FINAL 2025 Annual Monitoring Report

Mitchell Domestic Landfill
Township of Mitchell, Ontario

Prepared for:

The Corporation of the Municipality of West Perth
160 Wellington Street, P.P. Box 609
Mitchell, ON N0K 1N0

November 26, 2025

Pinchin File: 333568.002

SUBMITTED TO
Adam Ryan
Director of Operations
aryan@westperth.com

Richard Wright
Manager of Environmental Services
rwright@westperth.com

Municipality of West Perth
160 Wellington Street, P.P. Box 609
Mitchell, ON N0K 1N0

T: 519.348.8429
F: 519.349.8935

SUBMITTED BY
Deana Bettencourt
Project Manager
dbettencourt@pinchin.com

Tim McBride
Director, Northern Ontario
tmcbride@pinchin.com

PINCHIN Ltd.
225 Labrador Drive
Waterloo, ON N2K 4M8

T: 519.746.4210
F: 519.746.7108

© 2025 Pinchin Ltd.

November 26, 2025

Mr. Adam Ryan and Mr. Richard Wright
The Corporation of West Perth
160 Wellington Street, P.P. Box 609
Mitchell, ON N0K 1N0

Re: 2025 Pinchin Annual Monitoring Report
Mitchell Domestic Landfill
Pinchin Reference No. 333568.002

Dear Sirs,

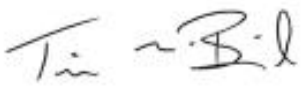
Pinchin Ltd. (Pinchin) is pleased to provide this 2025 Annual Monitoring Report for the Mitchell Domestic Landfill.

This report provides details of the monitoring program completed in 2025, an interpretation of the 2025 monitoring data, as well as our conclusions and recommendations.

Appended to this report are all relevant technical data, as well as the Monitoring and Screening Checklist from the Ministry of the Environmental, Conservation and Parks' Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water – Technical Guidance Document (November 2010), which provides certification for the Competent Environmental Practitioner (CEP). The above-noted checklist is provided in Appendix H.

We trust that this report satisfies your requirements. If you have any questions or comments, please contact us.

Pinchin Ltd.



Tim McBride, B.Sc., P.Geo., QP_{ESA}
Practice Specialist – Hydrogeology
Director, Northern Ontario

© 2025 Pinchin Ltd.

EXECUTIVE SUMMARY

The Mitchell Domestic Landfill (Site) has a licensed waste disposal area of 19.9 hectares (ha), with a total Site area of 38.6 ha, and is located in the Municipality of West Perth (Municipality) on Lot 19, Concession 1, in the former Town of Mitchell, Ontario. The Site is surrounded by agricultural land to the north and west, Torrance Mechanical to the south, as well as the Mitchell Golf Club to the east (as depicted in Figure 1). According to information provided in previous reports, the Site operated using the area fill method since the late 1960s, creating the waste footprint of the unlined waste fill area displayed in Figure 2.

The Site has operated since 1980 under the Waste Disposal Site Environmental Compliance Approval (ECA) number A150401, issued on August 6, 1980. The ECA was amended on September 1, 2008 (Notice No.1), February 26, 2010 (Notice No. 2), May 30, 2011 (Notice No. 3) and May 24, 2012 (Notice No.4) to incorporate requirements for Site operations, monitoring, reporting and Site closure. In addition, a consolidated Waste Disposal ECA (Waste ECA) for the aforementioned notices was issued for the Site on October 29, 2012.

According to previous reports, on November 11, 2010, the Ministry of the Environment, Conservation and Parks (MECP) issued Sewage Works ECA Number 9685-88HQCC (Sewage ECA) in accordance with Section 53 of the Ontario Water Resources Act for the establishment of a stormwater management facility and a leachate collection and disposal system at the Site. A copy of the Sewage ECA is provided in Appendix A-2.

The monitoring program for the Site has been conducted since 2008, in accordance with Condition 8 of the Waste ECA. Based on the findings of the 2025 monitoring program for the Site, the following conclusions were generated:

- The McDougall Drain (Drain) bisects the Site, running in a north-easterly direction through the property. Consistent with the data provided in the previous reports, the Municipality uses the area-fill method for landfilling and is currently placing waste in the lined landfill cell on the west side of the Drain. As part of the 2021 Annual Monitoring Program, the Municipality reported that the tipping area was widened to allow for more efficient transfer of waste into the fill area. The Municipality continued to enhance the clayey-soil perimeter berm around the lined landfill cell to, in part, help prevent issues associated with windblown waste from being blown away from the cell prior to operational cover being applied. Additionally, in 2018, the Municipality continued with construction to realign the Drain to follow the south and east perimeter of the Site, so that the Drain no longer bisects the Site. Approval under the Drainage Act has been obtained for this relocation. According to the Municipality, drain realignment work continued as recently as

© 2025 Pinchin Ltd.

2023, and geotextile mesh was installed on the banks of the drain to inhibit erosion at the Site;

- Locally, the shallow groundwater flow is influenced by surficial features such as the Drain. In 2025, the groundwater flow pattern in the shallow monitoring wells demonstrated a flow generally toward the Drain. It is interpreted that localized shallow groundwater flow in the immediate vicinity of the Site flows in a radial pattern away from the mounded waste footprint. The regional groundwater flow in or near the bedrock is inferred to reflect bedrock topography and flows in a north-easterly direction;
- In 2025, the analytical results that were greater than their respective Ontario Drinking Water Standards (ODWS) within the groundwater were generally consistent with historical results and concentrations of most parameters in the shallow and deep groundwater monitoring wells have generally fluctuated or been stable with no apparent increasing or decreasing trend;
- The 2025 and historical concentrations of the primary leachate indicator parameters for the Site (chloride and boron), have remained in compliance with the respective trigger concentration for the Site. Review of the historic database have not identified any increasing concentration trends of concern at the groundwater compliance monitoring wells that would indicate an impending exceedance of a trigger mechanism for the Site or warrant remedial action;
- Based on a review of the analytical results for the 2025 groundwater monitoring events, the groundwater quality around the landfill property and Contaminant Attenuation Zone (CAZ) boundaries is of acceptable quality. The analytical results for at least three (3) parameters, excluding chloride, were greater than their respective trigger concentration within groundwater monitoring well MW6S, MW10S and 10D during the September 2025 semi-annual monitoring event:
    - Monitoring well MW6S is located along the east boundary of the Site and based on measured groundwater elevations, are downgradient/crossgradient of the waste fill area. The Drain also flows through the Site between the landfill waste footprint and monitoring MW6S. The analytical results for the parameters measured within MW6S that were greater than their respective trigger concentration (total dissolved solids (TDS), alkalinity and fluoride) were within their historical ranges for these parameters with the exception of alkalinity in September 2025. Concentrations of TDS and alkalinity have fluctuated at MW6S with an overall increase in alkalinity since 2017. The concentration of fluoride within MW6S was within the historical range for this well. These parameters should continue to be monitored to ensure there are no increasing trends of concerns;

© 2025 Pinchin Ltd.

- Monitoring well MW10S is located along the north boundary of the Site. The analytical results for the parameters from MW10S that were greater than their respective trigger concentration (TDS, alkalinity, fluoride, aluminum, arsenic, iron, lead and manganese) in September 2025 were above their respective historical upper range with the exception of fluoride. Pinchin notes that the lab indicated that sediment was present within the sample collected at MW10S and this potentially could contribute to a higher concentration bias within this sample. The concentration of alkalinity and fluoride within MW10S has historically fluctuated over time with no discernable increase or decreasing trend. An overall increase of TDS and arsenic has been detected within MW10S since 2015, and an overall increase of aluminum, manganese and iron has been detected since 2021. It is noted that TDS and manganese concentrations are elevated during Fall monitoring events compared to Spring monitoring events when groundwater water levels are lower. Pinchin also notes that concentrations of aluminum, iron, lead and manganese were greater at MW10S than MW2 (located closer to the waste footprint) and leachate monitoring well MW1 concentrations reported in May 2025. It is Pinchin's opinion that the reported elevated concentrations of these parameters in September 2025 are likely anomalous and not attributed to landfill leachate. The concentration of the aforementioned parameters at MW10S will continue to be evaluated to verify that a concentration trend is not occurring;
- Monitoring well MW10D is located along the north boundary of the Site. The concentration of iron measured in May and September 2025 and the concentrations of TDS and alkalinity measured in September 2025 exceeded the applicable trigger concentrations resulting in the exceedance of three (3) trigger concentrations within MW10D during the September 2025 event. The 2025 and historical analytical results for the parameters that were greater than their respective trigger concentration have generally been stable or fluctuating with no apparent increasing or decreasing trend with the exception of alkalinity which has presented a generally increasing trend since 2018. MW10D should continue to be evaluated to verify that concentrations do not trigger remedial action and/or concentration trends are not occurring; and
- The remaining compliance monitoring wells MW5S/D and MW6D met the trigger mechanism, and parameters that exceeded respective trigger concentrations were within the historical concentration ranges for these parameters. Concentrations of parameters exceeding their respective trigger concentration should continue to be monitored to ensure an increasing trend of concern is not occurring at the Site.

© 2025 Pinchin Ltd.

- For the May and September 2025 monitoring events, concentrations of volatile organic compound (VOC) constituents within the groundwater compliance monitoring wells at the Site were below their respective reportable detection limits (RDLs) with the exception of MW6S in September 2025. A concentration of n-hexane within MW6S was detected above the respective RDL, but below the ODWS and historical concentration ranges. The VOC concentrations within MW6S should be evaluated over subsequent monitoring events to assess if any concentration trends of concern are developing;
- Overall, since surface water monitoring began at the Site in 2005, concentrations of most parameters have generally fluctuated or been consistent with no apparent increasing or decreasing trend. Where a concentration was greater than its respective Provincial Water Quality Objective (PWQO) in 2025, the concentration was generally consistent with historical results for the respective surface water monitoring stations;
- Based on the May and September 2025 analytical results, surface water quality at compliance station SW2 did not satisfy the relevant surface water trigger mechanism for the Site in 2025. The May and September 2025 concentrations of total phosphorus, phenols and iron, and concentration of chloride in May 2025 were greater than their trigger concentrations within the sample collected at SW2 (similar to monitoring station SW3):
    - Limited surface water volume with negligible flow was observed at surface water monitoring stations SW1 during the May 2025 monitoring event;
    - An elevated chloride concentration was reported in the May 2025 monitoring event at compliance station SW2; however, was within the historical upper range for SW2. Surface water at SW2 has historically exceeded the relevant water trigger mechanism for the Site and has generally fluctuated with no apparent increasing or decreasing trend since monitoring began in 2005. The surface water at SW2 and SW3 have historically had a greater concentration of suspended solids than at SW1. The immediate area around SW1 is generally vegetated and therefore, stormwater runoff carrying elevated concentrations of suspended solids should be limited at SW1, as they have been historically. As such, based on the conditions at the time of the May 2025 monitoring event, the elevated concentrations of chloride at SW2 may be a result of soil particles from soil erosion introduced into the Drain with past stormwater runoff. As mentioned above, the Municipality reported to Pinchin that Drain realignment work continued as recently as 2023, and a geotextile mesh was installed on the banks of the Drain to assist in the inhibition erosion and sediment transport at the Site;

© 2025 Pinchin Ltd.

- A measured concentration of chloride above the historical upper concentration limit was reported in September 2025 at SW1. Pinchin notes that the suspended solid concentration measure in at SW1 also exceeded the historical upper concentration limit for this monitoring location in September 2025. It is Pinchin's opinion that the high concentrations of suspended solids as well as potentially compounding effects of road salting adjacent to SW1, could have resulted in elevated chloride concentrations for SW1. It is Pinchin's recommendation that SW1 continue to be monitored to assess any concentration trends that are occurring at this monitoring station; and
- Surface water in the Drain will continue to be evaluated over subsequent monitoring events to verify that a concentration trend of concern for chloride, total phosphorus, phenols and iron is not occurring.

- Based on the May and September 2025 sample of the water supply well for Torrance Mechanical, there is not an apparent landfill effect noted for the groundwater quality at this location. The analytical results for total hardness, fluoride and/or iron were greater than their respective ODWS for the May and/or September 2025 monitoring events. The detected concentrations of these parameters are consistent with historical results for the Torrance Mechanical water supply well, which have generally been stable or fluctuated with no consistent increasing or decreasing trend. Overall, a landfill leachate influence on the Torrance Mechanical water supply well was not apparent based on the 2025 groundwater sample results;
- For the 2025 semi-annual monitoring events, the landfill gas monitoring results were generally consistent with historical results at the Site, with few exceptions. It should be noted that no sample was collected at MW1, installed within the waste, during the September 2025 due to a high methane reading vapours during venting of the well. MW1 was allowed to vent for several hours prior to development and sampling of the well to allow methane readings to decrease to safe sampling levels in May 2025; however, in September 2025, methane readings did not decrease. Pinchin recommends continued monitoring of MW1 in the 2025 semi-annual monitoring events, as well as venting the well for several minutes and collecting another reading to determine if the concentrations decreased enough to facilitate a safe groundwater sampling environment. If levels persist, then additional monitoring measures may be required;
- As the South SWM Pond was operating in a non-discharging state during the 2025 semi-annual monitoring events, stormwater samples were not required to be collected at SW5 in 2025; and

© 2025 Pinchin Ltd.

- During the semi-annual Site inspections, several burrow openings were observed in select areas near the base of the side slopes for the unlined waste fill area. Some seagulls, litter and/or turkey vultures were observed during the 2025 Site inspections.

Based on the findings of the 2025 Monitoring Program, the following recommendations are provided for consideration:

- Monitoring at the Site should continue in 2026, in accordance with the approved monitoring program as summarized in Table 1. No deviations from the approved monitoring program are recommended. Monitoring well MW6S should be sampled in duplicate to confirm or deny the previously quantified elevated concentrations;
- Ongoing monitoring should be completed to verify that the analytical results that were greater than their respective Guideline B-7 established maximum concentration in 2025 within the groundwater at MW5S/D, MW6S/D, MW10S/D and MW11S/D are not exhibiting an increasing trend of concern in the long-term. No remedial actions are warranted based on the 2025 groundwater quality at the compliance monitoring wells;
- No VOC constituents were detected in the groundwater at compliance monitoring wells MW5S/D, MW6S/D, MW10S/D and MW11S/D during the 2025 semi-annual monitoring events, with the exception of n-hexane in MW6S in September 2025. Ongoing monitoring of VOC constituents in the groundwater at the Site should be completed to verify that the historical VOC detections in groundwater compliance monitoring wells are not exhibiting an increasing trend of concern over the long-term. In addition, this monitoring is recommended to confirm that the observed source well VOC concentrations are negatively impacting the CAZ and downgradient areas reflected by the compliance monitoring wells. No remedial actions are warranted to address the historical VOC detections within the groundwater compliance monitoring wells;
- Ongoing monitoring should be completed to verify that the analytical results that were greater than their respective trigger concentration in 2025 within the surface water at SW2 are not exhibiting an increasing trend of concern in the long-term. No remedial actions are warranted based on the 2025 surface water quality at the compliance monitoring station. It is recommended that surface water SW2 be sampled in duplicate during the 2025 semi-annual monitoring events, as part of the ongoing quality assurance and quality control component of the program, but also to confirm the trigger level exceedances quantified at these locations;

© 2025 Pinchin Ltd.

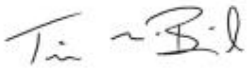
- No groundwater sample was collected at MW1 in September 2025, installed within the waste, due to high methane readings and visible gas vapours during venting of the well. Pinchin recommends continued monitoring of MW1 in the Spring 2025 semi-annual monitoring event, as well as venting the well for several minutes and collecting another reading to confirm if the level decreased enough to establish a safe sampling environment. If levels persist, then additional monitoring measures may be required. Due to the minor limitations to the monitoring network to evaluate landfill gas migration in the vadose zone (unsaturated portion) of the shallow subsurface at the Site, if new structures are built on or nearby (< 100 m) to the Site in the future, the landfill gas monitoring program should be re-evaluated for its assessment effectiveness; and
- If the outlet valve of the South SWM Pond is to be re-opened, re-opening should not occur until sampling of the water within the South SWM Pond, for three (3) consecutive sampling events have confirmed acceptable water quality, pending approval of proposed modifications to the monitoring and evaluation requirements for stormwater quality within the South SWM Pond at the Site by RWDI as part of the 2018 RWDI Annual Monitoring Report. To prevent off-Site discharge of water over the emergency spillway of the South SWM Pond, the stormwater in the South SWM Pond should continue to be treated at the Mitchell Wastewater Treatment Facility.

© 2025 Pinchin Ltd.

Issued To:	**The Corporation of the Municipality of West Perth**
Contact:	**Adam Ryan, Director of Operations** **Richard Wright, Manager of Environmental Services**
Issued On:	**November 26, 2025**
Pinchin File:	**333568.002**
Issuing Office:	**Waterloo, ON**
Primary Contact:	**Tim McBride, B.Sc., P.Geo., QP$_{ESA}$**



Author: Deana Bettencourt, B.Sc.
Project Manager



Reviewer: Tim McBride, B.Sc., P.Geo., QP$_{ESA}$
Practice Specialist – Hydrogeology
Director, Northern Ontario

© 2025 Pinchin Ltd.

TABLE OF CONTENTS

1.0 INTRODUCTION ... 1
1.1 Background ... 1
1.2 Key Personnel ... 3
1.3 Objectives and Scope ... 3
1.4 Assumptions and Limitations ... 4
1.5 MECP Correspondence ... 5
2.0 PHYSICAL SETTING ... 5
2.1 Site Description ... 5
2.2 Geology and Hydrogeology ... 6
3.0 SUBSURFACE CONDITIONS ... 7
4.0 2025 LANDFILL OPERATIONS ... 7
4.1 Accepted Waste Types ... 8
4.2 Waste Volume and Remaining Capacity ... 8
4.3 Recycling Operations ... 9
4.4 Leachate Collection ... 10
4.5 Complaint Summary ... 11
4.6 Site Operations Upgrades ... 11
5.0 METHODOLOGY ... 12
5.1 Monitoring Well Details ... 12
5.2 Groundwater Level Measurements ... 13
5.3 Leachate Pumping Station Sampling ... 13
5.4 Groundwater and Leachate Sampling ... 14
5.5 Surface Water Sampling ... 14
5.6 Stormwater Sampling ... 15
5.7 Off-Site Water Supply Well Sampling ... 15
5.8 Landfill Gas Monitoring ... 16
6.0 QUALITY ASSURANCE AND QUALITY CONTROL EVALUATION ... 16
6.1 Data Quality Evaluation ... 18
7.0 TRIGGER MECHANISMS ... 20
7.1 Groundwater Trigger Mechanisms ... 20
7.1.1 Guideline B-7 Reasonable Use Concept ... 22
7.2 Surface Water Trigger Mechanism ... 24
7.3 Stormwater Trigger Mechanism ... 25
7.4 The Ontario Drinking Water Standards (ODWS) ... 25
7.5 Primary Indicator Parameters ... 26
8.0 GROUNDWATER ELEVATION RESULTS ... 26
8.1 Leachate Elevation ... 26
8.2 Shallow Groundwater Flow ... 27
8.3 Deep Groundwater Flow ... 27
9.0 SURFACE WATER FLOW ... 28
10.0 LIQUID QUALITY RESULTS ... 29

© 2025 Pinchin Ltd.

10.1 Leachate 29
10.1.1 General Chemistry *29*
10.1.2 Volatile Organic Compounds *29*
10.2 Groundwater 30
10.2.1 General Chemistry *30*
10.2.2 Volatile Organic Compounds *32*
10.2.3 Trigger Mechanism Assessment *32*
10.3 Surface Water 37
10.3.1 General Chemistry *37*
10.3.2 Trigger Mechanism Assessment *39*
10.4 Stormwater 41
10.5 Off-Site Water Supply Well 43
11.0 LANDFILL GAS MONITORING RESULTS 44
12.0 SITE INSPECTION OBSERVATIONS 45
13.0 2026 MONITORING PROGRAM 46
14.0 CONCLUSION 46
15.0 RECOMMENDATIONS 51
16.0 STUDY LIMITATIONS AND USE OF REPORT 52
17.0 CLOSURE 53
18.0 REFERENCES 54

© 2025 Pinchin Ltd.

TABLES

TABLE 1	Annual Monitoring Program
TABLE 2	Monitoring Well Construction Details
TABLE 3	2025 Waste and Leachate Quantity Summary
TABLE 4	Surface Water Flow
TABLE 5	Summary of Groundwater Compliance for the Shallow Flow System – Spring 2025
TABLE 6	Summary of Groundwater Compliance for the Shallow Flow System – Fall 2025
TABLE 7	Summary of Groundwater Compliance for the Deep Flow System – Spring 2025
TABLE 8	Summary of Groundwater Compliance for the Deep Flow System – Fall 2025
TABLE 9	Summary of Surface Water Compliance – Spring 2025
TABLE 10	Summary of Surface Water Compliance – Fall 2025
TABLE 11	Field Data Summary – Spring 2025
TABLE 12	Field Data Summary – Fall 2025
TABLE 13	Site Feature GPS Coordinates

FIGURES

FIGURE 1	Site Location Map
FIGURE 2	Site Plan
FIGURE 3A	Shallow Groundwater Contours (May 12, 2025)
FIGURE 3B	Shallow Groundwater Contours (September 24, 2025)
FIGURE 4A	Deep Groundwater Contours (May 12, 2025)
FIGURE 4B	Deep Groundwater Contours (September 24, 2025)

© 2025 Pinchin Ltd.

APPENDICES

APPENDIX A	Supporting Documentation
Appendix A-1	Amended Environmental Compliance Approval Number
Appendix A-2	Sewage Works Environmental Compliance Approval
Appendix A-3	Letter Report – Surface Water Quality Monitoring and Evaluation Modifications
Appendix A-4	Letter Report – Stormwater Quality Monitoring and Evaluation Modifications
Appendix A-5	MECP 2018 Inspection Report
APPENDIX B	Borehole Logs
Appendix B-1	Borehole Logs
APPENDIX C	Groundwater Level Elevations
Table C-1	Groundwater Level Elevations
Figure C-1	Groundwater Elevation Hydrograph – Shallow Flow System
Figure C-2	Groundwater Elevation Hydrograph – Deep Flow System
Figure C-3	Surface Water Flow (2008 – 2025)
APPENDIX D	Liquid Quality Results
Table D-1	Leachate Analytical Results – General Parameters
Table D-2	Leachate Analytical Results – Volatile Organic Compounds
Table D-3	Groundwater Analytical Results – General Parameters
Table D-4	Groundwater Analytical Results – Volatile Organic Compounds
Table D-5	Surface Water Analytical Results – General Parameters
Figure D-1	Concentration vs. Time Plot – Chloride – Shallow Flow System
Figure D-2	Concentration vs. Time Plot – Boron – Shallow Flow System
Figure D-3	Concentration vs. Time Plot – Chloride – Deep Flow System
Figure D-4	Concentration vs. Time Plot – Boron – Deep Flow System
Figure D-5	Concentration vs. Time Plot – Chloride – Surface Water
Figure D-6	Concentration vs. Time Plot – Boron – Surface Water
APPENDIX E	Laboratory Certificates of Analysis
APPENDIX F	Landfill Gas Monitoring Results
Table F-1	Landfill Gas Monitoring Results
APPENDIX G	Semi-Annual Site Inspection Records
APPENDIX H	MECP Monitoring and Screening Checklist

© 2025 Pinchin Ltd.

1.0 INTRODUCTION

1.1 Background

Pinchin Ltd. (Pinchin) was retained by the Corporation of the Municipality of West Perth (Client) to prepare the 2025 Annual Monitoring Report for the Mitchell Domestic Landfill (Site). The Site is located on Lot 19, Concession 1, in the former Town of Mitchell, Ontario. The Site is owned and operated by the Municipality of West Perth (Municipality). A Site Location Map and Site Plan are provided in Figure 1 and Figure 2, respectively. The Site has a licensed waste disposal area of 19.9 hectares (ha), with a total Site area of 38.6 ha. The Site is approved to accept solid, non-hazardous municipal waste.

The Site has operated since 1980 under the Waste Disposal Site Environmental Compliance Approval (ECA) number A150401, issued on August 6, 1980. The ECA was amended on September 1, 2008 (Notice No.1), February 26, 2010 (Notice No. 2), May 30, 2011 (Notice No. 3) and May 24, 2012 (Notice No.4) to incorporate requirements for Site operations, monitoring, reporting and Site closure. In addition, a consolidated Waste Disposal ECA (Waste ECA) for the aforementioned notices was issued for the Site on October 29, 2012. A copy of the Waste ECA is provided in Appendix A-1.

As part of the 2025 Annual Monitoring Report, Pinchin reviewed the following documents:

- 2019-2024 Annual Monitoring Reports, *Mitchell Domestic Landfill, Township of Mitchell, Ontario,* prepared by Pinchin for the Corporation of West Perth (2019-2024 Pinchin Annual Monitoring Reports); and
- Document entitled "*Municipality of West Perth, Mitchell Domestic Landfill, 2018 Annual Monitoring Report"* prepared by RWDI Air Inc. (RWDI) for the Municipality of West Perth and dated November 21, 2018 (2018 RWDI Annual Monitoring Report).

According to the previous Annual Monitoring Reports, on November 11, 2010, the Ministry of the Environment, Conservation and Parks (MECP) issued Sewage Works ECA Number 9685-88HQCC (Sewage ECA) in accordance with Section 53 of the Ontario Water Resources Act for the establishment of a stormwater management facility and a leachate collection and disposal system at the Site. A copy of the Sewage ECA is provided in Appendix A-2.

The 2018 RWDI Annual Monitoring Report indicated that in 2005, the MECP requested that the Municipality conduct a hydrogeological investigation of the Site to determine its current and potential future impact on the environment. At the time, the Municipality retained R.J. Burnside & Associates Limited (Burnside) to conduct the requested study. As a result, five (5) monitoring wells (MW1, MW2, MW3 and MW4) were installed at the Site in 2005 to evaluate the Site conditions. The monitoring locations are indicated on the Site Plan in Figure 2. According to the 2018 RWDI Annual Monitoring Report, no hydrogeological studies were conducted at the Site prior to 2005.

© 2025 Pinchin Ltd.

The results of the 2005 hydrogeological study were documented in a 2007 Burnside report, which, according to the 2018 RWDI Annual Monitoring Report, recommended that if the waste footprint at the Site continued to expand to the approved area, consideration should be given to expanding the monitoring well network. The 2018 RWDI Annual Monitoring Report indicated that in 2008, eleven (11) additional monitoring wells (MW5, MW6, MW7, MW8-B, MW9 and MW10) were installed. The results of the 2008 investigation were documented in a 2008 Burnside Report. The 2018 RWDI Annual Monitoring Report concluded that the calculated trigger concentration for chloride, based on the Ministry of the Environment and Energy's (MOEE) Guideline B-7 Reasonable Use Concept (Guideline B-7), was not being met at the west property line. As such, chloride was exceeding the groundwater trigger mechanism and required corrective action. Therefore, in 2009, additional monitoring well nest (MW11) was installed to assess off-Site condition. The well nest was incorporated into the monitoring well network, results were assessed, and a Contaminant Attenuation Zone (CAZ) was proposed west of the Site and subsequently incorporated into the Waste ECA as part of Notice No. 1. The CAZ is identified in Figure 2.

In October 2009, a Design and Operations Plan (D&O Plan) was submitted to the MECP, which identified future plans for the Site development with a modified design to make better use of the approved capacity.

The MECP subsequently approved the D&O Plan, that has since been implemented by the Municipality, including a new, fully lined landfill cell, improved stormwater management works, a leachate collection and management system, as well as new front-end facilities. Construction of the above-noted landfill upgrades were completed in 2011 and placement of waste in the new lined landfill cell began in November 2011. These changes also included operational improvements, such as the application of daily cover material to the cell, in order to minimize wind blown litter, as well as rodent and odour issues. The unlined portion of the waste fill area was closed and covered in May 2013. Waste has only been placed in the new lined landfill cell since May of 2013.

According to the available historic database, the monitoring program for the Site has been conducted since 2008, in accordance with Condition 8 of the Waste ECA, with annual monitoring reports for the 2008 through 2018 monitoring periods completed for the Site in December of each calendar year by other consultants, as required in the Waste ECA. Pinchin prepared the 2025 Pinchin Annual Monitoring Report, and the 2025 Monitoring Program was completed in accordance with the approved Annual Monitoring Program as summarized as Table 1.

© 2025 Pinchin Ltd.

1.2 Key Personnel

The Competent Environmental Practitioner (CEP) for the Site groundwater, surface water and methane gas monitoring program was Mr. Tim McBride of Pinchin. Mr. McBride's contact information is provided below:

Mr. Tim McBride, B.Sc., P.Geo., QP_{ESA}
tmcbride@pinchin.com
Pinchin Ltd.
662 Falconbridge Road, Suite #3
Sudbury, ON P3A 4S4

The lead Environmental Technician for the Site groundwater, surface water and methane gas monitoring program was Ms. Deana Bettencourt of Pinchin. Ms. Bettencourt's contact information is provided below:

Ms. Deana Bettencourt, B.Sc.
dbettencourt@pinchin.com
Pinchin Ltd.
225 Labrador Drive, Unit #1
Waterloo, ON N2K 4M8

1.3 Objectives and Scope

The principal objectives of the 2025 Monitoring Program are as follows.

- To evaluate groundwater and leachate quality at the Site and assess the potential for impacts to nearby water resources as a result of the current landfill operations/conditions;
- To assess the adequacy of the existing monitoring program with respect to evaluating the potential for impacts at nearby water resources;
- To determine whether remedial actions are required in consideration of monitoring findings; and
- To document and report the findings of the monitoring program on an annual basis to the Municipality and provide a report to the MECP on behalf of the Municipality.

The primary aspects of the environmental monitoring program are data collection, analysis and interpretation. This report documents the data collected as part of the 2025 Monitoring Program and were interpreted in consideration of historical data (2006 through 2024). Groundwater and surface water quality results from 2025 were compared to the relevant trigger mechanisms per the Waste ECA and the Environmental Contingency Plan (ECP) for the Site, as dated December 2012 and prepared by Burnside and reviewed as part of the 2018 RWDI Annual Monitoring Report.

© 2025 Pinchin Ltd.

The 2025 Annual Monitoring Report has been prepared to meet the reporting requirements outlined in Condition 6 of the Waste ECA. This report has been prepared in consideration of historical reporting frameworks and background technical information to maintain a level of consistency such that historical reports can be easily referenced to this report.

1.4 Assumptions and Limitations

Pinchin has assumed that the information generated from historical investigations is accurate and has been completed in accordance with standard engineering practices and regulations. It should be noted that the historical background information made available to Pinchin by the Client was limited and, as such, previous reports have been relied on for information where required.

The scope of the monitoring activities was limited to the immediate area surrounding the Site. The investigations were limited solely to the groundwater within the monitoring well installations. The investigation does not constitute an exhaustive investigation of the Site property or adjacent properties for potentially unknown contaminants and/or other unknown sources of environmental impact.

Pinchin's limitation of liability and scope of work is as follows:

- The work performed in this report was carried out in accordance with the Terms and Conditions outlined in the Request for Proposal (RFP) Number RFP 05-2023. The conclusions presented herein are based solely upon the scope of services and time and budgetary limitations described in the RFP and associated Purchase Order;
- This report has been prepared in accordance with generally accepted environmental study and/or engineering practices. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of the contract and included in this report;
- The services performed and outlined in this report were based, in part, upon a previously installed monitoring network, established by others and approved by the applicable regulatory agencies. Pinchin's opinion cannot be extended to portions of the Site which were unavailable for direct observations, reasonably beyond the control of Pinchin;
- The objective of this report was to assess the water quality conditions at the Site, given the context of the contract, with respect to existing environmental regulations within the applicable jurisdiction;
- The Site history interpreted herein relies on information supplied by others, such as local, provincial and federal agencies, as well as Site personnel. No attempt has been made to independently verify the accuracy of such information, unless specifically noted in the report;

© 2025 Pinchin Ltd.

- Pinchin's interpretations relating to the landfill-derived leachate plume at the Site are described in this report. Where testing was performed, it was executed in accordance with our contract for these services. It should be noted that other compounds or materials not tested for may by present in the Site environment;
- The conclusions of this report are based, in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the Site in locations not specifically investigated. Should such an event occur, Pinchin must be notified in order that we may determine if modifications to the conclusions are necessary;
- The utilization of Pinchin's services during future monitoring at the Site will allow Pinchin to observe compliance with the conclusions and recommendations contained herein. It will also provide for changes as necessary to suit field conditions as they are encountered; and
- Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Pinchin accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

1.5 MECP Correspondence

According to the 2018 RWDI Annual Monitoring Report, a Site inspection was completed on July 3, 2018, by the MECP. Following the inspection, a Solid Non-Hazardous Waste Disposal Site Inspection Report, dated July 19, 2019 (MECP 2018 Inspection Report) was provided to the Municipality. Several operational items were addressed by the Municipality. A copy of the MECP 2018 Inspection Report is provided in Appendix A-6 of the 2018 RWDI Annual Monitoring Report.

At the time of writing this report, correspondence and/or MECP review comments had not been received from the MECP in relation to the 2024 Pinchin Annual Monitoring Report. If MECP correspondence is received after this report is issued, any comments, questions or consent can be addressed in that year's relevant annual monitoring report. If more urgent attention is required, comments can be addressed under separate cover prior to issuing the next relevant annual monitoring report.

2.0 PHYSICAL SETTING

2.1 Site Description

The Site is located in the former Town of Mitchell, ON, in the Municipality of West Perth, in Perth County. The Site is surrounded by agricultural land to the north, west and south, as well as the Mitchell Golf Club on the east side. The previous annual monitoring reports indicated that the nearest surface water body to

© 2025 Pinchin Ltd.

the Site is a municipal drain, known as the McDougall Drain (Drain), which bisects the Site property. The Site and surrounding area are depicted in Figure 1.

According to the 2018 RWDI Annual Monitoring Report, the relocation of the Drain is planned once waste deposition advances to the east of the current lined landfill cell. The realigned Drain is planned to follow the south and east perimeter of the Site so that the Drain no longer bisects the Site. The 2018 RWDI Annual Monitoring Report indicated that approval under the Drainage Act has been obtained for this relocation. Also, it was noted that a small portion of the Drain at the south end of the Site has been realigned in accordance with the Drainage Act approval to allow for the construction of a storm water pond.

The fill and subsurface conditions at the Site have been interpreted based on subsurface information obtained from previous annual monitoring reports completed by RWDI. Monitoring well construction details are provided in Table 2, while borehole details are provided in Appendix B-1 and test pit logs are located in the 2018 RWDI Annual Monitoring Report Appendix B-2. The monitoring well locations are indicated in Figure 2.

2.2 Geology and Hydrogeology

According to previous reports, it is indicated that the Site has a theoretical capacity of 1,677,010 cubic metres (m^3) and a final landfill design elevation of 362.5 metres above sea level (masl).

According to the Ministry of Northern Development and Mines, the soil geology in the vicinity of the Site is reported to consist of river and gravelly deposits and delta topset facies derived from glaciofluvial deposits on the west portion of the Site, and clay to silt-textured till, derived from glaciolacustrine deposits or shale on the east portion of the Site. In addition, the bedrock geology in the vicinity of the Site is reported to consist of limestone, dolostone and shale of the Detroit River Group, part of the Onondaga Formation.

The overburden in the area of the Site is typically not a local source of drinking water and no major overburden aquifers were identified in the previous annual monitoring reports. The aforementioned report also stated that local shallow groundwater flow around the Site is interpreted to be dominated by the local drainage network, with shallow flow toward the nearby drains and the North Thames River. The groundwater flow in the bedrock was interpreted to reflect bedrock topography and flow southwesterly.

The Source Water Protection Study (SGRA, 2010) mapping demonstrates that the Site does not fall within a significant groundwater recharge or aquifer vulnerability area.

Static water levels were recorded by Pinchin in all the accessible wells for the 2025 semi-annual groundwater monitoring events. Water levels were measured prior to purging and developing in preparation for sampling, to ensure the water levels are representative of static conditions. May and September 2025 groundwater elevations, as measured by Pinchin personnel, are presented in Table 2.

© 2025 Pinchin Ltd.

3.0 SUBSURFACE CONDITIONS

Historically, four (4) test pits were excavated along the western edge of the unlined waste fill area to determine the extent and nature of the waste on the Site. The test pit locations, including details of the subsurface conditions, are presented in the 2018 RWDI Annual Monitoring Report.

Based on a review of the 2018 RWDI Annual Monitoring Report, the test pits were excavated to a depth of 2.0 mbgs. Information from the test pit and borehole logs, as well as historical documentation, was used to characterize the extent and nature of the historical waste disposal practices at the Site.

Documents provided by the Municipality as part of the 2018 RWDI Annual Monitoring Report indicated that the Site operated using the area fill method since the late 1960s, creating the waste footprint of the unlined waste fill area depicted in Figure 2. The 2018 RWDI Annual Monitoring Report also indicated that monitoring well MW1 was designed to be used as a leachate monitoring well and was drilled into the unlined waste mound. It intersected 9.9 m of soil fill and waste overlying native soil. It was estimated that the intersection of the waste/cover at MW1 is approximately 7.5 m above the adjacent ground surface at MW2.

According to the 2018 RWDI Annual Monitoring Report, a geotechnical study for the redevelopment of the Site was completed by CMT Engineering Inc. in October 2009. As part of this study, the 2018 RWDI Annual Monitoring Report indicated that seven (7) boreholes were drilled for geotechnical purposes to a maximum depth of 5.2 m. Borehole logs are included in Appendix B-3. Shallow soils at the Site typically consist of fine-textured silt with varying amounts of sand, silt and clay.

4.0 2025 LANDFILL OPERATIONS

The Site operated during the 2025 monitoring events, in accordance with the governing permits for the Site as noted below:

- Waste Disposal ECA No. A150401, dated October 29, 2012 (Waste ECA); and
- Industrial Sewage Works ECA No. 9685-88HQCC, dated November 11, 2010 (Sewage ECA).

The Site was open to the receipt of waste in 2025 with daily logs of operations and maintenance activities filed by the Municipality.

© 2025 Pinchin Ltd.

4.1 Accepted Waste Types

The Site was open Monday, Wednesday and Friday from 10:00 am to 4:45 pm, as well as Saturdays from 9:00 am to 2:45 pm for residents and local industries that have recyclables, or bulky, non-hazardous municipal waste to drop-off for disposal. The Site accepts only solid, non-hazardous municipal waste as required in the Waste ECA, Condition 7 (1) and defined under O.Reg.347 of the Environmental Protection Act.

Only solid-non-hazardous waste was disposed of at the Site in 2025.

4.2 Waste Volume and Remaining Capacity

The annual quantity of waste received at the Site between November 2024, and October 2025 is summarized below. The volumes received between November 2023 and October 2024, as presented in the 2024 Pinchin Annual Monitoring Report are also provided below for reference. A total of 4885.18 tonnes of waste was received at the Site between November 2024 and October 2025. From the overall total, approximately 2490.33 tonnes of waste were disposed of at the Site, while the asphalt shingles, construction/demolition waste and recyclable materials were diverted to off-Site facilities. The monthly waste quantities received at the Site between November 2024 and October 2025 is presented in Table 3.

Waste Received by Mitchell Domestic Landfill	Annual 2024 Quantity (tonnes)	Annual 2025 Quantity (tonnes)
Asphalt Shingles[1]	82.43	100.69
Construction/Demolition[1]	461.92	660.11
Household Waste (bagged)	1,136.17	1,262.14
Household Waste (collected)	1,724.19	755.90
Mixed Waste Loads	110.50	30.96
Wood Products	408.18	441.33
Diverted Recyclables[1]	793.09	1,634.05
Total	**4,716.48**	**4,885.18**

Notes: 1. These items were diverted for off-Site disposal

© 2025 Pinchin Ltd.

Previous reports indicated that the estimated total waste-in-place quantity was 283,263 m^3, as of October 2024. Between November 2024 and October 2025, approximately 2,490.33 tonnes of waste were disposed of at the Site. Based on the approximate density of waste placed at the Site in 2025 (760 kilograms/m^3), the volume of waste disposed of at the Site between November 2024 and October 2025 is estimated to be approximately 3,276.75 m^3. As such, the total waste-in-place quantity at the Site is estimated to be approximately 289,132 m^3, as of October 2025.

The Waste ECA indicates that the Site has a maximum approved theoretical capacity of 1,667,010 m^3. Subtracting the estimated waste-in-place volume from the theoretical capacity provides a remaining capacity of approximately 1,383,747 m^3.

The quantity of waste and estimated volume of waste disposed of at the Site over the past five (5) years is provided in the following summary.

Year	Annual Waste Quantity (tonnes)	Annual Waste Volume (cubic meters)
2021	3,601.00	4,738.16
2022	3,894.72	5,124.63
2023	3,807.39	5,009.72
2024	3,379.04	4,446.11
2025	2,490.33	3,276.75
Average	**3,434.50**	**4,519.07**

The average annual of waste disposal rate at the Site over the past five (5) years is approximately 4,519.07 m^3/year. Based on this 5-year average waste volume disposed, and the estimated remaining capacity of approximately 1,377,878 m^3, there is approximately 304.9 years of remaining capacity at the Site.

4.3 Recycling Operations

The Municipality provides curb side collection of recyclables, in order to reduce the amount of material disposed of at their landfills. The Site configuration allows for a public drop-off area for blue box, cardboard, scrap metal and e-waste. Upon inspection during the 2025 monitoring event, the drop-off bins appeared to be in good condition. A total of approximately 1,634.05 tonnes of recyclable products were diverted from the waste stream between November 2024 and October 2025. A summary of the waste collected and diverted is summarized in Section 4.2.

© 2025 Pinchin Ltd.

4.4 Leachate Collection

A total of 41,757.64 m^3 of leachate was collected and transferred to the Mitchell Wastewater Treatment Facility for treatment between November 2024 and October 2025. As discussed in Section 10.4, the stormwater in the South SWM Pond is currently pumped out by the Municipality and treated at the Mitchell Wastewater Treatment Facility. In 2025, the stormwater within the South SWM Pond was pumped to the on-Site Leachate Pumping Station (LPS). According to the previous reports, the liquid within the LPS is pumped to the gravity sanitary sewers on Holmes Street and ultimately directed to the Mitchell Wastewater Treatment Facility for treatment. The aforementioned leachate volume includes the stormwater transferred from the South SWM Pond to the LPS in 2025.

The monthly volume of leachate discharged from the Site between November 2024 and October 2025 is summarized below. The volumes discharged in 2024, as presented in the 2024 Annual Monitoring Report, are provided in the summary for reference.

Leachate Removed	2023-2024 Volume (m^3)	2024-2025 Volume (m^3)
November	1,371.15	679.20
December	8,546.64	3,280.24
January	8,272.20	1,070.66
February	4,440.84	1,194.64
March	3,804.47	6,367.76
April	4,132.76	4,398.29
May	960.07	1,659.94
June	520.49	1,476.76
July	6,468.05	1,067.94
August	693.99	2,560.40
September	2,325.72	9,061.58
October	703.00	8,940.23
Total	**42,239.38**	**41,757.64**

© 2025 Pinchin Ltd.

To characterize the quality of leachate being transferred to the Mitchell Wastewater Treatment Facility, samples were collected at the LPS during the May and September 2025 monitoring events. The analytical results for the LPS are presented in Table D-1 and Table D-2 in Appendix D. The West Perth Sewer Use By-law (By-Law) criteria are presented in Table D-1, Appendix D, as a comparison for the general parameters tested.

As indicated in Table D-1, the concentrations of most parameters in the leachate at the LPS have generally fluctuated or been consistent over time with no apparent increasing or decreasing trend. In 2025, the analytical results for the samples collected during the May and September 2025 monitoring events satisfied the relevant By-Law criteria with the exception of total suspended solid (TSS) in September 2025. The concentration of TSS has exceeded the By-Law criteria of 350 milligrams/liter (mg/L) at LPS sporadically in the past (2014, 2020 and 2023). Pinchin does not anticipate that elevated concentrations of TSS are exhibiting an increasing trend in the long-term that may lead to an unacceptable exceedance of the By-Law and potential treatment issues within the Mitchell Wastewater Treatment Facility. No remedial actions are warranted for leachate quality.

As indicated in Table D-2, for the 2025 monitoring events, concentrations of volatile organic compounds (VOCs) constituents within the leachate at the LPS were below their respective laboratory reportable detection limits (RDLs), with few exceptions. Where a VOC was detected above the RDL, the 2025 VOC detections at the LPS were reasonable for a leachate for a municipal solid waste landfill site and were less than their respective Ontario Drinking Water Standard (ODWS) criterion. As such, no remedial actions are warranted at this time.

Based on a review of the analytical results for the LPS in 2025, the leachate being transferred to the Mitchell Sewage Treatment Plant is of acceptable quality. Ongoing monitoring should be completed to verify that the TSS quantified within the leachate at the LPS during September 2025 is anomalous and are not exhibiting an increasing trend in the long-term that may lead to an unacceptable exceedance of the By-Law and potential treatment issues within the Mitchell Wastewater Treatment Facility. Based on the 2025 sample results, no remedial actions are warranted for leachate quality.

4.5 Complaint Summary

There were no complaints received by the Municipality regarding the Site in 2025.

4.6 Site Operations Upgrades

Based on discussions with the Municipality, enhancements to the clayey-soil perimeter berm around the lined landfill cell continued to, in part, help prevent with wind blown waste being blown away from the cell prior to operational cover being applied. Additionally, since 2018 the Municipality continued with construction to realign the Drain to follow the south and east perimeter of the Site so that the Drain no longer bisects the Site. Approval under the Drainage Act has been obtained for this relocation.

© 2025 Pinchin Ltd.

According to the Municipality, during the 2019 Monitoring Program the berm was brought up another 1.8 m while maintaining the 3 to 1 ratio. The work on the drain was primarily done to reinforce the culvert under the access road, with rip rap placed on both sides of the road and hydro seeding on both sides of the drain to prevent further erosion of the banks. In addition, the Municipality reported that the tipping area was also widened to allow for more efficient transfer of waste into the fill area.

In 2020, the Municipality informed Pinchin that litter fences were installed on both the east and west sides of the active fill area. These fence installs were observed during the 2021 site inspections.

In 2021, the Municipality informed Pinchin that some ponding was occurring at the landfill during heavy precipitation events. To counteract these events, the Municipality advanced holes to drain the water into the leachate collection system.

According to the Municipality, drain realignment work continued as recently as 2023, and geotextile mesh was installed on the banks of the drain to inhibit erosion and sediment transport at the Site. Furthermore, significant service events were completed on landfill equipment.

5.0 METHODOLOGY

The 2025 monitoring program at the Site included semi-annual leachate, groundwater, surface water and landfill gas monitoring. The spring and fall semi-annual monitoring events were completed between May 12 and May 13, 2025, as well as between September 24 and September 26, 2025, respectively. A quality assurance and quality control (QA/QC) program was followed for each of the routine monitoring tasks completed. QA/QC details are presented in Section 6.

The monitoring program was completed in accordance with the Waste ECA and the Environmental Monitoring Plan (EMP) for the Site, as dated November 2010 and prepared by Burnside (2010 Burnside EMP) and consisted of procedures for the purging and sampling of leachate and groundwater monitoring wells, sampling of the leachate pumping station, surface water stations, as well as landfill gas monitoring. Field data for the annual monitoring event are presented in Table 5.

5.1 Monitoring Well Details

Based on a review of available historic reports, a total of eighteen (18) monitoring wells are installed at the Site. The monitoring network for the Site is summarized below and presented in Table 1, whereas the locations of the monitoring wells are indicated in Figure 2.

Two (2) monitoring wells, one (1) shallow and one (1) deep, were installed at different depths at locations MW1, MW3, MW5, MW7, MW9, MW10 and MW11. The shallow well is designated with the postscript “S” (i.e., MW1S) and the deeper well is designated with the postscript “D” (i.e., MW1D). The remaining single wells MW2, MW4 and MW6 are shallow wells and MW8-B is a deep overburden well. The following is a summary of the monitoring well locations:

© 2025 Pinchin Ltd.

- MW1 is a leachate monitoring well located within the central portion of the unlined waste fill area;
- MW2 is a shallow overburden monitoring well located northeast of the waste footprint;
- MW3S/D are shallow and deep overburden monitoring wells, respectively, located east of the waste footprint;
- MW4 is a shallow overburden monitoring well located west of the waste footprint along the west property line;
- MW5S/D are shallow and deep overburden monitoring wells, respectively, located in the northeast corner of the Site;
- MW6S/D are shallow and deep overburden monitoring wells, respectively, located east of the waste footprint along the east property line;
- MW7S/D are shallow and deep overburden monitoring wells, respectively, located southeast of the waste footprint along the east property line;
- MW8-B is a deep overburden monitoring well located east of the waste footprint;
- MW9S/D are shallow and deep overburden monitoring wells, respectively, located northwest of the waste footprint along the west property line;
- MW10S/D are shallow and deep overburden monitoring wells, respectively, located northeast of the waste footprint along the north property line; and
- MW11S/D are shallow and deep overburden monitoring wells, respectively, located in the CAZ, near the west boundary, approximately 190 m northwest of the waste footprint.

Monitoring well construction details are presented in Table 2 and in the borehole logs in Appendix B-1. The Global Positioning System (GPS) coordinates of relevant site features and monitoring locations are presented in Table 13.

5.2 Groundwater Level Measurements

Groundwater levels were manually measured at the Site during the semi-annual monitoring events using an interface probe. The interface probe was cleaned before initial use and between uses to minimize the potential for cross-contamination by washing with an Alconox™/potable water mixture followed by a deionized water rinse.

The groundwater levels were measured at the monitoring wells on May 12, 2025, as well as on September 24, 2025. The groundwater levels collected to date are summarized in Table C-1, Appendix C.

5.3 Leachate Pumping Station Sampling

The 2025 Monitoring Program included the collection of leachate from the LPS, downstream of the leachate collection system for the Site. The leachate in the LPS represents the leachate quality that is

© 2025 Pinchin Ltd.

transferred for off-Site treatment to the Municipality's Mitchell Wastewater Treatment Facility. Leachate samples were collected with a clean, unpreserved sample container and transferred to laboratory prepared sample bottles. Field indicator parameters pH, electrical conductivity (EC) and temperature were recorded into a dedicated field book for each leachate sample.

Collected samples were submitted to ALS Environmental Inc. (ALS) in Waterloo, Ontario, which is a Canadian Association for Laboratory Accreditation (CALA) certified environmental laboratory, for analysis. Laboratory Certificates of Analysis are provided in Appendix E.

5.4 Groundwater and Leachate Sampling

The 2025 Monitoring Program included the collection of groundwater and leachate samples from each of the relevant eighteen (18) monitoring wells on May 13, 2025, as well as on September 26, 2025, in accordance with Pinchin's Standard Operation Procedures (SOPs).

All monitoring well development, purging and sampling activities were conducted using dedicated inertial pumps comprised of Waterra™ polyethylene tubing and foot valves to draw groundwater to the surface.

Prior to monitoring well purging, the static groundwater level was measured, and the well-casing volume was calculated. The monitoring well was then purged with the dedicated inertial-lift pump until three (3) liquid volumes were removed, or until a discontinuous flow of water was observed.

Sampling was completed in May and September 2025, after the removal of three (3) well casing volumes or purging dry on May 12, 2025, and September 26, 2025, respectively. Following each casing volume removed, field indicator parameters pH, electrical conductivity (EC) and temperature were recorded into a dedicated field book.

Samples collected for metals analysis were filtered in the field using dedicated 0.45-micron in-line filters prior to preservation. Other parameters sampled, as well as the LPS samples, were collected directly into bottles provided by the laboratory.

Collected samples were submitted to ALS for analysis. Laboratory Certificates of Analysis are provided in Appendix E.

5.5 Surface Water Sampling

The 2025 Monitoring Program included the collection of surface water samples and surface water flows from the three (3) surface water monitoring stations located along the Drain during the semi-annual monitoring events in May and September. The Drain flows in a north-easterly direction through the Site on the east side of the waste footprint and then turns easterly eventually discharging into the North Thames River approximately 1 kilometre (km) from the Site (depicted in Figure 1). The surface water monitoring stations at the Site are summarized below.

© 2025 Pinchin Ltd.

- SW1 is located in the Drain upstream of the waste footprint. SW1 was originally located south of the waste footprint at the bend near the LPS; however, in 2012 it was moved to the east side of West Street closer to where the Drain originates;
- SW2 is located in the Drain downstream of the waste footprint; and
- SW3 is located in the Drain adjacent to the waste footprint and monitoring wells MW3S/D.

The surface water samples were collected via a grab sample at the monitoring locations using a clean and unpreserved sample container. Grab sample aliquots were then transferred into the laboratory-provided dedicated bottle sets until filled. For each monitoring location, field indicator parameters pH, EC, temperature, dissolved oxygen (DO) and turbidity were recorded into a dedicated field book.

Negligible flow was observed at surface water monitoring station SW1 during the May 2025 monitoring event. There was sufficient volume available at monitoring stations SW1 for sample collection, however, surface water flow could not be measured.

Collected samples were submitted to ALS for analysis. Laboratory Certificates of Analysis are provided in Appendix E.

5.6 Stormwater Sampling

Samples of surface water discharge are to be collected at SW5, near the South Stormwater Management Pond (South SWM Pond) outlet structure, during the semi-annual monitoring events when a rainfall event causes a discharge from the SWM Pond outlet as per the regulatory requirements. Where surface water discharge is observed from the South SWM Pond, a grab sample is collected from the South SWM Pond, immediately upstream of the outlet structure inlet (SW5).

The South SWM Pond was operating in a non-discharging state during the 2025 semi-annual monitoring events. Therefore, stormwater samples were not required to be collected at SW5 in 2025. Additional details are discussed in Section 10.4.

5.7 Off-Site Water Supply Well Sampling

According to previous reports, properties within 500 m of the Site are generally serviced by the municipal water supply system. As part of the hydrogeological investigation completed for the Site in 2008 and reviewed as part of the previous reports, MECP water well records were reviewed. There were no private water supply wells identified in the area of the Site that obtained their water supply from the overburden; however, a water supply well was identified on a commercial property (Torrance Mechanical) adjacent to the south boundary of the Site. Previous annual monitoring reports state the property owner indicated that the water supply well is approximately 40 m deep and developed in bedrock. In 2009, the owner of Torrance Mechanical was contacted, and permission was granted to collect water quality samples from the water supply well through an indoor tap. The Torrance Mechanical supply well has been incorporated

© 2025 Pinchin Ltd.

into the semi-annual monitoring program for the Site since 2009. The approximate location of the Torrance Mechanical supply well is indicated in Figure 2.

As part of the 2025 semi-annual monitoring events, a sample was collected from Torrance Mechanical water supply well on May 12, 2025, and September 26, 2025. The groundwater samples were collected via an indoor tap within the mechanical room of the property building. The property owner has indicated that this location is upstream of any treatment systems (i.e., water softening apparatus or water filtration system) used to treat the groundwater from the supply well. Prior to sample collection, water was discharged from the aforementioned tap for five (5) minutes in order to flush out standing water within the supply piping between the water supply well and the tap. The sample was collected directly from the tap into a laboratory-prepared, unpreserved sample bottle for transfer to relevant bottles with preservatives.

It is noted that groundwater samples are collected from the Torrance Mechanical water supply well to evaluate the raw groundwater quality at this location and determine if the groundwater has been impacted by landfill leachate. The raw groundwater sample is not collected from a tap intended as a source for drinking water and thus, the relevant analytical results for the collected sample are not intended to evaluate the quality of drinking water for Torrance Mechanical.

5.8 Landfill Gas Monitoring

Landfill gas (methane) monitoring was completed at the eighteen (18) monitoring well locations, as well as the gas probes at the Site, on May 12 and September 24, 2025. As noted in previous reports, two (2) gas probes (GP1S and GP1D) were installed near leachate monitoring well MW1 to monitor landfill gas levels at two different elevations within the waste. In 2012, three (3) additional gas probes (GP2, GP3 and GP4) were installed along the south boundary of the Site between the waste footprint and the recycling/waste transfer area.

Landfill gas measurements were obtained immediately after removing the push-on monitoring well caps and prior to collecting liquid level measurements and conducting the sampling procedure. Monitoring was completed using a 4-way gas meter calibrated to detect 100% of the lower explosive limit (LEL) for methane (CH4). For landfill gas measurements calibrated for methane, 100% of the LEL is equivalent to 5% volume of methane in air.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL EVALUATION

Various quality assurance/quality control (QA/QC) protocols were following during the 2025 semi-annual monitoring events to ensure that representative samples were obtained, and that representative analytical data were reported by the laboratory.

Field QA/QC protocols that were employed by Pinchin included the following:

- Groundwater, surface water and leachate samples were placed in laboratory-supplied glass sample containers;

© 2025 Pinchin Ltd.

- The monitoring wells were purged to remove stagnant water prior to sample collection so that representative groundwater and leachate samples could be obtained. Dedicated purging and sampling equipment was used for monitoring well purging and sampling to minimize the potential for cross-contamination;
- Groundwater, surface water and leachate samples were placed in coolers on ice immediately upon collection, with appropriate sample temperatures maintained prior to submission to the laboratory;
- Dedicated and disposable nitrile gloves were used for sample handling;
- Non-dedicated monitoring and sampling equipment (e.g., interface probe) was cleaned before initial use and between uses to minimize the potential for cross-contamination by washing with an Alconox™/potable water mixture followed by a deionized water rinse; and
- Sample collection and handling procedures were performed in general accordance with the Ontario MECP document entitled *"Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario"* dated December 1996 (*MECP Sampling Guideline*), the Association of Professional Geoscientists of Ontario document entitled *"Guidance for Environmental Site Assessments under Ontario Regulation 153/04 (as amended)"*, dated April 2011 (*APGO Guideline*) and Pinchin's standard operating procedures (SOPs).

All field instrumentation calibration checks were completed by Pinchin field staff prior to use on-Site. All field operations conducted by Pinchin field staff members were completed using standard equipment decontamination and sampling procedures, and no deviations from the sampling plan were noted.

ALS's internal laboratory QA/QC consisted of the analysis of laboratory duplicate, method blank, matrix spike and spiked blank samples, an evaluation of relative percent difference (RPD) calculations for laboratory duplicate samples, and an evaluation of surrogate recoveries.

In addition to the above QA/QC measures, Pinchin obtained laboratory-prepared trip blanks and also collected a total of three (3) field duplicate groundwater samples and two (2) field duplicate surface water samples, taken from groundwater monitoring wells MW6D (spring), MW4 (fall) and/or MW6S (fall) and surface water sample location SW2 during the semi-annual monitoring events, for analysis to assess the suitability of field sampling methods and laboratory performance. The field duplicate samples were collected immediately following collection of the regular samples. The frequency of groundwater sample analysis complied with the requirement that one duplicate groundwater or surface water sample is analyzed for every ten regular groundwater or surface water samples submitted for analysis. The field duplicate pairing and corresponding analytical parameters are summarized as follows:

© 2025 Pinchin Ltd.

Media	Sample Date	Original Sample ID	Field-Prepared Duplicate ID
Groundwater	May 13, 2025	MW6D	DUP-06
Surface Water	May 13, 2025	SW2	DUP-07
Groundwater	September 26, 2025	MW4	DUP-103
Groundwater	September 26, 2025	MW6S	DUP-104
Surface Water	September 26, 2025	SW2	DUP-SW

When compared to concentrations reported in the original samples, duplicate water quality data reported that all parameters were within an acceptable range with respect to relative percent difference (i.e., the industry standard of less than 30%).

The quality of the analytical results was evaluated by calculating the RPD for the original and field duplicate samples. The RPDs were calculated using the following equation:

$$RPD = \frac{(\text{Original Concentration} - \text{Duplicate Concentration}) \text{ X } 100}{(\text{Original Concentration} + \text{Duplicate Concentration})/2}$$

RPDs were not calculated unless the parameter concentration in both the original and duplicate sample had detectable concentrations above the corresponding practical quantitation limit (PQL) for the parameter, which is equal to five times the lowest laboratory Reporting Detection Limit (RDL).

The calculated RPDs for the original and field duplicate groundwater or surface water samples have been compared to performance standards provided in the MECP document entitled *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality"* dated March 9, 2004, and revised on July 1, 2011 (*Analytical Protocol*) and as of February 19, 2021. Pinchin notes that although these performance standards only strictly apply to laboratory duplicate samples, they have been considered suitable for comparison to the field duplicate groundwater or surface water sample results as well. If calculated RPD values are greater than the performance standards, further assessment is required of the apparent lack of precision of the analytical results and the effect, if any, on the interpretation of the analytical results. This assessment may include a review of analytical laboratory quality control, reporting errors, and field sampling methods.

6.1 Data Quality Evaluation

Water quality samples collected by Pinchin were generated in accordance with acceptable procedures. No analytical hold times were exceeded for samples submitted for analyses and the sample temperatures upon receipt at the project laboratory were below 10˚ Celsius (˚C) with the exception of the residential well

© 2025 Pinchin Ltd.

(Torrence Mechanical) sampled on September 26, 2025. The temperature recorded by the laboratory measured 11.3˚C for the cooler temperature. Based on high ambient and interior temperatures during the sampling of the residential well on September 26, 2025, it is likely that these samples were unable to be cooled to below 10˚ Celsius prior to laboratory submission. Holding times were exceeded for dissolved mercury in the surface water and leachate pumping station samples for both May 13, 2025, and September 26, 2025. It is Pinchin's opinion that analytical data for the groundwater samples are accurate as presented and acceptable for inclusion into the database for interpretive purposes.

RPD values (the absolute difference between two values divided by the average value and expressed as a per cent) were calculated between the parent sample and the field duplicate as part of the QA/QC program. RPD results of sample and duplicate analyses that are less than 30 percent indicate an acceptable level of analytical uncertainty. RPD values calculated for measured analyte concentrations for sample and duplicate pairs that exceed 30 per cent generally warrant discussion because they may indicate the presence of elevated analytical uncertainty and a potential for making interpretive errors based on the analysis results. Use of calculated RPD values to assess analytical uncertainty when using measured analyte concentrations for sample and sample duplicate pairs is not appropriate when either measured analyte concentration is within a multiple of 5 of the method detection limit (a value designated as the practical quantification limit (PQL)), where analytical uncertainty is typically elevated.

The results of the original and duplicate sample satisfied the criteria of the QA/QC evaluations with a single exception as outlined below:

Sample Date	Original Sample ID	Field-Prepared Duplicate ID	Parameters	QA/QC Evaluation
May 13, 2025	MW6D	DUP-06	Total Dissolved Solids (TDS)	Exceeded the corresponding performance standard of 30%.

The original groundwater sample MW6D and the corresponding field duplicate DUP-06 likely exceed the standard RPD values as a result of sample inhomogeneity of the groundwater. Although QA/QC exceptions were identified, the relevant original sample results were deemed to be representative of conditions at the time of sampling. Based on the above noted evaluation, the results of the duplicate analysis indicated that the concentrations for the original sample are acceptable for inclusion into the database for interpretive purposes.

Thus, the results of the duplicate analysis indicated that the concentrations for the original sample are accurate as presented and acceptable for inclusion into the database for interpretive purposes.

No VOCs were detected in the submitted trip blanks throughout the semi-annual monitoring programs.

© 2025 Pinchin Ltd.

7.0 TRIGGER MECHANISMS

The trigger mechanisms for groundwater and surface water quality provide a guidance tool for the evaluation of waste fill area effects, where relevant, on groundwater and surface water resources at and adjacent to the Site. Findings from the 2025 semi-annual monitoring events were assessed against the relevant trigger mechanisms established for the Site.

7.1 Groundwater Trigger Mechanisms

For the groundwater monitoring wells at the Site, the trigger mechanism was established previously by RWDI in accordance with Condition 8 (8) of the Waste ECA and the ECP for the Site.

The calculation of trigger concentrations for the groundwater monitoring wells at the Site is based on the MECP Guideline B-7 Reasonable Use Concept (Guideline B-7). The Guideline B-7 criteria (trigger concentrations) for the background monitoring wells are calculated based on the geometric mean of the historical analytical concentrations to the end of the previous reporting year. For the purpose of this report, the geometric mean of the historical analytical concentration to the end of 2025. The trigger concentrations are calculated for analytical parameters which are identified in the Waste ECA and EMP for analysis at the groundwater monitoring wells and have an existing Ontario Drinking Water Standard (ODWS) criterion. The parameters where the trigger concentrations have been calculated are presented in Tables 5 and 6 (May and September results for the shallow monitoring wells, respectively) and Tables 7 and 8 (May and September results for the deep monitoring wells, respectively).

The groundwater compliance monitoring wells for the Site have been identified as those that are located along, or outside of, the Site property boundary, including MW5S/D, MW6S/D, MW10S/D and MW11S/D. For each relevant parameter, the analytical results from the 2025 monitoring event for the compliance monitoring wells were compared to the calculated trigger concentrations for the background monitoring wells. The background monitoring wells for the Site are MW7S/D as these are located upgradient of the waste footprint.

Although MW4, MW8-B and MW9S/D are located along the property boundary, they are not considered compliance monitoring wells given their location relative to the CAZ for the Site. Monitoring wells MW11S/D are located in the CAZ, near the west boundary, and are further downgradient of the waste footprint than downgradient wells MW4, MW8-B and MW9S/D.

© 2025 Pinchin Ltd.

The locations of the groundwater monitoring wells at the Site are presented in the summary below.

Monitoring Well	Location	Position Relative to Waste Fill Area	Property/CAZ Boundary Monitoring Well	Trigger Compliance Monitoring Well
Shallow Wells				
MW1	Waste	Leachate	No	No
MW2	North of existing fill area	Adjacent/ Downgradient	No	No
MW3S	East of existing fill area	Downgradient	No	No
MW4	West of existing fill area	Adjacent/ Crossgradient	No	No
MW5S	East property line	Downgradient	Yes	Yes
MW6S	East property line	Upgradient/ Crossgradient	Yes	Yes
MW7S	East property line	Upgradient	Yes	Background
MW9S	West if existing fill area	Adjacent/Downgradient	No	No
MW10S	North property line	Downgradient/ Crossgradient	Yes	Yes
MW11S	190 m west of the Site	Downgradient	Yes	Yes
Deep Wells				
MW3D	East of existing fill area	Downgradient	No	No
MW5D	East property line	Downgradient	Yes	Yes
MW6D	East property line	Upgradient/ Crossgradient	Yes	Yes
MW7D	East property line	Upgradient	Yes	Background
MW8-B	West of existing fill area	Adjacent/ Crossgradient	No	No
MW9D	West of existing fill area	Adjacent/ Downgradient	No	No

© 2025 Pinchin Ltd.

Monitoring Well	Location	Position Relative to Waste Fill Area	Property/CAZ Boundary Monitoring Well	Trigger Compliance Monitoring Well
MW10D	North property line	Downgradient/ Crossgradient	Yes	Yes
MW11D	190 m west of the Site	Downgradient	Yes	Yes

Notes: 1) Position relative to waste fill area is based on the interpreted groundwater flow direction presented in Figures 3A/B and 4 A/B.

As indicated in previous annual monitoring reports, the trigger mechanism for groundwater at the Site is activated if the following conditions are met:

- If the analytical result for chloride from the most recent monitoring event is greater than the respective trigger concentration at a groundwater compliance monitoring well. It is noted that, as a measure of conservatism, the trigger concentration for chloride within the groundwater compliance wells is 75% of the calculated Guideline B-7 criterion for chloride; and
- If the analytical results for at least three (3) parameters, other than chloride, from the most recent monitoring event are greater than their respective trigger concentration at a groundwater compliance monitoring well, with the exceptions noted below:
  - In the shallow monitoring wells: hardness; and
  - In the deep monitoring wells: hardness, dissolved organic carbon (DOC), aluminum, fluoride and manganese.

7.1.1 Guideline B-7 Reasonable Use Concept

Guideline B-7, the “reasonable use concept” (RUC) approach, is the MECP’s groundwater management strategy for mitigating the effect of contamination on properties adjacent to its source. It establishes procedures for determining the reasonable use of groundwater on a property adjacent to sources of contaminants and establishes limits on the discharge of contaminants from facilities which dispose of waste into the shallow subsurface.

The application of “reasonable use” is outlined in Procedure B-7-1 “*Determination of Contaminant Limits and Attenuation Zones*”. The procedure determines the maximum concentration (C_m) of a particular contaminant that would be acceptable in the groundwater beneath an adjacent property and is calculated in accordance with the relationship:

$$C_m = C_b + x\,(C_r - C_b)$$

© 2025 Pinchin Ltd.

C_b – This is the background concentration of the particular groundwater contaminant in consideration before it has been affected by human activities. From this it is possible to calculate the extent of human activities impact on contaminant levels.

C_r – The maximum concentration of a particular contaminant that should be present in the groundwater. This value is dependent on property's use of the groundwater as outlined in B-7. It also allows for the total amount of contamination. Pinchin conservatively assumes that the reasonable use of the groundwater on-Site is potentially for potable drinking purposes.

x – As determined by the MECP, this constant determines the extent which the contamination has on the groundwater's use. For drinking water x is 0.5 for non-health related parameters or 0.25 for health-related parameters. For other reasonable uses it is 0.5.

Per Guideline B-7, a landfill cannot degrade the water quality on an adjacent property by more than 50% of the difference between background water quality and the water quality required for use of that property for non-health related parameters, and 25% for health-related parameters, as outlined in the ODWS. The Guideline B-7 criteria considers the geometric mean distribution of historical background monitoring well groundwater analytical results. As a result, the calculations are updated annually to include newly obtained data from the ongoing groundwater monitoring and analytical testing.

An example calculation of the 2025 trigger concentration for chloride using the Guideline B-7 formula and available historical analytical data (2008 to 2024) is presented below.

Chloride in the Shallow Flow System:

Guideline B-7 formula: $Cm = Cb + X \times (Cr - Cb)$ where:

- C_b = Background concentration (in this case, a geometric mean concentration to 2024).
  - Number of analytical testing data (n) in background monitoring wells MW7S = 34 (2008-2024).
  - Geometric mean concentration value (C_b) = 2.32 mg/L.
- C_r = Maximum allowable concentration of a parameter in groundwater (ODWS criterion).
  - ODWS criterion for chloride (C_r) = 250 mg/L.
- X = Reduction constant associated with assessing whether a parameter of concern is non-health related (0.5) or is health related (0.25).

Based on the above definitions, for chloride in the shallow flow system we have the following values:

- C_b = 2.32 mg/L
- C_r = 250 mg/L
- X = 0.50

© 2025 Pinchin Ltd.

Thus, Cm = 2.32 + 0.50 × (250 – 2.32)

= 126 mg/L in the Shallow Flow System

As a measure of conservatism, the Guideline B-7 value is further reduced to represent the 75% of Guideline B-7 value, which results in a trigger concentration for chloride in the shallow groundwater system of:

- 126 mg/L x 0.75 = 95 mg/L

Part of evaluating the shallow groundwater quality in 2025 would include the use of 95 mg/L for the parameter chloride. The maximum allowable concentration of chloride at the Site boundary would therefore be approximately 95 mg/L in the monitoring wells for the shallow flow system. The trigger concentrations are calculated separately for the shallow and deep compliance monitoring wells to assess the shallow and deep groundwater quality, respectively. The trigger concentrations are calculated separately for the shallow and deep compliance monitoring wells to assess the shallow and deep groundwater quality, respectively. The trigger concentrations for the relevant analytical parameters are tabulated in Tables 5 to 8.

7.2 Surface Water Trigger Mechanism

The trigger mechanism for the surface water monitoring at the Site involves the comparison of the surface water analytical results from the most recent monitoring event to their respective Provincial Water Quality Objectives (PWQO), where available. Trigger concentrations are established for analytical parameters through the following:

i) Identified in the Waste ECA and EMP for analysis at the surface water monitoring stations, and

ii) Have an existing PWQO. As there is no PWQO for chloride, the Guideline B-7 criterion calculated for chloride in the shallow groundwater system is used as an indicator of landfill impacts in surface water.

The surface water compliance station for the Site is SW2. This surface water location is positioned downstream of the waste footprint near the north property boundary where the Drain leaves the Site.

The trigger mechanism for surface water at the Site is activated if one of the following conditions is met.

- If the analytical result for chloride from the most recent monitoring event is greater than the respective shallow groundwater Guideline B-7 criterion at the compliance station; or
- If the analytical results for at least three (3) parameters, other than chloride, from the most recent monitoring event are greater than their respective PWQO at the compliance station.

The trigger concentrations for the surface water parameters are presented in Tables 9 and 10.

© 2025 Pinchin Ltd.

7.3 Stormwater Trigger Mechanism

Condition 6 of the Sewage ECA outlines the trigger mechanism for stormwater at the Site. The Sewage ECA identifies unionized ammonia, phenols, total phosphorus, boron, and iron as trigger parameters and a trigger concentration for each parameter. The trigger concentrations are based on the relevant PWQO. The Sewage ECA applies to the Stormwater Management Ponds (SWM Ponds) at the Site. Only the South SWM Pond (SW5) was constructed at the Site at the time of the 2025 monitoring events.

The trigger mechanism for stormwater at the Site is activated if the following condition is met.

- If the analytical result for one (1) of the trigger parameters is greater than the respective trigger concentration at the South SWM Pond for the most recent monitoring event.

7.4 The Ontario Drinking Water Standards (ODWS)

Through the establishment of the ODWS, the province of Ontario has determined legally enforceable standards on contaminants in drinking water. The standards are designed to protect public health by restricting the quality of specific contaminants in drinking water. Three categories of contaminates are regulated under the Ontario Regulation 169/03 Drinking Water Standards:

- Microbiological – Originating from human and animals waste, coliforms and bacteria are common in the environment. Most are harmless however their presence may be indicative of other harmful bacteria in the water. Under the ODWS, Escherichia coli (“E. Coli”), fecal coliforms and total coliforms must be non-detectable in drinking water;
- Chemical – ODWS regulates maximum quantities of organic and inorganic chemicals allowed in drinking water. Industrial discharges or agricultural runoff are not necessarily removed by drinking water treatment. Consuming water exhibiting a greater concentration of these chemicals than the ODWS may cause serious health problems; and
- Radiation – Natural and artificial radio nuclides are also regulated in the ODWS. Standards are expressed as maximum allowable concentrations in becquerels per litre (“L”). Radiological contaminants include radio nuclides, such as radium 228, which are caused from the erosion of naturally occurring deposits, or artificial radio nuclides, such as tritium, released into the water by nuclear power plants. Radiological contaminants do not naturally occur on the Site or surrounding properties and the disposal of radiological waste was not suspected on the Site and as a result radiation was not monitored.

The ODWS Guideline Document is the MECP technical guidance document which provides guidance on applicability of the ODWS and also provides applicable interim guidelines where legal standards are absent. Both the ODWS and Guideline B-7 were used in assessing the groundwater results obtained during the 2025 Monitoring Program.

© 2025 Pinchin Ltd.

7.5 Primary Indicator Parameters

As per historic monitoring and reporting efforts, to provide focus for the presentation of trigger parameter data, chloride and boron are considered to be primary leachate indicator parameters for the assessment of the groundwater quality as it relates to the evaluation of a trigger mechanism exceedance for the Site. The use of the primary leachate indicator parameters to evaluate possible leachate effects on groundwater quality is beneficial as they represent a larger group of parameters (i.e., boron for metals and chloride for anions).

The parameter chloride has been observed to be notably greater in the leachate compared to groundwater and surface water. The elevated concentrations of chloride typically originate from anthropogenic sources, such as road salt or landfill leachate. As chloride is very mobile, it is therefore justifiably utilized as a primary leachate indicator.

Boron is also very mobile in groundwater and is representative of a larger group of parameters (i.e., other metal constituents) and therefore, is also justifiably utilized as a primary leachate indicator.

The remaining trigger parameters are considered to be secondary leachate indicator parameters and are presented in Tables 5 to 8.

8.0 GROUNDWATER ELEVATION RESULTS

Groundwater levels have been monitored in the leachate and groundwater monitoring wells at the Site since December 2005 by previous consultants. Monitoring well locations are indicated in Figure 2 and monitoring well construction details are provided in Table 2. The 2025 liquid level data are tabulated in Table C-1, Appendix C, along with the historical data.

8.1 Leachate Elevation

Liquid level measurements have been taken in the leachate monitoring well, MW1, at the Site since 2005. A hydrograph of the historical leachate elevation at MW1 is presented in Figure C-1, Appendix C. The leachate elevations have historically not been measured as part semi-annual monitoring events, as a result of high methane readings and visible gas vapours observed during the venting of the well. During the September 2025 monitoring events, visible gas vapours were observed during venting of MW1. Monitoring well MW1 was allowed to vent for a period of 72 hours in order for high methane readings to reduce to safe monitoring levels. The methane readings did not return to levels beneath 100% of the LEL during the September 2025 and as a result, leachate elevations were not collected during this monitoring event. It is also noted that leachate seeps were not observed at the Site during routine inspections in 2025.

Based on historical leachate elevation in MW1 and the shallow groundwater elevations in MW2, MW3S and MW9S, located near the waste footprint boundary, relative to the groundwater elevation in the remaining shallow groundwater monitoring wells at the Site, there appears to typically be a mound of

© 2025 Pinchin Ltd.

leachate present within the waste above the groundwater table. As a result, the shallow groundwater flow in the immediate vicinity of the Site is interpreted to flow in a radial pattern away from the waste footprint, primarily from the mound of the unlined waste fill area.

8.2 Shallow Groundwater Flow

The shallow groundwater elevations measured for the 2025 semi-annual monitoring events were consistent with historical elevations. Liquid elevations in the shallow groundwater monitoring wells at the Site have generally fluctuated over time with no distinctive trends in increasing or decreasing levels. The fluctuating elevations are likely a result of periods of prolonged precipitation or lower than normal precipitation.

Locally, the shallow groundwater flow regime is influenced by surficial features such as, but not limited to, the Drain, which flow through the Site in a north-easterly direction toward the North Thames River. The groundwater flow pattern in the shallow monitoring wells demonstrated flow generally toward the Drain in 2025. Contour mapping of the shallow groundwater elevations measured in May and September 2025, and the interpreted groundwater flow direction in the vicinity of the Site, are depicted in Figures 3A and 3B, respectively.

As discussed in Section 8.1, the localized shallow groundwater flow in the immediate vicinity of the Site is interpreted to flow in a radial pattern away from the waste footprint, primarily from the mound of the unlined waste fill area. For the unlined waste fill area, it is inferred that a portion of precipitation at the Site infiltrates through the cover material into the waste, while the remainder ultimately runs off into the Drain and surface water ditches around portions of the perimeter of the Site. The conceptual site model, based on information documented in previous intrusive investigations, identifies that the overburden soil around the Site generally consists of fine-grained sediments which have a lower hydraulic conductivity than the waste fill. As a result, the water that infiltrates into the unlined waste fill area is not able to readily move into the surrounding subsurface materials, creating a shallow leachate mound in the waste. For precipitation that infiltrates into the lined landfill cell, it is expected that the liquid moving through the waste will ultimately be captured by the leachate collection and management system.

The shallow groundwater flow regime in the area of the Site west of the Drain is interpreted to be in a predominantly eastern direction toward the Drain, even though there appears to be a radial flow pattern away from the waste footprint. The shallow groundwater flow regime in the area of the Site east of the Drain is interpreted to be in a western direction toward the Drain.

8.3 Deep Groundwater Flow

Each of the deep monitoring wells (MW5D, MW6D, MW7D, MW8-B, MW9D, MW10D and MW11D) at the Site are positioned in the overburden and screened approximately 4.5 to 5.4 m deeper in the overburden

© 2025 Pinchin Ltd.

than the corresponding shallow groundwater monitoring wells at the Site, with the exception of MW3D, which is 16.9 m deeper than MW3S.

The deep groundwater elevations measured for the 2025 semi-annual monitoring events were consistent with historical elevations, with the exception of MW3D which was measured at below its historical lower elevation in September 2025.

Regionally, groundwater flow in or near the bedrock is inferred to reflect bedrock topography and flow north-easterly. Locally, the deep groundwater flow regime appears to flow towards the northeast. It is noted that during the May and September 2025 semi-annual monitoring events the observed groundwater elevations within monitoring wells MW3D, MW8-B and MW11D are anomalous to the remainder of the deep groundwater flow system monitoring well groundwater elevations. This is consistent with historical groundwater elevations observed on-Site. As such, the 2025 groundwater elevations for MW3D, MW8-B and MW11D have been excluded from Figure 4A and Figure 4B calculations of groundwater flow direction. Continued monitoring is required during the semi-annual monitoring events of the groundwater elevations within monitoring wells MW3D, MW8-B and MW11D to assess the groundwater elevations at these monitoring locations in the long-term. The measured groundwater elevations, as well as the subsurface conditions at and nearby the Site, should be evaluated to determine the potential cause(s) of the anomalous groundwater elevations. Contour mapping of the deep groundwater elevations measured in May and September 2025, and the interpreted groundwater flow direction in the vicinity of the Site, is presented in Figures 4A and 4B, respectively.

9.0 SURFACE WATER FLOW

The 2025 Monitoring Program included the collection of surface water flows from the three (3) surface water monitoring locations during the semi-annual monitoring events. Surface water flow data collected for the Site since 2008 are presented in Table 4.

The surface water flows collected for the Site have been generally similar from the upstream to downstream locations, with minor losses or gains in the Drain as it passes through the Site. Surface water flows will typically be greater in the Drain when the measurements are taken following periods of elevated of consistent rainfall, as well as snowmelt. A plot of surface water flow is presented in Figure C-3, Appendix C.

There are reportedly no field drainage tiles contributing to the Drain between SW1 and SW2. The South SWM Pond outlet discharges into the Drain between SW1 and SW3 and a surface water drainage ditch for the Site on the east side of the Drain discharges into the Drain between SW3 and SW2. With the exception of the aforementioned points of discharge into the Drain, where gains are observed in the surface water flow between SW1 and SW3 or SW3 and SW2, it is likely a result of groundwater contribution. In May 2025, there was an overall increase in surface water flow between SW1 and SW3 and decrease in flow between SW3 to SW2. As discussed, during the September 2025 semi-annual

© 2025 Pinchin Ltd.

monitoring event negligible flowing conditions were observed at surface water monitoring station SW1, SW2 and SW3 and therefore, surface water flows could not be measured.

10.0 LIQUID QUALITY RESULTS

The 2025 liquid quality analytical results are presented in Tables D-1 to D-3, Appendix D. Historical (2006 to 2024) analytical results are also included for comparison. Laboratory Certificates of Analysis are provided in Appendix E.

10.1 Leachate

Leachate monitoring well MW1 is situated within the waste footprint and, therefore, the liquid quality at this location is inferred to represent leachate at the Site. It is noted that no sample was collected at MW1 during the May 2025 monitoring event due to a high methane readings and visible gas vapours observed during the vented of the well.

The historical analytical results (2006 to 2024) and September 2025 analytical results for MW1 are presented in Table D-1 and Table D-2, Appendix D.

10.1.1 General Chemistry

The historical analytical data for MW1 is presented in Table D-1, with few exceptions, the September 2025 most recent analytical results for MW1 were generally consistent with historical results, with some results being slightly above or below their respective historical range. The deviations are reasonable for municipal solid waste leachate in southern Ontario.

Historically, the leachate at MW1 is mildly alkaline with pH levels typically between approximately 7.2 and 8.4. The pH level was reported as 7.49 in May 2025. Relative to the background groundwater quality, the leachate quality from the landfill waste at the Site is generally characterized by greater concentrations of most general parameters, major ions, organic parameters and select metals. Specifically, the concentrations of total dissolved solids (TDS), alkalinity, total ammonia, chloride, DOC, aluminum, arsenic, barium, boron, chromium, iron, manganese, potassium and sodium have typically been greater in the leachate at the Site relative to background concentrations.

10.1.2 Volatile Organic Compounds

The analytical results for VOCs are presented in Table D-2, Appendix D. Historical concentrations of VOC constituents within leachate well MW1 are typically below their respective RDLs, with few exceptions. The MW1 concentrations of VOCs detected at MW1 were below the applicable ODWS, with the exception of benzene.

Within the leachate at MW1, VOCs detected in May above their respective RDLs included benzene, chloroethane, ethylbenzene, toluene and xylenes. Each of these VOCs have been detected historically within the leachate at MW1 and, in May 2025, were detected within their respective historical

© 2025 Pinchin Ltd.

concentration range. The VOCs detected within the leachate at MW1 are not currently a concern as they are not negatively affecting groundwater within the compliance monitoring wells at the Site. For the VOCs historically detected within MW1, the historical concentrations have generally fluctuated with no apparent increasing or decreasing trend. Concentrations detected above their respective RDLs are presented in Table D-2 in Appendix D.

In summary, select VOCs continued to be detected in the landfill leachate with concentrations that are consistent with historical findings or are relatively low. Detected VOC concentrations noted in the leachate do not quantify concentrations that would warrant remedial action.

10.2 Groundwater

Based on the measured groundwater level elevations and the inferred groundwater flow pattern in the shallow and deep flow systems, as determined in the previous reports, the groundwater at monitoring wells MW7S and MW7D is interpreted to represent background groundwater quality conditions in the shallow and deep flow systems, respectively. The remaining shallow and deep monitoring wells, with the exception of leachate monitoring well MW1, are interpreted to represent either crossgradient or downgradient groundwater conditions at the Site. The analytical results for the groundwater wells are presented in Table D-3 and Table D-4, Appendix D.

10.2.1 General Chemistry

A summary of the 2025 groundwater results compared to the trigger concentrations for the compliance monitoring wells is presented in Section 10.2.3.

Concentration vs. time plots for the primary indicator parameters (chloride and boron) for the groundwater compliance monitoring wells are presented in Figures D-1 and D-2 (shallow monitoring wells) and Figures D-3 and D-4 (deep monitoring wells), Appendix D.

The ODWS for the parameters analyzed are provided for comparison in Table D-3, Appendix D. The primary purpose of the ODWS is to provide information for the protection of public health through the provision of safe drinking water and particularly to serve as a reference for the design and operation of water treatment plants to produce water that is safe for consumption.

The groundwater at the Site is not used as drinking water, however, the analytical results are still compared to the relevant ODWS (as drinking water is the most sensitive potential reasonable use). Although there are established trigger mechanisms in place, where an analytical result is greater than its respective trigger concentration, the ODWS can be used secondary to the trigger mechanisms to evaluate potential leachate influences on groundwater quality. The analytical results that were greater than their respective ODWS in 2025 were generally consistent with historical results. For each monitoring well, the relevant results that were greater than their respective ODWS are presented in Table D-3, Appendix D.

© 2025 Pinchin Ltd.

As indicated in Figure D-1, the concentration of chloride within the shallow groundwater compliance monitoring wells has remained in compliance with the trigger concentration for the Site. At MW5S and MW11S, the chloride concentration exhibited a slight decreasing trend from 2008 to 2013 and has since been generally stable with some fluctuations within MW5S. The chloride concentration at MW6S and MW10S has been generally stable since monitoring began in 2008, with a slightly increasing trend from 2015; however, the concentration of chloride within both monitoring well MW6S and MW10S has remained in compliance with the respective trigger concentration for the Site.

As presented in Figure D-2, the concentration of boron within the shallow groundwater compliance monitoring wells has also remained in compliance with the trigger concentration for the Site. Generally, the concentration of boron has been stable or slightly fluctuation with no apparent increasing or decreasing trend at the shallow groundwater compliance monitoring wells. During the September 2022 monitoring event, boron concentration within MW11S was detected slightly above its respective historical upper limit concentration and decreased within the historical average concentration for boron within this well in 2023 to 2025. Concentrations of boron within MW11S have fluctuated with no apparent increasing or decreasing trend and have remained below the trigger concentration for the Site (1.3 mg/L). Continued monitoring of boron concentrations within the shallow groundwater compliance wells should continued to be monitored to assess any increasing trends of concern.

As indicated in Figure D-3, the concentration of chloride within the deep groundwater compliance wells has remained in compliance with the trigger concentration for the Site. The chloride concentration within MW5D has exhibited an overall increasing trend since 2012; however, has remained in compliance with the respective trigger concentration for the Site. The concentrations of chloride at MW6D and MW7D slightly increased from 2010 to 2015, however, have since exhibited an overall decreasing trend. It should be noted that based on groundwater elevations, MW6D and MW7D are interpreted to be upgradient and/or crossgradient of the waste fill area at the Site. As such, the historical trends in chloride concentration evident at MW6D and MW7D are not interpreted to be as a result of the landfill leachate. Monitoring well MW11D has been generally stable since monitoring began at this location, with no apparent increasing or decreasing trend. The chloride concentrations at MW10D have exhibited a slight increasing and fluctuating trend since 2014. Concentrations of chloride within MW10D remain below the trigger concentration for the Site (95 mg/L). Continued monitoring of chloride concentrations within the shallow groundwater compliance wells should continued to be monitored to assess any increasing trends of concern.

As indicated in Figure D-4, the concentration of boron within the deep groundwater compliance monitoring wells has also remained in compliance with the trigger concentrations for the Site. Generally, the concentration of boron has been stable or fluctuating with no apparent increasing or decreasing trend.

Generally, there have been no distinct increases in concentration over time of the other indicator parameters within the shallow and deep groundwater compliance monitoring wells since 2006. Since

© 2025 Pinchin Ltd.

groundwater monitoring began at the Site in 2005, the concentrations of most parameters in the shallow and deep groundwater monitoring wells have generally been stable or fluctuating with no apparent increasing or decreasing trend.

10.2.2 Volatile Organic Compounds

For the May and September 2025 semi-annual monitoring events concentrations of VOC constituents, within the groundwater compliance monitoring wells at the Site were below their respective RDLs with few exceptions as detailed below.

Sample Location	Sample Date	Parameters above the RDL	Concentration (µg/L)
MW6S	September 26, 2025	n-hexane	0.75

In September 2025, a concentration of n-hexane in compliance monitoring wells MW6S was detected above the respective RDL. The concentration of n-hexane detected in MW6S was within their historical upper concentration limits and below their respective ODWS. It is noted that background monitoring well MW7S also had a detection of n-hexane above the respective RDL, indicating that VOCs detected within these wells are not attributed to landfill leachate. The VOC concentrations within MW6S will be evaluated over subsequent monitoring events to assess if any concentration trends of concern are occurring. No remedial action is warranted to address VOC concentration detections at this time.

10.2.3 Trigger Mechanism Assessment

The groundwater analytical results for the 2025 semi-annual monitoring events and their respective trigger concentrations are presented in Tables 5 to 8. The results that were greater than their respective trigger concentrations are presented below. It is noted that if a result is greater than its respective trigger concentration, a trigger mechanism for the Site is not necessarily activated, per the ECP for the Site.

Property Boundary Monitoring Well	Parameter(s)	Trigger Concentration (mg/L)	May 2025 Analytical Result (mg/L)	September 2025 Analytical Result (mg/L)
Shallow Groundwater Monitoring Wells				
MW5S	Total Hardness (as CaCO3)	328	*433*	*489*
	Total Dissolved Solids (TDS)	432	477	592
	Alkalinity (as CaCO3)	421	1310	566
MW6S	Total Hardness (as CaCO3)	328	*380*	*411*

© 2025 Pinchin Ltd.

Property Boundary Monitoring Well	Parameter(s)	Trigger Concentration (mg/L)	May 2025 Analytical Result (mg/L)	September 2025 Analytical Result (mg/L)
	Total Dissolved Solids (TDS)	432	-	505
	Alkalinity (as CaCO3)	421	-	648
	Fluoride	0.57	-	0.604
MW10S	Total Hardness (as CaCO3)	328	*360*	*685*
	Total Dissolved Solids (TDS)	432	-	562
	Alkalinity (as CaCO3)	421	-	455
	Fluoride	0.57	-	0.720
	Aluminum	0.052	-	6.51
	Arsenic	0.0030	-	0.00302
	Iron	0.16	-	8.49
	Lead	0.0027	-	0.0104
	Manganese	0.026	-	0.244
MW11S	Total Hardness (as CaCO3)	328	*444*	*480*
	Total Dissolved Solids	432	530	520
	Fluoride	0.57	1.40	1.32

Notes: Italics denotes that the analytical result does not constitute a trigger concentration exceedance. As detailed in Section 7.1 of this report, in the shallow monitoring wells, hardness does not represent trigger concentration exceedance due to the elevated concentrations of these parameters in the background groundwater at the Site.

Property Boundary Monitoring Well	Parameter(s)	Trigger Concentration (mg/L)	May 2025 Analytical Result (mg/L)	September 2025 Analytical Result (mg/L)
Deep Groundwater Monitoring Wells				
MW5D	Total Hardness (as CaCO3)	202	*228*	*489*

© 2025 Pinchin Ltd.

Property Boundary Monitoring Well	Parameter(s)	Trigger Concentration (mg/L)	May 2025 Analytical Result (mg/L)	September 2025 Analytical Result (mg/L)
	Total Dissolved Solids	398	-	592
	Alkalinity	372	-	565
MW6D	Total Hardness (as CaCO3)	202	*249*	*259*
	Alkalinity	372	842	-
MW10D	Total Dissolved Solids	398	-	426
	Alkalinity	372	-	446
	Fluoride	1.5	*1.62*	*1.54*
	Aluminum	0.053	*0.210*	*0.156*
	Iron	0.16	0.170	0.176
MW11D	Total Hardness (as CaCO3)	202	-	*217*
	Fluoride	1.5	*2.00*	*1.88*
	Arsenic	0.004	0.00662	0.00862

Notes: Italics denotes that the analytical result does not constitute a trigger concentration exceedance. As detailed in Section 7.1 of this report, the following exceptions in the deep monitoring wells: hardness, DOC, aluminum, fluoride and manganese do not represent trigger concentration exceedances due to the elevated concentrations of these parameters in the background groundwater at the Site.

For the 2025 monitoring events, the trigger concentration for chloride was not exceeded at the groundwater compliance monitoring wells. The analytical results for at least three (3) parameters, excluding chloride and the select parameters noted in Section 7.1, were also not greater than their respective trigger concentration within the compliance monitoring wells, with the exception of groundwater monitoring well MW6S, 10S and 10D in September 2025.

Monitoring wells MW5S/D and MW6S/D are located along the east boundary of the Site and based on measured groundwater elevations, are downgradient/crossgradient of the waste fill area. The Drain also flows through the Site between the landfill waste footprint and monitoring locations MW5S/D and MW6S/D. The concentrations of the indicator parameters within MW5S/D and MW6S/D have generally been stable or fluctuated with no apparent increasing or decreasing trend of concern, and within their upper limit historical range with a few exceptions.

© 2025 Pinchin Ltd.

MW5S and MW6S exceeded the trigger concentrations for TDS and alkalinity in May and September 2025. In addition, MW6S exceeded the trigger concentration for fluoride in September 2025, resulting in the exceedance of three (3) trigger concentrations within MW6S during this event. The concentration of alkalinity measured at MW5S in May 2025 and MW6S in September 2025, was above the respective historical range for both wells. Concentrations of TDS and alkalinity within these wells has fluctuated historically with an overall increase in TDS and in MW5S and overall increase in alkalinity in MW6S since 2017. The concentration of fluoride within MW6S was within the historical range for this well. These parameters should continue to be monitored to ensure there are no increasing trends of concerns and confirm or deny whether the current results are anomalous.

Monitoring wells MW5D and MW6D, exceeded the trigger concentrations for alkalinity (MW6D in May 2025 and MW5D in September 2025) and TDS (MW5D in September 2025). Of these exceedances, all reportable concentrations were within their historical upper limit concentration with the exception of alkalinity within MW6D in May 2025. It is noted that the reported concentration of alkalinity within MW6D was greater than concentrations in MW3D located closer and downgradient of the waste footprint.

Monitoring wells MW5S/D and MW6S/D did not exceed trigger concentrations for at least three (3) parameters during the 2025 Annual Monitoring Program with the exception of MW6S in September 2025. It is recommended that concentrations exceeding their respective trigger concentrations within MW5S/D and MW6S/D, specifically groundwater monitoring well MW6S, continue to be monitored (in duplicate) and evaluated to verify that elevated concentrations are not indicative of trend of concern.

Based on the 2025 and historical semi-annual monitoring events, the groundwater quality at MW5S/D and MW6S/D is generally stable and not degrading as a result of a landfill leachate influence. Therefore, the noted analytical results at MW5S/D and MW6S/D, and the exceedance of the trigger mechanism within MW6S, does not represent an immediate concern to groundwater quality and remedial actions are not warranted.

Monitoring well MW10S/D are located along the north boundary of the Site. At MW10S, several parameters exceeded their respective trigger concentrations and were detected above the historical upper limit concentrations in September 2025 including TDS, alkalinity, aluminum, arsenic, iron, lead and manganese. Pinchin notes that the lab indicated that sediment was present within the sample collected at MW10S and may have contributed to an anomalous concentration bias within this sample. The concentration of alkalinity and fluoride within MW10S has historically fluctuated overtime with no discernable increase or decreasing trend. An overall increase of TDS and arsenic has been detected within MW10S since 2015, and an overall increase of aluminum, manganese and iron has been detected since 2021. It is noted that TDS and manganese concentrations are elevated during Fall monitoring events compared to Spring monitoring events, coinciding with lower groundwater elevations in fall in comparison to Spring. Pinchin also notes that concentrations of aluminum, iron, lead and manganese were greater at MW10S than MW2 (located closer to the waste footprint) and leachate monitoring well

© 2025 Pinchin Ltd.

MW1 concentrations reported in May 2025. It is Pinchin's opinion that the reported elevated level of concentrations of these parameters in September 2025 are likely anomalous and not attributed to landfill leachate. The concentration of the aforementioned parameters at MW10S will continue to be evaluated to verify that a concentration trend is not occurring. Pinchin notes that an overall increase of TDS and selenium (during fall monitoring events) has been detected within MW10S since 2015, and an overall increase of manganese has been detected since 2021. No remedial action is warranted at this time.

At MW10D, the concentration of iron measured in May and September 2025 and the concentrations of TDS and alkalinity measured in September 2025, exceeded the applicable trigger concentrations. The 2025 and historical analytical results for the parameters that were greater than their respective trigger concentration have generally been stable or fluctuating with no apparent increasing or decreasing trend, with the exception of alkalinity which has presented a generally increasing trend since 2018. The 2018 RWDI Annual Monitoring Report indicated that in September 2018, the analytical result for TDS (738 mg/L) at MW10D was above the upper limit of its historical range (549 mg/L). It was therefore recommended by RWDI that the concentration of TDS at MW10D continue to be evaluated to verify that a concentration trend of concern is not occurring. Since 2019, the analytical results for TDS within groundwater monitoring well MW10D have been below the ODWS and the upper limit of its historical range. As such, it does not appear that the September 2018 analytical result for TDS within MW10D is a result of landfill leachate influence and no concentration trend is occurring. The concentration of alkalinity and TDS at MW10D will continue to be evaluated to verify that a concentrations do not trigger remedial action and/or concentration trends are not occurring. No remedial action is warranted at this time.

Monitoring wells MW11S and MW11D are located in the northwest area of the CAZ, which is located adjacent to the west boundary of the Site. At MW11S/D, the 2025 and historical analytical results for the parameters that were greater than their respective trigger concentration have generally been stable or fluctuating with no apparent increasing or decreasing trend. The trigger mechanism was not triggered during the May and September 2025 sampling events within MW11S/D, however, concentrations of TDS and fluoride within MW11S and concentrations of arsenic within MW11D in May and September 2025, exceeded their respective trigger concentrations.

The concentration of fluoride at MW11S has historically been greater within the groundwater at this location than at monitoring wells closer to the waste footprint (MW3S, MW4, MW9S/D and MW8-B) or within the leachate monitoring well for the Site (MW1). As such, it does not appear that the fluoride concentrations at MW11S are a result of a landfill leachate influence and are present in the groundwater in the area, not as a result of the landfill. Pinchin notes that concentrations of arsenic within MW11D have presented an increasing trend since 2014; however, Pinchin notes that arsenic concentrations within MW11D were greater than concentrations within MW9D located closer to the waste footprint. In addition, historical concentrations of parameters within the leachate at MW1 that are greater than background shallow groundwater concentrations, such as DOC and iron, have exhibited a generally decreasing

© 2025 Pinchin Ltd.

and/or stabilized trend at MW11S/D since monitoring began at these monitoring wells. For these reasons, the results that were greater than their respective trigger concentration at MW11S/D are not interpreted to be attributed to the landfill. This indicates that the groundwater quality at MW11S/D are stable and not degrading as a result of a landfill leachate influence. No remedial actions are warranted to address the 2025 groundwater quality at MW11S/D.

It is recommended that MW11S/D continue to be monitored for parameters exceeding trigger concentrations to evaluate whether the May and September trigger mechanism exceedances are indicative of trend of concern. There were no trigger mechanism exceedances within MW11D that would indicate landfill leachate influence. The shallow and deep groundwater quality downgradient of the CAZ continues to be acceptable and the CAZ is effective as designed.

Based on a review of the analytical results for the 2025 groundwater monitoring events, the groundwater quality around the landfill property and CAZ boundaries is of acceptable quality. Ongoing monitoring should be completed to verify that the constituent concentrations that were greater than their respective trigger concentration within the groundwater at MW5S/D, MW6S/D, MW10S/D and MW11S/D are not exhibiting an increasing trend of concern in the long-term. No remedial actions are warranted to address the 2025 groundwater quality around the landfill property and CAZ boundaries.

10.3 Surface Water

As indicated in Figure 1, the Drain passes through the Site and flows in a north-easterly direction towards the North Thames River. Surface water samples were collected from the Drain at surface water monitoring stations SW1, SW2 and SW3 during the May and September 2025 semi-annual monitoring events.

As discussed, limited surface volume and negligible flow was observed at surface water monitoring station SW1 during the May semi-annual monitoring event.

The surface water monitoring stations are positioned upstream/southwest (SW1), adjacent/east (SW3) and downstream/northwest (SW2) of the waste footprint. Analytical results for the surface water monitoring stations are presented in Table D-5, Appendix D.

10.3.1 General Chemistry

A summary of the 2025 surface water results compared to the surface water trigger concentrations is presented in Section 10.3.2.

