrachloride	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chlorobenzene	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chloroethane	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Chloroform	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Chloromethane	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Cis-1,2-Dichloroethylene	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Cis-1,3-Dichloropropylene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dibromochloromethane	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dichloromethane	mg/L	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Ethylbenzene	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
m+p-Xylene	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Naphthalene	mg/L	< 0.0005	< 0.0005		
Toluene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Total Xylenes	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Trans-1,2-dichloroethylene	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Trans-1,3-dichloropropylene	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Trichloroethylene	mg/L	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Trichlorofluoromethane	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vinyl Chloride	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002

Detailed Results from Equipment Blank Sample - Spring 2015

Reading Name	Units	Blank - Equipment 2015-04-20	Blank - Equipment 2015-04-22
1,1,1,2-Tetrachloroethane	mg/L	< 0.0002	
1,1,1-Trichloroethane	mg/L	< 0.0001	
1,1,2,2-Tetrachloroethane	mg/L	< 0.0002	
1,1,2-Trichloroethane	mg/L	< 0.0002	
1,1-Dichloroethane	mg/L	< 0.0001	
1,1-Dichloroethylene	mg/L	< 0.0001	
1,2-Dibromoethane	mg/L	< 0.0002	
1,2-Dichlorobenzene (o)	mg/L	< 0.0002	
1,2-Dichloroethane	mg/L	< 0.0002	
1,2-Dichloropropane	mg/L	< 0.0001	
1,3,5-Trimethylbenzene	mg/L	< 0.0002	
1,3-Dichlorobenzene (m)	mg/L	< 0.0002	
1,4-Dichlorobenzene (p)	mg/L	< 0.0002	
Alkalinity	mg/L	1.8	2.1
Ammonia	mg/L	< 0.15	< 0.15
Arsenic	mg/L	< 0.001	< 0.001
Barium	mg/L	< 0.002	< 0.002
Benzene	mg/L	< 0.0001	
Biochemical Oxygen Demand	mg/L	< 2	< 2
Boron	mg/L	< 0.01	< 0.01
Bromodichloromethane	mg/L	< 0.0001	
Bromoform	mg/L	< 0.0002	
Bromomethane	mg/L	< 0.0005	
Cadmium	mg/L	< 0.0001	< 0.0001
Calcium	mg/L	< 0.2	< 0.2
Carbon Tetrachloride	mg/L	< 0.0001	
Chemical Oxygen Demand	mg/L	< 4	< 4
Chloride	mg/L	< 1	< 1
Chlorobenzene	mg/L	< 0.0001	
Chloroethane	mg/L	< 0.0002	
Chloroform	mg/L	< 0.0001	
Chloromethane	mg/L	< 0.0005	
Chromium (Total)	mg/L	< 0.005	< 0.005
Cis-1,2-Dichloroethylene	mg/L	< 0.0001	
Cis-1,3-Dichloropropylene	mg/L	< 0.0002	
Cobalt	mg/L	< 0.0005	< 0.0005
Conductivity	µS/cm	2	2
Copper	mg/L	< 0.001	< 0.001
Dibromochloromethane	mg/L	< 0.0002	
Dichloromethane	mg/L	< 0.0005	
Dissolved Organic Carbon	mg/L	0.5	0.5
Ethylbenzene	mg/L	< 0.0001	
Hardness	mg/L	< 1	< 1
Iron	mg/L	< 0.1	< 0.1
Lead	mg/L	< 0.0005	< 0.0005
m+p-Xylene	mg/L	< 0.0001	
Magnesium	mg/L	< 0.05	< 0.05
Manganese	mg/L	< 0.002	< 0.002
Mercury	mg/L	< 0.0002	< 0.0002
Naphthalene	mg/L	< 0.0005	< 0.0005
Nickel	mg/L	< 0.001	< 0.001
Nitrate	mg/L	< 0.1	< 0.1
Nitrite	mg/L	< 0.01	< 0.01
Nitrite + Nitrate	mg/L	< 0.1	< 0.1
o-Xylene	mg/L	< 0.0001	
pH (Lab)	unitless	6.32	6.54
Phenols	mg/L	< 0.001	< 0.001
Phosphorus (total)	mg/L	< 0.03	< 0.03
Potassium	mg/L	< 0.2	< 0.2
Sodium	mg/L	< 0.1	< 0.1
Styrene	mg/L	< 0.0002	
Sulphate	mg/L	< 1	< 1
Tetrachloroethylene	mg/L	< 0.0001	
Toluene	mg/L	< 0.0002	
Total Dissolved Solids	mg/L	< 10	< 10
Total Kjeldahl Nitrogen	mg/L	< 0.7	< 0.7
Total Xylenes	mg/L	< 0.0001	
Trans-1,2-dichloroethylene	mg/L	< 0.0001	
Trans-1,3-dichloropropylene	mg/L	< 0.0002	
Trichloroethylene	mg/L	< 0.0001	
Trichlorofluoromethane	mg/L	< 0.0002	
Vinyl Chloride	mg/L	< 0.0002	
Zinc	mg/L	< 0.005	< 0.005

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