Since surface water monitoring began at the Site in 2005, the overall concentrations of most landfill indicator parameters have generally fluctuated or been consistent with no apparent increasing or decreasing trend. The surface water quality data are compared to the PWQO, where available, and where a concentration was greater than its respective PWQO in 2025, the concentration was generally consistent with historical results for the respective surface water monitoring station, with the exception of

© 2025 Pinchin Ltd.

chloride within SW1 in September 2025. For each monitoring station, the results that were greater than their respective PWQO are presented in Table D-5,
Appendix D.

Concentration versus time plots for the primary indicator parameters (chloride and boron) for the surface water monitoring stations are presented in Figures D-5 and D-6, Appendix D.

As indicated in Figure D-5, the concentration of chloride at the downstream compliance monitoring station (SW2) has generally fluctuated with no apparent increasing or decreasing trend since monitoring began in 2005. As there is no PWQO for chloride, the Guideline B-7 criteria calculated for chloride in the shallow groundwater system (126 mg/L) has been used as an indicator of landfill impacts in surface water. As noted in previous reports, elevated levels of chloride are more likely to occur during periods of small surface water flow in the Drain. In 2015, a confirmatory sample was collected at SW2 to verify analytical results collected in September 2015 (159 mg/L). In addition, a biological toxicity analysis was completed to identify any potential detrimental effects to surface water quality. The results of the additional analytical tests indicated a confirmed level of chloride concentration and a biological toxicity analysis (0% mortality) indicating that surface water quality did not have the potential for detrimental effects to surface water quality. In September 2024, the chloride concentration at compliance station SW2 and corresponding duplicate exceeded the respective trigger concentration (172 mg/L and 173 mg/L, respectively) and was above its respective historical upper limit. It is noted that during the September 2024 monitoring event, negligible surface water flow was observed in the Drain consistent with historical chloride exceedances at SW2. It was Pinchin's opinion that September 2024 chloride exceedances observed at SW2 are related to small surface water flow and suspended soil particle concentrations as discussed below. During the May 2025 semi-annual monitoring event, chloride concentration at compliance station SW2 was above the respective trigger concentration and decreased below the respective trigger criteria in September 2025. Surface water in the Drain should continue to be monitored to verify that the elevated constituent concentrations within the surface water downstream of SW2 are not exhibiting an increasing trend in the long term. No remedial actions are warranted at this time.

As indicated in Figure D-6, the concentration of boron at SW2 has also fluctuated since monitoring began in 2005. However, except for sporadic elevated concentrations during low surface water volume/flow conditions, the concentration of boron at SW2 has also exhibited an overall decreasing trend since 2010. At times, the concentration of boron at SW2 has been greater than the trigger concentration (PWQO) for boron at the Site. During the 2025 semi-annual monitoring events, the boron concentration at SW2 met the 2025 trigger concentration.

In September 2025, the chloride concentration in the upstream surface water monitoring station SW1, considered to be a measurement of background concentrations exceeded the trigger concentration for chloride (343 mg/L versus 126 mg/L), as well as the historical upper limit concentration at all surface water monitoring locations. Pinchin notes that the suspended solid concentration measure in at SW1 also

© 2025 Pinchin Ltd.

exceeded the historical upper concentration limit for this monitoring location in September 2025. It is Pinchin's opinion that the high concentrations of suspended solids, as well as potentially compounding effects of road salting adjacent to SW1, could have resulted in elevated chloride concentrations for SW1. It is Pinchin's recommendation that SW1 continue to be monitored to assess any concentration trends are occurring at this monitoring station.

Based on the conditions at the time of the May and September 2025 semi-annual monitoring events the elevated concentrations of iron (discussed further in Section 10.3.2) at SW2 may be a result of soil particles from soil erosion introduced into the Drain with past stormwater runoff. Surface water sampling protocols for the Site do not include field filtering for dissolved metals and therefore, the resultant metals concentrations reported for surface water are for total metals, which include concentrations that are present within the suspended soil particles. It is noted that historically, where the Drain passes by the landfill at the Site there are extensive areas of exposed surface soil, both to the east and west of the Drain. Erosional effects from stormwater runoff from these areas may have contributed to the concentration of suspended solids within the Drain adjacent to and downgradient of the landfill. The surface water at SW2 and SW3 have historically had a greater concentration of suspended solids in compared to surface water at SW1.

Since surface water monitoring began at the Site in 2005, concentrations of most parameters at the surface water monitoring stations have generally been stable or fluctuated with no apparent increasing or decreasing trend. As depicted in Figures D-5 and D-6, the concentrations of chloride and boron at SW2 and SW3 are generally greater than the respective concentration at upstream monitoring station SW1, with the exception of September 2025. As such, it is interpreted that the surface water quality in the Drain adjacent to the waste footprint and downstream of the Site is likely being influenced by the landfill. However, as discussed, distinctly elevated concentrations of selected parameters (e.g., metals) adjacent to and downgradient of the landfill may be due to suspended soil particle contribution from soil erosion and stormwater runoff to the Drain. To mitigate these effects, the Municipality continues to make improvements to the Drain and the sediment and erosion control measures.

Additional discussion regarding the 2025 surface water analytical results is presented in Section 10.3.2.

10.3.2 Trigger Mechanism Assessment

The trigger mechanism for the surface water monitoring at the Site involves the comparison of the surface water analytical results from the most recent monitoring event to their respective PWQO, where available. As mentioned previously, there is no PWQO for chloride therefore, the Guideline B-7 criterion calculated for chloride in the shallow groundwater system is used as an indicator of landfill impacts in surface water.

The surface water analytical results for the May and September 2025 monitoring events and their respective trigger criteria are presented in Tables 9 and 10. The results that were greater than their respective trigger criteria at the surface water compliance station are summarized below:

© 2025 Pinchin Ltd.

Compliance Monitoring Station	Parameter(s)	Trigger Concentration (mg/L)	Analytical Result May 2025 (mg/L)	Analytical Result September 2025 (mg/L)
SW2	Chloride	126	159	-
	Total Phosphorus	0.03	0.0466	0.179
	Phenols	0.001	0.0021	0.0033
	Iron	0.3	0.551	1.22

Pinchin notes that where exceedances of the trigger concentration were presented in both field sample (SW2) and duplicate sample (DUP-07 or DUP-SW), field sample SW2 is reported in the above table.

For the 2025 monitoring events, the shallow groundwater trigger concentration for chloride exceeded at the surface water compliance station in May 2025. In addition, the analytical results for three (3) parameters, excluding chloride, were greater than their respective trigger concentration at compliance station SW2 for during the May 2025 and September 2025 monitoring event.

Based on 2025 monitoring analytical results, the surface water quality at the compliance station did not satisfy the relevant surface water trigger mechanism for the Site; however, the concentrations of chloride, total phosphorus, phenols and iron were generally consistent with historical results for the respective surface water monitoring station and less than the historical upper limit concentration.

As discussed in Section 10.3.1, limited surface water volume with negligible flow was observed at surface water monitoring station SW1 during the May 2025 monitoring event. As a result, surface water monitoring station flow at this location was not measured in May 2025. Pinchin also notes that the measured concentration of chloride at monitoring station SW1 in September 2025 was above the historical upper concentration limit for all monitoring locations. Pinchin notes that the suspended solid concentration measured in at SW1 also exceeded the historical upper concentration limit for this monitoring location in September 2025. It is Pinchin's opinion that the high concentrations of suspended solids, as well as potentially compounding effects of road salting adjacent to SW1, could have resulted in elevated chloride concentrations for SW1. It is Pinchin's recommendation that SW1 continue to be monitored to assess any concentration trends are occurring at this monitoring station.

As noted in Section 10.3.1, the surface water at SW2 and SW3 have historically had a greater concentration of suspended solids than at SW1. During the May 2025 sampling event suspended solids reported for surface water sample SW2 was comparable to SW1 and greater in sample SW3 compared to SW1. The immediate area around SW1 is generally vegetated and therefore, stormwater runoff carrying elevated concentrations of suspended solids should be limited at SW1, as they have been in historical concentrations. As discussed in Section 10.3.1, the concentration of chloride within the surface water at SW2 is generally only elevated during low surface water volume/flow conditions. Otherwise, the

© 2025 Pinchin Ltd.

concentration of chloride typically satisfies its trigger concentration. The concentration of chloride exceeded the trigger concentration during the May 2025 semi-annual monitoring event was within the historical concentration levels for this monitoring station. For this reason, remedial action is not warranted to address the historical chloride exceedances at SW2.

Surface water in the Drain will continue to be evaluated over subsequent monitoring events to verify that a concentration trend of concern for parameters that exceeded the trigger concentrations in 2025. As discussed, in Section 4.6, in 2019 the Municipality continued with construction to realign the Drain to follow the south and east perimeter of the Site so that the Drain no longer bisects the Site. Approval under the Drainage Act has been obtained for this relocation. It is anticipated that once the Drain is no longer bisecting the Site, and once the realigned Drain is vegetated to prevent erosion and soil particle loading, the surface water quality within the Drain at the Site will further improve over time.

It is noted that the PWQO are intended to provide guidance in making water quality management decisions such that surface waters should not be further degraded than background conditions. They are often used as a starting point in deriving water effluent requirements for the regulation of effluent discharges. Where the PWQO are more stringent than the background conditions, the relevant site-specific discharge requirements should consider the background surface water quality such that the effluent discharge will not degrade the receiving surface water quality from background conditions. In accordance with the PWQO, this may include developing site-specific guidance for select parameters and/or biomonitoring studies.

To consider the surface water quality within the Drain upstream of the Site as part of the evaluation process for the surface water quality downstream of the waste footprint, it is recommended that the Municipality request modifications to the monitoring and evaluation requirements for surface water quality within the Drain, in accordance with Conditions 8.(11), 8.(12), and 8.(13) of the Waste ECA. A letter report (Surface Water Quality Monitoring and Evaluation Modifications, prepared by RWDI and dated November 18, 2016), which summarizes proposed modifications to the monitoring and evaluation requirements for surface water quality within the Drain at the Site, is provided within Appendix A-3. Within the MECP 2018 Inspection Report, the MECP proposed that a meeting be held with the MECP and Municipality to discuss the surface water and stormwater quality at the Site. As of the date of this report the proposed meeting with the MECP is still pending.

10.4 Stormwater

According to previous annual monitoring reports, the stormwater management system at the Site consists of a stormwater management pond (South SWM Pond) and surface water ditches that allow for the catchment of runoff from the landfill and the management of stormwater that may accumulate at the Site.

The South SWM Pond collects surface water runoff from the landfill and gradually discharges the retained water to the Drain following a period of retention. The previous reports indicated that the outlet structure

© 2025 Pinchin Ltd.

of the South SWM Pond is equipped with two (2) gate valves and that under routine operations, the upper valve is maintained in an open position, while the lower valve is closed. The report also indicated that effluent discharges to the Drain through the upper valve, such that the typical water level in the pond is below the overflow weir and the pond is not completely drained.

Stormwater monitoring location SW5 is located near the South SWM Pond outlet structure. Samples are to be collected at SW5 during the semi-annual monitoring events when there is discharge from the SWM Pond outlet. When discharge is observed, a grab sample is collected at SW5 from within the South SWM Pond immediately upstream of the outlet structure inlet.

As discussed in previous reports, the South SWM Pond was sampled during the spring of 2014, and there was one (1) trigger concentration that was exceeded (total phosphorus). Total phosphorous was resampled from the South SWM Pond, per Condition 6 (3) of the Sewage ECA, which verified the 2014 Spring findings. Therefore, as reported in the previous reports, the Municipality closed the outlet valve and the South SWM Pond was operated in a closed position until acceptable surface water quality could be confirmed for three (3) consecutive sampling events. Confirmation samples collected to-date have not had all trigger parameters satisfied for three (3) consecutive sampling events, with the exception of April to June 2021, and thus, the South SWM Pond remains in a non-discharging state. Pending acceptable analytical results for three (3) consecutive events, the outlet valve can be re-opened. It is the understanding of Pinchin that the stormwater in the South SWM Pond is pumped out by the Municipality and treated at the Mitchell Wastewater Treatment Facility on an as needed basis.

As the South SWM Pond was operating in a non-discharging state during the 2025 semi-annual monitoring events, stormwater samples were not required to be collected at SW5 in 2025. The historical analytical results for SW5 are presented in Table D-5 (general parameters), Appendix D.

According to the previous monitoring reports, a letter report (Stormwater Quality Monitoring and Evaluation Modifications, prepared by RWDI and dated March 4, 2016), which summarized proposed modifications to the monitoring and evaluation requirements for stormwater quality within the South SWM Pond at the Site, was submitted to the MECP on March 23, 2016, for MECP review and approval of the proposed modifications. As discussed, within the MECP 2018 Inspection Report reviewed as part of the 2018 RWDI Annual Monitoring Report, the MECP proposed that a meeting be held with the MECP and Municipality to discuss the surface water and stormwater quality at the Site. As of the date of this report the proposed meeting with the MECP is still pending. A copy of the noted letter report is provided within Appendix A-4.

It is noted that the Municipality provided Pinchin with analytical results for the South SWM Pond for March 2025 to October 2025 (the pond was frozen in December 2024 through February 2025). Concentrations of measured parameters exceeded the applicable trigger limits in 2025 are described as follows:

- Concentrations of phenols exceeded in July 2025;

© 2025 Pinchin Ltd.

- Concentrations of total phosphorus exceeded in March, July and August 2025;
- Concentrations of iron exceeded in March, April and June through August 2025; and
- Concentrations of boron exceeded the applicable trigger limits for each sampling event.

As a result, three consecutive sampling events confirming acceptable water quality were not quantified. The South SWM Pond is to be managed through collection and treatment at the Mitchell Wastewater Treatment Facility, on an as needed basis.

10.5 Off-Site Water Supply Well

As indicated in Figures 1 and 2, the Torrance Mechanical facility and water supply well are located on a commercial property adjacent to the south boundary of the Site.

The Torrance Mechanical water supply well was sampled on May 12 and September 26, 2025, as part of the semi-annual monitoring events for the Site. The analytical results for the Torrance Mechanical water supply well are presented in Table D-3 and D-4, Appendix D. Where available, the analytical results were compared to the ODWS. Groundwater samples are collected from the Torrance Mechanical water supply well to evaluate the raw groundwater quality at this location and determine if the groundwater has been impacted by landfill leachate. The raw groundwater sample is not collected from a tap that is intended as a source for drinking water, so the relevant analytical results for the collected sample are not intended to evaluate the quality of drinking water for Torrance Mechanical.

For the groundwater samples collected in 2025, the results that were greater than their respective ODWS are summarized below.

Parameter(s)	ODWS (mg/L)	May 2025 Analytical Result (mg/L)	September 2025 Analytical Result (mg/L)
Total Hardness (as CaCO3)	80-100	225	226
Fluoride	1.5	1.56	-
Iron	0.3	1.18	1.35

The above-noted analytical results that were greater than their respective ODWS are not interpreted to be landfill related and are within their respective historical concentration range for the Torrance Mechanical water supply well.

In addition, the 2025 concentrations of chloride and boron (the primary leachate indicators) within the Torrance Mechanical water supply well were less than the respective historical concentrations within select deep groundwater monitoring wells situated hydraulically upgradient of the landfill. As such, there was no apparent landfill leachate influence on the Torrance Mechanical water supply well.

© 2025 Pinchin Ltd.

The detected May and/or September 2025 concentrations of total hardness, fluoride and iron, are consistent with their respective historical results for the Torrance Mechanical water supply well and are less than their historical upper limit concentrations. The historical results for total hardness, fluoride and iron have generally fluctuated with no consistent increasing or decreasing trend.

Concentrations of VOC constituents within the Torrance Mechanical water supply well were below their respective RDLs for the May and September 2025 monitoring events.

In summary, based on the May and September 2025 sampling of the water supply well for Torrance Mechanical, there is not an apparent landfill effect noted for the groundwater quality at this location.

11.0 LANDFILL GAS MONITORING RESULTS

As part of the annual monitoring program, landfill gas (methane) measurements were completed at each of the leachate and groundwater monitoring well locations on May 12 and September 4, 2025. The 2025 landfill gas monitoring results are tabulated in Table F-1, Appendix F, along with the historical data.

For the 2025 semi-annual monitoring events, the landfill gas monitoring results were generally consistent with historical results at the Site with the exception of 25% by volume methane measured with MW9S with was above the historical vapours measured within this well. Historical vapours have been detected within MW9S at levels beneath 4.5 % by volume. It is Pinchin's recommendation that landfill gas continue to be monitored at this location to ensure concentration of vapours are not increasing. With the exception of MW4 and MW8-B (measured 0.5% by volume of methane in May 2025), no additional vapours were measured in the groundwater monitoring wells.

It should be noted that no sample was collected at MW1, installed within the waste, during the September 2025 semi-annual monitoring event due to a high methane reading of greater than 100% by volume. After venting the well for over 5 days, noting that vapours did not reduce in concentration, as such Pinchin did not collect a sample. Pinchin recommends continued monitoring of MW1 in the Spring 2025 semi-annual monitoring event, as well as venting the well for several minutes and collecting another reading to determine if the level decreases enough to permit safe sampling. If levels persist, then additional monitoring measures may be required.

As noted in previous reports, the screened interval of select monitoring wells and gas probes used to assess for landfill gas may be below the groundwater table and therefore, may not reliably represent, from a vapour perspective, the concentrations of gases in the vadose of the Site. However, the groundwater table at the Site is generally within the screened interval of shallow groundwater monitoring wells MW3S and MW4, located near the boundary of the waste footprint, as well as at gas probes GP2, GP3 and GP4, located between the waste footprint and the permanent occupied structures closest to the waste footprint. Landfill gas has historically not been detected in these monitoring wells and gas probes since monitoring began at each monitoring location, with the exception of landfill gas readings within monitoring well MW4 in 2019 and May 2025, and GP3 in 2024.

© 2025 Pinchin Ltd.

12.0 SITE INSPECTION OBSERVATIONS

The Waste ECA and Closure Plan for the Site recommend semi-annual Site inspections. The semi-annual Site inspections were conducted by Pinchin on May 13 and September 24, 2025. Copies of the semi-annual Site inspections records are provided in Appendix G. Findings from the 2025 semi-annual Site inspections are presented below.

- The front gates at the Site were closed and locked, when appropriate. An information sign at the main entrance identified the information outlined in Condition 2 (2) of the Waste ECA and additional pictograms are posted at the front gates for the Site to indicate that no dumping is permitted outside of the Site;
- The fence around the perimeter of the Site boundary was in acceptable condition;
- In May 2025 and September 2025 minor litter was observed on-Site in parts of the Drain and around the waste footprint. It is noted that additional litter was observed in the forested area in the vicinity of SW2 on either side of the Drain as a result of trespassers in September 2024. The Client was notified at the time of the monitoring event and informed Pinchin that action is being taken as result of this trespassing. No remedial action is recommended at this time as the Municipality collects litter from around the Site on a regular basis. The Municipality has installed litter fences on the east and west side of the active waste fill area;
- Several burrow openings were observed in select areas near the base of the side slopes for the unlined waste fill area;
- In May and September 2025, there were no exposed areas of soil cover material over the north extent of the unlined waste fill area, and the cover material was completely covered by vegetation;
- Turkey vultures were noted during the 2025 Site inspections;
- The monitoring wells at the Site appeared to be generally in good condition, with the exception that the casing of gas probe GP4 was bent and MW9D casing locked but not attached;
- There were no reports or indications or a spill occurring at the Site in 2025;
- There were no reports or indications of unacceptable waste being received at the Site in 2025;
- There were no indications of leachate outbreaks at the Site in 2025;
- There were no complaints received about the Site in 2025;

© 2025 Pinchin Ltd.

- Pinchin notes that as a result of storm damage in the vicinity of SW3 location observed in September 2025, some trees were unrooted in this area. Pinchin reported the damage to the Municipality of West Perth as potential safety concern and the Municipality has agreed to clear unrooted or unfallen damaged trees; and
- There were no operational issues reported for the Site in 2025.

The Municipality also conducted monthly inspections during 2025. There were no additional issues identified by the Municipality during the monthly Site inspections in 2025.

13.0 2026 MONITORING PROGRAM

The proposed 2026 monitoring program considers the findings of this report and the approved monitoring plan presented in the Waste ECA and the EMP for the Site. Details of the Annual Monitoring Program for the Site, including analytes, are summarized in Table 1 with assessment locations indicated in Figure 2.

An Annual Monitoring Report that details the findings of the 2026 monitoring period will be prepared and submitted to the MECP by December 5, 2026. The annual report should be prepared in consideration of historical report submissions while acknowledging the purpose and objectives of the monitoring program, which are summarized in Section 1.3 of this report.

14.0 CONCLUSION

Based on the findings presented in this report, the following conclusions are provided.

- The McDougall Drain (Drain) bisects the Site, running in a north-easterly direction through the property. Consistent with the data provided in the previous reports, the Municipality uses the area-fill method for landfilling and is currently placing waste in the lined landfill cell on the west side of the Drain. As part of the 2021 Annual Monitoring Program, the Municipality reported that the tipping area was widened to allow for more efficient transfer of waste into the fill area. The Municipality continued to enhance the clayey-soil perimeter berm around the lined landfill cell to, in part, help prevent issues associated with windblown waste from being blown away from the cell prior to operational cover being applied. Additionally, in 2018, the Municipality continued with construction to realign the Drain to follow the south and east perimeter of the Site, so that the Drain no longer bisects the Site. Approval under the Drainage Act has been obtained for this relocation. According to the Municipality, drain realignment work continued as recently as 2023, and geotextile mesh was installed on the banks of the drain to inhibit erosion at the Site;
- Locally, the shallow groundwater flow is influenced by surficial features such as the Drain. In 2025, the groundwater flow pattern in the shallow monitoring wells demonstrated a flow generally toward the Drain. It is interpreted that localized shallow

© 2025 Pinchin Ltd.

groundwater flow in the immediate vicinity of the Site flows in a radial pattern away from the mounded waste footprint. The regional groundwater flow in or near the bedrock is inferred to reflect bedrock topography and flows in a north-easterly direction;

- In 2025, the analytical results that were greater than their respective Ontario Drinking Water Standards (ODWS) within the groundwater were generally consistent with historical results and concentrations of most parameters in the shallow and deep groundwater monitoring wells have generally fluctuated or been stable with no apparent increasing or decreasing trend;
- The 2025 and historical concentrations of the primary leachate indicator parameters for the Site (chloride and boron), have remained in compliance with the respective trigger concentration for the Site. Review of the historic database have not identified any increasing concentration trends of concern at the groundwater compliance monitoring wells that would indicate an impending exceedance of a trigger mechanism for the Site or warrant remedial action;
- Based on a review of the analytical results for the 2025 groundwater monitoring events, the groundwater quality around the landfill property and Contaminant Attenuation Zone (CAZ) boundaries is of acceptable quality. The analytical results for at least three (3) parameters, excluding chloride, were greater than their respective trigger concentration within groundwater monitoring well MW6S, MW10S and 10D during the September 2025 semi-annual monitoring event:
    - Monitoring well MW6S is located along the east boundary of the Site and based on measured groundwater elevations, are downgradient/crossgradient of the waste fill area. The Drain also flows through the Site between the landfill waste footprint and monitoring MW6S. The analytical results for the parameters measured within MW6S that were greater than their respective trigger concentration (TDS, alkalinity and fluoride) were within their historical ranges for these parameters with the exception of alkalinity in September 2025. Concentrations of TDS and alkalinity have fluctuated at MW6S with an overall increase in alkalinity since 2017. The concentration of fluoride within MW6S was within the historical range for this well. These parameters should continue to be monitored to ensure there are no increasing trends of concerns;
    - Monitoring well MW10S is located along the north boundary of the Site. The analytical results for the parameters from MW10S that were greater than their respective trigger concentration (TDS, alkalinity, fluoride, aluminum, arsenic, iron, lead and manganese) in September 2025 were above their respective historical upper range with the exception of fluoride. Pinchin notes that the lab indicated

© 2025 Pinchin Ltd.

that sediment was present within the sample collected at MW10S and this potentially could contribute to a higher concentration bias within this sample. The concentration of alkalinity and fluoride within MW10S has historically fluctuated over time with no discernable increase or decreasing trend. An overall increase of TDS and arsenic has been detected within MW10S since 2015, and an overall increase of aluminum, manganese and iron has been detected since 2021. It is noted that TDS and manganese concentrations are elevated during Fall monitoring events compared to Spring monitoring events when groundwater water levels are lower. Pinchin also notes that concentrations of aluminum, iron, lead and manganese were greater at MW10S than MW2 (located closer to the waste footprint) and leachate monitoring well MW1 concentrations reported in May 2025. It is Pinchin's opinion that the reported elevated concentrations of these parameters in September 2025 are likely anomalous and not attributed to landfill leachate. The concentration of the aforementioned parameters at MW10S will continue to be evaluated to verify that a concentration trend is not occurring;

- Monitoring well MW10D is located along the north boundary of the Site. The concentration of iron measured in May and September 2025 and the concentrations of TDS and alkalinity measured in September 2025 exceeded the applicable trigger concentrations resulting in the exceedance of three (3) trigger concentrations within MW10D during the September 2025 event. The 2025 and historical analytical results for the parameters that were greater than their respective trigger concentration have generally been stable or fluctuating with no apparent increasing or decreasing trend with the exception of alkalinity which has presented a generally increasing trend since 2018. MW10D should continue to be evaluated to verify that concentrations do not trigger remedial action and/or concentration trends are not occurring; and
- The remaining compliance monitoring wells MW5S/D and MW6D met the trigger mechanism, and parameters that exceeded respective trigger concentrations were within the historical concentration ranges for these parameters. Concentrations of parameters exceeding their respective trigger concentration should continue to be monitored to ensure an increasing trend of concern is not occurring at the Site.

© 2025 Pinchin Ltd.

- For the May and September 2025 monitoring events, concentrations of volatile organic compound (VOC) constituents within the groundwater compliance monitoring wells at the Site were below their respective reportable detection limits (RDLs) with the exception of MW6S in September 2025. A concentration of n-hexane within MW6S was detected above the respective RDL but below the ODWS and historical concentration ranges. The VOC concentrations within MW6S should be evaluated over subsequent monitoring events to assess if any concentration trends of concern are developing;
- Overall, since surface water monitoring began at the Site in 2005, concentrations of most parameters have generally fluctuated or been consistent with no apparent increasing or decreasing trend. Where a concentration was greater than its respective Provincial Water Quality Objective (PWQO) in 2025, the concentration was generally consistent with historical results for the respective surface water monitoring stations;
- Based on the May and September 2025 analytical results, surface water quality at compliance station SW2 did not satisfy the relevant surface water trigger mechanism for the Site in 2025. The May and September 2025 concentrations of total phosphorus, phenols and iron, and concentration of chloride in May 2025 were greater than their trigger concentrations within the sample collected at SW2 (similar to monitoring station SW3):
    - Limited surface water volume with negligible flow was observed at surface water monitoring stations SW1 during the May 2025 monitoring event;
    - An elevated chloride concentration was reported in the May 2025 monitoring event at compliance station SW2; however, was within the historical upper range for SW2. Surface water at SW2 has historically exceeded the relevant water trigger mechanism for the Site and has generally fluctuated with no apparent increasing or decreasing trend since monitoring began in 2005. The surface water at SW2 and SW3 have historically had a greater concentration of suspended solids than at SW1. The immediate area around SW1 is generally vegetated and therefore, stormwater runoff carrying elevated concentrations of suspended solids should be limited at SW1, as they have been historically. As such, based on the conditions at the time of the May 2025 monitoring event, the elevated concentrations of chloride at SW2 may be a result of soil particles from soil erosion introduced into the Drain with past stormwater runoff. As mentioned above, the Municipality reported to Pinchin that Drain realignment work continued as recently as 2023, and a geotextile mesh was installed on the banks of the Drain to assist in the inhibition erosion and sediment transport at the Site;

© 2025 Pinchin Ltd.

- A measured concentration of chloride above the historical upper concentration limit was reported in September 2025 at SW1. Pinchin notes that the suspended solid concentration measure in at SW1 also exceeded the historical upper concentration limit for this monitoring location in September 2025. It is Pinchin's opinion that the high concentrations of suspended solids as well as potentially compounding effects of road salting adjacent to SW1, could have resulted in elevated chloride concentrations for SW1. It is Pinchin's recommendation that SW1 continue to be monitored to assess any concentration trends that are occurring at this monitoring station; and
- Surface water in the Drain will continue to be evaluated over subsequent monitoring events to verify that a concentration trend of concern for chloride, total phosphorus, phenols and iron is not occurring.

- Based on the May and September 2025 sample of the water supply well for Torrance Mechanical, there is not an apparent landfill effect noted for the groundwater quality at this location. The analytical results for total hardness, fluoride and/or iron were greater than their respective ODWS for the May and/or September 2025 monitoring events. The detected concentrations of these parameters are consistent with historical results for the Torrance Mechanical water supply well, which have generally been stable or fluctuated with no consistent increasing or decreasing trend. Overall, a landfill leachate influence on the Torrance Mechanical water supply well was not apparent based on the 2025 groundwater sample results;
- For the 2025 semi-annual monitoring events, the landfill gas monitoring results were generally consistent with historical results at the Site, with few exceptions. It should be noted that no sample was collected at MW1, installed within the waste, during the September 2025 due to a high methane reading vapours during venting of the well. MW1 was allowed to vent for several hours prior to development and sampling of the well to allow methane readings to decrease to safe sampling levels in May 2025; however, in September 2025, methane readings did not decrease. Pinchin recommends continued monitoring of MW1 in the 2025 semi-annual monitoring events, as well as venting the well for several minutes and collecting another reading to determine if the concentrations decreased enough to facilitate a safe groundwater sampling environment. If levels persist, then additional monitoring measures may be required;
- As the South SWM Pond was operating in a non-discharging state during the 2025 semi-annual monitoring events, stormwater samples were not required to be collected at SW5 in 2025; and

© 2025 Pinchin Ltd.

- During the semi-annual Site inspections, several burrow openings were observed in select areas near the base of the side slopes for the unlined waste fill area. Some seagulls, litter and/or turkey vultures were observed during the 2025 Site inspections.

15.0 RECOMMENDATIONS

Based on the findings of the 2025 Monitoring Program, the following recommendations are provided for consideration:

- Monitoring at the Site should continue in 2026, in accordance with the approved monitoring program as summarized in Table 1. No deviations from the approved monitoring program are recommended. Monitoring well MW6S should be sampled in duplicate to confirm or deny the previously quantified elevated concentrations;
- Ongoing monitoring should be completed to verify that the analytical results that were greater than their respective Guideline B-7 established maximum concentration in 2025 within the groundwater at MW5S/D, MW6S/D, MW10S/D and MW11S/D are not exhibiting an increasing trend of concern in the long-term. No remedial actions are warranted based on the 2025 groundwater quality at the compliance monitoring wells;
- No VOC constituents were detected in the groundwater at compliance monitoring wells MW5S/D, MW6S/D, MW10S/D and MW11S/D during the 2025 semi-annual monitoring events, with the exception of n-hexane in MW6S in September 2025. Ongoing monitoring of VOC constituents in the groundwater at the Site should be completed to verify that the historical VOC detections in groundwater compliance monitoring wells are not exhibiting an increasing trend of concern over the long-term. In addition, this monitoring is recommended to confirm that the observed source well VOC concentrations are negatively impacting the CAZ and downgradient areas reflected by the compliance monitoring wells. No remedial actions are warranted to address the historical VOC detections within the groundwater compliance monitoring wells;
- Ongoing monitoring should be completed to verify that the analytical results that were greater than their respective trigger concentration in 2025 within the surface water at SW2 are not exhibiting an increasing trend of concern in the long-term. No remedial actions are warranted based on the 2025 surface water quality at the compliance monitoring station. It is recommended that surface water SW2 be sampled in duplicate during the 2025 semi-annual monitoring events, as part of the ongoing quality assurance and quality control component of the program, but also to confirm the trigger level exceedances quantified at these locations;

© 2025 Pinchin Ltd.

- No groundwater sample was collected at MW1 in September 2025, installed within the waste, due to high methane readings and visible gas vapours during venting of the well. Pinchin recommends continued monitoring of MW1 in the Spring 2025 semi-annual monitoring event, as well as venting the well for several minutes and collecting another reading to confirm if the level decreased enough to establish a safe sampling environment. If levels persist, then additional monitoring measures may be required. Due to the minor limitations to the monitoring network to evaluate landfill gas migration in the vadose zone (unsaturated portion) of the shallow subsurface at the Site, if new structures are built on or nearby (< 100 m) to the Site in the future, the landfill gas monitoring program should be re-evaluated for its assessment effectiveness; and
- If the outlet valve of the South SWM Pond is to be re-opened, re-opening should not occur until sampling of the water within the South SWM Pond, for three (3) consecutive sampling events have confirmed acceptable water quality, pending approval of proposed modifications to the monitoring and evaluation requirements for stormwater quality within the South SWM Pond at the Site by RWDI as part of the 2018 RWDI Annual Monitoring Report. To prevent off-Site discharge of water over the emergency spillway of the South SWM Pond, the stormwater in the South SWM Pond should continue to be treated at the Mitchell Wastewater Treatment Facility.

16.0 STUDY LIMITATIONS AND USE OF REPORT

This Water Quality Monitoring Program was performed for the Corporation of the Municipality of West Perth (Client) in order to investigate the environmental condition of the groundwater and surface water at the Mitchell Domestic Landfill (Site). The term recognized environmental condition means the presence or likely presence of any hazardous substance on a property under conditions that indicate an existing release, past release, or a material threat of a release of a hazardous substance into structures on the property or into the ground, groundwater, or surface water of the property. This Water Quality Monitoring Program does not quantify the extent of the current and/or recognized environmental condition or the cost of any remediation.

Conclusions derived are specific to the immediate area of study and cannot be extrapolated extensively away from sample locations. Samples have been analyzed for a limited number of contaminants that are expected to be present at the Site, and the absence of information relating to a specific contaminant does not indicate that it is not present.

No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions on a property. Performance of this Water Quality Monitoring Program to the standards established by Pinchin is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions on the Site and recognizes reasonable limits on time and cost.

© 2025 Pinchin Ltd.

This Water Quality Monitoring Program was performed in general compliance with currently acceptable practices for environmental site investigations, and specific Client requests, as applicable to this Site.

This report was prepared for the exclusive use of the Client and the MECP, subject to the conditions and limitations contained within the duly authorized work plan. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third parties. If additional parties require reliance on this report, written authorization from Pinchin will be required. Pinchin disclaims responsibility of consequential financial effects on transactions or property values, or requirements for follow-up actions and costs. No other warranties are implied or expressed. Furthermore, this report should not be construed as legal advice.

Pinchin will not be responsible for any consequential or indirect damages. Pinchin will only be held liable for damages resulting from the negligence of Pinchin. Pinchin will not be liable for any losses or damage if the Client has failed, within a period of two years following the date upon which the claim is discovered within the meaning of the Limitations Act, 2002 (Ontario), to commence legal proceedings against Pinchin to recover such losses or damage.

Pinchin makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation, and these interpretations may change over time.

17.0 CLOSURE

We trust that this 2025 Annual Monitoring Report, prepared in accordance with Condition 6 (6) and 6 (7) of the Waste Disposal Site Environmental Compliance Approval Number A151401 for the Mitchell Domestic Landfill in the Municipality of West Perth, Ontario, is satisfactory for your requirements.

© 2025 Pinchin Ltd.

18.0 REFERENCES

The following documents, persons or organizations provided information used in this report:

1. Pinchin. 2019-2024. Pinchin Annual Monitoring Report, Mitchell Domestic Landfill, Township of Mitchell, Ontario, The Corporation of West Perth.
2. RWDI AIR Inc. 2018 Annual Monitoring Report, Mitchell Domestic Landfill, Municipality of West Perth.
3. Ministry of Northern Development and Mines – Surficial Materials: https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth/surficial-geology.
4. Ministry of Northern Development and Mines – Bedrock Geology: https://www.mndm.gov.on.ca/en/mines-and-minerals/applications/ogsearth/bedrock-geology.
5. Ministry of the Environment. 2003. Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines. Revised June 2006.
6. Ministry of the Environment. 2010. Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water – Technical Guidance Document, November 2010.
7. Ministry of the Environment. 2012. Landfill Standards – A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites. January 2012.
8. SGRA. 2010. Upper Thames River Source Water Protection Area, Tier 2 Water Budget, Significant Groundwater Recharge Area Technical Memorandum, Upper Thames River Conservation Authority, 31 May 2010.

© 2025 Pinchin Ltd.

TABLES

TABLE 1
ANNUAL MONITORING PROGRAM
Mitchell Domestic Landfill
Municipality of West Perth

Monitoring Locations				
Monitoring Group	***Monitoring Location ID***			***Total Number***
Leachate	MW1 and Leachate Pumping Station			2
Groundwater (GW)	MW2, MW3S, MW3D, MW4, MW5S, MW5D, MW6S, MW6D, MW7S, MW7D, MW8-B, MW9S, MW9D, MW10S, MW10D, MW11S and MW11D			17
Gas Probes (GP)	GP1S, GP1D, GP2, GP3, GP4			5
Surface Water (SW)	SW1, SW2 and SW3			3
Storm	MW5 (South SWM Pond)			2
Drive Points (DP)	DP1, DP2 and DP3			3
Residential (Res)	Torrance Mechanical			1
Monitoring Locations				
Task	***Monitoring Locations***	***Field Indicator Parameters***	***Lab Analytical Parameters***	***Monitoring Frequency [1]***
Liquid Levels	MW1, GW Wells, GPs, SW & DPs	N/A	N/A	Semi-Annually
Combustible Gas Monitoring	MW1, GW Wells, & GPs	Methane (CH_4)	N/A	Semi-Annually
Monitoring Well Purging	MW1 and GW Wells	N/A	N/A	Semi-Annually
Sample Collection	MW1, GW Wells & Res	FIP List[2]	LAP-GC List [4] & VOCs	Semi-Annually
	Leachate Pumping Station	FIP List[2]	LAP-GC List [5] & VOCs	Semi-Annually
	Surface Water	FIP-SW List[3]	LAP-SW List[6]	Semi-Annually
	Storm	FIP-SW List [3]	LAP-Storm List[7]	Semi-Annually
Surface Water Flow	SW Locations	N/A	N/A	Semi-Annually
QA/QC Duplicate Sampling	One (1) GW Well & One (1) SW Locations	Equivalent to Original Sample	Equivalent to Original Sample	Semi-Annually
QA/QC Trip Blanks	One (1) Set of VOC Trip Blanks per Sample Shipment	N/A	VOCs	Semi-Annually
Site Inspection	Site	N/A	N/A	Semi-Annually

Notes: 1. Semi-annual monitoring tasks are completed in the Spring and Fall, typically in May and September.

2. Field Indicator Parameters (FIP): Temperature, pH, and Electrical Conductivity.

3. Field Indicator Parameters - Surface Water (FIP-SW): Temperature, pH, Electrical Conductivity, Dissolved Oxygen, and Turbidity

Cu, Fe, Pb, Mg, Mn, K, Se, Si, Na and Zn).

5. Lab Analytical Parameters - Leachate Pumping Station (LAP-LPS): Total Hardness, pH, TDS, Alkalinity (Bicarbonate, Carbonate and Total), Total NH3, NH4+, CL, NO3, NO2, NO3 + NO2, TKN, Total Phosphorus, TSS, SO4, DOC, COD, Phenols, Dissolved Hg, Total Metals (As, Ba, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mn, Mo, Ni, Se and Zn).

6. Lab Analytical Parameters - Surface Water (LAP-SW): pH, TDS, Alkalinity (Bicarbonate, Carbonate and Total), Total NH3, Cl, NO3, NO2, NO3 + NO2, TKN, Total Phosphorus, SO4, BOD, COD, Phenols, TSS, Dissolved Hg, Total Metals (As, E

7. Lab Analytical Parameters - Storm (LAP-Storm): Total Hardness, pH, TDS, Alkalinity (Bicarbonate, Carbonate and Total), Total NH3, Unionized NH3, Br, Cl, F, NO3, NO2, NO3 + NO2, TKN, PO4, Total Phosphorus, SO4, DOC, COD, Phenols, Turbidity, Dissolved Al, Total Metals (As, Ag, Ba, B, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mo, Ni, K and Zn).

8. Samples collected from SW5 (South SWM Pond) during the semi-annual monitoring events when runoff from rainfall causes discharge from the SWM Pond Outlet.

9. VOCs denotes volatile organic compounds.

TABLE 2
MONITORING WELL CONSTRUCTION DETAILS
Mitchell Domestic Landfill
Municipality of West Perth

Well Number	*Ground Surface (mASL)*	*Measuring Point (mASL)*	*Stick-Up (m)*	*Total Well Depth (mBGS)*	*Screen Length (m)*	*Stratigraphic Unit Screened*	*Hydraulic Conductivity (m/sec)*
MW1	356.76	357.67	0.91	10.67	3.05	Waste/Fill	
MW2	349.22	350.13	0.91	7.62	3.05	Silt Till	1.10E-08
MW3S	343.75	344.70	0.95	4.57	3.05	Sand/Sand and Gravel	7.30E-07
MW3D	343.56	344.56	1.00	21.66	3.05	Clayey Silt Till	5.00E-07
MW4	348.21	349.26	1.05	4.57	3.05	Silt/Silt Till	1.20E-07
MW5S	344.25	345.18	0.93	4.57	3.05	Silt/Clayey Silt	5.70E-06
MW5D	344.32	345.10	0.78	8.41	1.52	Clayey Silt Till	5.10E-10
MW6S	347.61	348.45	0.84	4.57	3.05	Clayey Silt/Sand	2.20E-07
MW6D	347.57	348.38	0.81	8.69	1.52	Sandy to Clayey Silt Till	2.80E-09
MW7S	349.86	350.56	0.70	5.33	3.05	Clayey Silt/Silt/Sandy Silt	1.80E-07
MW7D	349.80	350.60	0.80	9.22	1.52	Clayey Silt Till	5.60E-09
MW8	346.57	347.44	0.87	12.19	1.52	Sandy to Clayey Silt Till	1.10E-06
MW8-B	347.00	347.88	0.88	12.30	1.52	Sandy to Clayey Silt Till	
MW9S	348.88	349.73	0.85	4.57	3.05	Clayey Silt/Silty Clay to Silt	1.30E-07
MW9D	348.81	349.67	0.86	9.14	1.52	Silt (Till-Like)	6.50E-08
MW10S	344.89	344.90	0.01	4.75	3.05	Clayey Silt/Silt/Clayey Silt	1.60E-08
MW10D	344.93	345.67	0.74	9.14	1.52	Clayey Silt (Till)	5.90E-07
MW11S	348.24	349.17	0.93	4.57	3.05	Silt/Clayey Silt	
MW11D	348.35	349.23	0.88	9.14	1.52	Clayey Silt (Till)	
GP1 S	356.59	357.81	1.22	3.05	1.52	Waste/Fill	
GP1 D	356.59	357.81	1.22	6.10	1.52	Waste/Fill	
GP2	346.43	347.44	1.01	2.39	1.52	Silty Clay/Clayey Silt	
GP3	345.22	346.15	0.93	2.29	1.52	Silty Clay	
GP4	350.87	351.80	0.93	3.05	2.14	Silty Clay	

Notes: 1. mASL denotes metres above sea level.
2. mBGS denotes metres below ground level.
3. The elevations were first surveyed in June 2008.
4. MW3D was repaired in Spring 2010 and resurveyed September 2010.
5. The elevations for GP1S/D were surveyed September 2011.
6. MW8 was decommissioned and replaced as MW8-B in November 2014.
7. Blank denotes data not available.

TABLE 3

2025 WASTE AND LEACHATE QUANTITY SUMMARY

Mitchell Domestic Landfill

Municipality of West Perth

Waste Type	*Units*	*Nov-24*	*Dec-24*	*Jan-25*	*Feb-25*	*Mar-25*	*Apr-25*	*May-25*	*Jun-25*	*Jul-25*	*Aug-25*	*Sep-25*	*Oct-25*	*Annual 2025*
Asphalt Shingles (For Off-Site Disposal)	Tonnes	4.75	0.00	0.00	0.00	0.58	3.59	16.16	10.60	7.36	20.24	18.60	18.81	100.69
Construction/Demo (For Off-Site Disposal)	Tonnes	51.82	32.52	46.50	41.20	79.70	74.81	44.68	52.88	51.83	54.17	45.79	84.21	660.11
Appliances (For Off-Site Disposal)	# of Items	6	6	2	1	3	4	2	10	11	2	3	2	52
Household Waste (Bagged)	Tonnes	93.66	53.93	78.94	84.44	81.98	163.37	223.88	93.41	88.16	88.61	110.84	100.92	1262.14
Household Waste Collected	Tonnes	54.43	62.68	65.88	51.22	62.77	54.18	56.45	70.02	69.52	63.47	73.27	72.01	755.90
Mixed Waste Loads	Tonnes	7.65	0.00	0.00	0.00	0.00	0.00	7.71	4.49	5.51	2.59	0.00	3.01	30.96
Wood Products (Processed for Op. Cover)	Tonnes	59.08	13.78	19.93	34.27	66.12	40.66	39.71	29.01	19.37	30.14	16.43	72.83	441.33
Leachate/Rainwater from Liner	m^3	679.20	3280.24	1070.66	1194.64	6367.76	4398.29	1659.94	1476.76	1067.94	2560.40	9061.58	8940.23	41757.64
Recyclable Products Diverted	Tonnes	137.07	142.53	143.73	105.71	151.13	123.96	143.45	153.67	134.03	100.09	156.79	141.89	1634.05

Notes: 1. The waste and leachate volumes presented in this table were provided by the Municipality of West Perth.

TABLE 4
SURFACE WATER FLOW
Mitchell Domestic Landfill
Municipality of West Perth

	Upstream Station	*Adjacent Station*	*Downstream Station*
	SW1	SW3	SW2
Date	L/s	L/s	L/s
Jul-08	2	5.1	2.2
Oct-08	7.3	9.9	12.4
May-09	3.6	3.9	6.5
Sep-09	Dry	Dry	Dry
May-10	22.5	31.8	24.3
Sep-10	Dry	Dry	Dry
May-11	25.5	33.6	30.6
Sep-11	Dry	0.5	0.3
May-12	Dry	1.8	0.4
Sep-12	Negligible Flow	Negligible Flow	Negligible Flow
Apr-13	24	32	-
Sep-13	1	2.6	1
26-May-14	24	18	27
15-Sep-14	-	46.2	56.4
20-May-15	2.4	5.8	5.0
16-Sep-15	Negligible Flow	Negligible Flow	0.5
26-Oct-15	Negligible Flow	6.3	0.3
11-May-16	6.9	5.3	25.5
19-Sep-16	Dry	Dry	Dry
3-May-17	778	194	261
19-Sep-17	Negligible Flow	Negligible Flow	Dry
3-May-18	3.2	70.3	25.2
19-Sep-18	Negligible Flow	Negligible Flow	Negligible Flow
16-May-19	5.2	21.6	13.6
11-Sep-19	Dry	Negligible Flow	Negligible Flow
6-May-20	3.1	7.7	6.2
25-Sep-20	Negligible Flow	Negligible Flow	Negligible Flow
07-May-21	3.4	5.4	7.0
17-Sep-21	Negligable Flow	40.78	40.43
04-May-22	147.70	182.07	188.96
08-Sep-22	Dry	Negligible Flow	Negligible Flow
08-May-23	6.0	13.85	11.98
06-Sep-23	Negligible Flow	Negligible Flow	Negligible Flow
07-May-24	2.0	22.86	8.49
10-Sep-24	Negligible Flow	Negligible Flow	Negligible Flow
13-May-25	Negligible Flow	6.26	3.34
24-Sep-25	0.49	8.68	6.84

Notes:
1. L/s denotes litres per second.
2. Blank denotes data not available.
3. Italics denotes the surface water flow measurement anomalous and likely not representative of actual conditions.

TABLE 5
SUMMARY OF GROUNDWATER COMPLIANCE FOR THE SHALLOW FLOW SYSTEM - SPRING 2025
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	*Background Quality (Cb)*	*ODWS (Cr)*	*X*	*Guideline B-7 Criteria (Cm)*	*Background Well*	*Property Boundary Wells*				*Additional Wells*				
					MW7S	*MW5S*	*MW6S*	*MW10S*	*MW11S*	*MW1*	*MW2*	*MW3S*	*MW4*	*MW9S*
					May-25	*May-25*	*May-25*	*May-25*	*May-25*	*May-25*	*May-25*	*May-25*	*May-25*	*May-25*
General Chemistry														
Total Hardness (as CaCO3)	328	100	0.5	328	325	*433*	*380*	*360*	*444*	322	259	532	262	879
Total Dissolved Solids	364	500	0.5	432	334	**477**	396	385	**530**	1880	301	712	290	1220
Alkalinity, Total (as CaCO3)	342	500	0.5	421	333	**1310**	395	325	343	820	280	654	2350	2650
Chloride	2.3	250	0.5	95	1.82	4.08	4.90	5.99	1.03	393	1.86	38.2	14.0	84
Fluoride	0.26	1.5	0.25	0.57	0.248	0.207	0.144	0.219	**1.40**	0.380	1.54	0.136	0.092	1.01
Nitrate-N	0.17	10	0.25	2.62	0.051	2.22	<0.020	<0.020	<0.020	<0.200	0.026	3.56	<0.020	<0.100
Nitrite-N	0.021	1.0	0.25	0.27	<0.010	<0.010	<0.010	<0.010	<0.010	<0.100	<0.010	0.879	<0.010	<0.050
Sulphate	10.5	500	0.5	255	5.86	20.2	17.1	18.60	144.0	19.4	19.4	13.7	2.36	20.1
Dissolved Organic Carbon	1.9	5.0	0.5	3.4	1.25	1.96	1.42	1.37	0.59	54.00	0.81	5.06	1.63	15.5
Aluminum	0.0047	0.10	0.5	0.052	0.0112	0.0234	0.0017	0.0015	0.0032	0.02	0.0013	0.0014	0.0018	<0.0100
Arsenic	0.0006	0.01	0.25	0.0030	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00700	0.00447	<0.00100	<0.00100	0.00167
Barium	0.063	1.0	0.25	0.30	0.0672	0.0605	0.0482	0.0565	0.0688	0.162	0.178	0.132	0.0240	0.453
Boron	0.012	5.0	0.25	1.3	<0.010	<0.010	<0.010	<0.010	0.104	2.210	0.092	0.223	<0.010	0.72
Cadmium	0.00007	0.005	0.25	0.0013	<0.0000050	0.0000080	<0.0000050	<0.0000050	0.0000064	<0.0000500	<0.0000050	0.0000439	<0.0000050	<0.0000500
Chromium	0.00094	0.05	0.25	0.013	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00500	<0.00050	<0.00050	<0.00050	<0.00500
Copper	0.0012	1.0	0.5	0.50	0.00095	0.00076	0.00045	0.00117	0.0003800	<0.00200	0.00039	0.00127	0.00052	<0.00200
Iron	0.0118	0.30	0.5	0.16	0.015	0.022	<0.010	<0.010	<0.010	5.99	<0.010	0.429	<0.010	0.657
Lead	0.00023	0.01	0.25	0.0027	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000500	<0.000050	<0.000050	<0.000050	<0.000500
Manganese	0.0019	0.05	0.5	0.026	0.00077	0.0020	0.00015	0.00117	0.00193	0.06920	0.00111	0.0929	0.00016	0.728
Selenium	0.00054	0.05	0.25	0.0129	<0.000500	<0.000500	<0.000500	<0.000500	0.00385	<0.000500	<0.000500	0.00195	<0.000500	<0.000500
Sodium	6.0	200	0.5	103	4.67	5.44	4.46	4.68	30.3	390	27.2	27.2	8.02	106
Zinc	0.0026	5.0	0.5	2.5	0.0013	0.0015	0.0014	0.0018	0.0014	<0.0100	0.0010	<0.0010	<0.0010	<0.0100

Notes: 1. Background quality is based on the geometric mean of the historical results for monitoring well MW7S.

2. Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, as revised June 2006 (ODWS).

3. Guideline B-7 Criteria (Cm) = Cb + X(Cr-Cb).

4. Cm = Maximum concentration of a contaminant that may exist beyond the property boundary.

5. Cb = Concentration (geometric mean of historical results) for a given parameter at the background well.

6. Cr = Maximum allowable concentration of a parameter in groundwater (based on the ODWS criteria).

7. X = Reduction constanct associated with assessing whether a parameter of concern is health related (0.25) or non-health related (0.5), based on the ODWS criteria.

8. If Background Quality < Detection Limit (DL), half the DL value is used in the Guideline B-7 calculation.

9. Groundwater compliance is assessed based on the analytical results for the Property Boundary Wells; results for the Additional Wells are provided for reference.

10. Underline denotes where Cb is > ODWS criteria, Cb = Cm.

11. Bold and shaded denotes concentration at a Property Boundary Well exceeds Guideline B-7 Criteria.

12. *Italics* denotes that the Guideline B-7 exceedance does not constitute a trigger concentration exceedance. As detailed in the ECP for the Site, the following exception in the: i) shallow monitoring wells: hardness; and ii) deep monitorings wells: hardness, DOC, aluminum, fluoride and manganese, do not represent trigger concentration exceedances due to the elevated concentrations of these parameters in the background groundwater at the Site.

13. Dash (-) denotes data not available.

14. Unless otherwise stated, all units are reported in mg/L.

15. Compliance criteria for chloride is 75% of the calculated Guideline B-7 Criteria.

TABLE 6

SUMMARY OF GROUNDWATER COMPLIANCE FOR THE SHALLOW FLOW SYSTEM - FALL 2025

Mitchell Domestic Landfill

Municipality of West Perth

Parameter	*Background Quality (Cb)*	*ODWS (Cr)*	*X*	*Guideline B-7 Criteria (Cm)*	*Background Well*	*Property Boundary Wells*				*Additional Wells*				
					MW7S	*MW5S*	*MW6S*	*MW10S*	*MW11S*	*MW1*	*MW2*	*MW3S*	*MW4*	*MW9S*
					Sep-25	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*
General Chemistry														
Total Hardness (as CaCO3)	328	100	0.5	328	378	*489*	*411*	*685*	*480*	Sample not collected	277	806	417	940
Total Dissolved Solids	364	500	0.5	432	528	**592**	**505**	**562**	**520**		288	990	492	1130
Alkalinity, Total (as CaCO3)	342	500	0.5	421	473	**565**	**648**	**455**	355		279	859	434	1300
Chloride	2.3	250	0.5	95	2.08	3.64	5.25	4.53	1.06		1.82	78.1	29.3	76.5
Fluoride	0.26	1.5	0.25	0.57	0.402	0.334	**0.604**	**0.720**	**1.32**		1.48	0.183	0.200	0.802
Nitrate-N	0.165	10	0.25	2.62	0.035	0.254	<0.020	0.030	<0.020		<0.020	1.49	0.035	<0.100
Nitrite-N	0.266	1.0	0.25	0.27	<0.010	<0.010	<0.010	<0.010	<0.010		<0.010	0.165	<0.010	<0.050
Sulphate	10.5	500	0.5	255	11.1	20.6	30.5	113	129		15.8	52.4	9.13	7.80
Dissolved Organic Carbon	1.9	5.0	0.5	3.4	1.85	1.55	1.28	0.82	0.96		<0.50	14.8	1.90	20.0
Aluminum	0.0047	0.10	0.5	0.052	0.0059	0.0032	<0.0010	**6.51**	0.0032		0.0015	0.0117	0.0127	0.0140
Arsenic	0.0006	0.01	0.25	0.0030	0.00019	0.00023	0.00025	**0.00302**	0.00091		0.00386	0.00310	0.00016	0.00359
Barium	0.063	1.0	0.25	0.30	0.0920	0.102	0.0730	0.186	0.0723		0.188	0.324	0.0412	0.583
Boron	0.012	5.0	0.25	1.3	<0.010	0.018	0.013	0.057	0.133		0.090	1.46	0.013	0.957
Cadmium	0.00007	0.005	0.25	0.0013	0.0000062	0.0000052	<0.0000050	0.0000780	0.0000055		<0.0000050	0.0000164	<0.0000050	<0.0000500
Chromium	0.00094	0.05	0.25	0.013	<0.00050	<0.00050	<0.00050	0.0103	<0.00050		<0.00050	<0.00050	<0.00050	<0.00500
Copper	0.0012	1.0	0.5	0.50	0.00084	0.00104	0.00033	0.0291	0.00022		0.00038	0.00067	0.00065	<0.00200
Iron	0.0118	0.30	0.5	0.16	<0.010	<0.010	<0.010	**8.49**	<0.010		<0.010	5.10	<0.010	3.62
Lead	0.00023	0.01	0.25	0.0027	<0.000050	<0.000050	<0.000050	**0.0104**	<0.000050		<0.000050	<0.000050	<0.000050	<0.000500
Manganese	0.0019	0.05	0.5	0.026	0.00090	0.00026	0.00736	**0.244**	0.00157		0.00750	0.261	0.00076	0.755
Selenium	0.00054	0.05	0.25	0.0129	0.000209	0.000344	0.000060	0.000136	0.00463		0.000086	0.000518	0.000089	<0.000500
Sodium	6.0	200	0.5	103	4.77	6.37	5.24	12.8	32.8		22.5	101	11.2	104
Zinc	0.0026	5.0	0.5	2.5	<0.0010	0.0016	<0.0010	0.0279	<0.0010		0.0015	0.0039	0.0010	<0.0100

Notes: 1. Background quality is based on the geometric mean of the historical results for monitoring well MW7S.

2. Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, as revised June 2006 (ODWS).

3. Guideline B-7 Criteria (Cm) = Cb + X(Cr-Cb).

4. Cm = Maximum concentration of a contaminant that may exist beyond the property boundary.

5. Cb = Concentration (geometric mean of historical results) for a given parameter at the background well.

6. Cr = Maximum allowable concentration of a parameter in groundwater (based on the ODWS criteria).

7. X = Reduction constanct associated with assessing whether a parameter of concern is health related (0.25) or non-health related (0.5), based on the ODWS criteria.

8. If Background Quality < Detection Limit (DL), half the DL value is used in the Guideline B-7 calculation.

9. Groundwater compliance is assessed based on the analytical results for the Property Boundary Wells; results for the Additional Wells are provided for reference.

10. Underline denotes where Cb is > ODWS criteria, Cb = Cm.

11. Bold and shaded denotes concentration at a Property Boundary Well exceeds Guideline B-7 Criteria.

12. *Italics* denotes that the Guideline B-7 exceedance does not constitute a trigger concentration exceedance. As detailed in the ECP for the Site, the following exception in the: i) shallow monitoring wells: hardness; and ii) deep monitorings wells: hardness, DOC, aluminum, fluoride and manganese, do not represent trigger concentration exceedances due to the elevated concentrations of these parameters in the background groundwater at the Site.

13. Dash (-) denotes data not available.

14. Unless otherwise stated, all units are reported in mg/L.

15. Compliance criteria for chloride is 75% if the calculated Guideline B-7 Criteria.

TABLE 7

SUMMARY OF GROUNDWATER COMPLIANCE FOR THE DEEP FLOW SYSTEM - SPRING 2025

Mitchell Domestic Landfill

Municipality of West Perth

Parameter	*Background Quality (Cb)*	*ODWS (Cr)*	*X*	*Guideline B-7 Criteria (Cm)*	*Background Well*	*Property Boundary Wells*				*Additional Wells*		
					MW7D	*MW5D*	*MW6D*	*MW10D*	*MW11D*	*MW3D*	*MW8-B*	*MW9D*
					May-25	*May-25*	*May-25*	*May-25*	*May-25*	*May-25*	*May-25*	*May-25*
General Chemistry												
Total Hardness (as CaCO3)	202	100	0.5	202	192	*228*	*249*	135	199	140	238	778
Total Dissolved Solids	296	500	0.5	398	330	370	373	237	304	202	542	1120
Alkalinity, Total (as CaCO3)	244	500	0.5	372	308	294	**842**	254	243	188	321	1640
Chloride	2.7	250	0.5	95	2.11	16.8	8.76	3.26	0.77	1.18	64.10	153
Fluoride	1.4	1.5	0.25	1.5	1.64	1.28	1.34	*1.62*	*2.00*	1.33	0.84	0.98
Nitrate-N	0.055	10	0.25	2.54	0.053	0.101	<0.020	0.06	0.067	0.138	<0.020	<0.100
Nitrite-N	0.021	1.0	0.25	0.27	<0.010	<0.010	<0.010	<0.010	<0.010	0.017	0.014	<0.050
Sulphate	26.4	500	0.5	263	14.8	92.8	66.6	24.7	30.9	3.44	55.6	13.3
Dissolved Organic Carbon	1.5	5.0	0.5	3.3	1.11	0.64	1.17	0.99	1.36	1.33	24.3	19.8
Aluminum	0.0063	0.10	0.5	0.053	0.0017	0.0027	<0.0010	*0.210*	<0.0010	0.0313	0.0180	<0.0100
Arsenic	0.0026	0.01	0.25	0.004	0.00305	<0.00100	0.00122	0.00344	**0.00662**	0.01600	0.00792	0.00307
Barium	0.068	1.0	0.25	0.30	0.073	0.073	0.0808	0.0482	0.0788	0.0827	0.0664	0.587
Boron	0.083	5.0	0.25	1.3	0.092	0.169	0.029	0.252	0.152	0.084	0.304	0.510
Cadmium	0.00008	0.005	0.25	0.0013	<0.0000050	0.0000067	<0.0000050	0.0000069	<0.0000050	<0.0000050	<0.0000500	<0.0000500
Chromium	0.00094	0.05	0.25	0.013	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00500	<0.00500
Copper	0.0010	1.0	0.5	0.50	0.00037	0.00055	0.00032	0.00050	0.00048	0.00052	<0.00200	<0.00200
Iron	0.0124	0.30	0.5	0.16	<0.010	<0.010	<0.010	**0.170**	<0.010	0.064	0.463	1.210
Lead	0.00024	0.01	0.25	0.0027	<0.000050	<0.000050	<0.000050	0.000111	<0.000050	<0.000050	0.000943	<0.000500
Manganese	0.0026	0.05	0.5	0.026	0.00198	0.00245	0.0002	0.00879	0.00028	0.0161	0.33700	0.152
Selenium	0.00034	0.05	0.25	0.0128	<0.0000500	<0.0000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
Sodium	32.0	200	0.5	116	38.7	58.3	46.0	36.6	38.7	23.5	80.1	88.5
Zinc	0.0028	5.0	0.5	2.5	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0100	<0.0100

Notes:
1. Background quality is based on the geometric mean of the historical results for monitoring well MW7D.
2. Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, as revised June 2006 (ODWS).
3. Guideline B-7 Criteria (Cm) = Cb + X(Cr-Cb).
4. Cm = Maximum concentration of a contaminant that may exist beyond the property boundary.
5. Cb = Concentration (geometric mean of historical results) for a given parameter at the background well.
6. Cr = Maximum allowable concentration of a parameter in groundwater (based on the ODWS criteria).
7. X = Reduction constanct associated with assessing whether a parameter of concern is health related (0.25) or non-health related (0.5), based on the ODWS criteria.
8. If Background Quality < Detection Limit (DL), half the DL value is used in the Guideline B-7 calculation.
9. Groundwater compliance is assessed based on the analytical results for the Property Boundary Wells; results for the Additional Wells are provided for reference.
10. Underline denotes where Cb is > ODWS criteria, Cb = Cm.
11. Bold and shaded denotes concentration at a Property Boundary Well exceeds Guideline B-7 Criteria.
12. *Italics* denotes that the Guideline B-7 exceedance does not constitute a trigger concentration exceedance. As detailed in the ECP for the Site, the following exceptions in the: i) shallow monitoring wells: hardness; and ii) deep monitoring wells: hardness, DOC, aluminum, fluoride and manganese, do not represent trigger concentration exceedances due to the elevated concentrations of these parameters in the background groundwater at the Site.
13. Dash (-) denotes data not available.
14. Unless otherwise stated, all units are reported in mg/L.
15. Compliance criteria for chloride is 75% of the calculated Guideline B-7 Criteria.

TABLE 8

SUMMARY OF GROUNDWATER COMPLIANCE FOR THE DEEP FLOW SYSTEM - FALL 2025

Mitchell Domestic Landfill

Municipality of West Perth

Parameter	*Background Quality (Cb)*	*ODWS (Cr)*	*X*	*Guideline B-7 Criteria (Cm)*	*Background Well*	*Property Boundary Wells*				*Additional Wells*		
					MW7D	*MW5D*	*MW6D*	*MW10D*	*MW11D*	*MW3D*	*MW8-B*	*MW9D*
					Sep-25	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*	*Sep-25*
General Chemistry												
Total Hardness (as CaCO3)	202	100	0.5	202	201	*489*	*259*	155	*217*	147	292	786
Total Dissolved Solids	296	500	0.5	398	284	**592**	369	**426**	282	195	498	934
Alkalinity, Total (as CaCO3)	244	500	0.5	372	255	**565**	262	**446**	241	169	420	688
Chloride	2.7	250	0.5	95	2.09	3.64	8.44	3.43	1.10	1.55	51.8	147
Fluoride	1.4	1.5	0.25	1.5	1.46	0.334	1.18	*1.54*	*1.88*	1.20	0.950	0.872
Nitrate-N	0.055	10	0.25	2.54	0.040	0.254	<0.020	<0.020	0.068	0.101	0.653	<0.100
Nitrite-N	0.021	1.0	0.25	0.27	<0.010	<0.010	<0.010	<0.010	<0.010	0.034	0.218	<0.050
Sulphate	26.4	500	0.5	263	12.5	20.6	60.5	24.6	27.2	3.08	40.6	16.0
Dissolved Organic Carbon	1.5	5.0	0.5	3.3	0.88	1.55	0.93	0.54	0.96	1.01	14.7	19.8
Aluminum	0.0063	0.10	0.5	0.053	0.0021	0.0032	0.0016	*0.156*	0.0063	0.0011	0.0101	0.0030
Arsenic	0.0026	0.01	0.25	0.004	0.00450	0.00023	0.00190	0.00259	**0.00862**	0.0134	0.00532	0.00284
Barium	0.068	1.0	0.25	0.30	0.0646	0.102	0.0770	0.0469	0.0733	0.0614	0.104	0.540
Boron	0.083	5.0	0.25	1.3	0.088	0.018	0.030	0.266	0.164	0.077	0.286	0.488
Cadmium	0.00008	0.005	0.25	0.0013	<0.0000050	0.0000052	0.0000064	0.0000056	0.0000073	<0.0000050	0.0000083	<0.0000050
Chromium	0.00094	0.05	0.25	0.013	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00104	<0.00050
Copper	0.0010	1.0	0.5	0.50	0.00068	0.00104	0.00128	0.00108	0.00051	<0.00020	0.00158	<0.00020
Iron	0.0124	0.30	0.5	0.16	<0.010	<0.010	<0.010	**0.176**	0.012	<0.010	0.021	0.561
Lead	0.00024	0.01	0.25	0.0027	<0.000050	<0.000050	<0.000050	0.000114	<0.000050	<0.000050	0.000130	<0.000050
Manganese	0.0026	0.05	0.5	0.026	0.00128	0.00026	0.00140	0.0109	0.00235	0.0219	0.299	0.153
Selenium	0.00034	0.05	0.25	0.0128	<0.000050	0.000344	<0.000050	<0.000050	0.000052	<0.000050	0.000082	0.000223
Sodium	32.0	200	0.5	116	40.7	6.37	48.5	39.5	40.2	22.9	77.1	87.5
Zinc	0.0028	5.0	0.5	2.5	0.0026	0.0016	0.0014	0.0026	0.0022	<0.0010	0.0080	0.0027

Notes:
1. Background quality is based on the geometric mean of the historical results for monitoring well MW7D.
2. Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, as revised June 2006 (ODWS).
3. Guideline B-7 Criteria (Cm) = Cb + X(Cr-Cb).
4. Cm = Maximum concentration of a contaminant that may exist beyond the property boundary.
5. Cb = Concentration (geometric mean of historical results) for a given parameter at the background well.
6. Cr = Maximum allowable concentration of a parameter in groundwater (based on the ODWS criteria).
7. X = Reduction constanct associated with assessing whether a parameter of concern is health related (0.25) or non-health related (0.5), based on the ODWS criteria.
8. If Background Quality < Detection Limit (DL), half the DL value is used in the Guideline B-7 calculation.
9. Groundwater compliance is assessed based on the analytical results for the Property Boundary Wells; results for the Additional Wells are provided for reference.
10. Underline denotes where Cb is > ODWS criteria, Cb = Cm.
11. Bold and shaded denotes concentration at a Property Boundary Well exceeds Guideline B-7 Criteria.
12. *Italics* denotes that the Guideline B-7 exceedance does not constitute a trigger concentration exceedance. As detailed in the ECP for the Site, the following exceptions in the: i) shallow monitoring wells: hardness; and ii) deep monitoring wells: hardness, DOC, aluminum, fluoride and manganese, do not represent trigger concentration exceedances due to the elevated concentrations of these parameters in the background groundwater at the Site.
13. Dash (-) denotes data not available.
14. Unless otherwise stated, all units are reported in mg/L.
15. Compliance criteria for chloride is 75% of the calculated Guideline B-7 Criteria.

TABLE 9
SUMMARY OF SURFACE WATER COMPLIANCE - SPRING 2025
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	*PWQO*	*Background Station*	*Adjacent Station*	*Compliance Station*	
		SW1	*SW3*	*SW2*	*DUP-07*
		May-25	*May-25*	*May-25*	*May-25*
General Chemistry					
pH	6.5 - 8.5	8.12	8.16	8.11	8.1
Alkalinity, Total (as CaCO3)	>25% Decrease	265	306	300	304
Chloride	126	81.2	**164**	**159**	**160**
Total Phosphorus	0.03	0.0183	**0.0922**	**0.0466**	**0.0484**
Phenols	0.001	0.0018	**0.0029**	**0.0021**	**0.0017**
Arsenic	0.005	0.00019	0.00079	0.00068	0.00068
Boron	0.2	0.023	0.138	0.143	0.141
Cadmium	0.0005	0.0000123	0.0000208	0.0000072	0.0000071
Copper	0.005	0.00088	0.00195	0.00114	0.00112
Iron	0.3	0.052	**1.16**	**0.551**	**0.572**
Lead	0.005	0.000052	0.000543	0.000136	0.000147
Zinc	0.02	<0.0030	0.0077	<0.0030	<0.0030
Dissolved Mercury	0.0002	<0.0000050	<0.0000050	<0.0000050	<0.0000050

Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of the Environment and Energy, as revised February 1999.

2. Background quality is based on the result for upstream surface water station SW1.

3. Surface water compliance is assessed based on the analytical results for downstream stations SW2; results for the Adjacent Station are provided for reference.

4. There is no PWQO for chloride; the calculated Guideline B-7 Criteria for chloride in the shallow groundwater wells is provided for reference.

5. Bold and shaded denotes concentration exceeds PWQO.

6. Blank denotes data not available.

7. Unless otherwise stated, all units are reported in mg/L.

TABLE 10
SUMMARY OF SURFACE WATER COMPLIANCE - FALL 2025
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	*PWQO*	*Background Station*	*Adjacent Station*	*Compliance Station*	
		SW1	*SW3*	*SW2*	*DUP-SW*
		Sep-25	*Sep-25*	*Sep-25*	*Sep-25*
General Chemistry					
pH	6.5 - 8.5	8.13	8.24	8.35	8.35
Alkalinity, Total (as CaCO3)	>25% Decrease	332	266	267	267
Chloride	126	343	106	106	105
Total Phosphorus	0.03	0.0502	**0.0794**	**0.179**	**0.136**
Phenols	0.001	0.0010	**0.0024**	**0.0033**	**0.0045**
Arsenic	0.005	0.00032	0.00106	0.00124	0.00132
Boron	0.2	0.030	0.129	0.129	0.128
Cadmium	0.0005	0.0000326	0.0000058	0.0000158	0.0000200
Copper	0.005	0.00091	0.00054	0.00149	0.00162
Iron	0.3	0.303	**0.417**	**1.22**	**1.31**
Lead	0.005	0.000205	0.000115	0.000627	0.000674
Zinc	0.02	<0.0030	<0.0030	0.0065	0.0069
Dissolved Mercury	0.0002	<0.0000050	<0.0000050	<0.0000050	<0.0000050

Notes:
1. PWQO denotes Provincial Water Quality Objectives of the Ministry of the Environment and Energy, as revised February 1999.
2. Background quality is based on the result for upstream surface water station SW1.
3. Surface water compliance is assessed based on the analytical results for downstream stations SW2; results for the Adjacent Station are provided for reference.
4. There is no PWQO for chloride; the calculated Guideline B-7 Criteria for chloride in the shallow groundwater wells is provided for reference.
5. Bold and shaded denotes concentration exceeds PWQO.
6. Blank denotes data not available.
7. Unless otherwise stated, all units are reported in mg/L.

TABLE 11
FIELD DATA SUMMARY - SPRING 2025
Mitchell Domestic Landfill
Municipality of West Perth

Monitoring Location	Gas Measurement	Water Measurements			Analytical Chemistry		Monitoring Well Condition	Comments
	CH_4 (%)	pH	Conductivity (µS/cm)	Temperature (°C)	General Chemistry	VOCs		
MW1	62.5	6.76	>3999	12.20	Yes	Yes	No observed deficiencies.	None
MW2	0.0	7.17	572	10.6	Yes	Yes	Needs new lock.	None
MW3S	0.0	6.54	862	8.8	Yes	Yes	No observed deficiencies.	None
MW3D	0.0	7.26	336	11.9	Yes	Yes	No observed deficiencies.	None
MW4	0.5	7.08	538	10.6	Yes	Yes	No observed deficiencies.	None
MW5S	0.0	6.64	782	13.1	Yes	Yes	No observed deficiencies.	None
MW5D	0.0	7.27	629	11.1	Yes	Yes	No observed deficiencies.	None
MW6S	0.0	6.85	708	11.7	Yes	Yes	No observed deficiencies.	None
MW6D	0.0	7.13	620	10.6	Yes	Yes	No observed deficiencies.	Duplicate: DUP-06
MW7S	0.0	7.06	615	9.9	Yes	Yes	No observed deficiencies.	None
MW7D	0.0	7.34	528	11.6	Yes	Yes	No observed deficiencies.	None
MW8-B	0.5	7.09	929	10.9	Yes	Yes	No observed deficiencies.	None
MW9S	25.0	6.31	2189	12.1	Yes	Yes	No observed deficiencies.	None
MW9D	0.5	7.27	847	9.9	Yes	Yes	Casing hinge broken.	None
MW10S	0.0	7.13	660	9.4	Yes	Yes	No observed deficiencies.	Flush mount casing.
MW10D	0.0	7.43	412	12.1	Yes	Yes	No observed deficiencies.	None
MW11S	0.0	7.27	847	9.9	Yes	Yes	No observed deficiencies.	None
MW11D	0.0	7.45	542	12.4	Yes	Yes	No observed deficiencies.	None
GP1S	27.5	-	-	-	N/A	N/A	No cap.	None
GP1D	-	-	-	-	N/A	N/A	No observed deficiencies.	None
GP2	0.0	-	-	-	N/A	N/A	No observed deficiencies.	None
GP3	0.0	-	-	-	N/A	N/A	No observed deficiencies.	None
GP4	0.0	-	-	-	N/A	N/A	Monument casing on angle; monument lid unable to close; vapour sampling connector damaged.	None
Torrance Mechanical	-	7.86	522	14.7	Yes	Yes	N/A	None
Leachate Pumping Station	-	7.66	9430	13.20	Yes	Yes	N/A	None

Monitoring Location	Location Description	Water Measurements					Analytical Chemistry		Flow (L/s)	Comments
		pH	Conductivity (µS/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	General Chemistry	VOCs		
SW1	McDougall Drain Upstream of Site	8.07	892.00	8.8	10.84	10.87	Yes	No	Negligible Flow	
SW2	McDougall Drain Downstream of Site	7.33	11.76	17.3	13.49	7.57	Yes	No	6.26	Duplicate: DUP-07
SW3	McDougall Drain Adjacent to Fill Area	7.77	1170.00	16.1	12.82	94.81	Yes	No	3.34	
SW5	South SWM Pond	-	-	-	-	-	No	No	N/A	Sample not collected as there was no flow from outlet.

Notes:
1. CH_4 denotes methane gas.
2. Methane gas reading are expressed as percent by volume
3. pH denotes pH units.
4. µS/cm denotes microsiemens per centimetre.
5. VOCs denotes volatile organic compounds.
6. mg/L denotes milligrams per litre.
7. NTU denotes nephelometric turbidity units.
8. L/s denotes litres per second.
9. N/A denotes not applicable.
10. Dash (-) denotes data not available.

TABLE 12
FIELD DATA SUMMARY - FALL 2025
Mitchell Domestic Landfill
Municipality of West Perth

Monitoring Location	Gas Measurement	Water Measurements			Analytical Chemistry		Monitoring Well Condition	Comments
	CH_4 (%)	pH	Conductivity (µS/cm)	Temperature (°C)	General Chemistry	VOCs		
MW1	>100	NA	NA	NA	No	No	Casing lid hinge damaged.	Well vented for three days to achieve safe vapour levels; however, vapour levels did not decrease during venting.
MW2	0.0	7.98	549	17.2	Yes	Yes	No observed deficiencies.	None
MW3S	0.0	6.59	1679	15.7	Yes	Yes	No observed deficiencies.	None
MW3D	0.0	7.85	346	17.2	Yes	Yes	No observed deficiencies.	None
MW4	0.0	7.60	746	15.6	Yes	Yes	No observed deficiencies.	Duplicate: DUP-103
MW5S	0.0	7.99	761	17.9	Yes	Yes	No observed deficiencies.	None
MW5D	0.0	7.61	684	13.8	Yes	Yes	No observed deficiencies.	None
MW6S	0.0	7.26	700	15.3	Yes	Yes	No observed deficiencies.	Duplicate: DUP-104
MW6D	0.0	7.60	819	17.6	Yes	Yes	No observed deficiencies.	None
MW7S	0.0	7.78	616	19.1	Yes	Yes	No observed deficiencies.	None
MW7D	0.0	7.71	544	14.7	Yes	Yes	No observed deficiencies.	None
MW8-B	0.0	7.63	858	17.3	Yes	Yes	No observed deficiencies.	None
MW9S	0.0	6.50	2164	15.3	Yes	Yes	No observed deficiencies.	None
MW9D	0.0	8.34	1621	17.4	Yes	Yes	Casing lid hinge damaged.	None
MW10S	0.0	7.21	801	14.4	Yes	Yes	No observed deficiencies.	Flushmount Casing
MW10D	0.0	7.76	460	14.3	Yes	Yes	No observed deficiencies.	None
MW11S	0.0	7.41	978	16.7	Yes	Yes	No observed deficiencies.	None
MW11D	0.0	8.03	574	17.7	Yes	Yes	No observed deficiencies.	None
GP1					NA	NA	No observed deficiencies.	None
GP1S	37.0	NA	NA	NA	NA	NA	No cap.	None
GP1D	0.0	NA	NA	NA	NA	NA	No observed deficiencies.	None
GP2	0.0	NA	NA	NA	NA	NA	No observed deficiencies.	None
GP3	0.0	NA	NA	NA	NA	NA	No observed deficiencies.	None
GP4	0.0	NA	NA	NA	NA	NA	Monument casing on angle; monument lid unable to close; vapour sampling connector damaged.	None
Torrance Mechanical	NA	7.85	495.00	22.7	NA	NA	N/A	None
Leachate Pumping Station	NA	7.84	>3999	22.2	NA	NA	N/A	None

Monitoring Location	Location Description	pH	Conductivity (µS/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Analytical Chemistry		Flow (L/s)	Comments
							General Chemistry	VOCs		
SW1	McDougall Drain Upstream of Site	7.61	1784	16.3	8.32	176.84	Yes	No	0.49	None
SW2	McDougall Drain Downstream of Site	7.22	326	16.3	7.55	0.01	Yes	No	8.68	Duplicate: DUP-SW
SW3	McDougall Drain Adjacent to Fill Area	7.68	927	16.5	2.56	19.6	Yes	No	6.84	None
SW5	South SWM Pond	-	-	-	-	-	No	No	N/A	Sample not collected as there was no flow from outlet.

Notes: 1. CH_4 denotes methane gas.
2. Methane gas reading are expressed as percent by volume.
3. pH denotes pH units.
4. µS/cm denotes microsiemens per centimetre.
5. VOCs denotes volatile organic compounds.
6. mg/L denotes milligrams per litre.
7. NTU denotes nephelometric turbidity units.
8. L/s denotes litres per second.
9. N/A denotes not applicable.
10. Dash (-) denotes data not available.

TABLE 13
SITE FEATURE GPS COORDINATES
Mitchell Domestic Landfill
Municipality of West Perth

Site Feature Name	*UTM Coordinates*	
	Easting	Northing
Front Gate	482825	4814006
MW1	483093	4814276
MW2	483143	4814376
MW3S	483185	4814203
MW3D	483182	4814205
MW4	482910	4814164
MW5S	483472	4814326
MW5D	483473	4814328
MW6S	483340	4814105
MW6D	483342	4814108
MW7S	483242	4813942
MW7D	483240	4813940
MW8	482912	4814133
MW8-B	482914	4814136
MW9S	483019	4814352
MW9D	483021	4814352
MW10S	483298	4814427
MW10D	483299	4814428
MW11S	482885	4814476
MW11D	482887	4814477
TORRANCE	482818	4813942
DP1	483024	4813951
DP2	483273	4814307
DP3	483195	4814204
GP1S/D	483097	4814280
GP2	482854	4813993
GP3	483001	4813887
GP4	483153	4813803

Notes: 1. Coordinates are referenced to NAD83.

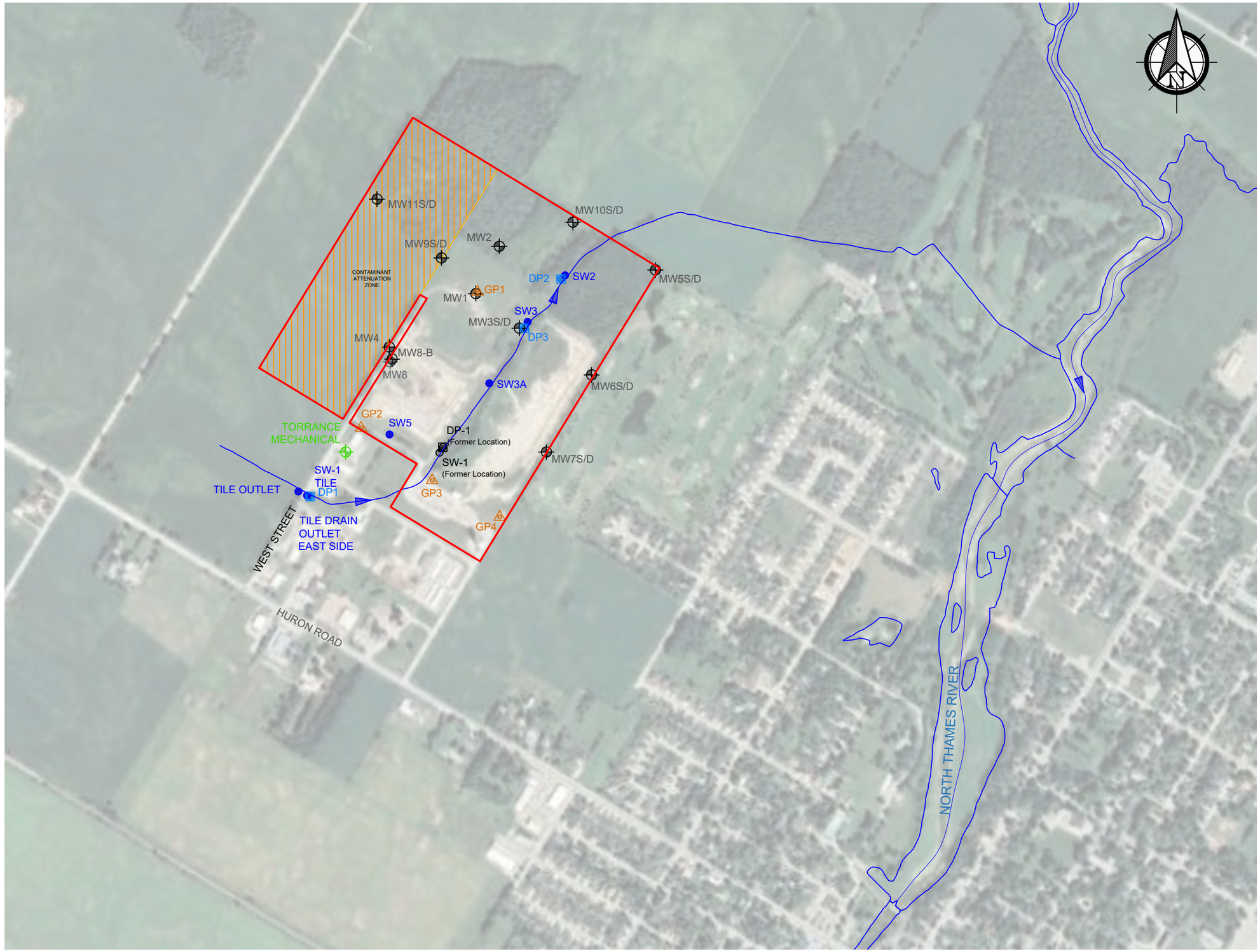
2. All the site features are in Zone 17.

3. The font gate was tied to GPS coordinates using Ontario Base Mapping (OBM).

4. OBM mapping has a relative accuracy of +/- 5m.

5. The features at the Site were surveyed relative to each other (submetre accuracy).

FIGURES



LEGEND

- MITCHELL DOMESTIC LANDFILL SITE BOUNDARY
- CAZ AREA
- MW1 — MONITORING WELL LOCATION AND DESIGNATION
- MW8 — DECOMMISSIONED MONITORING WELL LOCATION AND DESIGNATION
- SW2 — SURFACE WATER SAMPLE LOCATION
- SW-1 — FORMER SURFACE WATER SAMPLE LOCATION (BURNSIDE, 2013)
- DP2 — DRIVE POINT LOCATION
- DP-1 — FORMER DRIVE POINT LOCATION (BURNSIDE, 2013)
- GP3 — LANDFILL GAS PROBE LOCATION
- OFF-SITE WATER SUPPLY WELL LOCATION (TORRANCE MECHANICAL)

NOTES:

1. PLAN DETAILS OBTAINED FROM 2018 MITCHELL DOMESTIC LANDFILL ANNUAL MONITORING REPORT (RWDI, 2018)
2. AIR PHOTO FROM GOOGLE EARTH 2019

PINCHIN

CLIENT
CORPORATION OF THE MUNICIPALITY OF WEST PERTH

PROJECT NAME
2025 ANNUAL MONITORING REPORT

PROJECT LOCATION
MITCHELL DOMESTIC LANDFILL

FIGURE NAME
SITE LOCATION MAP

SCALE	PROJECT NO.
1:8000	333568.002
DATE	FIGURE NO.
NOV. 2025	1



LEGEND

- MITCHELL DOMESTIC LANDFILL SITE BOUNDARY
- CAZ AREA
- MW5D — MONITORING WELL LOCATION AND DESIGNATION
- MW8 — DECOMMISSIONED MONITORING WELL LOCATION AND DESIGNATION
- SW2 — SURFACE WATER SAMPLE LOCATION
- SW-1 — FORMER SURFACE SAMPLE LOCATION (BURNSIDE, 2013)
- GP1 — LANDFILL GAS PROBE LOCATION
- OFF-SITE WATER SUPPLY WELL LOCATION
- DP2 — DRIVE POINT LOCATION
- DP-1 — PIT LOCATION (BURNSIDE, 2006)
- TP3 — TEST PIT LOCATION (BURNSIDE, 2006)
- ACTIVE FILL AREA (LINED LANDFILL CELL)
- ESTIMATED FOOTPRINT OF UNLINED WASTE FILL AREA (BURNSIDE, 2013)

NOTES:

1. PLAN DETAILS OBTAINED FROM 2018 MITCHELL DOMESTIC LANDFILL ANNUAL MONITORING REPORT (RWDI, 2018)
2. AIR PHOTO FROM GOOGLE EARTH 2019

PINCHIN

CLIENT
CORPORATION OF THE MUNICIPALITY OF WEST PERTH

PROJECT NAME
2025 ANNUAL MONITORING REPORT

PROJECT LOCATION
MITCHELL DOMESTIC LANDFILL

FIGURE NAME
SITE PLAN

SCALE	PROJECT NO.
1:4500	333568.002
DATE	FIGURE NO.
NOV. 2025	2



LEGEND

- MITCHELL DOMESTIC LANDFILL SITE BOUNDARY
- CAZ AREA
- MW5D — MONITORING WELL LOCATION AND DESIGNATION
- SW2 — SURFACE WATER SAMPLE LOCATION
- SW-1 — FORMER SURFACE SAMPLE LOCATION (BURNSIDE, 2013)
- OFF-SITE WATER SUPPLY WELL LOCATION
- DP-1 — FORMER DRIVE POINT LOCATION (BURNSIDE, 2013)
- DP-2 — DRIVE POINT LOCATION AND DESIGNATION
- [346.81] — GROUNDWATER ELEVATION
- 346.0 — GROUNDWATER CONTOUR ELEVATION
- INFERRED GROUNDWATER FLOW DIRECTION ARROW

NOTES:

1. PLAN DETAILS OBTAINED FROM 2018 MITCHELL DOMESTIC LANDFILL ANNUAL MONITORING REPORT (RWDI, 2018)
2. AIR PHOTO FROM GOOGLE EARTH 2019
3. GROUNDWATER ELEVATION FOR MW1 TAKEN FROM AVAILABLE MAY 2019 DATA

PINCHIN

CLIENT
CORPORATION OF THE MUNICIPALITY OF WEST PERTH

PROJECT NAME
2025 ANNUAL MONITORING REPORT

PROJECT LOCATION
MITCHELL DOMESTIC LANDFILL

FIGURE NAME
SHALLOW GROUNDWATER CONTOURS (MAY 12, 2025)

SCALE	PROJECT NO.
1:4500	333568.002
DATE	FIGURE NO.
NOV. 2025	3A



LEGEND

- MITCHELL DOMESTIC LANDFILL SITE BOUNDARY
- CAZ AREA
- MW5D — MONITORING WELL LOCATION AND DESIGNATION
- SW2 — SURFACE WATER SAMPLE LOCATION
- SW-1 — FORMER SURFACE SAMPLE LOCATION (BURNSIDE, 2013)
- OFF-SITE WATER SUPPLY WELL LOCATION
- DP-1 — FORMER DRIVE POINT LOCATION (BURNSIDE, 2013)
- DP-2 — DRIVE POINT LOCATION AND DESIGNATION
- [346.81] — GROUNDWATER ELEVATION
- 346.0 — GROUNDWATER CONTOUR ELEVATION
- INFERRED GROUNDWATER FLOW DIRECTION ARROW

NOTES:

1. PLAN DETAILS OBTAINED FROM 2018 MITCHELL DOMESTIC LANDFILL ANNUAL MONITORING REPORT (RWDI, 2018)
2. AIR PHOTO FROM GOOGLE EARTH 2019

PINCHIN

CLIENT
CORPORATION OF THE MUNICIPALITY OF WEST PERTH

PROJECT NAME
2025 ANNUAL MONITORING REPORT

PROJECT LOCATION
MITCHELL DOMESTIC LANDFILL

FIGURE NAME
SHALLOW GROUNDWATER CONTOURS (SEPTEMBER 24, 2025)

SCALE	PROJECT NO.
1:4500	333568.002
DATE	FIGURE NO.
NOV. 2025	3B



LEGEND

- MITCHELL DOMESTIC LANDFILL SITE BOUNDARY
- CAZ AREA
- MW5D — MONITORING WELL LOCATION AND DESIGNATION
- SW2 — SURFACE WATER SAMPLE LOCATION
- SW-1 — FORMER SURFACE SAMPLE LOCATION (BURNSIDE, 2013)
- OFF-SITE WATER SUPPLY WELL LOCATION
- DP-1 — FORMER DRIVE POINT LOCATION (BURNSIDE, 2013)
- DP-2 — DRIVE POINT LOCATION AND DESIGNATION
- [340.19] GROUNDWATER ELEVATION
- 342 GROUNDWATER CONTOUR ELEVATION
- INFERRED GROUNDWATER FLOW DIRECTION ARROW

NOTES:

1. PLAN DETAILS OBTAINED FROM 2018 MITCHELL DOMESTIC LANDFILL ANNUAL MONITORING REPORT (RWDI, 2018)
2. AIR PHOTO FROM GOOGLE EARTH 2019

PINCHIN

CLIENT
CORPORATION OF THE MUNICIPALITY OF WEST PERTH

PROJECT NAME
2025 ANNUAL MONITORING REPORT

PROJECT LOCATION
MITCHELL DOMESTIC LANDFILL

FIGURE NAME
DEEP GROUNDWATER CONTOURS (MAY 12, 2025)

SCALE	PROJECT NO.
1:4500	333568.002
DATE	FIGURE NO.
NOV. 2025	4A



LEGEND

- MITCHELL DOMESTIC LANDFILL SITE BOUNDARY
- CAZ AREA
- MW5D — MONITORING WELL LOCATION AND DESIGNATION
- SW2 — SURFACE WATER SAMPLE LOCATION
- SW-1 — FORMER SURFACE SAMPLE LOCATION (BURNSIDE, 2013)
- OFF-SITE WATER SUPPLY WELL LOCATION
- DP-1 — FORMER DRIVE POINT LOCATION (BURNSIDE, 2013)
- DP-2 — DRIVE POINT LOCATION AND DESIGNATION
- [340.19] GROUNDWATER ELEVATION
- 342 GROUNDWATER CONTOUR ELEVATION
- INFERRED GROUNDWATER FLOW DIRECTION ARROW

NOTES:

1. PLAN DETAILS OBTAINED FROM 2018 MITCHELL DOMESTIC LANDFILL ANNUAL MONITORING REPORT (RWDI, 2018)
2. AIR PHOTO FROM GOOGLE EARTH 2019

PINCHIN

CLIENT
CORPORATION OF THE MUNICIPALITY OF WEST PERTH

PROJECT NAME
2025 ANNUAL MONITORING REPORT

PROJECT LOCATION
MITCHELL DOMESTIC LANDFILL

FIGURE NAME
DEEP GROUNDWATER CONTOURS (SEPTEMBER 24, 2025)

SCALE	PROJECT NO.
1:4500	333568.002
DATE	FIGURE NO.
NOV. 2025	4B

APPENDIX A

APPENDIX A

Supporting Documentation

APPENDIX A-1

Amended Environmental Compliance Approval Number

Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A150401
Issue Date: October 29, 2012

The Corporation of the Municipality of West Perth
169 St. David St
Post Office Box, No. 609
Mitchell, Ontario
N0K 1N0

RECEIVED
NOV - 7 2012
BURNSIDE

Site Location: West Perth (Mitchell Landfill Domestic)
Formerly Town of Mitchell
Part of Lot 19, Concession 1
West Perth Municipality, County of Perth
N0K 1N0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E: 19 (Environmental Protection Act) for approval of:

use and operation of a 19.9 hectare waste footprint within a total site area of 38.6 hectare, having a maximum capacity of 1,677,010 cubic meters, being known as the Mitchell Domestic Landfill

For the purpose of this environmental compliance approval, the following definitions apply:

"*Approval* " means this Environmental Compliance Approval and any Schedules to it, including the application and supporting documentation listed in Schedule "A".

"*Contaminating Life Span*" means contaminating life span as defined in Ontario Regulation 232/98;

"*CAZ*" means the contaminant attenuation zone;

"*Director*" means any *Ministry* employee appointed in writing by the Minister pursuant to section 5 of the EPA as a Director for the purposes of Part V of the *EPA;*

"*District Manager*" means the District Manager of the local district office of the *Ministry* in which the *Site* is geographically located;

"*EPA* " means *Environmental Protection Act* , R.S.O. 1990, c. E. 19, as amended;

"FBAL" means Fill Beyond Approved Limits;

"HHW" means household hazardous waste;

"Ministry" means the Ontario Ministry of the Environment;

"NMA" means *Nutrient Management Act*, 2002, S.O. 2002, c. 4, as amended from time to time;

"Ontario Regulation 101/94" means Ontario Regulation 101/94 – Recycling and Composting of Municipal Waste, as made under the EPA;

"Operator" means any person, other than the *Owner's* employees, authorized by the *Owner* as having the charge, management or control of any aspect of the *Site* and includes its successors or assigns;

"Owner" means any person that is responsible for the establishment or operation of the *Site* being approved by this *Approval,* and includes The Corporation of the Corporation of the Municipality of West Perth its successors and assigns;

"OWRA" means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40, as amended;

"PA" means the *Pesticides Act*, R.S.O. 1990, c. P-11, as amended from time to time;

"Provincial Officer" means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the *OWRA* or Section 5 of the *EPA* or Section 17 of *PA* or Section 4 of *NMA* or Section 8 of *SDWA*.

"Reasonable Use Guideline" means the Ministry Guideline B-7 entitled "Incorporation of the Reasonable Use Concept into MOE Groundwater Management Activities, dated April 1994, as amended

"Regional Director" means the Regional Director of the local Regional Office of the *Ministry* in which the *Site* is located.

"Regulation 347" or *"Reg. 347"* means Regulation 347, R.R.O. 1990, made under the EPA, as amended;
"SDWA" means *Safe Drinking Water Act,* 2002, S.O. 2002, c. 32, as amended from time to time;

"Site" means the entire waste disposal site, including the buffer lands, and contaminant attenuation zone at West Perth (Mitchell Landfill Domestic), Formerly Town of Mitchell, Lot 19, Concession 1, West Perth Municipality, County of Perth; and

"Trained personnel" means personnel knowledgeable in the following through instruction and/or practice:

a. relevant waste management legislation, regulations and guidelines;
b. major environmental concerns pertaining to the waste to be handled;
c. occupational health and safety concerns pertaining to the processes and wastes to be

handled;

d. management procedures including the use and operation of equipment for the processes and wastes to be handled;
e. emergency response procedures;
f. specific written procedures for the control of nuisance conditions;
g. specific written procedures for refusal of unacceptable waste loads; and
h. the requirements of this *Approval.*

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL

Compliance

(1) The *Owner* and *Operator* shall ensure compliance with all the conditions of this *Approval* and shall ensure that any person authorized to carry out work on or operate any aspect of the *Site* is notified of this *Approval* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Any person authorized to carry out work on or operate any aspect of the *Site* shall comply with the conditions of this *Approval.*

In Accordance

(3) Except as otherwise provided by this *Approval,* the *Site* shall be designed, developed, built, operated and maintained in accordance with the documentation listed in the attached Schedule "A".

Interpretation

(4) Where there is a conflict between a provision of any document listed in Schedule "A" in this *Approval,* and the conditions of this *Approval,* the conditions in this *Approval* shall take precedence.

(5) Where there is a conflict between the application and a provision in any document listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment.

(6) Where there is a conflict between any two documents listed in Schedule "A", the document bearing the most recent date shall take precedence.

(7) The conditions of this *Approval* are severable. If any condition of this *Approval,* or the application of any condition of this *Approval* to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this *Approval* shall not be affected thereby.

Other Legal Obligations

(8) The issuance of, and compliance with, this *Approval* does not:
- (a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement; or
- (b) limit in any way the authority of the *Ministry* to require certain steps be taken or to require the *Owner* and *Operator* to furnish any further information related to compliance with this *Approval* .

Adverse Effect

(9) The *Owner* and *Operator* shall take steps to minimize and ameliorate any adverse effect on the natural environment or impairment of water quality resulting from the *Site,* including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

(10) Despite an *Owner, Operator* or any other person fulfilling any obligations imposed by this *Approval* the person remains responsible for any contravention of any other condition of this *Approval* or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect to the natural environment or impairment of water quality.

Change of Ownership

(11) The *Owner* shall notify the *Director,* in writing, and forward a copy of the notification to the *District Manager,* within 30 days of the occurrence of any changes in the following information:
- (a) the ownership of the *Site;*
- (b) the *Operator* of the *Site;*
- (c) the address of the *Owner or Operator;* and
- (d) the partners, where the *Owner or Operator* is or at any time becomes a partnership and a copy of the most recent declaration filed under the *Business Names Act* , R. S. O. 1990, c. B.17, shall be included in the notification.

(12) No portion of this *Site* shall be transferred or encumbered prior to or after closing of the *Site* unless the *Director* is notified in advance and sufficient financial assurance is deposited with the *Ministry* to ensure that these conditions will be carried out.

(13) In the event of any change in *Ownership* of the *Site,* other than change to a successor Owner, the *Owner* shall notify the successor of and provide the successor with a copy of

this *Approval,* and the *Owner* shall provide a copy of the notification to the *District Manager* and the *Director.*

Certificate of Requirement

(14) The *Owner* shall:

(a) Within sixty (60) days of the date of the issuance of this *Approval,* submit to the *Director* for review, two copies of a completed Certificate of Requirement with a registerable description of the *Site;* and

(b) Within 10 calendar days of receiving the Certificate of Requirement authorized by the *Director,* register the Certificate of Requirement in the appropriate Land Registry Office on title to the *Site* and submit to the *Director* and the *District Manager* the duplicate registered copy immediately following registration.

(15) Pursuant to Section 197 of the Environmental Protection Act, neither the *Owner* nor any person having an interest in the *Site* shall deal with the *Site* in any way without first giving a copy of this *Approval* to each person acquiring an interest in the *Site* as a result of the dealing.

Addition of Infrastructure Lands, Contaminant Attenuation Zone and Certificate of Requirement

(16) Within one year of issuance of this *Approval* , the *Owner* shall provide a drawing to the Director, prepared by a Licensed Land Surveyor, for the infrastructure area to be added to this Approval, as outlined in documents in Schedule "A" of this *Approval.*

(17) Within one year of acquiring the lands for contaminant attenuation, identified in documents in Schedule "A" of this *Approval,* the *Owner* shall submit documentation to add these lands to this *Approval.*

Inspections by the Ministry

(18) No person shall hinder or obstruct a *Provincial Officer* from carrying out any and all inspections authorized by the *OWRA, the EPA,* the *PA,* the *SDWA* or the *NMA,* of any place to which this *Approval* relates, and without limiting the foregoing:

(a) to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this *Approval* are kept;

(b) to have access to, inspect, and copy any records required to be kept by the conditions of this *Approval;*

(c) to inspect the *Site,* related equipment and appurtenances;

(d) to inspect the practices, procedures, or operations required by the conditions of this *Approval;* and

(e) to sample and monitor for the purposes of assessing compliance with the terms

and conditions of this *Approval* or the *EPA*, the *OWRA*, the *PA*, the *SDWA* or the *NMA*.

Information and Record Retention

(19) (a) Except as authorized in writing by the *Director*, all records required by this *ECA* shall be retained at the *Site* for a minimum of two (2) years from their date of creation.

(b) The *Owner* shall retain all documentation listed in Schedule "A" for as long as this *ECA* is valid.

(c) All monthly summary reports are to be kept at the *Site* until they are included in the Annual Report.

(d) The *Owner* shall retain employee training records as long as the employee is working at the *Site* .

(e) The *Owner* shall make all of the above documents available for inspection upon request of *Ministry* staff.

(20) The receipt of any information by the *Ministry* or the failure of the *Ministry* to prosecute any person or to require any person to take any action, under this *Approval* or under any statute, regulation or other legal requirement, in relation to the information, shall not be construed as:

(a) an approval, waiver, or justification by the *Ministry* of any act or omission of any person that contravenes any term or condition of this *Approval* or any statute, regulation or other legal requirement; or

(b) acceptance by the *Ministry* of the information's completeness or accuracy.

(21) Any information related to this *Approval* and contained in *Ministry* files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

Zoning

(22) Within six months of issuance of this Approval, the *Owner* shall amend the existing Zoning By-law to ensure that the entire Site, inclusive of the proposed Contaminant Attenuation Zone lands, are properly zoned and are in conformance with the Official Plan, as committed to in the documents in Schedule "A" of this *Approval*. A copy of the amended By-law shall be submitted to the *District Manager* within 15 days of this amendment taking place.

2. SITE OPERATION

Operation

(1) The *Site* shall be operated and maintained at all times including management and disposal of all waste, in accordance with the *EPA, Regulation 347,* and the conditions of this *Approval.* At no time shall the discharge of a contaminant that causes or is likely to cause an adverse effect be permitted.

Signs

(2) A sign shall be installed and maintained at the main entrance/exit to the *Site* on which is legibly displayed the following information:
- (a) the name of the *Site* and *Owner;*
- (b) the number of the *Approval;*
- (c) the name of the *Operator;*
- (d) the normal hours of operation;
- (e) the allowable and prohibited waste types;
- (f) the telephone number to which complaints may be directed;
- (g) a warning against unauthorized access;
- (h) a twenty-four (24) hour emergency telephone number (if different from above); and
- (i) a warning against dumping outside the *Site.*

(3) The *Owner* shall install and maintain signs to direct vehicles to working face and waste diversion areas.

(4) The *Owner* shall provide signs at recycling depot informing users what materials are acceptable and directing users to appropriate storage areas.

Vermin, Vectors, Dust, Litter, Odour, Noise and Traffic

(5) The *Site* shall be operated and maintained such that the vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance.

Burning Waste Prohibited

(6) Burning of waste (including burning of clean wood) at the *Site* is prohibited.

Site Access

(7) The site shall be operated subject to following conditions:
- (a) The site shall be operated any day of the week except Sunday and civic holidays
- (b) The site shall not conduct any operations between 8:00 p.m. and 6 a.m.
- (c) The operating hours posted at the entrance gate shall be kept up to date.

(8) The Owner may restrict operating hours to a shorter period of time and may restrict public access to allow more time for site operations.

(9) With the prior written approval from the *District Manager,* the time periods may be extended to accommodate seasonal or unusual quantities of waste.

Site Security

(10) No waste shall be received, landfilled or removed from the *Site* unless a site supervisor or an attendant is present and supervises the operations during operating hours. The *Site* shall be closed when a site attendant is not present to supervise landfilling operations.

(11) The *Site* shall be operated and maintained in a safe and secure manner. During non-operating hours, the *Site* entrance and exit gates shall be locked and the *Site* shall be secured against access by unauthorized persons.

3. EMPLOYEE TRAINING

(1) A training plan for all employees that operate any aspect of the *Site* shall be developed and implemented by the *Operator.* Only *Trained Personnel* shall operate any aspect of the *Site* or carry out any activity required under this *Approval.*

4. COMPLAINTS RESPONSE PROCEDURE

(1) If at any time the *Owner* receives complaints regarding the operation of the *Site,* the *Owner* shall respond to these complaints according to the following procedure:

(a) The *Owner* shall record and number each complaint, either electronically or in a log book, and shall include the following information: the nature of the complaint, the name, address and the telephone number of the complainant if the complainant will provide this information and the time and date of the complaint;

(b) The *Owner,* upon notification of the complaint, shall initiate appropriate steps to determine possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and

(c) The *Owner* shall complete and retain on-site a report written within one (1) week of the complaint date, listing the actions taken to resolve the complaint and any recommendations for remedial measures, and managerial or operational changes to reasonably avoid the recurrence of similar incidents.

5. EMERGENCY RESPONSE

(1) Any spills, fires or other emergency situations shall be forthwith reported directly to the *Ministry's* Spills Action Centre (1-800-268-6060) and shall be cleaned up immediately.

(2) In addition, the *Owner* shall submit, to the *District Manager* a written report within three (3) business days of the emergency situation, outlining the nature of the incident, remedial measures taken, handling of waste generated as a result of the emergency situation and the measures taken to prevent future occurrences at the *Site.*

(3) All wastes resulting from an emergency situation shall be managed and disposed of in accordance with *O.Reg. 347.*

(4) All equipment and materials required to handle the emergency situations shall be:
- (a) kept on hand at all times that waste landfilling and/or handling is undertaken at the *Site;* and
- (b) adequately maintained and kept in good repair.

(5) The *Owner* shall ensure that the emergency response personnel are familiar with the use of such equipment and its location(s).

6. RECORD KEEPING AND REPORTING

Daily Log Book

(1) A daily log shall be maintained in written or electronic format and shall include the following information:
- (a) the type, date and time of arrival, hauler, and quantity (loads or vehicles per day) of all waste and cover material received at the *Site;*
- (b) the area of the *Site* in which waste disposal operations are taking place;
- (c) a record of litter collection activities and the application of any dust suppressants;
- (d) a record of the daily inspections; and
- (e) a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service.

(2) Any information requested, by the *Director* or a *Provincial Officer,* concerning the *Site* and its operation under this *Approval,* including but not limited to any records required to be kept by this *Approval* shall be provided to the *Ministry,* upon request.

Inspections and Log Book

(3) (a) An inspection of the entire *Site* and all equipment on the *Site* shall be conducted each day the *Site* is in operation to ensure that: the *Site* is secure; that the

operation of the *Site* is not causing any nuisances; that the operation of the *Site* is not causing any adverse effects on the environment and that the *Site* is being operated in compliance with this *Approval.* Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the *Site* if needed.

(b) The *Owner* shall conduct weekly visual inspection of the Site for leachate outbreaks. Within two weeks of a leachate outbreak being identified, the *Owner* shall notify the *District Manager* of the occurrence and the actions proposed to mitigate the issue.

(4) A record of the inspections shall be kept in a daily log book that includes:
(a) the name and signature of person that conducted the inspection;
(b) the date and time of the inspection;
(c) the list of any deficiencies discovered;
(d) the recommendations for remedial action; and
(e) the date, time and description of actions taken.

(5) A record shall be kept in the daily log book of all refusals of waste shipments, the reason(s) for refusal, and the origin of the waste, if known.

Annual Report

(6) A written report on the development, operation and monitoring of the *Site,* shall be completed annually (the "Annual Report"). The Annual Report shall be submitted to the *District Manager,* by December 5th every year.

(7) By December 5th of every year and on an annual basis thereafter, the *Owner* shall submit to the *District Manager* an Annual Report on the development, operations and monitoring of the *Site* prepared by a Professional Engineer. The report shall include:

(a) The results and interpretive analysis of all leachate, groundwater, surface water and landfill gas monitoring, including an assessment of the need to amend the monitoring programs;

(b) An assessment of the operation and performance of all engineered facilities, the need to amend the design and operation of the Site, and the adequacy of and need to implement any contingency plans;

(c) Site plans showing the existing contours, areas of landfilling operation during the reporting period, areas of intended operation during the next reporting period, the progress of final cover, vegetative cover and any intermediate cover application, engineered facilities installed during the reporting period, Site preparation and facilities planned for installation during the next reporting period;

(d) Estimations of the volume of waste, daily and intermediate cover and final cover deposited or placed at the Site during the reporting period and a calculation of the total volume of Site capacity used during the reporting period;

(e) A summary of quantity of leachate discharged from the *Site;*

(f) A summary of monthly and annual quantity of waste received at the Site;

(g) A summary of any public complaints received by the *Owner* and the responses made;

(h) A discussion on any operational problems encountered at the *Site* and the corrective action taken; and

(i) Any other information with respect to the *Site* that the *District Manager* may require from time to time.

7. LANDFILL DESIGN AND DEVELOPMENT

Approved Waste Types

(1) Only solid non-hazardous municipal waste as defined under *Reg.* 347 shall be accepted at the *Site* for landfilling.

(2) The *Owner* shall develop and implement a program to inspect waste to ensure that the waste received at the *Site* is of a type approved for acceptance under this *Approval.*

(3) The *Owner* shall ensure that all loads of waste are properly inspected by *Trained personnel* prior to acceptance at the *Site* and that the waste vehicles are directed to the appropriate areas for disposal or transfer of the waste. The *Owner* shall notify the *District Manager,* in writing, of municipal solid waste load rejections at the *Site* within one (1) business day from their occurrence.

Capacity

(4) The *Owner* shall ensure that the *Site* is designed and operated in accordance with *The Municipality of West Perth, Mitchell Domestic Landfill Site, Design and Operation Plan* , dated October 2009, prepared by R.J. Burnside & Associates Limited, signed by Kent Hunter, P. Eng., and all other documents listed in Schedule "A" of this *Approval.* Any changes to the design and operation of the *Site* shall be approved by the *Director* prior to these changes being implemented.

(5) The *Owner* shall only accept and deposit waste at the *Site* as long as there is available capacity as defined by the final contours for the *Site* as per the documents in Schedule

"A" of this *Approval,* corresponding approximately to the approved theoretical capacity of 1,677,010 cubic meters.

(6) (a) At least one (1) year prior to the anticipated completion of landfilling in each Cell as identified in documents in Schedule "A" of this *Approval,* a detailed design update for the subsequent Cell shall be submitted to the *Director* for Approval.

(b) Notwithstanding Condition 7(5), approval to proceed with utilizing each subsequent Cell, shall be dependant on the monitoring results acceptable to the *Director.* If the monitoring results are not acceptable to the *Director,* then remedial action must be taken and completed before landfilling can proceed in the subsequent Cell.

Liner construction

(7) The *Owner* shall ensure that the construction of the composite liner and leachate collection system, details of which are provided in documents in Schedule "A" of this Approval, is supervised by a Professional Engineer, and is carried out in accordance with the manufacturer's specification, inclusive of appropriate QA/QC procedures.

(8) No waste shall be deposited in Cell No. 1, and subsequent Cells, until a written report, prepared by a Professional Engineer, has been submitted to the *Director,* documenting construction of the composite liner and leachate collection system and associated QA/QC procedures in accordance with this Approval.

Service Area

(9) Only waste that is generated within the boundaries of the Municipality of West Perth may be accepted at the *Site.*

Cover material

(10) Cover material shall be applied as follows:

(a) Operational Cover: At the end of each operating week, or at a frequency deemed appropriate by the *District Manager,* the entire working face shall be covered with a minimum thickness of 150 mm of soil cover or Durisol waste, wood chips, compost or an alternative cover material that has been approved by the *Director;*

(b) Intermediate Cover: In areas where landfilling has been temporarily discontinued for ninety (90) days or more, a minimum thickness of 300 mm of soil cover or an equivalent thickness of an alternative cover material that has been approved by the *Director,* shall be placed; and

(c) Final Cover: On an annual basis, in areas where landfilling has been completed to

final contours, a minimum 0.60 metre thick layer of final cover soil and a 0.15 metre top soil and vegetative cover, shall be constructed. Fill areas shall be progressively completed and rehabilitated as landfill development reaches final contours.

(11) Solid non-hazardous contaminated soil and all other approved material for use as cover shall be stockpiled within the approved waste footprint with consideration given to surface water run off control.

Landfill Gas Management

(12) The *Site* is exempted from the landfill gas facilities reporting and operational requirements set out in sections 11.1, 11.2, 11.3 and 11.4 of Ontario Regulation 347 pursuant to Section 11.1 (5) of the Regulation.

(13) The *Owner* shall conduct a reassessment on landfill gas production and the need for landfill gas control, and submit the report to the *Director* for approval within ninety (90) days of the following changes:

(a) significant increase in waste filling rate;

(b) significant increase in the organic fraction of incoming waste; and

(c) change in other aspects that may result in significantly higher landfill gas generation rate.

8. LANDFILL MONITORING

Landfill Gas

(1) The *Owner* shall ensure that any buildings or structures at the *Site* contain adequate ventilation systems to relieve any possible landfill gas accumulation to prevent methane concentration reaching the levels within its explosive range. Routine monitoring for explosive methane gas levels shall be conducted in all buildings or structures at the *Site*, especially enclosed structures which at times are occupied by people.

Compliance

(2) The *Site* shall be operated in such a way as to ensure compliance with the following:

(a) Reasonable Use Guideline B-7 for the protection of the groundwater at the *Site;* and

(b) Provincial Water Quality Objectives included in the July 1994 publication entitled

Water Management Policies, Guidelines, Provincial Water Quality Objectives, as amended from time to time or limits set by the *Regional Director,* for the protection of the surface water at and off the *Site.*

Surface Water, Ground Water, Leachate and Landfill Gas

(3) (a) The Owner shall ensure that groundwater, leachate and landfill gas monitoring at the Site are carried out by trained persons and in accordance with the documents in the Schedule "A" of this Approval.

(b) Surface water monitoring at the Site shall be conducted at the following stations for parameters listed in Schedule 5, Column 3, Comprehensive List for Surface Water, of *Landfill Standards: A Guideline on the Regulatory and Approval Requirements for New or Expanding Landfilling Sites* (MOE, May 1998):

SW1: upgradient sample, where drain enters the Site
SW2: downgradient sample, location of existing McDougall Drain outlet (future Underdrain Outlet)
SW3: midpoint of existing McDougal Drain, sampled until such a time as this point is no longer acceptable due to backfilling of the drain
SW4: future downgradient sample, where new drain alignment leaves the Site, once the new alignment is excavated
SW5: Outlet from South Stormwater pond
SW6: Outlet from North Stormwater pond

(4) A certified Professional Geoscientist or Engineer possessing appropriate hydrogeologic training and experience shall execute or directly supervise the execution of the groundwater monitoring and reporting program.

Groundwater Wells and Monitors

(5) The *Owner* shall ensure that all groundwater monitoring wells which form part of the monitoring program are properly capped, locked and protected from damage.

(6) Where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and the wells shall be properly re-secured.

(7) Any groundwater monitoring well included in the on-going monitoring program that are damaged shall be assessed, repaired, replaced or decommissioned by the *Owner,* as required.

(a) The *Owner* shall repair or replace any monitoring well which is destroyed or in any way made to be inoperable for sampling such that no more than one regular sampling event is missed.

(b) All monitoring wells which are no longer required as part of the groundwater monitoring program, and have been approved by the *Director* for abandonment, shall be decommissioned by the *Owner*, as required, in accordance with *O.Reg. 903*, that will prevent contamination through the abandoned well. A report on the decommissioning of the well shall be included in the Annual Report for the period during which the well was decommissioned.

Trigger Mechanisms and Contingency Plans

(8) (a) Within six (6) months from the date of this *Approval*, the *Owner* shall submit to the *Director*, for approval, and copies to the *District Manager*, details of a trigger mechanisms plan for surface water and groundwater quality monitoring for the purpose of initiating investigative activities into the cause of increased contaminant concentrations

(b) Within six (6) months from the date of this *Approval*, the *Owner* shall submit to the *Director* for approval, and copies to the *District Manager*, details of a contingency plan to be implemented in the event that the surface water or groundwater quality exceeds any trigger mechanism.

(c) Notwithstanding the conditions 8(a) and 8(b) the Owner may submit the trigger mechanism and contingency plan required by 8(a) and 8(b), with the Annual Report required under condition 6(6). Following the submission and review by the Ministry the Owner may use the procedure in the conditions 8(12), 8(13) and 8(14) to request and amendment to this *Approval*.

(9) In the event of a confirmed exceedence of a site-specific trigger level relating to leachate mounding or groundwater or surface water impacts due to leachate, the *Owner* shall immediately notify the *District Manager*, and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the *Owner* in accordance with the approved trigger mechanisms and associated contingency plans.

(10) If monitoring results, investigative activities and/or trigger mechanisms indicate the need to implement contingency measures, the *Owner* shall ensure that the following steps are taken:

(a) The *Owner* shall notify the *District Manager*, in writing of the need to implement contingency measures, no later than 30 days after confirmation of the exceedences;

(b) Detailed plans, specifications and descriptions for the design, operation and maintenance of the contingency measures shall be prepared and submitted by the *Owner* to the *District Manager* for approval; and

(c) The contingency measures shall be implemented by the *Owner* upon approval by

the *District Manager* .

(11) The *Owner* shall ensure that any proposed changes to the site-specific trigger levels for leachate impacts to the surface water or groundwater, are approved in advance by the *Director* via an amendment to this *Approval.*

Changes to the Monitoring Plan

(12) The *Owner* may request to make changes to the monitoring program(s) to the *District Manager* in accordance with the recommendations of the annual report. The *Owner* shall make clear reference to the proposed changes in a separate letter that shall accompany the annual report.

(13) Within fourteen (14) days of receiving the written correspondence from the *District Manager* confirming that the *District Manager* is in agreement with the proposed changes to the environmental monitoring program, the *Owner* shall forward a letter identifying the proposed changes and a copy of the correspondences from the *District Manager* and all other correspondences and responses related to the changes to the monitoring program, to the *Director* requesting the *Approval* be amended to approve the proposed changes to the environmental monitoring plan prior to implementation.

(14) In the event any other changes to the environmental monitoring program are proposed outside of the recommendation of the annual report, the *Owner* shall follow current ministry procedures for seeking approval for amending the *Approval.*

9. CLOSURE PLAN

(1) At least two (2) years prior to the anticipated date of closure of this *Site,* the *Owner* shall submit to the *Director* for approval, with copies to the *District Manager,* a detailed *Site* closure plan pertaining to the termination of landfilling operations at this *Site,* post-closure inspection, maintenance and monitoring, and end use. The plan shall include the following:

(a) a plan showing *Site* appearance after closure;
(b) a description of the proposed end use of the *Site;*
(c) a description of the procedures for closure of the *Site,* including:
  (i) advance notification of the public of the landfill closure;
  (ii) posting of a sign at the *Site* entrance indicating the landfill is closed and identifying any alternative waste disposal arrangements;
  (iii) completion, inspection and maintenance of the final cover and landscaping;
  (iv) *Site* security;
  (v) removal of unnecessary landfill-related structures, buildings and facilities;
  (vi) final construction of any control, treatment, disposal and monitoring

facilities for leachate, groundwater, surface water and landfill gas; and

(vii) a schedule indicating the time-period for implementing sub-conditions (i) to (vi) above;

(d) descriptions of the procedures for post-closure care of the *Site,* including:

(i) operation, inspection and maintenance of the control, treatment, disposal and monitoring facilities for leachate, groundwater, surface water and landfill gas;

(ii) record keeping and reporting; and

(iii) complaint contact and response procedures;

(e) an assessment of the adequacy of and need to implement the contingency plans for leachate and methane gas; and

(f) an updated estimate of the *contaminating life span* of the *Site,* based on the results of the monitoring programs to date.

(2) The *Site* shall be closed in accordance with the closure plan as approved by the *Director.*

10. WASTE DIVERSION

(1) Recyclable materials shall be properly identified, separated and stored in appropriate containers. The area must be kept in an orderly manner.

(2) The *Owner* shall operate a Hazardous Waste Drop Off depot and an E-Waste Facility in accordance with details provided in documents in Schedule "A" of this Approval and the Ministry of the Environment *Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities, May 2007.*

11. COMPOSTING

(1) The *Owner* shall compost leaf and yard waste in accordance with details provided in documents in Schedule "A" of this *Approval* and in accordance with the Ministry of the Environment *Interim Guidelines for the Production and Use of Aerobic Compost in Ontario, November 2004,* as amended from time to time.

SCHEDULE "A"

1. Letter report dated September 10, 2007 addressed to Mr. Bob Slivar, Ministry of the Environment from Mr. Lyle Parsons, R.J. Burnside and Associates. The letter report was entitled "Municipality of West Perth - Capacity Assessment of the Municipality's Landfill Sites".

2. Letter dated March 14, 2008 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Lyle Parsons, RJ Burnside and Associates providing a legal description plan (Plan 44R-4579)

3. Letter dated March 14, 2008 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Lyle Parsons, RJ Burnside and Associates and provided additional information on the theoretical capacity calculation.

4. Report entitled "Municipality of West Perth Landfill Gas Generation Rates Mitchell Domestic Landfill" dated April 9 2009 prepared by R.J. Burnside & Associates Limited.

5. Letter memo dated January 25, 2010 addressed to Rick Li, Ministry of the Environment from Kim Kawkes, R.J. Burnsides & Associates Limited regarding the Gas Monitoring at Mitchell Domestic Landfill site

6. *The Municipality of West Perth, Mitchell Domestic Landfill Site, Design and Operation Plan* , dated October 2009, prepared by R.J. Burnside & Associates Limited, signed by Kent Hunter, P. Eng., submitted as per requirements of Condition 3.1 of the Approval dated September 18, 2008.

7. Letter package dated February 2, 2010, from Kent Hunter, P. Eng., R.J. Burnside & Associates Limited, with respect to corrections on rate of fill and additional drawings related to Site access road.

8. Letter package dated January 29, 2010, from Kent Hunter, P. Eng., R.J. Burnside & Associates Limited, in response to surface water review comments, including report titled *Impact of Landfill Leachate Flows on Effluent from the West Perth Wastewater Treatment Plant* as Attachment A.

9. Letter dated February 17, 2010, from Mark Harris, P.Geo., Hydrogeologist, Southwest Region, MOE.

10. Letter package dated March 22, 2010, from Kent Hunter, P. Eng., R.J. Burnside & Associates Limited, in response to MOE groundwater comments, also containing modelling data in support of Site specific liner design.

11. Letter dated April 23, 2010, from Nafiseh Pourhassani, P. Eng., MOE, containing EAAB comments.

12. Letter package dated June 8, 2010, from Kent Hunter, P. Eng., R.J. Burnside & Associates Limited, in response to EAAB comments.

13. Letter package dated July 27, 2010, from Kent Hunter, P. Eng., R.J. Burnside & Associates Limited, in response to EAAB comments, containing material related to the zoning by-law amendments and dedicated landfill gas well construction.

14. Letter dated February 25, 2011, from Upper Thames River Conservation Authority, signed by Karen M. Winfield, Land Use Regulations Officer, with respect to realignment of the McDougall Municipal Drain.

15. Email from Kent Hunter, P. Eng., R.J. Burnside & Associates Limited to Nafiseh Pourhassani, P. Eng., MOE, date May 26, 2011, containing a map of the infrastructure area to be added to this Approval.

16. Report titled "Mitchell Domestic Landfill Upgrades, Quality Assurance/Quality Control Report on Composite Liner Installation and Leachate Collection System" dated October 26, 2011, prepared by R.J. Burnside & Associates Limited.

The reasons for the imposition of these terms and conditions are as follows:

GENERAL

1. The reason for Conditions 1(1), (2), (4), (5), (6), (7), (8), (9), (10), (19) and (20) is to clarify the legal rights and responsibilities of the *Owner* and *Operator* under this *Approval* .

2. The reasons for Condition 1(3) are to ensure that the *Site* is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the *Owner,* and not in a manner which the *Director* has not been asked to consider.

3. The reasons for Condition 1(11) are to ensure that the *Site* is operated under the corporate name which appears on the application form submitted for this *approval* and to ensure that the *Director* is informed of any changes.

4. The reasons for Condition 1(12) are to restrict potential transfer or encumbrance of the *Site* without the approval of the *Director* and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this *Approval* .

5. The reason for Condition 1(13) is to ensure that the successor is aware of its legal responsibilities.

6. Conditions 1 (14) and (15) are included, pursuant to subsection 197(1) of the *EPA* , to provide that any persons having an interest in the *Site* are aware that the land has been approved and used for the purposes of waste disposal.

7. The reason for Condition 1 (16) and 1(17) is to ensure all lands including the contaminant attenuation zone and the infrastructure area are added to the Certificate and are also registered at the land registry office.

8. The reason for Condition 1(18) is to ensure that appropriate Ministry staff has ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this *Approval* . This Condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the *Act* , the *OWRA* , the *PA* , the *NMA* and the *SDWA* .

9. Condition 1 (21) has been included in order to clarify what information may be subject to the Freedom of Information Act.

10. The reason for Condition 1(22) is to ensure that the Zoning By-Laws are updated to reflect the proper land use of the entire Site.

SITE OPERATION

11. The reasons for Conditions 2(1), 2(5) and 6(3) are to ensure that the *Site* is operated, inspected and maintained in an environmentally acceptable manner and does not result in a hazard or nuisance to the natural environment or any person.

12. The reason for Conditions 2 (2), 2(3) and 2(4) is to ensure that users of the *Site* are fully aware of important information and restrictions related to *Site* operations and access under this *Approval.*

13. The reasons for Condition 2(6) are open burning of municipal waste is unacceptable because of concerns with air emissions, smoke and other nuisance affects, and the potential fire hazard and to make sure burning of brush and wood are carried out in accordance with Ministry guidelines.

14. The reasons for Condition 2(7), 2(8) and 2(9) are to specify the hours of operation for the landfill site and a mechanism for amendment of the hours of operation, as required.

15. The reasons for Condition 2(10) and 2(11) are to ensure that the *Site* is supervised by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person and to ensure the controlled access and integrity of the *Site* by preventing unauthorized access when the Site is closed and no site attendant is on duty.

EMPLOYEE TRAINING

16. The reason for Condition 3(1) is to ensure that the *Site* is supervised and operated by properly trained staff in a manner which does not result in a hazard or nuisance to the natural environment or any person.

COMPLAINTS RESPONSE PROCEDURE

17. The reason for Condition 4(1) is to ensure that any complaints regarding landfill operations at this *Site* are responded to in a timely and efficient manner.

EMERGENCY RESPONSE

18. Conditions 5(1) and 5(2) are included to ensure that emergency situations are reported to the Ministry to ensure public health and safety and environmental protection.

19. Conditions 5(3), 5(4) and 5(5) are included to ensure that emergency situations are handled in a manner to minimize the likelihood of an adverse effect and to ensure public health and safety and environmental protection.

RECORD KEEPING AND REPORTING

20. The reason for Conditions 6(1) and 6(2) is to ensure that accurate waste records are maintained to ensure compliance with the conditions in this *Approval* (such as fill rate, site capacity, record keeping, annual reporting, and financial assurance requirements), the *EPA* and its regulations.

21. The reason for Conditions 6(4) and 6(5) is to ensure that detailed records of *Site* inspections are recorded and maintained for inspection and information purposes.

22. The reasons for Conditions 6(6) and 6(7) are to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.

LANDFILL DESIGN AND DEVELOPMENT

23. The reason for Conditions 7(1), 7(2), 7(3) and 7(9) is to specify the approved areas from which waste may be accepted at the *Site* and the types and amounts of waste that may be accepted for disposal at the *Site*, based on the *Owner* 's application and supporting documentation.

24. The reason for Condition 7 (4), 7(5) and 7(6) is to ensure that the Site is constructed and operated in a manner that has been considered and approved by the Director.

25. The reason for Condition 7(7) and 7(8) is to ensure that the liner and the leachate collection system are constructed as designed.

26. The reasons for Condition 7(10) are to ensure that daily/weekly and intermediate cover are used to control potential nuisance effects, to facilitate vehicle access on the *Site*, and to ensure an acceptable site appearance is maintained. The proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for the *Site*.

27. The reason for Condition 7 (11) is to ensure adequate protection of the environment.

28. The reasons for conditions 7(12) and 7(13) are to exempt the *Site* from the regulation requirements on landfill gas capture and reporting set out in Ontario Regulation 347 in accordance with Section 11.1 (5) of the Regulation, and to specify the landfill gas monitoring program.

LANDFILL MONITORING

29. Reasons for Condition 8(1) are to ensure that off-site migration of landfill gas is monitored and all buildings at the *Site* are free of any landfill gas accumulation, which due to a methane gas component may be explosive and thus create a danger to any persons at the *Site*.

30. Condition 8(2) is included to provide the groundwater and surface water limits to prevent water pollution at the *Site*.

31. Conditions 8(3) and 8(4) are included to require the Owner to demonstrate that the *Site* is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.

32. Conditions 8(5), 8(6) and 8(7) are included to ensure the integrity of the groundwater monitoring network so that accurate monitoring results are achieved and the natural environment is protected.

33. Conditions 8(8) to 8(11) inclusive are added to ensure the *Owner* has a plan with an organized set of procedures for identifying and responding to potential issues relating to groundwater and surface water contamination at the *Site's* compliance point.

34. Conditions 8(12), 8(13) and 8(14) are included to streamline the approval of the changes to the monitoring plan.

CLOSURE PLAN

35. The reasons for Condition 9 are to ensure that final closure of the *Site* is completed in an aesthetically pleasing manner, in accordance with Ministry standards, and to ensure the long-term protection of the health and safety of the public and the environment.

WASTE DIVERSION

36. Condition 10 is included to ensure that the recyclable materials are stored in their temporary storage location in a manner as to minimize a likelihood of an adverse effect or a hazard to the natural environment or any person.

COMPOSTING

32. Condition 11 was added to ensure that composting is undertaken in a manner which does not result in a nuisance or a hazard to the health and safety of the environment or people.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A150401 issued on June 8, 1980 and subsequent amendments.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in

respect of which the hearing is required, and;

2. The grounds on which you intend to rely at the hearing in relation to each portion appealed

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 29th day of October, 2012

THIS APPROVAL WAS MAILED
ON Oct. 31, 2012
gc
(Signed)

Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

RM/
c: District Manager, MOE London - District
Kent Hunter, R. J. Burnside & Associates ✓

APPENDIX A-2

Sewage Works Environmental Compliance Approval

Ontario

Ministry of the Environment
Ministère de l'Environnement

CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 9685-88HQCC
Issue Date: November 17, 2010

The Corporation of the Municipality of West Perth
169 St. David St
Post Office Box, No. 609
Mitchell, Ontario
N0K 1N0

Site Location: Mitchell Domestic Landfill
Lot 19, Concession 1
Formerly Town of Mitchell
Municipality of West Perth, County of Perth

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

establishing a stormwater management facility and a leachate collection and disposal system to service a total of 19.9 ha approved landfill footprint at Mitchell Domestic Landfill located at Lot 19, Concession 1, Municipality of West Perth (formerly Town of Mitchell), County of Perth, consisting of the following:

PROPOSED WORKS:

STORMWATER MANAGEMENT FACILITY

Stormwater Management Pond (South SWM Pond):

a stormwater management facility (**South SWM Pond**) to service a total drainage area of 11.80 ha located at the south western part of the landfill site, designed to provide quantity and quality control by attenuating peak stormwater flows from storm events up to 1:100 year return frequency at or below pre-development levels, consisting of the following:

- one (1) approximately 758.6 m long 1.0 m top width perimeter ditch (**Ditch #1**) running along the western side of the landfill site having a minimum of 0.3 m depth, and 3H:1V side slopes,discharging collected stormwater to a forebay described below;

- one (1) approximately 459.7 m long 1.0 m top width perimeter ditch (**Ditch #2**) running along the eastern side and southern side of the landfill site having a minimum of 0.3 m depth, and

3H:1V side slopes,discharging collected stormwater to a forebay described below;

- one (1) forebay with approximate length of 9.0 m, width of 3.0, and depth of 1.5 m, equipped with rip-rap lined inlet structure and rock-lined berm, discharging to an extended wet detention pond described below;

- one (1) extended wet detention pond (**South SWM Pond**) providing a total storage capacity of 1,810.64 m^3 consisting of a permanent pool storage volume of 1,183.12 m^3 (at elevation 343.53 m masl) with a maximum depth of 1.53 m and an extended storage volume of 627.4 m^3 with an extended storage depth of 0.37 m (at elevation of 343.9 m masl), equipped with one (1) 200 mm diameter PVC outlet pipe discharging to one (1) 1,500 mm diameter precast concrete manhole, three (3) 200 mm diameter PVC outlet discharge pipes each equipped with a 100 mm diameter orifice and a gate valve, and one (1) 200 mm diameter common PVC discharge pipe with perforations at the discharge side, discharging to the re-aligned McDougall Drain which eventually flows to North Thames River; and

- including all controls and appurtenances.

Stormwater Management Pond (North SWM Pond):

a stormwater management facility (**North SWM Pond**) to service a total drainage area of 8.10 ha located at the north eastern part of the landfill site, designed to provide quantity and quality control by attenuating peak stormwater flows from storm events up to 1:100 year return frequency at or below pre-development levels, consisting of the following:

- one (1) approximately 280.0 m long 1.0 m top width perimeter ditch (**Ditch #3**) running along the north section of the east side of the landfill site having a minimum of 0.3 m depth, and 3H:1V side slopes,discharging collected stormwater to a forebay described below;

- one (1) approximately 400 m long 1.0 m top width perimeter ditch (**Ditch #4**) running along the north side of the landfill site having a minimum of 0.3 m depth, and 3H:1V side slopes, discharging collected stormwater to a forebay described below;

- one (1) forebay with approximate length of 8.0 m, width of 3.0 m, and depth of 1.6 m, equipped with rip-rap lined inlet structure and rock-lined berm, discharging to an extended wet detention pond described below;

- one (1) extended wet detention pond (**North SWM Pond**) providing a total storage capacity of 1,134 m^3 consisting of a permanent pool storage volume of 796.8 m^3 (at elevation 342.1 m masl) with a maximum depth of 1.6 m and an extended storage volume of 894.35 m^3 with an extended storage depth of 0.7 m (at elevation of 342.8 m masl), equipped with one (1) 200 mm diameter PVC outlet pipe discharging to one (1) 1,500 mm diameter precast concrete manhole, three (3) 200 mm diameter PVC outlet discharge pipes each equipped with a 100 mm diameter orifice and a gate valve, and one (1) 200 mm diameter common PVC discharge pipe with perforations at the discharge side, discharging to the re-aligned McDougall Drain

which eventually flows to North Thames River; and

- including all controls and appurtenances.

LEACHATE COLLECTION AND DISPOSAL SYSTEM

Leachate Collection and Disposal System

A leachate collection system to service Cells 1 to 4 of the landfill site consisting of the following:

- one (1) 300 mm diameter approximately 415 m long HDPE leachate collector header pipe collecting leachate from 150 mm diameter perforated lateral pipe, extending through an 1800 mm diameter manhole, discharging to a leachate pumping station described below;

- one (1) 2,000 mm wide x 2,000 mm long x 3700 mm deep precast concrete pump chamber located at the northern part of the landfill site, equipped with two (2) submersible leachate pumps each with a rated capacity of 4.95 L/sec (one duty, one standby) and a flow meter located in a precast concrete building, discharging through a 75 mm diameter 344 m long forcemain to a municipal sanitary sewer for treatment at the West Perth Wastewater Treatment Plant; and

- including all controls and associated appurtenances;

all in accordance with the Application for Approval of Municipal and Private Sewage Works dated March 26, 2010 submitted by Municipality of West Perth, design specifications and drawings prepared by R. J. Burnside & Associates, Newmarket, Ontario and the following documents:

1. "Leachate Collection System Design Brief, Mitchell Domestic Landfill Site, West Perth, Ontario" dated March 22, 2010 prepared by R. J . Burnside & Associates Limited, Newmarket, Ontario.

2. "Mitchell Domestic Landfill Stormwater Management Plan" dated February 2010 prepared by R. J . Burnside & Associates Limited, Newmarket, Ontario.

3. Additional information dated September 7, 2010 submitted by Mr. Kent Hunter, P. Eng., R. J . Burnside & Associates Limited, including design specifications and drawings of the proposed stormwater management facility at Mitchell Domestic Landfill.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"*Act* " means the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended;

"*Certificate* " means this entire certificate of approval document, issued in accordance with

Section 53 of the *Act* , and includes any schedules;

"*CBOD5* " means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;

"*Director* " means any *Ministry* employee appointed by the Minister pursuant to section 5 of the *Act* ;

"*District Manager* " means the District Manager of the London District Office of the Ministry;

"*Ministry* " means the Ontario Ministry of the Environment;

"*Owner* " means Municipality of West Perth and includes its successors and assignees;

"Substantial Completion" has the same meaning as *"substantial performance* " in the Construction Lien Act;

"*Works* " means the sewage works described in the *Owner* 's application, this *Certificate* and in the supporting documentation referred to herein, to the extent approved by this *Certificate* ;

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

PART I - GENERAL

1. GENERAL PROVISIONS

(1) The *Owner* shall ensure that any person authorized to carry out work on or operate any aspect of the *Works* is notified of this *Certificate* and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Except as otherwise provided by these Conditions, the *Owner* shall design, build, install, operate and maintain the *Works* in accordance with the description given in this *Certificate* , the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Certificate* .

(3) Where there is a conflict between a provision of any submitted document referred to in this *Certificate* and the Conditions of this *Certificate* , the Conditions in this *Certificate* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

(4) Where there is a conflict between the listed submitted documents, and the application, the

application shall take precedence unless it is clear that the purpose of the document was to amend the application.

(5) The requirements of this *Certificate* are severable. If any requirement of this *Certificate*, or the application of any requirement of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this certificate shall not be affected thereby.

2. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director*, in writing, of any of the following changes within 30 days of the change occurring:

(a) change of *Owner* ;

(b) change of address of the *Owner* ;

(c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the *District Manager* ;

(d) change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C 39 shall be included in the notification to the *District Manager* ;

(2) In the event of any change in ownership of the *Works*, other than a change to a successor municipality, the *Owner* shall notify in writing the succeeding owner of the existence of this *Certificate*, and a copy of such notice shall be forwarded to the *District Manager* and the *Director* .

3. UPON THE SUBSTANTIAL COMPLETION OF THE WORKS

(1) Within one year of the *Substantial Completion* of each stage of the *Proposed Works*, a set of as-built drawings showing the *Works* "as constructed" shall be prepared. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the *Works* or at operational office of the *Owner* for the operational life of the *Works* .

PART II - STORMWATER MANAGEMENT FACILITY

4. MONITORING AND RECORDING

(1) The *Owner* shall carry out the following stormwater monitoring program. Stormwater grab samples shall be collected from the sampling points shown below at a **semi-annual frequency** (**Spring** and **Fall***) and analysed for the following parameters listed below:

Table 1 - Stormwater Monitoring Sampling Point: SWM Pond Discharge Outlet		
Parameters	**Parameters**	**Field Parameters**
Alkalinity	Aluminum	Conductivity
Bicarbonate	Arsenic	pH
Bromide	Barium	Temperature
Carbonate	Boron	
Chemical Oxygen Demand	Beryllium	
Conductivity	Cadmium	
Chloride	Calcium	
Dissolved Organic Carbon	Chromium	
Fluoride	Cobalt	
Hardness (CaCO3)	Copper	
Nitrate as Nitrogen	Iron	
Nitrite as Nitrogen	Lead	
(Nitrate + Nitrite) Nitrogen	Magnesium	
pH	Molybdenum	
Phenols	Nickel	
Phosphate	Potassium	
Sulphate (as SO4)	Silver	
Total Ammonia (as N)	Zinc	
Total Dissolved Solids		
Total Kjeldahl Nitrogen		
Total Phosphorus		
Turbidity		
Un-ionized Ammonia		

* **Note:** Grab samples shall be collected from the SWM pond outlet discharge point after a runoff from rainfall event causing a discharge from the SWM Pond.

(2) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

(a) the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;

(b) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended

from time to time by more recently published editions; and,

(c) the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions.

(3) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this *Certificate* .

5. EFFLUENT OBJECTIVES

(1) For the parameters monitored under Condition 4 (1) and for those with a designated **Provincial Water Quality Objectives (PWQO)** (Un-ionized Ammonia, Phenols, Phosphorus, pH, Arsenic, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Nickel, and Zinc), the *Owner* shall use best efforts to design, construct and operate the *Works* to ensure that their respective **PWQO**s are not exceeded.

6. OPERATION AND MAINTENANCE

(1) Before the commencement of operation of the *Works* , the *Owner* shall prepare a "**Stormwater Contingency and Remedial Action Plan**" for the *Works* and submit a copy to the *District Manager* for approval;

(2) The *Owner* shall operate the *Works* in a **normally open position**. The *Owner* shall compare monitoring results obtained from the *Works* under Condition 4(1) with the trigger levels of the selected trigger parameters listed below to identify any potential leachate impact to stormwater discharged from the ponds.

Table 2
Trigger Parameters

Parameter	Trigger Level (mg/L)
Un-ionized Ammonia	0.02
Phenols	0.001
Total Phosphorus	0.03
Boron	0.20
Iron	0.30

(3) In the event that a monitoring result for any of the parameters listed under Condition 6(2) exceeds its corresponding trigger level, the *Owner* shall re-sample within two weeks after receipt of the monitoring results to confirm the exceedence for that parameter.

(4) In the event that the presence of the parameter(s) of concern is (are) not confirmed after the second round of sampling conducted under Condition 6(3), then, normal stormwater monitoring shall be resumed;

(5) In the event that the presence of any parameter of concern is confirmed after the second round of sampling conducted under Condition 6(3), the *Owner* shall operate the *Works* in a **normally closed position** and notify the *District* Manager forthwith;

(6) While operating the *Works* in a **normally closed position**, the *Owner* shall implement the "Stormwater Contingency and Remedial Action Plan" prepared under Condition 6(1) and collect a grab sample and analyze for the trigger parameters listed under Condition 6(2) at a **monthly frequency** preferably after a rainfall event;

(7) The *Owner* shall resume operating the *Works* in a **normally open position** if monitoring results for all trigger parameters from three (3) consecutive sampling events conducted under Condition 6(6) are less than their respective trigger levels.

(8) Discharge of contaminated stormwater from the *Works* to storm sewer/surface water is prohibited, except where it is necessary to avoid loss of life, personal injury, danger to public health or severe property damage;

(9) After three (3) years of monitoring in accordance with Condition 4 (1), the Owner may submit to the *District Manager* a request for changes to the list of trigger parameters and corresponding trigger levels stipulated under Condition 6 (2) along with supporting monitoring data and an assessment report and such changes shall be approved by the *District* Manager in writing from time to time;

(10) The *Owner* shall prepare an operations manual within six (6) months of *Substantial Completion* of the *Proposed Works* , that includes, but not necessarily limited to, the following information:

(a) operating procedures for routine operation of the *Works* ;

(b) inspection programs, including frequency of inspection, for the *Works* and the methods or tests employed to detect when maintenance is necessary;

(c) repair and maintenance programs, including the frequency of repair and maintenance for the *Works* ;

(d) procedures for the inspection and calibration of monitoring equipment;

(e) procedures for receiving, responding and recording public complaints, including recording any follow up actions taken.

(11) The *Owner* shall maintain the operations manual current and retain a copy at the location of the *Works* or operational office of the *Owner* for the operational life of the *Works* . Upon request, the *Owner* shall make the manual available to *Ministry* staff.

LEACHATE COLLECTION AND DISPOSAL SYSTEM

7. LEACHATE MONITORING

(1) The *Owner* shall collect leachate grab samples from the sampling points shown below at a **semi-annual frequency (Spring** and **Fall)** and analysed for the following parameters listed below:

Table 3
Leachate Monitoring
Sampling Point: **Leachate Pumping Station**

Parameters	Parameters	Field Parameters
Alkalinity	Arsenic	Conductivity
Chemical Oxygen Demand	Barium	pH
Conductivity	Boron	
Chloride	Cadmium	
Dissolved Organic Carbon	Calcium	
Hardness (CaCO3)	Chromium	
Nitrate as Nitrogen	Cobalt	
Nitrite as Nitrogen	Copper	
(Nitrate + Nitrite) Nitrogen	Iron	
pH	Lead	
Phenols	Manganese	
Phosphate	Mercury	
Sulphate (as SO4)	Molybdenum	
Total Ammonia and Ammonium (as N)	Nickel	
Total Dissolved Solids	Selenium	
Total Suspended Solids	Zinc	
Total Kjeldahl Nitrogen	Benzene	
Total Phosphorus	1,4-Dichlorobenzene	
	Dichloromethane	
	Toluene	
	Vinyl Chloride	

(2) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified under Condition 4 (2).

(3) The *Owner* shall install and maintain a continuous flow measuring device, to measure the flow rate of the leachate from the *Works* with an accuracy to within plus or minus 15 per cent (+/- 15%) of the actual flow rate for the entire design range of the flow measuring device, and record the volume of leachate collected and disposed off from the site.

8. REPORTING

(1) The *Owner* shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to *Ministry* staff.

(2) The *Owner* shall prepare, and submit to the *District Manager* upon request, a performance report on an annual basis by **December 5th** to coincide with the Annual Monitoring Report of the Site. The first such report shall cover the period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:

(a) a summary and interpretation of all monitoring data collected for stormwater under Condition 4, including an overview of the success and adequacy of the *Works* ;

(b) a summary and interpretation of all leachate monitoring data and volume of leachate collected and disposed off from the site under Condition 7, including an overview of the success and adequacy of the *Works* ;

(c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works* ;

(d) a description of any operating problems encountered and corrective actions taken;

(e) any other information the *District Manager* requires from time to time.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the *Works* are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the *Certificate* and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the Owners their responsibility to notify any person they authorized to carry out work pursuant to this *Certificate* the existence of this *Certificate* .

2. Condition 2 is included to ensure that the *Ministry* records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the *Works* are made aware of the *Certificate* and continue to operate the *Works* in compliance with it.

3. Condition 3 is included to require that the *Works* be properly operated and maintained such that the environment is protected .

4. Conditions 4 and 7 are included to enable the *Owner* to evaluate and demonstrate the performance of the *Works* on a continual basis, so that the *Works* are properly operated and maintained at a level which is consistent with the design objectives specified in the *Certificate*

and that the *Works* does not cause any impairment to the receiving watercourse.

5. Condition 5 is imposed to establish non-enforceable effluent quality objectives which the *Owner* is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.

6. Condition 6 is included to require that the *Works* be properly operated and maintained such that the environment is protected .

7. Condition 8 is included to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Certificate,* so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act , R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 53, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 17th day of November, 2010

Ian Parrott, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

SH/
c: District Manager, MOE London - District
Kent Hunter, RJ Burnside and Associates Ltd.

APPENDIX A-3

Letter Report – Surface Water Quality Monitoring and Evaluation Modifications

RWDI
CONSULTING ENGINEERS & SCIENTISTS

Tel: 519.823.1311
Fax: 519.823.1316

RWDI AIR Inc.
600 Southgate Dr.
Guelph, Ontario, Canada
N1G 4P6
Email: solutions@rwdi.com

CANADA'S BEST MANAGED COMPANIES
Platinum member

November 18, 2016

Mr. Rob Wrigley – District Manager
Ministry of the Environment and Climate Change – London District Office
733 Exeter Road
London, ON N6E 1L3

Re: Surface Water Quality Monitoring and Evaluation Modifications
Mitchell Domestic Landfill – Sewage Works ECA No. 9685-88HQCC
RWDI Reference No. 1601427 - 7000

Email: rob.wrigley@ontario.ca

Dear Mr. Wrigley,

On behalf of the Municipality of West Perth [Municipality], **RWDI AIR Inc. [RWDI]** is pleased to provide to the Ministry of the Environment and Climate Change [MOECC] this letter report summarizing proposed modifications to the monitoring and evaluation requirements for surface water quality within the McDougall Drain [Drain] at the Mitchell Domestic Landfill [Site]. The Municipality is requesting that the MOECC review and approve the proposed modifications, which are detailed in **Section 2** of this letter report.

Another letter report (Stormwater Quality Monitoring and Evaluation Modifications, prepared by RWDI and dated March 4, 2016) [RWDI Letter Report], which summarized proposed modifications to the monitoring and evaluation requirements for stormwater quality within the South SWM Pond at the Site, was submitted to the MOECC on March 23, 2016, for MOECC review and approval of the proposed modifications. It is the understanding of RWDI that, as of the date of this report, a response from the MOECC has not been received regarding the RWDI Letter Report. As such, the Municipality is requesting that the MOECC review and approve the proposed modifications presented within the letter report dated March 4, 2016. A copy of the RWDI Letter Report is provided within **Appendix A-4**.

1. BACKGROUND

A Solid Non-Hazardous Waste Disposal Site Inspection Report, dated July 19, 2016, and prepared by the MOECC was received by the Municipality on August 17, 2016 [MOECC 2016 Inspection Report]. An inspection of the Site was completed by the MOECC starting on June 29, 2016, and ending on July 11, 2016. Within Section 2.7 of the MOECC 2016 Inspection Report, it is noted that the historical and current surface water data for the Site was reviewed and the MOECC's Surface Water Specialist had no objections to changing the surface water triggers through an amendment to the ECA.

This document is intended for the sole use of the party to whom it is addressed and may contain information that is privileged and/or confidential. If you have received this in error, please notify us immediately.

® RWDI name and logo are registered trademarks in Canada and the United States of America

In accordance with Conditions 8.(11), 8.(12), and 8.(13) of the Waste ECA, the Municipality may request changes to the monitoring program(s) for the Site to the District Manager. Written correspondence confirming that the District Manager is in agreement with the requested changes is required prior to applying for an amendment to the ECA. As such, the Municipality is requesting that the MOECC review and approve the proposed modifications, which are detailed in **Section 2** of this letter report.

The current monitoring program for surface water at the Site is governed by the consolidated Waste Disposal Site Environmental Compliance Approval [ECA] Number A150401, dated October 29, 2012 [Waste ECA], as well as the Environmental Monitoring Plan [EMP] for the Site, as dated December 2010 and prepared by R.J. Burnside & Associates Limited [Burnside].

The monitoring program for the Site includes the collection of surface water samples and surface water flows from the three (3) surface water monitoring stations at a semi-annual frequency. The three (3) surface water monitoring stations are located along the Drain. The Drain flows in a northeasterly direction through the Site on the east side of the waste footprint, and then turns easterly eventually discharging into the North Thames River approximately 1 km from the Site.

To evaluate surface water quality within the Drain at the Site, the surface water quality results are compared to the relevant trigger mechanisms per the Waste ECA and the Environmental Contingency Plan [ECP] for the Site, as dated December 2012 and prepared by Burnside. The trigger mechanism for the surface water monitoring at the Site involves the comparison of the surface water analytical results from the most recent monitoring event to their respective Provincial Water Quality Objectives [PWQO], where available. Trigger concentrations are established for analytical parameters which: i) are identified in the Waste ECA and EMP for analysis at the surface water monitoring stations, and ii) have an existing PWQO. As there is no PWQO for chloride, the MOECC Guideline B-7 Reasonable Use Concept [Guideline B-7] criterion calculated for chloride in the shallow groundwater system is used as an indicator of landfill impacts in surface water.

The surface water monitoring station upstream of the Site is SW1 (background station) and the surface water compliance station for the Site is SW2, which is positioned downstream of the waste footprint near the north property boundary where the Drain leaves the Site.

The trigger mechanism for surface water at the Site is activated if one of the following conditions is met.

- If the concentration of chloride from the most recent monitoring event is greater than the respective shallow groundwater Guideline B-7 criterion at the compliance station.

- If the concentrations of at least three (3) parameters, other than chloride, from the most recent monitoring event are greater than their respective PWQO at the compliance station.

The PWQO are intended to provide guidance in making water quality management decisions such that surface waters should not be further degraded than background conditions. They are often used as a starting point in deriving water effluent requirements for the regulation of effluent discharges. Where the PWQO are more stringent than the background conditions, the relevant site-specific discharge requirements should consider the background surface water quality such that the effluent discharge will not degrade the receiving surface water quality from background conditions. In accordance with the PWQO, this may include developing site-specific guidance for select parameters and/or biomonitoring studies.

To consider the surface water quality within the Drain upstream of the Site as part of the evaluation process for the surface water quality downstream of the waste footprint, the Municipality is requesting modifications to the monitoring and evaluation requirements for surface water quality within the Drain, as detailed below in **Section 2**.

2. SURFACE WATER ASSESSMENT MODIFICATIONS

The proposed modifications to the monitoring and evaluation requirements for surface water quality within the Drain at the Site are noted below.

- Use historic chemical data from the background surface water monitoring station SW1, which is located to evaluate surface water quality within the Drain upstream of the Site, to calculate the trigger concentration for each of the trigger parameters that: i) are identified in the Waste ECA and EMP for analysis at the surface water monitoring stations, and ii) have an existing PWQO. The Guideline B-7 criterion calculated for chloride in the shallow groundwater system will continue to be used as an indicator of landfill impacts in surface water. Chemical data for the current location of SW1 is available for 2009 to 2016.

- Calculate the 80th percentile of the historic data for each trigger parameter from background station SW1. Where the 80th percentile for a given trigger parameter is greater than the PWQO upstream of the Site, the 80th percentile shall be used as the trigger concentration for the respective trigger parameter. The trigger concentrations will be updated annually following this process to include the most recent chemical data in the evaluation. Where the 80th percentile is less than the respective PWQO, the PWQO shall be used as the trigger concentration.

- In accordance with the ECP for the Site, if the chemical result for chloride and/or the chemical results for at least three (3) trigger parameters other than chloride are greater than their respective trigger concentration at the compliance surface water station SW2, the trigger mechanism for surface water at the Site will be activated. If the trigger mechanism for surface water is activated, the chemical results that were greater than their respective trigger concentration for the most recent monitoring event will be assessed for trends and/or anomalies to determine if the concentration may be attributable to a landfill leachate influence.

- If deemed necessary based on the assessment of the chemical results, the Municipality will resample the surface water within the Drain at compliance station SW2 within two (2) weeks of receiving the initial monitoring results to confirm or refute the relevant initial monitoring results. Additionally, as part of the confirmatory sampling event, the Municipality will collect a sample for biological toxicity analysis (acute lethality to *Daphnia magna* and Rainbow Trout) to assess if the surface water quality within the Drain downstream of the waste footprint has the potential for detrimental effects to aquatic life within the surface water within the Drain. If the biological toxicity analysis results are acceptable, regardless of any trigger concentration or chemical data noted for the confirmatory sampling event, the surface water will be considered acceptable for continued discharge from the Site and the findings of the confirmatory sampling event will be presented in the relevant annual monitoring report.

- If the biological toxicity analysis results are not acceptable, the Municipality will immediately notify the District Manager and an investigation into the cause and the need for implementation of remedial or contingency actions shall be carried out by the Municipality, in accordance with the Waste ECA and the ECP for the Site.

- If the monitoring results, investigative activities, and/or trigger mechanisms indicate the need to implement contingency measures, the Municipality will comply with the steps outlined in Condition 8.(10) of the Waste ECA.

3. UPDATED TRIGGER CONCENTRATIONS

Considering the discussion in **Section 2**, the following summary details the trigger parameters and their respective proposed trigger concentrations, based on the historic chemical data for background surface water station SW1 from 2009 to 2016. The historic chemical data for the trigger parameters for SW1, along with the calculated proposed 2016 trigger concentrations, are presented in **Table 1** (attached).

Trigger Parameter	Units	Current Trigger Concentration	Proposed 2017 Trigger Concentration
pH	N/A	6.5 - 8.5	6.5 - 8.5
Alkalinity, Total (as $CaCO_3$)	mg/L	>25% Decrease	>25% Decrease
Chloride	mg/L	127	127
Total Phosphorus	mg/L	0.03	**0.086**
Phenols	mg/L	0.001	0.001
Arsenic	mg/L	0.005	0.005
Boron	mg/L	0.2	0.2
Cadmium	mg/L	0.0005	0.0005
Copper	mg/L	0.005	0.005
Iron	mg/L	0.3	0.3
Lead	mg/L	0.005	0.005
Zinc	mg/L	0.02	0.02
Dissolved Mercury	mg/L	0.0002	0.0002

Notes: 1) 'mg/L' denotes milligrams per litre.
2) There is no PWQO for chloride; the calculated Guideline B-7 criterion for chloride in the shallow groundwater wells is used as an indicator of landfill impacts.
3) **Bold** denotes a proposed trigger concentration that is changed from the current trigger concentration.

As discussed in **Section 2**, the proposed trigger concentrations will be updated annually to include the most recent year's chemical data in the evaluation of stormwater quality.

4. CLOSURE

We trust that this letter report detailing proposed modifications to the monitoring and evaluation requirements for surface water quality within the McDougall Drain at the Mitchell Domestic Landfill is satisfactory for the MOECC to approve the modifications as outlined in **Section 2**. Should there be any questions or comments, please contact us.

Yours very truly,

RWDI AIR Inc.

Brent J. Langille, B.Sc., P.Geo.
Senior Consultant / Principal

Andy de Jong, M.A.Sc., P.Eng.
Project Manager

APPENDIX A-4

Letter Report – Stormwater Quality Monitoring and Evaluation Modifications

RWDI
CONSULTING ENGINEERS & SCIENTISTS

Tel: 519.823.1311
Fax: 519.823.1316

RWDI AIR Inc.
650 Woodlawn Road West
Guelph, Ontario, Canada
N1K 1B8
Email: solutions@rwdi.com

CANADA'S BEST MANAGED COMPANIES
Platinum member

March 4, 2016

Mr. Rob Wrigley – District Manager
Ministry of the Environment and Climate Change – London District Office
733 Exeter Road
London, ON N6E 1L3

Re: Stormwater Quality Monitoring and Evaluation Modifications
Mitchell Domestic Landfill – Sewage Works ECA No. 9685-88HQCC
RWDI Reference No. 1601427 - 7000

Email: rob.wrigley@ontario.ca

Dear Mr. Wrigley,

On behalf of the Municipality of West Perth (Municipality), **RWDI AIR Inc. (RWDI)** is pleased to provide to the Ministry of the Environment and Climate Change (MOECC) this letter report summarizing proposed modifications to the monitoring and evaluation requirements for stormwater quality within the Stormwater Management Ponds (SWM Ponds) at the Mitchell Domestic Landfill (Site). The Municipality is requesting that the MOECC review and approve the proposed modifications, which are detailed in **Section 2** of this letter report.

1. BACKGROUND

The Site has a MOECC approved stormwater monitoring program, which is governed by the Municipal and Private Sewage Works Environmental Compliance Approval (ECA) No. 9685-88HQCC, dated November 17, 2010 (Sewage ECA). The Sewage ECA outlines the stormwater monitoring and evaluation requirements for both the South and North SWM Ponds, however, only the South SWM Pond has been constructed at the Site to-date. The South SWM Pond collects surface water runoff from the Site and, following a period of retention, gradually discharges the retained water to the McDougall Drain, which flows in a northeasterly direction through the Site. Surface Water quality within the McDougall Drain is monitored on a semi-annual frequency at three (3) locations as part of the Compliance Monitoring Program for the Site and in accordance with the Waste Disposal ECA No. A150401 for the Site, dated October 29, 2012.

Per the requirements of the Sewage ECA, samples of stormwater discharge are to be collected at a semi-annual frequency from the SWM Pond outlet discharge point after a runoff from rainfall event causes a discharge from the SWM Pond. To evaluate the stormwater quality within the SWM Ponds, the stormwater chemical quality is compared to the trigger concentrations for selected trigger parameters listed in Condition 6.(2) of the Sewage ECA.

This document is intended for the sole use of the party to whom it is addressed and may contain information that is privileged and/or confidential. If you have received this in error, please notify us immediately.

® RWDI name and logo are registered trademarks in Canada and the United States of America

The trigger concentrations are equivalent to the relevant Provincial Water Quality Objectives (PWQO). The selected trigger parameters and respective trigger concentrations are presented in the following summary.

Trigger Parameter	Trigger Concentration (mg/L)
Un-ionized Ammonia	0.02
Phenols	0.001
Total Phosphorus	0.03
Boron	0.20
Iron	0.30

The PWQO are intended to provide guidance in making water quality management decisions such that surface waters should not be further degraded than background conditions. They are often used as a starting point in deriving water effluent requirements for the regulation of effluent discharges. Where the PWQO are more stringent than the background conditions, the relevant site-specific discharge requirements should consider the background surface water quality such that the effluent discharge will not degrade the receiving surface water quality from background conditions. In accordance with the PWQO, this may include developing site-specific guidance for select parameters and/or biomonitoring studies.

The findings for the stormwater monitoring program to-date have noted that, although the trigger concentration (or PWQO) for a select trigger parameter is exceeded from time-to-time, the constituent concentrations are generally similar or less than the concentrations that have historically been detected in the surface water upstream of the Site (at station SW1) within the McDougall Drain. According to Condition 6.(9) of the Sewage ECA, after three (3) years of monitoring the stormwater quality within the SWM Pond(s), the Municipality may submit to the MOECC District Manager a request for changes to the aforementioned list of trigger parameters and/or corresponding trigger concentrations, along with supporting monitoring data and an assessment report. Monitoring of the stormwater quality within the South SWM Pond has been completed since 2012.

To consider the surface water quality within the McDougall Drain upstream of the Site as part of the evaluation process for the stormwater quality exiting from the SWM Ponds, the Municipality is requesting modifications to the monitoring and evaluation requirements for stormwater quality within the SWM Ponds, as detailed below in **Section 2**.

2. STORMWATER ASSESSMENT MODIFICATIONS

The proposed modifications to the monitoring and evaluation requirements for stormwater quality within the SWM Ponds at the Site are noted below.

- Use historic chemical data from the background surface water monitoring station SW1, which is located to evaluate surface water quality within the McDougall Drain upstream of the Site, to calculate the trigger concentration for each of the trigger parameters listed in Condition 6.(2) of the Sewage ECA. Chemical data for the current location of SW1 is available for 2009 to 2015.

- Calculate the 80th percentile of the historic data for each trigger parameter from background station SW1. Where the 80th percentile for a given trigger parameter exceeds the PWQO upstream of the Site, the 80th percentile shall be used as the trigger concentration for the respective trigger parameter. The trigger concentrations will be updated annually following this process to include the most recent chemical data in the evaluation. Where the 80th percentile is less than the respective PWQO, the PWQO shall be used as the trigger concentration.

- In accordance with Condition 6.(3) of the Sewage ECA, if a trigger concentration is exceeded for any of the trigger parameters, the Municipality will resample the stormwater within the relevant SWM Pond within two (2) weeks of receiving the monitoring results to confirm the exceedance of that parameter. Additionally, as part of the confirmatory sampling event, the Municipality will also collect a sample for biological toxicity analysis (acute lethality to Daphnia Magna and Rainbow Trout) to assess if the stormwater quality exiting from the relevant SWM Pond has the potential for detrimental effects to aquatic life within the surface water within the McDougall Drain. If the biological toxicity analysis results are acceptable, regardless of any trigger concentration or chemical data noted for the confirmatory sampling event, the stormwater will be considered acceptable for continued discharge from the relevant SWM Pond.

- If the biological toxicity analysis results are not acceptable, the Municipality will operate the outlet valve for the relevant SWM Pond in a normally closed position (non-discharge state) and notify the MOECC District Manager within ten (10) business days of this occurrence. The Municipality will then complete sampling for the trigger parameters and for biological toxicity analysis until acceptable biological toxicity analysis results are confirmed. Upon confirmation of acceptable biological toxicity analysis results, the Municipality will return the affected SWM Pond outlet valve to a normally open position for stormwater discharge and will notify the MOECC District Manager within ten (10) business days of this occurrence.

3. UPDATED STORMWATER TRIGGER CONCENTRATIONS

Considering the discussion in **Section 2**, the following summary details the trigger parameters and their respective proposed trigger concentrations, based on the historic chemical data for surface water station SW1 from 2009 to 2015. The historic chemical data for the trigger parameters for SW1, along with the calculated proposed 2016 trigger concentrations, are presented in **Table 1** (attached).

Trigger Parameter	Current Trigger Concentration (mg/L)	Proposed 2016 Trigger Concentration (mg/L)
Un-ionized Ammonia	0.02	0.020
Phenols	0.001	0.0011
Total Phosphorus	0.03	0.075
Boron	0.20	0.20
Iron	0.30	0.30

Notes: 1) 'mg/L' denotes milligrams per litre.

As discussed in **Section 2**, the proposed trigger concentrations will be updated annually to include the most recent year's chemical data in the evaluation of stormwater quality.

4. CLOSURE

We trust that this letter report detailing proposed modifications to the monitoring and evaluation requirements for stormwater quality within the Stormwater Management Ponds at the Mitchell Domestic Landfill is satisfactory for the MOECC to approve the modifications as outlined in **Section 2**. Should there be any questions or comments, please contact us.

Yours very truly,

RWDI AIR Inc.

Brent J. Langille, B.Sc., P.Geo.
Senior Consultant / Associate

Andy de Jong, M.A.Sc., P.Eng.
Project Manager

AGD/BJL
Attach.

TABLES

Table 1: Site Background Surface Water Chemistry - General Parameters
Trigger Concentration Assessment for the Stormwater Management Ponds
Mitchell Domestic Landfill, Mitchell, Ontario
Municipality of West Perth
Project No. 1601427-7000

Historic Surface Water Chemical Data

Parameter	Unit	PWQO	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1
			Sep-09	Oct-09	May-10	Sep-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	Oct-15
Unionized Ammonia	mg/L	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02					
Phenols	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.0010	**0.0036**	<0.0010	**0.0034**	**0.002**
Total Phosphorus	mg/L	0.03	0.02	**<0.06**	**0.06**	**0.08**	0.03	**0.04**	0.02		**0.06**	**0.11**	0.0219	0.0225	0.0195	**0.147**	**0.0716**
Boron (B)	mg/L	0.2	0.053	0.017	0.022	0.121	0.032	0.085	0.072	0.077	0.015	0.082	0.018	0.036	0.026	0.025	0.03
Iron (Fe)	mg/L	0.3	<0.01	<0.01	<0.01	0.065	0.01	0.01	<0.01	**0.322**	<0.01	0.07	<0.050	<0.050	0.112	**0.566**	**0.674**

Calculation Data

Parameter	Unit	PWQO	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	Current SWM Pond Trigger Concentration	80th Percentile of the Historic Data	Proposed 2016 Trigger Concentration
			Sep-09	Oct-09	May-10	Sep-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	Oct-15			
Unionized Ammonia	mg/L	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01						0.02	0.010	0.020
Phenols	mg/L	0.001	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		0.0005	0.0005	0.0005	**0.0036**	0.0005	**0.0034**	**0.002**	0.001	0.0011	0.0011
Total Phosphorus	mg/L	0.03	0.02	**0.03**	**0.06**	**0.08**	0.03	**0.04**	0.02	-	**0.06**	**0.11**	0.0219	0.0225	0.0195	**0.147**	**0.0716**	0.03	0.075	0.075
Boron (B)	mg/L	0.2	0.053	0.017	0.022	0.121	0.032	0.085	0.072	0.077	0.015	0.082	0.018	0.036	0.026	0.025	0.03	0.20	0.078	0.20
Iron (Fe)	mg/L	0.3	0.005	0.005	0.005	0.065	0.01	0.01	0.005	**0.322**	0.005	0.07	0.0025	0.0025	0.112	**0.566**	**0.674**	0.30	0.15	0.30

Notes: 1) PWQO denotes Provincial Water Quality Objectives of the Ministry of the Environment and Energy, as revised February 1999.
2) Former SW1 sampling location abandoned and moved to the East Side Tile Drain (sampled at both locations in May 2010, September 2010, and May 2011). Data presented is for the current SW1 sampling location only.
3) < denotes analyte concentration is below the laboratory reportable detection limit (RDL) or the method reporting limit (MRL).
4) Bold and Shaded denotes exceedance of the PWQO.
5) Where a concentration was detected at less than the laboratory RDL or MRL, the value was assumed to be half the RDL (or MRL) for the purposes of this assessment.
6) Blank denotes data not available.

APPENDIX A-5

MECP 2018 Inspection Report

Ontario

Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en matière de changement climatique

Solid Non-Hazardous Waste Disposal Site Inspection Report

Client:	The Corporation of the Municipality of West Perth Mailing Address: 169 St. David St P.O. Box 609, West Perth, Ontario, Canada, N0K 1N0 Physical Address: 169 St. David St, West Perth, Municipality, County of Perth, Ontario, Canada, N0K 1N0 Telephone: (519)348-8429, Extension: 245, FAX: (519)348-8935, email: jbrick@westperth.com Client #: 2163-4KFS4B, Client Type: Municipal Government, NAICS: 913910		
Inspection Site Address:	West Perth (Mitchell Landfill Domestic) Address: Lot: 19, Concession: 1, Formerly Town of Mitchell, Geographic Township: LOGAN, West Perth, Municipality, County of Perth, N0K 1N0 District Office: London - District GeoReference: Map Datum: NAD83, Zone: 17, Accuracy Estimate: 1-10 metres eg. Good Quality GPS, Method: GPS, UTM Easting: 483096, UTM Northing: 4814195, , LIO GeoReference: Zone: , UTM Easting: , UTM Northing: , Latitude: 43.4787, Longitude: -81.2097 Site #: 4765-6CRJ5L		
Contact Name:	Richard Wright	**Title:**	Environmental Services Coordinator
Contact Telephone:	519-348-8429 **ext**236	**Contact Fax:**	
Last Inspection Date:	2016/07/11		
Inspection Start Date:	2018/07/03	**Inspection Finish Date:**	2018/07/03
Region:	Southwestern		

1.0 INTRODUCTION

Ontario has a comprehensive legislative and regulatory framework to ensure that wastes are managed in an environmentally safe manner. Through the Environmental Protection Act (EPA) and accompanying regulations, the Ministry of the Environment, Conservation and Parks (MECP) has established a cradle to grave approach which includes the systematic control of collection, storage, transportation, treatment, recovery and disposal of waste.

The Ministry's Client Services and Permissions Branch (CSPB) issues Environmental Compliance Approvals (ECAs) under Part V of the Environmental Protection Act (EPA) for solid non-hazardous waste sites. The approval must be obtained prior to the site being established, used, or operated.

To confirm whether the regulated community is complying with the requirements related to waste disposal the Province is committed to conducting proactive inspections of landfill sites. As part of this commitment Ministry staff conducted a planned inspection of the Mitchell Domestic Landfill as part of the London District Office 2018/2019 inspection program. The site is located at 125 Clarke Street in Mitchell.

The inspection was carried out on July 3, 2018 by Provincial Officer Jessica Ceneviva in co-operation

with Richard Wright, Environmental Services Coordinator and Kaitlyn Monden, Environmental Services Technical Administrative Assistant. The inspection consisted of a review of available Ministry files and information, as well as a site visit to assess the operation's compliance with the terms and conditions of Environmental Compliance Approval (ECA) #A150401. The findings are documented below.

According to the ECA the operation of this waste site is limited to the disposal of solid non-hazardous municipal waste generated within the boundaries of the Municipality of West Perth.

2.0 INSPECTION OBSERVATIONS

Certificate of Approval Number(s):
Amended ECA #A150401 was issued on October 29, 2012. This ECA consolidated the previous approval (issued in 1980) and it's subsequent notices.

Inspection Note: Changes to the Environmental Protection Act in November of 2011 have resulted in Certificates of Approval now being referred to as Environmental Compliance Approvals. This Inspection Report form has not been updated to reflect this change.

2.1 FINANCIAL ASSURANCE:

Specifics:
The requirement of Financial Assurance is imposed on private sector landfill sites under Ontario Regulation 232/98, in order to ensure that funds are available for site closure, post-closure care and contingencies, in the event that the site owner cannot or does not carry out their obligations under the ECA. Financial assurance is not required for this landfill as it is owned and operated by The Municipality of West Perth.

2.2 APPROVED AREA OF THE SITE:

Specifics:
The site is located on Lot 19, Concession 1 on the north side of Huron Road in Mitchell. The site includes a 19.9 hectares waste footprint within a total waste disposal area of 38.6 hectares as described in ECA.

Condition 7.(4) of the ECA requires the Site to operate in accordance with *The Municipality of West Perth, Mitchell Domestic Landfill Site, Design and Operation Plan* (the D&O Plan), dated October 2009, and prepared by R.J. Burnside and Associates Limited. The D&O Plan detailed upgrades to the landfill including a new, fully lined landfill cell which was completed in 2011. The unlined portion of the waste fill area was closed and covered in May 2013, according to the report entitled *Municipality of West Perth, Mitchell Domestic Landfill, 2017 Annual Monitoring Report* (the Annual Report), dated November 28, 2017 and prepared by RWDI Air Inc.

The Site's boundary is clearly defined and has been fenced in for site security. The current waste active face ("New Cell 4") is clearly defined by clay berms to the northeast, southeast and southwest and a roadway to the northwest.

2.3 APPROVED CAPACITY:

Specifics:
The Site has an approved maximum capacity of 1,677,010 cubic meters. According to the 2017 Annual Report the total waste-in-place quantity is estimated to be 252,657 meters cubed, as of September 2017. This provides a remaining capacity of 1,414,353 meters cubed. Based on the fill rate in 2017, the is approximately 334 years of remaining capacity at the Site.

2.4 ACCESS CONTROL:

Specifics:

The Site is open Mondays, Wednesday and Fridays from 10:00 am through 5:00 pm and Saturdays from 9:00 am through 3:00 pm. The site entrance is secured with a chain link fence and motorized gate. The gate is locked when the landfill is closed. During operating hours, the entrance and exit of vehicles is monitored by staff who work in the scale house, as required by Condition 2.(10) of the ECA. The Site is secured by agricultural fields to the northeast and northwest, agricultural fields and a golf course to the southeast and fencing and trees to the southwest. There is a residential development located approximately 100 meters east of the Site, beyond the golf course.

Condition 2.(2) of the ECA requires a sign to be installed at the main entrance/exit of the Site and for specific information to be displayed on the sign. During the inspection it was noted that a warning against dumping outside the Site was not included on the sign.



Sign posted at main entrance/exit of the Site

Refer to Section 5.0 for required actions.

2.5 COVER MATERIAL:

Specifics:
Cover requirements are described in Condition 7.(10) of the ECA. At the end of each operating week the Site is required to apply operational cover to the entire working face, with a minimum thickness of 150 mm. Approved cover materials include soil, Durisol waste, wood chips, compost or an alternative cover that's been approved by the Director. Mr. Wright reported that the Site uses wood chips as their operational cover.

At the time of the inspection, there was no operational cover on the active face and a large pile of wood sat at the northwestern side of the active face. Mr. Wright reported that the Site's contractor, Sittler Grinding Inc. of Elmira, had experienced an issue with their grinding equipment approximately 3 weeks prior. He reported that the active face had been left uncovered during this time. Mr. Wright reported that other cover materials were not used because they were not available (compost) or the equipment required to move the material (soil) to the active face was not available.





Uncovered waste on the northern and southern portions of the Site's active face in "New Cell 4"



Large woodpile at the northwest edge of the active face

Condition 1.(9) of the ECA requires the Site to minimize water quality impairment caused by Site activities. Blown litter that has the potential to impair water quality was observed in a stormwater ditch located to the northwest of the active face during the inspection.


Blown litter from active face in stormwater ditch

Leaf and yard waste from the public drop off area is composted for Site use within a segregated area (open pit) in the northwest corner of the active face. The material is left for approximately one year until it can be used on Site as a compost cover material. This material is not composted with the intent to sell the product to the public. Composting leaf and yard waste in this manner is not in accordance ECA #A150401 or the Ministry's *Guideline for the production of compost in Ontario,* published October 2016, which replaces the *Interim Guidelines for the Production and Use of Aerobic Compost in Ontario* referenced in Condition 11.(1) of the ECA. Leaf and yard waste must either be disposed of on Site as solid non-hazardous municipal waste or composted in accordance with Condition 11.(1) of ECA #A150401.


Pit in active cell used for composting leaf and yard waste.

During the inspection Officer Ceneviva inquired about the excessive size of the active face (estimated to be approximately 0.81 hectares). Condition 2.(5) of the ECA states that the Site shall be operated and maintained in such a way that vermin, vectors, dust, litter, odour, noise and traffic do not create a nuisance. The D&O Plan requires the tipping face to be minimized to the extent possible and recommends filling in layers 0.25 to 0.30 meters thick, three layers high before covering each week in order to reduce the use of cover material. Mr. Wright reported that the Site has considered moving to a smaller active face in the past but does not have immediate plans to make this change. The Ministry is very supportive of decreasing the size of the active face as it would reduce the potential for environmental impact and nuisances.

Condition 7.(10(c)) of the ECA requires final cover to be applied on an annual basis where landfilling has been completed to final contours. The final cover must consist of a 0.6 meter thick layer of soil topped with a 0.15 meters of topsoil and a vegetative cover. The D&O Plan suggests final cover be progressively applied to minimize leachate generation and vegetated immediately to prevent erosion. During the inspection the unlined portion of the landfill referred to as the "Old Cell" was observed to be covered in clay with no topsoil or vegetative covering. A portion of the Old Cell was covered with compost instead of clay soils. Mr. Wright reported that the clay cover does erode and requires

maintenance throughout the year. Most cover is reapplied each spring after the snow melts. Compost is not an acceptable final cover material.



Compost used as part of final cover on top of "Old Cell"

On top of the Old Cell, Officer Ceneviva observed a large pile of rubble and a pile of shingles. Mr. Wright reported the rubble pile was created 5 years ago and has never been removed while the shingle pile is disposed of on an annual basis. These piles of waste are not covered as required by Section 11(13) of Ontario Regulation 347.



Shingles on top of "Old Cell"

See Section 5.0 for required actions.

2.6 WASTE BURNING:

Specifics:
Condition 2.(6) of the ECA prohibits the burning of waste. No evidence of waste burning was observed during the inspection.

2.7 GROUNDWATER/SURFACEWATER IMPACT:

Specifics:
Condition 8 of the ECA, Condition 7 of Municipal and Sewage Works ECA #9685-88HQCC and the Site's Environmental Monitoring Program (EMP) entitled *Environmental Monitoring Program - Mitchell Domestic Landfill Site* , dated November 2008 and prepared by R.J. Burnside and Associates Ltd. requires the Site's groundwater and surface water to be monitored on a regular basis and results to be

reported in an annual report.

The document entitled "*Municipality of West Perth - Mitchell Domestic Landfill - 2017 Annual Monitoring Report* " (2017 Annual Report), dated November 28, 2017 and prepared by RWDI Air Inc. (consultant) was received by the Ministry for review in December, 2017. Annual reports are reviewed upon receipt for any indication of impact on water, however, a detailed technical review is not undertaken on an annual basis.

Surface Water

Surface water is managed through a surface water and stormwater management system. The McDougall Drain is a municipal drain that bisects the Site. The drain flows in a northeasterly direction through the middle of the Site, east of the current active face. The McDougall Drain eventually flows into the North Thames River approximately 1 kilometre east of the Site. The drain will be relocated to follow the southwestern and southeastern perimeter of the Site to allow for landfilling activities to expand easterly in the future. A small portion of the drain has already been realigned with approval under the Drainage Act. Currently, stormwater is managed by the South Stormwater Management Pond (SWM Pond) which eventually discharges to the McDougall Drain after a period of retention.

Stormwater quality in the South SWM Pond is monitored in accordance with the Site's Sewage ECA. Surface water quality in the McDougall Drain is monitored in accordance with the Site's Waste ECA at three compliance locations (upstream of the Site, adjacent to the waste footprint and downstream of the waste footprint). Samples are collected on a semi-annual basis (spring and fall). Stormwater is also collected from the SWM Pond outlet semi-annually after a run-off from rainfall event causes the pond to discharge. Stormwater analytical results are compared to trigger concentrations (equivalent to the Provincial Water Quality Objective (PWQO)) identified in the Sewage ECA for 5 parameters. Surface water analytical results are compared to trigger concentrations listed in the Waste ECA and the Site's Environmental Contingency Plan (ECP), dated December 2012 and prepared by R.J. Burnside and Associates Ltd.

In the spring of 2014, phosphorus concentrations in the SWM Pond exceeded their trigger concentration, activating the Site's ECP. Confirmatory sampling confirmed the exceedance and the outlet valve was closed in accordance with the Sewage ECA. The SWM Pond has continued to operate in the closed position since 2014, as acceptable surface water quality for discharge has not yet been achieved. Water is disposed of off-Site at the WWTF.

According to the 2017 Annual Report in May 2017 Total phosphorus, phenols and iron exceeded their respective trigger concentrations however, concentrations were lower than historical maximums upstream of the Site. Confirmatory samples were not collected. It was concluded that surface water quality in the McDougall Drain is likely being influenced by the landfill as 2017 boron and chloride levels were higher adjacent to and downstream of the landfill. As part of the inspection, a technical review of surface water quality was completed by Hugh Geurts, Surface Water Specialist with the Ministry's Technical Support Section. The review indicated that chloride and boron levels are marginally elevated on Site and the elevations could be attributed to statistical variability. When surface water quality upstream is compared to quality adjacent to the waste footprint and downstream, other analytical indicators did not demonstrate a significant impact on the McDougall drain. The Ministry recommends that a meeting is organized between the Ministry, the municipality and their consultant to discuss the Site's surface water monitoring and evaluation program.

Request for Monitoring and Evaluation Amendments

Their consultant submitted a request to the Ministry to amend stormwater and surface water trigger concentrations in March 2016 and November 2016, respectively. The Ministry has reviewed the stormwater request and is not in agreement with the approach. At the time of issuance of this report, the surface water request review had not been completed. As described above, the Ministry recommends a meeting to discuss next steps at the municipality's convenience.

Groundwater

Locally, shallow groundwater flow was towards the McDougall Drain in 2017. In the vicinity of the Site,

shallow groundwater flow was interpreted to be radial, away from the waste footprint. Regionally deep groundwater flow is to the southwest and locally deep groundwater flow is generally towards the drain.

A series of 18 groundwater monitoring wells are installed across the Site. Pairs of shallow and deep monitoring wells are installed in 7 locations in addition to an additional 2 shallow wells, 1 deep well and 1 leachate well. Groundwater levels and samples are collected on a semi-annual basis (spring and fall). Chemical results are compared to trigger concentrations in accordance with the Waste ECA and Site's ECP. trigger concentrations are calculated based on the Ministry's B-7 Guideline.

The 2017 Annual Report concludes that groundwater quality around the landfill property and CAZ boundaries is of acceptable quality and remedial actions are not recommended.

2.8 LEACHATE CONTROL SYSTEM:

Specifics:
Leachate generated from the "Old Cell" is naturally attenuated in the Contaminant Attenuation Zone (CAZ) located west of the landfill. As leachate is generated contaminants degrade naturally in the CAZ through naturally occurring physical, chemical, and biological processes. The expanded portion of the landfill (Cells 1 through 4) utilizes a leachate management and collection system. Leachate generated in the lined cell is fed to the Leachate Pumping Station (LPS) located south of the active face. The LPS pumps leachate to a gravity fed sanitary sewer on Holmes Street and it is ultimately directed to the Mitchell Wastewater Treatment Facility (WWTF) for treatment. As described above, stormwater in the Site's SWM Pond is currently pumped into the LPS and is included leachate volumes described below.

Leachate is monitored in accordance with Condition 8.(3)(a) of the ECA, Condition 7 of Municipal and Sewage Works ECA #9685-88HQCC and the Site's EMP. Leachate levels and samples are collected on a semi-annual basis (spring and fall). The 2017 Annual Report states that 40,248.4 meters cubed of leachate was collected on Site between October 2016 and September 2017 and transferred to the WWTF for treatment. The volume was consistent with the reported 2016 volume and the quality was deemed acceptable for disposal at the WWTF.

Leachate seeps were not observed during the inspection and were not observed on Site during routine inspections in 2017, according to the 2017 Annual Report.

2.9 METHANE GAS CONTROL SYSTEM:

Specifics:
There is no active landfill gas collection system on Site. Condition 7.(12) of the ECA exempts the Site from the landfill gas reporting and operational requirements of Ontario Regulation 347. Should filling rates or waste types at the Site change significantly, the need for a landfill gas control system may need to be re-evaluated, as described in Condition 7.(13) of the ECA..

Landfill gas is monitored on a semi-annual basis on Site. According to the 2017 Annual Report, changes to the landfill gas monitoring system are not required at this time. The report states that although landfill gas was detected within waste in the landfill in 2017, it does not appear to be migrating beyond the waste footprint within the subsurface at concentrations that would represent an explosive risk to nearby structures.

2.10 OTHER WASTES:

Specifics:
The south corner of the Site was upgraded in 2011 to include public drop off areas for waste and recyclable materials, a Hazardous Waste Drop Off depot and and e-waste facility.

During the inspection, recyclable materials were generally properly identified, separated, stored and kept in an orderly manner, in accordance with Condition 10.(1) of the ECA. Condition 10.(2) of the ECA requires that the Hazardous Waste Drop Off depot and E-Waste facility operate in accordance

with the Site's D&O Plan and the Ministry's *Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities,* dated May 2007. In general, most hazardous wastes and e-wastes were stored as required at the time of the inspection. The D&O Plan requires that waste paint in intact containers is stored inside the area's storage building on a pallet with a spill containment tray. Propane tanks are required to be stored in a secured fenced outdoor enclosure. During the inspection paint containers were stored outdoors and propane tanks were not secured in an enclosure. The D&O Plan allows a maximum of 4 meters cubed (approximately 8 drum equivalents) of miscellaneous wastes including empty containers, pesticides and household cleaning products to be stored on Site at any time. Numerous empty plastic pails and empty plastic containers were stacked and bagged in front of the waste oil and antifreeze storage tanks, in excess of 4 meters cubed.



Empty containers stored in front of waste oil and antifreeze tanks.

Refer to Section 5.0 for required actions.

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

During the last Ministry inspection in 2016, the following two compliance issues were identified:

1) The Certificate of Approval Number and a contact telephone number were not posted on the sign at the entrance/exit to the Site
2) Operational cover was not applied to the active face

During the inspection similar the Site's entrance exit sign had been updated with the approval number and a telephone number, however a warning against dumping was not included on the sign. During the inspection, operational cover was not in place on the active face.

4.0 SUMMARY OF INSPECTION FINDINGS (HEALTH/ENVIRONMENTAL IMPACT)

Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate?

No

Specifics:

Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material ?

No

Specifics:

Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment ?

No

Specifics:

Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material ?

Yes

Specifics:

The following issues were identified that have the potential to cause environmental impairment:
- operational cover was not placed on the active face
- blown litter was observed in stormwater management ditches
- leaf and yard waste was not being properly composted
- final cover was not placed on the "Old Cell"
- the hazardous waste area was not being properly maintained

Was there any indication of minor administrative non-compliance?

Yes

Specifics:

The sign at the Site's entrance/exit did not contain the information required by the Site's ECA.

5.0 ACTION(S) REQUIRED

1. No later than August 10, 2018, the Municipality of West Perth shall update the information on the Site's entrance/exit sign to include all information required by Condition 2.(2) of ECA #A150401.

2. No later than August 10, 2018, the Municipality of West Perth shall submit a contingency plan addressing the application of operational cover at the Site, for Ministry approval, to the undersigned Provincial Officer. The contingency plan will address the application of an alternative approved operational cover material in the event that woodchips become unavailable, to ensure compliance with Condition 7.(10)(a) of ECA #A150401.

3. No later than August 10, 2018, the Municipality of West Perth shall remove all blown litter in Site's stormwater management ditches and pond, in accordance with Condition 1.(9) of ECA #A150401.

4. No later than October 3, 2018 the Municipality of West Perth shall end current leaf and yard waste compost practices and remove and properly dispose of leaf and yard waste material currently stored in the open pit on the Site's active face.

5. No later than August 10, 2018, the Municipality of West Perth shall remove the composted material from the surface of the "Old Cell" and cover the area with a final cover soil, in accordance with Condition 7.(10)(c) of ECA #A150401.

6. No later than October 3, 2018, the Municipality of West Perth shall cover the "Old Cell" with a final cover soil, top soil and a vegetative cover in accordance with Condition 7.(10)(c) of ECA #A150401.

7. No later than August 10, 2018 the Municipality of West Perth shall modify waste storage and remove wastes in the Hazardous Waste Drop Off Depot, in accordance with the Site's D&O Plan and Condition 10.(2) of ECA #A150401.

8. No later than August 10, 2018 the Municipality of West Perth shall provide confirmation of completion (photograph) of Action Items 1,3, 5, 7and 8 to the undersigned Provincial Officer by email at jessica.ceneviva@ontario.ca

9. No later than October 3, 2018 the Municipality of West Perth shall provide confirmation of completion (photograph) of Action Items 4 and 6 to the undersigned Provincial Officer by email at jessica.ceneviva@ontario.ca

Note: Several action items have been addressed between the Ministry site inspection conducted on June

29, 2018 and the issuance of this report, as follows:

1. On July 4, 2018 Mr. Wright provided Officer Ceneviva an update via email on the status of repairs to the wood grinding equipment on Site, as requested during the inspection. He also provided an estimated time lines for chipping the wood pile and covering the active face.
2. On July 11, 2018, Mr. Wright provided Officer Ceneviva photographs to confirm the wood pile had been chipped, as requested via email on July 5, 2018.
3. On July 13, 2018, Mr. Wright provided Officer Ceneviva photographs of the active face of the landfill covered with woodchips, as requested via email on July 5, 2018.

6.0 OTHER INSPECTION FINDINGS

A review of Site records was completed as part of the inspection. Record keeping requirements are outlined in Conditions 1(19) and 6 of the ECA. Condition 1(19)(a) of the ECA requires records to be kept on-Site. Mr. Wright reported that this is not possible due to repeated security issues at the Site. Records are instead kept at the County's Public Works Department at 50 Arthur Street, which is located approximate 2 kilometres southeast of the Site. The Ministry suggests amending the Site's ECA to reflect this administrative difference. All required records were up to date and complete.

During the inspection Mr. Wright inquired about the possibility of building a dog park in the next 18 months on the Contaminant Attenuation Zone (CAZ) portion of the landfill. The ECA defines the CAZ as part of the landfill Site. Any changes to site activities (including activities unrelated to waste) need to be documented and approved by the Ministry through the Site's ECA. The Municipality should direct approval amendment inquires to the Ministry's Client Services and Permissions Branch. They can be reached by telephone at (416) 314-8001.

7.0 INCIDENT REPORT

Applicable
5167-B2DLYM

8.0 ATTACHMENTS

PREPARED BY:
Environmental Officer:
Name: **Jessica Ceneviva**
District Office: **London District Office**
Date: **2018/07/18**
Signature



REVIEWED BY:
District Supervisor:
Name: **Dan Cromp**
District Office: **London District Office**
Date: **2018/07/19**

Signature:



File Storage Number: PE-WP-C2-610

Note:
"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"

APPENDIX B

LOG OF DRILLING OPERATIONS

MW1

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **C. Ostrowka**
Project No.: **MSO 10830.1**	Location: **Mitchell, ON**	Ground (m amsl): **356.76**
Drilling Co.: **Aardvark Drilling**	Date Started: **11/25/2005**	Static Water Level (m amsl): **348.07**
Drilling Method: **Hollow Stem Auger**	Date Completed: **11/25/2005**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)	357.69	SAMPLE Num.	SAMPLE Type	SAMPLE Int.	SAMPLE N.Val.
		Surface Elevation (m): **356.76**							
5.0	1.0	FILL: Black, landfill cover material consisting of topsoil, silt, sand, gravel, moist			cement				
		-dark brown to black silt mixed with refuse consisting of plastic bags, cardboard, paper, fabric, glass, insulation etc.							
10.0	2.0								
	3.0				bentonite seal				
15.0	4.0								
	5.0								
20.0	6.0	-auger cuttings becoming wet at approximately 5.5 m in depth							
	7.0				silica sand pack				
25.0	8.0								
30.0	9.0								
	10.0	SILT: Light brown, trace sand and gravel, very moist		9.90	10.67	1	SS		39
35.0	11.0	**BOREHOLE TERMINATED**		11.28					

Prepared By: **C. Ostrowka** Checked By: **K. Hawkes** Date Prepared: **12/7/2005**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 12/1/2005

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\ORANGEVILLE\LNE08516.GPJ TEMPLATE.GDT 22/9/10

BURNSIDE
R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW2

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **C. Ostrowka**
Project No.: **MSO 10830.1**	Location: **Mitchell, ON**	Ground (m amsl): **349.72**
Drilling Co.: **Aardvark Drilling**	Date Started: **11/23/2005**	Static Water Level (m amsl): **345.65**
Drilling Method: **Hollow Stem Auger**	Date Completed: **11/23/2005**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): 349.72)	Strat. Plot	Depth (m)	350.10	SAMPLE Num.	Type	Int.	N.Val.
		TOPSOIL: ~400 mm thick			cement				
5.0	1.0	SILT: Light brown, trace sand and gravel		0.40		1	SS		18
	2.0					2	SS		24
		SANDY SILT: Greyish brown, some gravel, moist		2.20	bentonite seal	3	SS		21
10.0	3.0	SILT TILL: Grey, trace sand and gravel, very moist		2.95		4	SS		17
	4.0					5	SS		12
15.0	5.0	-becoming wet at approximately 4.6 m in depth			silica sand pack	6	SS		11
	6.0					7	SS		10
20.0	7.0					8	SS		16
25.0	8.0				7.62	9	SS		27
		BOREHOLE TERMINATED		8.23					

Prepared By: **C. Ostrowka** Checked By: **K. Hawkes** Date Prepared: **12/7/2005**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 12/1/2005

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\ORANGEVILLE\LNE08516.GPJ TEMPLATE.GDT 22/9/10

LOG OF DRILLING OPERATIONS

MW3S&D

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **C. Ostrowka**
Project No.: **MSO 10830.1**	Location: **Mitchell, ON**	Ground (m amsl): **343.69**
Drilling Co.: **Aardvark Drilling**	Date Started: **11/21/2005**	Static Water Level (m amsl): **342.24**
Drilling Method: **Hollow Stem Auger**	Date Completed: **11/25/2005**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): 343.69)	Strat. Plot	Depth (m)
		TOPSOIL: ~600 mm thick		
	1.0	GRAVELLY SILT: Brown, trace sand, moist		0.60
5.0	2.0	SAND: Brown, fine-grained, trace silt and gravel, very moist to wet		1.45
		GRAVEL AND SAND: Brown, trace silt, very moist		2.35
10.0	3.0	-becoming grey and wet at approximately 3.05 m in depth		
	4.0	SILT TILL: Grey, trace sand and gravel, very moist		3.75
15.0	5.0			
20.0	6.0	CLAYEY SILT TILL: Grey, some gravel, trace sand, moist		6.05
	7.0			
25.0	8.0			
30.0	9.0			
	10.0			
35.0	11.0			
40.0	12.0			
	13.0			
45.0	14.0			

MP (m amsl): 344.54 / 344.70

cement
bentonite seal
silica sand pack
grout

Num.	Type	Int.	N.Val.
1	SS		9
2	SS		21
3	SS		20
4	SS		30
5	SS		21
6	SS		40
7	SS		50+
8	SS		38
9	SS		84+
10	SS		89+
11	SS		50+
12	SS		50+
13	SS		50+

Prepared By: **C. Ostrowka** Checked By: **K. Hawkes** Date Prepared: **12/7/2005**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 12/1/2005

MONITORING WELL DATA
- Pipe: 51 mm dia. PVC
- Screen: 51 mm dia. PVC #10 slot

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\ORANGEVILLE\LNE08516.GPJ TEMPLATE.GDT 22/9/10

BURNSIDE
R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW3S&D

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **C. Ostrowka**
Project No.: **MSO 10830.1**	Location: **Mitchell, ON**	Ground (m amsl): **343.69**
Drilling Co.: **Aardvark Drilling**	Date Started: **11/21/2005**	Static Water Level (m amsl): **342.24**
Drilling Method: **Hollow Stem Auger**	Date Completed: **11/25/2005**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): 343.69)	Strat. Plot	Depth (m)	MP (m amsl) 344.54 344.70	SAMPLE Num.	Type	Int.	N.Val.
50.0	16.0					14	SS		50+
55.0	17.0				grout	15	SS		50+
60.0	18.0				bentonite seal				
65.0	19.0				silica sand pack	16	SS		85+
70.0	20.0					17	SS		67+
	21.0								
	22.0				21.66	18	SS		50+
		BOREHOLE REFUSAL ON PROBABLE BEDROCK		22.25					

Prepared By: **C. Ostrowka** Checked By: **K. Hawkes** Date Prepared: **12/7/2005**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 12/1/2005

MONITORING WELL DATA
- Pipe: 51 mm dia. PVC
- Screen: 51 mm dia. PVC #10 slot

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\ORANGEVILLE\LNE08516.GPJ TEMPLATE.GDT 22/9/10

LOG OF DRILLING OPERATIONS

MW4

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **C. Ostrowka**
Project No.: **MSO 10830.1**	Location: **Mitchell, ON**	Ground (m amsl): **348.21**
Drilling Co.: **Aardvark Drilling**	Date Started: **11/23/2005**	Static Water Level (m amsl): **347.39**
Drilling Method: **Hollow Stem Auger**	Date Completed: **11/24/2005**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)	349.26	SAMPLE Num.	Type	Int.	N.Val.
		Surface Elevation (m): **348.21**							
		TOPSOIL: ~300 mm thick		0.30	cement				
	1.0	SILT: Brown, some gravel, trace sand, moist			bentonite seal	1	SS		12
5.0	2.0	-becoming very moist at approximately 1.5 m in depth			silica sand pack	2	SS		26
						3	SS		14
10.0	3.0	-occasional wet coarse sand seams from approximately 3.0 to 3.5 m in depth				4	SS		26
	4.0	SILT TILL: Grey, trace sand and gravel, very moist		3.75		5	SS		20
		BOREHOLE TERMINATED		4.57	4.57				

Prepared By: **C. Ostrowka** Checked By: **K. Hawkes** Date Prepared: **12/7/2005**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 12/1/2005

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\ORANGEVILLE\LNE08516.GPJ TEMPLATE.GDT 22/9/10

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW5s

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/26/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/26/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Dark brown topsoil, organic matter, soft, moist.								
	1.0	Medium brown yellow SANDY SILT, trace to some clay, loose to compact, soft, massive, wet, some plasticity.		0.23	cement					
5.0					bentonite seal					
	2.0	Light to medium brown to beige SILT, some clay, trace to some sand, trace gravel and cobble, firm to stiff, wet, some plasticity.		1.52	silica sand pack				5.0	1.0
				2.13						2.0
10.0	3.0	Brown/grey to grey CLAYEY SILT, trace gravel and sand, stiff, massive, moist to wet.		3.05	silica sand pack				10.0	3.0
	4.0	Grey CLAYEY SILT, with trace to some gravel, trace sand, stiff to hard, massive, moist to wet, some plasticity.		4.57	4.57					4.0

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 22/9/10

LOG OF DRILLING OPERATIONS

MW5d

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/26/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/26/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.
		Dark brown topsoil, organic matter, soft, moist.		0.23	cement	1	SS		9
	1.0	Medium brown yellow SANDY SILT, trace to some clay, loose to compact, soft, massive, wet, some plasticity.			bentonite seal	2	SS		5
5.0	2.0	Light to medium brown to beige SILT, some clay, trace to some sand, trace gravel and cobble, firm to stiff, wet, some plasticity.		1.52		3	SS		10
				2.13		4	SS		15
10.0	3.0	Brown/grey to grey CLAYEY SILT, trace gravel and sand, stiff, massive, moist to wet.		3.05	grout	5	SS		19
	4.0	Grey CLAYEY SILT TILL, with trace to some gravel, trace sand, stiff to hard, massive, moist to wet, some plasticity. 5cm sand lens at 3.96m. 6.10 m to 6.71 m softer with increased clay content and less gravel, more plastic.				6	SS		11
15.0	5.0					7	SS		37
						8	SS		32+
20.0	6.0				bentonite seal	9	SS		21
	7.0					10	SS		40
25.0	8.0				silica sand pack	11	SS		55+
				8.41	silica sand pack	12	SS		45+
				8.99					

Depth Scale (ft) (m): 5.0, 10.0, 15.0, 20.0, 25.0 / 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BH LOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 13/10/10

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW6s

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/27/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/27/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Dark brown topsoil, firm, moist.								
	1.0	Beige SANDY SILT, some grey mottling, trace gravel and clay, firm, moist to wet.		0.29	cement					
5.0					bentonite seal					
	2.0	Coarse SAND with some gravel.		1.52	silica sand pack					
		Light brown/ beige CLAYEY SILT, possibly silt and clay, trace gravel and fine sand, soft to stiff, massive, moist to wet.		1.68						
10.0	3.0	Medium grey CLAYEY SILT, trace fine sand and gravel, soft to firm, massive, wet, plastic.		3.05	silica sand pack					
	4.0	Grey medium SAND, some silt, trace gravel, very soft, saturated.		4.11						
		Medium grey SILT, some sand, trace to some clay, trace gravel, stiff, massive, wet.		4.42 / 4.57	4.57					

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 22/9/10

LOG OF DRILLING OPERATIONS

MW6d

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/27/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/27/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.
		Dark brown topsoil, firm, moist.		0.29	cement	1	SS		10
	1.0	Beige SANDY SILT, some grey mottling, trace gravel and clay, firm, moist to wet.			bentonite seal	2	SS		11
5.0		Coarse SAND with some gravel.		1.52		3	SS		10
	2.0	Light brown/ beige CLAYEY SILT, possibly silt and clay, trace gravel and fine sand, soft to stiff, massive, moist to wet.		1.68		4	SS		12
10.0	3.0	Medium grey CLAYEY SILT, trace fine sand and gravel, soft to firm, massive, wet, plastic.		3.05	grout	5	SS		10
	4.0	Grey medium SAND, some silt, trace gravel, very soft, saturated.		4.11		6	SS		16
15.0				4.42		7	SS		46
	5.0	Medium grey SILT, some sand, trace to some clay, trace gravel, stiff, massive, wet, (Till - like).		5.18		8	SS		21
20.0	6.0	Medium grey SANDY CLAYEY SILT TILL, trace gravel, stiff to hard, massive, some plasticity.			bentonite seal	9	SS		31
	7.0					10	SS		24
25.0					silica sand pack	11	SS		30
	8.0								
					8.69 silica sand pack	12	SS		50
30.0	9.0			9.30					

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BH LOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 13/10/10

BURNSIDE
R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW7s

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/27/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/27/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Dark brown topsoil, soft, moist.		0.20	cement					
5.0	1.0	Light brown/grey SILT, some orange mottling, clayey to some clay, trace sand and gravel, firm, massive, moist.			bentonite seal					
	2.0				silica sand pack				5.0	1.0
10.0	3.0	Medium brown CLAYEY SILT, clayey to silt and clay, trace sand and gravel, stiff, massive, moist to wet.		2.13						2.0
	4.0	Medium grey SILT, trace clay and gravel, some fine sand, massive, wet.		3.35 3.66	silica sand pack				10.0	3.0
15.0	5.0	Medium grey CLAYEY SILT, some sand, stiff, massive, wet. 5cm fine sand and silt layer at 3.96 m.		4.42						4.0
		Medium grey SANDY SILT, trace clay, sandy, firm to stiff, massive, wet to saturated.		5.33	5.33				15.0	5.0

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 22/9/10

LOG OF DRILLING OPERATIONS

MW7d

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/27/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/28/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.	Depth Scale (ft)	Depth Scale (m)
		Dark brown topsoil, soft, moist.		0.20	cement	1	SS		14		
	1.0	Light brown/grey SILT, some orange mottling, clayey to some clay, trace sand and gravel, firm, massive, moist.			bentonite seal	2	SS		20		1.0
5.0	2.0					3	SS		26	5.0	2.0
		Medium brown CLAYEY SILT, clayey to silt and clay, trace sand and gravel, stiff, massive, moist to wet.		2.13		4	SS		19		
10.0	3.0					5	SS		26	10.0	3.0
		Medium grey SILT, trace clay and gravel, some fine sand, massive, wet.		3.35							
	4.0	Medium grey CLAYEY SILT, some sand, stiff, massive, wet. 5cm fine sand and silt layer at 3.96 m.		3.66	grout	6	SS		11		4.0
15.0	5.0			4.42		7	SS		40	15.0	5.0
		Medium grey SANDY SILT, trace clay to clayey at 7.6 m., sandy to some sand at 7.6 m., trace gravel below 6.1m., firm to stiff, massive, wet to saturated (Till - like).				8	SS		42		
20.0	6.0					9	SS			20.0	6.0
	7.0				bentonite seal	10	SS		19		7.0
25.0	8.0	Medium grey CLAYEY SILT TILL, trace sand and gravel, stiff to very stiff, massive, wet, plastic.		7.62		11	SS		22	25.0	8.0
					silica sand pack	12	SS		36		
30.0	9.0			9.22						30.0	9.0
					silica sand pack	13	SS		22		
				9.75							

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 13/10/10

LOG OF DRILLING OPERATIONS

MW8

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/28/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/28/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.
		Dark brown topsoil, organic material, moist.		0.23	cement	1	SS		13
		Medium to light brown CLAYEY SILT, trace to some sand, grace gravel, soft to very soft but firm below 2.29m, massive, moist to wet, plastic.			bentonite seal	2	SS		7
						3	SS		3
						4	SS		15
						5	SS		25
		Medium grey CLAYEY SILT, some fine sand, trace gravel, firm, massive, wet.		3.66		6	SS		14
						7	SS		13
		Medium grey CLAYEY SILT, some fine sand, trace gravel, soft to very soft, plastic.		5.18	grout	8	SS		30
						9	SS		7
						10	SS		8
		Medium grey SANDY CLAYEY SILT TILL, trace to some gravel, trace cobbles, very stiff to hard, moist to wet. Saturated 5cm coarse sand and gravel seam at 11.58 m.		7.62		11	SS		20
						12	SS		33
						13	SS		52+
					bentonite seal				
					silica sand pack	14	SS		69+
						15	SS		30+
					silica sand pack				
						16	SS		41+
					cave	17	SS		35+
				12.42					

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE AC Auger Cutting; CS Continuous; RC Rock Core; SS Split Spoon; AR Air Rotary; WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 13/10/10

WELL MW8-B

RWDI AIR Inc.
650 Woodlawn Road West
Guelph, ON

CLIENT Municipality of West Perth
PROJECT NAME MW8 Replacement
PROJECT NUMBER 1400607.9000
PROJECT LOCATION Mitchell Domestic Landfill
DATE STARTED 11/17/14 **COMPLETED** 11/17/14
GROUND ELEVATION _____ **HOLE SIZE** 108 mm
DRILLING CONTRACTOR Direct Environmental Drilling Inc.
GROUND WATER LEVELS:
DRILLING METHOD 165 mm Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY AGD/HF **CHECKED BY** BJL
AT END OF DRILLING ---
NOTES Located approximately 5 m North-East of MW8.
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	90	3-3-4-5 (7)		0.13 **Topsoil** Medium to dark brown organic topsoil with with light brown mottling, some fine to medium sand, trace fine gravel, trace roolets, moist, very soft.
					Clayey Silt to Silty Clay Light brown clayey silt till, trace to some disseminated fine to coarse sand, trace fine to medium gravel, occasional coarse gravel fragments, massive, APL, soft.
2	SS 2	87	5-12-14-17 (26)		- sand laminations between ~0.13 and ~0.20 m as well as at ~0.46 m.
	SS 3	103	8-7-10-11 (17)		- colour change to grey with light brown mottling and becoming soft to firm at ~3.05 m.
4					- colour change to medium grey at ~3.35 m.
	SS 4	100	6-7-5-5 (12)		4.65 - medium greyish-brown sandy clayey silt to silty clay with light brown mottling, trace fine gravel, WTPL, very soft segment at ~4.57 m to ~4.65 m. 4.95 Medium brown sand, poorly sorted, wet, loose. - medium greyish-brown sandy clayey silt to silty clay with light brown mottling, trace fine gravel, WTPL, very soft to soft segement at ~4.95 to ~5.18 m.
6	SS 5	46	5-12-19-17 (31)		- colour change to medium greyish-brown and becoming firm to stiff at ~6.43 m.
	SS 6	103	18-18-20-23 (38)		7.00 Medium greyish-brown sandy silt, moist, compact. 7.45
8	SS 7	84	12-24-50 (74)		
	SS 8	84	25-36-36-50 (72)		- becoming stiff at ~8.48 m. - coarse gravel fragment from ~8.48 to ~8.53 m.
	SS 9	54	14-24-50 (74)		- small cobble at ~8.64 m.
10	SS 10	49	27-32-50 (82)		- becoming very stiff at ~9.14 m. - 0.15 m thick layer of sand and gravel (wet, very loose) at ~9.91 m.
	SS 11	49	32-50		- 0.05 m thick layer of sand and gravel (wet, very loose) at ~10.67 m.
12	SS 12	25	50		12.30

Refusal at 12.30 meters.
Borehole terminated at 12.3 meter depth.

WELL DIAGRAM

Casing Top Elev: 15 (m)

- Seal: Hydrated bentonite chips
- 51 mm diameter well constructed of schedule 40 PVC with steel protective casing with well screen slot size 10
- Bentonite grout
- Hydrated bentonite chips
- Sand pack: No. 2 silica sand
- Well point sump with weep holes

GENERAL BH / TP / WELL MW8-B.GPJ DATA TEMPLATE.GDT 1/13/15

LOG OF DRILLING OPERATIONS

MW9s

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/29/2008**	Static Water Level (m amsl):
Drilling Method: **Solid Stem Auger**	Date Completed: **5/29/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Medium brown topsoil, organic matter, soft, moist.		0.23	cement					
5.0	1.0	Light brown/grey CLAYEY SILT, orange/rust mottling, trace sand to sandy, trace gravel, soft, massive, moist.			bentonite seal silica sand pack				5.0	1.0
	2.0									2.0
10.0	3.0	Medium grey SANDY SILT, some clay, trace gravel, very soft, massive, wet, plastic.		2.29	silica sand pack				10.0	3.0
	4.0			4.57	4.57					4.0

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND	MONITORING WELL DATA	SAMPLE TYPE				
Water found @ time of drilling	Pipe: **51 mm dia. PVC**	AC	Auger Cutting	SS	Split Spoon
Static Water Level -	Screen: **51 mm dia. PVC #10 slot**	CS	Continuous	AR	Air Rotary
		RC	Rock Core	WC	Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 22/9/10

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW9d

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/29/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/29/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.
		Medium brown topsoil, organic matter, soft, moist.		0.23	cement	1	SS		4
5.0	1.0	Light brown/grey CLAYEY SILT, orange/rust mottling, trace sand to sandy, trace gravel, soft, massive, moist.			bentonite seal	2	SS		5
	2.0					3	SS		23
				2.29		4	SS		10
10.0	3.0	Medium grey SANDY SILT, some clay, trace gravel, very soft, massive, wet, plastic.				5	SS		6
	4.0				grout	6	SS		7
15.0	5.0					7	SS		6
						8	SS		10
20.0	6.0					9	SS		7
	7.0				bentonite seal				
		Medium grey SILT, some sand and clay, trace gravel, stiff to very stiff, massive, wet, plastic (Till - like).		7.01	silica sand pack	10	SS		na
25.0	8.0					11	SS		20
					silica sand pack	12	SS		22
30.0	9.0								
				9.75	silica sand pack	13	SS		25

Depth Scale (ft)	Depth Scale (m)
5.0	1.0
10.0	2.0
15.0	3.0
20.0	4.0
25.0	5.0
30.0	6.0
	7.0
	8.0
	9.0

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 13/10/10

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW10s

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/30/2008**	Static Water Level (m amsl):
Drilling Method: **Solid Stem Auger**	Date Completed: **5/30/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Dark brown topsoil, organic matter, soft, massive, moist.		0.23	cement					
5.0	1.0	Medium brown CLAYEY SILT, trace to some sand, trace gravel, firm, massive, moist.			bentonite seal				5.0	1.0
	2.0			2.13	silica sand pack					2.0
10.0	3.0	Medium to light brown SILT, some sand to sandy, trace gravel and clay, firm.		3.05					10.0	3.0
	4.0	Medium grey CLAYEY SILT, trace to some sand and gravel, moist to wet, firm to stiff.			silica sand pack					4.0
15.0				4.75	4.75				15.0	

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG GUELPH P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 22/9/10

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW10d

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **5/29/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **5/30/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.	Depth Scale (ft)	Depth Scale (m)
		Dark brown topsoil, organic matter, soft, massive, moist.		0.23	cement	1	SS		7		
	1.0	Medium brown CLAYEY SILT, trace to some sand, trace gravel, firm, massive, moist.			bentonite seal	2	SS		5		1.0
5.0	2.0					3	SS		8	5.0	2.0
		Medium to light brown SILT, some sand to sandy, trace gravel and clay, firm.		2.13		4	SS		18		
10.0	3.0	Medium grey CLAYEY SILT, trace to some sand and gravel, moist to wet, massive, firm to stiff.		3.05		5	SS		19	10.0	3.0
	4.0				grout	6	SS		19		4.0
15.0	5.0					7	SS		18	15.0	5.0
						8	SS		31		
20.0	6.0	Medium grey CLAYEY SILT to SILT with some clay. Till. Very stiff to hard.		6.10	bentonite seal	9	SS		60	20.0	6.0
	7.0				silica sand pack	10	SS		85+		7.0
25.0	8.0					11	SS		57+	25.0	8.0
					silica sand pack	12	SS		85+		
30.0	9.0				9.14					30.0	9.0
				9.67	silica sand pack	13	SS		49		

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 13/10/10

LOG OF DRILLING OPERATIONS

MW11s

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **10/27/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **10/27/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
5.0	1.0	Light greyish brown SILT, some rust/orange mottling, some clay to clayey, trace to some fine sand, occ. small pebbles, firm to stiff, v. stiff to hard at bottom of unit, massive, moist, some plasticity.			bentonite seal				5.0	1.0
	2.0				silica sand pack					2.0
10.0	3.0	Medium grey SILT, some clay to clayey, trace to some fine sand, occ. small pebbles, very stiff, massive, moist, some plasticity.		3.05	silica sand pack				10.0	3.0
	4.0	Light grey CLAYEY SILT, some sand, trace gravel, soft except for 3.66 - 4.42 firm to stiff, massive, wet, plastic.		3.66						4.0
				4.60	4.57					

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BURNSIDE
R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

MW11d

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **10/27/2008**	Static Water Level (m amsl):
Drilling Method: **Hollow Stem Auger**	Date Completed: **10/27/2008**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.
		Light greyish brown SILT, some rust/orange mottling, some clay to clayey, trace to some fine sand, occ. small pebbles, firm to stiff, v. stiff to hard at bottom of unit, massive, moist, some plasticity.				1	SS		11
						2	SS		33
5.0	1.0					3	SS		44
	2.0					4	SS		43
10.0	3.0	Medium grey SILT, some clay to clayey, trace to some fine sand, occ. small pebbles, very stiff, massive, moist, some plasticity.		3.05		5	SS		41
	4.0	Light grey CLAYEY SILT, some sand, trace gravel, soft except for 3.66 - 4.42 firm to stiff, massive, wet, plastic.		3.66	bentonite seal	6	SS		19
15.0	5.0					7	SS		20
						8	SS		16
20.0	6.0					9	SS		15
	7.0					10	SS		14
25.0	8.0	Medium grey CLAYEY SILT, some sand, trace to some gravel, small rounded stones 1-3mm, very stiff, massive, moist to wet, some plasticity. Till like.		7.62	silica sand pack	11	SS		90+
	9.0			9.14	silica sand pack 9.14	12	SS		31

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 13/10/10

LOG OF DRILLING OPERATIONS

GP1 s/d

BURNSIDE

R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
Telephone (519) 941-5331 Fax (519) 941-8120

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **4/16/2010**	Static Water Level (m amsl):
Drilling Method: **Solid Stem Auger**	Date Completed: **4/16/2010**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
5.0	1.0	FILL: Black, landfill cover material consisting of topsoil, silt, sand, gravel, moist			cement				5.0	1.0
					bentonite seal					
		Dark brown to black silt mixed with refuse (plastic bags, cardboard, paper, fabric, glass, insulation, etc)			silica sand pack					
10.0	3.0	Auger cuttings wet at approx. 5.5 m in depth (during MW1 drilling).			silica sand pack				10.0	3.0
					bentonite seal					
15.0	5.0								15.0	5.0
20.0	6.0			6.10	silica sand pack 6.10				20.0	6.0

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **32 mm dia. PVC**
- Screen: **32 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 25/11/10

LOG OF DRILLING OPERATIONS

BURNSIDE

GP2

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Noll Drilling Inc.**	Date Started: **4/26/2012**	Static Water Level (m amsl):
Drilling Method: **Geo Probe**	Date Completed: **4/26/2012**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Dark brown Topsoil and organics.			cement					
	1.0	Mottled beige(70)/grey(30) SILTY CLAY, some sand, trace to some gravel, firm, moist, some plasticity. TILL.		0.30	bentonite seal					1.0
5.0		Mottle beige(50/grey(50) CLAYEY SILT, trace to some sand and gravel, soft to firm, moist, some plasticity. TILL.		1.22			CS			5.0
	2.0			2.44	silica sand pack 2.39					2.0

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **25.4 mm dia. PVC**
- Screen: **25.4 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 11/27/12

LOG OF DRILLING OPERATIONS

GP3

BURNSIDE

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Noll Drilling Inc.**	Date Started: **4/26/2012**	Static Water Level (m amsl):
Drilling Method: **Geo Probe**	Date Completed: **4/26/2012**	Sand Pack (m amsl):

Depth Scale (ft) (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft) (m)
5.0 / 1.0 / 2.0	Mottled grey/brown SILTY CLAY, some sand, trace to some gravel, firm to stiff, moist, some plasticity. Below 1.22m, greyer, looks wet, soft to firm, plastic. Sandier zone at 1.98 - 2.13m.		2.44	cement bentonite seal silica sand pack 2.29		CS		5.0 / 1.0 / 2.0

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND	MONITORING WELL DATA	SAMPLE TYPE				
▼ Water found @ time of drilling	Pipe: **25.4 mm dia. PVC**	AC	Auger Cutting	SS	Split Spoon
▽ Static Water Level -	Screen: **25.4 mm dia. PVC #10 slot**	CS	Continuous	AR	Air Rotary
		RC	Rock Core	WC	Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 11/27/12

LOG OF DRILLING OPERATIONS

BURNSIDE

GP4

Client: **Municipality of West Perth**	Project Name: **Mitchell Domestic Landfill**	Logged by: **D. Durham**
Project No.: **MSO14306**	Location: **Mitchell, Ontario**	Ground (m amsl):
Drilling Co.: **Noll Drilling Inc.**	Date Started: **4/26/2012**	Static Water Level (m amsl):
Drilling Method: **Geo Probe**	Date Completed: **4/26/2012**	Sand Pack (m amsl):

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Light brown SILTY CLAY, some sand to sandy, trace to some gravel, firm to stiff, moist, some plasticity. TILL. Could be reworked native material.			cement					
	1.0				bentonite seal					1.0
		Light brown SILTY CLAY, trace sand and gravel, firm, massive, moist, plastic.		1.22						
5.0							CS		5.0	
	2.0				silica sand pack					2.0
					3.05					
10.0	3.0								10.0	3.0
		Medium to dark SILTY CLAY, trace sand and gravel, firm, massive, wet, plastic.		3.35						
				3.66						

Prepared By: **D. Durham** Checked By: **K. Hawkes** Date Prepared:

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level -

MONITORING WELL DATA
- Pipe: **25.4 mm dia. PVC**
- Screen: **25.4 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINT\PROJECTS\MMSO14306.8C.GPJ TEMPLATE.GDT 11/27/12

APPENDIX C

TABLE C-1
GROUNDWATER LEVEL ELEVATIONS
Mitchell Domestic Landfill
Municipality of West Perth

Monitoring Well	MW1	MW2	MW3S	MW3D	MW4	MW5S	MW5D	MW6S	MW6D	MW7S	MW7D	MW8-B	MW9S	MW9D	MW10S	MW10D	MW11S	MW11D	SW1/DP1		SW2/DP2		SW3/DP3	
																			Inside	Outside	Inside	Outside	Inside	Outside
Measuring Point Elevation[1] (mASL)	357.67	350.13	344.7	344.56	349.26	345.18	345.1	348.45	348.38	350.56	350.6	347.44	349.73	349.67	344.9	345.67	349.17	349.23	343.35	343.35	342.27	342.27	342.99	342.99
Measure Point Elevation[2] (mASL)	357.67	350.13	344.7	344.56	349.26	345.18	345.1	348.45	348.38	350.56	350.6	347.88	349.73	349.67	344.9	345.67	349.17	349.23	343.35	343.35	342.27	342.27	342.99	342.99
Water Level Elevations (mbtop)																								
Dec-05	9.62	4.45	2.46	6.44	1.87																			
May-06	10.13	3.72	3.17	14.46	2.41																			
Oct-06	10.28	5.06	2.4	15.29	2.32																			
May-07	10.03	3.57	3.19	13.57	2.59																			
Sep-07	9.6	5.48	3.73	14.68	3.15																			
Jul-08	9.13		3.15	13.03	2.59	2.25	7.65	1.93	2.45	1.91	3.21	4.57	1.3	2.37	1.69	4.07	7.57		1.68	1.58	1.01	1.08	1.5	1.57
Oct-08	9.5	3.4	2.99	13.16	2.47	2	4.72	1.57	1.96	1.42	2.37		1.1	2.2	1.06	3.84	7.34		1.53	1.53	0.95	1.05	1.37	1.5
May-09	8.89	3.37	2.98	12.96	2.44	2.16	4.95	1.75	2.27	1.56	2.65	4.4	1.08	2.24	1.34	4.18	1.22	2.33	1.52	1.59	0.96	1.06	1.38	1.57
Sep-09	9.48	4.52	3.31	Damaged	3.20	2.64	5.25	2.84	3.27	3.21	3.84	5.07	1.75	2.98	2.33	5.11	2.38	3.46	1.73	1.61	1.18	1.18	1.81	1.62
Feb-10	9.66	3.5	3.01	Damaged	2.13								1.07	2.34										
May-10	9.54	3.43	2.73	13.27	2.07	1.93	5.11	1.41	2.11	1.09	2.49	4.47	1.03	2.36	0.45	3.93	1.12	2.32	1.55	1.5	0.91	1.05	1.25	1.5
Sep-10	9.59	4.79	3.28	14.11	2.98	2.59	5.45	2.69	3.21	2	3.04	5.24	1.56	3.12	2.83	5.4	2.58	3.71	1.71	1.6	1.13	1.18	1.76	1.61
May-11	8.88	3.2	2.47	12.79	2.25	1.87	4.85	1.15	1.88	0.86	2.05	4.33	0.99	2.11	0.6	3.87	0.99	2.19	1.42	1.43	0.83	0.98	1.08	1.44
Sep-11	9.44	4.93	3.15	14.02	3.13	2.67	5.49	2.95	3.43	3.24	3.92	4.47	1.44	3.11	3.38	5.51	2.89	3.89	1.62	1.51	1.11	1.2	1.64	Dry
May-12	5.69	3.68	3.08	13.13	2.74	2.43	5.11	2.8	3.34	2.98	3.81	4.19	1.18	2.51	1.58	4.58	1.41	2.58	1.54	1.22	1.25	1.13	1.7	1.52
Sep-12	7.89	5.58	3.24	14.20	3.56	3.16	6.09	3.65	4.08	3.97	4.58	5.12	1.83	3.86	3.97	6.33	3.63	4.9	1.01	0.84	1.11	1.13	1.79	1.49
Apr-13	9.26	3.22	2.34	12.43	1.85	1.77	4.81	1.45	2.24	0.99	2.2	3.82	0.99	2.16	0.35	3.68	1.02	2.26	0.52	0.79	0.77	0.9	1.17	1.35
Sep-13	8.38	4.06	3.02	13.03	2.8	2.4	5	2.95	3.43	3.00	3.71	4.2	1.35	2.61	2.33	4.77	1.68	3.02	0.77	Dry	1.01	1.1	1.42	1.39
May-14	7.18	3.71	3.11	13.07	2.69	2.4	5.13	2.72	3.3	2.89	3.49	4.86	1.06	2.42	2.13	4.31	1.39	2.36	1.61	1.44	1.17	1.08	1.2	1.4
Sep-14	9.17	3.280	2.640	13.29	2.04	1.9	4.7	1.9	2.67	1.28	2.9	Damaged	1.09	2.17	0.8	3.85	1.1	2.25	Inaccessible	Inaccessible	Inaccessible	1.07	1.28	1.45
May-15	9.43	3.69	2.99	13.53	2.44	2.42	5.12	2.92	3.52	2.88	3.79	5.85	1.13	2.43	1.6	4.51	1.48	2.55	0.68	Dry	1	1.05	1.37	1.5
Sep-15	9.53	4.4	3.15	12.53	2.98	2.73	5.43	3.69	4.08	3.79	4.56	5.55	1.37	2.73	2.6	5.11	2.46	3.42	0.88	Dry	Dry	1.12	1.63	1.53
May-16	8.7	3.35	2.89	12.83	2.36	2.16	4.83	2.7	3.29	2.56	3.41	5.06	1.07	2.15	1.52	4.26	1.38	2.32	0.65	0.87	0.97	1.06	1.35	1.52
Sep-16	9.61	4.77	3.28	14.05	3.46	3.72	5.89	4.32	4.58	4.99	5.22	5.9	1.83	3.21	3.86	5.93	2.82	4.05	1.95	Dry	1.32	Dry	1.51	1.6
May-17	8.79	3.19	2.09	13	1.46	1.33	4.82	1.53	2.68	0.93	2.6	4.93	0.93	2.16	0.18	4.78	1.02	2.27						
Sep-17	11.41	4.33	3.10	13.58	3.04	2.34	5.17	3.45	3.81	3.84	4.39	5.54	1.4	2.44	3.04	5.06	1.75	3.23						
May-18	8.78	3.29	2.74	13.56	1.82	1.95	4.90	1.99	2.76	1.25	2.52	5.02	1.02	2.18	0.79	4.98	1.16	2.35	0.58	0.89	0.84	0.97	1.28	1.42
Sep-18	9.54	5.03	3.22	14.68	3.42	4.53	6.52	4.11	4.39	4.74	4.96	6.15	1.94	3.53	4.15	6.02	3.47	4.48	0.92	0.77	1.07	1.11	1.61	1.51
May-19	8.78	3.32	2.65	13.40	1.9	1.96	4.91	2.03	2.89	1.30	2.60	5.15	1.04	2.25	0.93	4.06	1.07	2.37						
Sep-19		4.84	3.24	14.74	3.47	4.18	6.27	4.32	4.61	4.79	5.12	6.18	1.77	3.19	3.87	5.06	2.72	4.11						
May-20		3.47	2.94	13.87	2.35	2.16	5.17	2.65	3.36	2.18	3.54	5.37	1.08	2.27	1.47	4.41	1.23	2.46						
Sep-20		4.73	3.20	15.12	3.25	3.25	5.88	4.41	4.72	5.00	5.08	6.01	1.82	2.99	4.08	5.90	1.85	3.71						
May-21		3.52	2.96	14.24	2.43	2.11	5.20	2.74	3.35	2.32	3.50	5.42	1.10	2.29	2.43	4.38	1.19	2.46						
Sep-21	9.82	4.97	3.11	14.56	3.38	4.05	5.16	3.94	4.31	3.82	4.42	6.24	1.69	3.31	3.99	5.72	3.94	4.12						
May-22		3.36	2.71	13.97	1.87	1.91	5.09	1.87	2.85	1.14	2.76	5.17	1.00	2.25	1.00	4.11	1.02	2.36						
Sep-22		5.05	3.28	15.15	3.62	4.45	6.50	4.61	4.81	4.85	5.21	6.29	2.11	3.58	4.14	6.12	2.96	4.52						
May-23		3.35	2.75	13.21	2.03	1.95	5.04	2.22	3.10	1.31	2.89	5.16	1.06	2.27	1.14	4.14	1.14	2.38						
Sep-23		3.80	3.02	14.55	2.79	2.34	5.18	3.27	3.81	1.87	3.75	5.53	1.14	1.46	2.32	4.52	1.43	2.73						
May-24		3.40	2.71	14.6	2.13	2.07	5.24	2.41	3.17	2.97	1.68	5.33	1.04	2.29	1.35	4.26	1.17	2.40						
Sep-24	9.58	4.40	3.21	14.47	3.17	2.76	5.38	3.93	4.30	3.62	4.39	5.84	1.65	2.85	3.19	5.21	1.65	3.43						
May-25	8.88	3.50	2.91	14.75	2.26	2.11	5.20	2.96	3.50	2.3	3.5	5.33	1.15	2.42	1.41	4.39	1.29	2.53						
Sep-25		4.94	3.10	15.64	3.60	2.95	5.76	4.12	4.50	4.65	4.89	6.31	2.02	3.49	3.87	5.75	2.19	4.49						
Water Level Elevations (mASL)																								
Dec-05	348.05	345.68	342.24	338.12	347.39																			
May-06	347.54	346.41	341.53	330.10	346.85																			
Oct-06	347.39	345.07	342.30	329.27	346.94																			
May-07	347.64	346.56	341.51	330.99	346.67																			
Sep-07	348.07	344.65	340.97	329.88	346.11																			
Jul-08	348.54		341.55	331.53	346.67	342.93	337.45	346.52	345.93	348.65	347.39	342.87	348.43	347.30	343.21	341.60	341.60		341.67	341.77	341.26	341.19	341.49	341.42
Oct-08	348.17	346.73	341.71	331.40	346.79	343.18	340.38	346.88	346.42	349.14	348.23		348.63	347.47	343.84	341.83	341.83		341.82	341.82	341.32	341.22	341.62	341.49
May-09	348.78	346.76	341.72	331.60	346.82	343.02	340.15	346.70	346.11	349.00	347.95	343.04	348.65	347.43	343.56	341.49	347.95	346.90	341.83	341.76	341.31	341.21	341.61	341.42
Sep-09	348.19	345.61	341.39		346.06	342.54	339.85	345.61	345.11	347.35	346.76	342.37	347.98	346.69	342.57	340.56	346.79	345.77	341.62	341.74	341.09	341.09	341.18	341.37
Feb-10	348.01	346.63	341.69		347.13								348.66	347.33										
May-10	348.13	346.70	341.97	331.29	347.19	343.25	339.99	347.04	346.27	349.47	348.11	342.97	348.70	347.31	344.45	341.74	348.05	346.91	341.80	341.85	341.36	341.22	341.74	341.49
Sep-10	348.08	345.34	341.42	330.45	346.28	342.59	339.65	345.76	345.17	348.56	347.56	342.20	348.17	346.55	342.07	340.27	346.59	345.52	341.64	341.75	341.14	341.09	341.23	341.38
May-11	348.79	346.93	342.23	331.77	347.01	343.31	340.25	347.30	346.50	349.70	348.55	343.11	348.74	347.56	344.30	341.80	348.18	347.04	341.93	341.92	341.44	341.29	341.91	341.55
Sep-11	348.23	345.20	341.55	330.54	346.13	342.51	339.61	345.50	344.95	347.32	346.68	343.41	348.29	346.56	341.52	340.16	346.28	345.34	341.73	341.84	341.16	341.07	341.35	Dry
May-12	351.98	346.45	341.62	331.43	346.52	342.75	339.99	345.65	345.04	347.58	346.79	343.69	348.55	347.16	343.32	341.09	347.76	346.65	341.81	342.13	341.02	341.14	341.29	341.47
Sep-12	349.78	344.55	341.46	330.36	345.70	342.02	339.01	344.80	344.30	346.59	346.02	342.76	347.90	345.81	340.93	339.34	345.54	344.33	342.34	342.51	341.16	341.14	341.20	341.50
Apr-13	348.41	346.91	342.36	332.13	347.41	343.41	340.29	347.00	346.14	349.57	348.40	344.06	348.74	347.51	344.55	341.99	348.15	346.97	342.83	342.56	341.50	341.37	341.82	341.64
Sep-13	349.29	346.07	341.68	331.53	346.46	342.78	340.10	345.50	344.95	347.56	346.89	343.68	348.38	347.06	342.57	340.90	347.49	346.21	342.58	Dry	341.26	341.17	341.57	341.60
May-14	350.49	346.42	341.59	331.49	346.57	342.78	339.97	345.73	345.08	347.67	347.11	342.58	348.67	347.25	342.77	341.36	347.78	346.87	341.74	341.91	341.10	341.19	341.79	341.59
Sep-14	348.50	346.85	342.06	331.27	347.22	343.28	340.40	346.55	345.71	349.28	347.70		348.64	347.50	344.10	341.82	348.07	346.98	Inaccessible	Inaccessible	Inaccessible	341.20	341.71	341.54
May-15	348.24	346.44	341.71	331.03	346.82	342.76	339.98	345.53	344.86	347.68	346.81	342.03	348.60	347.24	343.30	341.16	347.69	346.68	342.67	Dry	341.27	341.22	341.62	341.49
Sep-15	348.14	345.73	341.55	332.03	346.28	342.45	339.67	344.76	344.30	346.77	346.04	342.33	348.36	346.94	342.30	340.56	346.71	345.81	342.47	Dry	Dry	341.15	341.36	341.46
May-16	348.97	346.78	341.81	331.73	346.90	343.02	340.27	345.75	345.09	348.00	347.19	342.82	348.66	347.52	343.38	341.41	347.79	346.91	342.70	Dry	341.30	341.21	341.64	341.47
Sep-16	348.06	345.36	341.42	330.51	345.80	341.46	339.21	344.13	343.80	345.57	345.38	341.98	347.90	346.46	341.04	339.74	346.35	345.18	341.40	Dry	Dry	Dry	341.48	341.39
May-17	348.88	346.94	342.61	331.56	347.80	343.85	340.28	346.92	345.70	349.63	348.00	342.95	348.80	347.51	344.72	340.89	348.15	346.96						
Sep-17	346.26	345.80	341.60	330.98	346.22	342.84	339.93	345.00	344.57	346.72	346.21	342.34	348.33	347.23	341.86	340.61	347.42	346.00						
May-18	348.89	346.84	341.96	331.00	347.44	343.23	340.20	346.46	345.62	349.31	348.08	342.86	348.71	347.49	344.11	340.69	348.01	346.88	342.77	342.46	341.43	341.30	341.71	341.57
Sep-18	348.13	345.10	341.48	329.88	345.84	340.65	338.58	344.34	343.99	345.82	345.64	341.73	347.79	346.14	340.75	339.65	345.70	344.75	342.43	342.58	341.20	341.16	341.38	341.48
May-19	348.89	346.81	342.05	331.16	347.36	343.22	340.19	346.42	345.49	349.26	348.00	342.73	348.69	347.42	343.97	341.61	348.10	346.86						
Sep-19		345.29	341.46	329.82	345.79	341.00	338.83	344.13	343.77	345.77	345.48	341.70	347.96	346.48	341.03	340.61	346.45	345.12						
May-20		346.66	341.77	330.69	346.91	343.02	339.93	345.80	345.02	348.38	347.06	342.51	348.65	347.40	343.43	341.26	347.94	346.77						
Sep-20		345.40	341.50	329.44	346.01	341.93	339.22	344.04	343.66	345.56	345.52	341.87	347.91	346.68	340.82	339.77	347.32	345.52						
May-21		346.61	341.74	330.32	346.83	343.07	339.90	345.71	345.03	348.24	347.10	342.46	348.63	347.38	342.47	341.29	347.98	346.77						
Sep-21	347.85	345.16	341.59	330.00	345.88	341.13	339.94	344.51	344.07	346.74	346.18	341.64	348.04	346.36	340.91	339.95	345.23	345.11						
May-22		346.77	341.99	330.59	347.39	343.27	340.01	346.58	345.53	349.42	347.84	342.71	348.73	347.42	343.90	341.56	348.15	346.87						
Sep-22		345.08	341.42	329.41	345.64	340.73	338.60	343.84	343.57	345.71	345.39	341.59	347.62	346.09	340.76	339.55	346.21	344.71						
May-23		346.78	341.95	331.35	347.23	343.23	340.06	346.23	345.28	349.25	347.71	342.72	348.67	347.40	343.76	341.53	348.03	346.85						
Sep-23		346.33	341.68	330.01	346.47	342.84	339.92	345.18	344.57	348.69	346.85	342.35	348.59	348.21	342.58	341.15	347.74	346.50						
May-24		346.73	341.99	329.96	347.13	343.11	339.86	346.04	345.21	347.59	348.92	342.55	348.69	347.38	343.55	341.41	348.00	346.83						
Sep-24	348.09	345.73	341.49	330.09	346.09	342.42	339.72	344.52	344.08	346.94	346.21	342.04	348.08	346.82	341.71	340.46	347.52	345.80						
May-25	348.79	346.63	341.79	329.81	347.00	343.07	339.90	345.49	344.88	348.26	347.10	342.55	348.58	347.25	343.49	341.28	347.88	346.70						
Sep-25		345.19	341.60	328.92	345.66	342.23	339.34	344.33	343.88	345.91	345.71	341.57	347.71	346.18	341.03	339.92	346.98	344.74						

Notes: 1. The elevations were first surveyed in June 2008.

2) Revised Survey Elevations:

a) MW3D was repaired in Spring 2010 and resurveyed in September 2010.

b) MW8 was decommissioned and replaced as MW8-B in November 2014; surveyed October 2015.

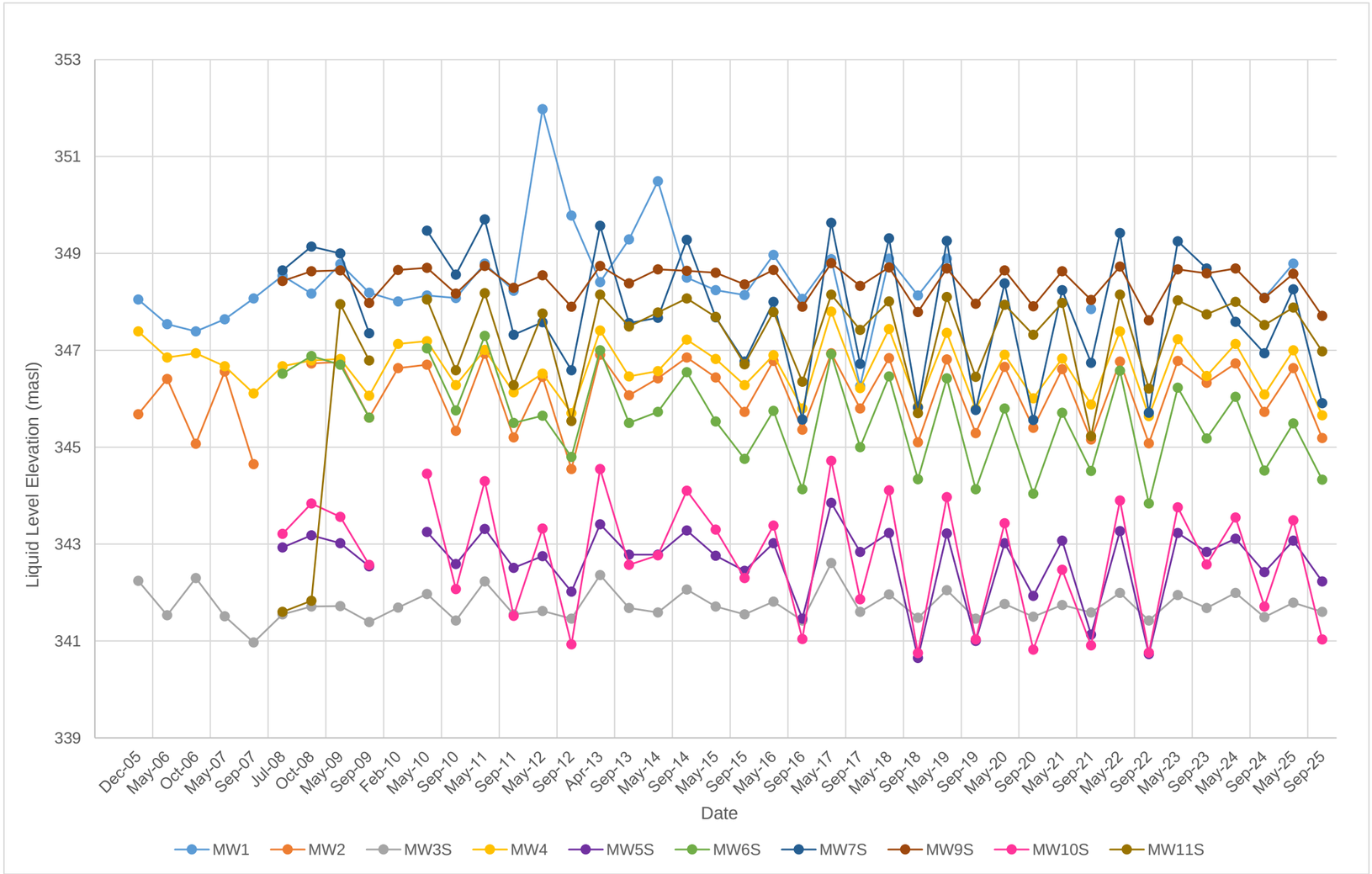
3) SW1/DP1 was moved further upstream prior to the 2012 monitoring events.

4) mBTOP denotes metres below top of pipe.

5) mASL denotes metres above sea level.

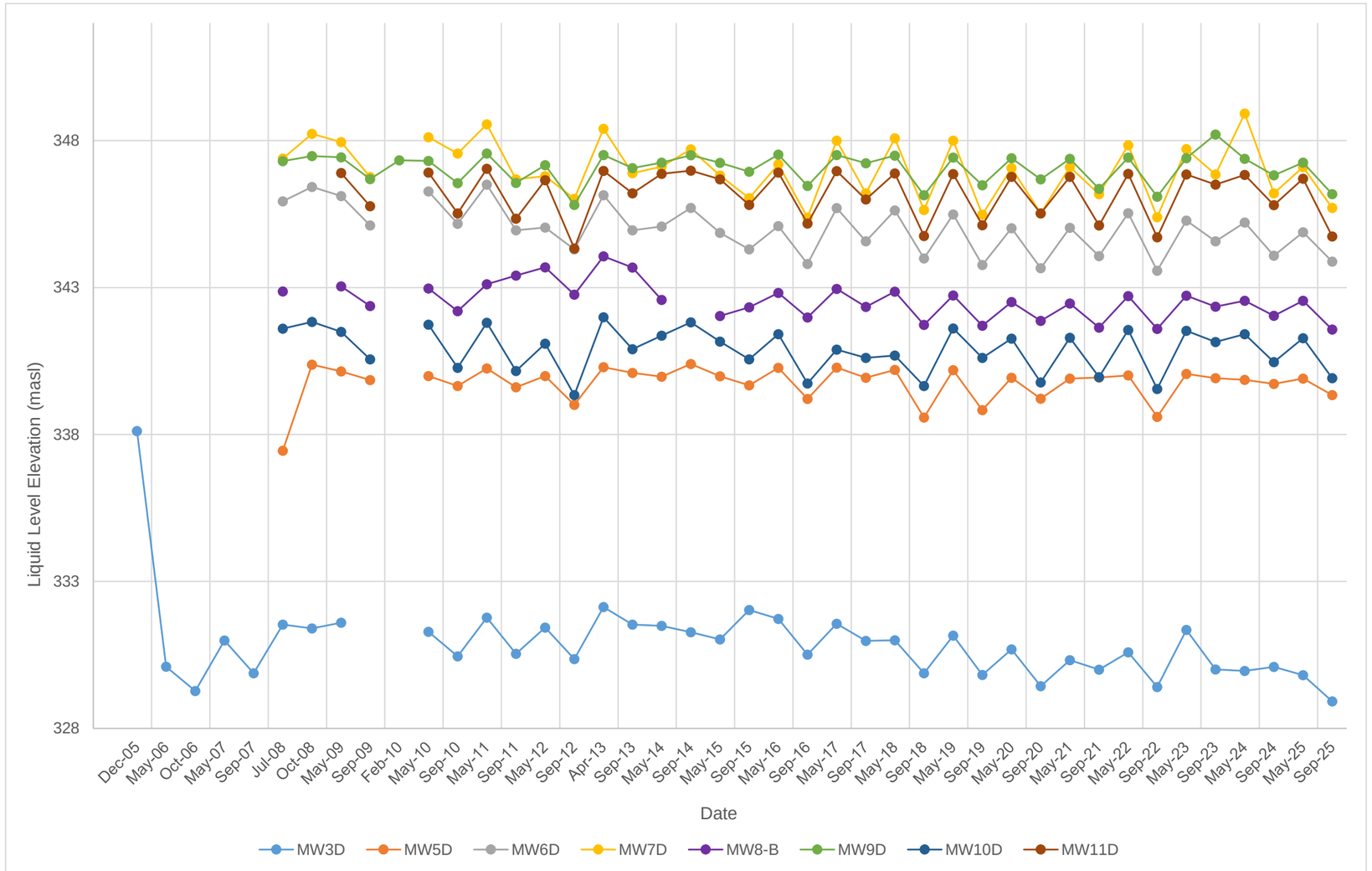
6) Blank denotes data not available.

FIGURE C-1: GROUNDWATER ELEVATION HYDROGRAPH
SHALLOW FLOW SYSTEM
Mitchell Domestic Landfill
Municipality of West Perth



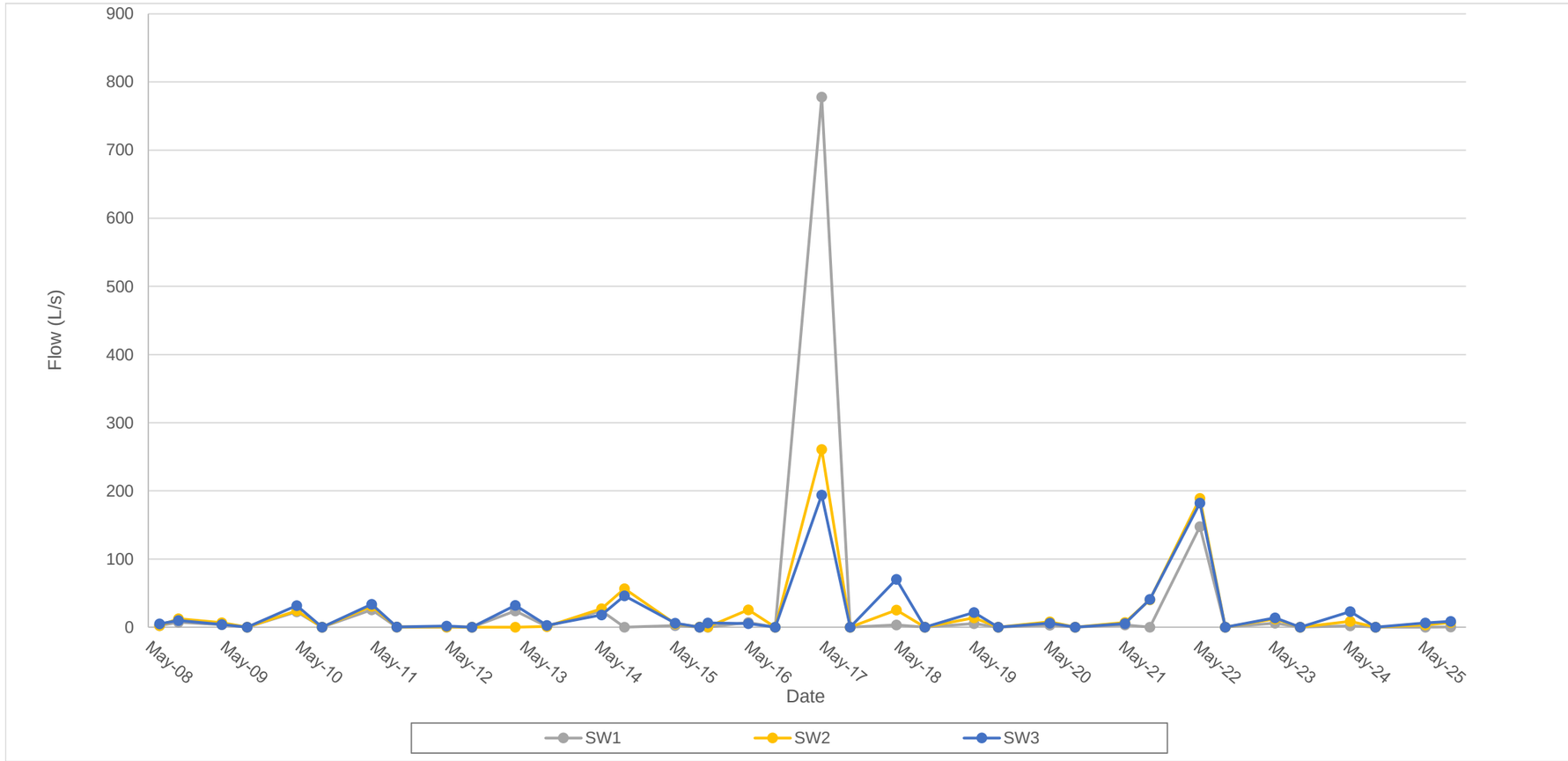
Pinchin File: 333568.002

FIGURE C-2: GROUNDWATER ELEVATION HYDROGRAPH
DEEP FLOW SYSTEM
Mitchell Domestic Landfill
Municipality of West Perth



Pinchin File: 333568.002

FIGURE C3: SURFACE WATER FLOW
2008 - 2025
Mitchell Domestic Landfill
Municipality of West Perth



Pinchin File: 333568.002

APPENDIX D

TABLE D-1
LEACHATE ANALYTICAL RESULTS - GENERAL PARAMETERS (1 of 2)
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1
			Dec-05	May-06	Oct-06	May-07	Sep-07	Jul-08	Oct-08	May-09	Sep-09	May-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	May-16	Sep-16
Field Electrical Conductivity	µS/cm	NV	8300	10700	10700	10900	11700	13800	1600	12300	10600	10800	12100	12000	8020	8580	11400	9730	2970	5850	7060	7730	7280	8430
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**1600**	**1290**	**1030**	**824**	**809**	**930**	**895**	**838**	**581**	**705**	**832**	**760**	**417**	**618**	**640**	**592**	**585**	**355**	**448**	**443**	**476**	**482**
pH	pH	6.5-8.5 (OG)	7.4	7.4	7.6	7.5	7.5	7.6	7.4	7.7	7.6	7.8	7.7	7.7	8	8.4	7.6	7.8	7.3	7.4	7.3	7.3	7.6	7.6
Total Dissolved Solids	mg/L	500 (AO)	**6150**	**4650**	**3620**	**4650**	**4650**	**4180**	**3800**	**3640**	**3150**	**3400**	**3860**	**3760**	**2650**	**2950**	**3210**	**2890**	**2640**	**2090**	**2240**	**2270**	**2470**	**2860**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	3280	4910	4850	5240	5910	7040	6580	6100	4410	5480	6630	6390	3130	4110	4970	5790	3850	2010	3070	3150	3100	3200
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	**3290**	**4910**	**4850**	**5240**	**5910**	**7040**	**6580**	**6100**	**4410**	**5480**	**6630**	**6390**	**3130**	**4110**	**4970**	**5790**	**3860**	**2010**	**3070**	**3150**	**3100**	**3200**
Ammonia, Total (as N)	mg/L	NV	1280	817	927	1100	1170	1390	933	1360	902	976	1280	1020	627	882	851	839	761	285	580	514	588	631
Bromide	mg/L	NV		3.700	3.500	<5	<0.05	4.500	3.400	<1	6.600	5.100	<0.5	<0.5	<0.5	<0.5	<5	6.000	4.400	0.510	4.700	4.600	4.400	3.700
Chloride	mg/L	250 (AO)	**910**	**697**	**632**	**523**	**663**	**561**	**630**	**548**	**740**	**721**	**569**	**567**	**708**	**651**	**588**	**448**	**673**	73	**648**	**671**	**795**	**750**
Fluoride	mg/L	1.5 (MAC)		<0.01	0.300	<5	<0.05	0.450	<0.05	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<1.0	<0.10	<0.20	0.420	<0.40	<0.40
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<2	2.400	0.100	<5	2.300	<0.05	<0.05	<1	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.07	<0.07	<2	<0.2	<0.3	<0.45	<0.45	<0.45
Nitrate as N	mg/L	10.0 (MAC)	<2	<0.017	<0.05	<5	2.300	<0.05	<0.05	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<1.0	<0.10	<0.20	<0.40	<0.40	<0.40
Nitrite as N	mg/L	1.0 (MAC)	<0.01	**2.4**	<0.05	<5	<0.05	<0.05	<0.05	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<5	<1.0	<0.10	<0.10	<0.20	<0.20	<0.20
Orthophosphate as P	mg/L	NV	0.009	74.8	<0.1	<10	<0.1	<0.1	6.6	<2	13.9	11.8	10.2	12.5	<1	<1	<10	<10	1.5	1.9	3.4	3.9	8.6	6.5
Sulphate	mg/L	500 (AO)	67.0	1.4	1.3	<10	12.6	1.3	<0.1	<2	<1	<1	<1	17.0	<1	<1	<10	<10	<20	<2.0	<3.0	<6.0	<6.0	<6.0
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**586**	**213**	**269**	**249**	**492**	**455**	**562**	**513**	**385**	**490**	**689**	**348**	**82**	**339**	**1450**	**443**	**402**	**191**	**250**	**146**	**235**	**318**
Aluminum	mg/L	0.1 (OG)	0.056	0.033	0.023	**0.160**	**0.150**	**0.160**	**0.240**	**0.430**	**0.780**	**0.220**	**0.310**	**0.350**	0.079	**0.190**	**0.280**	**0.250**	**0.170**	<0.10	**0.120**	0.100	0.100	**0.140**
Arsenic	mg/L	0.01 (IMAC)	<0.003	**0.018**	**0.02**	**0.058**	**0.042**	**0.051**	**0.04**	**0.021**	**0.013**	**0.026**	**0.034**	**0.028**	0.006	**0.024**	**0.023**	**0.019**	**0.012**	0.01	**0.012**	**0.011**	0.0094	**0.012**
Barium	mg/L	1.0 (MAC)	0.66	0.64	0.48	0.65	0.37	0.53	0.4	0.54	0.22	0.3	0.4	0.28	0.12	0.26	0.28	0.34	0.23	0.057	0.16	0.15	0.17	0.24
Boron	mg/L	5.0 (MAC)	1.6	1.1	0.99	0.74	0.89	0.75	1.3	0.95	1.3	0.79	0.73	0.7	1.2	0.92	0.81	0.75	1.2	1.5	1.3	1.4	1.4	1.1
Cadmium	mg/L	0.005 (MAC)	<0.0001	<0.0001	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00090	<0.00090	<0.00090	<0.00010	<0.00010	<0.00010
Calcium	mg/L	NV	200	150	76.8	69.4	93.3	125	126	128	87.5	95.8	119	108	60.2	90	89.6	82.2	90.3	52.7	68.6	66	72.3	75.9
Chromium	mg/L	0.05 (MAC)	<0.005	0.016	0.031	**0.099**	**0.084**	**0.23**	**0.17**	<0.003	**0.064**	0.048	**0.057**	0.047	0.013	0.024	**0.053**	0.034	0.018	0.0071	0.012	0.011	0.012	0.012
Copper	mg/L	1.0 (AO)	<0.001	0.014	0.003	0.005	<0.001	0.009	0.006	0.012	0.009	0.005	0.005	0.005	<0.003	<0.003	0.005	<0.003	<0.010	<0.010	<0.010	0.0029	0.0021	<0.0020
Iron	mg/L	0.3 (AO)	**59**	**11.4**	**1.9**	**13.1**	**9.1**	**11.6**	**12.9**	**12.2**	**15.9**	**14.9**	**13.9**	**13.5**	**11.4**	**14.2**	**16.1**	**24.1**	**15.5**	**3.5**	**15.3**	**11.4**	**14**	**14.8**
Lead	mg/L	0.01 (MAC)	<0.0005	<0.0005	0.002	<0.0005	<0.0005	<0.002	<0.002	0.007	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0050	<0.0050	<0.0050	0.0045	0.0034	0.002
Magnesium	mg/L	NV	250	223	204	158	140	150	141	126	88	113	130	119	64.8	95.6	101	93.8	87.2	54.1	67.3	67.6	71.8	71.1
Manganese	mg/L	0.05 (AO)	**0.6**	**0.053**	0.036	0.027	**0.073**	**0.072**	**0.14**	**0.17**	**0.2**	**0.15**	**0.14**	**0.2**	**0.18**	**0.16**	**0.18**	**0.16**	**0.2**	**0.11**	**0.2**	**0.15**	**0.22**	**0.21**
Potassium	mg/L	NV	350	450	448	415	456	519	519	464	378	448	483	454	318	407	382	368	371	256	264	284	259	272
Selenium	mg/L	0.05 (MAC)	<0.002	0.005	0.007	0.014	0.017	0.018	0.039	<0.004	<0.004	<0.004	0.011	<0.004	<0.004	<0.004			<0.0040	<0.0040	<0.0040	0.00075	0.0008	0.00081
Silicon	mg/L	NV	16	7.0	13.8	6.1	9.9	17.1	28.1	12.1	12.6	10.4	12.2	12.4	9.2	13.0	9.0	9.4	11.0	<10	10.0	9.4	11.4	9.9
Sodium	mg/L	200 (AO)	**810**	**624**	**636**	**573**	**554**	**567**	**568**	**509**	**496**	**514**	**571**	**536**	**519**	**562**	**512**	**499**	**539**	**526**	**525**	**513**	**524**	**493**
Zinc	mg/L	5.0 (AO)	<0.005	0.096	0.02	0.037	0.024	0.051	0.026	0.084	0.025	<0.004	0.035	0.11	0.018	0.016	0.017	0.021	<0.030	<0.030	<0.030	<0.010	<0.010	<0.010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise states, units are reported in mg/L.
7. NV denotes No Value

TABLE D-1
LEACHATE ANALYTICAL RESULTS - GENERAL PARAMETERS (2 of 2)
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1	MW1
			May-17	Sep-17	May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25	Sep-25
Field Electrical Conductivity	µS/cm	NV	4080	> 3999	6650	6430	3999					3815						3999	3999	
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**376**	**384**	**361**	**399**	**296**					**327**						**310**	**322**	
pH	pH	6.5-8.5 (OG)	7.3	7.3	7.7	7.2	7.2					7.3						7.41	7.49	
Total Dissolved Solids	mg/L	500 (AO)	**2330**	**2360**	**2310**	**2340**	**2110**					**2060**						**2120**	**1880**	
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	2730	2630	2400	2460	1740					1740						1870	820	
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<50					<5.0						<5.0	<1.0	
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	**2730**	**2630**	**2400**	**2460**	**1740**					**1740**						**1870**	**820**	
Ammonia, Total (as N)	mg/L	NV	607	455	399	477	437					178						198	224	
Bromide	mg/L	NV	3.000	<2.0	4.000	3.500	2.780					2.300						1.600	1.620	
Chloride	mg/L	250 (AO)	**685**	**675**	**592**	**639**	**497**					**518**						**414**	**393**	
Fluoride	mg/L	1.5 (MAC)	<0.40	<0.40	<0.40	<0.20	0.072					<0.20						0.304	0.380	
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.45	<0.45	<0.45	<0.22	<0.022					<0.22						<0.224	<0.224	
Nitrate as N	mg/L	10.0 (MAC)	<0.40	<0.40	<0.40	<0.20	<0.020					<0.20						<0.200	<0.200	
Nitrite as N	mg/L	1.0 (MAC)	<0.20	<0.20	<0.20	<0.10	0.0					<0.10						<0.100	<0.100	
Orthophosphate as P	mg/L	NV	3.9	3.7	3.0	0.400	0.137					0.038						0.0294	0.0078	
Sulphate	mg/L	500 (AO)	<6.0	11.0	18.9	28.5	7.1					<3.0						<3.00	<3.00	
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**185**	**192**	**234**	**162**	**238**					**78.6**						**68.2**	**54.0**	
Aluminum	mg/L	0.1 (OG)	0.082	0.079	0.096	<0.050	<0.050					<0.050						0.018	0.020	
Arsenic	mg/L	0.01 (IMAC)	0.0087	0.0074	0.0099	0.0076	0.0089					0.0048						0.00555	0.007	
Barium	mg/L	1.0 (MAC)	0.13	0.15	0.13	0.05	0.06					0.113						0.153	0.162	
Boron	mg/L	5.0 (MAC)	1.5	1.3	1.3	1.6	1.79					2.17						1.93	2.21	
Cadmium	mg/L	0.005 (MAC)	<0.00010	<0.00010	<0.000050	<0.000050	<0.000050					<0.000050						<0.0000500	<0.0000500	
Calcium	mg/L	NV	58.1	57.2	59.7	62.6	44.3					48.4						44.7	42.7	
Chromium	mg/L	0.05 (MAC)	0.0086	0.0081	0.0066	<0.0050	<0.0050					<0.0050						<0.00500	<0.00500	
Copper	mg/L	1.0 (AO)	<0.0020	<0.0020	<0.0020	<0.0020	0.0048					<0.0020						<0.00200	<0.00200	
Iron	mg/L	0.3 (AO)	**9.2**	**8.1**	**15.6**	**9.3**	**0.69**					**0.52**						**8.20**	**5.99**	
Lead	mg/L	0.01 (MAC)	0.0053	0.0026	0.0043	<0.00050	0.00122					<0.00050						<0.000500	<0.000500	
Magnesium	mg/L	NV	56.2	58.6	51.6	59	45.1					50						48.2	52.2	
Manganese	mg/L	0.05 (AO)	**0.13**	**0.14**	**0.199**	**0.283**	**0.0815**					**0.0775**						**0.0849**	**0.0692**	
Potassium	mg/L	NV	225	220	208	243	195					208						199	205	
Selenium	mg/L	0.05 (MAC)	0.00071	<0.00050	<0.00050	0.00066	<0.00050					<0.00050						0.000766	<0.000500	
Silicon	mg/L	NV	9.50	8.70	8.91	9.12	7.13					5.82						6.42	5.48	
Sodium	mg/L	200 (AO)	**487**	**487**	**468**	**519**	**479**					**468**						**429**	**390**	
Zinc	mg/L	5.0 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010					<0.010						<0.0100	<0.0100	

No sample collected.

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise states, units are reported in mg/L.
7. NV denotes No Value

TABLE D-1
LEACHATE ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	West Perth Sewer Use By-Law	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.
			Jul-12	*Sep-12*	*Apr-13*	*Sep-13*	*May-14*	*Sep-14*	*May-15*	*Sep-15*	*May-16*	*Sep-16*	*May-17*	*Sep-17*	*May-18*	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Field Electrical Conductivity	µS/cm	NV	872	1060	1720	4950	2640	2970	6010	3840	4370	4360	1900	> 3999	4740	7180			>3999	>3999	>3999	>3999	3391	>3999	>3999	3995	712	1088	9430	>3999
Total Hardness (as CaCO3)	mg/L	NV	214	225	411	456	602	500	1160	683	1160	842	779	1180	1230	1370	1130	1460	1600	1850	1080	1200	822	1080	947	1300	1210	1250	1180	900
pH	pH Units	6.9 - 9.5	8	8.2	7.6	8.4	7.6	7.8	8	7.2	7.9	7.8	7.5	7.6	7.8	7.9	7.34	7.60	7.90	7.48	7.71	7.95	7.87	7.89	7.64	7.64	7.98	7.88	8.04	8.07
Total Suspended Solids	mg/L	350	<10		17	40	**653**	**461**	79	37	60.2	74.6	98	18.4	21.2	8.3	160	152	**1760**	**4720**	90.7	73.5	130	8.2	28.3	**355**	94.0	81.0	18.2	**974**
Total Dissolved Solids	mg/L	NV	552	640	1060	2770	1880	1710	4640	1840	2950	557	1470	3360	2740	4220	2670	4170	3410	4660	3390	4160	2070	3020	2580	3910	3050	5180	5090	3340
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV		210			1230	970	2660	1450	1690	1350	966	2280	2180	3120	1650	2910	2090	3450	1920	2410	1230	820	1880	2880	2610	3920	3190	2400
Alkalinity, Carbonate (as CaCO3)	mg/L	NV		<5			<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50	<50	<50	<10	<10	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0
Alkalinity, Total (as CaCO3)	mg/L	NV	213	210	377	1350	1240	976	2660	1450	1690	1350	966	2280	2180	3120	1650	2910	2090	3450	1920	2410	1230	820	1880	2880	2610	3920	3190	2400
Ammonia, Total (as N)	mg/L	NV	0.250	1.8	9.6	137	52.5	36.0	129	64.9	48.8	50.5	26.9	115	92	365	125	301	234	302	162	217	62.0	144	155	294	205	491	400	208
Ammonium - NH4+	mg/L	NV	0.3		12.2	154																								
Chloride	mg/L	NV	142	166	169	886	301	374	781	427	580	613	177	699	383	687	450	777	685	971	834	878	428	813	591	896	826	1380	1180	690
(Nitrate + Nitrite) as N	mg/L	NV	0.790	2.40	<0.07	3.99	<2	<2	<0.6	<0.22	<0.45	8.760	<0.45	<0.45	<0.22	1.53	<0.45	14.6	21.7	21.6	28.4	7.96	11.4	4.43	6.46	5.34	9.86	9.41	12.20	0.473
Nitrate as N	mg/L	NV	0.790	2.40	<0.5	3.99	<1.0	<1.0	<0.40	<0.20	<0.40	8.760	<0.40	<0.40	<0.20	1.21	<0.40	14.6	21.7	21.6	28.4	7.96	11.4	4.43	6.46	5.34	9.86	9.18	12.20	0.47
Nitrite as N	mg/L	NV	<0.05	<0.05	<0.5	<2.5	<1.0	<1.0	<0.20	<0.10	<0.20	<0.10	<0.20	<0.20	<0.10	0.32	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.200	<0.200	<0.200	<0.200	<0.200	0.233	<0.200	<0.200
Organic Nitrogen	mg/L	NV					34.4	25.8				29.1								<69	<38	<51	16.2	70	61	79.0	110	273	206	76.0
Total Kjeldahl Nitrogen	mg/L	NV	4.7	5.4	17	206	87	62	170		85	80	49	156	160	480	159	288	212	346	189	254	78.2	214	216	373	315	764	606	284
Orthophosphate as P	mg/L	NV		<0.1			0.156	1	5																					
Total Phosphorus	mg/L	100	0.220	0.130	0.240	3.2	2.7	2.4	8.1	2.6	3.4	1.6	5.2	4.6	6.5	6.5	7.66	7.14	7.11	7.11	2.79	4.79	0.806	3.39	3.12	7.42	6.31	6.93	5.61	3.63
Sulphate	mg/L	1500	51	85	196	72	<20	77	24	18	217	88	136	114	134	158	259	244	295	225	280	169	188	156	94.5	47.8	109	119	139	81.7
Dissolved Organic Carbon (DOC)	mg/L	NV	28	24	104	133	220	113	842	112	181	150	318	255	280	373	414	122	198	711	215	290	101	228	181	310	253	397	352	207
Chemical Oxygen Demand	mg/L	NV	81	76	254	533	890	520	2840	447	710	650	1100	713	870	1260	1700	960	750	960	643	785	317	712	645	1040	905	1360	1270	870
Phenols	mg/L	1	0.002	0.001	0.048	0.007	0.210	0.015	1	0.096	0.065	0.017	0.460	0.084	0.102	0.02	0.199	0.037	0.0074	<0.0050	0.011	0.011	<0.0050	<0.100	<0.0100	0.0182	0.0152	0.0156	0.0084	0.0189
Arsenic	mg/L	1	0.006	<0.003	0.008	0.036	0.015	<0.010	0.016	0.013	0.018	0.013	0.015	0.026	0.035	0.079	0.032	0.0424	0.0385	0.0432	0.0213	0.0357	0.00942	0.0304	0.0323	0.0558	0.0407	0.0666	0.0542	0.0263
Barium	mg/L	5	0.077	0.110	0.110	0.120	0.140	0.130	0.210	0.180	0.190	0.250	0.110	0.26	0.18	0.27	0.211	0.235	0.326	0.328	0.181	0.27	0.121	0.208	0.196	0.316	0.222	0.280	0.209	0.179
Boron	mg/L	NV	0.300	0.320	0.86	1.90	0.92	2.00	3.80	2.40	4.70	3.00	0.97	3.00	1.4	3.7	1.91	3.66	4.33	5.60	4.57	4.72	2.49	4.48	5.40	7.61	6.51	11.80	9.51	5.39
Cadmium	mg/L	2	<0.002	<0.002	<0.0001	<0.0001	0.001	<0.00090	<0.00090	<0.00010	0	<0.00010	0.000	<0.00010	0.00014	<0.000050	0.000153	0.000066	0.000273	0.000215	0.000073	<0.000050	<0.0000500	0.0000751	0.0000542	0.00012	0.0000636	<0.0000500	<0.0000500	<0.0000500
Calcium	mg/L	NV	59	63	121	106	161	125	301	183	270	205	227	318	369	370	328	400	454	500	273	317	218	259	244	332	329	310	295	225
Chromium	mg/L	5	0.007	0.008	0.011	0.049	0.018	0.021	0.060	0.018	0.018	0.022	0.014	0.03	0.02	0.056	0.0249	0.0376	0.0527	0.0725	0.0395	0.0489	0.0160	0.0375	0.0479	0.0762	0.0806	0.1370	0.1340	0.0640
Cobalt	mg/L	NV	0.002	0.002	0.009	0.009	0.005	0.008	0.014	0.006	0.012	0.012	0.006	0.0097	0.0049	0.0147	0.0081	0.0132	0.0201	0.0246	0.0163	0.0179	0.00870	0.0164	0.0119	0.0171	0.0119	0.0203	0.0184	0.0136
Copper	mg/L	5	0.009	0.010	0.010	0.009	<0.010	0.104	0.012	<0.010	0.011	0.250	0.020	<0.010	0.012	<0.010	0.013	0.019	0.0506	0.0337	0.0178	0.0098	0.0149	0.00962	0.0137	0.0141	0.00930	0.00766	0.00912	0.00951
Iron	mg/L	50	0.310	<0.01	1.7	0.8	1.2	2.4	3.1	4.4	1.5	3.8	5.9	2.4	2.1	1.8	9.6	2.7	22.8	22.1	3.66	10.9	1.54	5.68	3.25	7.10	2.74	2.73	3.12	5.54
Lead	mg/L	5	<0.002	<0.002	0.005	0.003	<0.0050	<0.0050	<0.0050	0.002	0.003	0.001	0.007	0.0023	0.0095	0.0038	0.00682	0.00311	0.0171	0.0173	0.00161	0.002	0.000674	0.00142	0.00189	0.00452	0.00161	0.000948	0.002490	0.00175
Manganese	mg/L	NV	0.130	0.069	0.82	0.240	0.460	0.260	1.00	0.63	0.69	0.480	1.0	0.75	1.01	0.74	1.21	0.997	1.17	1.22	0.574	0.779	0.672	0.650	0.809	1.10	1.15	0.825	0.922	0.662
Molybdenum	mg/L	NV	0.002	0.002	0.003	0.002	<0.0050	<0.0050	<0.0050	0.0	0.0	0.007	0.001	0.0028	0.0017	0.0027	0.00554	0.00312	0.00339	0.00287	0.00322	0.00298	0.00249	0.00294	0.00215	0.00297	0.00264	0.00354	0.00388	0.00239
Nickel	mg/L	5	0.018	0.015	0.021	0.042	0.018	0.030	0.066	0.027	0.047	0.052	0.022	0.046	0.025	0.059	0.0291	0.0492	0.0639	0.0763	0.0554	0.0587	0.0325	0.0559	0.0396	0.0550	0.0402	0.0658	0.0616	0.443
Selenium	mg/L	NV	<0.004	<0.004	<0.004	<0.004	<0.0040	<0.0040	<0.0040	0.00064	0.00087	0.0028	0.00068	0.0011	0.0008	0.0017	0.0007	0.0012	0.00116	0.00132	0.00121	0.00145	0.000658	0.000927	0.000886	0.00144	0.00128	0.00153	0.00143	0.000834
Zinc	mg/L	5	0.027	0.014	0.094	0.073	0.046	0.21	0.61	0.077	0.21	0.29	0.33	0.08	0.163	0.056	0.548	0.087	0.222	0.151	0.077	0.03	0.0596	0.0380	0.0489	0.0484	0.0752	0.0372	0.0492	<0.0300
Dissolved Mercury	mg/L	0.1	<0.0001		<0.0001	<0.0001	<0.00010	<0.00010	0.000036	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0010	<0.000010	<0.0000050	0.0000059	<0.0000050	<0.000050	<0.000050	<0.0000050	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500

Notes:
1. Leachate Pumping Station results are compared to the criteria outlined in Condition 8 of the Municipality of West Perth By-law No. 110-2002.
2. From the Leachate Pumping Station, leachate is transferred to the sanitary sewer for treatment at the Mitchell Sewage Treatment Facility.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise states, units are reported in mg/L.
7. NV denotes No Value
8. Bold, Shaded and dotted denotes RDL exceedances of the ODWS.

TABLE D-2
LEACHATE ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS (1 of 2)
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW1 Dec-05	MW1 May-06	MW1 Oct-06	MW1 May-07	MW1 Sep-07	MW1 Jul-08	MW1 Oct-08	MW1 May-09	MW1 Sep-09	MW1 May-10	MW1 Sep-10	MW1 May-11	MW1 Sep-11	MW1 May-12	MW1 Sep-12	MW1 Apr-13	MW1 Sep-13	MW1 May-14	MW1 Sep-14	MW1 May-15	MW1 Sep-15	MW1 May-16	MW1 Sep-16
Acetone		NV	<100	<50	<50	<50	<4	<2	<2	<10	<10	<10		<10	<10	<4	<10	<10	<10	<100	<20	<10000	<20	<80	<20
Benzene	µg/L	1 (MAC)	**2**	**<20**	**<20**	**<20**	**<1.6**	**0.99**	**1.1**	**<2**	**<2**	**<2**	<1	**<2**	**<2**	<0.8	**<2**	**<2**	**<2**	**<2.5**	**1.6**	**<250**	**1.2**	**<2.0**	**1.7**
Bromodichloromethane	µg/L	NV	<1	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2	<1	<2	<2	<0.8	<2	<2	<2	<5.0	<1.0	<500	<1.0	<4.0	<1.0
Bromoform	µg/L	NV	<2	<10	<10	<10	<0.8	<0.4	<0.4	<1	<1	<1	<1	<1	<1	<0.4	<1	<1	<10	<5.0	<1.0	<500	<1.0	<4.0	<1.0
Bromomethane	µg/L	NV	<5	<20	<20	<20	<1.84	<0.8	<0.8	<2	<2	<2	<2	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	<250	<0.50	<2.0	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<1	**<20**	**<20**	**<20**	<1.6	<0.8	<0.8	<2	<2	<2	<1	<2	<2	<0.8	<2	<2	<2	**<2.5**	<0.50	**<250**	<0.50	<2.0	<0.50
Chlorobenzene	µg/L	80 (MAC)	<1	<10	<10	<10	<0.8	<0.4	<0.4	<1	<1	<1	<1	<1	<1	<0.4	<1	<1	<10	<2.5	<0.50	**<250**	<0.50	<2.0	<0.50
Dibromochloromethane	µg/L	NV	<2	<10	<10	<10	<0.8	<0.4	<0.4	<1	<1	<1	<1	<1	<1	<0.4	<1	<1	<10	<5.0	<1.0	<500	<1.0	<4.0	<1.0
Chloroethane	µg/L	NV		<20	<20	<20	**4.4**	**4.7**	**7.5**	<2	**10**	**7.7**	<2	**6.9**	<2	**10**	<2	**25**	**9.9**	**9.1**	**7.5**	<500	**12.7**	**10.6**	**8.6**
Chloroform	µg/L	NV	<1	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2	<1	<2	<2	<0.8	<2	<2	<2	<5.0	<1.0	<500	<1.0	<4.0	<1.0
Chloromethane	µg/L	NV		<40	<40	<40	<3.2	<1.6	<1.6	<4	<4	<4	<40	<4	<4	<1.6	<4	<4	<40	<5.0	<1.0	<500	<1.0	<4.0	<1.0
Ethylene Dibromide	µg/L	NV	<2	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2	<2	<2	<2	<0.4	<1	<1	<10	<2.5	<0.50	<250	<0.50	<0.80	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<2	<10	<10	<10	<0.8	<0.4	<0.4	<1	<1	<1	<1	<1	<1	<0.4	<1	<1	<10	<2.5	<0.50	**<250**	<0.50	<2.0	<0.50
1,3-Dichlorobenzene	µg/L	NV	<2	<10	<10	<10	<0.8	<0.4	<0.4	<1	<1	<1	<1	<1	<1	<0.4	<1	<1	<10	<2.5	<0.50	<250	<0.50	<2.0	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<2	**<10**	**<10**	**<10**	<0.8	<0.4	<0.4	<1	<1	<1	<1	<1	<1	<0.4	<1	<1	**<10**	<2.5	<0.50	**<250**	<0.50	<2.0	<0.50
Dichlorodifluoromethane	µg/L	NV														<0.8	<2	<2	<2	<2	<2	<500	<1.0	<4.0	<1.0
1,1-Dichloroethane	µg/L	NV	**4**	<50	<30	<30	<2.4	<1.2	<1.2	<3	<3	<3	<1	<3	<3	<1.2	<3	<3	<3	<2.5	<0.50	<250	**0.7**	<2.0	**0.66**
1,2-Dichloroethane	µg/L	5 (IMAC)	<1	**<20**	**<20**	**<20**	<1.6	<0.8	<0.8	<2	<2	<2	<2	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	**<250**	<0.50	<2.0	<0.50
1,1-Dichloroethene	µg/L	14 (MAC)	<1	**<20**	**<20**	**<20**	<1.6	<1.2	<1.2	<3	<3	<3	<1	<3	<3	<1.2	<3	<3	<3	<2.5	<0.50	**<250**	<0.50	<2.0	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	**1**	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2	<1	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	<250	<0.50	<2.0	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<1	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2	<1	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	<250	<0.50	<2.0	<0.50
Methylene Chloride (Dichloromethane)	µg/L	50 (MAC)	<5	<50	<30	<30	<2.4	<1.2	<1.2	<3	<3	<3	<3	<3	<3	<1.2	<3	<3	<3	<10	<2.0	**<1000**	<2.0	<8.0	<2.0
1,2-Dichloropropane	µg/L	NV	<1	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2	<2	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	<250	<0.50	<2.0	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<2	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2	<2	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	<250	<0.50	<2.0	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<2	<50	<30	<30	<2.4	<1.2	<1.2	<3	<3	<3	<2	<3	<3	<1.2	<3	<3	<3	<2.5	<0.50	<250	<0.50	<2.0	<0.50
Ethylbenzene	µg/L	2.4 (AO)	**61.0**	**<10**	**<10**	**<10**	**6.3**	**2.4**	**2.0**	**1.1**	**1.7**	<1	**1.7**	<1	**1.6**	**0.8**	<1	<1	**<10**	**<2.5**	**1.5**	**<250**	**1.5**	<2.0	**1.7**
n-Hexane	µg/L	NV										<2		<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	<250	<0.50	<2.0	<0.50
2-Hexanone	µg/L	NV		<50	<30	<30	<2.4	<1.2	<1.2	<3	<3	<3		<3	<3	<1.2	<3	<3	<3	<100	<20	<10000	<20	<80	<20
Methyl Ethyl Ketone	µg/L	NV	<50	<90	<90	<90	<7.2	**13**	<3.6	<10	<10	<10		<10	<10	<4	<10	<10	<10	<100	<20	<10000	<20	<80	<20
Methyl Isobutyl Ketone	µg/L	NV	<50	**1100**	<30	<30	<2.4	**20**	<1.2	<10	<10	<10		<10	<10	<4	<10	<10	<10	<100	<20	<10000	<20	<80	<20
Methyl tert-butyl ether	µg/L	NV	<2	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2		<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	<250	<0.50	<2.0	<0.50
Styrene	µg/L	NV	<1	<10	<10	<10	<0.8	<0.4	<0.4	<1	<1	<1		<1	<1	<0.4	<1	<1	<10	<2.5	<0.50	<250	<0.50	<2.0	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<1	<10	<10	<10	<1.04	<0.4	<0.4	<1	<1	<1	<1	<1	<1	<0.4	<1	<1	<10	<2.5	<0.50	<250	<0.50	<2.0	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<1	<10	<10	<10	<1.6	<0.4	<0.4	<1	<1	<1	<1	<1	<1	<0.4	<1	<1	<10	<2.5	<0.50	<250	<0.50	<2.0	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<1	<10	<10	<10	<0.8	<0.4	<0.8	<2	<2	<2	<1	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	**<250**	<0.50	<2.0	<0.50
Toluene	µg/L	24 (AO)	**237**	**8300**	**7000**	**3000**	**1700**	**840**	**1500**	**2000**	**330**	**48**	**80**	**8.9**	**12**	<0.8	**5.7**	**8.3**	**24**	**6.3**	**2.5**	**<250**	**3.4**	**12.1**	**5.1**
1,2,4-Trichlorobenzene	µg/L	NV		<50	<30	<30	<2.4	<1.2	<1.2	<3	<3	<3		<3	<3	<1.2	<3	<3	<3		<10	<5000	<10	<40	<10
1,1,1-Trichloroethane	µg/L	NV	<1	<50	<30	<30	<2.4	<1.2	<1.2	<3	<3	<3	<1	<3	<3	<1.2	<3	<3	<3	<2.5	<0.50	<250	<0.50	<2.0	<0.50
1,1,2-Trichloroethane	µg/L	NV	<2	<20	<20	<20	<1.6	<0.8	<0.8	<2	<2	<2	<2	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	<250	<0.50	<2.0	<0.50
Trichloroethylene	µg/L	5 (MAC)	<1	**<40**	**<20**	**<20**	<1.6	<0.8	<0.8	<2	<2	<2	<1	<2	<2	<0.8	<2	<2	<2	<2.5	<0.50	**<250**	<0.50	<2.0	<0.50
Trichlorofluoromethane	µg/L	NV		<20	<40	<40	<1.92	<1.6	<1.6	<4	<4	<4	<2	<4	<4	<1.6	<4	<4	<40	<5.0	<1.0	<500	<1.0	<4.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	**<2**	**<17**	**<17**	**<17**	**<1.36**	<0.68	<0.68	**<1.7**	**<1.7**	**<1.7**	**<1.7**	**<1.7**	**<1.7**	<0.68	**<1.7**	**<1.7**	**<1.7**	**<2.5**	<0.50	**<250**	<0.50	**<2.0**	<0.50
o-Xylene	µg/L	NV	**93**	<10	<10	<10	**5.7**	**3.3**	**1.5**	**1.2**	**2.4**	**1.8**	**6**	**2.5**	**7**	**4.8**	**10**	**8.1**	**5.9**	**10.5**	**7.6**	<250	**3.7**	**8.9**	**18.3**
m & p-Xylene	µg/L	NV	**199**	<20	<20	<20	**18**	**12**	**3.7**	**2**	**3.2**	<2	**3.3**	<2	**3.6**	**2.2**	<2	**2.4**	<2	**6**	**4.8**	<500	**6.1**	**6.1**	**7.1**
Xylenes (Total)	µg/L	90 (AO)	**298**	<20	<20	<20	**24**	**15**	**5.2**	**3.2**	**5.6**	<2	**9.3**	**2.5**	**11**	**7**	**10**	**11**	**5.9**	**17**	**12**	**<500**	**9.8**	**15**	**25.4**

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. Bold, Shaded and dotted denotes RDL exceedances of the ODWS.

TABLE D-2
LEACHATE ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS (2 of 2)
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW1 May-17	MW1 Sep-17	MW1 May-18	MW1 Sep-18	MW1 May-19	MW1 Sep-19	MW1 May-20	MW1 Sep-20	MW1 May-21	MW1 Sep-21	MW1 May-22	MW1 Sep-22	MW1 May-23	MW1 Sep-23	MW1 May-24	MW1 Sep-24	MW1 May-25	MW1 Sep-25
Acetone		NV	<20	<20	<20	**39**	<20					<20						<20	<20	
Benzene	µg/L	1 (MAC)	**1.6**	**1.1**	**1.3**	**1.8**	**2.2**					**2.35**						**1.66**	**1.87**	
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0					<1.0						<0.50	<0.50	
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0					<1.0						<0.50	<0.50	
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50					<0.20						<0.20	<0.20	
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0					<1.0						<0.50	<0.50	
Chloroethane	µg/L	NV	**7.5**	**9.5**	**8.8**	**12**	**3.2**					**8.7**						**6.79**	**5.97**	
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0					<1.0						<0.50	<0.50	
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0					<2.0						<2.0	<2.0	
Ethylene Dibromide	µg/L	NV		<0.20	<0.20	<0.20	<0.20					<0.20						<0.20	<0.20	
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0					<1.0						<0.50	<0.50	
1,1-Dichloroethane	µg/L	NV	**0.69**	<0.50	**0.68**	**0.75**	<0.50					<0.50						<0.50	<0.50	
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
1,1-Dichloroethene	µg/L	14 (MAC)		<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Methylene Chloride (Dichloromethane)	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0					<2.0						<1.0	<1.0	
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.30						<0.30	<0.30	
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.30						<0.30	<0.30	
Ethylbenzene	µg/L	2.4 (AO)	**1.5**	**2.3**	**1.8**	**2.2**	**0.7**					**0.54**						**0.93**	**0.52**	
n-Hexane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20					<20						<20	<20	
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20					<20						<20	<20	
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20					<20						<20	<20	
Methyl tert-butyl ether	µg/L	NV		<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Tetrachloroethene	µg/L	10 (MAC)		<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Toluene	µg/L	24 (AO)	**7.9**	**6.9**	**1.8**	**2.2**	**1.38**					**1.14**						**3.33**	**1.8**	
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0					<2.0						<1.0	<1.0	
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.50	
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0					<1.0						<0.50	<0.50	
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50						<0.50	<0.20	
o-Xylene	µg/L	NV	**6.8**	**5.6**	**9.5**	**9.9**	**3.13**					**2.46**						**4.62**	**4.59**	
m & p-Xylene	µg/L	NV	**5.5**	**9.1**	**8.2**	**9.5**	**7**					**7.07**						**6.91**	**8.48**	
Xylenes (Total)	µg/L	90 (AO)	**12.3**	**14.7**	**17.7**	**19.4**	**10.13**					**9.53**						**11.53**	**13.1**	

No sample collected. (MW1 Sep-19, May-20, Sep-20, May-21)
No sample collected. (MW1 May-22, Sep-22, May-23, Sep-23, May-24)
Sample not collected (MW1 Sep-25)

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.

TABLE D-2
LEACHATE ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate Pumping Station	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.	Leachate P.S.
			Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17	May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25	Sep-25
Acetone		NV	<2	**100**	<20	**267**	**30**	**530**	**118**	**131**	<20	**284**	**257**	**23**	<20	**365**	<20	<20	<20	<20	<20	<20	**30**	<20	**21**	<20	<20	**25**	<20
Benzene	µg/L	1 (MAC)	<0.4	<0.8	**<40**	<0.50	<0.50	<0.50	<0.50	**<2.0**	<0.50	<0.50	<0.50	**5.02**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.58**	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.4	<0.8	<40	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<0.2	<0.4	<2	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.4	<0.8	<40	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.4	<0.8	**<40**	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	**7.36**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.2	<0.4	<2	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<1.00	<0.50	<0.50
Chloroethane	µg/L	NV	<0.4	<0.8	<40	<1.0	<1.0	<1.0	<5.0	<14	<1.0	<1.0	<1.0	**1.2**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<0.4	<0.8	<40	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<0.8	<1.6	<8	<0.50	<1.0	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<0.50	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<0.80	<0.20		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.60	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.2	<0.4	<2	<1.0	<0.50	<0.50	**0.55**	<2.0	<0.50	<0.50	<0.50	**5.26**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<0.4	<0.8	<40	<0.8	<40	<1.0		<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.6	<1.2	<6	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.4	<0.8	**<40**	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.6	<1.2	<6	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.4	<0.8	<40	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	**0.97**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.4	<0.8	<40	<0.50	<0.50	<0.50	**0.6**	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.6	<1.2	<6	<2.0	<2.0	<2.0	<2.0	<8.0	<2.0	<2.0	**2.6**	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.4	<0.8	<40	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.4	<0.8	<40	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.6	<1.2	<6	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	**0.54**	**0.77**	**0.61**	<0.50	**0.56**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.91**	**1.10**	**0.83**	**0.75**	<0.50
n-Hexane	µg/L	NV	<0.4	<0.8	<40	<0.75	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.6	<1.2	<6	<20	<20	<20	<20	<80	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<2	**24**	<20	**176**	<20	**730**	**140**	**95**	<20	**417**	**293**	<20	<20	**331**	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<2	**19**	<20	**35**	<20	**133**	<20	<80	<20	**32**	**39**	<20	<20	**97**	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.4	<0.8	<40	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	**1.02**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.4	<0.8	**<40**	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	**0.91**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.4	**1.6**	**<40**	**5.2**	<0.50	**3.3**	**2.5**	<2.0	<0.50	**5.7**	**21**	<0.50	**0.9**	**5.75**	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	**0.94**	**2.57**	**0.52**	**0.68**	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<0.6	<1.2	<6		<10	<10	<10	<40	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.6	<1.2	<6	<0.50	<0.50	**4.2**	<0.50	<2.0	<0.50	**0.71**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.4	<0.8	<40	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.4	<0.8	**<40**	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.8	**10**	<8	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.34	<0.68	**<3.4**	<0.50	<0.50	<0.50	<0.50	**<2.0**	<0.50	<0.50	**1.1**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.2	<0.4	<2	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	**0.88**	**1**	**1.2**	**1.1**	**0.92**	**1.01**	**0.32**	**0.74**	<0.30	**0.33**	<0.30	**0.35**	**0.44**	**1.04**	**1.39**	**1.10**	**1.05**	<0.30
m & p-Xylene	µg/L	NV	<0.4	<0.8	<40	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	**1.6**	**2.5**	**3.3**	**2.2**	**1.8**	**1.9**	**0.48**	**1.04**	<0.40	**0.63**	<0.40	**0.8**	**0.92**	**1.94**	**2.97**	**1.84**	**1.99**	**0.41**
Xylenes (Total)	µg/L	90 (AO)	<0.4	<0.8	<40	<1.0	<1.0	<1.0	<1.0	<4.0	<1.0	**2.5**	**3.5**	**4.5**	**3.3**	**2.72**	**2.91**	**0.8**	**1.78**		**0.96**		**1.15**	**1.36**	**2.98**	**4.36**	**2.94**	**3.04**	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. Bold, Shaded and dotted denotes RDL exceedances of the ODWS.

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW2 Dec-05	MW2 May-06	MW2 Oct-06	MW2 May-07	MW2 Sep-07	MW2 Jul-08	MW2 Oct-08	MW2 May-09	MW2 Sep-09	MW2 May-10	MW2 Sep-10	MW2 May-11	MW2 Sep-11	MW2 May-12	MW2 Sep-12	MW2 Apr-13	MW2 Sep-13	MW2 May-14	MW2 Sep-14	MW2 May-15	MW2 Sep-15	MW2 May-16	MW2 Sep-16
Field Electrical Conductivity	uS/cm	NV	696	625	600	572	585	589	592	552	533	548	561	543	529	577	556	644	557	472	534	534	650	690	630
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**280**	**290**	**276**	**282**	**267**	**310**	**300**	**292**	**251**	**298**	**295**	**284**	**275**	**266**	**284**	**276**	**282**	**323**	**291**	**283**	**286**	**283**	**274**
pH	N/A	6.5-8.5 (OG)	8.1	7.86	8.18	8.25	7.55	8.16	8.09	8.15	8.15	8.35	8.34	8.12	8.11	8.15	8.26	7.89	7.46	8.06	7.99	7.94	7.98	8.18	7.95
Total Dissolved Solids	mg/L	500 (AO)	380	330	320	314	350	444	362	354	302	322	340	328	322	324	354	328	302	331	310	265	294	388	349
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	295	306	299	290	307	303	289	289	269	281	293	287	302	296	291	295	329	301	288	306	292	301	301
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	3	<5	<5	<5	<5	<5	<5	<5	<5	12	6	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	299	306	299	291	307	303	289	289	269	293	300	287	302	296	291	295	329	304	290	306	292	301	301
Ammonia, Total (as N)	mg/L	NV	0.200	0.130	0.140	<0.02	0.440	0.050	0.030	<0.02	<0.02	0.020	<0.02	<0.02	<0.02	0.050	<0.02	0.060	<0.02	<0.050	<0.050	<0.050	0.068	0.024	0.047
Bromide	mg/L	NV		0.240	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	4.0	3.23	2.50	2.08	2.60	1.51	2.08	1.35	2.20	1.74	1.89	2.24	2.33	2.56	2.67	2.46	2.43	<2.0	<2.0	1.88	1.89	1.90	1.81
Fluoride	mg/L	1.5 (MAC)		1.14	1.25	1.34	1.37	1.26	1.24	1.13	**1.57**	1.33	1.27	1.04	1.12	0.84	0.99	1.24	1.10	1.40	1.44	1.50	1.37	1.40	1.24
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<2	<0.1	<0.1	<0.05	0.090	0.070	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.07	<0.07	<0.2	<0.2	<0.03	0.032	<0.022	0.031
Nitrate as N	mg/L	10.0 (MAC)	<2	<0.017	<0.05	<0.05	0.090	0.070	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	<0.020	0.032	<0.020	0.031
Nitrite as N	mg/L	1.0 (MAC)	<0.01	<0.009	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	0.0	1.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.25	<0.1	<0.2	<0.2	0.0047	0.0061	0.0040	<0.0030	<0.0030	0.0044
Sulphate	mg/L	500 (AO)	86.0	44.3	37.9	30.9	38.6	37.6	32.7	24.8	24.3	33.9	33.2	36.7	31.9	29.8	31.0	38.6	34.5	28.4	21.9	25.6	28.5	26.7	25.2
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**6.0**	4.5	3.6	2.0	2.8	3.5	2.9	1.8	1.5	4.9	1.3	2.5	0.9	1.6	1.4	**24.4**	0.7	<1.0	<1.0	2.1	1.7	4.1	<1.0
Aluminum	mg/L	0.1 (OG)	**0.290**	0.015	0.011	0.009	0.035	0.073	0.020	0.007	<0.004	0.004	0.029	0.004	0.008	0.009	0.009	0.045	<0.004	<0.010	<0.010	<0.010	<0.0050	0.0061	0.0068
Arsenic	mg/L	0.01 (IMAC)	0.004	0.008	0.009	0.008	0.005	<0.003	0.009	0.004	0.005	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.001	0.003	0.002	0.001	0.0021	0.0023
Barium	mg/L	1.0 (MAC)	0.051	0.067	0.095	0.133	0.143	0.145	0.156	0.133	0.158	0.151	0.181	0.173	0.171	0.145	0.167	0.162	0.161	0.163	0.185	0.180	0.197	0.181	0.182
Boron	mg/L	5.0 (MAC)	0.076	0.087	0.082	0.075	0.094	0.091	0.084	0.085	0.077	0.075	0.082	0.076	0.077	0.070	0.075	0.083	0.073	0.068	0.077	0.088	0.086	0.086	0.078
Cadmium	mg/L	0.005 (MAC)	<0.0001	<0.0001	<0.002	<0.0001	<0.0001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	62.0	62.6	55.6	55.1	53.9	62.6	59.5	58.4	48.9	59.2	58.9	57.0	55.1	53.2	57.1	54.5	57.5	74.7	65.2	55.5	59.3	55.5	56.8
Chromium	mg/L	0.05 (MAC)	<0.005	<0.005	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.002	0.018	<0.003	<0.001	<0.001	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	<0.00020	0.000	<0.00020
Iron	mg/L	0.3 (AO)	0.2	**4.25**	**1.65**	**1.27**	**0.717**	<0.01	**0.697**	0.096	<0.01	0.013	0.026	<0.01	<0.01	<0.01	<0.01	0.019	<0.01	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	30.0	32.5	33.3	35.1	32.1	37.3	36.8	35.6	31.3	36.4	35.9	34.4	33.3	32.4	34.3	33.9	33.5	33.2	31.2	35.1	33.4	35.1	32.0
Manganese	mg/L	0.05 (AO)	**0.1**	0.048	0.036	0.026	0.037	**0.056**	0.031	0.014	**0.051**	0.011	0.043	0.021	0.015	0.008	0.005	0.008	0.002	0.002	0.032	<0.0010	<0.00050	0.00102	0.00768
Potassium	mg/L	NV	2.0	2.59	2.26	1.91	1.88	1.85	1.83	1.69	1.54	1.96	1.80	1.90	1.77	1.61	1.86	1.63	1.84	1.50	1.60	1.50	1.77	1.60	1.64
Selenium	mg/L	0.05 (MAC)	<0.002	<0.002	<0.004	<0.002	<0.002	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000146	0.000113	0.000114
Silicon	mg/L	NV	5.9	6.62	6.24	6.94	6.79	6.23	6.91	6.53	5.74	6.25	6.56	6.78	6.86	5.81	6.72	7.17	6.51	5.90	6.70	6.80	7.21	6.73	6.27
Sodium	mg/L	200 (AO)	16.0	17.1	15.5	16.4	15.9	17.9	18.0	19.0	17.7	21.7	19.0	20.0	19.2	20.3	19.7	20.7	20.0	21.5	20.6	23.6	21.3	23.3	20.5
Zinc	mg/L	5.0 (AO)	<0.005	0.006	0.011	0.022	0.069	0.204	0.051	<0.004	<0.004	<0.004	<0.004	<0.004	0.004	<0.004	0.006	<0.005	<0.005	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW2 May-17	MW2 Sep-17	MW2 May-18	MW2 Sep-18	MW2 May-19	MW2 Sep-19	MW2 May-20	MW2 Sep-20	MW2 May-21	MW2 Sep-21	MW2 May-22	MW2 Sep-22	MW2 May-23	MW2 Sep-23	MW2 May-24	MW2 Sep-24	MW2 May-25	MW2 Sep-25
Field Electrical Conductivity	uS/cm	NV	690	553	630	760	523	496	576	496	568	497	647	570	587	595	643	242	572	549
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**267**	**270**	**253**	**268**	**233**	**252**	**250**	**249**	**252**	**243**	**261**	**266**	**268**	**267**	**239**	**248**	**259**	**277**
pH	N/A	6.5-8.5 (OG)	7.9	7.97	8.25	7.86	8.13	7.8	8	7.76	8.1	7.96	7.87	8.33	7.96	8.21	8.01	7.91	8.09	8.09
Total Dissolved Solids	mg/L	500 (AO)	369	334	363	349	315	326	276	305	285	292	310	288	277	274	265	319	301	288
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	318	314	305	272	273	279	266	265	284	313	289	246	334	296	291	297	208	279
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	8.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	318	314	305	272	273	279	266	265	284	313	289	254	334	296	291	297	280	279
Ammonia, Total (as N)	mg/L	NV	<0.020	<0.020	0.115	0.025	0.061	0.020	0.043	0.038	0.023	0.033	0.022	0.0228	0.017	0.0208	0.0555	<0.0050	0.0306	0.0110
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	1.90	1.85	1.92	1.88	1.56	1.51	1.67	1.66	1.86	1.62	1.90	1.72	1.69	1.80	1.65	2.13	1.86	1.82
Fluoride	mg/L	1.5 (MAC)	1.42	1.43	1.37	**1.54**	**1.55**	**1.55**	**1.57**	**1.59**	**1.55**	1.46	**1.51**	1.48	**1.52**	1.44	1.40	1.39	**1.54**	1.48
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.025	<0.022	0.025	0.027	0.030	0.032	<0.022	<0.022	0.022	<0.022	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	0.0260	<0.0224
Nitrate as N	mg/L	10.0 (MAC)	0.025	<0.020	0.025	0.027	0.030	0.032	<0.020	<0.020	0.022	<0.020	<0.020	0.020	<0.020	<0.020	<0.020	<0.020	0.026	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.0030	0.0046	0.0040	0.0033	0.0035	0.0040	<0.0030	0.0045	0.0039	0.0044	0.0041	0.0033	0.0040	0.0036	0.0032	0.0022	0.0036	0.0048
Sulphate	mg/L	500 (AO)	28.8	27.6	27.2	24.9	14.5	14.9	17.1	17.6	20.6	15.9	20.3	17.6	17.4	18.2	15.1	22.2	19.4	15.8
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.0	2.10	<1.0	2.94	1.13	1.06	1.45	0.84	1.35	2.11	0.54	2.98	0.84	0.94	0.83	1.47	0.81	<0.50
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0060	0.0049	0.0018	0.0028	0.0038	0.0017	0.0013	0.0015
Arsenic	mg/L	0.01 (IMAC)	0.0019	0.00197	0.00221	0.00188	0.01000	0.00517	0.00746	0.00550	0.00502	0.00566	0.00178	0.00374	0.00229	0.00227	0.00765	0.00566	0.00447	0.00386
Barium	mg/L	1.0 (MAC)	0.169	0.183	0.156	0.179	0.143	0.168	0.160	0.160	0.165	0.169	0.180	0.169	0.173	0.189	0.160	0.158	0.178	0.188
Boron	mg/L	5.0 (MAC)	0.086	0.074	0.079	0.085	0.096	0.087	0.100	0.096	0.076	0.088	0.074	0.089	0.074	0.073	0.084	0.089	0.092	0.090
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000072	0.0000052	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	NV	52.9	55.8	52.0	54.5	44.9	48.1	49.6	49.5	48.3	45.7	48.5	53.8	50.1	51.5	46.0	47.6	49.6	53.3
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	<0.00020	<0.00020	0.00023	<0.00020	0.00053	0.00027	<0.00020	0.00022	<0.00020	<0.00020	0.00226	0.00033	0.00065	0.00072	0.00041	0.00040	0.00039	0.00038
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	32.8	31.7	29.8	32.1	29.4	32.0	30.5	30.5	31.8	31.4	34.0	31.9	34.6	33.7	30.2	31.5	32.8	35.0
Manganese	mg/L	0.05 (AO)	0.00058	0.00810	0.00060	0.00238	0.00591	0.00297	0.00297	0.00112	0.00110	0.00348	0.00048	0.00232	<0.00010	0.00271	0.00363	0.00363	0.00111	0.00750
Potassium	mg/L	NV	1.52	1.58	1.43	1.61	1.43	1.66	1.46	1.45	1.51	1.47	1.40	1.54	1.48	1.48	1.34	1.46	1.48	1.51
Selenium	mg/L	0.05 (MAC)	0.000099	0.000076	0.000074	0.000109	0.000057	0.000103	0.000050	0.000069	0.000062	<0.000050	<0.000050	0.000061	0.000064	0.000101	<0.000050	<0.000050	<0.000500	0.000086
Silicon	mg/L	NV	6.61	6.41	6.25	6.73	7.30	6.88	7.28	7.04	6.67	7.66	6.82	7.50	6.88	6.78	7.00	7.13	7.47	7.52
Sodium	mg/L	200 (AO)	21.7	21.4	21.9	22.4	19.2	20.8	21.5	21.3	22.6	20.9	23.2	21.8	23.1	24.6	20.7	20.8	22.7	22.5
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	<0.0010	0.0020	<0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0029	<0.0010	0.0017	<0.0010	0.0014	0.0013	0.0010	0.0015

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW3S Dec-05	MW3S May-06	MW3S Oct-06	MW3S May-07	MW3S Sep-07	MW3S Jul-08	MW3S Oct-08	MW3S May-09	MW3S Sep-09	MW3S May-10	MW3S Sep-10	MW3S May-11	MW3S Sep-11	MW3S May-12	MW3S Sep-12	MW3S Apr-13	MW3S Sep-13	MW3S May-14	MW3S Sep-14	MW3S May-15	MW3S Sep-15	MW3S May-16	MW3S Sep-16
Field Electrical Conductivity	uS/cm	NV	1020	1520	1380	1370	3100	1470	1750	1330	2060	1210	2430	797	1620	2070	2680	780	1720	421	1148	1606	2290	1520	2540
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**540**	**642**	**631**	**637**	**1100**	**657**	**736**	**574**	**788**	**605**	**1030**	**436**	**744**	**745**	**1170**	**434**	**609**	**488**	**549**	**706**	**919**	**580**	**981**
pH	N/A	6.5-8.5 (OG)	8.04	7.43	7.81	7.52	6.99	7.56	7.45	7.64	7.5	8.13	7.42	7.91	7.64	7.59	7.66	8.11	7.06	7.45	7.32	7.09	6.97	7.37	7.11
Total Dissolved Solids	mg/L	500 (AO)	**622**	**848**	**858**	**934**	**2150**	**1100**	**1070**	**708**	**1240**	**738**	**1570**	**550**	**1120**	**1080**	**1740**	**518**	**874**	**603**	**700**	**849**	**1200**	**736**	**1440**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	412	586	489	546	1000	533	602	567	788	539	1050	402	771	847	1080	398	746	471	628	760	899	576	1040
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	417	**586**	489	**546**	**1000**	**533**	**602**	**567**	**788**	**539**	**1050**	402	**771**	**847**	**1080**	398	**746**	472	**630**	**760**	**899**	**576**	**1040**
Ammonia, Total (as N)	mg/L	NV	3.03	11.80	3.75	5.53	25.30	13.90	3.32	14.90	18.10	0.17	29.70	0.07	20.00	19.50	20.50	0.08	25.20	2.46	8.14	14.70	17.80	6.83	22
Bromide	mg/L	NV		0.420	0.220	0.300	1.180	0.320	0.510	<0.05	1.860	0.410	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	0.550	<0.10	0.150	0.480	<0.50	<0.50	<0.50
Chloride	mg/L	250 (AO)	40.0	128.0	73.2	92.2	**322**	70.0	124.0	52.7	163.0	72.2	175.0	8.7	102.0	189.0	**263.0**	14.7	101.0	23.7	49.0	123.0	151.0	57.0	154.0
Fluoride	mg/L	1.5 (MAC)		0.23	0.16	0.20	0.33	0.20	0.23	<0.05	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	0.16	0.12	0.13	<0.10	<0.10	<0.10
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.60	0.16	0.41	1.49	0.92	0.74	0.12	0.97	0.31	1.89	<0.05	1.62	0.26	0.14	<0.05	1.75	0.30	4.89	0.96	0.27	0.28	1.40	0.19
Nitrate as N	mg/L	10.0 (MAC)	0.60	0.16	0.41	1.31	0.82	0.74	0.12	0.97	0.31	1.89	<0.05	1.62	0.26	0.14	<0.05	1.75	0.30	4.76	0.96	0.26	0.19	1.05	0.19
Nitrite as N	mg/L	1.0 (MAC)	0.020	<0.009	<0.05	0.180	0.100	<0.05	<0.05	<0.05	<0.05	0.070	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	0.130	<0.10	0.012	0.087	0.349	<0.050
Orthophosphate as P	mg/L	NV	0.0090	12.70	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.25	<0.0030	0.00	<0.0030	<0.0030	<0.0030	<0.0030
Sulphate	mg/L	500 (AO)	94.0	124	195	143	442	160	187	89	179	102	204	73	164	69	205	36	68	27	33	24	120	21	145
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	4.6	**10.4**	**9.6**	**8.3**	**37.3**	**17.0**	**6.6**	**10.2**	**20.1**	**16.9**	**30.9**	2.6	**14.4**	**20.3**	**27.3**	3.1	**17.2**	4.2	**10.0**	**16.8**	**18.7**	**8.8**	**27.2**
Aluminum	mg/L	0.1 (OG)	0.006	<0.005	0.007	0.004	0.008	0.007	0.060	0.005	0.026	<0.004	0.010	<0.004	0.028	0.008	0.010	<0.004	<0.004	<0.010	<0.010	<0.010	<0.050	<0.0050	<0.050
Arsenic	mg/L	0.01 (IMAC)	0.001	<0.003	<0.003	<0.003	0.006	0.003	<0.003	<0.003	0.003	<0.003	0.007	<0.003	<0.003	<0.003	**0.011**	<0.003	<0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.000	0.002
Barium	mg/L	1.0 (MAC)	0.150	0.286	0.164	0.170	0.525	0.219	0.137	0.142	0.322	0.078	0.427	0.068	0.299	0.259	0.377	0.063	0.285	0.100	0.188	0.271	0.263	0.165	0.299
Boron	mg/L	5.0 (MAC)	0.240	0.279	0.750	0.200	3.170	0.775	0.302	0.255	0.621	0.122	2.090	0.114	0.925	0.321	1.980	0.100	0.525	0.209	0.256	0.310	1.520	0.235	1.420
Cadmium	mg/L	0.005 (MAC)	<0.0001	<0.0001	<0.002	<0.0001	<0.0001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	0.0000920	0.0001150	<0.00010	0.0001130	<0.00010
Calcium	mg/L	NV	160	184	191	187	284	190	214	168	217	180	265	138	205	206	297	139	166	150	167	197	253	173	259
Chromium	mg/L	0.05 (MAC)	<0.005	<0.005	<0.003	0.007	0.015	0.008	0.003	0.003	0.005	<0.003	0.011	<0.003	0.004	<0.003	0.019	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.0050	<0.00050	<0.0050
Copper	mg/L	1.0 (AO)	0.002	<0.001	<0.003	<0.001	<0.001	<0.003	0.004	0.009	<0.003	<0.003	<0.003	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.0010	0.002	0.0029	<0.0020	0.00195	<0.0020
Iron	mg/L	0.3 (AO)	**0.46**	**8.64**	**3.93**	**4.39**	**18.2**	**6.94**	**0.80**	**1.88**	**7.18**	<0.01	**15.50**	<0.01	**9.94**	**2.61**	**19.40**	<0.01	**10.9**	**0.943**	<0.050	<0.050	<0.10	<0.010	**2.99**
Lead	mg/L	0.01 (MAC)	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.000050	<0.00050
Magnesium	mg/L	NV	33.0	44.3	37.5	41.4	94.9	44.3	49.0	37.6	59.8	37.8	88.5	22.1	56.3	56.0	103.0	21.0	47.2	27.6	32.3	51.9	70.1	35.7	81.1
Manganese	mg/L	0.05 (AO)	**0.160**	**0.257**	**0.171**	**0.455**	**0.453**	**0.378**	**0.265**	**0.589**	**0.385**	**0.059**	**0.330**	0.024	**0.422**	**1.770**	**0.347**	0.018	**0.411**	**0.307**	**0.250**	**0.946**	**0.384**	**0.109**	**0.290**
Potassium	mg/L	NV	9.9	22.0	12.3	13.7	43.0	15.0	21.7	17.2	33.5	9.8	41.3	4.1	31.7	28.4	38.5	3.5	30.7	6.0	15.8	19.9	28.9	10.8	30.3
Selenium	mg/L	0.05 (MAC)	<0.002	<0.002	0.004000	<0.002	0.005000	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.005	<0.004	0.00298	0.00119	0.00099	<0.00050	0.000936	<0.00050
Silicon	mg/L	NV	5.4	6.3	3.8	5.3	9.5	6.41	6.12	5.94	6.63	4.02	7.51	3.83	7.86	6.18	10.60	3.44	7.04	3.90	5.40	6.60	7.80	4.98	6.65
Sodium	mg/L	200 (AO)	32	63	47	56	**231**	67	90.8	63.1	109.0	61.1	164.0	17.3	87.9	119	**208**	17.7	80.8	30	49.3	100	121	48.2	132
Zinc	mg/L	5.0 (AO)	<0.005	<0.005	0.020	0.005	0.010	0.004	0.157	0.022	0.031	<0.004	0.004	0.019	0.052	0.010	0.013	<0.005	<0.005	<0.0030	<0.0030	<0.0030	<0.010	<0.0010	<0.010

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW3S May-17	MW3S Sep-17	MW3S May-18	MW3S Sep-18	MW3S May-19	MW3S Sep-19	MW3S May-20	MW3S Sep-20	MW3S May-21	MW3S Sep-21	MW3S May-22	MW3S Sep-22	MW3S May-23	MW3S Sep-23	MW3S May-24	MW3S Sep-24	MW3S May-25	MW3S Sep-25
Field Electrical Conductivity	uS/cm	NV	880	1860	1560	2250	765	1596	985	1905	977	1744	849	1697	738	1548	1354	2026	862	1679
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**434**	**759**	**555**	**721**	**578**	**642**	**617**	**888**	**559**	**778**	**503**	**808**	**416**	**688**	**550**	**866**	**532**	**806**
pH	N/A	6.5-8.5 (OG)	7.59	7.21	7.9	7.22	7.10	7.16	7.39	6.82	7.26	6.95	7.44	7.68	7.32	7.38	7.29	7.08	7.50	7.28
Total Dissolved Solids	mg/L	500 (AO)	**552**	**1050**	**794**	**989**	**757**	**989**	**717**	**1090**	**635**	**700**	**546**	**943**	**535**	**698**	**596**	**1280**	**712**	**990**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	426	1760	628	743	636	782	623	993	580	955	519	728	561	635	600	1100	654	859
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<10	<10	<2.0	<10	<2.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<5.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	426	**1760**	**628**	**743**	**636**	**782**	**623**	**993**	**580**	**955**	**519**	**728**	**561**	**635**	**600**	**1100**	**654**	**859**
Ammonia, Total (as N)	mg/L	NV	1.58	25.0	9.6	28.6	9.1	26.2	8.9	27.0	9.13	26.1	1.39	25.1	5.0	17.3	1.7	33.6	8.94	23.00
Bromide	mg/L	NV	<0.10	0.250	<0.50	<0.50	0.160	<0.50	<0.50	<0.50	<0.50	<0.50	<0.10	<0.50	<0.10	<0.50	<0.50	<0.50	<0.50	<0.50
Chloride	mg/L	250 (AO)	9.0	91.0	64.0	105.0	63.0	86.5	57.0	102.0	43.5	111.0	13.2	82.5	18.9	51.9	31.2	157.0	38.2	78.1
Fluoride	mg/L	1.5 (MAC)	0.122	0.052	0.160	<0.10	0.109	0.120	<0.10	0.140	0.100	<0.10	0.119	<0.100	0.175	0.157	0.160	<0.100	0.136	0.183
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	2.816	<0.022	0.690	<0.11	0.804	<0.11	0.650	<0.11	3.178	0.260	3.320	0.134	1.870	1.870	0.979	<0.112	4.44	1.66
Nitrate as N	mg/L	10.0 (MAC)	2.75	<0.020	0.69	<0.10	0.804	<0.10	0.650	<0.10	2.470	0.260	2.900	0.134	1.610	1.640	0.902	<0.100	3.560	1.49
Nitrite as N	mg/L	1.0 (MAC)	0.066	<0.010	<0.050	<0.050	<0.010	<0.050	<0.050	<0.050	0.708	<0.050	0.422	<0.050	0.256	0.229	0.077	<0.050	0.879	0.165
Orthophosphate as P	mg/L	NV	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0100	<0.0010	<0.0010	0.0011
Sulphate	mg/L	500 (AO)	20	83.7	22.9	76.4	19.2	64.7	16.5	71.5	12.9	70.5	9.0	54.4	13.6	21.6	5.4	48.4	13.7	52.4
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**5.8**	**15.9**	**9.8**	**18.6**	**9.42**	**14.8**	**9.01**	**15.7**	**10.5**	**31.8**	3.67	**17.9**	3.26	**14.7**	**6.7**	**27.0**	**5.06**	**14.8**
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.050	<0.0050	<0.050	<0.0050	<0.050	<0.0050	<0.050	<0.0050	<0.050	0.003	0.019	0.036	<0.0100	0.004	<0.0100	0.001	0.0117
Arsenic	mg/L	0.01 (IMAC)	0.00211	0.00150	0.00041	0.00110	0.00031	<0.0010	0.00066	0.00120	0.00026	0.00100	0.00022	0.00296	0.00023	<0.00100	0.00024	0.00361	<0.00100	0.0031
Barium	mg/L	1.0 (MAC)	0.118	0.311	0.174	0.268	0.184	0.275	0.177	0.280	0.141	0.292	0.106	0.331	0.0679	0.267	0.141	0.392	0.132	0.324
Boron	mg/L	5.0 (MAC)	0.291	1.120	0.296	1.02	0.275	0.810	0.323	1.34	0.207	1.38	0.150	1.28	0.093	0.689	0.156	1.570	0.223	1.46
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.00010	0.000092	<0.000050	0.000063	<0.000050	0.000089	<0.000050	0.000043	<0.000050	0.000030	<0.0000500	0.0000255	0.0000763	0.0000645	<0.0000500	0.0000439	0.0000164
Calcium	mg/L	NV	131	204	164	191	169	171	181	231	167	190	155	219	130	185	168	225	162	211
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.0050	<0.00050	<0.0050	<0.00050	<0.0050	<0.00050	<0.0050	<0.00050	<0.0050	<0.00050	<0.00500	<0.00050	<0.00500	<0.00050	<0.00500	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00056	<0.0020	0.00180	<0.0020	0.00201	<0.0020	0.00063	<0.0020	0.00180	<0.0020	0.00395	0.00243	0.00136	<0.00200	0.00201	<0.00200	0.00127	0.00067
Iron	mg/L	0.3 (AO)	<0.010	**0.790**	<0.010	<0.10	0.012	**2.98**	0.014	<0.10	<0.010	**0.380**	**0.328**	**11.8**	0.119	**2.25**	0.01	**15.40**	**0.43**	**5.10**
Lead	mg/L	0.01 (MAC)	<0.000050	<0.00050	<0.000050	<0.00050	<0.000050	<0.00050	<0.000050	<0.00050	<0.000050	<0.00050	0.000	<0.000500	0.000099	<0.000500	<0.000050	<0.000500	<0.000050	<0.000050
Magnesium	mg/L	NV	25.7	60.5	35.4	59.2	38.2	52.2	40.0	75.8	34.8	73.5	28.2	63.5	22.2	54.8	31.8	73.8	31.1	67.7
Manganese	mg/L	0.05 (AO)	**0.142**	**0.352**	**0.263**	**0.281**	**0.201**	**0.292**	**0.359**	**0.268**	**0.064**	**0.238**	0.029	**0.315**	0.0267	**0.322**	0.041	**0.261**	**0.093**	**0.261**
Potassium	mg/L	NV	8.01	33.2	15.1	37.7	16.3	33.9	15.7	37.9	12.1	38.2	5.5	34.7	3.19	24.8	8.1	39.4	9.6	35.6
Selenium	mg/L	0.05 (MAC)	0.00351	<0.00050	0.00175	<0.00050	0.00132	<0.00050	0.00103	<0.00050	0.00203	0.00057	0.00184	<0.000500	0.00394	<0.000500	0.00222	0.000551	0.001950	0.000518
Silicon	mg/L	NV	2.57	6.47	4.78	7.04	5.47	6.69	5.95	7.13	4.88	6.84	4.22	7.39	3.63	6.54	4.42	7.58	4.52	7.10
Sodium	mg/L	200 (AO)	25.4	94.3	57.6	95.4	56.2	80.3	54.5	98.4	40.3	112.0	20.2	90.2	7.8	77.8	28.6	132.0	27.2	101
Zinc	mg/L	5.0 (AO)	<0.0010	<0.010	0.001	<0.010	<0.0010	<0.010	0.002	<0.010	<0.0010	<0.010	0.003	<0.0100	<0.0010	<0.0100	0.001	<0.0100	<0.0010	0.0039

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW3D Dec-05	MW3D May-06	MW3D Oct-06	MW3D May-07	MW3D Sep-07	MW3D Jul-08	MW3D Oct-08	MW3D May-09	MW3D May-10	MW3D Sep-10	MW3D May-11	MW3D Sep-11	MW3D May-12	MW3D Sep-12	MW3D Apr-13	MW3D Sep-13	MW3D Sep-13	MW3D May-14	MW3D Sep-14	MW3D May-15	MW3D Sep-15
Field Electrical Conductivity	uS/cm	NV	731	359	329	331	325	328	334	315	312	321	306	294	340	318	366	318	341	424	323	313	380
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**290**	**137**	**125**	**124**	**118**	**140**	**144**	**135**	**139**	**136**	**129**	**130**	**132**	**135**	**130**	**135**	**132**	**171**	**183**	**148**	**144**
pH	N/A	6.5-8.5 (OG)	8.16	8.21	8.46	8.3	7.53	8.45	8.32	8.26	8.32	8.31	8.16	8.13	8.05	8.2	7.94	7.48	7.37	8.14	8.23	8.13	8.16
Total Dissolved Solids	mg/L	500 (AO)	390	230	172	186	284	208	226	206	178	188	184	178	180	178	164	176	174	205	207	165	173
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	237	178	158	160	171	167	170	169	172	171	166	171	181	174	174	184	202	172	167	187	182
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	3.0	<5	10.000	31.000	<5	8.000	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	240	181	168	191	171	175	172	169	176	172	166	171	181	174	174	184	202	174	170	187	182
Ammonia, Total (as N)	mg/L	NV	0.76	0.89	0.25	0.07	0.2	0.3	0.07	0.2	0.1	0.12	0.08	0.11	0.14	0.13	0.1	0.2	0.21	0.131	0.132	0.426	0.364
Bromide	mg/L	NV		<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	63.0	3.8	1.5	1.2	1.6	1.0	1.4	0.9	1.4	1.33	1.89	1.86	1.72	1.65	1.56	1.39	1.35	<2.0	<2.0	1.33	1.28
Fluoride	mg/L	1.5 (MAC)		1.20	1.06	1.16	1.23	1.12	1.05	0.94	1.09	1.08	1.03	1.35	1.33	0.96	1.21	1.09	1.21	1.18	1.25	1.26	1.17
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	3.700	<0.1	0.190	<0.05	0.080	<0.05	0.150	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.07	<0.07	<0.07	<0.2	<0.2	0.045	0.177
Nitrate as N	mg/L	10.0 (MAC)	3.200	<0.017	0.190	<0.05	0.080	<0.05	0.150	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	0.032	0.048
Nitrite as N	mg/L	1.0 (MAC)	0.550	<0.009	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	0.013	0.129
Orthophosphate as P	mg/L	NV	0.009	12.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.0076	0.0086	0.0056	0.0082
Sulphate	mg/L	500 (AO)	32	9.0	5.3	5.8	5.2	5.0	5.1	3.8	5.8	4.7	5.17	4.66	4.86	4.6	5.07	4.3	4.2	4.0	4.0	4.19	5.88
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	3.6	2.2	1.6	1.8	1.7	**7.6**	1.3	1.2	2.9	1.4	1.5	1.000	1.3	1.4	1	1.4	1.2	<1.0	<1.0	3.3	2.3
Aluminum	mg/L	0.1 (OG)	0.01	0.005	0.005	0.010	0.007	0.024	0.074	0.005	0.007	0.011	0.004	0.017	0.008	0.028	0.007	<0.004	<0.004	<0.010	<0.010	<0.010	<0.0050
Arsenic	mg/L	0.01 (IMAC)	0.002	0.005	0.005	0.006	0.007	0.009	0.008	0.009	0.008	0.009	0.01	**0.011**	0.008	**0.011**	0.007	0.01	0.009	0.0043	0.0041	0.00	0.01
Barium	mg/L	1.0 (MAC)	0.22	0.075	0.08	0.11	0.063	0.075	0.083	0.064	0.076	0.084	0.069	0.065	0.066	0.07	0.103	0.087	0.082	0.0732	0.141	0.12	0.11
Boron	mg/L	5.0 (MAC)	0.12	0.107	0.086	0.074	0.188	0.085	0.067	0.083	0.08	0.112	0.069	0.066	0.071	0.068	0.079	0.087	0.093	0.066	0.075	0.075	0.091
Cadmium	mg/L	0.005 (MAC)	<0.0001	<0.0001	<0.002	<0.0001	<0.0001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010
Calcium	mg/L	NV	65	30.2	26	25.6	24.5	29.3	30.3	28.2	29	28.3	26.9	26.8	27.2	27.7	26.7	28	27.4	43.6	44.6	30.4	30.7
Chromium	mg/L	0.05 (MAC)	<0.005	<0.005	<0.003	<0.005	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.002	0.031	<0.003	<0.001	<0.001	<0.003	<0.003	0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.0004
Iron	mg/L	0.3 (AO)	<0.05	0.265	0.078	0.223	0.123	0.181	0.218	0.164	0.242	0.196	0.278	0.194	0.159	0.136	0.038	0.114	0.103	<0.050	<0.050	<0.050	<0.010
Lead	mg/L	0.01 (MAC)	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050
Magnesium	mg/L	NV	31	15	14.6	14.6	13.8	16.2	16.6	15.7	16.2	15.8	15	15.2	15.5	15.9	15.5	15.7	15.5	15.1	17.5	17.4	16.4
Manganese	mg/L	0.05 (AO)	0.023	0.014	0.011	0.01	0.012	0.018	0.014	0.01	0.016	0.012	0.013	0.022	0.01	0.013	0.01	0.012	0.012	0.0147	0.0161	0.0166	0.0165
Potassium	mg/L	NV	5	2.01	1.58	1.37	1.15	1.09	1.32	0.97	1.27	1.2	0.96	0.97	1.06	1.02	1.13	1.17	1.13	<1.0	1.3	1.1	0.944
Selenium	mg/L	0.05 (MAC)	<0.002	<0.002	<0.004	<0.002	<0.002	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000054
Silicon	mg/L	NV	5.3	5.36	4.51	4.3	6.26	5.34	6.01	5.39	4.95	5.13	5.49	5.14	4.44	5.29	5.71	5.42	5.19	4.9	4.7	5.2	5.43
Sodium	mg/L	200 (AO)	50	23.5	20.2	20.5	20.1	21.3	22	21.7	23.4	21.3	20.9	20.9	22.2	21.5	21.3	20.8	21.5	21.3	24.2	26.1	24.2
Zinc	mg/L	5.0 (AO)	<0.005	0.005	0.005	0.006	0.009	0.051	0.006	0.017	0.016	<0.004	0.017	0.02	0.006	0.026	<0.005	<0.005	<0.005	<0.0030	<0.0030	<0.0030	<0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW3D Dec-05	MW3D May-16	MW3D Sep-16	MW3D May-17	MW3D Sep-17	MW3D May-18	MW3D Sep-18	MW3D May-19	MW3D Sep-19	MW3D May-20	MW3D Sep-20	MW3D May-21	MW3D Sep-21	MW3D May-22	MW3D Sep-22	MW3D May-23	MW3D Sep-23	MW3D May-24	MW3D Sep-24	MW3D May-25	MW3D Sep-25
Field Electrical Conductivity	uS/cm	NV	731	500	380	390	321	390	470	883	290	295	302	320	296	342	296	188	368	361	347	336	346
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**290**	**140**	**127**	**137**	**138**	**127**	**135**	**133**	**134**	**136**	**132**	**131**	**125**	**132**	**137**	**141**	**134**	**135**	**129**	**140**	**147**
pH	N/A	6.5-8.5 (OG)	8.16	8.26	8.06	8.19	8.17	8.35	8.10	8.28	8.13	8.11	8.09	8.17	8.23	7.99	8.48	8.11	8.24	8.13	8.18	8.11	7.74
Total Dissolved Solids	mg/L	500 (AO)	390	280	306	264	233	229	223	235	234	186	194	216	195	198	161	176	178	169	182	202	195
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	237	183	180	196	187	172	156	190	195	201	191	206	211	197	166	268	218	229	181	188	169
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	3.0	<10	<10	<10	<10	<10	<10	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	9.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	240	183	180	196	187	172	156	190	195	201	191	206	211	197	175	268	218	229	181	188	169
Ammonia, Total (as N)	mg/L	NV	0.76	0.219	0.239	0.272	0.26	0.318	0.232	0.250	0.208	0.194	0.215	0.227	0.156	0.190	0.035	0.147	0.143	0.195	0.043	0.046	0.144
Bromide	mg/L	NV		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	63.0	1.12	1.37	0.96	1.37	1.14	1.29	0.94	1.09	1.25	1.24	1.33	1.31	1.22	1.35	0.80	1.29	1.33	1.41	1.18	1.55
Fluoride	mg/L	1.5 (MAC)		1.16	1.07	0.999	1.22	1.19	1.31	1.31	1.34	1.30	1.32	1.30	1.19	1.23	1.21	1.30	1.20	1.19	1.10	1.33	1.20
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	3.700	0.042	0.06	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022	0.046	<0.022	0.058	0.057	<0.0224	0.070	<0.0224	0.030	<0.0224	0.139	0.155	0.135
Nitrate as N	mg/L	10.0 (MAC)	3.200	<0.020	0.045	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.046	<0.020	<0.020	0.044	<0.020	0.070	<0.020	0.020	0.022	0.116	0.138	0.101
Nitrite as N	mg/L	1.0 (MAC)	0.550	0.042	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	0.058	0.013	0.012	<0.010	0.013	0.010	<0.010	0.023	0.017	0.034
Orthophosphate as P	mg/L	NV	0.009	0.0165	0.0112	0.0053	0.012	0.0134	0.013	0.020	0.017	0.003	0.016	0.012	0.010	0.015	0.008	0.018	0.013	0.0119	0.0145	0.0178	0.0149
Sulphate	mg/L	500 (AO)	32	4.02	4.58	3.27	4.25	4.26	3.58	4.22	4.08	3.41	3.73	3.70	3.18	3.66	3.20	3.95	3.27	3.30	2.91	3.44	3.08
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	3.6	2.9	3.4	<1.0	2	1.6	2.50	1.60	1.27	1.93	1.27	2.23	2.96	1.08	2.17	1.68	2.46	2.16	1.85	1.33	1.01
Aluminum	mg/L	0.1 (OG)	0.01	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.002	0.003	0.002	<0.0010	0.0275	0.002	0.031	0.0011
Arsenic	mg/L	0.01 (IMAC)	0.002	0.01	0.01	0.01	0.00864	0.00576	0.00786	0.00762	0.00717	**0.01090**	0.00818	0.00845	**0.01080**	0.00908	0.00741	0.00699	0.00908	**0.0123**	**0.0132**	**0.0160**	**0.0134**
Barium	mg/L	1.0 (MAC)	0.22	0.09	0.08	0.09	0.0858	0.0871	0.0750	0.0767	0.0837	0.0664	0.0722	0.0824	0.0603	0.0706	0.0697	0.0818	0.0649	0.0658	0.0552	0.0827	0.0614
Boron	mg/L	5.0 (MAC)	0.12	0.091	0.07	0.089	0.078	0.083	0.083	0.096	0.089	0.089	0.090	0.066	0.070	0.072	0.080	0.098	0.070	0.070	0.071	0.084	0.077
Cadmium	mg/L	0.005 (MAC)	<0.0001	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	0.0000070	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	NV	65	29.2	27.1	28.8	28.3	27.4	28.6	27.6	27.4	28.6	28.0	27.1	25.1	26.5	29.9	29.7	28.0	27.9	26.4	28.4	30.2
Chromium	mg/L	0.05 (MAC)	<0.005	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.002	<0.00020	<0.00020	0.00027	<0.00020	0.0005	0.00032	<0.00020	0.00029	<0.00020	0.00056	0.00037	0.00030	0.00230	0.00258	0.00180	0.00057	0.00104	<0.00020	0.00052	<0.00020
Iron	mg/L	0.3 (AO)	<0.05	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.023	<0.010	<0.010	<0.010	0.059	<0.010	0.064	<0.010
Lead	mg/L	0.01 (MAC)	<0.0005	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000077	0.000096	0.000070	<0.000050	0.000076	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	31	16.3	14.4	15.8	16.4	14.2	15.5	15.5	15.8	15.6	15.1	15.4	15.1	16.1	15.2	16.2	15.7	15.8	15.4	16.8	17.4
Manganese	mg/L	0.05 (AO)	0.023	0.0117	0.0131	0.0163	0.0153	0.0157	0.01360	0.01510	0.01430	0.01710	0.01220	0.01460	0.01610	0.01180	0.00275	0.03440	0.00259	0.0127	0.0101	0.0161	0.0219
Potassium	mg/L	NV	5	0.891	0.892	0.924	0.921	0.829	0.891	0.846	0.913	0.821	0.800	0.891	0.808	0.772	0.820	0.786	0.738	0.784	0.792	0.856	0.837
Selenium	mg/L	0.05 (MAC)	<0.002	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000500	<0.000050
Silicon	mg/L	NV	5.3	5.47	4.95	5.16	5.47	5.07	5.36	5.61	5.62	5.61	5.50	5.04	5.70	5.50	5.74	5.41	5.26	5.27	5.40	5.77	5.74
Sodium	mg/L	200 (AO)	50	24.1	21.5	23.5	23.4	22.1	24.1	23.1	24.2	22.6	22.7	22.4	20.7	22.3	23.1	24.6	22.7	22.3	21.2	23.5	22.9
Zinc	mg/L	5.0 (AO)	<0.005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	0.0026	0.0030	0.0027	<0.0010	0.0024	<0.0010	<0.0010	<0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS		MW4 Dec-05	MW4 May-06	MW4 Oct-06	MW4 May-07	MW4 Sep-07	MW4 Jul-08	MW4 Oct-08	MW4 May-09	MW4 Sep-09	MW4 May-10	MW4 Sep-10	MW4 May-11	MW4 Sep-11	MW4 May-12	MW4 Dec-05	MW4 May-06	MW4 Sep-12	MW4 Apr-13	MW4 Sep-13	MW4 May-14
Field Electrical Conductivity	uS/cm	NV		751	556	672	579	626	565	648	606	613	539	620	515	575	495	751	556	613	481	651	688
Total Hardness (as CaCO3)	mg/L	80-100	(OG)	**440**	**293**	**298**	**298**	**315**	**295**	**356**	**338**	**330**	**307**	**352**	**271**	**326**	**251**	**440**	**293**	**341**	**201**	**325**	**310**
pH	N/A	6.5-8.5	(OG)	8.1	7.86	8.14	8.11	7.51	7.97	7.96	8.02	8.17	7.96	8.07	8.07	7.97	8.04	8.1	7.86	8.13	7.82	7.7	7.64
Total Dissolved Solids	mg/L	500	(AO)	458	294	366	316	350	340	384	352	364	334	356	324	340	266	458	294	368	226	360	359
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV		331	287	329	291	317	318	322	328	326	307	332	289	334	264	331	287	326	226	354	330
Alkalinity, Carbonate (as CaCO3)	mg/L	NV		4.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	4.0	<5	<5	<5	<5	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500	(OG)	335	287	329	291	317	318	322	328	326	307	332	289	334	264	335	287	326	226	354	331
Ammonia, Total (as N)	mg/L	NV		<0.05	0.19	0.13	<0.02	<0.02	0.5	<0.02	<0.02	0.1	0.07	0.25	<0.02	0.07	0.03	<0.05	0.19	0.19	<0.02	<0.02	<0.050
Bromide	mg/L	NV			<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		<0.02	<0.05	<0.05	<0.25	<0.10
Chloride	mg/L	250	(AO)	13.0	7.1	10.7	6.9	14.5	6.5	8.8	4.3	7.6	6.12	7.86	7.03	10.6	4.46	13.0	7.1	11.3	6.08	8.83	5.7
Fluoride	mg/L	1.5	(MAC)		0.28	0.37	0.18	0.32	0.18	0.18	<0.05	0.27	0.13	<0.05	<0.05	0.15	<0.05		0.28	<0.05	0.07	<0.25	<0.10
(Nitrate + Nitrite) as N	mg/L	10.0	(MAC)	0.300	0.170	0.860	0.210	0.480	0.090	0.130	<0.05	0.260	0.16	0.02	0.09	0.16	0.14	0.300	0.170	0.16	0.16	<0.07	<0.2
Nitrate as N	mg/L	10.0	(MAC)	0.200	0.170	0.860	0.210	0.480	0.090	0.130	<0.05	0.260	0.16	0.25	0.09	0.16	0.14	0.200	0.170	0.16	0.16	<0.25	<0.10
Nitrite as N	mg/L	1.0	(MAC)	0.100	<0.009	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.100	<0.009	<0.05	<0.05	<0.25	<0.10
Orthophosphate as P	mg/L	NV		0.008	33.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.008	33.5	<0.1	<0.1	<0.25	<0.0030
Sulphate	mg/L	500	(AO)	75	18.4	28.8	16.8	17.1	15.5	16.6	8.3	14.1	13.5	14.7	10.9	15.9	8.83	75	18.4	13.7	7.07	9.9	5.3
Dissolved Organic Carbon (DOC)	mg/L	5.0	(AO)	**6.2**	1.3	2.5	1.6	2.0	4.3	1.3	0.9	2.5	1.7	2	1.8	1.9	2.9	**6.2**	1.3	2.3	1.5	1.8	1.1
Aluminum	mg/L	0.1	(OG)	0.01	0.026	0.006	<0.005	<0.005	<0.004	<0.004	0.004	<0.004	0.088	0.011	<0.004	**0.127**	0.005	0.01	0.026	0.01	0.005	<0.004	<0.010
Arsenic	mg/L	0.01	(IMAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010
Barium	mg/L	1.0	(MAC)	0.066	0.036	0.051	0.042	0.042	0.041	0.047	0.036	0.05	0.039	0.047	0.037	0.048	0.025	0.066	0.036	0.042	0.021	0.039	0.0383
Boron	mg/L	5.0	(MAC)	0.041	0.016	0.024	0.01	0.015	0.015	0.011	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	0.041	0.016	<0.01	<0.01	0.015	0.01
Cadmium	mg/L	0.005	(MAC)	<0.0001	<0.0001	<0.002	<0.0001	<0.0001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0001	<0.0001	<0.002	<0.002	<0.002	<0.000090
Calcium	mg/L	NV		130	88	86.7	89.3	92.3	90.1	108	104	97.8	93.3	107	84.3	99.1	78.9	130	88	103	65.7	102	99
Chromium	mg/L	0.05	(MAC)	<0.005	<0.005	<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	0.004	<0.003	<0.003	<0.00050
Copper	mg/L	1.0	(AO)	0.004	0.004	<0.003	<0.001	<0.001	0.01	<0.003	0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.004	0.004	<0.003	<0.003	<0.003	<0.0010
Iron	mg/L	0.3	(AO)	<0.05	**0.305**	0.161	0.29	<0.05	<0.01	<0.01	<0.01	<0.01	0.092	<0.01	<0.01	0.09	<0.01	<0.05	**0.305**	<0.01	<0.01	<0.01	<0.050
Lead	mg/L	0.01	(MAC)	<0.0005	<0.0005	<0.002	<0.0005	<0.0005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0005	<0.0005	<0.002	<0.002	<0.002	<0.00050
Magnesium	mg/L	NV		28	17.7	19.7	18.2	20.5	17	20.9	19	20.8	17.9	20.7	14.8	19	13.1	28	17.7	20.3	8.89	17	15.3
Manganese	mg/L	0.05	(AO)	**0.23**	**0.109**	**0.054**	0.004	0.003	0.008	0.004	0.002	<0.002	0.011	<0.002	<0.002	0.012	0.006	**0.23**	**0.109**	<0.002	0.004	**0.055**	0.0129
Potassium	mg/L	NV		1.9	0.89	1.07	0.65	0.6	0.59	0.67	0.38	0.76	0.5	0.72	0.38	0.55	0.48	1.9	0.89	0.65	0.3	0.56	<1.0
Selenium	mg/L	0.05	(MAC)	<0.002	<0.002	<0.004	<0.002	<0.002	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.004	<0.004	<0.004	<0.00040
Silicon	mg/L	NV		6.6	5.24	5.88	6.05	6.36	4.02	6.9	5.06	5.32	4.92	6.19	4.26	5.43	3.01	6.6	5.24	5.91	2.71	4.57	3.8
Sodium	mg/L	200	(AO)	9.5	2.91	23.7	9.7	<0.1	15.4	14.2	11.7	8.44	8.07	8.86	10.9	8.93	8.36	9.5	2.91	7.87	14.7	15.2	17.4
Zinc	mg/L	5.0	(AO)	<0.005	0.004	0.016	0.007	0.009	0.011	<0.004	0.023	<0.004	<0.004	0.038	0.017	0.02	<0.004	<0.005	0.004	0.015	<0.005	<0.005	0.0084

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	Parameter	Unit	ODWS	*MW4* *Sep-14*	*MW4* *May-15*	*MW4* *Sep-15*	*MW4* *May-16*	*MW4* *Sep-16*	*MW4* *May-17*	*MW4* *Sep-17*	*MW4* *May-18*	*MW4* *Sep-18*	*MW4* *May-19*	*MW4* *Sep-19*	*MW4* *May-20*	*MW4* *Sep-20*	*MW4* *May-21*	*MW4* *Sep-21*	*MW4* *May-22*	*MW4* *Sep-22*	*MW4* *May-23*	*MW4* *Sep-23*	*MW4* *May-24*	*MW4* *Sep-24*	*MW4* *May-25*	*MW4* *Sep-25*
Field Electrical Conductivity	uS/cm	NV	Field Electrical Conductivity	uS/cm	NV	654	582	750	690	710	540	572	550	840	507	559	491	600	485	599	541	677	482	651	596	580	538	746
Total Hardness (as CaCO3)	mg/L	80-100	Total Hardness (as CaCO3)	mg/L	80-100 (OG)	344	312	376	275	332	228	317	232	335	252	316	299	337	281	325	306	390	282	331	296	346	262	417
pH	N/A	6.5-8.5	pH	N/A	6.5-8.5 (OG)	7.65	7.73	7.54	8.02	7.98	7.73	7.76	8.10	7.71	7.67	7.44	7.73	7.62	7.63	7.57	7.58	7.84	7.60	7.72	7.7	7.68	7.75	7.40
Total Dissolved Solids	mg/L	500	Total Dissolved Solids	mg/L	500 (AO)	406	335	384	374	462	410	405	408	418	343	406	301	379	326	379	346	381	272	350	279	458	290	492
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	408	352	381	274	310	265	337	264	311	282	360	319	350	327	417	400	314	375	391	360	639	2350	434
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.00	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500	Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	410	352	381	274	310	265	337	264	311	282	360	319	350	327	417	400	314	375	391	360	639	2350	434
Ammonia, Total (as N)	mg/L	NV	Ammonia, Total (as N)	mg/L	NV	<0.050	<0.050	<0.050	<0.020	0.024	0.027	0.021	0.533	0.176	0.0140	<0.010	0.0210	<0.010	<0.010	0.0190	0.0144	0.0164	0.0052	<0.0050	0.0079	0.010	0.148	0.0136
Bromide	mg/L	NV	Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250	Chloride	mg/L	250 (AO)	6.4	5.99	7.85	8.93	11.5	5.43	8.42	4.36	15.4	5.66	15.80	5.13	15.1	5.28	20.6	3.92	15.1	3.84	14.2	5.45	16.9	14.0	29.3
Fluoride	mg/L	1.5	Fluoride	mg/L	1.5 (MAC)	0.12	0.091	0.161	0.105	0.131	0.154	0.101	0.075	0.25	0.061	0.168	0.096	0.169	0.073	0.189	0.054	0.168	0.073	0.158	0.077	0.154	0.092	0.200
(Nitrate + Nitrite) as N	mg/L	10.0	(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.2	0.053	0.113	0.033	0.045	0.036	<0.022	<0.022	0.04	0.079	0.040	<0.022	0.042	<0.022	0.023	<0.0224	<0.0224	<0.0224	0.023	<0.0224	<0.0224	<0.0224	0.0350
Nitrate as N	mg/L	10.0	Nitrate as N	mg/L	10.0 (MAC)	<0.10	0.053	0.113	0.033	0.045	0.036	<0.020	<0.020	0.04	0.079	0.040	<0.020	0.042	<0.020	0.023	0.022	<0.020	<0.020	0.023	<0.020	<0.020	<0.020	0.035
Nitrite as N	mg/L	1.0	Nitrite as N	mg/L	1.0 (MAC)	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	Orthophosphate as P	mg/L	NV	0.0035	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0011	0.0011	<0.0010	0.0011	<0.0010	0.0024
Sulphate	mg/L	500	Sulphate	mg/L	500 (AO)	6.6	7.08	9.22	7.51	12.6	3.96	8.11	4.3	10.6	4.49	9.76	3.61	8.55	2.58	8.35	1.86	5.80	1.49	5.94	1.52	6.32	2.36	9.13
Dissolved Organic Carbon (DOC)	mg/L	5.0	Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.4	1.5	1.6	3.4	2.6	<1.0	1.8	1.5	2.68	3.30	1.80	2.12	2.04	2.25	3.64	1.72	2.42	1.66	2.57	2.05	2.88	1.63	1.90
Aluminum	mg/L	0.1	Aluminum	mg/L	0.1 (OG)	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0092	0.0074	0.1720	0.0014	0.0014	<0.0010	0.0018	0.0127
Arsenic	mg/L	0.01	Arsenic	mg/L	0.01 (IMAC)	<0.0010	<0.0010	0.00	0.00	0.00	0.00	0.00018	0.00011	0.00013	0.00020	0.00013	0.00014	0.00015	0.00012	0.00013	0.00011	0.00015	0.00016	0.00010	0.0002	0.00013	<0.00100	0.00016
Barium	mg/L	1.0	Barium	mg/L	1.0 (MAC)	0.0565	0.04	0.06	0.03	0.05	0.03	0.0426	0.0272	0.0428	0.0231	0.0361	0.0258	0.0345	0.0257	0.0439	0.0335	0.0491	0.0253	0.0332	0.0274	0.0392	0.0240	0.0412
Boron	mg/L	5.0	Boron	mg/L	5.0 (MAC)	0.013	0.011	0.011	<0.010	0.011	<0.010	0.01	<0.010	0.014	<0.010	<0.010	<0.010	0.012	<0.010	0.013	<0.010	0.011	<0.010	<0.010	<0.010	0.010	<0.010	0.013
Cadmium	mg/L	0.005	Cadmium	mg/L	0.005 (MAC)	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	NV	Calcium	mg/L	NV	109	98.7	118	88.5	104	73.6	100	77.6	106	83.8	100.0	99.9	109.0	92.4	101	101	128	96.7	106	98.6	111	87	132
Chromium	mg/L	0.05	Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0	Copper	mg/L	1.0 (AO)	<0.0010	<0.0010	0.00046	0.00038	0.00049	0.00049	0.00061	0.00065	0.00055	0.00050	0.00054	0.00047	0.00057	0.00041	0.00060	0.00259	0.00354	0.00098	0.00206	0.00076	0.00049	0.00052	0.00065
Iron	mg/L	0.3	Iron	mg/L	0.3 (AO)	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.114	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01	Lead	mg/L	0.01 (MAC)	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000087	0.000111	0.000983	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	Magnesium	mg/L	NV	17.4	16	19.8	13.2	17.5	10.6	16	9.28	17.2	10.4	15.9	12.1	16.0	12.2	17.6	13.0	17.1	12.2	16.2	12.2	16.8	11.0	21.2
Manganese	mg/L	0.05	Manganese	mg/L	0.05 (AO)	0.0196	0.0016	0.00122	0.00272	0.00116	0.0233	0.00522	<0.00050	0.00104	<0.00050	<0.00050	<0.00050	<0.00050	0.00063	<0.00050	0.00112	0.00101	0.00504	0.00059	0.0229	0.00809	0.00016	0.00076
Potassium	mg/L	NV	Potassium	mg/L	NV	<1.0	<1.0	0.675	0.385	0.633	0.339	0.549	0.336	0.64	0.338	0.545	0.351	0.528	0.287	0.520	0.267	0.488	0.340	0.411	0.282	0.462	0.280	0.516
Selenium	mg/L	0.05	Selenium	mg/L	0.05 (MAC)	<0.00040	<0.00040	<0.000050	0.000054	0.000064	<0.000050	0.000061	0.000052	0.000072	0.00006	0.00007	0.00008	0.00009	0.00006	0.00007	<0.000050	<0.000050	0.00006	0.00007	<0.000050	0.000053	<0.000500	0.000089
Silicon	mg/L	NV	Silicon	mg/L	NV	5.1	4.1	5.6	3.35	4.49	2.68	4.55	2.37	4.43	2.60	4.05	3.02	4.11	2.75	4.18	2.64	4.32	3.04	3.60	2.81	3.96	2.43	4.31
Sodium	mg/L	200	Sodium	mg/L	200 (AO)	22.1	14.9	12.5	16.7	11.9	12.8	13.9	10.4	10.9	8.32	11.30	10.20	11.80	8.55	10.4	7.14	10.5	6.43	9.6	6.49	9.19	8.02	11.2
Zinc	mg/L	5.0	Zinc	mg/L	5.0 (AO)	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.007	0.003	<0.0010	0.001	0.001	<0.0010	<0.0010	0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Obje
2. OG = Operational Guideline; AO = Aesthetic Objective; M
3. < denotes analyte concentration is below the reportable d
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

Note: only 2019 and subsequent automatic exceedances

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S	MW5S
			Jul-08	Oct-08	May-09	Sep-09	May-10	Sep-10	May-11	Sep-11	May-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17	May-18	Sep-18	May-19
Field Electrical Conductivity	uS/cm	NV	707	762	687	695	622	678	650	633	719	695	764	422	920	647	780	870	800	562	716	770	920	652
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**411**	**453**	**396**	**377**	**381**	**396**	**382**	**373**	**381**	**329**	**415**	**408**	**481**	**416**	**417**	**415**	**393**	**349**	**413**	**349**	**393**	**387**
pH	N/A	6.5-8.5 (OG)	7.93	7.91	8.05	8.22	8.21	8.15	7.99	8.07	7.94	7.76	7.35	7.62	7.49	7.61	7.59	7.65	7.99	7.49	7.65	8.01	7.75	7.22
Total Dissolved Solids	mg/L	500 (AO)	498	438	392	406	378	406	426	378	394	356	400	447	450	312	353	460	484	276	492	473	**598**	450
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	366	367	367	355	343	374	351	370	375	317	433	426	440	406	401	386	397	372	420	344	362	366
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	366	367	367	355	343	374	351	370	375	317	433	428	441	406	401	386	397	372	420	344	362	366
Ammonia, Total (as N)	mg/L	NV	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0	0.0	0.07	<0.02	0.096	<0.050	<0.050	0.158	<0.020	<0.020	<0.020	<0.020	0.071	0.225	<0.010
Bromide	mg/L	NV	0.070	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	9.1	10.7	5.6	8.5	9.1	9.0	7.2	8.2	8.0	6.58	8.29	4.7	5.2	5.23	6.08	4.48	5.57	3.72	4.79	3.16	4.16	4.69
Fluoride	mg/L	1.5 (MAC)	0.260	0.29	0.35	0.36	0.11	0.27	0.09	<0.05	<0.05	<0.25	<0.25	0.15	0.12	0.258	0.402	0.114	0.304	0.125	0.232	0.102	0.658	0.116
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.650	0.090	1.310	0.540	2.440	0.630	6.620	1.110	1.990	3.41	0.74	4.32	0.27	1.85	0.721	4.11	0.856	0.507	0.341	7.48	1.45	5.53
Nitrate as N	mg/L	10.0 (MAC)	0.650	0.090	1.310	0.540	2.440	0.630	6.620	1.110	1.990	3.41	0.74	4.16	0.27	1.85	0.721	4.11	0.856	0.507	0.341	7.48	1.45	5.49
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	0.16	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.035
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.250	<0.1	<0.5	<0.5	0.0037	0.0053	<0.0030	<0.0030	<0.0030	0.0042	<0.0030	0.0033	0.0067	<0.0030	0.0030
Sulphate	mg/L	500 (AO)	32	38.8	13.6	22.6	14.2	17.2	16.6	20.0	17.8	15.8	15.2	13.8	11.4	11.4	16.2	13.3	19.1	11.5	14.4	10.9	14	13.6
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**6.7**	3.4	1.8	3.4	**10.5**	2.5	3.7	1.5	3.7	2.2	2.3	<1.0	1.2	1.6	1.8	4.8	2.8	1.6	1.7	2.9	3.09	2.30
Aluminum	mg/L	0.1 (OG)	**0.12**	0.007	0.006	<0.004	0.006	0.013	<0.004	0.007	0.006	0.016	<0.004	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00064	0.00016	0.00029	0.00014	0.00025	0.00	0.00	0.00013
Barium	mg/L	1.0 (MAC)	0.033	0.038	0.041	0.057	0.04	0.066	0.037	0.062	0.054	0.033	0.072	0.0409	0.0607	0.0585	0.0773	0.0433	0.0791	0.0331	0.0891	0.04	0.06	0.0365
Boron	mg/L	5.0 (MAC)	0.029	0.021	0.016	0.02	0.012	0.017	0.01	0.015	0.012	<0.01	0.014	0.011	0.013	0.017	0.018	0.014	0.018	0.011	0.017	0.01	0.021	0.010
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.000013	<0.000010	0.0000130
Calcium	mg/L	NV	116	125	113	99.3	117	107	118	101	105	99.5	120	124	146	118	116	125	108	104	115	108	108	118
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00026	0.0006	0.00044	0.00055	0.00047	0.00079	0.00068	0.00063
Iron	mg/L	0.3 (AO)	0.089	0.072	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	29.5	34.1	27.7	31.3	21.6	31.3	21.1	29.4	28.9	19.6	28.1	23.8	28.2	29.7	31.1	24.6	29.9	21.5	30.6	19.3	29.9	22.6
Manganese	mg/L	0.05 (AO)	0.041	0.047	0.014	0.013	<0.002	0.012	<0.002	0.019	0.006	0.003	0.003	0.0088	<0.0010	<0.0010	0.0402	0.00131	0.0267	0.00076	0.0016	<0.00050	0.00561	0.00448
Potassium	mg/L	NV	2.81	3.02	1.93	1.82	1.41	1.8	1.46	1.72	1.53	1.1	1.53	1.4	1	1.5	1.7	1.37	1.71	0.939	1.51	2.27	1.77	1.46
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000054	0.0002	0.00011	0.000169	0.000174	0.000251	0.000094	0.000234
Silicon	mg/L	NV	1.21	7.76	5.68	6.38	3.35	6.58	3.7	6.28	5.08	3.66	6.38	3.6	4.7	4.9	6.62	3.95	5.22	3.46	5.92	3.2	5.08	3.44
Sodium	mg/L	200 (AO)	4.45	6.38	3.81	4.45	3.81	4.27	3.28	4.2	3.91	3.92	3.94	4.15	4.4	4.44	4.33	4.31	4.94	4.21	4.42	4.1	5.5	4.80
Zinc	mg/L	5.0 (AO)	0.212	<0.004	<0.004	0.004	0.013	<0.004	<0.004	<0.004	<0.004	<0.005	0.006	0.0035	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW5S* *Sep-19*	*MW5S* *May-20*	*MW5S* *Sep-20*	*MW5S* *May-21*	*MW5S* *Sep-21*	*MW5S* *May-22*	*MW5S* *Sep-22*	*MW5S* *May-23*	*MW5S* *Sep-23*	*MW5S* *May-24*	*MW5S* *Sep-24*	*MW5S* *May-25*	*MW5S* *Sep-25*
Field Electrical Conductivity	uS/cm	NV	669	110	742	713	645	725	727	827	714	789	766	782	761
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**407**	**441**	**416**	**387**	**391**	**453**	**490**	**434**	**447**	**410**	**434**	**433**	**489**
pH	N/A	6.5-8.5 (OG)	7.36	7.54	7.52	7.57	7.73	7.43	7.79	7.29	7.29	7.62	7.46	7.52	7.40
Total Dissolved Solids	mg/L	500 (AO)	**557**	445	437	405	421	**520**	450	419	478	389	452	477	**592**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	447	377	392	385	484	457	376	464	553	388	460	1310	565
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.00	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	447	377	392	385	484	457	376	464	**553**	388	460	**1310**	**565**
Ammonia, Total (as N)	mg/L	NV	0.0170	0.0140	<0.010	<0.010	<0.010	0.0124	0.030	0.025	<0.0050	<0.0050	0.025	0.020	0.0173
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	5.11	5.85	5.53	4.97	4.67	5.87	5.3	4.8	3.6	3.51	3.2	4.1	3.64
Fluoride	mg/L	1.5 (MAC)	0.506	0.195	0.477	0.112	0.574	0.105	0.442	0.122	0.170	0.103	0.328	0.207	0.334
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	1.76	7.06	1.56	2.232	0.526	**12.9**	6.55	7.14	0.393	2.25	0.193	2.22	0.254
Nitrate as N	mg/L	10.0 (MAC)	1.76	7.06	1.56	2.220	0.526	**12.9**	6.55	7.11	0.393	2.25	0.193	2.22	0.254
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	<0.010	0.027	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	0.0038	<0.0030	0.0032	0.0034	<0.0030	<0.0030	<0.0030	0.0024	0.0029	0.0026	0.0029	0.0035	0.0035
Sulphate	mg/L	500 (AO)	27.2	16.6	29.5	10.6	19.3	15.8	17.0	15.1	13.2	10.6	26.0	20.2	20.6
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	2.05	2.46	1.69	2.72	4.12	2.19	3.98	2.54	3.27	2.67	3.16	1.96	1.55
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0641	0.0026	<0.0010	<0.0010	0.0029	0.0256	0.0234	0.0032
Arsenic	mg/L	0.01 (IMAC)	0.00027	0.00019	0.00027	0.00016	0.00039	0.00023	0.00026	0.00019	0.00018	0.00014	0.00024	<0.00100	0.00023
Barium	mg/L	1.0 (MAC)	0.0695	0.0593	0.0771	0.0415	0.0668	0.0769	0.0742	0.0466	0.0506	0.0389	0.0693	0.0605	0.102
Boron	mg/L	5.0 (MAC)	0.016	0.014	0.020	0.010	0.020	0.012	0.017	<0.010	<0.010	0.010	0.017	<0.010	0.018
Cadmium	mg/L	0.005 (MAC)	0.0000120	<0.000010	0.0000110	0.0000160	0.0000140	0.0000289	0.0000099	0.0000085	0.0000082	0.0000239	0.0000108	0.0000080	0.0000052
Calcium	mg/L	NV	114	133	113	117	104	129	142	131	130	123	122	129	136
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00058	0.00066	0.00053	0.00054	0.00042	0.00463	0.00240	0.00067	0.00104	0.00062	0.00107	0.00076	0.00104
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	0.049	<0.010	<0.010	<0.010	<0.010	0.023	0.022	<0.010
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000062	0.000059	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	29.6	26.5	32.2	23.3	31.7	31.9	32.8	26.0	29.7	25.0	31.4	27.0	36.4
Manganese	mg/L	0.05 (AO)	0.01390	0.00071	0.00163	0.00325	**0.1090**	0.00286	0.00099	0.00018	0.00012	0.02300	0.00324	0.00196	0.00026
Potassium	mg/L	NV	1.90	1.58	1.72	1.43	1.67	1.28	1.70	1.24	0.743	1.00	1.450	1.350	1.50
Selenium	mg/L	0.05 (MAC)	0.000100	0.000334	0.000525	0.000173	0.000153	0.000238	0.00010	0.00031	0.00045	0.00021	0.00025	<0.000500	0.000344
Silicon	mg/L	NV	4.73	4.17	5.37	3.64	5.31	4.36	5.37	3.60	4.33	3.72	5.18	3.90	5.55
Sodium	mg/L	200 (AO)	5.42	4.94	5.33	4.85	5.54	5.58	6.33	5.31	6.0	5.19	5.8	5.4	6.37
Zinc	mg/L	5.0 (AO)	<0.0010	0.001	<0.0010	<0.0010	0.002	0.002	0.002	<0.0010	<0.0010	<0.0010	0.0015	0.0015	0.0016

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW5D Jul-08	MW5D Oct-08	MW5D May-09	MW5D Sep-09	MW5D May-10	MW5D Sep-10	MW5D May-11	MW5D Sep-11	MW5D May-12	MW5D Sep-12	MW5D Apr-13	MW5D Sep-13	MW5D May-14	MW5D Sep-14	MW5D Sep-14	MW5D May-15	MW5D Sep-15	MW5D May-16	MW5D Sep-16	MW5D May-17	MW5D Sep-17
Field Electrical Conductivity	uS/cm	NV	611	616	616	619	585	596	589	564	633	627	687	630	597	990		589	690	750	680	497	572
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**249**	**272**	**248**	**234**	**246**	**243**	**239**	**230**	**236**	**236**	**230**	**240**	**300**	**306**	**330**	**243**	**249**	**242**	**227**	**226**	**211**
pH	N/A	6.5-8.5 (OG)	8.39	8.23	8.27	8.3	8.42	8.36	8.24	8.2	8.18	8.32	8.01	7.63	8.14	8.15	8.13	8.09	8.17	8.28	8.24	8.02	8.17
Total Dissolved Solids	mg/L	500 (AO)	392	394	386	362	400	376	402	368	336	374	372	360	376	370	384	309	333	490	480	447	385
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	211	218	210	207	199	203	209	209	217	225	219	247	227	213	228	237	239	221	218	237	231
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	10.0	<5	<5	<5	13.0	6.00	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	221	218	210	209	212	209	209	209	217	230	219	247	230	216	231	237	239	221	218	237	231
Ammonia, Total (as N)	mg/L	NV	0.71	0.10	<0.02	<0.02	0.0	0.0	<0.02	0.5	0.1	<0.02	<0.02	<0.02	<0.050	<0.050	<0.050	<0.050	0.069	0.026	0.102	0.04	0.07
Bromide	mg/L	NV	0.050	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	16.2	9.65	6.54	6.67	6.05	5.75	6.74	6.17	6.38	6.40	8.27	7.79	9.8	10.7	10.7	10.7	10.4	11.7	11	12.1	12.5
Fluoride	mg/L	1.5 (MAC)	1.080	1.01	0.75	1.03	1.01	1.08	0.89	1.13	0.67	0.97	0.79	0.89	1.15	1.13	1.18	1.18	1.16	1.08	0.99	1.16	1.18
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	0.070	0.110	0.170	<0.05	<0.05	<0.05	<0.05	<0.07	<0.07	<0.2	<0.2	<0.2	0.085	0.044	0.069	0.036	0.071	0.047
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	0.070	0.110	0.170	<0.05	<0.05	<0.05	<0.05	<0.25	<0.1	<0.10	<0.10	<0.10	0.085	0.044	0.069	0.036	0.071	0.047
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.1	<0.10	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.2	0.0059	0.0061	0.0069	0.0059	0.0041	0.0053	0.0053	0.0044	0.0053
Sulphate	mg/L	500 (AO)	83	90.6	85.7	111.0	122.0	113.0	135.0	128.0	118.0	109	115	104	106	106	106	99.8	95.9	97.8	94.8	92.3	94.2
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**5.4**	3.0	1.8	2.7	**32.2**	2.3	1.5	2.6	1.2	1.1	1.3	1.1	<1.0	<1.0	<1.0	<1.0	1	2.6	<1.0	<1.0	2.7
Aluminum	mg/L	0.1 (OG)	0.01	0.008	0.008	<0.004	0.093	0.040	<0.004	0.043	0.010	0.057	0.012	<0.004	<0.010	<0.010	<0.010	<0.010	<0.0050	<0.0050	0.0071	0.005	<0.0050
Arsenic	mg/L	0.01 (IMAC)	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0012	0.0012	0.0012	0.0012	0.00121	0.00117	0.00124	0.00	0.00
Barium	mg/L	1.0 (MAC)	0.057	0.037	0.032	0.039	0.06	0.054	0.056	0.057	0.046	0.055	0.053	0.052	0.0584	0.0653	0.0693	0.0619	0.0675	0.0683	0.0584	0.06	0.05
Boron	mg/L	5.0 (MAC)	0.188	0.142	0.181	0.174	0.157	0.156	0.163	0.165	0.142	0.154	0.18	0.169	0.145	0.159	0.156	0.183	0.179	0.171	0.149	0.166	0.147
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	50.8	53	46.9	43.6	45.4	45.3	44.8	42.8	43.9	44.2	42.4	46.8	71.3	69.6	75.6	46.3	47.2	45.5	44.2	44.1	43.5
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.007	<0.003	0.004	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.00035	0.0003	0.00038	0.00037	0.00115
Iron	mg/L	0.3 (AO)	0.024	0.08	<0.01	<0.01	0.081	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.050	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	29.6	34	31.9	30.4	32.1	31.5	30.9	30	30.7	30.5	30.2	30	29.6	32.2	34.2	30.9	31.8	31.1	28.3	28.2	24.8
Manganese	mg/L	0.05 (AO)	0.023	0.019	0.011	0.012	**0.078**	0.044	0.006	0.034	0.006	0.008	0.004	<0.002	<0.0010	0.0018	0.0021	0.0018	0.00093	0.00177	0.00273	0.00098	0.0026
Potassium	mg/L	NV	6.91	5.48	3.31	3.12	3.09	2.81	2.69	2.28	2.21	2.24	2.12	2.36	2	2.2	2.5	2	1.93	1.95	1.92	1.94	1.75
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	<0.00040	0.000177	0.000174	0.000124	0.000155	0.000126
Silicon	mg/L	NV	6.64	7.35	6.59	5.82	5.73	5.87	6.1	5.72	4.83	5.71	5.35	5.43	4.9	5.2	5.3	5.5	5.45	5.16	4.84	4.7	4.49
Sodium	mg/L	200 (AO)	37.3	38.3	40.2	36.9	45	41.7	43.9	41.9	43.3	41.3	43.3	42.9	45.7	48.7	52.3	49.6	47.1	49.6	42.5	47.4	38.7
Zinc	mg/L	5.0 (AO)	0.009	0.01	0.01	0.009	0.008	<0.004	0.024	0.006	<0.004	0.168	0.007	<0.005	<0.0030	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW5D May-18	MW5D Sep-18	MW5D May-19	MW5D Sep-19	MW5D May-20	MW5D Sep-20	MW5D May-21	MW5D Sep-21	MW5D May-22	MW5D Sep-22	MW5D May-23	MW5D Sep-23	MW5D May-24	MW5D Sep-24	MW5D May-25	MW5D Sep-25
Field Electrical Conductivity	uS/cm	NV	650	790	574	525	626	544	616	557	628	653	707	762	663	766	629	684
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**207**	**227**	**209**	**228**	**238**	**225**	**233**	**232**	**227**	**240**	**233**	**230**	**230**	**219**	**228**	**214**
pH	N/A	6.5-8.5 (OG)	8.34	8.12	7.97	7.89	8.06	7.99	8.41	8.21	7.99	**8.51**	8.23	8.39	8.25	8.24	8.28	8.24
Total Dissolved Solids	mg/L	500 (AO)	**632**	**582**	419	420	369	383	394	379	374	349	355	350	342	343	370	382
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	204	209	207	297	262	271	240	284	233	199	241	234	328	223	294	227
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<2.0	<2.0	6.3	<1.0	<1.0	13.8	<1.0	5.2	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	204	209	207	297	262	271	246	284	233	213	241	239	328	223	294	227
Ammonia, Total (as N)	mg/L	NV	0.256	0.067	<0.010	<0.010	0.0120	<0.010	<0.010	<0.010	<0.0050	0.0059	<0.0050	0.0068	0.0057	0.0149	0.4090	<0.0050
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.21
Chloride	mg/L	250 (AO)	12.9	11.2	10.0	11.0	13.7	13.7	16.0	14.5	15.4	15.2	16.2	16.6	18.0	15.1	16.8	16.3
Fluoride	mg/L	1.5 (MAC)	1.15	1.27	1.27	1.24	1.24	1.26	1.24	1.03	1.20	1.21	1.19	1.14	1.13	1.09	1.28	1.21
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.067	0.039	0.053	0.061	0.105	0.094	0.103	0.080	0.123	0.118	0.106	0.107	0.0890	0.0800	0.101	0.0830
Nitrate as N	mg/L	10.0 (MAC)	0.067	0.039	0.053	0.061	0.105	0.094	0.103	0.080	0.123	0.118	0.106	0.107	0.089	0.080	0.101	0.083
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	0.0042	0.0037	0.0049	0.0052	<0.0030	0.0055	<0.0030	0.0047	0.0100	0.0157	0.0079	0.0060	0.006	0.0071	0.0062	0.0075
Sulphate	mg/L	500 (AO)	95.0	92.9	90.5	92.8	98.3	96.8	102.0	95.7	99.3	94.7	93.6	94.0	92.5	83.1	92.8	90.2
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.20	1.72	1.88	0.85	1.24	0.96	1.31	2.46	0.58	1.55	0.92	1.92	1.61	1.26	0.64	1.14
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0054	0.0019	0.0027	0.0017	0.0050	0.0566	0.0012	0.0027	0.0017
Arsenic	mg/L	0.01 (IMAC)	0.00131	0.00114	0.00154	0.00108	0.00115	0.00098	0.00106	0.00106	0.00098	0.00106	0.00100	0.00099	0.00104	0.00104	<0.00100	0.00097
Barium	mg/L	1.0 (MAC)	0.0578	0.0546	0.0556	0.0642	0.0707	0.0681	0.0760	0.0729	0.0756	0.0723	0.0691	0.0693	0.0756	0.0656	0.0730	0.0656
Boron	mg/L	5.0 (MAC)	0.153	0.160	0.172	0.158	0.183	0.170	0.145	0.157	0.145	0.179	0.164	0.138	0.148	0.149	0.169	0.145
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000089	0.0000120	0.0000251	0.0000093	0.0000078	0.0000062	0.0000067	0.0000075
Calcium	mg/L	NV	40.4	46.2	40.0	43.7	47.3	44.3	44.5	41.7	42.5	47.7	44.6	42.9	43.4	40.6	42.3	40.4
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00046	0.00043	0.00062	0.00060	0.00030	0.00031	0.00024	0.00035	0.00283	0.00061	0.00110	0.00080	0.00076	0.00034	0.00055	0.00174
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.05	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000084	<0.000050	<0.000050	<0.000050	0.000111	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	25.9	27.2	26.4	29.0	29.2	27.8	29.6	31.0	29.4	29.5	29.6	29.9	29.6	28.6	29.8	27.4
Manganese	mg/L	0.05 (AO)	0.00212	0.00129	0.00058	<0.00050	0.00156	<0.00050	0.00095	0.00057	0.00030	0.00019	0.00018	0.00064	0.00324	0.00030	0.00245	0.00032
Potassium	mg/L	NV	1.92	1.92	1.94	2.04	1.94	1.72	1.89	1.83	1.79	1.91	1.80	1.66	1.84	1.76	1.80	1.65
Selenium	mg/L	0.05 (MAC)	0.000294	0.000208	0.000432	0.000363	0.000262	0.000235	0.000180	0.000201	0.000222	0.000189	0.000158	0.000150	0.000126	0.000162	<0.000500	0.000120
Silicon	mg/L	NV	4.80	4.55	5.05	4.72	4.72	4.47	4.53	4.79	4.57	4.97	4.56	4.46	4.62	4.71	4.85	4.35
Sodium	mg/L	200 (AO)	45.5	44.1	40.0	44.4	51.1	48.8	52.1	51.3	51.8	54.6	57.2	55.2	56.2	52.6	58.3	49.0
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	0.001	<0.0010	<0.0010	<0.0010	<0.0010	0.004	0.002	0.003	<0.0010	0.0026	<0.0010	<0.0010	0.0014

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S	MW6S
			Jul-08	Oct-08	May-09	Sep-09	May-10	Sep-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17
Field Electrical Conductivity	uS/cm	NV	624	655	582	621	525	620	577	591	623	582	621	643	451	654	611	730	770	740	504	614
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**348**	**389**	**331**	**325**	**331**	**366**	**338**	**347**	**332**	**359**	**298**	**348**	**349**	**377**	**382**	**384**	**352**	**358**	**324**	**358**
pH	N/A	6.5-8.5 (OG)	8.11	8.02	8.06	8.12	8.13	8.05	8.05	7.92	8.05	8.21	7.89	7.47	7.8	7.6	7.62	7.58	7.82	7.91	7.54	7.8
Total Dissolved Solids	mg/L	500 (AO)	402	400	356	372	336	400	370	362	342	382	306	336	356	398	337	330	**535**	390	365	465
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	298	302	296	284	266	291	315	318	317	292	283	354	353	386	362	347	350	345	321	354
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	298	302	296	284	266	291	315	318	317	292	283	354	355	388	362	347	350	345	321	354
Ammonia, Total (as N)	mg/L	NV	0.52	<0.02	<0.02	0.02	<0.02	0.0	0.10	0.6	0.1	0.37	0.12	<0.02	<0.050	<0.050	0.166	<0.050	0.026	0.043	<0.020	0.036
Bromide	mg/L	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	5.7	6.9	4.5	7.6	6.3	9.5	4.6	6.6	5.3	6.14	4.64	4.46	3.7	2.8	3.66	4.42	4.22	4.72	5.04	3.4
Fluoride	mg/L	1.5 (MAC)	0.450	0.56	0.40	0.64	0.36	0.77	<0.05	0.91	<0.05	0.75	0.18	0.2	<0.10	0.13	0.251	0.429	0.178	0.779	0.131	0.391
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	4.260	3.270	3.930	3.230	5.640	1.660	1.790	<0.05	2.710	0.32	1.23	0.66	1.28	0.31	0.762	0.638	0.374	<0.022	0.095	<0.022
Nitrate as N	mg/L	10.0 (MAC)	4.260	3.270	3.930	3.230	5.640	1.660	1.790	<0.05	2.710	0.32	1.23	0.66	1.28	0.31	0.762	0.638	0.374	<0.020	0.095	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.200	<0.1	<0.2	<0.2	<0.0030	0.0036	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Sulphate	mg/L	500 (AO)	32	34.2	12.9	34.6	18.4	46.4	20.7	42.9	21.3	37.7	20.1	18.3	15.9	15.2	17.7	25.6	19.6	33.2	21.7	25.1
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	2.6	1.5	0.6	2.1	**8.1**	2.4	1.7	2.1	4.3	0.9	1.2	1.1	<1.0	<1.0	1.3	1.7	3.9	1.7	1.3	4.2
Aluminum	mg/L	0.1 (OG)	0.01	0.021	0.022	<0.004	<0.004	0.011	<0.004	0.015	0.008	**0.224**	0.005	<0.004	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00015	0.00012	0.00016	0.00013	0.00
Barium	mg/L	1.0 (MAC)	0.058	0.046	0.071	0.09	0.075	0.099	0.064	0.096	0.075	0.103	0.036	0.059	0.0292	0.0539	0.0721	0.109	0.0525	0.0758	0.0338	0.11
Boron	mg/L	5.0 (MAC)	0.023	0.015	<0.01	0.015	<0.01	0.011	<0.01	0.011	<0.01	0.012	<0.01	<0.01	<0.010	0.011	<0.010	0.012	<0.010	0.011	<0.010	0.012
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	97	110	96.1	90.1	94.8	101	102	98.1	96.1	100	87.4	103	107	115	111	112	102	106	96.8	101
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.011	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00038	0.00039	0.00043	0.00038	0.00175
Iron	mg/L	0.3 (AO)	0.019	0.019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.2	<0.01	<0.01	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	0.000128
Magnesium	mg/L	NV	25.6	27.8	22.2	24.4	22.9	27.6	20.3	24.9	22.4	26.5	19.3	22	19.8	22.1	25.6	25.2	23.3	22.9	20.1	26
Manganese	mg/L	0.05 (AO)	0.044	0.015	0.006	0.008	<0.002	0.005	<0.002	0.012	<0.002	0.019	<0.002	<0.002	<0.0010	<0.0010	<0.0010	0.00107	<0.00050	0.00602	<0.00050	0.00192
Potassium	mg/L	NV	1.53	1.23	0.83	1.15	0.87	1.35	0.65	1.17	0.67	1.3	0.48	0.78	<1.0	<1.0	<1.0	1.04	0.483	0.738	0.365	0.887
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000129	0.000167	0.000074	0.000158	0.000197
Silicon	mg/L	NV	2.02	6.56	4.63	5.16	4.4	6.36	4.24	4.86	4.52	6.11	3.55	5.74	3.1	4.5	4.4	5.74	4.06	3.95	3.27	5.82
Sodium	mg/L	200 (AO)	3.67	4.38	2.43	3.63	3.52	4.51	4.47	5.22	3.58	4.83	3.14	3.24	3.15	3.95	3.36	3.66	3.27	3.48	3.4	3.9
Zinc	mg/L	5.0 (AO)	0.027	0.03	0.065	<0.004	<0.004	<0.004	0.051	0.017	0.006	<0.004	<0.005	<0.005	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	0.0012

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

Pinchin File: 333568.002

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW6S May-18	MW6S Sep-18	MW6S May-19	MW6S Sep-19	MW6S May-20	MW6S Sep-20	MW6S May-21	MW6S Sep-21	MW6S May-22	MW6S Sep-22	MW6S May-23	MW6S Sep-23	MW6S May-24	MW6S Sep-24	MW6S May-25	MW6S Sep-25
Field Electrical Conductivity	uS/cm	NV	680	850	563	607	495	742	692	605	659	693	673	640	759	720	708	700
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**332**	**377**	**342**	**356**	**378**	**367**	**374**	**351**	**380**	**420**	**352**	**372**	**382**	**382**	**380**	**411**
pH	N/A	6.5-8.5 (OG)	8.01	7.7	7.61	7.46	7.64	7.27	7.67	7.54	7.54	7.77	7.70	7.68	7.56	7.55	7.58	7.42
Total Dissolved Solids	mg/L	500 (AO)	480	**535**	406	417	371	418	378	403	398	393	337	372	364	401	396	**505**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	331	332	520	364	347	379	373	380	403	320	363	360	410	431	395	648
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<250	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	331	332	**520**	364	347	379	373	380	403	320	363	360	410	431	395	**648**
Ammonia, Total (as N)	mg/L	NV	0.171	0.286	0.0130	0.0130	0.0120	<0.010	<0.010	<0.010	<0.0050	0.0119	<0.0050	<0.0050	<0.0050	0.0070	0.0068	0.0221
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	3.85	4.18	4.99	4.98	4.22	5.32	4.10	5.02	5.08	5.27	5.00	3.52	4.70	3.43	4.90	5.25
Fluoride	mg/L	1.5 (MAC)	0.233	0.663	0.158	0.689	0.112	0.904	0.119	0.837	0.082	0.704	0.092	0.191	0.076	0.492	0.144	0.604
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.202	<0.022	0.906	<0.022	0.084	0.036	<0.022	<0.022	0.050	0.0250	0.0600	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224
Nitrate as N	mg/L	10.0 (MAC)	0.202	<0.020	0.906	<0.020	0.084	0.036	<0.020	<0.020	0.050	0.025	0.060	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.0030	<0.0030	<0.0030	0.0065	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	0.0015	0.0011	0.0025
Sulphate	mg/L	500 (AO)	17.1	29.7	15.0	29.1	16.4	31.9	18.2	37.8	12.9	25.3	12.8	18.3	12.6	23.7	17.1	30.5
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.3	2.3	1.84	1.51	1.85	1.67	1.94	3.08	1.64	2.57	1.57	1.86	2.31	2.05	1.42	1.28
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	0.0062	0.0012	0.0389	0.0012	<0.0010	0.0017	<0.0010
Arsenic	mg/L	0.01 (IMAC)	0.00	0.00	0.00010	0.00019	0.00011	0.00015	0.00012	0.00022	0.00010	0.00017	0.00014	0.00015	0.00013	0.00017	<0.00100	0.00025
Barium	mg/L	1.0 (MAC)	0.05	0.06	0.0403	0.0562	0.0444	0.0741	0.0474	0.1090	0.0330	0.0587	0.0431	0.0725	0.0374	0.0923	0.0482	0.0730
Boron	mg/L	5.0 (MAC)	<0.010	0.013	<0.010	<0.010	<0.010	0.012	<0.010	0.015	<0.010	0.011	<0.010	0.011	<0.010	0.012	<0.010	0.013
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000180	<0.0000050	0.0000092	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Calcium	mg/L	NV	99.6	111	102.0	104.0	113.0	107.0	110.0	94.6	111.0	125.0	104.0	107.0	114	108.0	111.0	116
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00037	0.00045	0.00057	0.00040	0.00027	0.00057	0.00031	0.00029	0.00038	0.00082	0.00085	0.00198	0.00071	0.00039	0.00045	0.00033
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.046	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	20.1	24.1	21.1	23.2	23.2	24.0	24.3	27.8	25.0	26.1	22.5	25.4	23.6	27.3	25.0	29.5
Manganese	mg/L	0.05 (AO)	<0.00050	0.00582	0.00114	0.00396	<0.00050	0.00058	<0.00050	0.00358	0.00010	0.00210	<0.00010	0.00372	0.00023	0.00026	0.00015	0.00736
Potassium	mg/L	NV	0.478	0.689	0.46	0.67	0.40	0.79	0.44	0.81	0.43	0.73	0.44	0.65	0.394	0.85	0.47	0.697
Selenium	mg/L	0.05 (MAC)	0.000119	0.000066	0.000117	0.000055	0.000132	0.000078	0.000120	0.000103	0.000078	<0.000050	0.000130	0.000159	0.000095	0.000145	<0.000500	0.000060
Silicon	mg/L	NV	3.53	4.17	3.02	4.09	4.11	4.51	4.09	5.97	3.37	4.62	3.61	5.19	3.44	5.31	4.32	5.29
Sodium	mg/L	200 (AO)	3.2	4.1	3.86	4.03	3.59	4.55	3.73	4.94	4.22	4.95	4.11	4.27	4.35	5.04	4.46	5.24
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0016	0.0016	0.0013	0.001	<0.0010	0.0014	<0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D	MW6D
			Jul-08	Oct-08	May-09	Sep-09	May-10	Sep-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17
Field Electrical Conductivity	uS/cm	NV	674	688	675	675	641	651	648	619	694	634	760	733	528	675	680	800	820	770	561	654
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**328**	**365**	**334**	**308**	**335**	**328**	**322**	**310**	**311**	**327**	**315**	**347**	**325**	**313**	**292**	**290**	**285**	**292**	**255**	**296**
pH	N/A	6.5-8.5 (OG)	8.31	8.17	8.16	8.25	8.4	8.37	8.17	8.18	8.14	8.29	8	7.4	8.01	7.93	8	8.01	8.22	8.16	7.87	8.12
Total Dissolved Solids	mg/L	500 (AO)	470	460	432	416	422	418	460	420	406	408	414	428	416	427	366	423	**649**	475	**535**	**547**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	223	240	242	249	240	236	251	248	247	237	246	289	258	252	259	263	248	250	266	274
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	<5	<5	14.000	7.000	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	226	240	242	249	254	243	251	248	247	240	246	289	260	254	259	263	248	250	266	274
Ammonia, Total (as N)	mg/L	NV	0.62	<0.02	<0.02	<0.02	0.0	<0.02	0.02	0.2	<0.02	0.27	0.11	1.72	<0.050	0.329	<0.050	<0.050	0.093	<0.020	0.062	0.02
Bromide	mg/L	NV	0.050	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	19.4	16.9	11.0	14.0	13.5	13.1	14.5	13.1	14.4	14.1	15.5	16.8	16.8	17.7	19.7	19.3	18.8	17.8	15.9	16
Fluoride	mg/L	1.5 (MAC)	1.100	1.15	0.79	1.01	1.01	1.00	1.09	1.03	0.65	0.79	0.96	1.01	1.18	1.19	1.31	1.2	1.21	0.986	1.21	1.36
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.07	<0.07	<0.2	<0.2	0.038	0.033	0.029	<0.022	0.028	<0.022
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	0.038	0.033	0.029	<0.020	0.028	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.5	0.0048	0.0031	0.0041	0.0039	0.0057	0.007	0.0056	0.0129
Sulphate	mg/L	500 (AO)	102	103.0	87.8	107.0	122.0	112.0	136.0	125.0	129.0	111	112	104	104	104	104	101	105	104.0	88.1	96.6
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	4.9	3.7	1.7	2.0	**8.4**	2.5	1.2	1.7	**5.1**	2	**5.6**	**20.2**	<1.0	<1.0	<1.0	1.2	3.1	1	<1.0	1.4
Aluminum	mg/L	0.1 (OG)	0.01	0.010	0.006	<0.004	<0.004	0.012	0.004	0.010	0.020	0.007	0.006	<0.004	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	<0.0010	0.0011	0.0011	0.00097	0.00095	0.00081	0.00112	0.00100
Barium	mg/L	1.0 (MAC)	0.078	0.055	0.061	0.068	0.077	0.082	0.088	0.08	0.075	0.087	0.073	0.091	0.0863	0.1	0.092	0.0952	0.0963	0.0992	0.0763	0.10
Boron	mg/L	5.0 (MAC)	0.086	0.058	0.063	0.06	0.049	0.041	0.042	0.039	0.035	0.032	0.036	0.035	0.032	0.032	0.035	0.031	0.033	0.031	0.033	0.032
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	73.6	80.2	74.2	66.8	73.7	73	73.2	70	70.1	75.4	71.3	84.7	80.2	76	66.7	69.3	64.4	68.2	60	67
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.006	<0.003	0.012	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	<0.00020	<0.00020	0.0003	0.00036	0.0005
Iron	mg/L	0.3 (AO)	0.02	0.094	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.101	<0.01	0.024	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	35	40	36.2	34.4	36.7	35.4	33.8	32.9	33	33.6	33.2	33	30.4	29.9	30.6	28.4	30	29.4	25.5	31.3
Manganese	mg/L	0.05 (AO)	0.035	0.034	0.015	0.018	0.01	0.014	0.007	0.015	0.006	0.034	0.022	0.019	0.0041	0.0164	<0.0010	0.00203	0.00623	0.00101	<0.00050	0.00116
Potassium	mg/L	NV	6.39	5.2	3.7	3.6	3.49	3.37	2.76	2.69	2.57	2.45	2.22	3.22	2	2.2	1.9	2.11	2.04	2.14	1.85	2.16
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	**0.012**	<0.00040	<0.00040	<0.00040	0.000052	0.000209	0.000067	0.000159	0.000095
Silicon	mg/L	NV	2.14	8.61	7.49	6.85	6.81	6.62	7.03	6.24	5.9	6.93	5.61	7.06	5.9	6.2	7	7.33	6.6	5.91	6.61	6.81
Sodium	mg/L	200 (AO)	22.7	20.7	20.1	20.3	22.9	22.8	24.9	24.1	25	25.2	25.9	28.7	28.1	31.9	49.9	46.6	47.1	39.9	48.4	46.0
Zinc	mg/L	5.0 (AO)	0.01	<0.004	0.028	0.005	<0.004	0.008	0.014	0.017	0.004	<0.004	<0.005	<0.005	<0.0030	<0.0030	<0.0030	0.0011	<0.0010	<0.0010	<0.0010	<0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW6D May-18	MW6D Sep-18	MW6D May-19	MW6D Sep-19	MW6D May-20	MW6D Sep-20	MW6D May-21	MW6D Sep-21	MW6D May-22	MW6D Sep-22	MW6D May-23	MW6D Sep-23	MW6D May-24	MW6D Sep-24	MW6D May-25	MW6D Sep-25
Field Electrical Conductivity	uS/cm	NV	740	880	602	621	629	600	619	588	676	544	669	705	709	648	620	819
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**235**	**286**	**229**	**284**	**272**	**246**	**249**	**226**	**230**	**242**	**245**	**243**	**239**	**241**	**249**	**259**
pH	N/A	6.5-8.5 (OG)	8.27	8.08	7.75	7.94	8.00	7.75	8.08	8.27	7.91	8.27	8.11	8.16	8.17	8.01	8.14	8.03
Total Dissolved Solids	mg/L	500 (AO)	**566**	**590**	429	468	443	411	392	380	368	357	362	356	351	360	373	369
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	248	245	244	284	274	261	263	311	272	232	299	284	294	305	842	262
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.00	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	248	245	244	284	274	261	263	311	272	232	299	284	294	305	**842**	262
Ammonia, Total (as N)	mg/L	NV	0.061	0.073	0.0190	<0.010	0.0130	<0.010	<0.010	<0.010	<0.0050	0.0102	<0.0050	<0.0050	<0.0050	0.0084	<0.0050	<0.0050
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.140	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	15.4	15.3	13.40	13.60	12.80	12.30	11.80	10.80	10.70	9.96	9.70	9.69	9.27	9.09	8.76	8.44
Fluoride	mg/L	1.5 (MAC)	1.42	1.33	1.38	1.35	1.32	1.35	1.35	1.22	1.31	1.30	1.29	1.20	1.17	1.12	1.34	1.18
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.023	<0.022	0.029	<0.022	<0.022	0.023	<0.022	<0.022	<0.0224	<0.0224	<0.0224	0.064	<0.0224	<0.0224	<0.0224	<0.0224
Nitrate as N	mg/L	10.0 (MAC)	0.023	<0.020	0.029	<0.020	<0.020	0.023	<0.020	<0.020	<0.020	<0.020	<0.020	0.064	<0.020	<0.020	<0.020	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	0.0139	0.0055	0.0065	0.0066	<0.0030	0.0054	0.0071	0.0069	0.0061	0.0076	0.0058	0.0078	0.0078	0.0136	0.0062	0.0102
Sulphate	mg/L	500 (AO)	97.5	107	84.5	98.9	98.3	91.1	86.7	75.6	76.5	69.5	73.1	71.9	68.8	68.8	66.6	60.5
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	<1.0	2.06	0.95	0.98	1.35	1.21	1.54	2.48	0.72	1.48	1.14	1.65	1.26	1.30	1.17	0.93
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	0.0017	0.0030	0.0010	0.0027	0.0011	<0.0010	0.0016
Arsenic	mg/L	0.01 (IMAC)	0.00095	0.00085	0.00167	0.00090	0.00122	0.00158	0.00158	0.00179	0.00153	0.00174	0.00127	0.00144	0.00155	0.00136	0.00122	0.00190
Barium	mg/L	1.0 (MAC)	0.08	0.08	0.0770	0.0902	0.0880	0.0822	0.0852	0.0756	0.0740	0.0764	0.0787	0.0720	0.0775	0.0761	0.0808	0.0770
Boron	mg/L	5.0 (MAC)	0.028	0.033	0.030	0.033	0.033	0.030	0.026	0.029	0.028	0.030	0.031	0.026	0.027	0.029	0.029	0.030
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	0.0000116	0.0000069	0.0000068	<0.0000050	<0.0000050	<0.0000050	0.0000064
Calcium	mg/L	NV	56	67	54.2	65.5	65.2	58.3	57.5	50.9	53.0	58.1	56.3	55.4	55.0	54.8	56.4	59.0
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00025	0.00037	0.00034	0.00035	0.00027	0.00027	0.00037	<0.00020	0.00034	0.00046	0.00045	0.00043	0.00046	0.00094	0.00032	0.00128
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	23.1	28.9	22.7	29.3	26.5	24.4	25.7	24.1	23.8	23.6	25.4	25.4	24.6	25.3	26.2	27.1
Manganese	mg/L	0.05 (AO)	0.00106	0.00057	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00069	0.00323	<0.00010	0.00015	0.00013	0.00211	0.00045	0.00020	0.00140
Potassium	mg/L	NV	1.76	2.04	1.58	2.10	1.81	1.68	1.81	1.59	1.50	1.66	1.57	1.45	1.53	1.62	1.61	1.53
Selenium	mg/L	0.05 (MAC)	0.000148	0.000147	0.000098	0.000145	0.000184	0.000127	0.000104	0.000082	0.000067	0.000055	0.000105	<0.000050	0.000056	<0.000050	<0.000500	<0.000050
Silicon	mg/L	NV	6.18	6.22	7.20	6.40	6.57	6.85	6.32	7.26	6.98	7.33	6.59	6.89	6.98	6.91	7.11	7.64
Sodium	mg/L	200 (AO)	48.4	45.5	50.4	45.1	50.3	50.6	51.6	53.9	51.8	52.9	47.9	49.3	50.4	46.4	46.0	48.5
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	0.0014	<0.0010	<0.0010	0.0013	0.0011	<0.0010	0.0014

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

Pinchin File: 333568.002

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW7S Jul-08	MW7S Oct-08	MW7S May-09	MW7S Sep-09	MW7S May-10	MW7S Sep-10	MW7S May-11	MW7S Sep-11	MW7S May-12	MW7S Sep-12	MW7S Apr-13	MW7S Sep-13	MW7S May-14	MW7S Sep-14	MW7S May-15	MW7S Sep-15	MW7S May-16	MW7S Sep-16	MW7S May-17	MW7S Sep-17
Field Electrical Conductivity	uS/cm	NV	578	627	521	575	519	794	540	594	595	575	614	651	501	642	547	730	620	640	468	581
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**335**	**377**	**296**	**298**	**318**	**427**	**364**	**320**	**315**	**341**	**275**	**306**	**358**	**351**	**319**	**379**	**198**	**304**	**263**	**336**
pH	N/A	6.5-8.5 (OG)	8.14	8	8.05	8.21	8.13	8.03	8.09	7.99	8.12	8.27	7.96	7.31	7.77	7.73	7.84	7.77	8.11	7.89	7.81	7.93
Total Dissolved Solids	mg/L	500 (AO)	362	360	316	324	334	**514**	354	348	328	354	292	348	343	393	275	374	461	444	362	415
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	322	328	293	289	273	342	306	316	303	308	286	355	325	363	317	344	294	312	282	330
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	322	328	293	289	273	342	306	316	303	308	286	355	327	365	317	344	294	312	282	330
Ammonia, Total (as N)	mg/L	NV	0.10	<0.02	<0.02	0.04	<0.02	<0.02	<0.02	0.1	0.0	<0.02	0.08	<0.02	<0.050	<0.050	0.087	0.104	0.025	0.055	0.025	0.039
Bromide	mg/L	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	2.6	2.1	1.0	5.4	3.9	18.9	2.8	5.8	4.2	5.21	2.99	4.48	2.4	2.1	2.57	2.97	1.03	2.42	1.16	2.05
Fluoride	mg/L	1.5 (MAC)	0.310	0.32	0.26	0.41	0.22	0.17	0.19	0.34	0.03	0.025	0.35	0.55	0.26	0.44	0.419	0.429	0.433	0.485	0.256	0.388
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.160	0.100	<0.05	0.730	5.180	0.430	0.060	0.770	1.000	0.61	0.35	0.67	0.56	0.31	0.456	0.856	0.067	0.055	0.077	0.254
Nitrate as N	mg/L	10.0 (MAC)	0.160	0.100	<0.05	0.730	5.180	0.430	0.060	0.770	1.000	0.61	0.35	0.67	0.56	0.31	0.456	0.856	0.067	0.055	0.077	0.254
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.0030	0.0035	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0121
Sulphate	mg/L	500 (AO)	17	11.1	4.6	16.8	14.2	91.9	15.9	25.9	21.3	21.6	23.5	23.6	11.6	17.8	14.1	18.2	7.99	18.2	5.7	13.9
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	2.9	1.9	1.1	1.5	2.3	4.5	4.3	1.4	3.7	1.4	1.4	1.5	<1.0	<1.0	1.1	2.7	3.9	2.5	<1.0	1.5
Aluminum	mg/L	0.1 (OG)	0.01	0.005	0.006	0.004	<0.004	0.009	<0.004	0.007	0.005	0.019	0.004	0.005	0.019	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00016	0.00202	0.00031	0.00012	0.00
Barium	mg/L	1.0 (MAC)	0.081	0.06	0.053	0.066	0.067	0.1	0.067	0.073	0.064	0.093	0.057	0.079	0.0619	0.0913	0.0766	0.104	0.0732	0.0822	0.0359	0.08
Boron	mg/L	5.0 (MAC)	0.018	0.014	<0.01	0.013	<0.01	0.04	<0.01	0.013	<0.01	0.013	<0.01	0.014	0.013	0.014	<0.010	0.013	0.089	<0.010	<0.010	0.012
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	98	114	90.8	88.6	96.4	132	111	96.5	93.1	101	79.5	87.6	109	102	88.9	109	36.5	88.1	79.7	98.8
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.012	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0028	<0.0010	<0.0010	0.00047	0.0003	0.00042	0.00065	0.00054
Iron	mg/L	0.3 (AO)	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	21.9	22.4	16.8	18.6	18.8	23.7	21.2	19.2	20	21.6	18.6	21.3	20.6	23	23.6	26.1	26	20.4	15.5	21.6
Manganese	mg/L	0.05 (AO)	0.02	0.01	0.008	0.013	0.004	0.009	0.003	0.012	0.004	0.007	<0.002	0.014	0.0019	<0.0010	<0.0010	<0.00050	0.00204	0.0033	<0.00050	<0.00050
Potassium	mg/L	NV	1.2	1	0.6	0.88	0.64	0.91	0.71	0.75	0.8	0.84	0.65	1.22	<1.0	<1.0	<1.0	1.41	1.4	1.04	0.44	0.94
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000183	0.0001	0.000088	0.000186	0.000301
Silicon	mg/L	NV	2.33	5.68	3.91	4.21	3.38	5.04	3.71	4.65	3.44	5.12	3.7	4.85	3.8	5.3	4.5	6	6.43	4.35	3.08	4.71
Sodium	mg/L	200 (AO)	3.07	3.13	1.86	6.47	3.18	23	4.83	9.79	4.55	6.9	12.3	21.8	9.3	11.1	9.05	7.23	36.6	6.4	3.82	4.8
Zinc	mg/L	5.0 (AO)	0.015	<0.004	0.012	0.027	0.084	<0.004	<0.004	0.009	<0.004	0.057	<0.005	<0.005	0.005	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW7S May-18	MW7S Sep-18	MW7S May-19	MW7S Sep-19	MW7S May-20	MW7S Sep-20	MW7S May-21	MW7S Sep-21	MW7S May-22	MW7S Sep-22	MW7S May-23	MW7S Sep-23	MW7S May-24	MW7S Sep-24	MW7S May-25	MW7S Sep-25
Field Electrical Conductivity	uS/cm	NV	650	780	492	532	554	643	664	598	757	570	722	700	834	690	615	616
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**309**	**324**	**288**	**303**	**330**	**342**	**308**	**320**	**397**	**384**	**364**	**328**	**415**	**368**	**325**	**378**
pH	N/A	6.5-8.5 (OG)	8.06	7.85	7.80	7.58	7.76	7.44	7.76	7.93	7.38	7.82	7.53	7.76	7.62	7.71	7.73	7.48
Total Dissolved Solids	mg/L	500 (AO)	483	390	315	395	329	344	331	359	421	337	342	354	420	369	334	**528**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	319	311	320	346	337	325	337	397	420	325	473	409	946	431	333	473
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<250	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	319	311	320	346	337	325	337	397	420	325	473	409	**946**	431	333	473
Ammonia, Total (as N)	mg/L	NV	0.076	0.118	<0.010	<0.010	0.020	0.071	<0.010	<0.010	<0.0050	0.0056	<0.0050	<0.0050	0.0142	<0.0050	0.0198	0.0148
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	1.04	1.9	1.76	2.20	1.16	1.70	1.51	1.66	1.90	2.24	<0.50	1.54	1.30	1.54	1.82	2.08
Fluoride	mg/L	1.5 (MAC)	0.228	0.545	0.231	0.446	0.198	0.618	0.230	0.269	0.106	0.385	0.145	0.308	0.194	0.266	0.248	0.402
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.115	0.078	0.074	0.060	0.066	0.070	0.055	0.471	<0.0224	0.122	<0.0224	0.153	<0.0224	0.0850	0.0510	0.0350
Nitrate as N	mg/L	10.0 (MAC)	0.115	0.078	0.074	0.060	0.066	0.070	0.055	0.471	<0.020	0.122	<0.020	0.153	<0.020	0.085	0.051	0.035
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0030	<0.0030	<0.0030	0.0016	0.0010	0.0011	0.0018	0.0046	0.0037
Sulphate	mg/L	500 (AO)	3.84	13.9	3.66	13.20	5.46	14.30	5.63	11.30	1.54	9.31	1.35	10.1	2.36	8.28	5.86	11.1
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.5	2.21	1.58	1.28	1.87	1.57	2.31	3.46	1.76	2.47	1.71	2.06	2.01	2.27	1.25	1.85
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0010	0.0074	0.0012	<0.0010	0.0027	<0.0010	0.0112	0.0059
Arsenic	mg/L	0.01 (IMAC)	0.00	0.00	0.00013	0.00015	0.00012	0.00044	0.00013	0.00014	0.00016	0.00024	0.00013	0.00013	0.00023	0.00017	<0.00100	0.00019
Barium	mg/L	1.0 (MAC)	0.06	0.06	0.0475	0.0667	0.0522	0.0719	0.0566	0.0821	0.0439	0.0877	0.0390	0.0749	0.0673	0.0877	0.0672	0.0920
Boron	mg/L	5.0 (MAC)	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000068	0.0000203	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	0.0000062
Calcium	mg/L	NV	94.9	95.6	87	88	101	101	92.0	93.1	124	118	114	95.7	126	110.0	96.7	111
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00049	0.00047	0.00048	0.00051	0.00039	0.00057	0.00047	0.00046	0.00072	0.00452	0.00054	0.00070	0.00059	0.00118	0.00095	0.00084
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	0.015	<0.010
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000114	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	17.6	20.6	17.1	20.2	19.0	21.7	19.1	21.1	21.3	21.6	19.4	21.7	24.4	22.6	20.4	24.4
Manganese	mg/L	0.05 (AO)	<0.00050	0.00279	<0.00050	<0.00050	<0.00050	0.00603	<0.00050	<0.00050	0.00081	0.00202	0.00012	<0.00010	0.0212	0.00085	0.00077	0.00090
Potassium	mg/L	NV	0.5	0.73	0.411	0.689	0.417	0.752	0.488	0.715	0.244	0.809	0.237	0.558	0.468	0.828	0.507	0.660
Selenium	mg/L	0.05 (MAC)	0.000139	0.000086	0.000109	0.000140	0.000229	0.000088	0.000172	0.000499	0.000108	0.000114	0.000139	0.000467	0.000117	0.000298	<0.000500	0.000209
Silicon	mg/L	NV	3.36	4	3.22	4.31	3.64	4.42	3.74	5.26	3.03	4.86	3.08	4.90	4.01	5.25	4.33	4.80
Sodium	mg/L	200 (AO)	3.5	5.1	4.37	4.84	5.34	5.02	4.91	4.79	4.95	4.88	5.15	4.69	5.27	4.48	4.67	4.77
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0037	<0.0010	<0.0010	<0.0010	<0.0010	0.0013	<0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW7D Jul-08	MW7D Oct-08	MW7D May-09	MW7D Sep-09	MW7D May-10	MW7D Sep-10	MW7D May-11	MW7D Sep-11	MW7D May-12	MW7D Sep-12	MW7D Apr-13	MW7D Sep-13	MW7D May-14	MW7D Sep-14	MW7D May-15	MW7D Sep-15	MW7D May-16	MW7D Sep-16	MW7D May-17	MW7D Sep-17
Field Electrical Conductivity	uS/cm	NV	520	506	469	486	468	473	468	439	510	476	569	538	627	502	477	550	610	570	656	473
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**232**	**244**	**215**	**209**	**215**	**214**	**216**	**202**	**204**	**206**	**202**	**206**	**246**	**228**	**198**	**203**	**279**	**196**	**188**	**202**
pH	N/A	6.5-8.5 (OG)	8.4	8.27	8.25	8.31	8.42	8.32	8.27	8.13	8.19	8.39	8.04	7.32	8.15	8.14	8.06	8.18	8.33	8.19	8.04	8.17
Total Dissolved Solids	mg/L	500 (AO)	322	314	284	280	292	282	274	270	280	278	280	292	296	304	267	268	322	385	403	411
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	220	231	227	226	220	238	230	231	238	215	238	276	259	243	250	248	235	250	251	257
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	8.0	<5	<5	<5	14.000	5.000	<5	<5	<5	9	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	228	231	227	227	234	242	230	231	238	225	238	276	263	246	250	248	239	250	251	257
Ammonia, Total (as N)	mg/L	NV	0.97	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.0	0.0	<0.02	0.05	<0.02	<0.050	<0.050	<0.050	0.074	<0.020	0.025	<0.020	0.043
Bromide	mg/L	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	4.1	2.1	1.2	1.9	1.7	1.9	2.8	2.8	3.4	3.28	3.99	4.26	3.9	4.2	4.05	3.99	3.71	3.35	3.48	3.09
Fluoride	mg/L	1.5 (MAC)	1.380	1.47	1.10	1.35	1.36	1.29	1.31	1.43	0.83	1.29	1.25	**1.52**	1.5	**1.53**	**1.54**	1.43	**1.52**	1.28	1.49	1.5
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	0.140	<0.05	0.110	0.140	<0.05	0.120	<0.05	<0.05	0.08	<0.07	<0.07	<0.2	<0.2	0.078	0.07	0.048	0.04	0.055	0.039
Nitrate as N	mg/L	10.0 (MAC)	<0.05	0.140	<0.05	0.110	0.140	<0.05	0.120	<0.05	<0.05	0.08	<0.07	<0.07	<0.10	<0.10	0.078	0.07	0.048	0.04	0.055	0.039
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	0.0059	0.007	0.0065	0.0046	0.0054	0.0077	0.0059	0.0057
Sulphate	mg/L	500 (AO)	46	38.9	25.0	35.8	38.9	34.9	43.2	37.5	36.9	41.2	38.6	36.2	32.9	29	28.5	27.2	27.4	28.8	26.2	27.2
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**6.1**	3.0	1.4	2.6	**23.3**	1.5	3.2	0.8	1.3	0.9	1.3	1	<1.0	<1.0	<1.0	1.3	2.7	1.5	<1.0	1.2
Aluminum	mg/L	0.1 (OG)	0.05	0.055	0.007	0.004	<0.004	0.021	<0.004	0.012	0.007	0.015	0.008	<0.004	<0.010	<0.010	<0.010	<0.0050	<0.0050	0.0072	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0014	0.0018	0.0018	0.00194	0.00015	0.00155	0.00175	0.00
Barium	mg/L	1.0 (MAC)	0.058	0.067	0.047	0.065	0.069	0.066	0.069	0.067	0.06	0.075	0.066	0.071	0.0682	0.0746	0.0743	0.0789	0.0656	0.0715	0.0651	0.08
Boron	mg/L	5.0 (MAC)	0.123	0.094	0.114	0.097	0.103	0.092	0.097	0.088	0.087	0.097	0.101	0.086	0.084	0.087	0.099	0.088	<0.010	0.079	0.09	0.094
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	45.7	46.9	40.1	39.4	40.2	39.9	40.3	37.9	37.5	38.3	37	39.8	57.5	51	37	40.1	80.2	37.7	35.8	38.4
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00025	0.00055	0.00026	0.00028	0.00056
Iron	mg/L	0.3 (AO)	0.024	0.047	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	28.6	30.8	27.8	26.8	27.8	27.8	27.9	26	26.7	26.8	26.5	25.8	24.9	24.4	25.7	24.9	19.2	24.8	24.1	25.7
Manganese	mg/L	0.05 (AO)	**0.058**	0.034	0.008	0.009	0.005	0.009	0.003	0.007	<0.002	0.014	0.007	<0.002	0.0012	0.0042	0.0017	0.00146	<0.00050	0.00166	0.00094	<0.00050
Potassium	mg/L	NV	3.1	2.87	2.06	1.79	1.95	2.17	1.96	1.7	1.63	1.65	1.57	1.74	1.4	1.4	1.4	1.53	0.718	1.43	1.36	1.54
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000054	0.000135	0.000076	0.000083	0.000081
Silicon	mg/L	NV	3.48	7.1	6.59	5.81	5.81	7.9	6.39	5.88	5.4	6.14	5.67	5.73	5.7	6.3	6.6	7.03	3.87	5.91	6.18	6.58
Sodium	mg/L	200 (AO)	27.9	26.7	24.4	24.3	29.2	27.3	29.3	29.8	31	31	33.2	33.6	34.2	35.7	39.7	36.3	6	34.1	34.3	35.9
Zinc	mg/L	5.0 (AO)	0.125	0.131	0.016	0.006	<0.004	<0.004	<0.004	<0.004	<0.004	0.005	<0.005	0.015	0.0178	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW7D May-18	MW7D Sep-18	MW7D May-19	MW7D Sep-19	MW7D May-20	MW7D Sep-20	MW7D May-21	MW7D Sep-21	MW7D May-22	MW7D Sep-22	MW7D May-23	MW7D Sep-23	MW7D May-24	MW7D Sep-24	MW7D May-25	MW7D Sep-25
Field Electrical Conductivity	uS/cm	NV	540	660	444	453	495	404	443	428	715	586	526	475	537	498	528	544
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**178**	**206**	**179**	**186**	**197**	**186**	**181**	**186**	**181**	**189**	**185**	**184**	**185**	**179**	**192**	**201**
pH	N/A	6.5-8.5 (OG)	8.33	8.12	7.90	7.84	8.07	7.96	8.18	8.42	8.21	**8.55**	8.20	8.20	8.20	8.17	8.26	8.22
Total Dissolved Solids	mg/L	500 (AO)	291	438	324	336	296	260	267	272	278	249	242	273	262	268	330	284
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	211	229	242	260	266	246	246	266	246	220	259	272	257	251	308	255
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<2.0	<2.0	<2.0	<5.0	<1.0	17.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	211	229	242	260	266	246	246	266	246	237	259	272	257	251	308	255
Ammonia, Total (as N)	mg/L	NV	0.051	0.074	0.0290	<0.010	0.0170	<0.010	<0.010	<0.010	0.0076	0.0121	<0.0050	0.0126	0.0095	0.0263	0.0054	0.0167
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	2.85	2.74	2.69	2.57	2.47	2.51	2.23	2.14	2.22	2.09	2.04	2.10	1.92	2.02	2.11	2.09
Fluoride	mg/L	1.5 (MAC)	1.46	**1.61**	**1.63**	**1.60**	**1.60**	**1.64**	**1.62**	**1.51**	**1.62**	**1.57**	**1.55**	**1.56**	**1.56**	1.38	**1.64**	1.46
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.022	<0.022	0.068	0.051	0.046	0.099	0.036	0.030	0.048	0.035	0.045	0.025	0.0350	<0.0224	0.0530	0.04
Nitrate as N	mg/L	10.0 (MAC)	<0.020	<0.020	0.068	0.051	0.046	0.099	0.036	0.030	0.048	0.035	0.045	0.025	0.035	<0.020	0.053	0.04
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	0.0049	0.0072	0.0055	0.0059	<0.0030	0.0050	0.0048	0.0057	0.0074	0.0052	0.0074	0.0055	0.0066	0.0087	0.0044	0.0083
Sulphate	mg/L	500 (AO)	28.9	29.4	25.2	24.8	21.9	20.2	19.4	16.2	17.2	14.5	15.3	13.8	13.9	12.8	14.8	12.5
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.1	1.45	0.83	1.19	1.34	0.87	1.47	1.92	0.66	1.70	0.94	1.73	1.45	1.75	1.11	0.88
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0039	0.0027	0.0013	0.0016	0.0169	0.0032	0.0017	0.0021
Arsenic	mg/L	0.01 (IMAC)	0.00	0.00	0.00316	0.00347	0.00271	0.00400	0.00351	0.00415	0.00357	0.00453	0.00367	0.00441	0.00332	0.00436	0.00305	0.0045
Barium	mg/L	1.0 (MAC)	0.07	0.07	0.0689	0.0694	0.0726	0.0694	0.0698	0.0687	0.0708	0.0760	0.0704	0.0659	0.0723	0.0651	0.0730	0.0646
Boron	mg/L	5.0 (MAC)	0.086	0.09	0.090	0.080	0.097	0.083	0.072	0.079	0.075	0.083	0.084	0.075	0.079	0.080	0.092	0.088
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000150	<0.000010	<0.000010	0.0000052	0.0000319	0.0000059	0.0000065	<0.0000050	0.0000088	<0.0000050	<0.0000050
Calcium	mg/L	NV	34.8	39.2	34.4	35.8	39.1	36.7	34.4	34.2	32.4	37.2	35.0	33.9	35.1	33.8	36.4	38
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00033	0.00031	0.00041	0.00025	0.00039	0.00030	0.00020	0.00027	0.00261	0.00406	0.00043	0.00212	0.00056	0.00054	0.00037	0.00068
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000101	0.000105	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	22.2	26.3	22.6	23.5	24.1	22.9	23.0	24.4	24.4	23.3	23.8	24.1	23.6	23.0	24.5	25.8
Manganese	mg/L	0.05 (AO)	0.00154	0.00139	<0.00050	0.00140	0.00065	<0.00050	0.00209	0.00304	0.00442	0.00141	0.00043	0.00756	0.00281	0.00220	0.00198	0.00128
Potassium	mg/L	NV	1.3	1.51	1.28	1.34	1.34	1.25	1.29	1.26	1.22	1.43	1.22	1.18	1.21	1.24	1.29	1.25
Selenium	mg/L	0.05 (MAC)	0.000064	0.000121	0.000093	0.000093	0.000081	0.000055	0.000063	0.000061	0.000054	<0.000050	0.000052	<0.000050	<0.000050	<0.000050	<0.000500	<0.000050
Silicon	mg/L	NV	5.82	6.08	6.68	6.63	6.43	6.78	6.21	7.16	6.72	7.27	6.66	6.68	6.35	6.89	7.07	6.99
Sodium	mg/L	200 (AO)	33.8	36.8	37.1	38.4	36.2	34.9	35.6	37.3	38.2	40.1	37.8	39.6	38.0	39.0	38.7	40.7
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0030	0.0049	<0.0010	0.0011	<0.0010	0.0011	<0.0010	0.0026

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW8 Jul-08	MW8 Oct-08	MW8 May-09	MW8 Sep-09	MW8 May-10	MW8 Sep-10	MW8 May-11	MW8 Sep-11	MW8 May-12	MW8 Sep-12	MW8 Apr-13	MW8 Sep-13	MW8 May-14	MW8 Sep-14	MW8-B May-15	MW8-B Sep-15	MW8-B May-16	MW8-B Sep-16	MW8-B May-17	MW8-B Sep-17
Field Electrical Conductivity	uS/cm	NV	487	496	447	447	459	411	584	684	594	476	515	516	431		412	540	620	550	580	522
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**173**	**181**	**160**	**151**	**168**	**154**	**186**	**225**	**186**	**178**	**160**	**167**	**241**		**157**	**162**	**186**	**168**	**161**	**186**
pH	N/A	6.5-8.5 (OG)	8.48	8.29	8.3	8.35	8.16	8.29	8.19	8.23	8.19	8.37	8.03	8	8.24		8.1	8.11	8.25	8.21	8.09	8.15
Total Dissolved Solids	mg/L	500 (AO)	278	286	272	264	316	258	360	436	336	262	258	276	301		209	237	**780**	476	433	**2510**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	214	209	203	198	217	207	267	318	257	215	223	240	242		219	216	244	246	255	261
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	10.0	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	<10		<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	224	210	204	201	217	207	267	318	257	222	223	240	247		219	216	244	246	255	261
Ammonia, Total (as N)	mg/L	NV	0.45	0.11	<0.02	0.06	0.1	<0.05	0.06	0.1	0.1	0.07	0.11	0.05	<0.050		0.343	0.164	0.276	0.212	0.084	0.207
Bromide	mg/L	NV	0.050	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.10		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	9.8	8.4	4.1	4.2	7.3	2.8	15.7	18.7	10.8	7.51	5.37	5.49	5.6		3.44	3.22	6.56	4.5	5.63	4.33
Fluoride	mg/L	1.5 (MAC)	1.170	**1.62**	1.18	**1.69**	**1.56**	1.50	1.41	1.00	0.99	1.38	**1.58**	**1.85**	**1.66**		**1.55**	1.38	1.03	0.894	1.25	1.04
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.05	0.050	0.100	0.140	0.060	<0.05	<0.05	<0.05	0.05	<0.07	<0.07	<0.2		<0.03	0.103	0.111	0.11	0.055	<0.022
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.05	0.050	0.100	0.140	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.25	<0.10		<0.020	0.087	0.098	0.11	0.055	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.10		<0.010	0.016	0.013	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.25	0.0067		0.0041	<0.0030	<0.0030	0.0036	<0.0030	0.0036
Sulphate	mg/L	500 (AO)	36	39.2	24.5	31.6	54.4	21.7	54.1	82.5	52.1	36.6	26.6	26.4	36.8		13.8	16.6	23.4	26.5	27.3	27.9
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	3.5	1.6	1.4	2.0	1.8	1.6	1.0	1.6	**10.3**	1	1	1.1	<1.0	Infilled with	1.8	2.3	4.8	3.2	1.6	3
Aluminum	mg/L	0.1 (OG)	0.01	0.005	0.005	<0.004	0.005	0.012	0.005	0.026	0.006	0.019	0.007	<0.004	0.039	Silt	<0.010	0.0054	0.0068	0.0095	0.0071	0.0069
Arsenic	mg/L	0.01 (IMAC)	0.01	0.009	0.008	0.007	0.007	0.008	0.005	0.003	0.009	**0.012**	0.008	0.004	0.0034		0.0018	0.00079	0.00062	0.00048	0.00044	0.00
Barium	mg/L	1.0 (MAC)	0.056	0.041	0.035	0.046	0.05	0.053	0.074	0.079	0.06	0.062	0.05	0.064	0.055		0.0699	0.076	0.076	0.0669	0.0582	0.08
Boron	mg/L	5.0 (MAC)	0.217	0.158	0.209	0.189	0.194	0.206	0.159	0.144	0.151	0.174	0.185	0.192	0.165		0.24	0.226	0.248	0.209	0.235	0.238
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090		<0.000090	0.000012	0.000014	0.000019	0.000011	<0.000030
Calcium	mg/L	NV	30.8	31.8	27.2	25.2	28.5	25.9	31.3	41.2	32.3	30.4	26.7	29.1	58.3		31.6	35	38.4	36.3	32.9	39.1
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.012	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010		0.001	0.00101	0.00041	0.0009	0.00157	0.00174
Iron	mg/L	0.3 (AO)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.050		<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050		<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	23.4	24.6	22.3	21.3	23.6	21.8	26.3	29.6	25.5	24.7	22.6	23	23.2		18.9	18.2	21.9	18.8	19.1	21.5
Manganese	mg/L	0.05 (AO)	0.012	0.009	0.006	0.006	0.006	0.01	<0.002	0.005	0.004	0.008	0.007	<0.002	0.0048		**0.054**	0.043	**0.124**	**0.115**	**0.0601**	**0.0906**
Potassium	mg/L	NV	5.42	5.69	4.13	3.58	3.34	2.6	2.7	3.17	2.82	2.45	2.02	2.44	2.2		3.9	4.46	4.03	3.47	3.18	3.85
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040		<0.00040	0.000108	0.000134	0.000109	0.000119	0.000278
Silicon	mg/L	NV	4.52	6.9	6.58	5.59	6.06	5.97	5.82	5.78	5.02	6.34	5.02	5.55	5.2		5.7	5.79	5.39	4.6	4.73	4.66
Sodium	mg/L	200 (AO)	42	44.6	39.8	36.7	45.6	35.3	65.5	78.7	56.9	46.9	41.2	44.6	47.6		39.9	38.9	44.1	42.4	44.3	45.8
Zinc	mg/L	5.0 (AO)	0.021	<0.004	<0.004	<0.004	0.013	<0.004	0.062	0.047	0.004	0.013	<0.005	<0.005	0.114		<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW8-B* *May-18*	*MW8-B* *Sep-18*	*MW8-B* *May-19*	*MW8-B* *Sep-19*	*MW8-B* *May-20*	*MW8-B* *Sep-20*	*MW8-B* *May-21*	*MW8-B* *Sep-21*	*MW8-B* *May-22*	*MW8-B* *Sep-22*	*MW8-B* *May-23*	*MW8-B* *Sep-23*	*MW8-B* *May-24*	*MW8-B* *Sep-24*	*MW8-B* *May-25*	*MW8-B* *Sep-25*
Field Electrical Conductivity	uS/cm	NV	490	580	467	425	596	510	497	458	949	441	565	586	632	488	929	858
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**132**	**152**	**164**	**133**	**166**	**140**	**121**	**152**	**148**	**132**	**177**	**163**	**124**	**145**	**238**	**292**
pH	N/A	6.5-8.5 (OG)	8.33	8.05	8.01	7.99	8.09	8.10	8.15	8.30	7.94	**8.63**	8.25	8.41	8.24	8.19	8.05	8.03
Total Dissolved Solids	mg/L	500 (AO)	**1340**	430	366	264	284	287	268	272	261	241	288	270	286	316	**542**	498
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	211	202	250	218	248	234	238	290	256	227	289	284	600	302	321	420
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<2.0	<2.0	<2.0	2.5	<1.0	18.9	<1.0	7.1	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	211	202	250	218	248	234	238	292	256	246	289	292	**600**	302	321	420
Ammonia, Total (as N)	mg/L	NV	0.417	0.527	0.036	0.020	0.018	<0.010	0.0110	<0.010	0.0120	0.0093	<0.0050	<0.0050	0.0416	0.0233	8.4000	2.84
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.100	<0.10
Chloride	mg/L	250 (AO)	2.11	2.62	3.23	1.59	8.09	3.68	3.17	7.06	4.41	4.44	10.3	10.7	2.66	9.47	64.10	51.8
Fluoride	mg/L	1.5 (MAC)	1.41	**1.65**	1.47	**1.90**	**1.72**	**1.97**	**1.96**	**1.70**	**1.93**	**1.84**	**1.61**	**1.55**	**1.94**	**1.74**	0.84	0.950
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.022	0.048	0.038	0.109	0.055	0.030	<0.022	0.027	0.025	0.050	0.028	0.087	0.0360	0.116	<0.0224	0.871
Nitrate as N	mg/L	10.0 (MAC)	<0.020	0.048	0.038	0.095	0.055	0.030	<0.020	0.027	0.025	0.040	0.028	0.087	0.036	0.116	<0.020	0.653
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	0.014	0.218
Orthophosphate as P	mg/L	NV	0.0042	0.0044	0.0046	0.0072	<0.0030	0.0059	0.0091	0.0110	0.0082	0.0051	0.0066	0.0116	0.0065	0.0101	0.0153	0.0162
Sulphate	mg/L	500 (AO)	19.5	21.1	33.0	11.9	19.5	15.5	13.2	13.2	12.0	12.3	14.8	14.0	8.32	18.0	55.6	40.6
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	2.50	3.23	1.46	0.89	1.45	1.42	1.28	2.51	0.54	1.73	1.25	1.65	1.09	2.19	**24.3**	**14.7**
Aluminum	mg/L	0.1 (OG)	0.0058	0.0059	0.0109	0.0107	0.0060	0.0092	0.0073	0.0110	**0.5370**	0.0061	0.0038	0.0032	0.0059	0.0048	0.0180	0.0101
Arsenic	mg/L	0.01 (IMAC)	0.00054	0.00048	0.00044	0.00269	0.00147	0.00108	0.00093	0.00117	0.00105	0.00075	0.00094	0.00090	0.00234	0.00092	0.00792	0.00532
Barium	mg/L	1.0 (MAC)	0.0558	0.0505	0.0603	0.0491	0.0626	0.0531	0.0485	0.0562	0.0592	0.0588	0.0658	0.0614	0.0444	0.0545	0.0664	0.104
Boron	mg/L	5.0 (MAC)	0.200	0.221	0.246	0.208	0.220	0.214	0.186	0.188	0.208	0.244	0.204	0.185	0.202	0.203	0.304	0.286
Cadmium	mg/L	0.005 (MAC)	<0.000020	0.0000100	<0.000020	<0.000010	0.0000140	<0.000010	<0.000010	<0.000010	0.0000141	0.0000092	0.0000233	0.0000101	<0.0000050	0.0000120	<0.0000500	0.0000083
Calcium	mg/L	NV	26.9	30.6	32.1	22.8	30.1	26.8	22.1	26.5	28.9	24.8	32.0	28.8	21.9	25.4	60.4	60.9
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.001	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00500	0.00104
Copper	mg/L	1.0 (AO)	0.00198	0.00188	0.00105	0.00072	0.00082	0.00064	0.00064	0.00066	0.00420	0.00420	0.00083	0.00093	0.00086	0.00069	<0.00200	0.00158
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	**0.509**	<0.010	<0.010	<0.010	<0.010	<0.010	**0.463**	0.021
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000347	0.000076	<0.000050	<0.000050	<0.000050	<0.000050	0.000943	0.000130
Magnesium	mg/L	NV	15.7	18.3	20.4	18.5	22.2	17.8	16.1	20.8	18.4	17.1	23.5	22.2	16.9	19.9	21.2	34.0
Manganese	mg/L	0.05 (AO)	0.05000	0.02000	0.03890	0.00197	0.00063	<0.00050	0.00122	0.00244	0.01960	0.00297	0.00062	0.00087	0.00388	0.00061	**0.33700**	**0.299**
Potassium	mg/L	NV	2.74	2.82	3.12	2.41	3.13	2.76	2.50	2.62	2.42	2.45	2.78	2.50	1.93	2.51	26.30	14.7
Selenium	mg/L	0.05 (MAC)	0.000345	0.000181	0.000104	0.000087	0.000115	0.000091	0.000084	0.000093	0.000094	0.000094	0.000100	0.000076	0.000084	0.000100	<0.000500	0.000082
Silicon	mg/L	NV	4.42	4.69	4.71	5.15	5.23	5.03	4.59	5.07	5.86	5.05	5.23	4.87	5.1	5.02	5.24	7.71
Sodium	mg/L	200 (AO)	42.3	47.2	45.7	45.2	52.7	51.6	53.0	51.2	55.4	60.2	56.0	57.6	55.2	58.3	80.1	77.1
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0049	0.0028	<0.0010	<0.0010	<0.0010	<0.0010	<0.0100	0.0080

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW9S Jul-08	MW9S Oct-08	MW9S May-09	MW9S Sep-09	MW9S May-10	MW9S Sep-10	MW9S May-11	MW9S Sep-11	MW9S May-12	MW9S Sep-12	MW9S Apr-13	MW9S Sep-13	MW9S May-14	MW9S Sep-14	MW9S May-15	MW9S Sep-15	MW9S May-16	MW9S Sep-16	MW9S May-17	MW9S Sep-17
Field Electrical Conductivity	uS/cm	NV	2500	2620	2290	2440	2160	2310	2130	2050	2210	2320	2550	2380	723	2070	1933	2220	2150	2470	2340	2135
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**931**	**963**	**885**	**855**	**871**	**933**	**969**	**842**	**810**	**930**	**904**	**800**	**826**	**807**	**806**	**858**	**781**	**860**	**870**	**852**
pH	N/A	6.5-8.5 (OG)	7.57	7.45	7.54	7.88	8.06	7.52	7.73	7.64	7.91	7.95	7.64	7.24	7.25	7.42	7.13	7.16	7.4	7.48	7.07	7.07
Total Dissolved Solids	mg/L	500 (AO)	**1520**	**1510**	**1390**	**1490**	**1430**	**1470**	**1350**	**1360**	**1220**	**1330**	**1350**	**1340**	**1290**	**1140**	**975**	**1240**	**1160**	**1280**	**1290**	**1280**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	1030	1110	1010	1090	1030	1180	1040	1090	1000	1170	1090	1130	944	989	936	964	918	968	1060	1100
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	**1030**	**1110**	**1010**	**1090**	**1030**	**1180**	**1040**	**1090**	**1000**	**1170**	**1090**	**1130**	**946**	**991**	**936**	**964**	**918**	**968**	**1060**	**1100**
Ammonia, Total (as N)	mg/L	NV	15.70	14.20	13.40	17.40	13.8	22.2	5.77	23.2	15.3	26.4	6.31	23.7	18.4	17.1	17.9	25.8	18.1	40.5	30.2	41.4
Bromide	mg/L	NV	0.520	0.600	<0.05	0.74	0.74	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.5	0.26	0.25	0.2	<0.50	<0.50	<0.50	<0.50	0.12
Chloride	mg/L	250 (AO)	204.0	204.0	153.0	192.0	183.0	176.0	186.0	153.0	153.0	153	163	158	142	129	115	125	117	136	133	125
Fluoride	mg/L	1.5 (MAC)	0.500	1.02	<0.05	0.44	0.57	0.80	1.05	<0.05	<0.05	<0.05	<1	0.82	0.9	1.03	0.875	0.94	0.95	0.87	0.78	0.891
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.07	<0.07	<0.2	<0.2	<0.03	<0.11	0.2	<0.11	<0.11	<0.022
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.5	<0.10	<0.10	<0.020	<0.10	0.2	<0.10	<0.10	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<	<0.05	<0.05	<0.05	<0.05	<1	<0.5	<0.10	<0.10	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<2	<1	0.0034	0.0031	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Sulphate	mg/L	500 (AO)	97	86.6	77.9	71.1	87.9	67.9	89.2	66.1	78.7	45.1	59.3	54.4	59	54.2	48.1	42.1	40.7	27.9	32.3	31.9
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**24.6**	**23.6**	**18.1**	**24.2**	**22.0**	**30.3**	**19.3**	**20.6**	**16.7**	**19.3**	**18.3**	**20.5**	**15.8**	**17.4**	**14**	**19.7**	**17.5**	**22.3**	**17.4**	**20.5**
Aluminum	mg/L	0.1 (OG)	0.03	0.054	0.031	0.006	0.005	0.014	0.007	0.010	0.007	0.021	0.009	<0.004	<0.010	<0.010	<0.010	<0.050	<0.0050	<0.050	<0.050	<0.050
Arsenic	mg/L	0.01 (IMAC)	0.005	0.013	0.008	0.006	0.004	0.005	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	0.0026	0.0014	0.0012	<0.0010	0.00067	0.0016	0.0011	0.002
Barium	mg/L	1.0 (MAC)	0.209	0.216	0.21	0.254	0.271	0.27	0.234	0.256	0.209	0.279	0.215	0.266	0.228	0.249	0.247	0.258	0.245	0.316	0.285	0.33
Boron	mg/L	5.0 (MAC)	1.04	0.775	0.688	1.11	0.699	1.1	0.765	0.935	0.684	0.962	0.748	1.02	0.654	0.859	0.758	1.03	0.61	0.91	0.91	0.97
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.00010	0.000031	<0.00010	<0.00010	<0.00010
Calcium	mg/L	NV	193	211	195	184	188	202	210	183	176	196	189	170	181	174	169	184	172	187	175	180
Chromium	mg/L	0.05 (MAC)	0.012	0.013	0.008	0.006	0.007	<0.003	<0.003	0.005	<0.003	<0.003	0.006	<0.003	<0.00050	<0.00050	<0.00050	<0.0050	<0.00050	<0.0050	<0.0050	<0.0050
Copper	mg/L	1.0 (AO)	0.006	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	0.0102	0.0128	0.0105	0.00334	0.0061	0.0032	0.0091
Iron	mg/L	0.3 (AO)	**1.3**	**1.71**	**1.18**	**0.852**	**1.1**	**1.02**	**1.2**	**0.999**	**0.754**	**0.678**	**1.15**	**1.05**	**1.05**	<0.050	<0.050	<0.10	<0.010	<0.10	<0.10	<0.10
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.00050	0.0001	<0.00050	<0.00050	<0.00050
Magnesium	mg/L	NV	109	106	96.6	96	97.5	104	108	93.6	90	107	105	91.2	90.8	90.4	93.2	96.9	85.4	95.2	105	97.9
Manganese	mg/L	0.05 (AO)	**0.667**	**0.441**	**0.569**	**0.605**	**0.641**	**0.827**	**0.686**	**0.851**	**0.537**	**0.746**	**0.674**	**0.73**	**0.7**	**0.67**	**0.707**	**0.755**	**0.816**	**0.76**	**0.789**	**0.796**
Potassium	mg/L	NV	26.9	31.7	24.5	30.8	29.2	41.2	33.1	40.8	29.6	47.8	33.8	39.2	29.8	34.9	32.7	39.3	32.5	50.6	40.1	49.7
Selenium	mg/L	0.05 (MAC)	<0.004	0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	0.00049	0.00055	<0.00050	0.000275	<0.00050	<0.00050	<0.00050
Silicon	mg/L	NV	10	13	9.55	8.91	8.15	11.2	8.92	9.65	7.88	10.2	7.45	8.55	8	8.6	8.5	9.2	8.16	8.38	8.14	8.8
Sodium	mg/L	200 (AO)	**231**	**233**	**202**	**201**	196	**205**	**202**	185	173	191	180	164	161	153	132	151	135	137	137	134.0
Zinc	mg/L	5.0 (AO)	0.064	0.136	0.12	0.022	<0.004	<0.004	0.004	0.012	0.006	0.056	0.013	<0.005	<0.0030	<0.0030	<0.0030	<0.010	0.0016	<0.010	<0.010	<0.010

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S	MW9S
			May-18	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Field Electrical Conductivity	uS/cm	NV	2170	2590	2100	2060	1970	2023	1965	1986	1826	2106	2265	2160	850	1982	2189	2164
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**778**	**880**	**831**	**833**	**890**	**920**	**807**	**812**	**838**	**921**	**886**	**862**	**830**	**817**	**879**	**940**
pH	N/A	6.5-8.5 (OG)	7.77	7.18	6.94	7.19	7.15	6.83	6.92	6.96	6.91	7.48	6.97	7.25	7.13	7.33	7.27	7.25
Total Dissolved Solids	mg/L	500 (AO)	**1110**	**1290**	**1150**	**1280**	**1110**	**1140**	**1130**	**1210**	**1120**	**1090**	**1170**	**1190**	**1110**	**1120**	**1220**	**1130**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	971	1000	1050	1100	920	1190	1110	1210	1110	820	1160	1180	1130	1190	2650	1300
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<50	<50	42	<10	<10	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	0.00	<5.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	**971**	**1000**	**1050**	**1100**	**961**	**1190**	**1110**	**1210**	**1110**	**820**	**1160**	**1180**	**1130**	**1190**	**2650**	**1300**
Ammonia, Total (as N)	mg/L	NV	20.8	37.2	27.0	38.4	26.9	46.0	31.5	48.5	31.4	44.1	37.5	37.9	31.7	42.1000	35.1000	51.8
Bromide	mg/L	NV	<0.50	<0.50	0.14	0.18	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloride	mg/L	250 (AO)	119	122	115	115	109	112	109	105	110	96.1	93.1	91.6	86.9	79.5	84.2	76.5
Fluoride	mg/L	1.5 (MAC)	0.740	0.890	0.624	0.435	0.800	0.820	0.710	0.640	0.838	0.898	0.772	0.839	0.785	0.813	1.01	0.802
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.11	<0.11	<0.022	<0.022	<0.11	<0.11	<0.11	<0.11	<0.112	<0.112	<0.112	<0.112	<0.112	0.117	<0.112	<0.112
Nitrate as N	mg/L	10.0 (MAC)	<0.10	<0.10	<0.020	<0.020	<0.10	<0.10	<0.10	<0.10	<0.100	<0.100	<0.100	<0.100	<0.100	0.117	<0.100	<0.100
Nitrite as N	mg/L	1.0 (MAC)	<0.050	<0.050	<0.010	<0.010	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Orthophosphate as P	mg/L	NV	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	0.0068	<0.0030	0.0052	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0015
Sulphate	mg/L	500 (AO)	32.1	19.2	25.9	19.8	24.4	16.6	23.0	13.1	22.8	10.4	17.1	14.3	16.7	11.3	20.1	7.80
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**21.0**	**23.1**	**16.1**	**20.0**	**18.4**	**39.0**	**22.6**	**32.7**	**16.2**	**23.3**	**16.9**	**18.4**	**17.7**	**19.5**	**15.5**	**20.0**
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0100	0.0152	0.0212	<0.0100	<0.0100	<0.0100	<0.0100	0.0140
Arsenic	mg/L	0.01 (IMAC)	0.00054	0.00110	0.00120	0.00120	<0.0010	0.00120	<0.0010	0.00120	<0.00100	0.00270	<0.00100	0.00283	0.00184	0.00301	0.00167	0.00359
Barium	mg/L	1.0 (MAC)	0.257	0.331	0.303	0.353	0.317	0.393	0.354	0.405	0.357	0.530	0.3840	0.4170	0.384	0.4300	0.4530	0.583
Boron	mg/L	5.0 (MAC)	0.68	1.01	0.79	0.91	0.89	1.08	0.660	0.930	0.657	1.15	0.763	0.874	0.692	0.855	0.724	0.957
Cadmium	mg/L	0.005 (MAC)	0.0000280	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000500
Calcium	mg/L	NV	173	184	174	173	189	200	167	167	174	199.0	180.0	177.0	168	165.0	179.0	195
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
Copper	mg/L	1.0 (AO)	0.00564	0.01190	0.00210	0.00330	0.00270	0.00320	0.00300	<0.0020	<0.00200	0.00360	<0.00200	<0.00200	0.00269	<0.00200	<0.00200	<0.00200
Iron	mg/L	0.3 (AO)	<0.010	<0.10	<0.10	0.11	<0.10	<0.10	<0.10	<0.10	<0.100	**2.69**	**0.307**	**2.23**	0.252	**1.08**	**0.66**	**3.62**
Lead	mg/L	0.01 (MAC)	<0.000050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
Magnesium	mg/L	NV	84	102	96	97	101	102	95	96	98	103	106	102	99.8	98.4	105.0	110
Manganese	mg/L	0.05 (AO)	**0.748**	**0.870**	**0.777**	**0.842**	**0.766**	**0.841**	**0.747**	**0.756**	**0.742**	**0.828**	**0.708**	**0.755**	**0.706**	**0.710**	**0.728**	**0.755**
Potassium	mg/L	NV	36.0	62.0	41.4	57.1	44.6	60.0	42.1	57.6	43.7	65.4	46.5	53.8	44.6	56.60	49.10	67.9
Selenium	mg/L	0.05 (MAC)	0.000313	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
Silicon	mg/L	NV	7.8	9.0	8.3	8.9	8.5	9.1	8.4	8.5	8.0	10.1	8.52	9.32	8.33	9.41	8.51	9.62
Sodium	mg/L	200 (AO)	121	132	119	123	129	120	111	107	113	121	114	113	110	106	106	104
Zinc	mg/L	5.0 (AO)	0.0022	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D
			Jul-08	*Oct-08*	*May-09*	*Sep-09*	*May-10*	*Sep-10*	*May-11*	*Sep-11*	*May-12*	*Sep-12*	*Apr-13*	*Sep-13*	*May-14*	*Sep-14*	*May-15*	*Sep-15*	*May-16*	*Sep-16*	*May-17*	*Sep-17*
Field Electrical Conductivity	uS/cm	NV	730	641	617	607	576	596	610	580	634	596	747	814	412	1060	1039	1860	1660	1880	2100	1900
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**330**	**309**	**379**	**267**	**278**	**278**	**304**	**266**	**267**	**281**	**292**	**336**	**497**	**523**	**485**	**673**	**614**	**680**	**866**	**790**
pH	N/A	6.5-8.5 (OG)	8.34	8.26	8.2	8.35	8.42	8.43	8.24	8.12	8.17	8.38	7.87	7.62	7.71	7.65	7.63	7.3	7.57	7.29	7.1	7.16
Total Dissolved Solids	mg/L	500 (AO)	490	436	392	358	330	356	390	356	336	358	384	472	**515**	**554**	**535**	**904**	**859**	**1050**	**1240**	**1190**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	279	270	273	275	261	286	294	293	284	257	289	308	319	332	397	628	528	718	935	956
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	27.0	<5	<5	5.000	18.000	11.000	<5	<5	<5	11	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	306	270	273	280	279	297	294	293	284	267	289	308	320	334	397	**628**	**528**	**718**	**935**	**956**
Ammonia, Total (as N)	mg/L	NV	0.90	0.09	0.03	0.21	0.1	0.2	<0.02	0.1	0.1	0.22	0.05	0.06	0.179	0.211	0.911	3.14	2.31	4.26	5.6	9.06
Bromide	mg/L	NV	0.060	0.060	<0.05	0.06	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.10	<0.50	<0.50	<0.50	<0.50	0.19
Chloride	mg/L	250 (AO)	20.2	15.5	11.3	15.0	16.1	17.3	21.1	18.5	18.5	21.3	0	69.9	98.1	110	126	147	169	157	165	145
Fluoride	mg/L	1.5 (MAC)	1.180	**1.63**	1.17	1.25	**1.53**	**1.62**	1.41	0.98	1.02	1.15	1.35	0.78	1.11	1.15	1.02	0.98	0.91	0.53	0.9	0.835
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	0.070	0.110	0.130	0.180	0.040	0.290	<0.05	0.200	0.37	<0.07	<0.07	<0.2	<0.2	<0.03	<0.11	<0.11	<0.11	<0.11	<0.022
Nitrate as N	mg/L	10.0 (MAC)	<0.05	0.070	0.110	0.130	0.180	0.180	0.290	<0.05	0.200	0.37	<0.25	<0.25	<0.10	<0.10	<0.020	<0.10	<0.10	<0.10	<0.10	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.010	<0.050	<0.050	<0.050	<0.050	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.25	<0.0030	<0.0030	<0.0030	<0.0030	0.0058	0.0051	<0.0030	0.0146
Sulphate	mg/L	500 (AO)	84	54.7	32.3	39.3	42.3	37.7	42.9	40.8	42.3	40.7	36.2	31.2	27.3	26.3	25.4	44.8	34.5	36.2	26.7	20.6
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**7.5**	3.2	1.5	2.1	**9.8**	1.8	2.1	3.7	1.5	3.1	2.8	**8.1**	**8.3**	**11.7**	**12.6**	**13.4**	**23.9**	**18.6**	**21.3**	**27.6**
Aluminum	mg/L	0.1 (OG)	0.02	0.004	0.004	0.035	<0.004	0.010	<0.004	0.015	0.009	0.011	0.007	<0.004	<0.010	<0.010	<0.010	<0.050	<0.0050	<0.0050	<0.050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	**0.016**	<0.003	0.0025	0.0025	0.0033	0.0043	0.00622	0.00708	0.004	0.01
Barium	mg/L	1.0 (MAC)	0.159	0.098	0.085	0.101	0.116	0.111	0.116	0.108	0.105	0.125	0.114	0.18	0.19	0.205	0.249	0.32	0.257	0.345	0.462	0.48
Boron	mg/L	5.0 (MAC)	0.118	0.096	0.112	0.115	0.106	0.115	0.121	0.105	0.09	0.084	0.09	0.114	0.093	0.104	0.138	0.51	0.263	0.464	0.73	0.775
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.00010	0.00001	<0.000010	<0.00010	<0.000010
Calcium	mg/L	NV	69.3	61.1	55.2	52.3	54.1	54.6	59.5	52	51.4	55.1	56.4	66.4	123	123	95.8	142	126	146	177	164
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.012	<0.003	<0.00050	<0.00050	<0.00050	<0.0050	<0.00050	<0.00050	<0.0050	<0.00050
Copper	mg/L	1.0 (AO)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.0022	0.00051	0.00066	0.0032	0.00198
Iron	mg/L	0.3 (AO)	0.012	0.033	<0.01	0.011	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.050	<0.050	<0.050	<0.10	<0.010	<0.010	<0.10	0.015
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.00050	0.000056	0.000154	<0.00050	<0.000050
Magnesium	mg/L	NV	38	38.1	34.4	33.2	34.6	34.5	37.8	33.1	33.7	34.8	36.7	41.4	46.3	52.3	59.7	77.3	72.9	76.6	103	92.1
Manganese	mg/L	0.05 (AO)	0.049	0.042	0.015	0.025	0.006	0.011	0.01	0.017	0.003	0.015	0.026	0.043	0.0437	0.044	**0.0802**	**0.136**	**0.105**	**0.157**	**0.165**	**0.194**
Potassium	mg/L	NV	5.48	4.98	3.09	3.03	3.14	2.88	3.02	2.49	2.46	2.6	2.51	2.65	2.7	2.8	4.2	12	9.52	15.8	16.4	23.4
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	<0.00050	0.000429	0.000474	<0.00050	0.000714
Silicon	mg/L	NV	4.25	8.19	7.13	6.39	6.27	7	7.18	6.66	5.78	6.69	5.14	6.9	6.6	6.9	8.3	9.26	9.67	7.95	8.98	9.43
Sodium	mg/L	200 (AO)	36.4	30.7	27.4	25.3	29.5	30.1	40.5	31.7	30.7	30.1	29.7	32.6	32.7	35.8	44.5	150	97.3	114	132	118.0
Zinc	mg/L	5.0 (AO)	0.037	0.004	0.005	0.045	<0.004	0.005	0.008	0.021	0.007	<0.004	0.005	<0.005	<0.0030	<0.0030	<0.0030	<0.010	0.0015	0.0014	<0.010	0.0016

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D
			May-18	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Field Electrical Conductivity	uS/cm	NV	1880	2140	1542	1759	1970	2030	1695	1696	1395	1512	1593	1752	1944	1685	1778	1621
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**758**	**812**	**750**	**802**	**853**	**847**	**724**	**742**	**586**	**739**	**756**	**711**	**613**	**689**	**778**	**786**
pH	N/A	6.5-8.5 (OG)	7.42	7.11	7.10	6.89	6.99	6.88	6.98	7.03	7.10	7.43	7.21	7.35	7.31	7.33	7.38	7.39
Total Dissolved Solids	mg/L	500 (AO)	**1250**	**1300**	**1200**	**1190**	**1120**	**1120**	**952**	**1070**	**907**	**883**	**1010**	**966**	**960**	**899**	**1120**	**934**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	775	659	646	808	948	1020	864	954	20	725	869	687	532	623	1640	688
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	46	<10	<10	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	**775**	**659**	**646**	**808**	**993**	**1020**	**864**	**954**	**20**	**725**	**869**	**687**	**532**	**623**	**1640**	**688**
Ammonia, Total (as N)	mg/L	NV	4.84	2.82	2.40	12.4	23.3	23.0	19.6	19.6	10.8	13.3	13.0	8.02	4.31	7.0	10.0	10.1
Bromide	mg/L	NV	0.2	<0.50	0.120	0.170	<0.50	<0.50	<0.50	<0.50	<0.50	0.120	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloride	mg/L	250 (AO)	193	215	203	158	107	127	124	129	174	122	128	174	198	171.0	153.0	147
Fluoride	mg/L	1.5 (MAC)	0.799	0.87	0.911	0.782	0.610	0.690	0.650	0.510	0.854	0.756	0.884	0.861	0.969	0.868	0.983	0.872
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.022	<0.11	<0.022	<0.022	<0.11	<0.11	<0.11	<0.11	<0.112	<0.0224	<0.112	<0.112	<0.112	<0.112	<0.112	<0.112
Nitrate as N	mg/L	10.0 (MAC)	<0.020	<0.10	<0.020	<0.020	<0.10	<0.10	<0.10	<0.10	<0.100	<0.020	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.050	<0.010	<0.010	<0.050	<0.050	<0.050	<0.050	<0.050	<0.010	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Orthophosphate as P	mg/L	NV	0.0051	0.0032	0.0052	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	0.0016	<0.0010	0.0012
Sulphate	mg/L	500 (AO)	24.1	26.1	25.8	17.3	4.6	5.7	7.1	6.2	12.1	12.2	15.3	15.2	20.5	17.3	13.3	16.0
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**25.9**	4.89	**18.2**	**26.2**	**20.2**	**27.8**	**25.7**	**35.7**	**21.6**	**22.0**	**18.6**	**20.6**	**19.1**	**23.0**	**19.8**	**19.8**
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0050	<0.050	<0.0100	0.0118	<0.0100	<0.0100	0.0111	**0.146**	<0.0100	0.0030
Arsenic	mg/L	0.01 (IMAC)	0.01	0.01	0.00640	0.00400	0.00110	0.00160	0.00431	0.00400	0.00160	0.00109	0.00137	0.00235	0.00327	0.00170	0.00307	0.00284
Barium	mg/L	1.0 (MAC)	0.468	0.493	0.469	0.486	0.539	0.590	0.453	0.508	0.445	0.485	0.528	0.513	0.451	0.4740	0.5870	0.540
Boron	mg/L	5.0 (MAC)	0.55	0.55	0.450	0.670	0.850	0.910	0.524	0.700	0.458	0.598	0.644	0.465	0.226	0.386	0.510	0.488
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000010	<0.000050	<0.0000500	<0.0000500	<0.0000500	<0.0000500	<0.0000050	<0.0000500	<0.0000500	<0.0000050
Calcium	mg/L	NV	159	157	149.0	163.0	176.0	180.0	148.0	145.0	124.0	157.0	153.0	141.0	132	143.0	161.0	162
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00050	<0.0050	<0.00500	<0.00500	<0.00500	<0.00500	<0.00050	<0.00500	<0.00500	<0.00050
Copper	mg/L	1.0 (AO)	0.00307	0.003	0.00300	0.00340	<0.0020	0.00410	<0.00020	<0.0020	<0.00200	<0.00200	<0.00200	<0.00200	0.00099	<0.00200	<0.00200	<0.00020
Iron	mg/L	0.3 (AO)	<0.010	<0.10	<0.10	<0.10	<0.10	<0.10	0.013	**0.810**	0.17	<0.100	<0.100	<0.100	**0.633**	**0.49**	**1.21**	**0.561**
Lead	mg/L	0.01 (MAC)	<0.000050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.000050	<0.00050	<0.000500	<0.000500	<0.000500	<0.000500	0.000150	<0.000500	<0.000500	<0.000050
Magnesium	mg/L	NV	87.5	102	91.9	96.0	100.0	96.4	85.9	91.9	67.0	84.2	90.7	87.2	68.9	80.6	91.4	92.7
Manganese	mg/L	0.05 (AO)	**0.108**	**0.076**	**0.088**	**0.224**	**0.460**	**0.350**	**0.326**	**0.273**	**0.133**	**0.254**	**0.217**	**0.158**	**0.121**	**0.172**	**0.152**	**0.153**
Potassium	mg/L	NV	14.4	9.98	9.8	26.5	48.4	43.4	42.2	39.1	21.7	31.7	30.2	20.3	12.1	19.6	22.8	24.7
Selenium	mg/L	0.05 (MAC)	0.000315	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.000379	<0.00050	<0.000500	<0.000500	<0.000500	<0.000500	0.000296	<0.000500	<0.000500	0.000223
Silicon	mg/L	NV	9.21	10.3	9.27	9.06	7.02	8.30	7.70	8.15	6.48	8.56	7.87	7.65	7.37	7.94	7.92	8.73
Sodium	mg/L	200 (AO)	114.0	104.0	92.8	117.0	123.0	111.0	90.7	104.0	77.1	98.4	99.0	86.7	71.2	79.7	88.5	87.5
Zinc	mg/L	5.0 (AO)	0.002	<0.010	<0.010	<0.010	<0.010	<0.010	0.0012	<0.010	<0.0100	<0.0100	<0.0100	<0.0100	0.0032	<0.0100	<0.0100	0.0027

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW10S Jul-08	MW10S Oct-08	MW10S May-09	MW10S Sep-09	MW10S May-10	MW10S Sep-10	MW10S May-11	MW10S Sep-11	MW10S May-12	MW10S Sep-12	MW10S Apr-13	MW10S Sep-13	MW10S May-14	MW10S Sep-14	MW10S May-15	MW10S Sep-15	MW10S May-16	MW10S Sep-16	MW10S May-17	MW10S Sep-17
Field Electrical Conductivity	uS/cm	NV	634	659	593	609	542	586	518	534	602	556	474	716	421	790	604	760	690	710	538	669
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**355**	**395**	**321**	**309**	**329**	**315**	**345**	**293**	**315**	**326**	**224**	**371**	**362**	**395**	**370**	**376**	**330**	**325**	**265**	**374**
pH	N/A	6.5-8.5 (OG)	8.36	8.09	8.13	8.2	8.19	8.21	8.13	8.1	8.06	8.27	7.86	7.44	7.89	7.74	7.84	7.91	8.1	8.07	7.72	7.9
Total Dissolved Solids	mg/L	500 (AO)	414	414	340	348	364	348	330	320	306	352	234	400	345	408	311	331	368	382	318	497
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	294	320	322	310	305	301	296	303	303	290	229	376	335	413	367	360	275	323	291	326
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	9.0	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	303	320	322	310	305	301	296	303	303	290	229	376	338	415	367	360	275	323	291	326
Ammonia, Total (as N)	mg/L	NV	0.56	<0.02	<0.02	<0.02	0.0	<0.02	<0.02	0.0	0.1	0.07	0.12	<0.02	<0.050	<0.050	<0.050	0.094	0.034	0.048	<0.020	0.022
Bromide	mg/L	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	3.6	2.8	2.2	3.1	3.8	3.4	3.1	3.2	3.3	2.9	3.23	3.68	2.4	2.8	4.67	3.97	4.39	4.0	4.82	3.71
Fluoride	mg/L	1.5 (MAC)	0.370	0.64	0.48	0.69	0.48	0.73	0.35	<0.05	<0.05	0.56	0.08	0.61	0.53	0.15	0.329	0.544	0.415	0.58	0.191	0.81
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.07	<0.07	<0.2	<0.2	0.034	0.033	0.063	0.155	0.022	<0.022
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.1	<0.10	<0.10	0.034	0.033	0.063	0.155	0.022	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	0.0036	<0.0030	<0.0030	<0.0030	<0.0030	0.008	0.0238	0.0039
Sulphate	mg/L	500 (AO)	46	40.2	15.5	25.6	32.0	34.5	21.3	27.7	32.8	34	6.72	49.1	23.5	9.3	8.71	20.7	14.4	29.2	11.3	90.9
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	4.5	2.7	1.1	1.8	2.6	2.0	3.3	1.8	1.2	2.1	1.3	1.6	<1.0	<1.0	1.6	2.2	4	2.1	1.1	1.9
Aluminum	mg/L	0.1 (OG)	0.046	0.006	0.006	0.004	<0.004	0.013	<0.004	0.014	0.013	0.009	<0.004	<0.004	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	<0.003	<0.0010	<0.0010	<0.0010	0.0003	0.00021	0.00036	<0.00010	0.00035
Barium	mg/L	1.0 (MAC)	0.049	0.053	0.055	0.078	0.075	0.095	0.052	0.087	0.065	0.088	0.045	0.084	0.0747	0.0494	0.0948	0.0834	0.0798	0.0965	0.0237	0.13
Boron	mg/L	5.0 (MAC)	0.049	0.052	0.046	0.06	0.029	0.057	0.017	0.055	0.025	0.051	0.012	0.031	0.025	0.015	0.015	0.039	0.016	0.046	<0.010	0.047
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	91.5	104	83.3	75.5	87.4	75.2	97.6	70.5	80.4	78.3	68	96.1	96.9	119	102	99	88.4	82.3	79.9	89.4
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.009	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.013	<0.003	0.007	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00074	0.00079	0.00056	0.00047	0.00187
Iron	mg/L	0.3 (AO)	0.026	0.283	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.053	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	0.000078	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	30.7	32.8	27.4	29.2	26.9	30.9	24.5	28.5	27.7	31.6	13.2	31.8	29.1	23.6	27.8	31.2	26.6	28.9	15.9	36.5
Manganese	mg/L	0.05 (AO)	**0.063**	**0.123**	0.021	0.034	0.003	0.013	<0.002	0.003	0.002	0.004	<0.002	0.019	0.0127	0.0019	0.0023	0.0181	<0.00050	0.00193	<0.00050	0.0153
Potassium	mg/L	NV	2.38	2.23	1.41	1.64	1.41	1.81	1.15	1.58	1.32	1.93	0.71	1.82	1.1	<1.0	<1.0	1.43	1.06	1.39	0.392	1.96
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000124	0.000167	0.000115	0.000087	0.000078
Silicon	mg/L	NV	6.53	7.9	6.23	6.39	4.66	6.68	4.44	6.35	4.37	6.07	2.83	5.65	4.2	4.8	4.2	5.47	4.03	4.94	2.91	5.32
Sodium	mg/L	200 (AO)	7.31	8.77	8.81	9.77	9.36	10.9	6.04	10.9	7.42	11.5	2.2	8.32	7.27	4.14	4.54	8.76	4.82	9.91	2.3	10.4
Zinc	mg/L	5.0 (AO)	0.099	0.005	0.021	0.047	0.013	0.011	<0.004	0.017	0.009	0.013	0.005	<0.005	0.0223	<0.0030	<0.0030	<0.0010	0.0012	<0.0010	<0.0010	0.0024

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S	MW10S
			May-18	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Field Electrical Conductivity	uS/cm	NV	620		539	602	579	648	605	364	675	686	670	808	790	819	660	801
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**290**		**309**	**373**	**370**	**417**	**370**	**425**	**344**	**447**	**375**	**462**	**383**	**433**	**360**	**685**
pH	N/A	6.5-8.5 (OG)	8.14		7.85	7.96	7.76	7.31	7.59	7.81	7.40	7.84	7.78	7.84	7.56	7.72	7.89	7.52
Total Dissolved Solids	mg/L	500 (AO)	390		311	486	419	450	418	484	370	437	360	**556**	383	482	385	**562**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	294		308	338	364	359	358	410	360	334	344	385	378	366	325	455
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10		<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	294		308	338	364	359	358	410	360	334	344	385	378	366	325	455
Ammonia, Total (as N)	mg/L	NV	0.15		<0.010	<0.010	0.0210	0.0230	0.0110	0.0130	<0.0050	0.0308	0.0057	<0.0050	<0.0050	0.0220	0.0186	0.0067
Bromide	mg/L	NV	<0.10		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	3.56		4.20	4.05	5.17	4.50	5.65	4.46	4.61	5.07	4.52	4.74	3.78	4.11	5.99	4.53
Fluoride	mg/L	1.5 (MAC)	0.368		0.086	0.707	0.352	0.797	0.487	0.754	0.126	0.708	0.385	0.692	0.073	0.682	0.219	0.720
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.028		<0.022	0.047	<0.022	0.068	<0.022	<0.022	<0.0224	0.058	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	0.0300
Nitrate as N	mg/L	10.0 (MAC)	0.028		<0.020	0.047	<0.020	0.068	<0.020	<0.020	<0.020	0.058	<0.020	<0.020	<0.020	<0.020	<0.020	0.030
Nitrite as N	mg/L	1.0 (MAC)	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.0030		<0.0030	0.0034	<0.0030	0.0072	0.0031	0.0030	<0.0030	<0.0030	0.0015	<0.0010	0.0028	<0.0010	0.0024	0.0030
Sulphate	mg/L	500 (AO)	16.3	Insufficient volume for sample collection.	3.6	82.6	23.1	82.2	53.8	101.0	4.49	69.4	41.1	114.0	3.52	83.9	18.6	113
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	2.8		1.65	1.25	2.79	1.45	2.20	2.74	1.39	3.16	2.34	2.16	2.26	1.72	1.37	0.82
Aluminum	mg/L	0.1 (OG)	<0.0050		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	0.0017	0.0036	**0.1540**	0.0193	0.0014	0.0010	0.0015	**6.51**
Arsenic	mg/L	0.01 (IMAC)	0.00016		<0.00010	0.00033	0.00021	0.00031	0.00023	0.00046	0.00017	0.00050	0.00038	0.00067	0.00020	0.00063	<0.00100	0.00302
Barium	mg/L	1.0 (MAC)	0.07		0.0235	0.1150	0.0760	0.1200	0.0822	0.1460	0.0427	0.1300	0.0642	0.1160	0.0395	0.1220	0.0565	0.186
Boron	mg/L	5.0 (MAC)	0.011		<0.010	0.045	0.016	0.049	0.021	0.051	<0.010	0.048	0.017	0.027	<0.010	0.042	<0.010	0.057
Cadmium	mg/L	0.005 (MAC)	<0.000010		<0.000010	<0.000010	<0.000010	0.0000110	<0.000010	0.0000220	0.0000054	0.0000220	0.0000108	0.0000602	0.0000103	0.0000127	<0.0000050	0.0000780
Calcium	mg/L	NV	81.4		94.0	89.9	103.0	105.0	97.1	97.3	102	111.0	99.4	118.0	113	104.0	101.0	171
Chromium	mg/L	0.05 (MAC)	<0.00050		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0103
Copper	mg/L	1.0 (AO)	0.00058		0.00051	0.00063	0.00045	0.00223	0.00152	0.00070	0.00915	0.00276	0.00191	0.00448	0.00188	0.00063	0.00117	0.0291
Iron	mg/L	0.3 (AO)	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	<0.010	0.117	0.029	<0.010	0.240	<0.010	**8.49**
Lead	mg/L	0.01 (MAC)	<0.000050		<0.000050	<0.000050	<0.000050	0.000113	<0.000050	0.000073	0.000108	0.000079	0.000179	0.000303	<0.000050	<0.000050	<0.000050	**0.0104**
Magnesium	mg/L	NV	21.1		17.9	36.0	27.6	37.7	31.0	44.1	21.6	41.2	30.8	40.7	24.6	42.0	26.3	62.7
Manganese	mg/L	0.05 (AO)	<0.00050		<0.00050	0.0016	0.0010	0.0023	0.0012	0.0382	0.0246	**0.1150**	0.0171	**0.1250**	0.0192	**0.1790**	0.0012	**0.244**
Potassium	mg/L	NV	0.832		0.437	1.61	0.94	1.70	1.08	1.91	0.428	1.76	0.85	1.22	0.539	1.78	0.70	3.45
Selenium	mg/L	0.05 (MAC)	0.000128		0.000056	0.000095	0.000110	0.000077	0.000141	0.000137	<0.000050	0.000092	0.000093	0.000111	0.000053	0.000670	<0.000500	0.000136
Silicon	mg/L	NV	3.28		3.26	5.00	4.16	5.24	4.18	5.71	3.60	5.95	4.74	5.63	3.96	5.76	3.77	16.5
Sodium	mg/L	200 (AO)	3.6		2.11	10.60	4.66	10.20	6.39	12.00	2.83	11.50	6.51	9.57	3.81	10.80	4.68	12.8
Zinc	mg/L	5.0 (AO)	<0.0010		<0.0010	<0.0010	<0.0010	0.0016	<0.0010	0.0020	0.004	0.0021	0.0044	0.0034	0.0027	0.0011	0.0018	0.0279

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW10D Jul-08	MW10D Oct-08	MW10D May-09	MW10D Sep-09	MW10D May-10	MW10D Sep-10	MW10D May-11	MW10D Sep-11	MW10D May-12	MW10D Sep-12	MW10D Apr-13	MW10D Sep-13	MW10D May-14	MW10D Sep-14	MW10D May-15	MW10D Sep-15	MW10D May-16	MW10D Sep-16	MW10D May-17	MW10D Sep-17
Field Electrical Conductivity	uS/cm	NV	362	380	370	371	362	365	351	335	370	341	386	384	631	390	362	400	450	410	459	340
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**130**	**144**	**125**	**127**	**134**	**123**	**138**	**119**	**117**	**137**	**114**	**131**	**167**	**143**	**121**	**122**	**122**	**112**	**120**	**115**
pH	N/A	6.5-8.5 (OG)	**8.57**	8.37	8.32	8.3	8.37	8.36	8.22	8.15	8.09	8.33	7.77	7.37	8.25	8.23	8.2	8.29	8.34	8.27	8.19	8.14
Total Dissolved Solids	mg/L	500 (AO)	224	222	216	210	226	212	246	208	180	242	202	210	227	253	173	204	**549**	353	458	339
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	171	179	171	171	169	168	170	171	171	159	169	198	188	170	182	172	168	174	185	193
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	13.0	<5	<5	<5	8.000	5.000	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	184	182	173	172	177	172	170	171	171	162	169	198	192	173	182	172	171	174	185	193
Ammonia, Total (as N)	mg/L	NV	0.42	0.23	<0.02	0.25	0.0	0.1	<0.02	0.1	0.1	0.62	0.04	0.04	<0.050	0.194	0.149	0.133	0.126	0.196	0.074	0.179
Bromide	mg/L	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	1.7	2.7	1.7	2.2	2.2	2.1	2.1	2.2	2.0	1.93	1.26	2.05	2.1	<2.0	1.36	1.25	1.45	1.6	3.37	1.77
Fluoride	mg/L	1.5 (MAC)	1.180	1.49	1.10	1.49	1.44	1.34	1.40	**1.73**	**1.67**	1.41	1.43	1.39	**1.51**	**1.58**	**1.58**	**1.59**	**1.57**	**1.6**	**1.53**	**1.55**
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.05	0.080	0.070	0.100	0.270	0.120	0.120	0.090	0.07	<0.07	<0.07	<0.2	<0.2	0.067	0.024	0.068	0.036	0.06	<0.022
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.05	0.080	0.070	0.100	0.270	0.120	0.120	0.090	0.07	0.05	<0.05	<0.10	<0.10	0.067	0.024	0.068	0.036	0.06	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.0058	0.0053	0.0049	0.0046	0.0052	0.0059	0.0064	0.0061
Sulphate	mg/L	500 (AO)	14	19.9	17.0	21.8	28.5	24.5	30.3	26.1	24.9	25	18.6	28	31.9	22.5	17.7	15.6	17.9	19.5	19.9	19.8
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	3.1	1.8	1.6	2.7	**29.8**	1.5	2.9	1.1	2.2	3.7	1.1	1.3	<1.0	<1.0	<1.0	1.3	2.3	1.6	<1.0	1.9
Aluminum	mg/L	0.1 (OG)	0.04	0.005	0.006	0.017	0.004	0.019	<0.004	0.010	0.012	0.009	0.009	<0.004	<0.010	<0.010	<0.010	<0.0050	<0.0050	0.0089	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	0.01	0.009	0.005	0.004	<0.003	0.004	0.003	<0.003	0.006	0.008	0.007	<0.003	0.0014	0.0053	0.0053	0.00731	0.00622	0.00608	0.00565	0.00
Barium	mg/L	1.0 (MAC)	0.046	0.03	0.03	0.036	0.042	0.042	0.041	0.039	0.035	0.039	0.035	0.038	0.04	0.0429	0.0429	0.0441	0.0407	0.0406	0.0412	0.05
Boron	mg/L	5.0 (MAC)	0.247	0.213	0.27	0.267	0.274	0.25	0.274	0.237	0.217	0.259	0.253	0.221	0.217	0.26	0.268	0.246	0.244	0.227	0.245	0.22
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	25.1	28.1	24.2	24.6	25.6	23.3	26.3	22.6	22.2	28	21.5	26.5	40.9	33.2	23.3	23.8	23.6	22.1	23.4	22.2
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	<0.003	<0.003	0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00064	0.00041	0.00061	0.00041	0.00083
Iron	mg/L	0.3 (AO)	0.021	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	16.4	18	15.6	15.9	17.1	15.7	17.5	15.1	14.9	16.3	14.7	15.7	15.7	14.6	15.2	15.3	15.4	13.9	14.9	14.5
Manganese	mg/L	0.05 (AO)	0.012	0.008	0.006	0.01	0.004	0.013	0.003	0.003	0.002	0.006	0.002	0.004	<0.0010	0.0039	0.0025	0.00325	0.00226	0.00225	0.00188	0.0013
Potassium	mg/L	NV	1.92	3.1	2	2.26	2.55	2.28	2.23	1.95	1.68	2.74	1.76	2.3	1.5	1.6	1.4	1.46	1.37	1.37	1.3	1.27
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	<0.000050	0.000065	0.000058	0.000075	0.000082
Silicon	mg/L	NV	5.45	6.02	5.45	5.03	4.78	5.02	5.26	4.97	4.3	5.11	5.48	4.53	4.4	4.9	5.2	5.03	4.95	4.58	4.77	4.78
Sodium	mg/L	200 (AO)	31.4	35.3	33.7	33.7	36.5	30.1	38.2	33.4	34.2	33.6	32	34.1	34.6	32.8	35.2	35	35.3	32	33.4	31.8
Zinc	mg/L	5.0 (AO)	0.06	<0.004	0.017	<0.004	<0.004	<0.004	<0.004	0.012	<0.004	<0.004	<0.005	<0.005	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW10D May-18	MW10D Sep-18	MW10D May-19	MW10D Sep-19	MW10D May-20	MW10D Sep-20	MW10D May-21	MW10D Sep-21	MW10D May-22	MW10D Sep-22	MW10D May-23	MW10D Sep-23	MW10D May-24	MW10D Sep-24	MW10D May-25	MW10D Sep-25
Field Electrical Conductivity	uS/cm	NV	430	490			389	710	376	349	417	396	388	789	980	406	412	460
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**115**	**119**	**132**	**134**	**129**	**130**	**119**	**126**	**122**	**130**	**123**	**128**	**124**	**123**	**135**	**155**
pH	N/A	6.5-8.5 (OG)	8.33	8.14	8.25	8.33	8.15	8.08	8.19	8.24	7.96	**8.53**	8.24	8.22	8.21	8.09	8.17	7.83
Total Dissolved Solids	mg/L	500 (AO)	493	**738**	223	338	270	285	267	215	236	203	207	228	190	232	237	426
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	170	162	196	194	215	193	202	229	266	178	348	217	305	200	254	446
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	11.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	170	162	196	197	215	193	202	229	266	190	348	217	305	200	254	446
Ammonia, Total (as N)	mg/L	NV	0.163	0.339	0.1370	0.0150	0.0530	0.0190	0.0680	0.0700	0.0861	0.0131	0.0379	<0.0050	0.0461	<0.0050	0.0162	0.0386
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	2.1	1.71	1.19	2.45	1.73	2.74	1.53	2.35	2.36	3.58	2.12	2.90	2.22	4.07	3.26	3.43
Fluoride	mg/L	1.5 (MAC)	1.48	**1.57**	**1.55**	**1.53**	**1.57**	**1.62**	**1.59**	1.42	**1.57**	**1.54**	**1.55**	1.47	1.50	1.47	**1.62**	**1.54**
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.054	0.029	<0.022	0.042	<0.022	0.056	<0.022	<0.022	0.039	0.045	0.045	0.037	<0.0224	<0.0224	0.0560	<0.0224
Nitrate as N	mg/L	10.0 (MAC)	0.054	0.029	<0.020	0.042	<0.020	0.056	<0.020	<0.020	0.039	0.045	0.045	0.037	<0.020	<0.020	0.056	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	0.0059	0.0044	0.0045	0.0057	<0.0030	0.0035	0.0061	0.0048	0.0054	0.0081	0.0086	0.0054	0.0054	0.0075	0.0058	0.0059
Sulphate	mg/L	500 (AO)	24.1	20	13.0	30.3	20.8	26.9	17.4	23.0	22.5	25.6	19.0	22.7	18.9	25.5	24.7	24.6
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.6	2.55	0.79	0.82	1.32	1.62	1.34	1.76	1.43	2.02	0.84	1.57	1.16	1.19	0.99	0.54
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	0.0079	<0.0050	<0.0050	<0.0050	<0.0050	0.0118	0.0086	0.0021	0.0034	0.0016	0.0037	0.0016	**0.210**	**0.156**
Arsenic	mg/L	0.01 (IMAC)	0.00	0.01	**0.01190**	0.00248	0.00696	0.00235	0.00756	0.00339	0.00534	0.00261	0.00442	0.00191	0.00437	0.00329	0.00344	0.00259
Barium	mg/L	1.0 (MAC)	0.04	0.04	0.0469	0.0479	0.0457	0.0515	0.0475	0.0478	0.0409	0.0473	0.0438	0.0436	0.0419	0.0434	0.0482	0.0469
Boron	mg/L	5.0 (MAC)	0.238	0.252	0.226	0.232	0.266	0.257	0.201	0.227	0.232	0.274	0.233	0.219	0.236	0.245	0.252	0.266
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	0.0000099	0.0000162	0.0000075	0.0000055	0.0000059	0.0000069	0.0000056
Calcium	mg/L	NV	23.3	23.5	24.9	26.0	25.7	26.7	22.5	23.8	22.7	26.4	23.5	24.5	24.0	23.5	26.8	31.3
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00056	0.0006	0.00024	0.00051	0.00041	0.00062	0.00048	0.00059	0.00053	0.00089	0.00050	0.00110	0.00060	0.00130	0.00050	0.00108
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.170	0.176
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000111	0.000114
Magnesium	mg/L	NV	13.9	14.6	16.9	16.8	15.7	15.4	15.3	16.2	15.8	15.7	15.7	16.2	15.7	15.6	16.6	18.7
Manganese	mg/L	0.05 (AO)	0.00058	0.00291	0.00635	0.00073	0.00161	0.00299	0.00285	0.00266	0.00236	0.00199	0.00151	0.0010	0.00216	0.0023	0.0088	0.0109
Potassium	mg/L	NV	1.23	1.31	1.09	1.50	1.30	1.49	1.26	1.39	1.20	1.46	1.23	1.22	1.2	1.31	1.48	1.34
Selenium	mg/L	0.05 (MAC)	0.000092	0.000064	<0.000050	0.000142	0.000075	0.000140	<0.000050	0.000065	<0.000050	0.000076	0.000071	<0.000050	<0.000050	<0.000050	<0.000500	<0.000050
Silicon	mg/L	NV	4.57	5.04	5.60	4.68	5.02	4.77	4.80	4.99	4.81	4.89	4.78	4.51	4.78	4.75	5.21	5.33
Sodium	mg/L	200 (AO)	32.9	34.5	28.7	35.9	33.4	34.6	31.7	34.8	34.4	39.1	35.3	36.9	36.8	39.80	36.60	39.5
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	0.0013	<0.0010	0.0026

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW11S May-09	MW11S Jun-09	MW11S Sep-09	MW11S May-10	MW11S Sep-10	MW11S May-11	MW11S Sep-11	MW11S May-12	MW11S Sep-12	MW11S Apr-13	MW11S Sep-13	MW11S May-14	MW11S Sep-14	MW11S May-15	MW11S Sep-15	MW11S May-16	MW11S Sep-16	MW11S May-17	MW11S Sep-17	MW11S May-18	MW11S Sep-18
Field Electrical Conductivity	uS/cm	NV	1040	921	958	843	855	786	778	873	823	1090	999	420	902	886	1070	1050	1000	1070	907	1050	1190
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**430**	**465**	**441**	**447**	**429**	**477**	**423**	**420**	**433**	**446**	**487**	**555**	**532**	**476**	**497**	**487**	**462**	**441**	**490**	**423**	**465**
pH	N/A	6.5-8.5 (OG)	8.02	7.87	8.24	8.26	8.18	8.15	8.05	8.08	8.26	7.94	7.48	7.93	7.7	7.86	7.99	8.15	8.09	7.87	7.86	8.18	7.84
Total Dissolved Solids	mg/L	500 (AO)	**752**	**654**	**624**	**586**	**578**	**578**	**552**	**512**	**530**	**650**	**634**	**598**	**613**	490	**610**	**600**	**623**	**617**	**633**	**573**	**617**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	333	335	335	330	342	320	332	323	320	331	387	351	371	367	373	338	349	353	382	348	332
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	333	335	335	330	342	320	332	323	320	331	387	354	373	367	373	338	349	353	382	348	332
Ammonia, Total (as N)	mg/L	NV	0.05	0.11	<0.02	0.05	<0.05	0.0	0.02	0.1	<0.02	0.06	<0.02	0.085	<0.050	0.078	<0.050	<0.020	<0.020	<0.020	<0.020	0.042	0.045
Bromide	mg/L	NV	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	4.24	3.39	3.44	2.97	2.66	2.42	2.13	2.55	2.37	1.81	1.75	<2.0	<2.0	1.05	0.97	1.06	1.17	1.12	0.92	0.99	1.03
Fluoride	mg/L	1.5 (MAC)	0.790	<0.1	0.65	1.20	1.49	1.22	0.92	1.11	1.33	1.19	1.44	1.29	1.39	1.39	1.31	1.33	1.15	1.35	1.42	1.26	**1.52**
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.1	<0.05	<0.05	0.020	<0.05	<0.05	<0.05	<0.05	<0.07	<0.07	<0.2	<0.2	<0.03	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.020	0.02	<0.020	<0.020	0.021	<0.020	<0.020	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.5	0.0033	0.0036	<0.0030	<0.0030	0.003	0.0033	0.0032	0.004	<0.0030	0.0042
Sulphate	mg/L	500 (AO)	202	207.0	205.0	190.0	175.0	184.0	170.0	174.0	175.0	240	211	197	180	182	195	183	190	199.0	187.0	187	189
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	**6.8**	**6.3**	5.0	**16.1**	3.9	**8.6**	1.8	1.9	3.5	1.4	1.7	<1.0	<1.0	<1.0	1.6	3	1.2	1	1.2	1.4	1.5
Aluminum	mg/L	0.1 (OG)	0.01	<0.004	0.008	0.005	0.012	<0.004	0.009	0.010	**0.130**	0.032	0.004	<0.010	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	**0.013**	<0.003	0.008	0.006	0.005	0.005	<0.003	<0.003	0.007	<0.003	<0.003	0.002	0.0019	<0.0010	0.00096	0.00058	0.00091	0.00058	0.00084	0.00055	0.00072
Barium	mg/L	1.0 (MAC)	0.048	0.052	0.064	0.093	0.091	0.085	0.091	0.079	0.098	0.079	0.078	0.0726	0.101	0.0811	0.0907	0.0826	0.0861	0.0692	0.0903	0.07	0.07
Boron	mg/L	5.0 (MAC)	0.104	0.093	0.126	0.119	0.132	0.115	0.119	0.106	0.136	0.102	0.108	0.09	0.111	0.115	0.115	0.109	0.116	0.104	0.117	0.097	0.135
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	0.000013	0.000011	0.000012	<0.000010	0.000014	<0.000010	0.000014
Calcium	mg/L	NV	84.8	97.2	90.7	89.9	87.5	95.5	85.6	83.3	85.6	87.7	101	131	123	94.2	101	98	97.3	88.3	98	87	94.7
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00031	0.00034	0.00024	0.00027	<0.00020	0.00021	0.00026
Iron	mg/L	0.3 (AO)	**5.45**	<0.01	**1.35**	**0.923**	**0.518**	**0.588**	0.095	0.167	**0.382**	0.081	**0.834**	**0.317**	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	52.9	54.1	52.1	54.1	51.2	58	50.9	51.5	53.3	55.1	57	55.3	54.5	58.4	59.3	58.9	53.3	53.5	59.6	50	55.4
Manganese	mg/L	0.05 (AO)	**0.067**	**0.052**	**0.073**	0.046	**0.054**	0.039	0.039	0.043	0.043	**0.06**	**0.057**	**0.0627**	0.0414	0.0198	0.0458	0.0106	0.0275	0.00316	0.0268	0.00491	0.019
Potassium	mg/L	NV	3.44	4.3	3.72	3.14	3.34	2.49	2.93	2.23	2.44	2.63	2.89	2.1	2.8	2	2.46	2.25	2.51	2.09	2.77	1.86	2.32
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000503	0.00223	0.00162	0.00315	0.00126	0.00122	0.00267
Silicon	mg/L	NV	6.49	7.3	6.86	5.94	7.56	6.73	7.16	5.62	7.49	6.29	5.88	5.6	6.9	6.3	6.81	6.21	6.41	5.97	7.54	5.74	6.98
Sodium	mg/L	200 (AO)	60.9	42.2	37.1	32.9	26	30.1	24.8	25.4	25.2	47.3	35	30	30.1	30.7	29.1	29.4	26.3	46	36.5	31.9	33.0
Zinc	mg/L	5.0 (AO)	0.023	<0.004	0.031	0.006	0.01	<0.004	0.012	0.006	0.327	<0.005	<0.005	0.007	<0.0030	<0.0030	0.0018	<0.0010	0.0012	0.0011	0.0014	<0.0010	0.0018

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S	MW11S
			May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25	Sep-25
Field Electrical Conductivity	uS/cm	NV	891	869	929	839	857	418	785	996	863	964	945	913	847	978
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**482**	**444**	**492**	**438**	**464**	**420**	**431**	**454**	**452**	**424**	**423**	**428**	**444**	**480**
pH	N/A	6.5-8.5 (OG)	7.95	7.73	7.90	7.71	7.79	7.99	7.61	8.10	7.97	8.09	7.94	7.85	8.07	7.75
Total Dissolved Solids	mg/L	500 (AO)	**628**	**596**	**595**	**509**	498	**551**	**538**	493	**546**	**511**	**517**	**575**	**530**	**520**
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	346	344	332	340	341	394	345	292	374	367	355	373	343	355
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	346	344	332	340	341	394	345	292	374	367	355	373	343	355
Ammonia, Total (as N)	mg/L	NV	0.0270	<0.010	0.0270	<0.010	0.0270	0.0150	0.0154	0.0116	<0.0050	0.0163	0.0123	0.0059	0.0195	0.0238
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	1.16	1.06	1.10	1.09	1.08	1.04	1.09	1.05	0.99	0.99	0.95	1.20	1.03	1.06
Fluoride	mg/L	1.5 (MAC)	1.43	**1.61**	1.43	**1.61**	1.49	1.41	1.36	1.43	1.41	1.42	1.35	**1.54**	1.40	1.32
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.039	0.026	<0.022	<0.022	<0.022	<0.022	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224
Nitrate as N	mg/L	10.0 (MAC)	0.039	0.026	<0.020	0.021	<0.020	<0.020	0.021	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	0.0044	0.0034	<0.0030	0.0070	<0.0030	0.0032	<0.0030	<0.0030	0.0026	0.0026	0.0021	0.0033	0.0030	0.0037
Sulphate	mg/L	500 (AO)	214.0	167.0	195.0	148.0	151.0	152.0	166.0	142.0	169.0	135.0	141	155.0	144.0	129
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	0.95	0.87	1.21	1.06	1.19	2.26	0.84	1.72	0.64	1.55	0.80	1.63	0.59	0.96
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0013	0.0018	<0.0010	0.0022	0.0025	0.0011	0.0032	0.0032
Arsenic	mg/L	0.01 (IMAC)	0.00116	0.00078	0.00113	0.00089	0.00110	0.00101	0.00081	0.00082	0.00133	0.00098	0.00059	0.00082	<0.00100	0.00091
Barium	mg/L	1.0 (MAC)	0.0767	0.0811	0.0737	0.0758	0.0704	0.0741	0.0682	0.0806	0.0678	0.0702	0.0628	0.0695	0.0688	0.0723
Boron	mg/L	5.0 (MAC)	0.094	0.112	0.120	0.133	0.105	0.122	0.092	0.145	0.100	0.110	0.086	0.125	0.104	0.133
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000107	0.0000087	0.0000071	0.0000073	<0.0000050	0.0000057	0.0000064	0.0000055
Calcium	mg/L	NV	96.2	89.8	99.9	91.5	90.2	81.2	86.6	93.9	89.0	83.4	83.9	83.9	87.9	94.3
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	<0.00020	0.00021	0.00021	0.00021	<0.00020	<0.00020	<0.00020	0.00334	<0.00020	0.00029	<0.00020	0.00096	0.00038	0.00022
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.021	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000075	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	58.8	53.3	58.8	51.0	58.0	52.8	52.1	53.2	55.9	52.4	51.9	53.1	54.4	59.4
Manganese	mg/L	0.05 (AO)	0.00757	0.00077	0.00456	0.00307	0.0048	0.00299	0.0034	0.00105	0.0040	0.00273	0.00106	0.0027	0.0019	0.00157
Potassium	mg/L	NV	1.69	2.23	2.00	2.23	2.10	2.20	1.81	2.39	1.81	2.01	1.79	2.25	1.95	2.30
Selenium	mg/L	0.05 (MAC)	0.00233	0.00402	0.00290	0.00297	0.00317	0.00510	0.00304	0.00368	0.00350	0.00390	0.00862	0.00406	0.00385	0.00463
Silicon	mg/L	NV	6.70	7.15	6.74	7.68	7.00	8.01	6.36	7.88	6.70	7.93	6.82	7.74	6.97	8.38
Sodium	mg/L	200 (AO)	26.6	31.4	36.4	30.7	30.9	29.8	29.6	31.9	36.3	32.7	35.8	31.7	30.3	32.8
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0043	0.0013	0.0033	<0.0010	0.0010	0.0012	0.0018	0.0014	<0.0010

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW11D May-09	MW11D Sep-09	MW11D May-10	MW11D Sep-10	MW11D May-11	MW11D Sep-11	MW10S May-12	MW10S Sep-12	MW10S Apr-13	MW10S Sep-13	MW11D May-14	MW11D Sep-14	MW11D May-15	MW11D Sep-15	MW11D May-16	MW11D Sep-16	MW11D May-17	MW11D Sep-17	MW11D May-18	MW11D Sep-18
Field Electrical Conductivity	uS/cm	NV	514	482	934	691	559	476	934	728	692	631	603	538	541	590	640	570	640	575	290	670
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**222**	**210**	**321**	**255**	**250**	**202**	**314**	**277**	**227**	**225**	**321**	**286**	**222**	**210**	**220**	**209**	**215**	**205**	**192**	**216**
pH	N/A	6.5-8.5 (OG)	8.19	8.28	8.48	8.3	8.25	8.15	8.26	8.36	8	7.41	8.13	8.1	8.07	8.21	8.34	8.2	8.04	8.08	8.36	7.98
Total Dissolved Solids	mg/L	500 (AO)	308	280	**634**	428	362	316	**516**	408	366	338	327	330	263	279	335	317	310	317	336	314
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	238	242	360	292	263	247	377	306	277	308	271	261	265	257	246	264	268	253	216	227
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	34.000	<5	<5	<5	<5	11.000	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	238	242	394	294	263	247	377	317	277	308	275	264	265	257	248	264	268	253	216	227
Ammonia, Total (as N)	mg/L	NV	<0.02	0.07	0.03	<0.05	<0.02	0.0	0.04	<0.02	0.1	<0.02	0.132	<0.050	<0.050	0.061	<0.020	<0.020	<0.020	0.041	0.075	0.074
Bromide	mg/L	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	0.5	0.9	2.4	2.1	1.3	1.5	2.2	1.9	1.7	1.5	<2.0	<2.0	0.93	0.92	0.89	0.88	0.92	0.99	0.84	0.85
Fluoride	mg/L	1.5 (MAC)	1.250	**1.86**	1.39	**1.72**	**1.60**	1.40	1.01	0.79	**1.57**	1.44	**1.8**	**1.82**	**1.88**	**1.76**	**1.82**	**1.54**	**1.81**	**1.89**	**1.84**	**1.96**
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.05	0.110	<0.02	0.060	0.520	<0.05	<0.05	<0.07	<0.07	<0.2	<0.2	<0.03	0.076	<0.022	0.027	0.04	<0.022	0.035	0.029
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.05	0.110	<0.05	0.060	0.520	<0.05	<0.05	<0.25	<0.1	<0.10	<0.10	0.022	0.076	0.021	0.027	0.04	<0.020	0.035	0.029
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.1	<0.10	<0.10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.2	0.0057	0.0066	0.0056	0.0048	0.0048	0.0052	0.0057	0.0054	0.0054	0.0051
Sulphate	mg/L	500 (AO)	28	27.1	184.0	99.0	70.0	46.8	160.0	108.0	70.2	61.2	52	48.4	43.1	39.1	44.8	42.7	43.5	33.3	42.1	44.9
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	2.9	3.6	**29.7**	**6.6**	3.4	1.8	1.6	2.9	1.5	1.4	<1.0	<1.0	1	1.5	3.3	2.1	1.6	2	2.2	3.18
Aluminum	mg/L	0.1 (OG)	0.01	0.006	<0.004	0.013	<0.004	0.096	0.008	0.020	0.006	<0.004	<0.010	<0.010	<0.010	<0.0050	<0.0050	0.0065	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic	mg/L	0.01 (IMAC)	0.005	0.008	0.003	<0.003	0.003	0.006	<0.003	0.003	<0.003	<0.003	0.0023	0.0031	0.0037	0.00397	0.00298	0.00339	0.00303	0.00457	0.00391	0.00345
Barium	mg/L	1.0 (MAC)	0.016	0.02	0.087	0.069	0.055	0.052	0.078	0.076	0.065	0.069	0.0643	0.0718	0.0681	0.065	0.0734	0.0713	0.0663	0.0707	0.0694	0.07
Boron	mg/L	5.0 (MAC)	0.148	0.152	0.131	0.148	0.153	0.141	0.115	0.142	0.148	0.122	0.124	0.142	0.159	0.145	0.155	0.132	0.17	0.15	0.138	0.155
Cadmium	mg/L	0.005 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000090	<0.000090	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Calcium	mg/L	NV	44.5	40	57.8	46.1	45.3	36.3	56.2	49.2	39.9	41	81.4	69.5	40	38.6	41.4	39.6	39.7	39.3	36.7	40.5
Chromium	mg/L	0.05 (MAC)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	0.00021	0.0003	0.00021	0.00034	0.00032	0.0003	0.00035
Iron	mg/L	0.3 (AO)	**0.313**	**2.1**	0.072	<0.01	<0.01	0.067	<0.01	<0.01	0.01	<0.01	<0.050	<0.050	<0.050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	mg/L	0.01 (MAC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	27	26.8	42.8	33.9	33.3	27.1	42.1	37.4	31	29.7	28.6	27.4	29.6	27.6	28.4	26.6	28.1	26	24.3	27.8
Manganese	mg/L	0.05 (AO)	**0.056**	**0.055**	0.018	0.006	0.01	0.036	0.006	0.01	0.003	<0.002	<0.0010	0.0044	<0.0010	0.00157	<0.00050	0.0102	<0.00050	0.00965	<0.00050	<0.00050
Potassium	mg/L	NV	2.06	1.97	2.78	1.87	1.98	1.59	1.92	1.92	1.65	1.7	1.4	1.4	1.4	1.46	1.43	1.46	1.43	1.34	1.33	1.5
Selenium	mg/L	0.05 (MAC)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.00040	<0.00040	0.000072	0.000147	0.000071	0.000156	0.000075	0.000148	0.000162
Silicon	mg/L	NV	6.36	5.53	6.54	6.43	6.51	6.76	6.15	7.14	6.97	5.93	5.9	6.3	6.7	6.62	6.33	5.86	6.24	6.82	6	6.08
Sodium	mg/L	200 (AO)	24.9	27.2	118	65	54.4	39.5	90.2	67.9	50.6	47.2	43.3	40.4	41.5	38	39.8	36.6	37.8	32.7	35.3	37.6
Zinc	mg/L	5.0 (AO)	0.023	0.006	<0.004	0.004	<0.004	0.184	<0.004	0.046	<0.005	<0.005	<0.0030	<0.0030	<0.0030	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW11D May-19	MW11D Sep-19	MW11D May-20	MW11D Sep-20	MW11D May-21	MW11D Sep-21	MW11D May-22	MW11D Sep-22	MW11D May-23	MW11D Sep-23	MW11D May-24	MW11D Sep-24	MW11D May-25	MW11D Sep-25
Field Electrical Conductivity	uS/cm	NV	494	462	981	528	478	456	603	686	584	550	594	438	542	574
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	**193**	**218**	**210**	**207**	**215**	**197**	**195**	**205**	**206**	**199**	**204**	**196**	**199**	**217**
pH	N/A	6.5-8.5 (OG)	8.21	7.97	8.10	7.99	8.11	8.27	8.22	**8.71**	8.22	8.36	8.12	8.30	8.31	8.16
Total Dissolved Solids	mg/L	500 (AO)	274	321	292	284	284	289	274	254	265	292	278	304	304	282
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	239	243	239	237	247	279	245	214	260	249	245	239	240	241
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	25.6	<1.0	4.0	<1.0	2.2	2.6	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	239	243	239	237	247	279	245	239	260	253	245	241	243	241
Ammonia, Total (as N)	mg/L	NV	0.105	<0.010	0.025	0.014	0.027	0.0600	0.0367	0.0191	<0.0050	<0.0050	0.0322	0.0285	0.0107	0.0181
Bromide	mg/L	NV	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	0.78	0.80	0.81	0.92	0.85	0.75	0.78	0.76	0.74	0.84	0.69	0.79	0.77	1.10
Fluoride	mg/L	1.5 (MAC)	**2.03**	**1.93**	**1.93**	**1.98**	**1.94**	**1.75**	**2.00**	**1.93**	**1.92**	**1.79**	**1.83**	**2.00**	**2.00**	**1.88**
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	0.050	0.030	0.027	0.045	0.050	<0.022	0.038	0.034	0.045	0.050	<0.0224	0.073	0.0670	0.0680
Nitrate as N	mg/L	10.0 (MAC)	0.050	0.030	0.027	0.045	0.050	<0.020	0.038	0.034	0.045	0.050	<0.020	0.073	0.067	0.068
Nitrite as N	mg/L	1.0 (MAC)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	0.0060	0.0048	<0.0030	0.0052	0.0033	0.0055	0.0067	0.0072	0.0102	0.0136	0.0057	0.0115	0.0065	0.0123
Sulphate	mg/L	500 (AO)	26.8	36.9	37.5	36.6	39.7	32.4	33.4	32.6	31.2	31.1	28.7	29.6	30.9	27.2
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.07	1.19	1.62	1.74	1.49	3.38	1.13	1.61	2.13	2.03	1.30	2.04	1.36	0.96
Aluminum	mg/L	0.1 (OG)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0019	0.0019	<0.0010	0.0022	0.0023	<0.0010	<0.0010	0.0063
Arsenic	mg/L	0.01 (IMAC)	**0.01110**	0.00367	0.00556	0.00667	0.00665	0.00735	0.00600	0.00618	0.00580	0.00650	0.00707	0.00539	0.00662	0.00862
Barium	mg/L	1.0 (MAC)	0.0650	0.0822	0.0775	0.0730	0.0762	0.0701	0.0801	0.0744	0.0754	0.0677	0.0721	0.0696	0.0788	0.0733
Boron	mg/L	5.0 (MAC)	0.142	0.137	0.167	0.157	0.161	0.151	0.138	0.169	0.155	0.138	0.156	0.148	0.152	0.164
Cadmium	mg/L	0.005 (MAC)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	0.0000120	0.0000103	0.0000179	0.0000083	0.0000093	<0.0000050	0.0000070	<0.0000050	0.0000073
Calcium	mg/L	NV	35.9	41.9	39.6	39.2	39.6	35.7	34.4	38.6	37.7	36.0	36.7	35.5	35.6	39.1
Chromium	mg/L	0.05 (MAC)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.00022	0.00029	0.00030	0.00023	0.00035	0.00022	0.00224	0.00064	0.00047	0.00046	0.00038	0.00024	0.00048	0.00051
Iron	mg/L	0.3 (AO)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.012
Lead	mg/L	0.01 (MAC)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000104	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium	mg/L	NV	25.1	27.6	26.8	26.4	28.2	26.2	26.5	26.4	27.2	26.4	27.2	26.1	26.7	28.9
Manganese	mg/L	0.05 (AO)	0.00099	<0.00050	<0.00050	0.00354	0.00110	0.00840	0.00056	0.00052	0.00036	0.00102	0.00062	0.0153	0.00028	0.00235
Potassium	mg/L	NV	1.27	1.46	1.45	1.37	1.55	1.35	1.30	1.45	1.37	1.26	1.31	1.38	1.37	1.37
Selenium	mg/L	0.05 (MAC)	0.000087	0.000168	0.000175	0.000086	0.000097	0.000088	0.000076	0.000067	0.000097	0.000057	0.000087	0.00052	<0.000500	0.000052
Silicon	mg/L	NV	6.53	6.08	6.27	6.60	6.73	6.79	6.64	6.79	6.32	6.31	6.60	6.53	6.84	7.09
Sodium	mg/L	200 (AO)	32.2	37.6	38.8	35.6	40.3	36.2	37.0	40.5	42.5	39.0	39.6	41.4	38.7	40.2
Zinc	mg/L	5.0 (AO)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0027	0.0035	0.0011	0.0011	<0.0010	0.0045	<0.0010	<0.0010	0.0022

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

TABLE D-3 (1 of 1)
GROUNDWATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance
			Oct-09	Sep-09	May-10	Sep-10	May-11	May-12	Sep-12	Apr-13	Sep-13	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17	May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25	Sep-25
Field Electrical Conductivity	uS/cm	NV	504	473	483	466	448	476	467	497	514	517	560	610	570	670	497	590	670	487					473	382	444	508	412	517	502	495
Total Hardness (as CaCO3)	mg/L	80-100 (OG)	182	187	192	208	182	174	186	226	227	223	199	218	204	206	233	199	198	224	202				222	200	215	300	214	226	225	226
pH	N/A	6.5-8.5 (OG)	8.18	8.2	8.23	8.23	8.13	8.18	8.21	8.31	7.67	8.05	7.78	8.26	8.18	8.11	8.15	8.31	7.97	7.83	8.14				8.22	8.41	7.91	8.18	8.33	8.18	8.25	7.81
Total Dissolved Solids	mg/L	500 (AO)	278	294	278	302	284	280	282	314	296	278	297	319	309	263	318	311	308	298	322				308	287	287	300	302	310	336	306
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	207	202	200	199	210	200	201	199	227	198	209	195	209	218	209	172	187	181	201				202	195	210	214	200	199	203	208
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10				<1.0	6.9	<1.0	<1.0	2.9	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	30-500 (OG)	207	202	200	199	210	200	201	200	227	198	209	195	209	218	209	172	187	181	201				202	202	210	214	203	199	203	208
Ammonia, Total (as N)	mg/L	NV	0.090	0.050	<0.05	0.140	0.140	0.360	0.250	0.250	0.260	0.284	0.305	0.246	0.264	0.264	0.285	0.35	0.29	0.252	0.251				0.281	0.267	0.279	0.265	0.289	0.29	0.288	0.291
Bromide	mg/L	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10				<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	mg/L	250 (AO)	3.9	1.7	2.0	2.2	2.3	2.3	2.6	2.2	2.1	1.85	1.89	1.85	1.89	1.82	1.86	1.89	1.91	2.29	2.08				1.99	1.91	2.02	1.93	1.97	2.06	1.95	1.96
Fluoride	mg/L	1.5 (MAC)	1.6	1.3	1.6	1.4	1.6	1.5	1.2	1.6	1.5	1.64	1.47	1.41	1.49	1.57	1.6	1.6	1.62	1.6	1.61				1.60	1.54	1.47	1.52	1.48	1.59	1.56	1.50
(Nitrate + Nitrite) as N	mg/L	10.0 (MAC)	<0.05	<0.05	0.120	<0.05	<0.05	<0.05	<0.05	<0.07	<0.07	<0.03	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022				<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224	<0.0224
Nitrate as N	mg/L	10.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020				<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Nitrite as N	mg/L	1.0 (MAC)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010				<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Orthophosphate as P	mg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	0.0076	0.0068	0.0104	0.0114	0.0074	0.0102	0.0058	0.0113	0.0088	<0.0030				0.0079	0.0078	0.0036	0.0099	0.0063	0.0061	0.0057	0.0104
Sulphate	mg/L	500 (AO)	61	67	65	72	71	59	68	65	62	63.4	63	63	63.6	63.4	62.6	65.9	67.3	68.2	68.4				71.6	68.2	67.4	68.2	69.4	71.0	70.9	68.7
Dissolved Organic Carbon (DOC)	mg/L	5.0 (AO)	1.7	1.4	1.0	1.0	2.6	1.4	0.9	1.0	1.1	<1.0	1.8	2.3	1.7	<1.0	1	1	1.61	1.27	2.01	No sample collected.	No sample collected.	No sample collected.	No sample collected.	1.17	1.23	1.18	1.36	1.28	1.68	0.90	0.83
Aluminum	mg/L	0.1 (OG)	<0.004	0.006	0.017	<0.004	<0.004	0.013	0.474	0.006	0.006	0.077	<0.010	<0.10	<0.10	<0.10	<0.050	<0.050	<0.050	0.055	<0.050				<0.0300	0.0206	0.0047	<0.0300	<0.0030	<0.0030	<0.0030	0.003
Arsenic	mg/L	0.01 (IMAC	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	0.00051	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.00071	<0.0010				<0.00100	0.00082	0.00069	0.00102	0.00088	0.00085	0.00097	0.00091
Barium	mg/L	1.0 (MAC)	0.082	0.085	0.077	0.079	0.072	0.076	0.088	0.071	0.088	0.085	0.0779	0.0864	0.0795	0.0842	0.0834	0.0791	0.0817	0.0827	0.0824				0.0900	0.0879	0.0851	0.0866	0.0877	0.0896	0.0897	0.0859
Boron	mg/L	5.0 (MAC)	0.114	0.142	0.125	0.125	0.106	0.109	0.114	0.119	0.145	0.202	0.119	0.12	0.12	0.12	0.13	0.13	0.14	0.153	0.12				0.127	0.111	0.131	0.137	0.125	0.14	0.136	0.123
Cadmium	mg/L	0.005 (MAC	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.000090	<0.000010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000050	<0.000050	<0.000010	<0.000050				<0.0000500	<0.0000050	<0.0000050	<0.0000500	0.0000081	<0.0000050	0.0000071	0.0000103
Calcium	mg/L	NV	41.3	41.9	43.2	47	40.8	39	41.9	42	41.7	57.6	48.9	51.3	47.3	48.6	58.2	49.8	45.4	57.1	47				53.0	45.6	50.5	54.0	50.2	52.8	53.5	53.5
Chromium	mg/L	0.05 (MAC	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.00065	<0.00050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.00050	<0.0050				<0.00500	<0.00050	<0.00050	<0.00500	<0.00050	<0.00050	<0.00050	<0.00050
Copper	mg/L	1.0 (AO)	0.014	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.023	<0.0010	<0.0010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0010	<0.010				<0.00500	0.00062	<0.00050	<0.00500	0.0012	<0.00050	0.01610	0.08810
Iron	mg/L	0.3 (AO)	0.629	1.4	1.06	1.24	0.945	0.871	1.17	0.972	1.01	0.997	1.16	1.17	1.00	0.91	0.8	0.89	0.76	0.893	1.20				1.01	1.04	0.968	1.18	1.04	1.09	1.18	1.35
Lead	mg/L	0.01 (MAC	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.00050	0.00067	<0.0010	<0.0010	<0.00050	<0.00050	0.00051	0.00055	0.00175	0.00065				<0.000500	0.000506	<0.000050	0.000858	0.000470	0.000174	0.001160	0.003460
Magnesium	mg/L	NV	19.1	19.9	20.4	22.1	19.4	18.6	19.7	29.3	29.8	19.2	18.7	21.7	20.8	20.6	21.4	18.2	20.6	19.7	20.6				21.8	21.0	21.5	22.9	21.6	22.8	22.2	22.4
Manganese	mg/L	0.05 (AO)	0.011	0.015	0.01	0.013	0.01	0.01	0.047	0.011	0.01	0.0151	0.015	0.0141	0.0123	0.011	0.0137	0.0115	0.0126	0.0115	0.0213				0.0130	0.0112	0.0121	0.0192	0.0106	0.0108	0.0118	0.0127
Potassium	mg/L	NV	1.01	1.02	1.13	1.24	1.07	1.05	1.03	20	19.9	1.1	0.989	1.04	1.05	0.98	1.12	0.84	1.06	0.972	1.03				1.09	1.02	1.03	1.15	0.981	1.06	1.05	1.07
Selenium	mg/L	0.05 (MAC	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.00040	<0.000050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.000050	<0.00050				<0.000500	<0.000050	<0.000050	<0.000500	<0.000050	<0.000050	<0.000050	<0.000050
Silicon	mg/L	NV	4.96	4.94	5.02	5.26	4.94	4.72	5.13	3.57	5.02	5.9	4.86	5.2	5.03	5.1	5.1	4.8	5.3	5.38	5				5.17	5.18	5.37	5.68	5.28	5.53	5.41	5.33
Sodium	mg/L	200 (AO)	29.2	30.2	31	33.3	29.3	31.1	29.6	1.04	1.05	30.7	29.8	32.5	31.6	32.2	32.3	28.3	33.2	30.3	31.7				32.2	31.1	31.7	33.5	32.3	33.6	32.5	31.7
Zinc	mg/L	5.0 (AO)	0.465	0.387	0.153	0.454	0.342	0.143	1.4	0.268	0.258	0.211	0.395	0.299	0.286	0.101	0.133	0.39	0.429	0.131	0.41				0.124	0.125	0.175	0.411	0.128	0.127	0.548	0.232

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and Shaded denotes exceedances of the ODWS.
5. Blank denotes data not available.
6. Unless otherwise stated, units are reported in mg/L.
7. NV denotes No Value

Pinchin File: 333568.002

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW2 Dec-05	MW2 May-06	MW2 Oct-06	MW2 May-07	MW2 Sep-07	MW2 Jul-08	MW2 Oct-08	MW2 May-09	MW2 Sep-09	MW2 May-10	MW2 Sep-10	MW2 May-11	MW2 Sep-11	MW2 May-12	MW2 Sep-12	MW2 Apr-13	MW2 Sep-13	MW2 May-14	MW2 Sep-14
Acetone	µg/L	NV		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20
Benzene	µg/L	1 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0
Bromoform	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0
Bromomethane	µg/L	NV	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0
Chloroethane	µg/L	NV		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0
Chloroform	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0
Chloromethane	µg/L	NV		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	**0.2**	<0.1	<0.46	<0.1	<0.1	**0.17**	**0.12**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.3**	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV														<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
1,1-Dichloroethane	µg/L	NV	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
n-Hexane	µg/L	NV										<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
2-Hexanone	µg/L	NV		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<5	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.9	**0.85**	**1.3**	**0.71**	<0.2	**0.52**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10
1,1,1-Trichloroethane	µg/L	NV	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.1	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV		<0.2	<0.4	<0.4	<0.24	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.2	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50
o-Xylene	µg/L	NV	**0.2**	**0.1**	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.4**	**0.2**	**0.2**	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.5**	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2	MW2
			May-15	Sep-15	May-16	Sep-16	May-17	Sep-17	May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.8	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	**0.92**	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<10	<10	<10	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW3S* *Dec-05*	*MW3S* *May-06*	*MW3S* *Oct-06*	*MW3S* *May-07*	*MW3* *Sep-07*	*MW3S* *Jul-08*	*MW3S* *Oct-08*	*MW3S* *May-09*	*MW3S* *Sep-09*	*MW3S* *May-10*	*MW3S* *Sep-10*	*MW3S* *May-11*	*MW3S* *Sep-11*	*MW3S* *May-12*	*MW3S* *Sep-12*	*MW3S* *Apr-13*	*MW3S* *Sep-13*	*MW3S* *May-14*	*MW3S* *Sep-14*	*MW3S* *May-15*	*MW3S* *Sep-15*	*MW3S* *May-16*	*MW3S* *Sep-16*	*MW3S* *May-17*	*MW3S* *Sep-17*
Acetone	µg/L	NV	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<2	<1	<4	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	**0.1**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.5	<0.2	<0.2	**1.6**	<0.23	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.11**	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV		<0.2	<0.2	**2.2**	<0.22	**0.71**	**1.5**	**1.5**	**1.2**	**0.69**	**1.7**	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<1.0	<1.0	**1.7**	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.1	<0.2	**0.45**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.8	<0.4	<1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV														<0.2	<0.4	<0.2	<0.8	<0.2	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<1.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<1.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<1.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<1.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV										<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<1.2	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<5	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<2	<1	<4	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<2	<1	<4	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.3**	<0.2	<0.2	**0.24**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
1,2,4-Trichlorobenzene	µg/L	NV		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<1.2		<10	<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.6	<0.3	<1.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.1	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV		<0.2	<0.4	<0.4	<0.24	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.8	<0.4	<1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.2	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.34	<0.17	<0.68	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.2**	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.2	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW3S* *May-18*	*MW3S* *Sep-18*	*MW3S* *May-19*	*MW3S* *Sep-19*	*MW3S* *May-20*	*MW3S* *Sep-20*	*MW3S* *May-21*	*MW3S* *Sep-21*	*MW3S* *May-22*	*MW3S* *Sep-22*	*MW3S* *May-23*	*MW3S* *Sep-23*	*MW3S* *May-24*	*MW3S* *Sep-24*	*MW3S* *May-25*	*MW3S* *Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	**0.52**	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	**0.53**	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30\	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW3D Dec-05	MW3D May-06	MW3D Oct-06	MW3D May-07	MW3D Sep-07	MW3D Jul-08	MW3D Oct-08	MW3D May-09	MW3D May-10	MW3D Sep-10	MW3D May-11	MW3D Sep-11	MW3D May-12	MW3D Sep-12	MW3D Apr-13	MW3D Sep-13	MW3D May-14	MW3D Sep-14	MW3D May-15	MW3D Sep-15	MW3D May-16	MW3D Sep-16
Acetone	µg/L	NV	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	**0.3**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.5	<0.2	<0.2	<0.2	<0.23	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV		<0.2	<0.2	<0.2	<0.22	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	**0.29**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV													<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	**0.2**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<5	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.6**	<0.2	<0.2	**0.25**	<0.2	<0.2	**0.4**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10
1,1,1-Trichloroethane	µg/L	NV	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.1	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV		<0.2	<0.4	<0.4	<0.24	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.2	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	**0.1**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	<0.3	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.5**	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW3D May-17*	*MW3D Sep-17*	*MW3D May-18*	*MW3D Sep-18*	*MW3D May-19*	*MW3D Sep-19*	*MW3D May-20*	*MW3D Sep-20*	*MW3D May-21*	*MW3D Sep-21*	*MW3D May-22*	*MW3D Sep-22*	*MW3D May-23*	*MW3D Sep-23*	*MW3D May-24*	*MW3D Sep-24*	*MW3D May-25*	*MW3D Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.4	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	<0.50	**0.55**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<2.0	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	**0.84**	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW4 Dec-05	MW4 May-06	MW4 May-07	MW4 Sep-07	MW4 Jul-08	MW4 Oct-08	MW4 May-09	MW4 Sep-09	MW4 May-10	MW4 Sep-10	MW4 May-11	MW4 Sep-11	MW4 May-12	MW4 Sep-12	MW4 Apr-13	MW4 Sep-13	MW4 May-14	MW4 Sep-14	MW4 May-15	MW4 Sep-15	MW4 May-16	MW4 Sep-16	MW4 May-17	MW4 Sep-17	MW4 May-18	MW4 Sep-18
Acetone	µg/L	NV	<10	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.5	<0.2	<0.2	<0.23	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV		<0.2	<0.2	<0.22	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV													<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV									<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	**0.57**	**0.56**	<0.50	**1.01**	**0.61**
2-Hexanone	µg/L	NV		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<5	<0.9	<0.9	<0.9	<0.9	<0.9	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<5	<0.3	<0.3	<0.3	<0.3	<0.3	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.13	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.7**	<0.2	<0.2	<0.2	**0.26**	**0.35**	<0.2	<0.2	<0.2	**0.51**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<2.0	<0.50
1,2,4-Trichlorobenzene	µg/L	NV		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**3.33**	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.1	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV		<0.2	<0.4	<0.24	<0.4	<0.4	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.2	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.2	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.5**	<0.2	<0.2	<0.1	**0.28**	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.8**	<0.2	<0.2	<0.1	**0.28**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*	*MW4*
			May-19	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	**0.77**	<0.50	<0.50	<0.50	<0.50	<0.50	**0.53**	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.40	<0.40	<0.40	**0.5**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW5S Jul-08	MW5S Oct-08	MW5S May-09	MW5S Sep-09	MW5S May-10	MW5S Sep-10	MW5S May-11	MW5S Sep-11	MW5S May-12	MW5S Apr-13	MW5S Sep-13	MW5S May-14	MW5S Sep-14	MW5S May-15	MW5S Sep-15	MW5S May-16	MW5S Sep-16	MW5S May-17	MW5S Sep-17
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.2	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.2	**0.25**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW5S May-18	MW5S Sep-18	MW5S May-19	MW5S Sep-19	MW5S May-20	MW5S Sep-20	MW5S May-21	MW5S Sep-21	MW5S May-22	MW5S Sep-22	MW5S May-23	MW5S Sep-23	MW5S May-24	MW5S Sep-24	MW5S May-25	MW5S Sep-25
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	**0.53**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	**0.74**	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)

GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

Mitchell Domestic Landfill

Municipality of West Perth

Parameter	Unit	ODWS	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D	MW5D
			Jul-08	Oct-08	May-09	Sep-09	May-10	Sep-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	**1.3**	**0.68**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.68**
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.2	**0.41**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW5D* *May-18*	*MW5D* *Sep-18*	*MW5D* *May-19*	*MW5D* *Sep-19*	*MW5D* *May-20*	*MW5D* *Sep-20*	*MW5D* *May-21*	*MW5D* *Sep-21*	*MW5D* *May-22*	*MW5D* *Sep-22*	*MW5D* *May-23*	*MW5D* *Sep-23*	*MW5D* *May-24*	*MW5D* *Sep-24*	*MW5D* *May-25*	*MW5D* *Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.5
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	**0.65**	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW6S Jul-08	MW6S Oct-08	MW6S May-09	MW6S Sep-09	MW6S May-10	MW6S Sep-10	MW6S May-11	MW6S Sep-11	MW6S May-12	MW6S Sep-12	MW6S Apr-13	MW6S Sep-13	MW6S May-14	MW6S Sep-14	MW6S May-15	MW6S Sep-15	MW6S May-16	MW6S Sep-16	MW6S May-17	MW6S Sep-17
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	**0.11**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	**0.64**	**0.67**	**0.55**	**0.65**	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.43**	**0.3**	<0.2	<0.2	<0.2	**0.25**	<0.2	<0.2	**0.21**	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.41**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.41**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW6S May-18	MW6S Sep-18	MW6S May-19	MW6S Sep-19	MW6S May-20	MW6S Sep-20	MW6S May-21	MW6S Sep-21	MW6S May-22	MW6S Sep-22	MW6S May-23	MW6S Sep-23	MW6S May-24	MW6S Sep-24	MW6S May-25	MW6S Sep-25
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	**1.2**	**0.72**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.92**	<0.50	<0.50	<0.50	**0.53**	<0.50	**0.75**
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<2.0	**0.56**	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	**0.6**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW6D Jul-08	MW6D Oct-08	MW6D May-09	MW6D Sep-09	MW6D May-10	MW6D Sep-10	MW6D May-11	MW6D Sep-11	MW6D May-12	MW6D Sep-12	MW6D Apr-13	MW6D Sep-13	MW6D May-14	MW6D Sep-14	MW6D May-15	MW6D Sep-15	MW6D May-16	MW6D Sep-16	MW6D May-17	MW6D Sep-17
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	**0.6**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	**0.33**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.70	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	**0.52**	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.3**	**0.37**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.24**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.24**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW6D May-18	MW6D Sep-18	MW6D May-19	MW6D Sep-19	MW6D May-20	MW6D Sep-20	MW6D May-21	MW6D Sep-21	MW6D May-22	MW6D Sep-22	MW6D May-23	MW6D Sep-23	MW6D May-24	MW6D Sep-24	MW6D May-25	MW6D Sep-25
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	**0.9**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S	MW7S
			Jul-08	*Oct-08*	*May-09*	*Sep-09*	*May-10*	*Sep-10*	*May-11*	*Sep-11*	*May-12*	*Sep-12*	*Apr-13*	*Sep-13*	*May-14*	*Sep-14*	*May-15*	*Sep-15*	*May-16*	*Sep-16*	*May-17*	*Sep-17*
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	**2.7**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	**0.11**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**0.1**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	**0.77**	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.41**	**0.24**	<0.2	<0.2	**0.21**	<0.2	<0.2	<0.2	<0.2	**0.4**	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.35**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.35**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*	*MW7S*
			May-18	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.6	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	**1.23**	**0.75**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.65**
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.53**	**0.63**	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	**1.02**	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

Pinchin File: 333568.002

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW7D Jul-08	MW7D Oct-08	MW7D May-09	MW7D Sep-09	MW7D May-10	MW7D Sep-10	MW7D May-11	MW7D Sep-11	MW7D May-12	MW7D Sep-12	MW7D Apr-13	MW7D Sep-13	MW7D May-14	MW7D Sep-14	MW7D May-15	MW7D Sep-15	MW7D May-16	MW7D Sep-16	MW7D May-17	MW7D Sep-17
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	**0.74**	**0.37**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0			<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.38**	**0.55**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.86
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.27**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.27**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*	*MW7D*
			May-18	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	**0.58**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*
			Jul-08	*Oct-08*	*May-09*	*Sep-09*	*May-10*	*Sep-10*	*May-11*	*Sep-11*	*May-12*	*Sep-12*	*Apr-13*	*Sep-13*	*May-14*	*Sep-14*	*May-15*	*Sep-15*	*May-16*	*Sep-16*	*May-17*	*Sep-17*
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20		<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	Infilled with Silt	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.70	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20		<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20		<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20		<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.31**	**0.36**	<0.2	<0.2	<0.2	**0.21**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.87
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3			<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.27**	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	<0.27	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*	*MW8-B*
			May-18	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	**35**	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	**1.06**	**0.59**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW9S Jul-08	MW9S Oct-08	MW9S May-09	MW9S Sep-09	MW9S May-10	MW9S Sep-10	MW9S May-11	MW9S Sep-11	MW9S May-12	MW9S Sep-12	MW9S Apr-13	MW9S Sep-13	MW9S May-14	MW9S Sep-14	MW9S May-15	MW9S Sep-15	MW9S May-16	MW9S Sep-16	MW9S May-17	MW9S Sep-17
Acetone	µg/L	NV	<0.5	<1	<1	<10	<1		<1	<1	<1	<2	<4	<4	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	**0.74**	**1.1**	**0.52**	**<2**	**0.53**	**1.2**	**0.52**	**0.55**	**1**	**0.8**	<0.8	<0.8	**0.79**	**0.96**	**0.69**	**1.04**	**0.66**	**1.33**	**1**	**1.23**
Bromodichloromethane	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.2	<0.1	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.4	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.2	<0.1	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.2	<0.1	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	**29**	**52**	**33**	**30**	**18**	**84**	**30**	**50**	**60**	**58**	**94**	**44**	**28.2**	**35.1**	**23.7**	**27**	**30.3**	**38**	**40.3**	**42**
Chloroform	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.8	<0.4	<4	<0.4	<0.8	<0.4	<0.4	<0.4	<0.8	<1.6	<1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2	<0.4	<0.2	<0.2	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.2	<0.1	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	**0.1**	<0.2	**0.1**	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	**0.1**	<0.2	**0.1**	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.4	<0.8	<0.8	<0.8	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	**120**	**110**	**91**	**95**	**58**	**120**	**72**	**83**	**95**	**81**	**130**	**110**	**100**	**111**	**68.8**	**95.3**	**55.1**	**112**	**125**	**118**
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.4	<0.2	<2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	**7.8**	**11**	**5.3**	**5.5**	**4.6**	**8.8**	**7**	**3.1**	**13**	**3.6**	**9.3**	**8.7**	**5.82**	**5.56**	**3.96**	**6.44**	**2.34**	**4.12**	**4.68**	**5.22**
cis-1,2-Dichloroethylene	µg/L	NV	**0.78**	**1.3**	**0.46**	<2	**0.58**	**0.93**	**0.38**	**0.35**	<0.2	<0.4	<0.8	<0.8	<0.50	<1.0	<0.70	**0.91**	<0.50	<5.5	<12	**0.65**
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.6	<0.3	<3	<0.3	<0.6	<0.3	<0.3	<0.3	<0.6	<1.2	<1.2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.6	<0.3	<3	<0.3	<0.4	<0.3	<0.3	<0.3	<0.6	<1.2	<1.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.2	<0.1	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2		<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.6	<0.3	<3	<0.3		<0.3	<0.3	<0.3	<0.6	<1.2	<1.2	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<1.8	<1	<10	<1		<1	<1	<1	<2	<4	<4	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.6	<1	<10	<1		<1	<1	<1	<2	<4	<4	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2		<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.2	<0.1	<1	<0.1		<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.2	<0.1	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.2	<0.1	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.4	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.34**	<0.4	<0.2	<2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	**0.82**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.6	<0.3	<3	<0.3		<0.3	<0.3	<0.3	<0.6	<1.2	<1.2		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	**360**	**320**	**270**	**280**	**150**	**380**	**200**	**190**	**230**	**190**	**270**	**280**	**236**	**170**	**129**	**235**	**67.8**	**137**	**117**	**167**
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.4	<0.2	<2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	**0.32**	**0.5**	**0.23**	<2	**0.27**	<0.2	<0.2	<0.2	**0.59**	<0.4	<0.8	<0.8	**0.65**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.8	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.8	<1.6	<1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	**0.54**	**0.61**	**<1.7**	<0.17	<0.34	<0.17	**0.51**	<0.17	<0.34	<0.68	<0.68	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	**0.1**	<0.2	**0.1**	<1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.2	<0.4	<0.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.39**	<0.4	<0.2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.49**	<0.4	<0.2	<2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.4	<0.8	<0.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value
9. Bold, Shaded and dotted denotes RDL exceeds ODWS Standard

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW9S* *May-18*	*MW9S* *Sep-18*	*MW9S* *May-19*	*MW9S* *Sep-19*	*MW9S* *May-20*	*MW9S* *Sep-20*	*MW9S* *May-21*	*MW9S* *Sep-21*	*MW9S* *May-22*	*MW9S* *Sep-22*	*MW9S* *May-23*	*MW9S* *Sep-23*	*MW9S* *May-24*	*MW9S* *Sep-24*	*MW9S* *May-25*	*MW9S* *Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	**0.8**	**1.1**	**0.83**	**1.35**	**0.95**	**1.28**	**0.9**	**1.4**	**1.03**	**1.45**	**1.05**	**1.16**	**0.89**	**1.42**	**0.99**	**1.53**
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.50
Chloroethane	µg/L	NV	**36.7**	**41.8**	**39.8**	**42.9**	**36.1**	**44.4**	**50.2**	**46.7**	**54.8**	**54.3**	**58.2**	**48.5**	**35**	**42.9**	**55.4**	**50.9**
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<2.0	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	**55.8**	**84.7**	**42**	**68.5**	**75.9**	**89.4**	**45.9**	**63.3**	**73.5**	**69.6**	**85.4**	**82.8**	**58.7**	**88.8**	**71.9**	**72.6**
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	**2.23**	**3.06**	**1.56**	**3.19**	**2.43**	**3.47**	**2.34**	**2.29**	**2.83**	**1.95**	**2.5**	**2.19**	**1.35**	**2.35**	**1.84**	**1.56**
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	**0.59**	<0.50	<0.50	<0.50	<0.50	<0.50	**0.51**	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<3.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**<5.0**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	**0.82**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.86**	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<200	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	**0.59**	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**2.27**	<0.50	<0.50	<0.50	<0.40	<0.40	<4.0	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	**0.5**	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<20	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	**85.5**	**86.6**	**44.8**	**105**	**59.9**	**105**	**52.3**	**66.7**	**67.7**	**67.8**	**45.0**	**58.1**	**32.2**	**62.6**	**28.9**	**42.1**
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	**1.32**	**0.62**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.41**	**0.36**
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<3.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	**1.4**	<1.0	<1.0	<1.0	<0.40	<0.40	<4.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	**1.4**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW9D Jul-08	MW9D Oct-08	MW9D May-09	MW9D Sep-09	MW9D May-10	MW9D Sep-10	MW9D May-11	MW9D Sep-11	MW9D May-12	MW9D Sep-12	MW9D Apr-13	MW9D Sep-13	MW9D May-14	MW9D Sep-14	MW9D May-15	MW9D Sep-15	MW9D May-16	MW9D Sep-16	MW9D May-17	MW9D Sep-17
Acetone	µg/L	NV	<0.5	<0.5	<1	<2	<1		<1	<1	<1	<1	<100	<100	**80**	**78**	**94**	**27**	**186**	**45**	<10000	**21**
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	**<20**	**35**	**32.5**	**38.2**	**35.6**	**19.6**	**35.5**	**44.7**	**58.4**	**73.4**
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<20	<20	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<20	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	**<20**	**<20**	**<500**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.6
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	**0.74**	<0.2	<0.2	<0.4	**0.52**	<0.2	**2**	**1.2**	<0.2	<0.2	<20	<20	**4.1**	**4.1**	**5.1**	**27.6**	**16.8**	**29.5**	**45.1**	**53**
Chloroform	µg/L	NV	**1.70**	**0.73**	**0.21**	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<20	**44.00**	**16.70**	**18.60**	**15.50**	**7.00**	**20.60**	**16.10**	**32.10**	<1000
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<40	<40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**<10**	**<10**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	**210**	**100**	**80**	**96**	**67**	**110**	**64**	**84**	**60**	**66**	**5900**	**22000**	**28600**	**29000**	**26000**	**11800**	**27400**	**35000**	**32400**	**35500**
1,2-Dichloroethane	µg/L	5 (IMAC)	**0.23**	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**<20**	**<20**	**81.9**	**87.2**	**70.2**	**26.4**	**92.7**	**76**	**136**	**79.6**
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	**0.38**	<0.6	**0.62**	**2.1**	**9.3**	**0.51**	**6.6**	**2.3**	**1900**	**2500**	**1510**	**1510**	**1050**	**450**	**430**	**1240**	**1000**	**1810**
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<20	<20	<500	<8.5	<500	<3.0	**5.87**	<29000	<250	<500
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<20	<20	**0.8**	**1.17**	**1.1**	<0.50	<0.50	**1.12**	**1.04**	**1.33**
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.6	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<30	<30	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<20	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<20	<20	<0.50	<0.50	<0.50	<130	<0.70	<21	<0.50	<2.0
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.6	<0.3	<0.2	<0.3	<0.3	<0.3	<0.3	<30	<30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**520**	**430**	**<500**	**460**	**410**	**312**	**317**	**1570**	**289**	**1250**
n-Hexane	µg/L	NV					<0.2		<0.2	<0.2	<0.2	<0.2	<20	<20	<500	**8.33**	**4.02**	**2.43**	**8.77**	**43.1**	**2.06**	**27.6**
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.6	<0.3		<0.3	<0.3	<0.3	<0.3	<30	<30	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<2	<1		<1	<1	<1	<1	<100	<100	**22**	<20	**26**	<20	**28**	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<2	<1		<1	<1	<1	<1	<100	**1900**	<20000	**2100**	<20000	**464**	<10000	<20000	<10000	<20000
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2		<0.2	<0.2	<0.2	<0.2	<20	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.2	<0.1		<0.1	<0.1	<0.1	<0.1	<10	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<10	**18.1**	**13.8**	**7.2**	**4.85**	**8.74**	**39.9**	**39.6**	**61**
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<10	<10	**1.81**	**2.05**	**1.03**	<1.0	**3.10**	**7.96**	<250	**11.00**
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	**1200**	**850**	**820**	**843**	**660**	**441**	**590**	**2320**	**425**	**2540**
Toluene	µg/L	24 (AO)	**0.21**	<0.2	<0.2	<0.4	**0.33**	**0.38**	<0.2	<0.2	<0.2	<0.2	**11000**	**8500**	**6310**	**7200**	**6170**	**3580**	**4560**	**14900**	**5430**	**17300**
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.6	<0.3		<0.3	<0.3	<0.3	<0.3	<30	<30		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	**72**	**27**	**73**	**160**	**140**	**260**	**150**	**250**	**140**	**230**	**700000**	**370000**	**632000**	**560000**	**395000**	**198000**	**295000**	**731000**	**669000**	**999000**
1,1,2-Trichloroethane	µg/L	NV	**0.82**	<0.2	**0.57**	<0.4	**0.93**	**1.3**	**1.3**	**0.9**	<0.2	**1.3**	**540**	**1300**	**1940**	**1150**	**970**	**411**	**1370**	**1420**	**2230**	**3220**
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	**0.69**	**0.99**	**1.4**	**0.81**	**0.76**	**2.2**	**1.1**	**4600**	**4600**	**4530**	**4270**	**3560**	**1810**	**2970**	**8920**	**4900**	**14000**
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.8	<0.4	<0.2	<0.4	<0.4	<0.4	<0.4	<40	<40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	**<17**	**140**	**15**	**21.4**	**14.4**	**6.31**	**11.7**	**7.79**	**7.33**	**6.01**
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	**560**	**510**	<500	**488**	**416**	**306**	**333**	**1750**	**351**	**1270**
m & p-Xylene	µg/L	NV	<0.2	<0.2	<0.2	<0.4	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	**1900**	**1600**	<1000	**1300**	**1200**	**650**	**770**	**5200**	**540**	**3100**
Xylenes (Total)	µg/L	90 (AO)	<0.2	<0.2	<0.2	<0.4	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**2500**	**2100**	**<1000**	**1800**	**1616**	**956**	**1103**	**6950**	**891**	**4370**

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Bold and Shaded denotes exceedances of the ODWS.
6. Bold, shaded and dotted denotes RDL exceeds ODWS Standard
7. Blank denotes data not available.
8. Unless otherwise states, units are reported in ug/L.
9. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D	MW9D
			May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	May-24	May-25	Sep-25
Acetone	µg/L	NV	**101**	<50000	**300**		<20	<10000	**84**	**53**	<1000	**75**	**76**	**139**	<10000	**165**	**84**	**175**
Benzene	µg/L	1 (MAC)	**76.2**	**51.4**	**61.9**	**65**	**16.1**	**<250**	**8.19**	**11.9**	**36**	**15.4**	**10.8**	**15.2**	**25.5**	**18.7**	**23.2**	**24.0**
Bromodichloromethane	µg/L	NV	<3.0	<1.0	<1.0	**63.2**	<1.0	<500	<1.0	<2.6	<1.00	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<1.0	<0.50	<250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	**<3.5**	<0.50	**<1000**	<0.50	<0.20	**<100**	**<16**	<1.9	<0.20	**<8.00**	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	**0.58**	<0.50	<0.50	<2.1	<0.50	**<250**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<0.50	<1.0	<500	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	**41.2**	**38.6**	**18.3**	<1.0	**48.4**	<500	**39.7**	**44.2**	**33.1**	**35.7**	**36.7**	**27.1**	**17.9**	**28.4**	**50**	**40.6**
Chloroform	µg/L	NV	**31.7**	**19.7**	**30.4**	**50.0**	**2.80**	<500	<1.2	<3.8	<20.0	**5.38**	<0.95	**6.80**	**7.99**	<6.00	**4.20**	<7.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	**21.2**	<1.0	<500	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<1.0	<0.20	<100	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	**<500**	<0.50	<0.50	<0.20	<0.50	**<250**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<500	<0.50	<0.50	<500	<0.50	<250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	**<500**	<0.50	<0.50	**<500**	<0.50	**<250**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<500	<1.0	<500	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	**39400**	**45300**	**35200**	<1.0	**4610**	**10900**	**2300**	**6640**	**22200**	**12600**	**14600**	**30700**	**39600**	**27700**	**35500**	**27900**
1,2-Dichloroethane	µg/L	5 (IMAC)	**72.3**	**77.3**	**133**	**26300**	**6.17**	**<250**	**6.13**	**7.29**	**72**	**19.2**	**19.0**	**27.4**	**37.3**	**26.2**	**14.9**	**23.5**
1,1 Dichloroethene	µg/L	14 (MAC)	**1700**	**1800**	**1300**	**58.3**	**426**	**1220**	**308**	**359**	**779**	**632**	**404**	**810**	**810**	**780**	**1320**	**800**
cis-1,2-Dichloroethylene	µg/L	NV	<3000	<11000	<1000	**1040**	<3000	<250	<0.50	<250	<20.0	<5.00	**2.12**	**3.88**	**4.45**	**3.23**	**3.48**	**3.60**
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<9.5	<0.50	<250	<0.50	<0.50	**0.64**	<0.50	<0.50	**0.61**	**0.90**	**0.70**	**0.63**	**0.76**
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<0.50	<2.0	**<1000**	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<2.0	<0.50	<250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<1.00
cis-1,3-Dichloropropene	µg/L	NV	<1.5	<0.50	<14	<0.50	<0.30	<150	<82	<0.30	<10.5	<15.0	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<82	<0.30	<150	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	**2040**	**334**	**1000**	<0.50	**268**	**980**	**382**	**331**	**423**	**303**	**140**	**188**	**600**	**315**	**540**	**660**
n-Hexane	µg/L	NV	**75.3**	**3.39**	**19.5**	**890**	**3.09**	<250	<100	**13.5**	**8.81**	**4.25**	<1.40	<2.00	<6.00	<3.00	**6.19**	<17.0
2-Hexanone	µg/L	NV	<20	<20	<20	**25.6**	<20	<10000	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<25	**35**	**42**	<20	<20	<10000	<20	<20	**22**	<20	<20	<20	<10000	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20000	<50000	<40000	<20	<20000	<10000	**286**	**165**	**848**	**352**	**372**	**885**	<5000	**635**	**309**	**689**
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	**749**	<0.50	<250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<250	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	**60.6**	**40.6**	**55.8**	<0.50	**32.3**	<250	<100	**11.4**	**14.4**	**22.2**	**12.6**	**22.2**	**12.9**	**12.2**	**33.1**	**10.2**
1,1,2,2-Tetrachloroethane	µg/L	NV	**7.95**	**8.14**	**8.42**	**61.70**	**3.75**	<250	**1.00**	**1.11**	**1.75**	**1.58**	<40.0	**2.10**	<200	**1.55**	**3.13**	**1.82**
Tetrachloroethene	µg/L	10 (MAC)	**3530**	**<1300**	**1900**	**7.15**	**415**	**1670**	**850**	**540**	**606**	**493**	**276**	**343**	**970**	**580**	**691**	**1180**
Toluene	µg/L	24 (AO)	**22500**	**11500**	**13500**	**1530**	**5780**	**14900**	**3840**	**4950**	**5350**	**4550**	**2120**	**3930**	**6350**	**3960**	**6740**	**5420**
1,2,4-Trichlorobenzene	µg/L	NV	<2000	<2.0	<2.0	**12200**	<2.0	<1000	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	**1060000**	**871000**	**771000**	<2000	**486000**	**820000**	**195000**	**248000**	**288000**	**302000**	**195000**	**339000**	**348000**	**280000**	**596000**	**326000**
1,1,2-Trichloroethane	µg/L	NV	**1930**	**2400**	**1900**	**969000**	**262**	**720**	**66.2**	**131**	**409**	**306**	**305**	**558**	**720**	**560**	**416**	**460**
Trichloroethylene	µg/L	5 (MAC)	**14200**	**9500**	**9900**	**1310**	**3280**	**11000**	**2230**	**2870**	**3080**	**2090**	**1250**	**2260**	**2940**	**2200**	**3780**	**2700**
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	**8890**	<1.0	<500	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	**10.5**	**10.5**	**<1000**	<1.0	**0.82**	**<250**	**1.16**	**1.95**	**6.44**	**2.83**	**3.36**	**5.53**	**5.64**	**4.88**	**3.89**	**4.52**
o-Xylene	µg/L	NV	**2080**	**384**	<1000	**7.71**	**391**	**1150**	**407**	**333**	**1400**	**339**	**249**	**277**	**630**	**351**	**560**	**660**
m & p-Xylene	µg/L	NV	**6700**	<2500	**2600**	**970**	**822**	**3150**	**1290**	**1070**	**453**	**976**	**536**	**651**	**1980**	**1010**	**1920**	**2260**
Xylenes (Total)	µg/L	90 (AO)	**8780**	**384**		**2900**	**1213**	**4300**	**1697**	**1403**	**1853**	**1315**	**785**	**928**	**2610**	**1361**	**2480**	**2920**

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Shaded and underline denotes RDL exceeds ODWS Standard
7. Blank denotes data not available.
8. Unless otherwise states, units are reported in ug/L.
9. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW10S Jul-08	MW10S Oct-08	MW10S May-09	MW10S Sep-09	MW10S May-10	MW10S Sep-10	MW10S May-11	MW10S Sep-11	MW10S May-12	MW10S Sep-12	MW10S Apr-13	MW10S Sep-13	MW10S May-14	MW10S Sep-14	MW10S May-15	MW10S Sep-15	MW10S May-16	MW10S Sep-16	MW10S May-17	MW10S Sep-17
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	**0.41**	**1.3**	**0.71**	**1**	**0.67**	**0.32**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	**0.36**	**0.38**	<0.2	<0.2	**0.22**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.75
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	**0.3**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	**0.3**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW10S* *May-18*	*MW10S* *Sep-18*	*MW10S* *May-19*	*MW10S* *Sep-19*	*MW10S* *May-20*	*MW10S* *Sep-20*	*MW10S* *May-21*	*MW10S* *Sep-21*	*MW10S* *May-22*	*MW10S* *Sep-22*	*MW10S* *May-23*	*MW10S* *Sep-23*	*MW10S* *May-24*	*MW10S* *Sep-24*	*MW10S* *May-25*	*MW10S* *Sep-25*
Acetone	µg/L	NV	<20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50		<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	Insufficient volume for sample collection.	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50		<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50		<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	**0.63**		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50		<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0		<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	**0.65**		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50		<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0		<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D	MW10D
			Jul-08	Oct-08	May-09	Sep-09	May-10	Sep-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17
Acetone	µg/L	NV	<0.5	<0.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV									<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	**0.36**	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV					<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<0.9	<0.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<0.3	<0.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.2	**0.54**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	<0.2	**0.23**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	<0.2	**0.23**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*	*MW10D*
			May-18	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	**0.74**	<0.50	<0.50	<0.50	<0.50	<0.50	**0.65**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	**1.51**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW11S May-09	MW11S Sep-09	MW11S May-10	MW11S Sep-10	MW11S May-11	MW11S Sep-11	MW11S May-12	MW11S Sep-12	MW11S Apr-13	MW11S Sep-13	MW11S May-14	MW11S Sep-14	MW11S May-15	MW11S Sep-15	MW11S May-16	MW11S Sep-16	MW11S May-17	MW11S Sep-17
Acetone	µg/L	NV	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV							<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV			<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.65
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	**0.71**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*	*MW11S*
			May-18	*Sep-18*	*May-19*	*Sep-19*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*	*Sep-25*
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.50	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	**2.36**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**2.27**	<0.50	**2.17**	<0.50	**0.98**	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW11D May-09	MW11D Sep-09	MW11D May-10	MW11D Sep-10	MW11D May-11	MW11D Sep-11	MW11D May-12	MW11D Sep-12	MW11D Apr-13	MW11D Sep-13	MW11D May-14	MW11D Sep-14	MW11D May-15	MW11D Sep-15	MW11D May-16	MW11D Sep-16	MW11D May-17	MW11D Sep-17
Acetone	µg/L	NV	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV							<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**0.95**
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.3	<0.2	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV			<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<1	<1	<1		<1	<1	<1	<1	<1	<1	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<0.3	<0.3	<0.3		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3		<10	<10	<10	<10	<10	<2.0	<2.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.3	<0.1	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	**0.96**	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	**29.8**
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
m & p-Xylene	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	µg/L	90 (AO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (2 of 2)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D	MW11D
			May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25	Sep-25
Acetone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.5
1,2-Dichloropropane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<2.0	<0.50	<0.50	<0.50	<0.40	<0.40	<0.40	<0.40	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.50	<0.50	<0.50	<0.50	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<1.0	<1.0	<1.0	<1.0	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

Notes: 1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

TABLE D-4 (1 of 1)
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	ODWS	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance	Torrance
			Oct-09	May-10	Sep-10	Apr-13	Sep-13	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17	May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25	Sep-25
Acetone	µg/L	NV		<1		<1	<1	<20	<20	<20	<20	<20	<20	<30	<20	<20	<20					<20	<20	<20	<20	<20	<20	<20	<20
Benzene	µg/L	1 (MAC)	<0.2	<0.2	<0.1	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	µg/L	NV	<0.2	<0.2	<0.1	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Carbon Tetrachloride	µg/L	2 (MAC)	<0.2	<0.2	<0.1	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	80 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dibromochloromethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	µg/L	NV	**4.10**	**0.32**	<0.1	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Ethylene Dibromide	µg/L	NV	<0.2	<0.2	<0.2	<0.1	<0.1	<0.50	<0.50		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20					<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	200 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-Dichlorobenzene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-Dichlorobenzene	µg/L	5 (MAC)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	µg/L	NV				<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethane	µg/L	NV	<0.3	<0.3	<0.1	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-Dichloroethane	µg/L	5 (IMAC)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1 Dichloroethene	µg/L	14 (MAC)	<0.3	<0.3	<0.1	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-Dichloroethylene	µg/L	NV	<0.2	<0.2	<0.1	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
trans-1,2-dichloroethylene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methylene Chloride	µg/L	50 (MAC)	<0.3	<0.3	<0.3	<0.3	<0.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0					<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-Dichloropropene	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
trans-1,3-Dichloropropene	µg/L	NV	<0.3	<0.3	<0.2	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	2.4 (AO)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
n-Hexane	µg/L	NV		<0.2		<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
2-Hexanone	µg/L	NV		<0.3		<0.3	<0.3	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20					<20	<20	<20	<20	<20	<20	<20	<20
Methyl Ethyl Ketone	µg/L	NV		<1		<1	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20					<20	<20	<20	<20	<20	<20	<20	<20
Methyl Isobutyl Ketone	µg/L	NV		<1		<1	<1	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20					<20	<20	<20	<20	<20	<20	<20	<20
Methyl tert-butyl ether	µg/L	NV		<0.2		<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	µg/L	NV		<0.1		<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,1,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-Tetrachloroethane	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	µg/L	10 (MAC)	<0.2	<0.2	<0.1	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	µg/L	24 (AO)	<0.2	<0.2	**0.58**	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<2.0	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2,4-Trichlorobenzene	µg/L	NV		<0.3		<0.3	<0.3	<10	<10	<11	<10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0					<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-Trichloroethane	µg/L	NV	<0.3	<0.3	<0.1	<0.3	<0.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	µg/L	NV	<0.2	<0.2	<0.2	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	µg/L	5 (MAC)	<0.2	<0.2	<0.1	<0.2	<0.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	µg/L	NV	<0.4	<0.4	<0.4	<0.4	<0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl Chloride	µg/L	1 (MAC)	<0.17	<0.17	<0.17	<0.17	<0.17	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.20	<0.20
o-Xylene	µg/L	NV	<0.1	<0.1	<0.1	<0.1	<0.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50					<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
m & p-Xylene	µg/L	NV	<0.2	<0.2	<0.1	<0.2	<0.2	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes (Total)	µg/L	90 (AO)	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0					<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.50	<0.50

No sample collected.

Notes:
1. ODWS denotes Ontario Drinking Water Standards, Objectives and Guidelines, Ontario Ministry of the Environment, Conservation and Parks, (updated in 2018).
2. OG = Operational Guideline; AO = Aesthetic Objective; MAC = Maximum Acceptable Concentration; and IMAC = Interim Maximum Acceptable Concentration.
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold denotes parameter detected above laboratory detection limit.
5. Shaded denotes exceedances of the ODWS.
6. Blank denotes data not available.
7. Unless otherwise states, units are reported in ug/L.
8. NV denotes No Value

Pinchin File: 333568.002

TABLE D-5
SURFACE WATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	PWQO	*SW1 (old)* *Dec-05*	*SW1 (old)* *May-06*	*SW1 (old)* *Oct-06*	*SW1 (old)* *May-07*	*SW1 (old)* *Jul-08*	*SW1 (old)* *Oct-08*	*SW1 (old)* *May-09*	*SW1 (old)* *May-10*	*SW1 (old)* *Sep-10*	*SW1 (old)* *May-11*
Electrical Conductivity	uS/cm	NV	756	732	705	748	958	1320	835	728	814	644
pH	N/A	6.5-8.5	8.1	8.32	8.29	8.41	8.51	8.06	8.41	9	8.37	8.21
Total Suspended Solids	mg/L	NV					22	14	15	<10	220	<10
Total Dissolved Solids	mg/L	NV	365	388	406	450	560	754	488	458	506	472
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	233	237	236	253	280	327	282	259	222	251
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	3	7.22	<5	14	22	<5	12	14	8	<5
Alkalinity, Total (as CaCO3)	mg/L	>25% Decrease	236	244	239	267	302	327	293	273	229	251
Ammonia, Total (as N)	mg/L	NV	<0.05	<0.02	<0.02	<0.02	0.45	0.04	<0.02	<0.02	0.02	<0.02
Chloride	mg/L	NV	45	45.3	36.8	50	100	192	69.6	56.9	64	48.2
(Nitrate + Nitrite) as N	mg/L	NV	18	11.8	16.4	8.74	5.75	7.32	3.42	12.2	<0.05	9.02
Nitrate as N	mg/L	NV	18	11.8	16.4	8.73	5.7	7.32	3.42	12.2	<0.05	9.02
Nitrite as N	mg/L	NV	<0.01	<0.009	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Kjeldahl Nitrogen	mg/L	NV					1.13	1.34	0.54	<0.1	0.8	0.43
Total Phosphorus	mg/L	0.03	**<0.06**	**0.04**	**0.05**	**0.08**	**0.2**	**0.38**	**0.11**	**0.08**	**0.12**	**0.08**
Sulphate	mg/L	NV	21	20.3	16.2	22.6	22	38.5	10.8	19.6	118	24.4
Biochemical Oxygen Demand (BOD)	mg/L	NV					<5	17	<5	<5	<5	<5
Chemical Oxygen Demand (COD)	mg/L	NV					<5	39	12	7	<5	<5
Phenols	mg/L	0.001	0	0.000001	0.000001	0.000001	0.001	**0.003**	<0.001	<0.001	<0.001	<0.001
Arsenic (As)	mg/L	0.005	<0.001	<0.001	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Barium (Ba)	mg/L	NV	0.04	0.035	0.035	0.056	0.059	0.06	0.047	0.047	0.057	0.042
Boron (B)	mg/L	0.2	0.012	0.035	0.033	0.022	0.041	0.04	0.027	0.023	0.098	0.031
Cadmium (Cd)	mg/L	0.0005	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	**<0.002**	<0.0002	<0.0001	<0.0001	<0.0001
Chromium (Cr)	mg/L	NV	<0.005	<0.005	<0.003	0.004	0.005	0.007	<0.003	<0.003	<0.003	<0.003
Copper (Cu)	mg/L	0.005	<0.002	<0.002	<0.002	0.002	0.004	**0.01**	0.002	0.002	<0.002	<0.002
Iron (Fe)	mg/L	0.3	0.05	0.257	0.205	**0.486**	0.105	0.182	0.184	0.08	0.21	0.13
Lead (Pb)	mg/L	0.005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc (Zn)	mg/L	0.0200	<0.005	<0.005	<0.004	0.006	**0.034**	**0.211**	**0.095**	0.01	0.01	0.011
Dissolved Mercury (Hg)	mg/L	0.00020										

Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of te Environment and Energy, as revised February 1999.
2. Former SW1 sampling location abandoned and moved East Side Tile Drain (sampled at both location in May 2010, September 2010 and May 2011).
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and shaded denotes exceedance of the PWQO.
5. Blank denotes data not available.
6. NV denotes No Value

TABLE D-5 (1 of 2)
SURFACE WATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	PWQO	SW1 Sep-09	SW1 Oct-09	SW1 May-10	SW1 Sep-10	SW1 May-11	SW1 Sep-11	SW1 May-12	SW1 Sep-12	SW1 Apr-13	SW1 Sep-13	SW1 May-14	SW1 Sep-14	SW1 Sep-14	SW1 May-15	SW1 Sep-15	SW1 Oct-15	SW1 May-16	SW1 Sep-16	SW1 May-17	SW1 Sep-17
Electrical Conductivity	uS/cm	NV	771	688	698	699	631	720	839	699	705	895	423	726		814	990	1362	1060		726	462
pH	N/A	6.5-8.5	8.4	8.24	8.38	8.35	8.16	8.26	7.99	8.23	7.56	7.71	8.05	8.09		8.09	7.81	8.14	8.17		7.94	7.53
Total Suspended Solids	mg/L	NV	<10	<10	<10		<10	<10	<10		<10	16	4.5	<2.0		3.8	83.8	22.8	6		<2.0	142
Total Dissolved Solids	mg/L	NV	494	364	482	478	454	504	508	446	374	500	405	449		459	453	757	511		390	312
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	323	298	265	209	248	249	243	241	216	297	272	318		311	354	343	189		228	139
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	12	<5	15	5	<5	<5	<5	<5	<5	<5	<10	<10		<10	<10	<10	<10		<10	<10
Alkalinity, Total (as CaCO3)	mg/L	>25% Decrease	335	298	279	214	248	249	243	241	216	297	275	322		311	354	343	189		228	139
Ammonia, Total (as N)	mg/L	NV	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05	0.5	<0.02	<0.02	<0.050	<0.050		<0.050	0.157	0.109	0.048		<0.020	0.405
Chloride	mg/L	NV	39.9	36.3	44.9	19.9	36.9	48.3	54.6	25	47.4	68.7	40.6	46.6		78.3	76.9	210	66.8		33.2	55.6
(Nitrate + Nitrite) as N	mg/L	NV	2.1	5.29	13.8	<0.05	11.1	1.54	4.13	<0.05	11	4.12	6.94	7.18		5.79	2.119	0.552	7.23		14.6	2.437
Nitrate as N	mg/L	NV	2.1	5.29	13.8	<0.05	11.1	1.54	4.13	<0.05	11	4.12	6.94	7.18		5.79	2.09	0.535	7.23		14.6	2.39
Nitrite as N	mg/L	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10		<0.010	0.029	0.017	<0.010		<0.010	0.047
Total Kjeldahl Nitrogen	mg/L	NV	<0.1	<0.1	<0.1	0.63	0.41	<0.1	0.37	0.61	<0.1	0.4	0.22	<0.15		0.28	0.4	0.44	0.87		0.71	6.62
Total Phosphorus	mg/L	0.03	0.02	**<0.06**	**0.06**	**0.08**	0.03	**0.04**	0.02		**0.06**	**0.11**	0.0219	0.0225	No sample collected.	0.0195	**0.147**	**0.0716**	**0.352**	Insufficient Volume for Sample Collection	**0.034**	**2.37**
Sulphate	mg/L	NV	28.5	12.3	20.7	144	28.5	115	84.6	123	15.4	83	11	10.7		13.1	12.8	22.5	22		13.3	7.8
Biochemical Oxygen Demand (BOD)	mg/L	NV	<5	<5	<5		<5	<5	<5		<5	<5				<2.0	<2.0	<2.0	<2.0		<2.0	25.7
Chemical Oxygen Demand (COD)	mg/L	NV	<5	<5	<5	<5	<5	<5	13		5	6	<10	11		12	21	<10	13		<10	139
Phenols	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		<0.001	<0.001	<0.0010	**0.0036**		<0.0010	**0.0034**	**0.002**	<0.0010		<0.0010	**0.0011**
Arsenic (As)	mg/L	0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010		<0.0010	0.0006	0.00086	0.00019		0.00023	0.0017
Barium (Ba)	mg/L	NV	0.053	0.046	0.043	0.054	0.039	0.051	0.054	0.252	0.03	0.066	0.0367	0.0477		0.0504	0.0624	0.0965	0.0446		0.033	0.0419
Boron (B)	mg/L	0.2	0.053	0.017	0.022	0.121	0.032	0.085	0.072	0.077	0.015	0.082	0.018	0.036		0.026	0.025	0.03	0.02		0.016	0.029
Cadmium (Cd)	mg/L	0.0005	<0.0002	<0.0002	0.0001	**<0.002**	<0.0001	<0.0001	<0.0001	**<0.002**	<0.0001	<0.0001	<0.000090	<0.000090		<0.000090	0.000038	0.000011	0.000014		0.000013	0.000095
Chromium (Cr)	mg/L	NV	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.00050	<0.00050		0.00089	<0.00050	<0.00050	<0.00050		<0.00050	0.00346
Copper (Cu)	mg/L	0.005	<0.002	<0.003	<0.002	<0.003	<0.002	<0.002	<0.002	<0.003	<0.002	<0.002	<0.0010	0.0011		0.001	0.0025	0.0011	<0.0010		0.0011	**0.0106**
Iron (Fe)	mg/L	0.3	<0.01	<0.01	<0.01	0.065	0.01	0.01	<0.01	**0.322**	<0.01	0.07	<0.050	<0.050		0.112	**0.566**	**0.674**	<0.050		0.121	**2.3**
Lead (Pb)	mg/L	0.005	<0.001	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.00050	<0.00050		<0.00050	0.00047	0.00012	<0.00010		<0.00010	0.00309
Zinc (Zn)	mg/L	0.02	0.01	<0.005	<0.005	<0.004	<0.005	0.006	<0.005	**0.055**	<0.005	0.010	<0.0030	<0.0030		<0.0030	0.01	0.00	<0.0030		<0.0030	**0.078**
Dissolved Mercury (Hg)	mg/L	0.00020									<0.0001	<0.0001	<0.00010	<0.00010		<0.000010	<0.000010	<0.000010	<0.000010		<0.000010	<0.000010

Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of te Environment and Energy, as revised February 1999.
2. Former SW1 sampling location abandoned and moved East Side Tile Drain (sampled at both location in May 2010, September 2010 and May 2011).
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and shaded denotes exceedance of the PWQO.
5. Blank denotes data not available.
6. NV denotes No Value

TABLE D-5 (2 of 2)
SURFACE WATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	PWQO	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1	SW1
			May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25	Sep-25
Electrical Conductivity	uS/cm	NV	850	890	1795		567	857	624	605	646		545	942	629	1088	892	1784
pH	N/A	6.5-8.5	7.99	8.13	7.92		8.05	7.87	8.10	8.32	7.84		7.67	8.11	8.20	8.10	8.12	8.13
Total Suspended Solids	mg/L	NV	<2.0	<2.0	<2.0		<2.0	5.4	5.3	<3.0	<3.0		<3.0	<3.0	6.4	16.2	6.1	229
Total Dissolved Solids	mg/L	NV	419	382	431		446	572	480	561	482		451	622	440	594	524	982
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	295	291	274		285	325	334	359	330		277	338	323	337	265	332
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<50		<2.0	<2.0	<2.0	4.4	<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	>25% Decrease	295	291	274		285	325	334	363	330		277	338	323	337	265	332
Ammonia, Total (as N)	mg/L	NV	0.062	0.03	<0.010		0.013	0.023	<0.010	<0.010	0.0952		0.0186	0.0066	0.0272	0.0106	0.0619	0.0433
Chloride	mg/L	NV	48.4	26.3	49.5		55.8	98.6	69.1	96.6	64.9		61.9	156	66.9	130	81.2	343
(Nitrate + Nitrite) as N	mg/L	NV	5.4	1.596	12.6		10.2	8.39	6.88	8.66	6.32		12.7	10.3	0.541	7.58	13.4	1.64
Nitrate as N	mg/L	NV	5.4	1.58	12.6		10.2	8.39	6.88	8.66	6.32		12.7	10.3	7.59	7.58	13.4	1.64
Nitrite as N	mg/L	NV	<0.010	0.016	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010		<0.010	<0.050	7.59	<0.050	<0.010	<0.050
Total Kjeldahl Nitrogen	mg/L	NV	0.37	0.47	<0.15	Insufficient	0.57	0.33	0.530	0.530	0.499	Insufficient	0.493	1.15	<0.010	0.238	0.357	0.426
Total Phosphorus	mg/L	0.03	0.014	**0.333**	0.0172	Volume for	0.0177	0.018	0.0190	0.0240	0.0202	Volume for	0.0168	0.0206	0.0196	**0.0412**	0.0183	**0.0502**
Sulphate	mg/L	NV	12.9	12.3	10.9	Sample	12.1	13.7	13.3	12	12.8	Sample	12.2	18.3	11.6	15.6	14.2	18.9
Biochemical Oxygen Demand (BOD)	mg/L	NV	<3.0	<2.0	<3.0	Collection	<3.0	<3.0	<3.0	<3.0	<3.0	Collection	<3.0	<3.0	<3.0	<3.0	<3.0	3.8
Chemical Oxygen Demand (COD)	mg/L	NV	<10	26	<10		<10	<10	<10	<10	<10		10	<10	<10	10	<10	<10
Phenols	mg/L	0.001	<0.0010	**0.0068**	**0.002**		**0.0026**	<0.0010	<0.0010	<0.0010	**0.0013**		**0.0016**	**0.0038**	**0.0022**	**0.0022**	**0.0018**	0.0010
Arsenic (As)	mg/L	0.005	0.00016	0.00052	0.00019		0.00019	0.00030	0.00024	0.00021	0.00022		0.00020	0.00027	0.00025	0.00038	0.00019	0.00032
Barium (Ba)	mg/L	NV	0.0377	0.0488	0.0393		0.0436	0.0593	0.0508	0.0608	0.0485		0.0458	0.0711	0.0496	0.0712	0.0503	0.114
Boron (B)	mg/L	0.2	0.02	0.023	0.021		0.022	0.031	0.032	0.023	0.021		0.020	0.036	0.027	0.028	0.023	0.03
Cadmium (Cd)	mg/L	0.0005	0.000019	<0.000010	0.000012		0.0000114	0.0000110	0.0000137	0.000015	0.0000123		0.0000112	0.0000162	0.0000093	0.0000194	0.0000123	0.0000326
Chromium (Cr)	mg/L	NV	<0.00050	<0.00050	<0.00050		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		<0.00050	<0.00050	<0.00050	0.0005	<0.00050	<0.00050
Copper (Cu)	mg/L	0.005	<0.0010	0.0013	<0.0010		<0.0010	0.0013	0.0019	<0.0010	0.00113		0.0008	0.00117	0.00083	0.00148	0.00088	0.00091
Iron (Fe)	mg/L	0.3	<0.050	0.1	<0.050		0.025	0.065	0.040	0.024	0.033		0.021	0.091	0.026	**0.360**	0.052	**0.303**
Lead (Pb)	mg/L	0.005	<0.00010	<0.00010	<0.000050		<0.000050	0.000061	0.000076	<0.000050	<0.000050		<0.000050	0.000093	<0.000050	0.000288	0.000052	0.000205
Zinc (Zn)	mg/L	0.02	<0.0030	<0.0030	<0.0030		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Dissolved Mercury (Hg)	mg/L	0.00020	<0.000010	<0.000010	<0.000010		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050

Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of te Environment and Energy, as revised February 1999.
2. Former SW1 sampling location abandoned and moved East Side Tile Drain (sampled at both location in May 2010, September 2010 and May 2011).
3. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
4. Bold and shaded denotes exceedance of the PWQO.
5. Blank denotes data not available.
6. NV denotes No Value

TABLE D-5 (1 of 2)
SURFACE WATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	PWQO	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*	*SW2*
			Dec-05	*May-06*	*Oct-06*	*May-07*	*Jul-08*	*Oct-08*	*May-09*	*Sep-09*	*May-10*	*Sep-10*	*May-11*	*Sep-11*	*May-12*	*Sep-12*	*Apr-13*	*Sep-13*	*Sep-14*	*Sep-14*	*Sep-14*
Electrical Conductivity	uS/cm	NV	827	892	714	859	953	980	903	942	748	982	670	857	926	510	747	1040		910	
pH	N/A	6.5-8.5	8.19	8.36	8.36	**8.53**	8.44	8.18	8.28	8.05	8.4	8.33	8.17	8.07	8	8.19	7.86	7.66		8.07	
Total Suspended Solids	mg/L	NV					<10	26	10	12000	79	<10	18	14100	24	1010	<10	104		26	
Total Dissolved Solids	mg/L	NV	372	502	414	470	600	586	516	522	498	628	450	588	506	288	392	568		467	
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	254	256	233	213	297	324	316	333	271	316	275	296	269	166	236	372		336	
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	4	19.7	21	22	16	<5	<5	<5	19	6	<5	<5	<5	<5	<5	<5		<10	
Alkalinity, Total (as CaCO3)	mg/L	>25% Decrease	258	276	255	235	313	324	316	333	290	322	275	296	269	166	236	372		340	
Ammonia, Total (as N)	mg/L	NV	0.26	0.38	0.08	0.43	0.49	0.51	0.86	3.24	0.34	0.49	0.25	0.89		0.04	0.09	1.74		0.883	
Chloride	mg/L	NV	61	96.6	42.7	112	87.5	86	68.8	104	56.3	78.8	49.6	101	105	55.5	56.4	98.4		60.9	
(Nitrate + Nitrite) as N	mg/L	NV	13	7.78	11	4.35	5.08	6.84	2.63	<0.05	10.5	0.89	7.46	1.99	1.07	0.22	7.43	2.71		4.34	
Nitrate as N	mg/L	NV	13	7.7	11	4.29	3.98	6.71	2.63	<0.05	10.5	0.89	7.46	1.99	0.54	0.22	7.43	2.71		4.34	
Nitrite as N	mg/L	NV	0.01	0.08	<0.05	0.07	1.1	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.53	<0.05	<0.25	<0.25		<0.10	
Total Kjeldahl Nitrogen	mg/L	NV					1.3	1.16	2.51	7.66	1.23	2.86	0.98	2.16	2.55		<0.1	2.09		1.36	
Total Phosphorus	mg/L	0.03	**0.062**	**0.08**	**0.1**	**0.11**	**0.19**	**0.16**	**0.12**	**13.3**	**0.14**	**0.1**	**0.08**	**0.44**	**0.16**	**0.36**	**0.09**	**0.16**	No sample collected.	**0.0499**	No sample collected.
Sulphate	mg/L	NV	28	30.1	21.2	42.1	35.9	33.3	22.2	6.23	26.9	121	29.2	60	58.2	21.7	19.8	51.1		18.3	
Biochemical Oxygen Demand (BOD)	mg/L	NV					<5	<5	<5	81	<5	<5	<5	32	<5	<5	<5	7			
Chemical Oxygen Demand (COD)	mg/L	NV					9	<5	16	261	8	7	<5	23	27		5	17		21	
Phenols	mg/L	0.001	0	<0.001	0.000001	0.000001	<0.001	**0.002**	**0.002**	**0.017**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		**0.002**	
Arsenic (As)	mg/L	0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	**0.028**	<0.003	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.003		<0.0010	
Barium (Ba)	mg/L	NV	0.037	0.042	0.038	0.058	0.068	0.065	0.051	1.06	0.066	0.079	0.046	0.198	0.055	0.057	0.035	0.102		0.0584	
Boron (B)	mg/L	0.2	0.055	0.109	0.051	0.127	0.163	0.091	0.123	0.184	0.068	**0.483**	0.077	**0.308**	**0.304**	0.031	0.049	**0.274**		0.105	
Cadmium (Cd)	mg/L	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0001	<0.0001	<0.0001	**0.0008**	<0.0001	<1E-04	<0.0001	<0.0001		<0.000090	
Chromium (Cr)	mg/L	NV	<0.003	<0.003	<0.003	0.005	0.006	0.005	<0.003	0.007	<0.003	<0.003	<0.003	**0.008**	<0.003	0.004	<0.003	<0.003		<0.00050	
Copper (Cu)	mg/L	0.005	0.001	<0.002	<0.002	0.004	0.003	0.002	0.002	**0.006**	0.004	<0.002	0.003	**0.026**	0.002	0.004	<0.002	0.003		0.0012	
Iron (Fe)	mg/L	0.3	0.084	**0.318**	**0.32**	**0.525**	0.11	0.186	**0.457**	**131**	**0.78**	0.21	0.28	**7.82**	**0.69**	**1.68**	0.07	**1.02**		**0.395**	
Lead (Pb)	mg/L	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	<0.001	<0.001	0.018	<0.001	0.002	<0.001	0.001		<0.00050	
Zinc (Zn)	mg/L	0.02	<0.004	<0.004	<0.004	0.005	0.005	0.004	0.015	**0.138**	0.015	<0.005	0.010	**0.152**	0.011	**0.026**	0.007	0.017		0.010	
Dissolved Mercury (Hg)	mg/L	0.00020															<0.0001	<0.0001		<0.00010	

Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of te Environment and Energy, as revised February 1999.
2. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
3. Bold and shaded denotes exceedance of the PWQO.
4. Blank denotes data not available.
5. NV denotes No Value

TABLE D-5 (2 of 2)
SURFACE WATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	PWQO	SW2 May-15	SW2 Sep-15	SW2 Oct-15	SW2 May-16	SW2 Sep-16	SW2 May-17	SW2 Sep-17	SW2 May-18	SW2 Sep-18	SW2 May-19	SW2 Sep-19	SW2 May-20	SW2 Sep-20	SW2 May-21	SW2 Sep-21	SW2 May-22	SW2 Sep-22	SW2 May-23	SW2 Sep-23	SW2 May-24	SW2 Sep-24	SW2 May-25	SW2 Sep-25
Electrical Conductivity	uS/cm	NV	958	1430	1145	1180		592		130	1320	1832	961	971	975	880	874	800	939	679	730	810		1176	326
pH	N/A	6.5-8.5	8.09	7.77	8.15	8.18		8.03		7.99	8.16	8.13	7.9	8.13	8.07	8.04	8.14	7.75	8.06	8.07	8.16	8.11	8.06	8.11	8.35
Total Suspended Solids	mg/L	NV	23.7	516	<2.0	96.1		16.4		5.7	82.1	9.7	58	10.1	38.1	16.9	9.6	4.8	42.7	<3.0	6.8	9.4	3.0	6.1	44.0
Total Dissolved Solids	mg/L	NV	589	689	561	587		385		489	599	467	705	505	633	581	569	479	582	504	592	492	647	643	526
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	349	388	348	300		244		318	346	279	395	279	332	356	349	364	312	294	365	334	356	300	262
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10		<10		<10	<10	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	>25% Decrease	349	388	348	300		244		318	346	279	395	279	332	356	349	364	312	294	365	334	356	300	267
Ammonia, Total (as N)	mg/L	NV	1	3.12	1.99	1.13		0.211		0.710	0.558	0.398	1.670	0.635	0.324	0.857	0.228	0.419	0.140	0.389	0.338	0.670	0.388	0.838	0.225
Chloride	mg/L	NV	108	159	146	98.5		45.2		81.2	99.1	81.6	130	112	163	116	114	80.9	115	93.8	139	97.0	172	159	106
(Nitrate + Nitrite) as N	mg/L	NV	2.042	2.497	0.514	3.211		9.904		3.522	1.404	7.166	0.995	5.146	0.76	2.483	5.101	3.05	1.03	7.23	2.92	1.51	1.93	6.58	0.180
Nitrate as N	mg/L	NV	1.7	2.25	0.48	3.14		9.89		3.5	1.34	7.13	0.87	5.11	0.76	2.42	5.03	3.03	0.97	7.17	2.77	3.44	1.82	6.49	0.180
Nitrite as N	mg/L	NV	0.342	0.247	0.034	0.071		0.014		0.022	0.064	0.036	0.125	0.036	<0.050	0.063	0.071	0.019	0.062	0.06	0.154	3.26	0.109	0.087	<0.010
Total Kjeldahl Nitrogen	mg/L	NV	1.48	3.56	2.56	2.27	Insufficient Volume for Sample Collection	1.1	Insufficient Volume for Sample Collection	1.28	3.67	0.9	2.79	1.35	1.01	1.55	0.82	1.48	1.74	0.961	1.03	0.177	1.01	1.54	0.902
Total Phosphorus	mg/L	0.03	**0.0518**	**0.67**	**0.0513**	**0.14**		**0.07**		**0.04**	0.03	**0.0357**	**0.0903**	**0.0326**	**0.066**	**0.0416**	**0.0633**	**0.0852**	**0.428**	0.0262	**0.0442**	**0.0464**	**0.0954**	**0.0466**	**0.179**
Sulphate	mg/L	NV	34	53.2	55.3	29.2		13.7		17	47.9	15.9	38	20.7	21.2	20.6	15.8	13.3	21.7	19.5	18	17.1	20.6	22.5	68.3
Biochemical Oxygen Demand (BOD)	mg/L	NV	<2.0	10.2	<2.0	2.7		3.3		<2.0	8.4	<3.0	4.2	<3.0	<3.0	<3.0	<3.0	<3.0	5.6	2.9	<3.0	<3.0	3.6	<3.0	<3.0
Chemical Oxygen Demand (COD)	mg/L	NV	18	54	14	30		<10		15	79	15	36	18	17	12	12	22	48	14	17	16	25	12	16
Phenols	mg/L	0.001	<0.0010	**0.0038**	**0.0019**	0.001		**0.0018**		<0.0010	**0.0056**	**0.0011**	**0.0164**	<0.0010	0.0010	<0.0010	**0.0016**	**0.0012**	**0.0066**	<0.0010	**0.0025**	<0.0010	**0.0091**	**0.0021**	**0.0033**
Arsenic (As)	mg/L	0.005	<0.0010	0.00154	0.00083	0.00089		0.00037		0.00043	0.00206	0.00047	0.00167	0.00059	0.00097	0.00067	0.00083	0.00046	0.00150	0.00047	0.00091	0.00062	0.00112	0.00068	0.00124
Barium (Ba)	mg/L	NV	0.0689	0.101	0.0753	0.0736		0.0379		0.0514	0.102	0.0495	0.107	0.0529	0.0722	0.0598	0.066	0.0441	0.101	0.056	0.0799	0.0615	0.0924	0.0759	0.0923
Boron (B)	mg/L	0.2	0.181	**0.372**	**0.289**	0.107		0.035		0.060	**0.466**	0.059	**0.370**	0.125	**0.212**	0.109	0.071	0.065	**0.357**	0.089	0.150	0.117	0.140	0.143	0.129
Cadmium (Cd)	mg/L	0.0005	<0.000090	0.00003	<0.000010	0.000028		0.000013		0.000023	0.000031	0.000016	0.0000264	0.0000064	0.0000052	0.0000099	0.0000063	0.0000105	0.0000374	0.0000075	0.0000072	0.0000099	0.0000279	0.0000072	0.0000158
Chromium (Cr)	mg/L	NV	0.00105	0.00253	0.00085	0.00108		0.0005		<0.00050	0.00167	<0.00050	0.00395	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00233	<0.00050	<0.00050	<0.00050	0.00150	<0.00050	0.00124
Copper (Cu)	mg/L	0.005	<0.0010	0.0028	0.0013	0.0023		0.0015		<0.0010	0.0024	0.0012	0.0022	0.0015	<0.0010	0.0014	<0.0010	0.00075	0.00285	0.00109	0.00085	0.00119	0.00202	0.00114	0.00149
Iron (Fe)	mg/L	0.3	**0.656**	**2.54**	**0.484**	**1.24**		**0.368**		**0.432**	**1.9**	**0.399**	**2.07**	0.251	**0.361**	**0.489**	**0.394**	**0.389**	**2.15**	0.271	**0.355**	**0.464**	**1.47**	**0.551**	**1.22**
Lead (Pb)	mg/L	0.005	<0.00050	0.00114	0.00019	0.00092		0.00021		0.00012	0.00109	0.000175	0.00091	0.000107	0.000143	0.000151	0.000153	0.00013	0.00116	<0.000050	0.000151	0.000155	0.000843	0.000136	0.000627
Zinc (Zn)	mg/L	0.02	0.005	0.013	0.006	0.011		0.005		0.0039	0.0114	0.0031	0.0085	<0.0030	<0.0030	0.0033	<0.0030	<0.0030	0.0122	<0.0030	<0.0030	<0.0030	0.0088	<0.0030	0.0065
Dissolved Mercury (Hg)	mg/L	0.00020	<0.000010	<0.000010	<0.000010	<0.000010		<0.000010		<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050

Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of te Environment and Energy, as revised February 1999.
2. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
3. Bold and shaded denotes exceedance of the PWQO.
4. Blank denotes data not available.
5. NV denotes No Value

TABLE D-5 (1 of 2)
SURFACE WATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	PWQO	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3	SW3
			Jul-08	Oct-08	May-09	Sep-09	May-10	Sep-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	Sep-14	May-15	Sep-15	Oct-15	May-16	Sep-16
Electrical Conductivity	uS/cm	NV	950	993	916	1260	747	965	669	901	995	497	814	1060	374	930		975	1440	1162	1160	Insufficient Volume for Sample Collection
pH	N/A	6.5-8.5	**9.48**	8.15	8.25	**9.36**	8.39	8.27	8.22	8.06	7.86	8.17	7.95	7.63	8.23	8	8.03	8.01	7.89	8.11	8.22	
Total Suspended Solids	mg/L	NV	<10	<10	10	1220	<10	75	13	32	1990	5960	<10	10	2.8	22.4	6	4.7	161	7.6	8.6	
Total Dissolved Solids	mg/L	NV	590	600	540	760	498	606	460	600	544	298	472	564	404	472	470	568	692	620	584	
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	297	331	316	411	270	303	262	325	305	160	257	375	267	360	352	361	449	373	310	
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	21	<5	<5	13	17	<5	<5	<5	<5	<5	<5	<5	<10	<10	<10	<10	<10	<10	<10	
Alkalinity, Total (as CaCO3)	mg/L	>25% Decrease	318	331	316	424	288	303	262	325	305	160	257	375	272	364	356	361	449	373	310	
Ammonia, Total (as N)	mg/L	NV	1.24	0.68	0.89	4.8	0.52	0.71	0.23	1.22	1.18	0.16	0.14	1.97	0.718	0.964	0.938	1.48	4.23	2.19	1.17	
Chloride	mg/L	NV	83.9	90.2	69	99.7	56.7	76	50	106	112	55.7	63	101	56.3	62.4	62.5	114	158	151	99.6	
(Nitrate + Nitrite) as N	mg/L	NV	4.8	6.69	2.76	1.93	10.8	0.58	7.62	0.5	<0.05	0.15	7.27	0.62	3.83	4.55	4.55	2.052	0.627	0.402	3.288	
Nitrate as N	mg/L	NV	4.51	6.69	2.76	1.63	10.8	0.58	7.62	0.5	<0.05	0.15	7.27	0.62	3.83	4.55	4.55	1.74	0.504	0.378	3.24	
Nitrite as N	mg/L	NV	0.29	<0.05	<0.05	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.10	<0.10	<0.10	0.312	0.123	0.024	0.048	
Total Kjeldahl Nitrogen	mg/L	NV	2.23	1.56	2.48	7.64	0.25	2.97	1.07	4.35	4.75		0.94	2.28	1.29	1.56	1.51	1.9	4.53	2.7	2.17	
Total Phosphorus	mg/L	0.03	**0.2**	**0.16**	**0.12**	**0.46**	**0.07**	**0.32**	**0.08**	**0.11**	**0.23**	**1.16**	**0.11**	**0.14**	**0.0722**	**0.0612**	**0.0496**	**0.0668**	**1.19**	**0.104**	**0.069**	
Sulphate	mg/L	NV	35.1	34.6	23.1	103	26.6	124	29.4	58.7	64.3	23.7	22	52.5	16.3	18.1	18.1	34.5	55.7	56.5	29.5	
Biochemical Oxygen Demand (BOD)	mg/L	NV	<5	<5	<5	18	<5	<5	<5	<5	16	14	<5	6				<2.0	14.4	<2.0	<2.0	
Chemical Oxygen Demand (COD)	mg/L	NV	6	<5	17	39	8	9	<5	20	36		<5	15	19	17	17	23	123	18	26	
Phenols	mg/L	0.001	**0.002**	<0.001	**0.002**	**0.008**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	**0.0017**	**0.0011**	**0.0105**	**0.0053**	**0.002**	<0.0010	
Arsenic (As)	mg/L	0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.0010	<0.0010	<0.0010	<0.0010	0.0039	0.00095	0.00053	
Barium (Ba)	mg/L	NV	0.069	0.064	0.054	0.074	0.053	0.076	0.044	0.081	0.059	0.07	0.037	0.079	0.0394	0.0539	0.0557	0.0667	0.148	0.0809	0.0604	
Boron (B)	mg/L	0.2	0.155	0.096	0.134	**0.818**	0.062	**0.471**	0.078	**0.346**	**0.32**	0.036	0.066	**0.263**	0.068	0.113	0.112	0.187	**0.514**	**0.323**	0.116	
Cadmium (Cd)	mg/L	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.000090	<0.000090	<0.000090	<0.000090	0.000243	<0.000010	<0.000010	
Chromium (Cr)	mg/L	NV	0.003	0.005	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	0.005	<0.003	<0.003	<0.00050	0.00055	0.00057	0.00065	0.0119	<0.00050	<0.00050	
Copper (Cu)	mg/L	0.005	0.003	0.003	0.002	**0.008**	0.002	0.004	<0.002	0.002	0.003	**0.009**	<0.002	0.002	0.001	0.0011	0.0012	<0.0010	**0.0175**	0.0014	<0.0010	
Iron (Fe)	mg/L	0.3	**0.863**	0.197	**0.607**	**1.18**	0.17	**0.96**	0.25	**0.48**	**0.72**	**3.12**	0.07	**0.42**	0.225	0.278	0.272	**0.572**	**12.2**	**0.715**	**0.313**	
Lead (Pb)	mg/L	0.005	<0.001	<0.001	<0.001	0.002	<0.001	0.001	<0.001	<0.001	<0.001	**0.008**	<0.001	<0.001	<0.00050	<0.00050	<0.00050	<0.00050	**0.00854**	0.00024	<0.00010	
Zinc (Zn)	mg/L	0.02	**0.03**	0.0	0.0	**0.028**	0.016	0.015	0.010	0.020	0.015	**0.055**	0.010	0.006	**0.0224**	0.015	0.010	0.006	**0.119**	0.009	<0.0030	
Dissolved Mercury (Hg)	mg/L	0.00020											<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.000010	<0.000010	<0.000010	<0.000010	

Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of te Environment and Energy, as revised February 1999.
2. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
3. Bold and Shaded denotes exceedance of the PWQO.
4. Blank denotes data not available.
5. NV denotes No Value

TABLE D-5 (2 of 2)
SURFACE WATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	PWQO	SW3 May-17	SW3 Sep-17	SW3 May-18	SW3 Sep-18	SW3 May-19	SW3 Sep-19	SW3 May-20	SW3 Sep-20	SW3 May-21	SW3 Sep-21	SW3 May-22	SW3 Sep-22	SW3 May-23	SW3 Sep-23	SW3 May-24	SW3 Sep-24	SW3 May-25	SW3 Sep-25
Electrical Conductivity	uS/cm	NV	731	1124	1040	1400	1868	999	884	999	845	410	772	583	806	955	906		1170	927
pH	N/A	6.5-8.5	8.03	8.06	8.01	7.83	8.21	7.83	8.10	7.89	8.06	8.19	7.80	8.16	8.01	8.02	8.16	8.12	8.16	8.24
Total Suspended Solids	mg/L	NV	8.2	38.5	2.9	284	4.3	36	5.30	93.6	7.2	13.3	<3.0	41.1	7.5	17.2	284	16.4	18.1	9.4
Total Dissolved Solids	mg/L	NV	391	676	529	687	493	694	502	628	608	569	562	602	492	604	510	639	654	546
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	234	345	310	397	285	428	282	329	364	348	378	364	292	372	355	365	306	266
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<10	<10	<10	<10	<10	<10	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	>25% Decrease	234	345	310	400	285	428	282	329	364	348	378	364	292	372	355	365	306	267
Ammonia, Total (as N)	mg/L	NV	0.205	0.684	0.662	2.17	0.41	2.79	0.506	0.661	1.09	0.257	2.11	1.34	0.46	0.637	0.772	0.489	0.699	0.244
Chloride	mg/L	NV	46.5	173	85.5	99.6	85.3	125	108	168	156	114	108	99.2	94.9	149	106	169	164	106
(Nitrate + Nitrite) as N	mg/L	NV	10.216	1.549	3.738	0.086	7.59	<0.11	4.894	0.44	3.03	5.116	3.98	0.34	7.30	2.92	2.90	1.54	6.82	0.170
Nitrate as N	mg/L	NV	10.2	1.43	3.72	0.086	7.56	<0.10	4.83	0.44	3.03	5.07	3.96	0.21	7.26	2.92	4.10	1.41	6.74	0.170
Nitrite as N	mg/L	NV	0.016	0.119	0.018	<0.010	0.026	<0.050	0.064	<0.050	<0.050	0.046	0.021	0.13	0.043	<0.050	3.86	0.133	0.075	<0.010
Total Kjeldahl Nitrogen	mg/L	NV	1.08	1.29	0.94	18.6	0.94	3.06	1.38	1.68	1.81	0.85	4.56	2.18	1.0	1.30	0.244	1.09	1.64	0.558
Total Phosphorus	mg/L	0.03	**0.06**	**0.154**	**0.062**	**1.72**	0.0286	**0.0816**	**0.0463**	**0.126**	**0.0454**	**0.0746**	**0.342**	**1.24**	**0.0323**	**0.0589**	**0.420**	**0.0796**	**0.0922**	**0.0794**
Sulphate	mg/L	NV	13.7	21.4	17.1	50.1	16	36.2	20.1	21.4	25.7	15.6	17.4	22.4	19.6	18.3	18.1	20.1	22.7	69.5
Biochemical Oxygen Demand (BOD)	mg/L	NV	3.8	4.7	<2.0	39	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	20.2	8.1	<2.0	<3.0	9.4	<3.0	<3.0	<3.0
Chemical Oxygen Demand (COD)	mg/L	NV	<10	28	16	356	14	31	18	29	14	15	51	28	14	17	45	21	13	<10
Phenols	mg/L	0.001	<0.0010	<0.0010	0.001	**0.0059**	<0.0010	**0.0081**	<0.0010	**0.0012**	<0.0010	<0.0010	**0.0162**	**0.002**	**0.0014**	**0.0019**	<0.0010	**0.0025**	**0.0029**	**0.0024**
Arsenic (As)	mg/L	0.005	0.00037	0.001	0.00038	0.0029	0.00043	0.00179	0.00071	0.00103	0.00063	0.00087	0.00056	0.00135	0.00046	0.00094	0.00164	0.00086	0.00079	0.00106
Barium (Ba)	mg/L	NV	0.0368	0.0676	0.0496	0.0991	0.0485	0.0928	0.0554	0.0669	0.0649	0.0661	0.0476	0.0837	0.0577	0.0802	0.0992	0.0858	0.0792	0.0783
Boron (B)	mg/L	0.2	0.036	0.09	0.062	**0.5**	0.061	**0.377**	0.128	0.188	0.133	0.069	0.093	**0.360**	0.092	0.158	0.134	0.150	0.138	0.129
Cadmium (Cd)	mg/L	0.0005	0.000014	<0.000010	0.000014	<0.000050	0.00001	0.0000174	0.0000069	0.0000076	0.0000091	0.0000106	0.0000094	0.0000155	0.0000098	0.0000095	0.0000680	0.0000104	0.0000208	0.0000058
Chromium (Cr)	mg/L	NV	<0.00050	<0.00050	<0.00050	<0.0050	<0.00050	0.00256	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0007	<0.00050	0.00067	0.00323	0.00063	0.00105	<0.00050
Copper (Cu)	mg/L	0.005	0.0014	0.0018	<0.0010	**<0.010**	0.001	0.0015	0.0016	<0.0010	0.0012	0.0011	0.00093	0.00216	0.00127	0.00128	0.00469	0.00093	0.00195	0.00054
Iron (Fe)	mg/L	0.3	0.267	**0.367**	0.28	**1.2**	0.202	**1.3**	**0.458**	**0.502**	**0.519**	**0.509**	**0.698**	**0.822**	**0.319**	**0.736**	**4.42**	**0.682**	**1.16**	**0.417**
Lead (Pb)	mg/L	0.005	0.00014	0.00021	<0.00010	0.00054	0.000081	0.000545	0.000167	0.000205	0.000127	0.000229	0.000117	0.000396	0.000126	0.000338	0.00216	0.000286	0.000543	0.000115
Zinc (Zn)	mg/L	0.02	0.01	0.01	0.004	**<0.030**	0.0035	0.0053	<0.0030	<0.0030	0.0034	0.0041	0.0047	0.0103	<0.0030	0.0033	**0.0240**	0.0036	0.0077	<0.0030
Dissolved Mercury (Hg)	mg/L	0.00020	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050

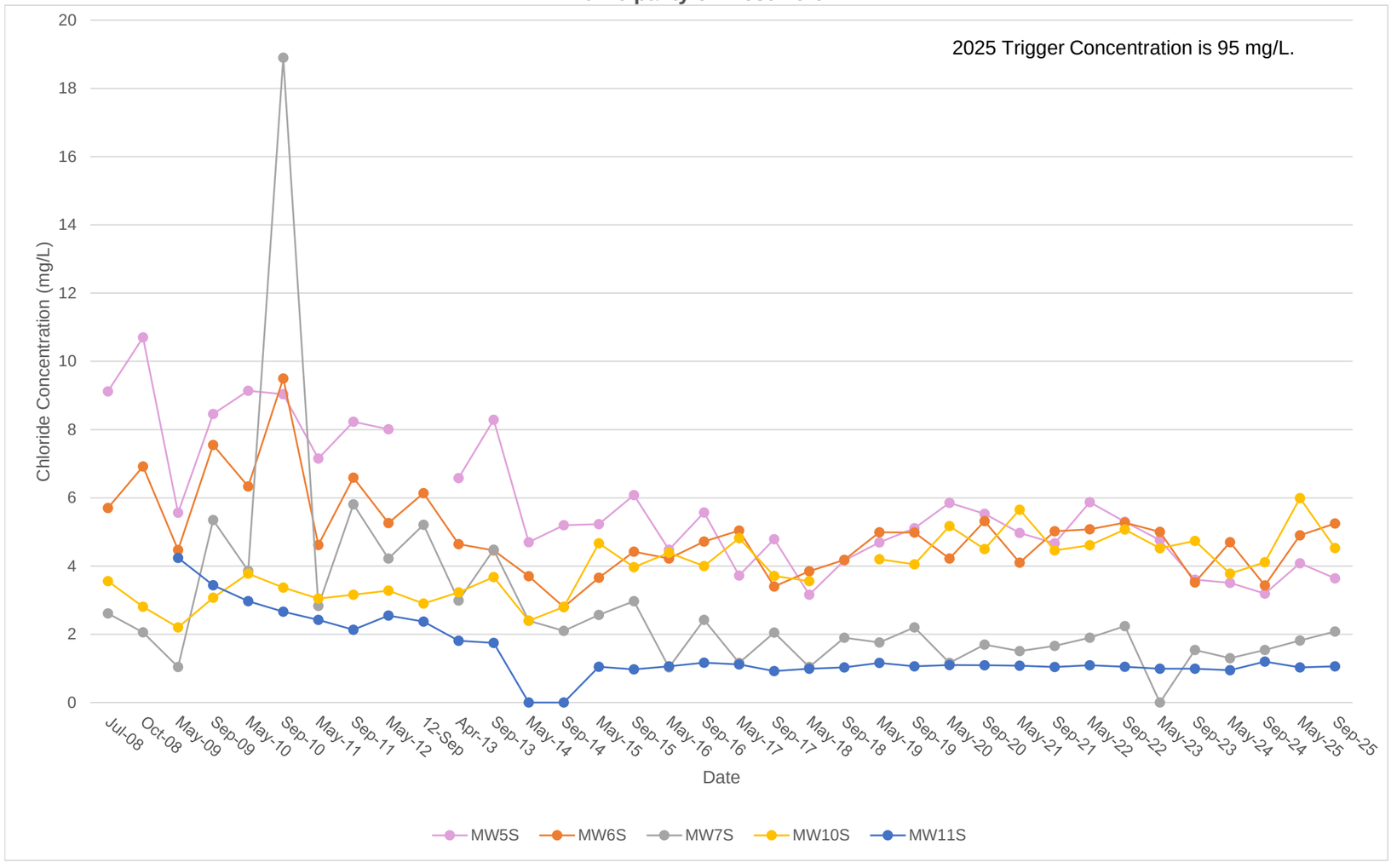
Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of te Environment and Energy, as revised February 1999.
2. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
3. Bold and shaded denotes exceedance of the PWQO.
4. Blank denotes data not available.
5. NV denotes No Value

TABLE D-5
SURFACE WATER ANALYTICAL RESULTS - GENERAL PARAMETERS
Mitchell Domestic Landfill
Municipality of West Perth

Parameter	Unit	PWQO	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5	SW5
			Jul-12	*Oct-12*	*Apr-13*	*Sep-13*	*May-14*	*Sep-14*	*May-15*	*Sep-15*	*May-16*	*Sep-16*	*May-17*	*Sep-17*	*May-18*	*Sep-18*	*May-19*	*Sep-20*	*May-20*	*Sep-20*	*May-21*	*Sep-21*	*May-22*	*Sep-22*	*May-23*	*Sep-23*	*May-24*	*Sep-24*	*May-25*
Electrical Conductivity	uS/cm	NV	406	359	526	399	641																						
Total Hardness (as CaCO3)	mg/L	NV	180	176	204	155	304																						
pH	N/A	6.5 - 8.5	7.58	8.13	8.05	7.75	8.13																						
Total Suspended Solids	mg/L	NV		16	14	<10	4																						
Total Dissolved Solids	mg/L	NV	280	246	276	222	434																						
Turbidity	NTU	NV	10.9	15			1.59																						
Alkalinity, Bicarbonate (as CaCO3)	mg/L	NV	133	141	180	147	275																						
Alkalinity, Carbonate (as CaCO3)	mg/L	NV	<5	<5	<5	<5	<10																						
Alkalinity, Total (as CaCO3)	mg/L	>25% Decrease	133	141	180	147	279																						
Unionized Ammonia (calculated)		0.02	<0.02	<0.02	<0.02	<0.02	0.00091																						
Ammonia, Total (as N)	mg/L	NV	0.04	<0.02	0.08	<0.02	0.076																						
Bromide	mg/L	NV	<0.05	<0.06	<0.05	<0.1	<0.10																						
Chloride	mg/L	NV	50.2	28.3	42.6	39.5	66.7																						
Fluoride	mg/L	NV	0.22	<0.05	0.11	0.15	0.13																						
(Nitrate + Nitrite) as N	mg/L	NV		<0.07	0.17	<0.07	5.03																						
Nitrate as N	mg/L	NV	<0.05	<0.06	0.17	<0.1	5.03																						
Nitrite as N	mg/L	NV	<0.05	<0.06	<0.05	<0.1	<0.10																						
Total Kjeldahl Nitrogen	mg/L	NV	1.14	0.58	0.28	0.24	0.55																						
Phosphate as P	mg/L	NV	1.16	<0.10			0.0249																						
Total Phosphorus	mg/L	0.03	**0.07**	0.03	**0.04**	0.02	**0.0533**																						
Sulphate	mg/L	NV	13.2	19	11.2	7.02	10.6																						
Dissolved Organic Carbon (DOC)	mg/L	NV	9.1	10.3	2.5	9.4	1.7																						
Biochemical Oxygen Demand (BOD)	mg/L	NV		6	<5	<5		No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow from Outlet	No Flow From Outlet
Chemical Oxygen Demand (COD)	mg/L	NV	33	28	<5	25	17																						
Phenols	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010																						
Aluminum (Al)	mg/L	0.075	0.026	0.013	**0.107**	0.019	0.052																						
Arsenic (As)	mg/L	0.005	<0.003	<0.003	<0.003	<0.003	<0.0010																						
Barium (Ba)	mg/L	NV	0.032	0.028	0.026	0.015	0.0417																						
Beryllium (Be)	mg/L	0.011	<0.002	<0.002	<0.001	<0.001	<0.00050																						
Boron (B)	mg/L	0.2	0.027	0.017	0.011	0.021	0.021																						
Cadmium (Cd)	mg/L	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.000090																						
Calcium (Ca)	mg/L	NV	38.9	44.6	60.7	40.4	94.5																						
Chromium (Cr)	mg/L	NV	<0.003	<0.003	<0.003	<0.003	<0.00050																						
Cobalt (Co)	mg/L	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.00050																						
Copper (Cu)	mg/L	0.005	<0.002	0.003	<0.002	<0.002	<0.0010																						
Iron (Fe)	mg/L	0.3	0.15	0.21	0.06	0.12	0.104																						
Lead (Pb)	mg/L	0.005	0.002	<0.001	<0.001	<0.001	<0.00050																						
Magnesium (Mg)	mg/L	NV	20.2	15.6	12.8	13.1	16.6																						
Molybdenum (Mo)	mg/L	0.04	<0.002	<0.002	<0.002	<0.002	<0.00050																						
Nickel (Nl)	mg/L	0.025	<0.003	<0.003	<0.003	<0.003	<0.0010																						
Potassium (K)	mg/L	NV	2.47	1.37	1.1	1.29	2.1																						
Silver (Ag)	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001																						
Zinc (Zn)	mg/L	0.02	<0.005	<0.005	<0.005	<0.005	0.006																						
Dissolved Aluminum (Al)	mg/L	0.075					<0.010																						
Dissolved Mercury (Hg)	mg/L	0.0002			<0.0001	<0.0001	<0.00010																						

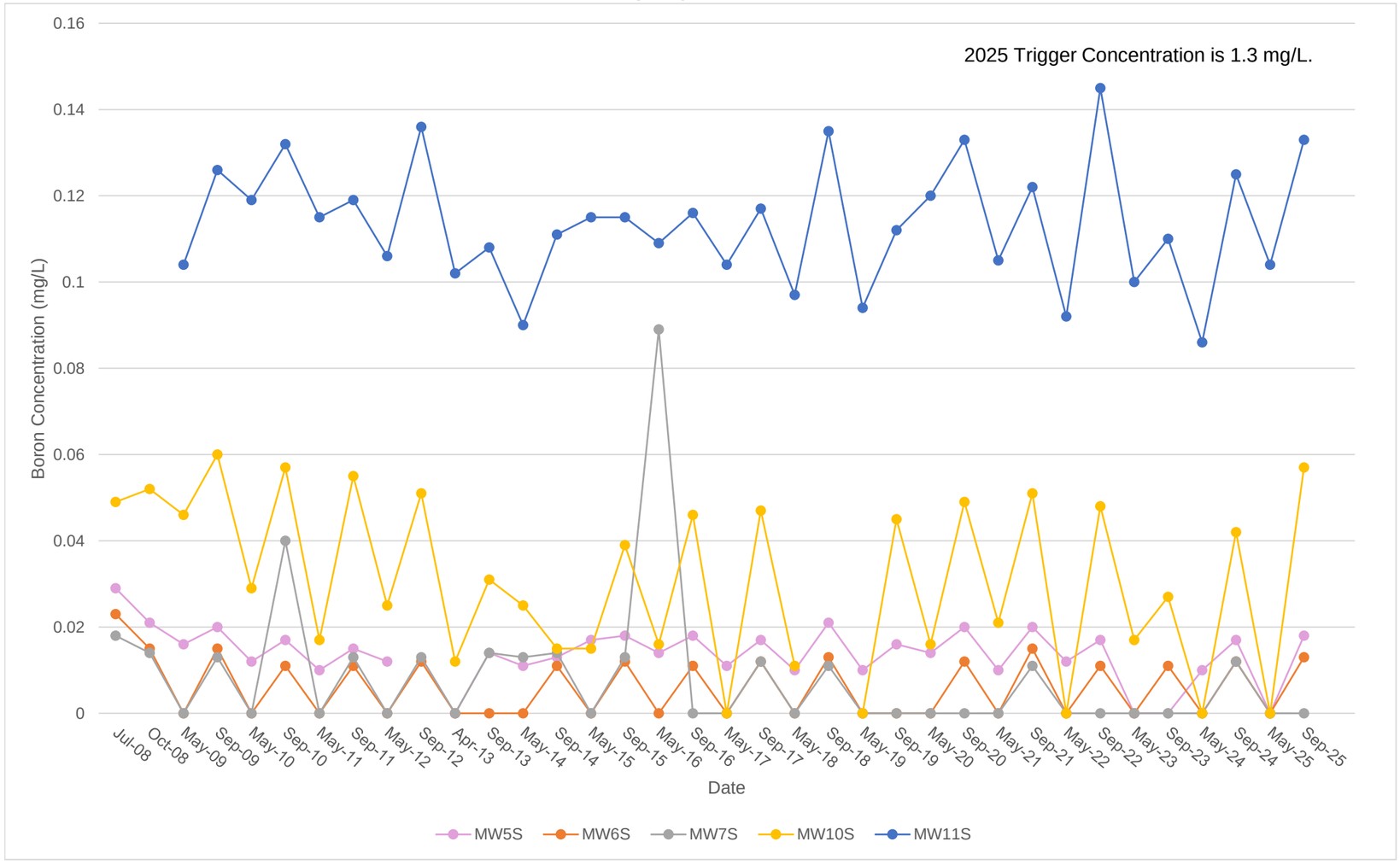
Notes: 1. PWQO denotes Provincial Water Quality Objectives of the Ministry of te Environment and Energy, as revised February 1999.
2. < denotes analyte concentration is below the reportable detection limit (RDL) or the method reporting limit (MRL).
3. Bold and shaded denotes exceedance of the PWQO.
4. Blank denotes data not available.
5. NV denotes No Value

FIGURE D-1: TIME VS. CONCENTRATION PLOT
CHLORIDE - SHALLOW FLOW SYSTEM
Mitchell Domestic Landfill
Municipality of West Perth



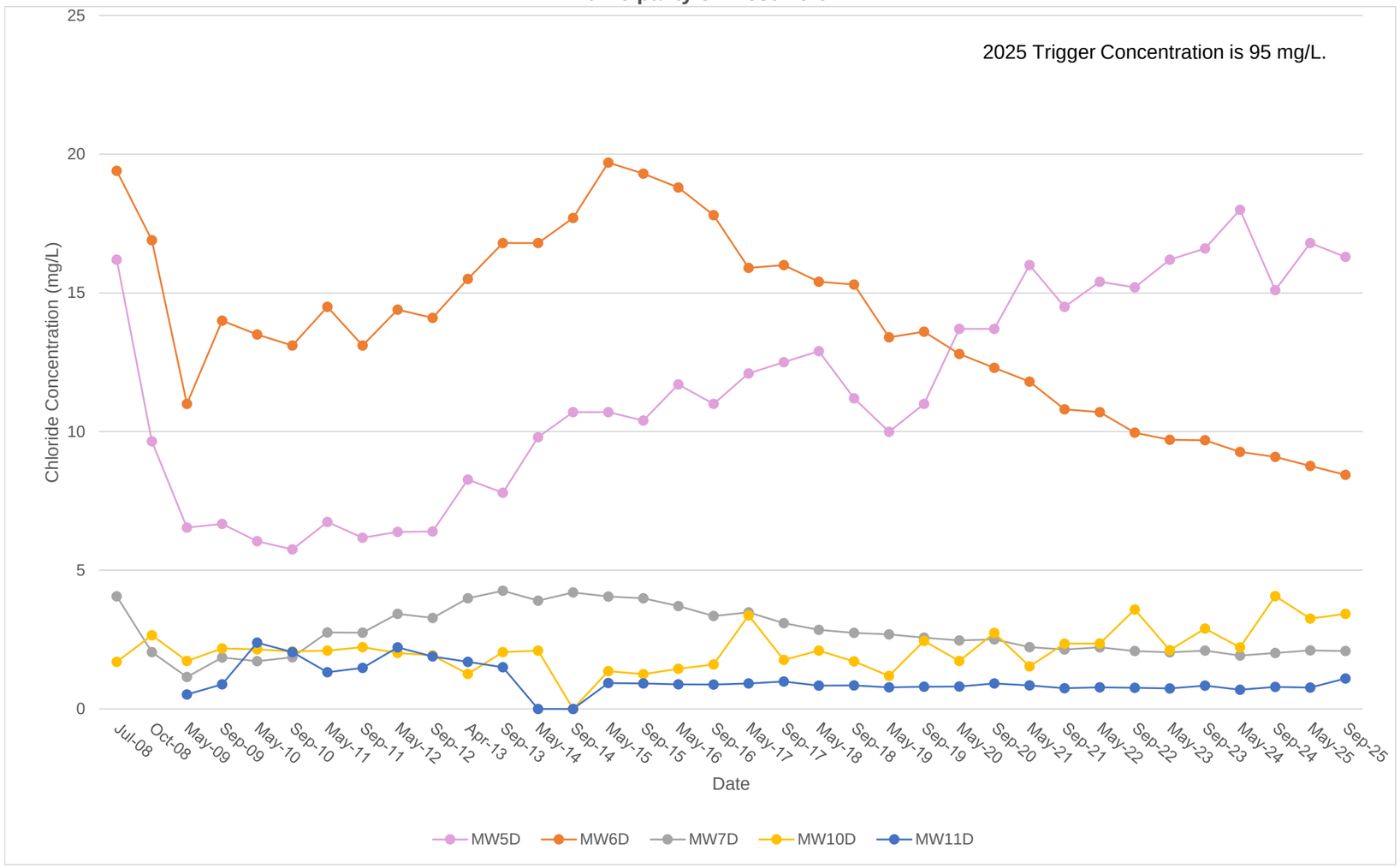
Pinchin File: 333568.002

FIGURE D-2: TIME VS. CONCENTRATION PLOT
BORON - SHALLOW FLOW SYSTEM
Mitchell Domestic Landfill
Municipality of West Perth



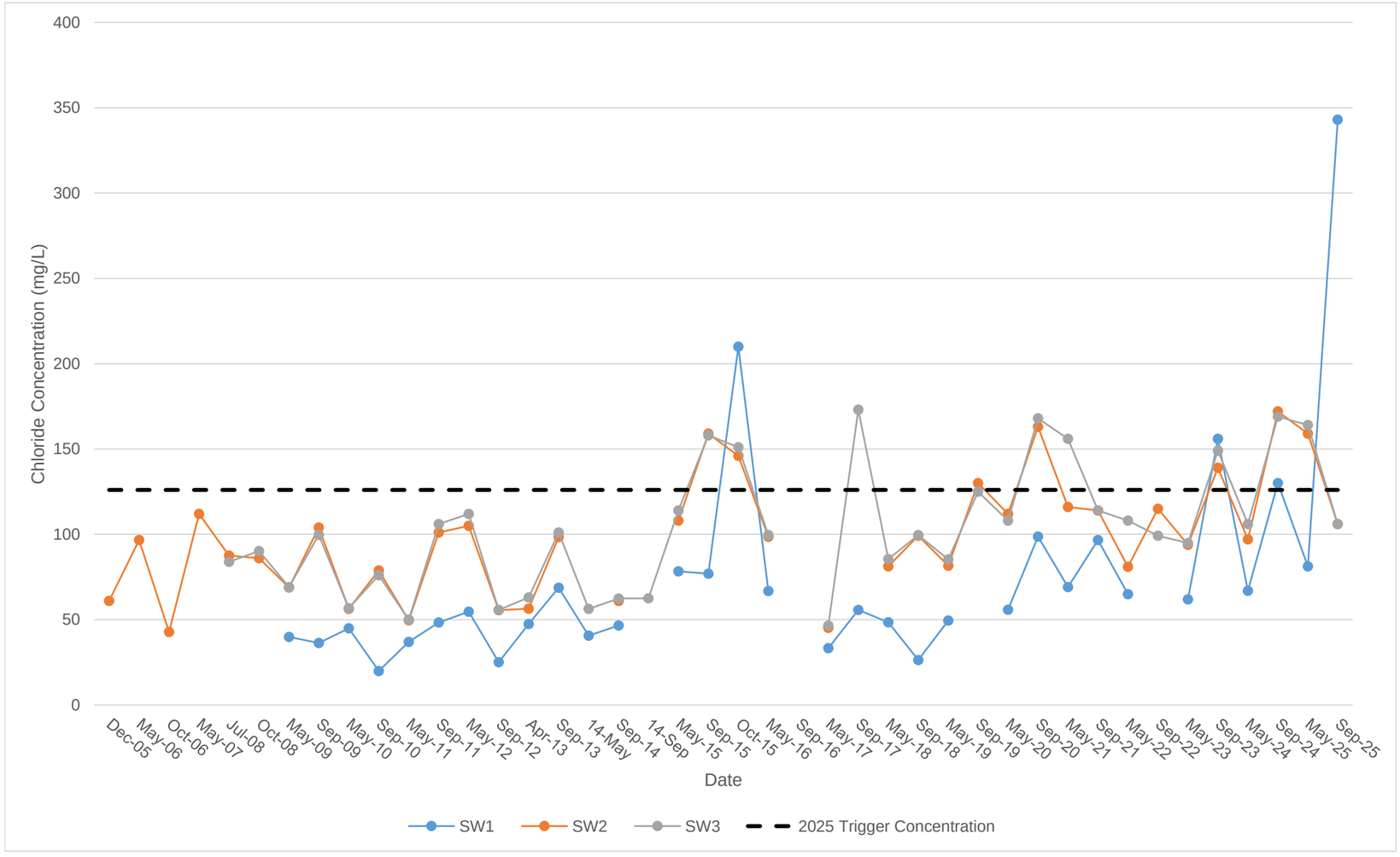
Pinchin File: 333568.002

FIGURE D-3: TIME VS. CONCENTRATION PLOT
CHLORIDE - DEEP FLOW SYSTEM
Mitchell Domestic Landfill
Municipality of West Perth



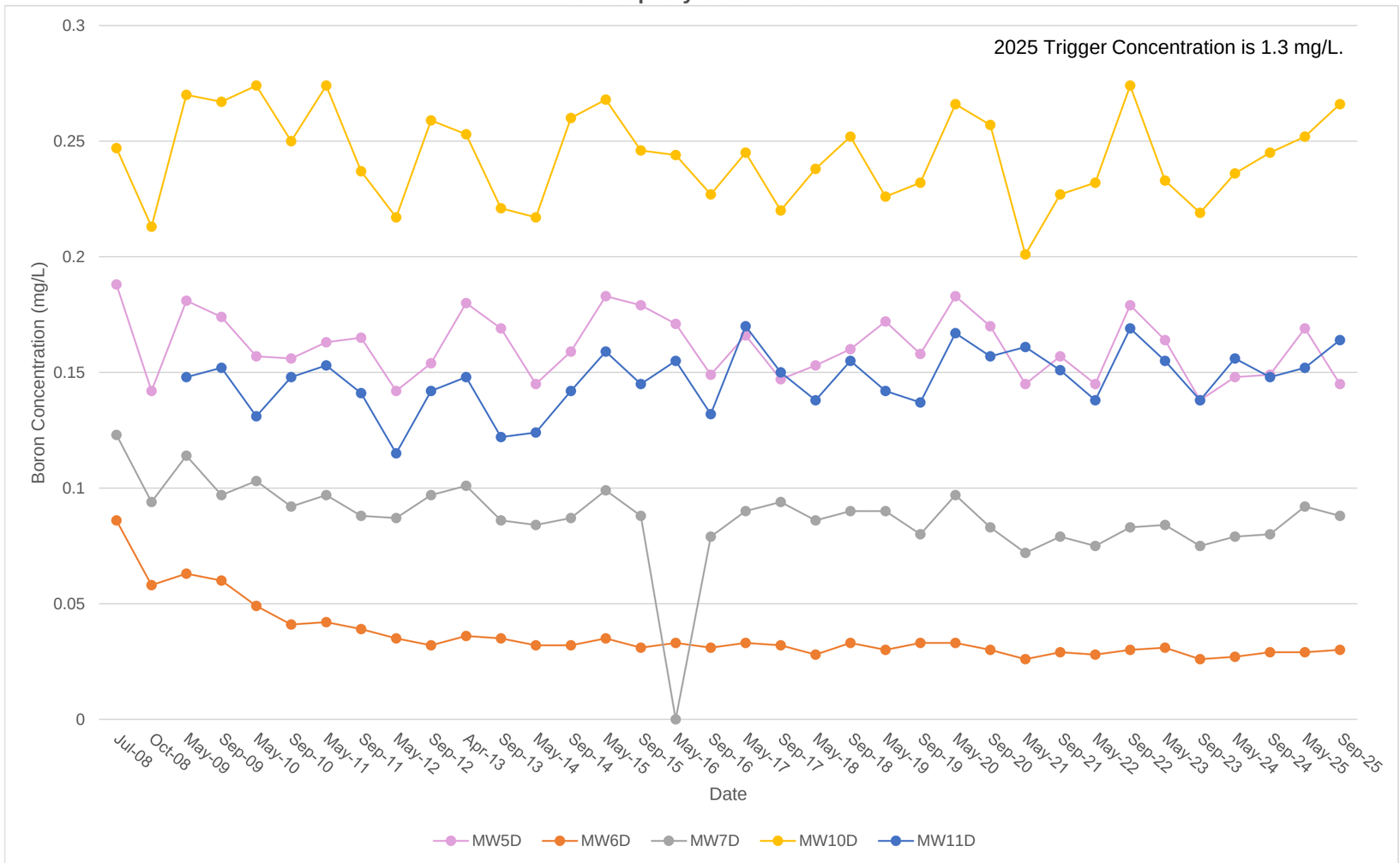
Pinchin File: 333568.002

FIGURE D-5: TIME VS. CONCENTRATION PLOT
CHLORIDE - SURFACE WATER
Mitchell Domestic Landfill
Municipality of West Perth



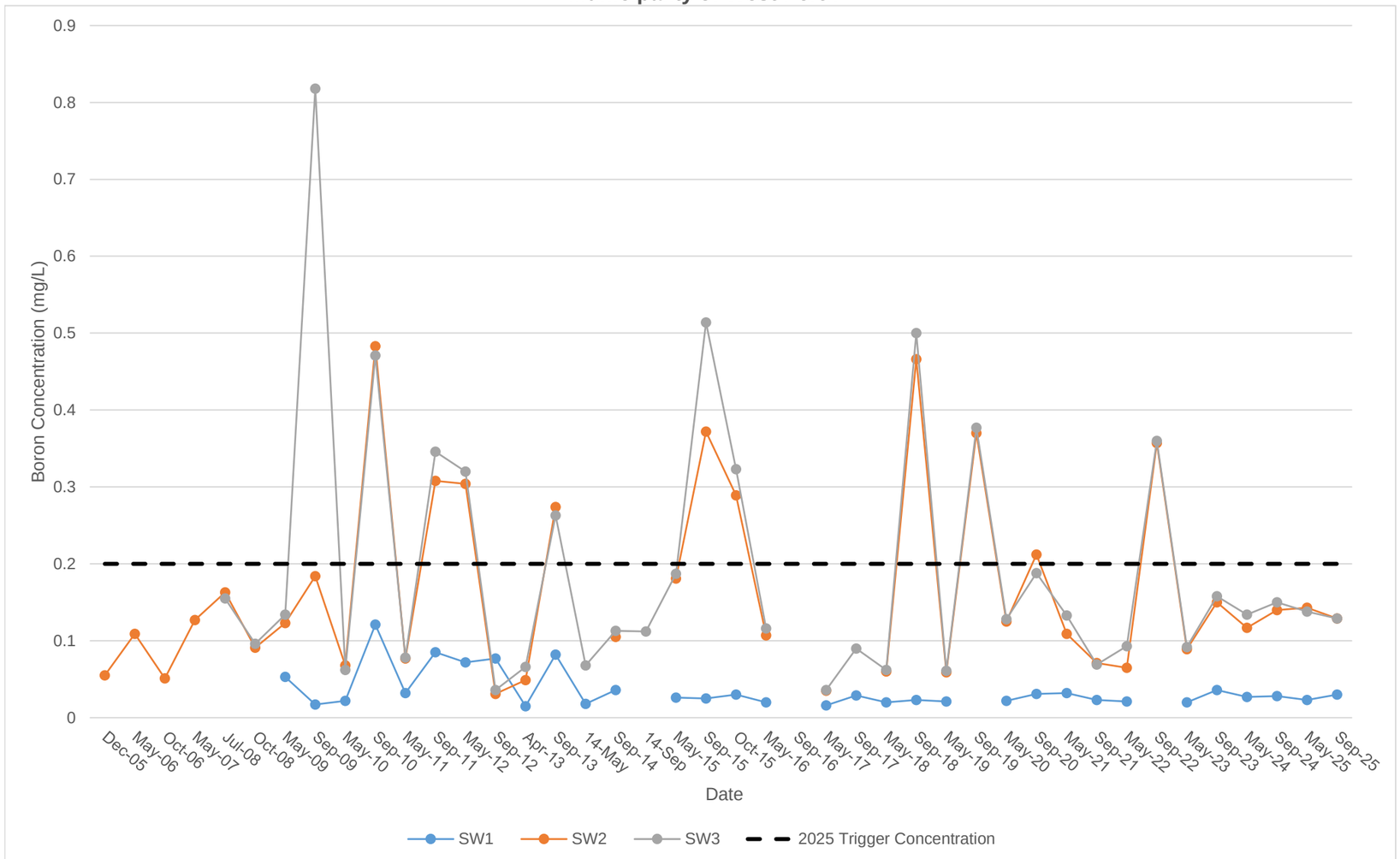
Pinchin File: 333568.002

FIGURE D-4: TIME VS. CONCENTRATION PLOT
BORON - DEEP FLOW SYSTEM
Mitchell Domestic Landfill
Municipality of West Perth



Pinchin File: 333568.002

FIGURE D-6: TIME VS. CONCENTRATION PLOT
BORON - SURFACE WATER
Mitchell Domestic Landfill
Municipality of West Perth



Pinchin File: 333568.002

APPENDIX E

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2511343**			
Amendment	:	**1**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC GW	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	13-May-2025 14:30
C-O-C number	:	----	Date Analysis Commenced	:	13-May-2025
Sampler	:	DH/ML	Issue Date	:	10-Jul-2025 09:47
Site	:	West Perth			
Quote number	:	West Perth Landfill			
No. of samples received	:	19			
No. of samples analysed	:	19			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett		VOC, Waterloo, Ontario
Greg Pokocky		Inorganics, Waterloo, Ontario
Greg Pokocky		Metals, Waterloo, Ontario
Greg Pokocky		Centralized Prep, Waterloo, Ontario
Nik Perkio		Inorganics, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (09/07/2025): This report has been amended following changes to the analytical data reported. The quality system is being utilised to resolve this issue. The specific data affected includes Alkalinity.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
RRV	Reported result verified by repeat analysis.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW1 ----	MW2 ----	MW3S ----	MW3D ----	MW4 ----
					Client sampling date / time	13-May-2025 10:30	13-May-2025 10:40	13-May-2025 12:10	13-May-2025 12:20	13-May-2025 09:50
						WT2511343-001	WT2511343-002	WT2511343-003	WT2511343-004	WT2511343-005
						Result	Result	Result	Result	Result
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		field	field	field	field	field
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		820	280	654	188	2350
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<5.0 DLM
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<5.0 DLM
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<5.0 DLM
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		820	280	654	188	2350
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		322	259	532	140	262
pH	----	E108/WT	0.10	pH units		7.49	8.09	7.50	8.11	7.75
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		1880 DLDS	301 DLDS	712 DLDS	202 DLDS	290 DLDS
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		224	0.0306	8.94	0.0461	0.148
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		1.62 DLDS	<0.10	<0.50 DLDS	<0.10	<0.10
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		393 DLDS	1.86	38.2 DLDS	1.18	14.0
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		0.380 DLDS	1.54	0.136 DLDS	1.33	0.092
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.100 DLDS	<0.010	0.879 DLDS	0.017	<0.010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0078	0.0036	<0.0010	0.0178	<0.0010
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		<3.00 DLDS	19.4	13.7 DLDS	3.44	2.36
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		<0.200 DLDS	0.026	3.56 DLDS	0.138	<0.020
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		<0.224	0.0260	4.44	0.155	<0.0224

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW1 ----	MW2 ----	MW3S ----	MW3D ----	MW4 ----
					Client sampling date / time	13-May-2025 10:30	13-May-2025 10:40	13-May-2025 12:10	13-May-2025 12:20	13-May-2025 09:50
						WT2511343-001	WT2511343-002	WT2511343-003	WT2511343-004	WT2511343-005
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		54.0	0.81	5.06	1.33	1.63
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.0200 DLHC	0.0013	0.0014	0.0313	0.0018
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00700 DLHC	0.00447 DLM	<0.00100 DLM	0.0160 DLM	<0.00100 DLM
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.162 DLHC	0.178	0.132	0.0827	0.0240
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		2.21 DLHC	0.092	0.223	0.084	<0.010
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		<0.0000500 DLHC	<0.0000050	0.0000439	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		42.7 DLHC	49.6	162	28.4	86.9
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00500 DLHC	<0.00050	<0.00050	<0.00050	<0.00050
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		<0.00200 DLHC	0.00039	0.00127	0.00052	0.00052
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		5.99 DLHC	<0.010	0.429	0.064	<0.010
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		<0.000500 DLHC	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		52.2 DLHC	32.8	31.1	16.8	11.0
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.0692 DLHC	0.00111	0.0929	0.0161	0.00016
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		205 DLHC	1.48	9.60	0.856	0.280
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		<0.000500 DLHC	<0.000500 DLM	0.00195 DLM	<0.000500 DLM	<0.000500 DLM
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		5.48 DLHC	7.47	4.52	5.77	2.43
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		390 DLHC	22.7	27.2	23.5	8.02
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		<0.0100 DLHC	0.0010	<0.0010	<0.0010	<0.0010
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW1 ----	MW2 ----	MW3S ----	MW3D ----	MW4 ----
					Client sampling date / time	13-May-2025 10:30	13-May-2025 10:40	13-May-2025 12:10	13-May-2025 12:20	13-May-2025 09:50
						WT2511343-001	WT2511343-002	WT2511343-003	WT2511343-004	WT2511343-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		1.87 OWP	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		5.97 OWP	<0.50	<0.50	<0.50	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW1 ----	MW2 ----	MW3S ----	MW3D ----	MW4 ----
					Client sampling date / time	13-May-2025 10:30	13-May-2025 10:40	13-May-2025 12:10	13-May-2025 12:20	13-May-2025 09:50
						WT2511343-001	WT2511343-002	WT2511343-003	WT2511343-004	WT2511343-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		0.52 OWP	<0.50	<0.50	<0.50	<0.50
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		1.80 OWP	<0.50	<0.50	<0.50	<0.50
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW1 ----	MW2 ----	MW3S ----	MW3D ----	MW4 ----
					Client sampling date / time	13-May-2025 10:30	13-May-2025 10:40	13-May-2025 12:10	13-May-2025 12:20	13-May-2025 09:50
						WT2511343-001	WT2511343-002	WT2511343-003	WT2511343-004	WT2511343-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		8.48 OWP	<0.40	<0.40	<0.40	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		4.59 OWP	<0.30	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		13.1	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		97.9	97.0	98.5	97.7	98.5
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		97.9	97.0	98.5	97.7	98.5
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		96.8	97.5	97.6	97.0	97.3
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		96.8	97.5	97.6	97.0	97.3

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW5S ----	MW5D ----	MW6S ----	MW6D ----	MW7S ----
					Client sampling date / time	13-May-2025 11:10	13-May-2025 11:20	13-May-2025 11:30	13-May-2025 11:40	13-May-2025 11:50
						WT2511343-006	WT2511343-007	WT2511343-008	WT2511343-009	WT2511343-010
						Result	Result	Result	Result	Result
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		field	field	field	field	field
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		1310	294	395	842 RRV	333
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	<1.0	<1.0	<5.0 DLM	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	<1.0	<1.0	<5.0 DLM	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	<1.0	<1.0	<5.0 DLM	<1.0

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW5S ----	MW5D ----	MW6S ----	MW6D ----	MW7S ----
					Client sampling date / time	13-May-2025 11:10	13-May-2025 11:20	13-May-2025 11:30	13-May-2025 11:40	13-May-2025 11:50
						WT2511343-006	WT2511343-007	WT2511343-008	WT2511343-009	WT2511343-010
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		1310	294	395	842	333
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		433	228	380	249	325
pH	----	E108/WT	0.10	pH units		7.52	8.28	7.58	8.14	7.73
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		477 DLDS	370 DLDS	396 DLDS	373 DLDS	334 DLDS
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.0200	0.409	0.0068	<0.0050	0.0198
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		4.08	16.8	4.90	8.76	1.82
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		0.207	1.28	0.144	1.34	0.248
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0035	0.0062	0.0011	0.0062	0.0046
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		20.2	92.8	17.1	66.6	5.86
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		2.22	0.101	<0.020	<0.020	0.051
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		2.22	0.101	<0.0224	<0.0224	0.0510
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		1.96	0.64	1.42	1.17	1.25
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.0234	0.0027	0.0017	<0.0010	0.0112
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		<0.00100 DLM	<0.00100 DLM	<0.00100 DLM	0.00122 DLM	<0.00100 DLM
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.0605	0.0730	0.0482	0.0808	0.0672
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		<0.010	0.169	<0.010	0.029	<0.010

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW5S ----	MW5D ----	MW6S ----	MW6D ----	MW7S ----
					Client sampling date / time	13-May-2025 11:10	13-May-2025 11:20	13-May-2025 11:30	13-May-2025 11:40	13-May-2025 11:50
						WT2511343-006	WT2511343-007	WT2511343-008	WT2511343-009	WT2511343-010
						Result	Result	Result	Result	Result
Dissolved Metals										
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		0.0000080	0.0000067	<0.0000050	<0.0000050	<0.0000050
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		129	42.3	111	56.4	96.7
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		0.00076	0.00055	0.00045	0.00032	0.00095
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		0.022	<0.010	<0.010	<0.010	0.015
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		27.0	29.8	25.0	26.2	20.4
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.00196	0.00245	0.00015	0.00020	0.00077
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		1.35	1.80	0.471	1.61	0.507
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		<0.000500 DLM	<0.000500 DLM	<0.000500 DLM	<0.000500 DLM	<0.000500 DLM
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		3.90	4.85	4.32	7.11	4.33
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		5.44	58.3	4.46	46.0	4.67
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		0.0015	<0.0010	0.0014	<0.0010	0.0013
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	Field	Field	Field
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW5S ----	MW5D ----	MW6S ----	MW6D ----	MW7S ----
					Client sampling date / time	13-May-2025 11:10	13-May-2025 11:20	13-May-2025 11:30	13-May-2025 11:40	13-May-2025 11:50
						WT2511343-006	WT2511343-007	WT2511343-008	WT2511343-009	WT2511343-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW5S ----	MW5D ----	MW6S ----	MW6D ----	MW7S ----
					Client sampling date / time	13-May-2025 11:10	13-May-2025 11:20	13-May-2025 11:30	13-May-2025 11:40	13-May-2025 11:50
						WT2511343-006	WT2511343-007	WT2511343-008	WT2511343-009	WT2511343-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		98.1	95.9	97.8	97.9	98.3

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW5S ----	MW5D ----	MW6S ----	MW6D ----	MW7S ----
					Client sampling date / time	13-May-2025 11:10	13-May-2025 11:20	13-May-2025 11:30	13-May-2025 11:40	13-May-2025 11:50
						WT2511343-006	WT2511343-007	WT2511343-008	WT2511343-009	WT2511343-010
						Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		98.1	95.9	97.8	97.9	98.3
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		97.7	97.0	96.9	97.2	97.0
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.7	97.0	96.9	97.2	97.0

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW7D ----	MW8-B ----	MW9S ----	MW9D ----	MW10S ----
					Client sampling date / time	13-May-2025 12:00	13-May-2025 09:45	13-May-2025 10:00	13-May-2025 10:10	13-May-2025 10:50
						WT2511343-011	WT2511343-012	WT2511343-013	WT2511343-014	WT2511343-015
						Result	Result	Result	Result	Result
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		field	field	field	field	field
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		308	321	2650	1640	325
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<5.0 DLM	<5.0 DLM	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<5.0 DLM	<5.0 DLM	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<5.0 DLM	<5.0 DLM	<1.0
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		308	321	2650	1640	325
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		192	238	879	778	360
pH	----	E108/WT	0.10	pH units		8.26	8.05	7.27	7.38	7.89
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		330 DLDS	542 DLDS	1220 DLDS	1120 DLDS	385 DLDS
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.0054	8.40	35.1	9.97	0.0186

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW7D ----	MW8-B ----	MW9S ----	MW9D ----	MW10S ----
					Client sampling date / time	13-May-2025 12:00	13-May-2025 09:45	13-May-2025 10:00	13-May-2025 10:10	13-May-2025 10:50
						WT2511343-011	WT2511343-012	WT2511343-013	WT2511343-014	WT2511343-015
						Result	Result	Result	Result	Result
Anions and Nutrients										
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		<0.10	0.10	<0.50 DLDS	<0.50 DLDS	<0.10
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		2.11	64.1	84.2 DLDS	153 DLDS	5.99
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		1.64	0.843	1.01 DLDS	0.983 DLDS	0.219
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	0.014	<0.050 DLDS	<0.050 DLDS	<0.010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0044	0.0153	<0.0010	<0.0010	0.0024
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		14.8	55.6	20.1 DLDS	13.3 DLDS	18.6
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		0.053	<0.020	<0.100 DLDS	<0.100 DLDS	<0.020
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		0.0530	<0.0224	<0.112	<0.112	<0.0224
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		1.11	24.3	15.5	19.8	1.37
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.0017	0.0180 DLHC	<0.0100 DLHC	<0.0100 DLHC	0.0015
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00305 DLM	0.00792 DLHC	0.00167 DLHC	0.00307 DLHC	<0.00100 DLM
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.0730	0.0664 DLHC	0.453 DLHC	0.587 DLHC	0.0565
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		0.092	0.304 DLHC	0.724 DLHC	0.510 DLHC	<0.010
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		<0.0000050	<0.0000500 DLHC	<0.0000500 DLHC	<0.0000500 DLHC	<0.0000050
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		36.4	60.4 DLHC	179 DLHC	161 DLHC	101
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00050	<0.00500 DLHC	<0.00500 DLHC	<0.00500 DLHC	<0.00050
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		0.00037	<0.00200 DLHC	<0.00200 DLHC	<0.00200 DLHC	0.00117
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		<0.010	0.463 DLHC	0.657 DLHC	1.21 DLHC	<0.010
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		<0.000050	0.000943 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000050

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW7D ----	MW8-B ----	MW9S ----	MW9D ----	MW10S ----
					Client sampling date / time	13-May-2025 12:00	13-May-2025 09:45	13-May-2025 10:00	13-May-2025 10:10	13-May-2025 10:50
						WT2511343-011	WT2511343-012	WT2511343-013	WT2511343-014	WT2511343-015
						Result	Result	Result	Result	Result
Dissolved Metals										
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		24.5	21.2 DLHC	105 DLHC	91.4 DLHC	26.3
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.00198	0.337 DLHC	0.728 DLHC	0.152 DLHC	0.00117
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		1.29	26.3 DLHC	49.1 DLHC	22.8 DLHC	0.696
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		<0.000500 DLM	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLHC	<0.000500 DLM
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		7.07	5.24 DLHC	8.51 DLHC	7.92 DLHC	3.77
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		38.7	80.1 DLHC	106 DLHC	88.5 DLHC	4.68
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		<0.0010	<0.0100 DLHC	<0.0100 DLHC	<0.0100 DLHC	0.0018
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	Field	Field	Field
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	35	<20	84	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	0.99	23.2	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	<0.50	55.4	50.0	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	4.20	<0.50
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW7D ----	MW8-B ----	MW9S ----	MW9D ----	MW10S ----
					Client sampling date / time	13-May-2025 12:00	13-May-2025 09:45	13-May-2025 10:00	13-May-2025 10:10	13-May-2025 10:50
						WT2511343-011	WT2511343-012	WT2511343-013	WT2511343-014	WT2511343-015
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	71.9	35500	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	14.9	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	1.84	1320	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	3.48	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	0.63	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	540	<0.50
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	6.19	<0.50
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	309	<20
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

					Client sample ID	MW7D ----	MW8-B ----	MW9S ----	MW9D ----	MW10S ----
					Client sampling date / time	13-May-2025 12:00	13-May-2025 09:45	13-May-2025 10:00	13-May-2025 10:10	13-May-2025 10:50
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2511343-011	WT2511343-012	WT2511343-013	WT2511343-014	WT2511343-015
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	33.1	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	3.13	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	691	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	6740	<0.50
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	28.9	596000	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	416	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	3780	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	<0.20	0.41	3.89	<0.20
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	<0.40	1920	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	560	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	2480	<0.50
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		97.7	97.3	98.8	99.8	96.9
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		97.7	97.3	98.8	99.8	96.9
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		97.1	97.0	97.4	96.9	97.2
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.1	97.0	97.4	96.9	97.2

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW10D ----	MW11S ----	MW11D ----	DUP-06 ----	----
					Client sampling date / time	13-May-2025 11:00	13-May-2025 10:20	13-May-2025 10:25	13-May-2025 11:40	----
						WT2511343-016	WT2511343-017	WT2511343-018	WT2511343-019	----
						Result	Result	Result	Result	----
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		field	field	field	field	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		254	343	240	898 RRV	----
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	2.6	<5.0 DLM	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<5.0 DLM	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	1.3	<5.0 DLM	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		254	343	243	898	----
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		135	444	199	248	----
pH	----	E108/WT	0.10	pH units		8.17	8.07	8.31	7.97	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		237 DLDS	530 DLDS	304 DLDS	534 DLDS	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.0162	0.0195	0.0107	0.0167	----
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		3.26	1.03	0.77	8.69	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		1.62	1.40	2.00	1.34	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0058	0.0030	0.0065	0.0058	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		24.7	144	30.9	65.8	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		0.056	<0.020	0.067	<0.020	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		0.0560	<0.0224	0.0670	<0.0224	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW10D ----	MW11S ----	MW11D ----	DUP-06 ----	----
					Client sampling date / time	13-May-2025 11:00	13-May-2025 10:20	13-May-2025 10:25	13-May-2025 11:40	----
						WT2511343-016	WT2511343-017	WT2511343-018	WT2511343-019	----
						Result	Result	Result	Result	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		0.99	0.59	1.36	0.84	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.210	0.0032	<0.0010	0.0019	----
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00344 DLM	<0.00100 DLM	0.00662 DLM	0.00134 DLM	----
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.0482	0.0688	0.0788	0.0827	----
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		0.252	0.104	0.152	0.030	----
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		0.0000069	0.0000064	<0.0000050	<0.0000050	----
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		26.8	87.9	35.6	57.2	----
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		0.00050	0.00038	0.00048	0.00031	----
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		0.170	<0.010	<0.010	<0.010	----
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		0.000111	<0.000050	<0.000050	<0.000050	----
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		16.6	54.4	26.7	25.6	----
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.00879	0.00193	0.00028	0.00033	----
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		1.48	1.95	1.37	1.62	----
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		<0.000500 DLM	0.00385 DLM	<0.000500 DLM	<0.000500 DLM	----
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		5.21	6.97	6.84	7.33	----
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		36.6	30.3	38.7	46.2	----
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		<0.0010	0.0014	<0.0010	<0.0010	----
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	Field	Field	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW10D ----	MW11S ----	MW11D ----	DUP-06 ----	----
					Client sampling date / time	13-May-2025 11:00	13-May-2025 10:20	13-May-2025 10:25	13-May-2025 11:40	----
						WT2511343-016	WT2511343-017	WT2511343-018	WT2511343-019	----
						Result	Result	Result	Result	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	<20	<20	----
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW10D ----	MW11S ----	MW11D ----	DUP-06 ----	----
					Client sampling date / time	13-May-2025 11:00	13-May-2025 10:20	13-May-2025 10:25	13-May-2025 11:40	----
						WT2511343-016	WT2511343-017	WT2511343-018	WT2511343-019	----
						Result	Result	Result	Result	----
Volatile Organic Compounds										
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	<20	<20	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW10D ----	MW11S ----	MW11D ----	DUP-06 ----	----
					Client sampling date / time	13-May-2025 11:00	13-May-2025 10:20	13-May-2025 10:25	13-May-2025 11:40	----
						WT2511343-016	WT2511343-017	WT2511343-018	WT2511343-019	----
						Result	Result	Result	Result	----
Volatile Organic Compounds										
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	----
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		96.1	97.3	97.6	97.5	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		96.1	97.3	97.6	97.5	----
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		96.6	96.7	97.0	96.4	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		96.6	96.7	97.0	96.4	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2511343**	Page	: 1 of 39
Amendment	: 1		
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC GW	Date Samples Received	: 13-May-2025 14:30
PO	: 333568.002	Issue Date	: 10-Jul-2025 09:45
C-O-C number	: ----		
Sampler	: DH/ML		
Site	: West Perth		
Quote number	: West Perth Landfill		
No. of samples received	: 19		
No. of samples analysed	: 19		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW1	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW10D	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW10S	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW11D	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW11S	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW2	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW3D	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW3S	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW4	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW5D	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW5S	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW6D	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW6S	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW7D	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW7S	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW8-B	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW9D	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) MW9S	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP-06	E298	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW1	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW10D	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW10S	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW11D	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW11S	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW2	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
MW4	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
MW5D	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
MW5S	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
MW8-B	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
MW9D	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
MW9S	E235.Br	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
DUP-06	E235.Br	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
MW3D	E235.Br	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP]										
MW3S	E235.Br	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW6D	E235.Br	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW6S	E235.Br	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW7D	E235.Br	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] MW7S	E235.Br	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW1	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW10D	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW10S	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW11D	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW11S	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW2	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW4	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW5D	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW5S	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW8-B	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW9D	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW9S	E235.Cl	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] DUP-06	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW3D	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW3S	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW6D	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW6S	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW7D	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] MW7S	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP] MW1	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP] MW10D	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP] MW10S	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP] MW11D	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW11S	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW2	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW4	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW5D	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW5S	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW8-B	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW9D	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW9S	E378-U	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
DUP-06	E378-U	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW3D	E378-U	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW3S	E378-U	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW6D	E378-U	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW6S	E378-U	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW7D	E378-U	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP]										
MW7S	E378-U	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW1	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW10D	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW10S	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW11D	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW11S	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW2	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW4	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW5D	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW5S	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW8-B	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW9D	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP]										
MW9S	E235.F	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] DUP-06	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] MW3D	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] MW3S	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] MW6D	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] MW6S	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] MW7D	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] MW7S	E235.F	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW1	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW10D	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW10S	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW11D	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW11S	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW2	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW4	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW5D	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW5S	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW8-B	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] MW9D	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
MW9S	E235.NO3	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
DUP-06	E235.NO3	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
MW3D	E235.NO3	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
MW3S	E235.NO3	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
MW6D	E235.NO3	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
MW6S	E235.NO3	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
MW7D	E235.NO3	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
MW7S	E235.NO3	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW1	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW10D	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW10S	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW11D	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW11S	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW2	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW4	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW5D	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW5S	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW8-B	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW9D	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW9S	E235.NO2	13-May-2025	15-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
DUP-06	E235.NO2	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW3D	E235.NO2	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW3S	E235.NO2	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW6D	E235.NO2	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW6S	E235.NO2	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW7D	E235.NO2	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
MW7S	E235.NO2	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW1	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW10D	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW10S	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW11D	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW11S	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW2	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW4	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW5D	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW5S	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW8-B	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW9D	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW9S	E235.SO4	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] DUP-06	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW3D	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW3S	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW6D	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW6S	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW7D	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] MW7S	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) DUP-06	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW1	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW10D	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW10S	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW11D	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW11S	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW2	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW3D	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW3S	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW4	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW5D	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW5S	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW6D	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW6S	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW7D	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW7S	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW8-B	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW9D	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW9S	E421	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) [ON MECP] DUP-06	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW1	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW10D	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW10S	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW11D	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW11S	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW2	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW3D	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW3S	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW4	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW5D	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW5S	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW6D	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW6S	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW7D	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid) MW7S	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
MW8-B	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
MW9D	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (field filtered/sulfuric acid)										
MW9S	E358-L	13-May-2025	14-May-2025	28 days	1 days	✓	15-May-2025	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
MW1	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
MW10D	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
MW10S	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
MW11D	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
MW11S	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
MW2	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW4	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW5D	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW5S	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW8-B	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW9D	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW9S	E290	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] DUP-06	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW3D	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW3S	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW6D	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW6S	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW7D	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] MW7S	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW1	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW10D	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW10S	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW11D	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW11S	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Physical Tests : pH by Meter										
HDPE [ON MECP] MW2	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW4	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW5D	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW5S	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW8-B	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW9D	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW9S	E108	13-May-2025	15-May-2025	14 days	2 days	✓	16-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] DUP-06	E108	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW3D	E108	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE [ON MECP] MW3S	E108	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW6D	E108	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW6S	E108	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW7D	E108	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] MW7S	E108	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] DUP-06	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW1	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW10D	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW10S	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW11D	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW11S	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW2	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW3D	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW3S	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW4	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW5D	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW5S	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW6D	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW6S	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW7D	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW7S	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW8-B	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW9D	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] MW9S	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) DUP-06	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW1	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW10D	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW10S	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW11D	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW11S	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW2	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW3D	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW3S	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW4	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW5D	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW5S	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW6D	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW6S	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW7D	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW7S	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW8-B	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW9D	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW9S	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) DUP-06	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW1	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW10D	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW10S	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW11D	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW11S	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW2	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW3D	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW3S	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW4	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW5D	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW5S	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW6D	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW6S	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW7D	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW7S	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW8-B	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW9D	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) MW9S	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter	E108	1999165	2	36	5.5	5.0	✓
TDS by Gravimetry	E162	2004498	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	1999162	2	25	8.0	5.0	✓
Chloride in Water by IC	E235.Cl	1999160	2	34	5.8	5.0	✓
Fluoride in Water by IC	E235.F	1999158	2	33	6.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1999159	2	37	5.4	5.0	✓
Nitrate in Water by IC	E235.NO3	1999157	2	40	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1999161	2	33	6.0	5.0	✓
Alkalinity Species by Titration	E290	1999164	2	33	6.0	5.0	✓
Ammonia by Fluorescence	E298	1998041	3	60	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996548	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1999166	2	30	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1994992	1	19	5.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994522	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994521	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	1999165	2	36	5.5	5.0	✓
TDS by Gravimetry	E162	2004498	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	1999162	2	25	8.0	5.0	✓
Chloride in Water by IC	E235.Cl	1999160	2	34	5.8	5.0	✓
Fluoride in Water by IC	E235.F	1999158	2	33	6.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1999159	2	37	5.4	5.0	✓
Nitrate in Water by IC	E235.NO3	1999157	2	40	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1999161	2	33	6.0	5.0	✓
Alkalinity Species by Titration	E290	1999164	2	33	6.0	5.0	✓
Ammonia by Fluorescence	E298	1998041	3	60	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996548	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1999166	2	30	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1994992	1	19	5.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994522	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994521	1	20	5.0	5.0	✓
Method Blanks (MB)							
TDS by Gravimetry	E162	2004498	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	1999162	2	25	8.0	5.0	✓
Chloride in Water by IC	E235.Cl	1999160	2	34	5.8	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Fluoride in Water by IC	E235.F	1999158	2	33	6.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1999159	2	37	5.4	5.0	✓
Nitrate in Water by IC	E235.NO3	1999157	2	40	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1999161	2	33	6.0	5.0	✓
Alkalinity Species by Titration	E290	1999164	2	33	6.0	5.0	✓
Ammonia by Fluorescence	E298	1998041	3	60	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996548	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1999166	2	30	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1994992	1	19	5.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994522	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994521	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC	E235.Br	1999162	2	25	8.0	5.0	✓
Chloride in Water by IC	E235.Cl	1999160	2	34	5.8	5.0	✓
Fluoride in Water by IC	E235.F	1999158	2	33	6.0	5.0	✓
Nitrite in Water by IC	E235.NO2	1999159	2	37	5.4	5.0	✓
Nitrate in Water by IC	E235.NO3	1999157	2	40	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	1999161	2	33	6.0	5.0	✓
Ammonia by Fluorescence	E298	1998041	3	60	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996548	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1999166	2	30	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	1994992	1	19	5.2	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994522	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994521	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC	E235.Br ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Prairies List) by Headspace GC-MS	E611E ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

QUALITY CONTROL REPORT

Work Order	: **WT2511343**	Page	: 1 of 17
Amendment	: **1**		
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC GW	Date Samples Received	: 13-May-2025 14:30
PO	: 333568.002	Date Analysis Commenced	: 13-May-2025
C-O-C number	: ----	Issue Date	: 10-Jul-2025 09:45
Sampler	: DH/ML		
Site	: West Perth		
Quote number	: West Perth Landfill		
No. of samples received	: 19		
No. of samples analysed	: 19		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Centralized Prep, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1999164)											
HA2501397-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	1.7	1.6	0.06	Diff <2x LOR	----
Physical Tests (QC Lot: 1999165)											
WT2511343-001	MW1	pH	----	E108	0.10	pH units	7.49	7.44	0.670%	4%	----
Physical Tests (QC Lot: 2000918)											
WT2511440-001	Anonymous	pH	----	E108	0.10	pH units	7.83	7.94	1.40%	4%	----
Physical Tests (QC Lot: 2000919)											
WT2511440-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	677	676	0.133%	20%	----
Physical Tests (QC Lot: 2004498)											
WT2511343-001	MW1	Solids, total dissolved [TDS]	----	E162	20	mg/L	1880	1890	0.637%	20%	----
Anions and Nutrients (QC Lot: 1998041)											
HA2501380-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0500	mg/L	3.74	3.44	8.29%	20%	----
Anions and Nutrients (QC Lot: 1998913)											
HA2501392-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0362	0.0382	0.0020	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1999157)											
WT2511343-001	MW1	Nitrate (as N)	14797-55-8	E235.NO3	0.200	mg/L	<0.200	<0.200	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1999158)											
WT2511343-001	MW1	Fluoride	16984-48-8	E235.F	0.200	mg/L	0.380	0.366	0.013	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1999159)											
WT2511343-001	MW1	Nitrite (as N)	14797-65-0	E235.NO2	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1999160)											
WT2511343-001	MW1	Chloride	16887-00-6	E235.Cl	5.00	mg/L	393	394	0.282%	20%	----
Anions and Nutrients (QC Lot: 1999161)											
WT2511343-001	MW1	Sulfate (as SO4)	14808-79-8	E235.SO4	3.00	mg/L	<3.00	<3.00	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1999162)											
WT2511343-001	MW1	Bromide	24959-67-9	E235.Br	1.00	mg/L	1.62	1.68	0.06	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1999166)											
HA2501275-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0043	0.0039	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000484)											
HA2501275-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0286	0.0280	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000912)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 2000912) - continued											
WT2511343-003	MW3S	Nitrate (as N)	14797-55-8	E235.NO3	0.100	mg/L	3.56	3.56	0.144%	20%	----
Anions and Nutrients (QC Lot: 2000913)											
WT2511343-003	MW3S	Chloride	16887-00-6	E235.Cl	2.50	mg/L	38.2	38.2	0.177%	20%	----
Anions and Nutrients (QC Lot: 2000914)											
WT2511343-003	MW3S	Bromide	24959-67-9	E235.Br	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000915)											
WT2511343-003	MW3S	Fluoride	16984-48-8	E235.F	0.100	mg/L	0.136	0.133	0.003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000916)											
WT2511343-003	MW3S	Nitrite (as N)	14797-65-0	E235.NO2	0.050	mg/L	0.879	0.878	0.187%	20%	----
Anions and Nutrients (QC Lot: 2000917)											
WT2511343-003	MW3S	Sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	13.7	13.7	0.08	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000921)											
WT2511343-003	MW3S	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1996548)											
WT2511343-001	MW1	Carbon, dissolved organic [DOC]	----	E358-L	2.50	mg/L	54.0	54.3	0.600%	20%	----
Dissolved Metals (QC Lot: 1994992)											
WT2511343-002	MW2	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0013	0.0012	0.0001	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00100	mg/L	0.00447	0.00498	0.00051	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.178	0.177	0.555%	20%	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.092	0.090	0.002	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	49.6	50.2	1.18%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00039	0.00040	0.000007	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	32.8	31.8	2.98%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00111	0.00112	0.215%	20%	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.48	1.47	0.434%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	7.47	7.40	0.996%	20%	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	22.7	22.2	2.34%	20%	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0010	0.0010	0.00003	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1994521)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1994521) - continued											
WT2511343-001	MW1	Trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1994522)											
WT2511343-001	MW1	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	1.87	1.88	0.01	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	5.97	5.90	1.18%	30%	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	0.52	0.52	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1994522) - continued											
WT2511343-001	MW1	Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	1.80	1.80	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	8.48	8.24	2.87%	30%	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	4.59	4.52	1.54%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1999164)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.0	----
Physical Tests (QCLot: 2000919)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2004498)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1998041)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1998913)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 1999157)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1999158)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1999159)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1999160)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1999161)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1999162)						
Bromide	24959-67-9	E235.Br	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 1999166)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2000484)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 2000484) - continued						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2000912)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2000913)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2000914)						
Bromide	24959-67-9	E235.Br	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 2000915)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2000916)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2000917)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2000921)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Organic / Inorganic Carbon (QCLot: 1996548)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Dissolved Metals (QCLot: 1994992)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1994521)						
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----
Volatile Organic Compounds (QCLot: 1994522)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1994522) - continued						
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1999164)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	99.8	85.0	115	----
Physical Tests (QCLot: 1999165)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 2000918)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 2000919)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	98.6	85.0	115	----
Physical Tests (QCLot: 2004498)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 1998041)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.6	85.0	115	----
Anions and Nutrients (QCLot: 1998913)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	97.8	85.0	115	----
Anions and Nutrients (QCLot: 1999157)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 1999158)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1999159)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1999160)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 1999161)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 1999162)									
Bromide	24959-67-9	E235.Br	0.1	mg/L	0.5 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 1999166)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	99.6	80.0	120	----
Anions and Nutrients (QCLot: 2000484)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	106	85.0	115	----
Anions and Nutrients (QCLot: 2000912)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.6	90.0	110	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Anions and Nutrients (QCLot: 2000913)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.6	90.0	110	----
Anions and Nutrients (QCLot: 2000914)									
Bromide	24959-67-9	E235.Br	0.1	mg/L	0.5 mg/L	96.1	85.0	115	----
Anions and Nutrients (QCLot: 2000915)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2000916)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2000917)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2000921)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	102	80.0	120	----
Organic / Inorganic Carbon (QCLot: 1996548)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.7	80.0	120	----
Dissolved Metals (QCLot: 1994992)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	102	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	106	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.012 mg/L	104	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	99.1	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	106	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	101	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.012 mg/L	102	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.012 mg/L	99.3	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	96.7	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	101	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	109	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.012 mg/L	102	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	100.0	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	100	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	98.9	60.0	140	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	103	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	100	80.0	120	----
Volatile Organic Compounds (QCLot: 1994521)									
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	104	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1994522)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	116	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	97.1	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	92.1	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	82.2	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	97.8	70.0	130	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	91.9	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	104	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	116	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	96.6	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	96.0	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	114	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	94.1	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	98.8	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	98.6	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	97.4	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	94.6	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	105	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	103	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	100.0	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	95.3	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	96.4	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1994522) - continued									
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	91.8	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	98.8	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	97.6	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	95.2	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	109	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	110	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	105	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1998041)										
HA2501380-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1998913)										
HA2501392-002	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.104 mg/L	0.1 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 1999157)										
WT2511343-001	MW1	Nitrate (as N)	14797-55-8	E235.NO3	23.7 mg/L	25 mg/L	95.0	75.0	125	----
Anions and Nutrients (QCLot: 1999158)										
WT2511343-001	MW1	Fluoride	16984-48-8	E235.F	10.1 mg/L	10 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1999159)										
WT2511343-001	MW1	Nitrite (as N)	14797-65-0	E235.NO2	4.84 mg/L	5 mg/L	96.9	75.0	125	----
Anions and Nutrients (QCLot: 1999160)										
WT2511343-001	MW1	Chloride	16887-00-6	E235.Cl	970 mg/L	1000 mg/L	97.0	75.0	125	----
Anions and Nutrients (QCLot: 1999161)										
WT2511343-001	MW1	Sulfate (as SO4)	14808-79-8	E235.SO4	970 mg/L	1000 mg/L	97.0	75.0	125	----
Anions and Nutrients (QCLot: 1999162)										
WT2511343-001	MW1	Bromide	24959-67-9	E235.Br	5.03 mg/L	5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1999166)										
HA2501275-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0171 mg/L	0.02 mg/L	87.4	70.0	130	----
Anions and Nutrients (QCLot: 2000484)										
HA2501275-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2000912)										
WT2511343-003	MW3S	Nitrate (as N)	14797-55-8	E235.NO3	12.3 mg/L	12.5 mg/L	98.8	75.0	125	----
Anions and Nutrients (QCLot: 2000913)										
WT2511343-003	MW3S	Chloride	16887-00-6	E235.Cl	495 mg/L	500 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 2000914)										
WT2511343-003	MW3S	Bromide	24959-67-9	E235.Br	2.23 mg/L	2.5 mg/L	89.2	75.0	125	----
Anions and Nutrients (QCLot: 2000915)										
WT2511343-003	MW3S	Fluoride	16984-48-8	E235.F	5.21 mg/L	5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 2000916)										
WT2511343-003	MW3S	Nitrite (as N)	14797-65-0	E235.NO2	2.53 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 2000917)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2000917) - continued										
WT2511343-003	MW3S	Sulfate (as SO4)	14808-79-8	E235.SO4	497 mg/L	500 mg/L	99.4	75.0	125	----
Anions and Nutrients (QCLot: 2000921)										
WT2511343-003	MW3S	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0184 mg/L	0.02 mg/L	93.7	70.0	130	----
Organic / Inorganic Carbon (QCLot: 1996548)										
WT2511343-001	MW1	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Dissolved Metals (QCLot: 1994992)										
WT2511343-003	MW3S	Aluminum, dissolved	7429-90-5	E421	0.112 mg/L	0.1 mg/L	112	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.541 mg/L	0.5 mg/L	108	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Boron, dissolved	7440-42-8	E421	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00542 mg/L	0.005 mg/L	108	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0135 mg/L	0.012 mg/L	108	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0120 mg/L	0.012 mg/L	95.9	70.0	130	----
		Iron, dissolved	7439-89-6	E421	ND mg/L	----	ND	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0243 mg/L	0.025 mg/L	97.1	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.536 mg/L	0.5 mg/L	107	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	----	ND	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0264 mg/L	0.025 mg/L	106	70.0	130	----
Volatile Organic Compounds (QCLot: 1994521)										
WT2511343-001	MW1	Trichlorobenzene, 1,2,4-	120-82-1	E611E	101 µg/L	100 µg/L	101	60.0	140	----
Volatile Organic Compounds (QCLot: 1994522)										
WT2511343-001	MW1	Acetone	67-64-1	E611D	99 µg/L	100 µg/L	99.0	60.0	140	----
		Benzene	71-43-2	E611D	98.9 µg/L	100 µg/L	98.9	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	94.8 µg/L	100 µg/L	94.8	60.0	140	----
		Bromoform	75-25-2	E611D	84.6 µg/L	100 µg/L	84.6	60.0	140	----
		Bromomethane	74-83-9	E611D	79.1 µg/L	100 µg/L	79.1	60.0	140	----
		Carbon disulfide	75-15-0	E611D	95.6 µg/L	100 µg/L	95.6	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	87.5 µg/L	100 µg/L	87.5	60.0	140	----
		Chlorobenzene	108-90-7	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Chloroethane	75-00-3	E611D	98.3 µg/L	100 µg/L	98.3	60.0	140	----
		Chloroform	67-66-3	E611D	95.1 µg/L	100 µg/L	95.1	60.0	140	----
		Chloromethane	74-87-3	E611D	111 µg/L	100 µg/L	111	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	91.9 µg/L	100 µg/L	91.9	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	98.1 µg/L	100 µg/L	98.1	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	96.8 µg/L	100 µg/L	96.8	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1994522) - continued										
WT2511343-001	MW1	Dichlorobenzene, 1,4-	106-46-7	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	96.8 µg/L	100 µg/L	96.8	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	93.5 µg/L	100 µg/L	93.5	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	96.6 µg/L	100 µg/L	96.6	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	99.1 µg/L	100 µg/L	99.1	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Dichloromethane	75-09-2	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	99.5 µg/L	100 µg/L	99.5	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Ethylbenzene	100-41-4	E611D	98.9 µg/L	100 µg/L	98.9	60.0	140	----
		Hexane, n-	110-54-3	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	95 µg/L	100 µg/L	94.9	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----
		Styrene	100-42-5	E611D	93.4 µg/L	100 µg/L	93.4	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	91.1 µg/L	100 µg/L	91.1	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	89.8 µg/L	100 µg/L	89.8	60.0	140	----
		Toluene	108-88-3	E611D	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	87.4 µg/L	100 µg/L	87.4	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	95.5 µg/L	100 µg/L	95.5	60.0	140	----
		Trichloroethylene	79-01-6	E611D	94.3 µg/L	100 µg/L	94.3	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	89.5 µg/L	100 µg/L	89.5	60.0	140	----
		Vinyl chloride	75-01-4	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	207 µg/L	200 µg/L	103	60.0	140	----
		Xylene, o-	95-47-6	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----

GC - 982 1983
MM - 877
N - 788 1789
VM - 174

GP

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Page

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division
Waterloo
Work Order Reference
WT2511343

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please contact y

Project Information

ALS Account # / Quote #:	PINC100 / West Perth
Job #:	West Perth Mitchell Domestic GW
PO / AFE:	333568.002
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): WT2511343 FH.

ALS Contact: Amanda Overholster **Sampler:** DH/ML

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	F/P	West Perth Mitchell Domestic Groundwater (includes Dissolved Metals and DOC)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRE	SUSPECTED HAZARD (see notes
	MW1	13/05/25	10:30	GW	6		R			
	MW2		10:40				R			
	MW3S		12:10				R			
	MW3D		12:20				R			
	MW4		9:50				R			
	MW5S		11:10				R			
	MW5D		11:20				R			
	MW6S		11:30				R			
	MW6D		11:40				R			
	MW7S		11:50				R			
	MW7D		12:00				R			
	MW8-B		9:45				R			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO
Are samples for human consumption/ use?
YES NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☑ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.2	4.8						

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
DH/ML GW	13/05/25	2:15

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
GP	2025-05-13	14:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

GP

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Canada Toll Free: 1 800 668 9878

ALS www.alsglobal.com

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL MAIL ☐ FAX

Email 1 or Fax dbettencourt@Pinchin.com

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL MAIL ☐ FAX

Email 1 or Fax dbettencourt@Pinchin.com

Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

- ☑ Routine [R] if received by 3pm M-F - no surcharges apply
- ☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
- ☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
- ☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
- ☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
- ☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:	PINC100 / West Perth
Job #:	West Perth Mitchell Domestic GW
PO / AFE:	333568.002
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact: Amanda Overholster

Sampler: DH/ML

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	West Perth Mitchell Domestic Groundwater (includes Dissolved Metals & DOC) F/P	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW9S	13/05/25	10:00	GW	6	R			
	MW9D		10:10			R			
	MW10S		10:50			R			
	MW10D		11:00			R			
	MW11S		10:20			R			
	MW11D		10:25			R			
	DUP-06		11:40			R			
						R			
						R			
						R			
						R			
						R			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? YES NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☑ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INIITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.2	4.8						

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: DH/ML	Date: 13/05/25	Time: 2:15	Received by:	Date:	Time:	Received by: GP	Date: 2025-05-13	Time: 14:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	: **WT2511345**			
Amendment	: **1**			
Client	: **Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: ----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	: WEST PERTH MITCHELL DOMESTIC LEACHATE PUMPING	Telephone	:	1 416 817 2944
PO	: 333568.002	Date Samples Received	:	13-May-2025 14:30
C-O-C number	: ----	Date Analysis Commenced	:	13-May-2025
Sampler	: DH/ML	Issue Date	:	10-Jul-2025 10:00
Site	: West Perth			
Quote number	: West Perth Landfill			
No. of samples received	: 1			
No. of samples analysed	: 1			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett		VOC, Waterloo, Ontario
Greg Pokocky		Metals, Waterloo, Ontario
Greg Pokocky		Inorganics, Waterloo, Ontario
Greg Pokocky		Centralized Prep, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (09/07/2025): This report has been amended following changes to the analytical data reported. The quality system is being utilised to resolve this issue. The specific data affected includes Alkalinity.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
SP	Sample was preserved at the laboratory.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time	13-May-2025 12:30	----	----	----	----
						WT2511345-001	----	----	----	----
						Result	----	----	----	----
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		lab	----	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		3190	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		3190	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WT	0.50	mg/L		1180	----	----	----	----
pH	----	E108/WT	0.10	pH units		8.04	----	----	----	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		5090 DLDS	----	----	----	----
Solids, total suspended [TSS]	----	E160/WT	3.0	mg/L		18.2	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		400	----	----	----	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		1180 DLM	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/WT	0.050	mg/L		606	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.200 DLM	----	----	----	----
Nitrogen, total organic	----	EC363/WT	0.050	mg/L		206	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/WT	0.0020	mg/L		5.61	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		139 DLM	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		12.2 DLM	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		12.2	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time: 13-May-2025 12:30	----	----	----	----
					WT2511345-001	----	----	----	----
					Result	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L	352	----	----	----	----
Total Metals									
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L	0.0542 DLHC	----	----	----	----
Barium, total	7440-39-3	E420/WT	0.00010	mg/L	0.209 DLHC	----	----	----	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L	9.51 DLHC	----	----	----	----
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L	<0.0000500 DLHC	----	----	----	----
Calcium, total	7440-70-2	E420/WT	0.050	mg/L	295 DLHC	----	----	----	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L	0.134 DLHC	----	----	----	----
Cobalt, total	7440-48-4	E420/WT	0.00010	mg/L	0.0184 DLHC	----	----	----	----
Copper, total	7440-50-8	E420/WT	0.00050	mg/L	0.00912 DLHC	----	----	----	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L	3.12 DLHC	----	----	----	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L	0.00249 DLHC	----	----	----	----
Manganese, total	7439-96-5	E420/WT	0.00010	mg/L	0.922 DLHC	----	----	----	----
Molybdenum, total	7439-98-7	E420/WT	0.000050	mg/L	0.00388 DLHC	----	----	----	----
Nickel, total	7440-02-0	E420/WT	0.00050	mg/L	0.0616 DLHC	----	----	----	----
Selenium, total	7782-49-2	E420/WT	0.000050	mg/L	0.00143 DLHC	----	----	----	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L	0.0492 DLHC	----	----	----	----
Dissolved Metals									
Mercury, dissolved	7439-97-6	E509/WT	0.0000050	mg/L	<0.0000500 DLM	----	----	----	----
Dissolved mercury filtration location	----	EP509/WT	-	-	Laboratory	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

					Client sample ID	LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time	13-May-2025 12:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2511345-001	----	----	----	----
						Result	----	----	----	----
Aggregate Organics										
Chemical oxygen demand [COD]	----	E559-L/WT	10	mg/L		1270	----	----	----	----
Phenols, total (4AAP)	----	E562/WT	0.0010	mg/L		0.0084 SP	----	----	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		25	----	----	----	----
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

					Client sample ID	LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time	13-May-2025 12:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2511345-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		0.75	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Toluene	108-88-3	E611D/WT	0.50	µg/L		0.68	----	----	----	----
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

					Client sample ID	LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time	13-May-2025 12:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2511345-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		1.99	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		1.05	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		3.04	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		98.0	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		98.0	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		95.7	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		95.7	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2511345**	Page	: 1 of 10
Amendment	: 1		
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC LEACHATE PUMPING STATION	Date Samples Received	: 13-May-2025 14:30
PO	: 333568.002	Issue Date	: 10-Jul-2025 09:59
C-O-C number	: ----		
Sampler	: DH/ML		
Site	: West Perth		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) LEACHATE P.S.	E559-L	13-May-2025	----	----	----		16-May-2025	28 days	3 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) LEACHATE P.S.	E562	13-May-2025	15-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) LEACHATE P.S.	E298	13-May-2025	15-May-2025	28 days	2 days	✓	16-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] LEACHATE P.S.	E235.Cl	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] LEACHATE P.S.	E235.NO3	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP] LEACHATE P.S.	E235.NO2	13-May-2025	16-May-2025	7 days	3 days	✓	20-May-2025	7 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] LEACHATE P.S.	E235.SO4	13-May-2025	16-May-2025	28 days	3 days	✓	20-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) LEACHATE P.S.	E318	13-May-2025	16-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) LEACHATE P.S.	E372-U	13-May-2025	20-May-2025	28 days	7 days	✓	20-May-2025	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab filtered) LEACHATE P.S.	E509	13-May-2025	15-May-2025	0 hrs	45 hrs	× UCP	15-May-2025	0 hrs	45 hrs	× UCP
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (lab preserved) [ON MECP] LEACHATE P.S.	E358-L	13-May-2025	14-May-2025	3 days	1 days	✓	15-May-2025	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] LEACHATE P.S.	E290	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] LEACHATE P.S.	E108	13-May-2025	16-May-2025	14 days	3 days	✓	16-May-2025	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] LEACHATE P.S.	E162	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] LEACHATE P.S.	E160	13-May-2025	----	----	----		20-May-2025	7 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) LEACHATE P.S.	E420	13-May-2025	14-May-2025	180 days	1 days	✓	14-May-2025	180 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) LEACHATE P.S.	E611D	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) LEACHATE P.S.	E611E	13-May-2025	13-May-2025	14 days	0 days	✓	13-May-2025	14 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter	E108	2000304	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	2004517	1	20	5.0	4.7	✓
TDS by Gravimetry	E162	2004521	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2000308	1	19	5.2	5.0	✓
Nitrite in Water by IC	E235.NO2	2000306	1	10	10.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2000307	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2000309	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2000303	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1998041	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1998039	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996548	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1998040	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1995265	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1997588	1	20	5.0	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2000698	1	11	9.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1998042	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994522	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994521	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	2000304	1	19	5.2	5.0	✓
TSS by Gravimetry	E160	2004517	1	20	5.0	4.7	✓
TDS by Gravimetry	E162	2004521	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2000308	1	19	5.2	5.0	✓
Nitrite in Water by IC	E235.NO2	2000306	1	10	10.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2000307	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2000309	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2000303	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1998041	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1998039	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996548	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1998040	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1995265	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1997588	1	20	5.0	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2000698	1	11	9.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1998042	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994522	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
VOCs (Prairies List) by Headspace GC-MS	E611E	1994521	1	20	5.0	5.0	✓
Method Blanks (MB)							
TSS by Gravimetry	E160	2004517	1	20	5.0	4.7	✓
TDS by Gravimetry	E162	2004521	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2000308	1	19	5.2	5.0	✓
Nitrite in Water by IC	E235.NO2	2000306	1	10	10.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2000307	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2000309	1	19	5.2	5.0	✓
Alkalinity Species by Titration	E290	2000303	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	1998041	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1998039	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996548	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1998040	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1995265	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1997588	1	20	5.0	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2000698	1	11	9.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1998042	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994522	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994521	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	2000308	1	19	5.2	5.0	✓
Nitrite in Water by IC	E235.NO2	2000306	1	10	10.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2000307	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2000309	1	19	5.2	5.0	✓
Ammonia by Fluorescence	E298	1998041	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1998039	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996548	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1998040	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1995265	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1997588	1	20	5.0	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2000698	1	11	9.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1998042	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994522	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994521	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Waterloo	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L ALS Environmental - Waterloo	Water	APHA 5220 D (mod)	Samples are analyzed using the closed reflux colourimetric method.
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Waterloo	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide (K3Fe(CN)6) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Prairies List) by Headspace GC-MS	E611E ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as $CaCO_3$ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Total Organic Nitrogen (Calculation)	EC363 ALS Environmental - Waterloo	Water	APHA 4500-NORG (TKN)/NH3-NITROGEN (NH3)	Total Organic Nitrogen is a calculated parameter. Total Organic Nitrogen = Total Kjeldahl Nitrogen - Ammonia.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Waterloo	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

QUALITY CONTROL REPORT

Work Order	: **WT2511345**	Page	: 1 of 14
Amendment	: **1**		
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC LEACHATE PUMPING STATION	Date Samples Received	: 13-May-2025 14:30
PO	: 333568.002	Date Analysis Commenced	: 13-May-2025
C-O-C number	: ----	Issue Date	: 10-Jul-2025 09:59
Sampler	: DH/ML		
Site	: West Perth		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Centralized Prep, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2000303)											
WT2511598-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	334	336	0.610%	20%	----
Physical Tests (QC Lot: 2000304)											
WT2511598-001	Anonymous	pH	----	E108	0.10	pH units	7.98	7.99	0.125%	4%	----
Physical Tests (QC Lot: 2004517)											
WT2511345-001	LEACHATE P.S.	Solids, total suspended [TSS]	----	E160	3.0	mg/L	18.2	14.2	4.0	Diff <2x LOR	----
Physical Tests (QC Lot: 2004521)											
WT2511345-001	LEACHATE P.S.	Solids, total dissolved [TDS]	----	E162	20	mg/L	5090	4670	8.67%	20%	----
Anions and Nutrients (QC Lot: 1998039)											
HA2501380-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.500	mg/L	11.6	11.4	2.27%	20%	----
Anions and Nutrients (QC Lot: 1998040)											
WT2511009-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.200	mg/L	0.645	0.697	0.0520	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1998041)											
HA2501380-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0500	mg/L	3.74	3.44	8.29%	20%	----
Anions and Nutrients (QC Lot: 2000306)											
WT2511345-001	LEACHATE P.S.	Nitrite (as N)	14797-65-0	E235.NO2	0.200	mg/L	<0.200	<0.200	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2000307)											
WT2511345-001	LEACHATE P.S.	Nitrate (as N)	14797-55-8	E235.NO3	0.400	mg/L	12.2	12.2	0.533%	20%	----
Anions and Nutrients (QC Lot: 2000308)											
WT2511345-001	LEACHATE P.S.	Chloride	16887-00-6	E235.Cl	10.0	mg/L	1180	1180	0.422%	20%	----
Anions and Nutrients (QC Lot: 2000309)											
WT2511345-001	LEACHATE P.S.	Sulfate (as SO4)	14808-79-8	E235.SO4	6.00	mg/L	139	138	0.853%	20%	----
Organic / Inorganic Carbon (QC Lot: 1996548)											
WT2511343-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	2.50	mg/L	54.0	54.3	0.600%	20%	----
Total Metals (QC Lot: 1995265)											
WT2511349-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00066	0.00067	0.00001	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0263	0.0263	0.0889%	20%	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.108	0.108	0.394%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000187	0.0000188	0.0000001	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	53.0	52.6	0.720%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1995265) - continued											
WT2511349-001	Anonymous	Cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00198	0.00197	0.000007	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.423	0.422	0.395%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000326	0.000324	0.000001	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0753	0.0754	0.152%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00439	0.00437	0.356%	20%	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	0.00071	0.00071	0.000001	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	0.000570	0.000557	2.22%	20%	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0406	0.0409	0.687%	20%	----
Dissolved Metals (QC Lot: 1997588)											
HA2501410-008	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1998042)											
HA2501380-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	0.0037	0.0038	0.0002	Diff <2x LOR	----
Aggregate Organics (QC Lot: 2000698)											
HA2501429-001	Anonymous	Chemical oxygen demand [COD]	----	E559-L	10	mg/L	690	708	2.69%	20%	----
Volatile Organic Compounds (QC Lot: 1994521)											
WT2511343-001	Anonymous	Trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1994522)											
WT2511343-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	1.87	1.88	0.01	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	5.97	5.90	1.18%	30%	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1994522) - continued											
WT2511343-001	Anonymous	Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	0.52	0.52	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	1.80	1.80	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	8.48	8.24	2.87%	30%	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	4.59	4.52	1.54%	30%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2000303)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2004517)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2004521)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1998039)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1998040)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1998041)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2000306)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2000307)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2000308)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2000309)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Organic / Inorganic Carbon (QCLot: 1996548)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1995265)						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1995265) - continued						
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Dissolved Metals (QCLot: 1997588)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 1998042)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Aggregate Organics (QCLot: 2000698)						
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	----
Volatile Organic Compounds (QCLot: 1994521)						
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----
Volatile Organic Compounds (QCLot: 1994522)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1994522) - continued						
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2000303)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	102	85.0	115	----
Physical Tests (QCLot: 2000304)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 2004517)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	98.0	85.0	115	----
Physical Tests (QCLot: 2004521)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	99.4	85.0	115	----
Anions and Nutrients (QCLot: 1998039)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 1998040)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.333 mg/L	98.3	80.0	120	----
Anions and Nutrients (QCLot: 1998041)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.6	85.0	115	----
Anions and Nutrients (QCLot: 2000306)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	97.5	90.0	110	----
Anions and Nutrients (QCLot: 2000307)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.8	90.0	110	----
Anions and Nutrients (QCLot: 2000308)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.3	90.0	110	----
Anions and Nutrients (QCLot: 2000309)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Organic / Inorganic Carbon (QCLot: 1996548)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.7	80.0	120	----
Total Metals (QCLot: 1995265)									
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	105	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.012 mg/L	103	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	98.6	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	98.2	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	2.5 mg/L	98.0	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Total Metals (QCLot: 1995265) - continued									
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.012 mg/L	99.6	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.012 mg/L	97.9	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.012 mg/L	97.6	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	96.0	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	99.7	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.012 mg/L	103	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.012 mg/L	99.0	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.025 mg/L	97.0	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	95.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	96.5	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	97.1	80.0	120	----
Aggregate Organics (QCLot: 1998042)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	97.3	85.0	115	----
Aggregate Organics (QCLot: 2000698)									
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	100 mg/L	104	85.0	115	----
Volatile Organic Compounds (QCLot: 1994521)									
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	104	70.0	130	----
Volatile Organic Compounds (QCLot: 1994522)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	116	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	97.1	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	92.1	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	82.2	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	97.8	70.0	130	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	91.9	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	104	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	116	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	96.6	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	96.0	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1994522) - continued									
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	114	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	94.1	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	98.8	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	98.6	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	97.4	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	94.6	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	105	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	103	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	100.0	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	95.3	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	96.4	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	91.8	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	98.8	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	97.6	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	95.2	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	109	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	110	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	105	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1998039)										
HA2501380-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1998040)										
WT2511009-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1998041)										
HA2501380-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2000306)										
WT2511345-001	LEACHATE P.S.	Nitrite (as N)	14797-65-0	E235.NO2	9.52 mg/L	10 mg/L	95.2	75.0	125	----
Anions and Nutrients (QCLot: 2000307)										
WT2511345-001	LEACHATE P.S.	Nitrate (as N)	14797-55-8	E235.NO3	49.5 mg/L	50 mg/L	99.1	75.0	125	----
Anions and Nutrients (QCLot: 2000308)										
WT2511345-001	LEACHATE P.S.	Chloride	16887-00-6	E235.Cl	1970 mg/L	2000 mg/L	98.5	75.0	125	----
Anions and Nutrients (QCLot: 2000309)										
WT2511345-001	LEACHATE P.S.	Sulfate (as SO4)	14808-79-8	E235.SO4	1990 mg/L	2000 mg/L	99.3	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1996548)										
WT2511343-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Metals (QCLot: 1995265)										
WT2511349-002	Anonymous	Arsenic, total	7440-38-2	E420	0.0533 mg/L	0.05 mg/L	106	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Boron, total	7440-42-8	E420	0.049 mg/L	0.05 mg/L	97.9	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00497 mg/L	0.005 mg/L	99.5	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0128 mg/L	0.012 mg/L	102	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0123 mg/L	0.012 mg/L	98.5	70.0	130	----
		Copper, total	7440-50-8	E420	0.0122 mg/L	0.012 mg/L	97.5	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0245 mg/L	0.025 mg/L	98.1	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	ND mg/L	----	ND	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0239 mg/L	0.025 mg/L	95.8	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0494 mg/L	0.05 mg/L	98.8	70.0	130	----
		Zinc, total	7440-66-6	E420	ND mg/L	----	ND	70.0	130	----
Dissolved Metals (QCLot: 1997588)										
HA2501410-009	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000879 mg/L	0 mg/L	87.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Aggregate Organics (QCLot: 1998042)										
HA2501380-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0188 mg/L	0.02 mg/L	93.9	75.0	125	----
Aggregate Organics (QCLot: 2000698)										
HA2501429-001	Anonymous	Chemical oxygen demand [COD]	----	E559-L	ND mg/L	----	ND	75.0	125	----
Volatile Organic Compounds (QCLot: 1994521)										
WT2511343-001	Anonymous	Trichlorobenzene, 1,2,4-	120-82-1	E611E	101 µg/L	100 µg/L	101	60.0	140	----
Volatile Organic Compounds (QCLot: 1994522)										
WT2511343-001	Anonymous	Acetone	67-64-1	E611D	99 µg/L	100 µg/L	99.0	60.0	140	----
		Benzene	71-43-2	E611D	98.9 µg/L	100 µg/L	98.9	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	94.8 µg/L	100 µg/L	94.8	60.0	140	----
		Bromoform	75-25-2	E611D	84.6 µg/L	100 µg/L	84.6	60.0	140	----
		Bromomethane	74-83-9	E611D	79.1 µg/L	100 µg/L	79.1	60.0	140	----
		Carbon disulfide	75-15-0	E611D	95.6 µg/L	100 µg/L	95.6	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	87.5 µg/L	100 µg/L	87.5	60.0	140	----
		Chlorobenzene	108-90-7	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Chloroethane	75-00-3	E611D	98.3 µg/L	100 µg/L	98.3	60.0	140	----
		Chloroform	67-66-3	E611D	95.1 µg/L	100 µg/L	95.1	60.0	140	----
		Chloromethane	74-87-3	E611D	111 µg/L	100 µg/L	111	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	91.9 µg/L	100 µg/L	91.9	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	98.1 µg/L	100 µg/L	98.1	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	96.8 µg/L	100 µg/L	96.8	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	96.8 µg/L	100 µg/L	96.8	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	93.5 µg/L	100 µg/L	93.5	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	96.6 µg/L	100 µg/L	96.6	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	99.1 µg/L	100 µg/L	99.1	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Dichloromethane	75-09-2	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	99.5 µg/L	100 µg/L	99.5	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Ethylbenzene	100-41-4	E611D	98.9 µg/L	100 µg/L	98.9	60.0	140	----
		Hexane, n-	110-54-3	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	95 µg/L	100 µg/L	94.9	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	96.0 µg/L	100 µg/L	96.0	60.0	140	----
		Styrene	100-42-5	E611D	93.4 µg/L	100 µg/L	93.4	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	91.1 µg/L	100 µg/L	91.1	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	89.8 µg/L	100 µg/L	89.8	60.0	140	----
		Toluene	108-88-3	E611D	98.4 µg/L	100 µg/L	98.4	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1994522) - continued										
WT2511343-001	Anonymous	Trichloroethane, 1,1,1-	71-55-6	E611D	87.4 µg/L	100 µg/L	87.4	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	95.5 µg/L	100 µg/L	95.5	60.0	140	----
		Trichloroethylene	79-01-6	E611D	94.3 µg/L	100 µg/L	94.3	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	89.5 µg/L	100 µg/L	89.5	60.0	140	----
		Vinyl chloride	75-01-4	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	207 µg/L	200 µg/L	103	60.0	140	----
		Xylene, o-	95-47-6	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----

GC - 582
MM - 877
N - 788
VW - 174

ALS www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

GP

Canada Toll Free: 1 800 668 9878

Page 1

Environmental Division
Waterloo
Work Order Reference
WT2511345

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

Date and Time Required for all E&P TATs: d

For all tests with rush TATs requested, please contact yo

Project Information

ALS Account # / Quote #: PINC100 / West Perth
Job #: West Perth Mitchell Domestic Leachate Pumping Station
PO / AFE: 333568.002
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only): WT2511345 FH

ALS Contact: Amanda Overholster Sampler: DH/ML

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	West Perth Mitchell Domestic Leachate Pumping Station	Dissolved Hg - Lab Filter	DOC - Lab Filter	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	Leachate P.S.	13/05/25	12:30		7	R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☑ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INIITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
	4.8

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: DH/ML	Date: 13/05/25	Time: 2:15	Received by:	Date:	Time:	Received by: FH	Date: 2025-05-13	Time: 14:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2511206**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC RW	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	12-May-2025 16:15
C-O-C number	:	----	Date Analysis Commenced	:	13-May-2025
Sampler	:	DH/ML	Issue Date	:	20-May-2025 16:31
Site	:	West Perth			
Quote number	:	West Perth Landfill			
No. of samples received	:	1			
No. of samples analysed	:	1			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Metals, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Inorganics, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Centralized Prep, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Torrence Mechanical	----	----	----	----
					Client sampling date / time: 12-May-2025 14:30	----	----	----	----
					WT2511206-001	----	----	----	----
					Result	----	----	----	----
Sample Preparation									
Dissolved carbon filtration location	----	EP358/WT	-	-	lab	----	----	----	----
Physical Tests									
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L	203	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L	<1.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L	203	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WT	0.50	mg/L	225	----	----	----	----
pH	----	E108/WT	0.10	pH units	8.25	----	----	----	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L	336 DLDS	----	----	----	----
Anions and Nutrients									
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L	0.288	----	----	----	----
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L	<0.10	----	----	----	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L	1.95	----	----	----	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L	1.56	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L	<0.010	----	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L	0.0057	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L	70.9	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L	<0.020	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L	<0.0224	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	Torrence Mechanical	----	----	----	----
					Client sampling date / time	12-May-2025 14:30	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2511206-001	----	----	----	----
						Result	----	----	----	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		0.90	----	----	----	----
Total Metals										
Aluminum, total	7429-90-5	E420/WT	0.0030	mg/L		<0.0030	----	----	----	----
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L		0.00097	----	----	----	----
Barium, total	7440-39-3	E420/WT	0.00010	mg/L		0.0897	----	----	----	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L		0.136	----	----	----	----
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L		0.0000071	----	----	----	----
Calcium, total	7440-70-2	E420/WT	0.050	mg/L		53.5	----	----	----	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L		<0.00050	----	----	----	----
Copper, total	7440-50-8	E420/WT	0.00050	mg/L		0.0161	----	----	----	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L		1.18	----	----	----	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L		0.00116	----	----	----	----
Magnesium, total	7439-95-4	E420/WT	0.0050	mg/L		22.2	----	----	----	----
Manganese, total	7439-96-5	E420/WT	0.00010	mg/L		0.0118	----	----	----	----
Potassium, total	7440-09-7	E420/WT	0.050	mg/L		1.05	----	----	----	----
Selenium, total	7782-49-2	E420/WT	0.000050	mg/L		<0.000050	----	----	----	----
Silicon, total	7440-21-3	E420/WT	0.10	mg/L		5.41	----	----	----	----
Sodium, total	7440-23-5	E420/WT	0.050	mg/L		32.5	----	----	----	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L		0.548	----	----	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Torrence Mechanical	----	----	----	----
					Client sampling date / time	12-May-2025 14:30	----	----	----	----
					WT2511206-001	----	----	----	----	----
					Result	----	----	----	----	----
Volatile Organic Compounds										
Benzene	71-43-2	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L	<1.0	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L	<0.20	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Chloroethane	75-00-3	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Chloromethane	74-87-3	E611D/WT	2.0	µg/L	<2.0	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L	<0.20	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L	<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L	<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Torrence Mechanical	----	----	----	----
					Client sampling date / time	12-May-2025 14:30	----	----	----	----
					WT2511206-001	----	----	----	----	----
					Result	----	----	----	----	----
Volatile Organic Compounds										
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L	<1.0	----	----	----	----	
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L	<0.30	----	----	----	----	
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L	<0.30	----	----	----	----	
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L	<20	----	----	----	----	
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L	<20	----	----	----	----	
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L	<20	----	----	----	----	
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Styrene	100-42-5	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Toluene	108-88-3	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L	<1.0	----	----	----	----	
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L	<0.20	----	----	----	----	

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Torrence Mechanical	----	----	----	----
					Client sampling date / time	12-May-2025 14:30	----	----	----	----
					WT2511206-001	----	----	----	----	----
					Result	----	----	----	----	----
Volatile Organic Compounds										
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L	<0.40	----	----	----	----	
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L	<0.30	----	----	----	----	
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L	<0.50	----	----	----	----	
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%	94.7	----	----	----	----	
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%	94.7	----	----	----	----	
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%	94.7	----	----	----	----	
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%	94.7	----	----	----	----	

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2511206**	Page	: 1 of 9
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC RW	Date Samples Received	: 12-May-2025 16:15
PO	: 333568.002	Issue Date	: 20-May-2025 16:29
C-O-C number	: ----		
Sampler	: DH/ML		
Site	: West Perth		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Torrence Mechanical	E298	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.Br	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.Cl	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP] Torrence Mechanical	E378-U	12-May-2025	14-May-2025	7 days	2 days	✓	16-May-2025	7 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.F	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.NO3	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.NO2	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.SO4	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (lab preserved) [ON MECP] Torrence Mechanical	E358-L	12-May-2025	14-May-2025	3 days	2 days	✓	15-May-2025	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] Torrence Mechanical	E290	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] Torrence Mechanical	E108	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] Torrence Mechanical	E162	12-May-2025	----	----	----		14-May-2025	7 days	2 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) Torrence Mechanical	E420	12-May-2025	13-May-2025	180 days	1 days	✓	13-May-2025	180 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) Torrence Mechanical	E611D	12-May-2025	13-May-2025	14 days	1 days	✓	13-May-2025	14 days	1 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) Torrence Mechanical	E611E	12-May-2025	13-May-2025	14 days	1 days	✓	13-May-2025	14 days	1 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter	E108	1995625	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1995531	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	1995633	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	1995630	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1995628	1	9	11.1	5.0	✓
Nitrite in Water by IC	E235.NO2	1995629	1	18	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	1995631	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1995632	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1995626	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1996281	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996544	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1995634	1	4	25.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1992912	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994207	1	3	33.3	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994208	1	2	50.0	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	1995625	1	18	5.5	5.0	✓
TDS by Gravimetry	E162	1995531	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	1995633	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	1995630	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1995628	1	9	11.1	5.0	✓
Nitrite in Water by IC	E235.NO2	1995629	1	18	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	1995631	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1995632	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1995626	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1996281	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996544	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1995634	1	4	25.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1992912	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994207	1	3	33.3	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994208	1	2	50.0	5.0	✓
Method Blanks (MB)							
TDS by Gravimetry	E162	1995531	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	1995633	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	1995630	1	18	5.5	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Fluoride in Water by IC	E235.F	1995628	1	9	11.1	5.0	✓
Nitrite in Water by IC	E235.NO2	1995629	1	18	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	1995631	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1995632	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1995626	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1996281	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996544	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1995634	1	4	25.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1992912	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994207	1	3	33.3	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994208	1	2	50.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC	E235.Br	1995633	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	1995630	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	1995628	1	9	11.1	5.0	✓
Nitrite in Water by IC	E235.NO2	1995629	1	18	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	1995631	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1995632	1	13	7.6	5.0	✓
Ammonia by Fluorescence	E298	1996281	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	1996544	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	1995634	1	4	25.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1992912	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1994207	1	3	33.3	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1994208	1	2	50.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC	E235.Br ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Prairies List) by Headspace GC-MS	E611E ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

QUALITY CONTROL REPORT

Work Order	: **WT2511206**	Page	: 1 of 14
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC RW	Date Samples Received	: 12-May-2025 16:15
PO	: 333568.002	Date Analysis Commenced	: 13-May-2025
C-O-C number	: ----	Issue Date	: 20-May-2025 16:29
Sampler	: DH/ML		
Site	: West Perth		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Centralized Prep, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Inorganics, Waterloo, Ontario
Walt Kippenhuck	Supervisor - Inorganic	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 1995531)											
WT2510881-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1150	1160	0.433%	20%	----
Physical Tests (QC Lot: 1995625)											
WT2511075-001	Anonymous	pH	----	E108	0.10	pH units	8.01	8.04	0.374%	4%	----
Physical Tests (QC Lot: 1995626)											
WT2511075-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	195	194	0.482%	20%	----
Anions and Nutrients (QC Lot: 1995628)											
WT2511206-001	Torrence Mechanical	Fluoride	16984-48-8	E235.F	0.020	mg/L	1.56	1.55	0.922%	20%	----
Anions and Nutrients (QC Lot: 1995629)											
WT2511206-001	Torrence Mechanical	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1995630)											
WT2511206-001	Torrence Mechanical	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.95	1.94	0.01	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1995631)											
WT2511206-001	Torrence Mechanical	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1995632)											
WT2511206-001	Torrence Mechanical	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	70.9	70.9	0.0701%	20%	----
Anions and Nutrients (QC Lot: 1995633)											
WT2511206-001	Torrence Mechanical	Bromide	24959-67-9	E235.Br	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1995634)											
WT2511206-001	Torrence Mechanical	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0057	0.0051	0.0006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1996281)											
HA2501274-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0353	0.0344	0.0009	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 1996544)											
HA2501380-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Total Metals (QC Lot: 1992912)											
HA2501351-004	Anonymous	Aluminum, total	7429-90-5	E420	0.0300	mg/L	0.239	0.224	0.0146	Diff <2x LOR	----
		Arsenic, total	7440-38-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00100	mg/L	0.00591	0.00620	0.00029	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.100	mg/L	1.71	1.73	1.10%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000500	mg/L	<0.0000500	<0.0000500	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.500	mg/L	20.3	20.4	0.683%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1992912) - continued											
HA2501351-004	Anonymous	Chromium, total	7440-47-3	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00500	mg/L	0.0318	0.0316	0.00024	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.100	mg/L	4.97	5.00	0.682%	20%	----
		Lead, total	7439-92-1	E420	0.000500	mg/L	0.00160	0.00162	0.000027	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0500	mg/L	5.81	5.81	0.0727%	20%	----
		Manganese, total	7439-96-5	E420	0.00100	mg/L	0.0148	0.0134	10.0%	20%	----
		Potassium, total	7440-09-7	E420	0.500	mg/L	1.55	1.53	0.015	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000500	mg/L	<0.000500	<0.000500	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	1.00	mg/L	1.62	1.64	0.02	Diff <2x LOR	----
		Sodium, total	7440-23-5	E420	0.500	mg/L	28.8	28.8	0.0478%	20%	----
		Zinc, total	7440-66-6	E420	0.0300	mg/L	0.206	0.207	0.0006	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1994207)											
WT2511206-001	Torrence Mechanical	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1994207) - continued											
WT2511206-001	Torrence Mechanical	Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1994208)											
WT2511206-001	Torrence Mechanical	Trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1995531)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 1995626)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Anions and Nutrients (QCLot: 1995628)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1995629)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1995630)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1995631)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1995632)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1995633)						
Bromide	24959-67-9	E235.Br	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 1995634)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 1996281)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 1996544)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 1992912)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1992912) - continued						
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Volatile Organic Compounds (QCLot: 1994207)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1994207) - continued						
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Volatile Organic Compounds (QCLot: 1994208)						
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1995531)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.5	85.0	115	----
Physical Tests (QCLot: 1995625)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1995626)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 1995628)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1995629)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1995630)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1995631)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.3	90.0	110	----
Anions and Nutrients (QCLot: 1995632)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1995633)									
Bromide	24959-67-9	E235.Br	0.1	mg/L	0.5 mg/L	97.2	85.0	115	----
Anions and Nutrients (QCLot: 1995634)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	98.5	80.0	120	----
Anions and Nutrients (QCLot: 1996281)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	97.8	85.0	115	----
Organic / Inorganic Carbon (QCLot: 1996544)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	96.5	80.0	120	----
Total Metals (QCLot: 1992912)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	0.1 mg/L	108	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	109	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.012 mg/L	106	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	106	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	105	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1992912) - continued									
Calcium, total	7440-70-2	E420	0.05	mg/L	2.5 mg/L	99.5	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.012 mg/L	107	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.012 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	106	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	105	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	2.5 mg/L	114	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.012 mg/L	107	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	2.5 mg/L	108	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	106	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	0.5 mg/L	108	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	2.5 mg/L	109	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	107	80.0	120	----
Volatile Organic Compounds (QCLot: 1994207)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	129	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	83.2	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	107	70.0	130	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	112	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	111	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	118	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	119	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	102	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	103	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	113	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	115	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	116	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1994207) - continued									
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	111	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	94.4	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	93.8	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	116	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	118	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	99.4	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	106	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	108	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	120	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	116	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	116	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	96.5	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	112	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	112	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	117	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	116	70.0	130	----
Volatile Organic Compounds (QCLot: 1994208)									
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	118	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1995628)										
WT2511206-001	Torrence Mechanical	Fluoride	16984-48-8	E235.F	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 1995629)										
WT2511206-001	Torrence Mechanical	Nitrite (as N)	14797-65-0	E235.NO2	0.503 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1995630)										
WT2511206-001	Torrence Mechanical	Chloride	16887-00-6	E235.Cl	100 mg/L	100 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1995631)										
WT2511206-001	Torrence Mechanical	Nitrate (as N)	14797-55-8	E235.NO3	2.43 mg/L	2.5 mg/L	97.2	75.0	125	----
Anions and Nutrients (QCLot: 1995632)										
WT2511206-001	Torrence Mechanical	Sulfate (as SO4)	14808-79-8	E235.SO4	98.4 mg/L	100 mg/L	98.4	75.0	125	----
Anions and Nutrients (QCLot: 1995633)										
WT2511206-001	Torrence Mechanical	Bromide	24959-67-9	E235.Br	0.50 mg/L	0.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 1995634)										
WT2511206-001	Torrence Mechanical	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0163 mg/L	0.02 mg/L	83.3	70.0	130	----
Anions and Nutrients (QCLot: 1996281)										
HA2501274-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.110 mg/L	0.1 mg/L	110	75.0	125	----
Organic / Inorganic Carbon (QCLot: 1996544)										
HA2501380-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.75 mg/L	5 mg/L	95.0	70.0	130	----
Total Metals (QCLot: 1992912)										
HA2501351-005	Anonymous	Aluminum, total	7429-90-5	E420	0.107 mg/L	0.1 mg/L	107	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0526 mg/L	0.05 mg/L	105	70.0	130	----
		Barium, total	7440-39-3	E420	0.0122 mg/L	0.012 mg/L	97.8	70.0	130	----
		Boron, total	7440-42-8	E420	0.052 mg/L	0.05 mg/L	105	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00502 mg/L	0.005 mg/L	100	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0129 mg/L	0.012 mg/L	103	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	----	ND	70.0	130	----
		Iron, total	7439-89-6	E420	0.050 mg/L	0.05 mg/L	99.1	70.0	130	----
		Lead, total	7439-92-1	E420	0.0247 mg/L	0.025 mg/L	98.8	70.0	130	----
		Magnesium, total	7439-95-4	E420	2.72 mg/L	2.5 mg/L	109	70.0	130	----
		Manganese, total	7439-96-5	E420	0.0124 mg/L	0.012 mg/L	99.7	70.0	130	----
		Potassium, total	7440-09-7	E420	2.58 mg/L	2.5 mg/L	103	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0511 mg/L	0.05 mg/L	102	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Sodium, total	7440-23-5	E420	ND mg/L	----	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 1992912) - continued										
HA2501351-005	Anonymous	Zinc, total	7440-66-6	E420	ND mg/L	----	ND	70.0	130	----
Volatile Organic Compounds (QCLot: 1994207)										
WT2511206-001	Torrence Mechanical	Acetone	67-64-1	E611D	130 µg/L	100 µg/L	130	60.0	140	----
		Benzene	71-43-2	E611D	111 µg/L	100 µg/L	111	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Bromoform	75-25-2	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Bromomethane	74-83-9	E611D	77.5 µg/L	100 µg/L	77.5	60.0	140	----
		Carbon disulfide	75-15-0	E611D	98.3 µg/L	100 µg/L	98.3	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Chlorobenzene	108-90-7	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Chloroethane	75-00-3	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Chloroform	67-66-3	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Chloromethane	74-87-3	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	117 µg/L	100 µg/L	117	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	84.4 µg/L	100 µg/L	84.4	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	113 µg/L	100 µg/L	113	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dichloromethane	75-09-2	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	91.8 µg/L	100 µg/L	91.8	60.0	140	----
		Ethylbenzene	100-41-4	E611D	113 µg/L	100 µg/L	113	60.0	140	----
		Hexane, n-	110-54-3	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	98 µg/L	100 µg/L	97.5	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Styrene	100-42-5	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	120 µg/L	100 µg/L	120	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Toluene	108-88-3	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	93.2 µg/L	100 µg/L	93.2	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	107 µg/L	100 µg/L	107	60.0	140	----
		Trichloroethylene	79-01-6	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Vinyl chloride	75-01-4	E611D	100 µg/L	100 µg/L	100	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1994207) - continued										
WT2511206-001	Torrence Mechanical	Xylene, m+p-	179601-23-1	E611D	228 µg/L	200 µg/L	114	60.0	140	----
		Xylene, o-	95-47-6	E611D	114 µg/L	100 µg/L	114	60.0	140	----
Volatile Organic Compounds (QCLot: 1994208)										
WT2511206-001	Torrence Mechanical	Trichlorobenzene, 1,2,4-	120-82-1	E611E	114 µg/L	100 µg/L	114	60.0	140	----

hw-P MM874VW-169
QC977
N-786

Chain of Custody (COC) / Analytical Request Form

COC Number: 20

Page

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division
Waterloo
Work Order Reference
WT2511206

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimu
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimu
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimu
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimu
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
fees may apply to rush requests on weekends, statutory holidays a
routine tests

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #: PINC100 / West Perth
Job #: West Perth Mitchell Domestic RW
PO / AFE: 333568.002
LSD: ML

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (ALS use only): WT2511206

ALS Contact: Amanda Overholster Sampler: DH/ML

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	West Perth Mitchell Domestic RW	DOC - Lab Filter												SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	TORRENCE MECHANICAL	13/05/25	2:30	GW	6	R	R	R													
						R	R	R													
						R	R	R													
						R	R	R													
						R	R	R													
						R	R	R													
						R	R	R													
						R	R	R													

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO
Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☑ YES ☐ N/A

INIITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				3.6			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: DH/ML	Date: 13/05/25	Time: 4:15	Received by:	Date:	Time:	Received by: KW-P	Date: 12/may/25	Time: 16:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2511207**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC SURFACE WATER	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	12-May-2025 16:15
C-O-C number	:	----	Date Analysis Commenced	:	13-May-2025
Sampler	:	ML/DH	Issue Date	:	21-May-2025 23:19
Site	:	West Perth			
Quote number	:	West Perth Landfill			
No. of samples received	:	4			
No. of samples analysed	:	4			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Hannah Lewis	Inorganics Analyst	Inorganics, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
BODL	Limit of Reporting for BOD was increased to account for the largest volume of sample tested.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
TKNI	TKN result may be biased low due to Nitrate interference. Nitrate -N is > 10x TKN.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1	SW2	SW3	DUP-07	----
					Client sampling date / time	12-May-2025 13:00	12-May-2025 13:20	12-May-2025 13:20	12-May-2025 13:45	----
						WT2511207-001	WT2511207-002	WT2511207-003	WT2511207-004	----
						Result	Result	Result	Result	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		265	300	306	304	----
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		265	300	306	304	----
pH	----	E108/WT	0.10	pH units		8.12	8.11	8.16	8.10	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		524 DLDS	643 DLDS	654 DLDS	654 DLDS	----
Solids, total suspended [TSS]	----	E160/WT	3.0	mg/L		6.1	6.1	18.1	8.5	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.0619	0.838	0.699	0.924	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		81.2	159 DLDS	164 DLDS	160 DLDS	----
Kjeldahl nitrogen, total [TKN]	----	E318/WT	0.050	mg/L		0.357 TKNI	1.54	1.64	1.53	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	0.087 DLDS	0.075 DLDS	0.088 DLDS	----
Phosphorus, total	7723-14-0	E372-U/WT	0.0020	mg/L		0.0183	0.0466	0.0922	0.0484	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		14.2	22.5 DLDS	22.7 DLDS	22.7 DLDS	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		13.4	6.49 DLDS	6.74 DLDS	6.55 DLDS	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		13.4	6.58	6.82	6.64	----
Total Metals										
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L		0.00019	0.00068	0.00079	0.00068	----
Barium, total	7440-39-3	E420/WT	0.00010	mg/L		0.0503	0.0759	0.0792	0.0756	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L		0.023	0.143	0.138	0.141	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1	SW2	SW3	DUP-07	----
					Client sampling date / time	12-May-2025 13:00	12-May-2025 13:20	12-May-2025 13:20	12-May-2025 13:45	----
						WT2511207-001	WT2511207-002	WT2511207-003	WT2511207-004	----
						Result	Result	Result	Result	----
Total Metals										
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L		0.0000123	0.0000072	0.0000208	0.0000071	----
Calcium, total	7440-70-2	E420/WT	0.050	mg/L		114	121	125	121	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L		<0.00050	<0.00050	0.00105	<0.00050	----
Copper, total	7440-50-8	E420/WT	0.00050	mg/L		0.00088	0.00114	0.00195	0.00112	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L		0.052	0.551	1.16	0.572	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L		0.000052	0.000136	0.000543	0.000147	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L		<0.0030	<0.0030	0.0077	<0.0030	----
Dissolved Metals										
Mercury, dissolved	7439-97-6	E509/WT	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Dissolved mercury filtration location	----	EP509/WT	-	-		Laboratory	Laboratory	Laboratory	Laboratory	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	E550/WT	2.0	mg/L		<3.0 BODL	<3.0 BODL	<3.0 BODL	<3.0 BODL	----
Chemical oxygen demand [COD]	----	E559-L/WT	10	mg/L		<10	12	13	12	----
Phenols, total (4AAP)	----	E562/WT	0.0010	mg/L		0.0018	0.0021	0.0029	0.0017	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2511207**	Page	: 1 of 15
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC SURFACE WATER	Date Samples Received	: 12-May-2025 16:15
PO	: 333568.002	Issue Date	: 21-May-2025 23:18
C-O-C number	: ----		
Sampler	: ML/DH		
Site	: West Perth		
Quote number	: West Perth Landfill		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d]										
DUP-07	E550	12-May-2025	----	----	----		13-May-2025	4 days	0 days	✓
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d]										
SW1	E550	12-May-2025	----	----	----		13-May-2025	4 days	0 days	✓
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d]										
SW2	E550	12-May-2025	----	----	----		13-May-2025	4 days	0 days	✓
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d]										
SW3	E550	12-May-2025	----	----	----		13-May-2025	4 days	0 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid)										
DUP-07	E559-L	12-May-2025	----	----	----		14-May-2025	28 days	2 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid)										
SW1	E559-L	12-May-2025	----	----	----		14-May-2025	28 days	2 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid)										
SW2	E559-L	12-May-2025	----	----	----		14-May-2025	28 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) SW3	E559-L	12-May-2025	----	----	----		14-May-2025	28 days	2 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) DUP-07	E562	12-May-2025	15-May-2025	28 days	3 days	✓	15-May-2025	28 days	3 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) SW1	E562	12-May-2025	15-May-2025	28 days	3 days	✓	15-May-2025	28 days	3 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) SW2	E562	12-May-2025	15-May-2025	28 days	3 days	✓	15-May-2025	28 days	3 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) SW3	E562	12-May-2025	15-May-2025	28 days	3 days	✓	15-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) DUP-07	E298	12-May-2025	15-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SW1	E298	12-May-2025	15-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SW2	E298	12-May-2025	15-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SW3	E298	12-May-2025	15-May-2025	28 days	3 days	✓	16-May-2025	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
DUP-07	E235.Cl	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
SW1	E235.Cl	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
SW2	E235.Cl	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP]										
SW3	E235.Cl	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
DUP-07	E235.NO3	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
SW1	E235.NO3	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
SW2	E235.NO3	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP]										
SW3	E235.NO3	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
DUP-07	E235.NO2	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
SW1	E235.NO2	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
SW2	E235.NO2	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
SW3	E235.NO2	12-May-2025	14-May-2025	7 days	2 days	✓	15-May-2025	7 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP]										
DUP-07	E235.SO4	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP]										
SW1	E235.SO4	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP]										
SW2	E235.SO4	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP]										
SW3	E235.SO4	12-May-2025	14-May-2025	28 days	2 days	✓	15-May-2025	28 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
DUP-07	E318	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
SW1	E318	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) SW2	E318	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) SW3	E318	12-May-2025	16-May-2025	28 days	4 days	✓	16-May-2025	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) DUP-07	E372-U	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SW1	E372-U	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SW2	E372-U	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) SW3	E372-U	12-May-2025	20-May-2025	28 days	8 days	✓	20-May-2025	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE [ON MECP] DUP-07	E509	12-May-2025	13-May-2025	0 hrs	19 hrs	× UCP	13-May-2025	0 hrs	19 hrs	× UCP
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE [ON MECP] SW1	E509	12-May-2025	13-May-2025	0 hrs	20 hrs	× UCP	13-May-2025	0 hrs	20 hrs	× UCP
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE [ON MECP] SW2	E509	12-May-2025	13-May-2025	0 hrs	20 hrs	× UCP	13-May-2025	0 hrs	20 hrs	× UCP

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
HDPE [ON MECP] SW3	E509	12-May-2025	13-May-2025	0 hrs	20 hrs	× UCP	13-May-2025	0 hrs	20 hrs	× UCP
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] DUP-07	E290	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] SW1	E290	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] SW2	E290	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] SW3	E290	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] DUP-07	E108	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] SW1	E108	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] SW2	E108	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] SW3	E108	12-May-2025	14-May-2025	14 days	2 days	✓	14-May-2025	14 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] DUP-07	E162	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] SW1	E162	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] SW2	E162	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] SW3	E162	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] DUP-07	E160	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] SW1	E160	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] SW2	E160	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] SW3	E160	12-May-2025	----	----	----		16-May-2025	7 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) DUP-07	E420	12-May-2025	13-May-2025	180 days	1 days	✓	13-May-2025	180 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) SW1	E420	12-May-2025	13-May-2025	180 days	1 days	✓	13-May-2025	180 days	1 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) SW2	E420	12-May-2025	13-May-2025	180 days	1 days	✓	13-May-2025	180 days	1 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) SW3	E420	12-May-2025	13-May-2025	180 days	1 days	✓	13-May-2025	180 days	1 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter	E108	1995625	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	2000937	1	20	5.0	4.7	✓
TDS by Gravimetry	E162	2000967	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1995630	1	18	5.5	5.0	✓
Nitrite in Water by IC	E235.NO2	1995629	1	18	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	1995631	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1995632	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1995626	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1998041	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1998039	2	21	9.5	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1998040	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1992912	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1993081	1	9	11.1	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	1993672	1	9	11.1	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	1995845	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1998042	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	1995625	1	18	5.5	5.0	✓
TSS by Gravimetry	E160	2000937	1	20	5.0	4.7	✓
TDS by Gravimetry	E162	2000967	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1995630	1	18	5.5	5.0	✓
Nitrite in Water by IC	E235.NO2	1995629	1	18	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	1995631	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1995632	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1995626	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1998041	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1998039	2	21	9.5	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1998040	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1992912	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1993081	1	9	11.1	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	1993672	1	9	11.1	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	1995845	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1998042	1	20	5.0	5.0	✓
Method Blanks (MB)							
TSS by Gravimetry	E160	2000937	1	20	5.0	4.7	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
TDS by Gravimetry	E162	2000967	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	1995630	1	18	5.5	5.0	✓
Nitrite in Water by IC	E235.NO2	1995629	1	18	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	1995631	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1995632	1	13	7.6	5.0	✓
Alkalinity Species by Titration	E290	1995626	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	1998041	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1998039	2	21	9.5	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1998040	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1992912	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1993081	1	9	11.1	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	1993672	1	9	11.1	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	1995845	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1998042	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	1995630	1	18	5.5	5.0	✓
Nitrite in Water by IC	E235.NO2	1995629	1	18	5.5	5.0	✓
Nitrate in Water by IC	E235.NO3	1995631	1	18	5.5	5.0	✓
Sulfate in Water by IC	E235.SO4	1995632	1	13	7.6	5.0	✓
Ammonia by Fluorescence	E298	1998041	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	1998039	2	21	9.5	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	1998040	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	1992912	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	1993081	1	9	11.1	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	1995845	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	1998042	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Waterloo	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Biochemical Oxygen Demand - 5 day	E550 ALS Environmental - Waterloo	Water	APHA 5210 B (mod)	Samples are diluted and incubated for a specified time period, after which the oxygen depletion is measured using a dissolved oxygen meter. Free chlorine is a negative interference in the BOD method; please advise ALS when free chlorine is present in samples.
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L ALS Environmental - Waterloo	Water	APHA 5220 D (mod)	Samples are analyzed using the closed reflux colourimetric method.
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Waterloo	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide (K3Fe(CN)6) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Waterloo	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **WT2511207**	Page	: 1 of 10
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC SURFACE WATER	Date Samples Received	: 12-May-2025 16:15
PO	: 333568.002	Date Analysis Commenced	: 13-May-2025
C-O-C number	: ----	Issue Date	: 21-May-2025 23:18
Sampler	: ML/DH		
Site	: West Perth		
Quote number	: West Perth Landfill		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Hannah Lewis	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 1995625)											
WT2511075-001	Anonymous	pH	----	E108	0.10	pH units	8.01	8.04	0.374%	4%	----
Physical Tests (QC Lot: 1995626)											
WT2511075-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	195	194	0.482%	20%	----
Physical Tests (QC Lot: 2000937)											
WT2511486-036	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 2000967)											
WT2511486-036	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1940	1880	3.12%	20%	----
Anions and Nutrients (QC Lot: 1995629)											
WT2511206-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1995630)											
WT2511206-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.95	1.94	0.01	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1995631)											
WT2511206-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1995632)											
WT2511206-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	70.9	70.9	0.0701%	20%	----
Anions and Nutrients (QC Lot: 1998039)											
HA2501380-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	0.500	mg/L	11.6	11.4	2.27%	20%	----
Anions and Nutrients (QC Lot: 1998040)											
WT2511009-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.200	mg/L	0.645	0.697	0.0520	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 1998041)											
HA2501380-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0500	mg/L	3.74	3.44	8.29%	20%	----
Anions and Nutrients (QC Lot: 2005956)											
WT2511207-004	DUP-07	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	1.53	1.62	5.52%	20%	----
Total Metals (QC Lot: 1992912)											
HA2501351-004	Anonymous	Arsenic, total	7440-38-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00100	mg/L	0.00591	0.00620	0.00029	Diff <2x LOR	----
		Boron, total	7440-42-8	E420	0.100	mg/L	1.71	1.73	1.10%	20%	----
		Cadmium, total	7440-43-9	E420	0.0000500	mg/L	<0.0000500	<0.0000500	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.500	mg/L	20.3	20.4	0.683%	20%	----
		Chromium, total	7440-47-3	E420	0.00500	mg/L	<0.00500	<0.00500	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 1992912) - continued											
HA2501351-004	Anonymous	Copper, total	7440-50-8	E420	0.00500	mg/L	0.0318	0.0316	0.00024	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.100	mg/L	4.97	5.00	0.682%	20%	----
		Lead, total	7439-92-1	E420	0.000500	mg/L	0.00160	0.00162	0.000027	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0300	mg/L	0.206	0.207	0.0006	Diff <2x LOR	----
Dissolved Metals (QC Lot: 1993081)											
WT2510929-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1993672)											
WT2511207-001	SW1	Biochemical oxygen demand [BOD]	----	E550	3.0	mg/L	<3.0	<3.0	0.0%	30%	----
Aggregate Organics (QC Lot: 1995845)											
HA2501351-001	Anonymous	Chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	<10	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 1998042)											
HA2501380-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0010	mg/L	0.0037	0.0038	0.0002	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 1995626)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2000937)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2000967)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 1995629)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 1995630)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 1995631)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 1995632)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 1998039)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 1998040)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 1998041)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2005956)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Total Metals (QCLot: 1992912)						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 1992912) - continued						
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Dissolved Metals (QCLot: 1993081)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 1993672)						
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	<2.0	----
Aggregate Organics (QCLot: 1995845)						
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	----
Aggregate Organics (QCLot: 1998042)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 1995625)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 1995626)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	102	85.0	115	----
Physical Tests (QCLot: 2000937)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	96.8	85.0	115	----
Physical Tests (QCLot: 2000967)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	98.7	85.0	115	----
Anions and Nutrients (QCLot: 1995629)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1995630)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 1995631)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.3	90.0	110	----
Anions and Nutrients (QCLot: 1995632)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 1998039)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	108	75.0	125	----
Anions and Nutrients (QCLot: 1998040)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.333 mg/L	98.3	80.0	120	----
Anions and Nutrients (QCLot: 1998041)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.6	85.0	115	----
Anions and Nutrients (QCLot: 2005956)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	102	75.0	125	----
Total Metals (QCLot: 1992912)									
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	109	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.012 mg/L	106	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	106	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	105	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	2.5 mg/L	99.5	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.012 mg/L	107	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 1992912) - continued									
Copper, total	7440-50-8	E420	0.0005	mg/L	0.012 mg/L	102	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	106	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	105	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	107	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	98.8	80.0	120	----
Aggregate Organics (QCLot: 1993672)									
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	198 mg/L	107	85.0	115	----
Aggregate Organics (QCLot: 1995845)									
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	100 mg/L	101	85.0	115	----
Aggregate Organics (QCLot: 1998042)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	97.3	85.0	115	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 1995629)										
WT2511206-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.503 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1995630)										
WT2511206-001	Anonymous	Chloride	16887-00-6	E235.Cl	100 mg/L	100 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 1995631)										
WT2511206-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.43 mg/L	2.5 mg/L	97.2	75.0	125	----
Anions and Nutrients (QCLot: 1995632)										
WT2511206-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	98.4 mg/L	100 mg/L	98.4	75.0	125	----
Anions and Nutrients (QCLot: 1998039)										
HA2501380-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1998040)										
WT2511009-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 1998041)										
HA2501380-003	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2005956)										
WT2511207-004	DUP-07	Kjeldahl nitrogen, total [TKN]	----	E318	2.82 mg/L	2.5 mg/L	113	70.0	130	----
Total Metals (QCLot: 1992912)										
HA2501351-005	Anonymous	Arsenic, total	7440-38-2	E420	0.0526 mg/L	0.05 mg/L	105	70.0	130	----
		Barium, total	7440-39-3	E420	0.0122 mg/L	0.012 mg/L	97.8	70.0	130	----
		Boron, total	7440-42-8	E420	0.052 mg/L	0.05 mg/L	105	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00502 mg/L	0.005 mg/L	100	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0129 mg/L	0.012 mg/L	103	70.0	130	----
		Copper, total	7440-50-8	E420	ND mg/L	----	ND	70.0	130	----
		Iron, total	7439-89-6	E420	0.050 mg/L	0.05 mg/L	99.1	70.0	130	----
		Lead, total	7439-92-1	E420	0.0247 mg/L	0.025 mg/L	98.8	70.0	130	----
		Zinc, total	7440-66-6	E420	ND mg/L	----	ND	70.0	130	----
Dissolved Metals (QCLot: 1993081)										
WT2511050-001	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000891 mg/L	0 mg/L	89.1	70.0	130	----
Aggregate Organics (QCLot: 1995845)										
HA2501351-001	Anonymous	Chemical oxygen demand [COD]	----	E559-L	106 mg/L	100 mg/L	106	75.0	125	----
Aggregate Organics (QCLot: 1998042)										
HA2501380-002	Anonymous	Phenols, total (4AAP)	----	E562	0.0188 mg/L	0.02 mg/L	93.9	75.0	125	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Canada Toll Free: 1 800 668 9878

Page

www.alsglobal.com

Environmental Division
Waterloo
Work Order Reference
WT2511207

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minir
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minir
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minir
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge fees may apply to rush requests on weekends, statutory holidays routine tests

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please

Project Information

ALS Account # / Quote #:	PINC100 / West Perth
Job #:	West Perth Mitchell Domestic Surface Water
PO / AFE:	333568.002
LSD:	ML

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): WT2511207

ALS Contact: Amanda Overholster

Sampler: ML/DH

Analysis Re

Indicate Filtered (F), Preserved (P) or Filtered and

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	West Perth Mitchell Domestic Surface Water	Dissolved Hg - Lab Filter	SAMPLES ON HOLD	EXTENDED STORAGE REQUIR	SUSPECTED HAZARD (see not
	SW1	13/05/05	1:00	SW	5	R	R			
	SW2		1:20			R	R			
	SW3		1:20			R	R			
	DUP-07		1:45			R	R			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☒ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☒ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				1.5			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
DH/ML	13/05/25	4:15

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
KW-P	12/May/05	10:15

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

B-399 GC-977 N-786

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2511347**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	13-May-2025 14:30
C-O-C number	:	23-1119759	Date Analysis Commenced	:	14-May-2025
Sampler	:	ML/DH	Issue Date	:	15-May-2025 08:08
Site	:	----			
Quote number	:	West Perth Landfill			
No. of samples received	:	1			
No. of samples analysed	:	1			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
µg/L	micrograms per litre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TRIP BLANK 04	----	----	----	----
					Client sampling date / time	13-May-2025 09:00	----	----	----	----
						WT2511347-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	----	----	----	----
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TRIP BLANK 04	----	----	----	----
					Client sampling date / time	13-May-2025 09:00	----	----	----	----
						WT2511347-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TRIP BLANK 04	----	----	----	----
					Client sampling date / time	13-May-2025 09:00	----	----	----	----
						WT2511347-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		89.4	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		89.4	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		96.8	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		96.8	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2511347**	Page	: 1 of 5
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC	Date Samples Received	: 13-May-2025 14:30
PO	: 333568.002	Issue Date	: 15-May-2025 08:07
C-O-C number	: 23-1119759		
Sampler	: ML/DH		
Site	: ----		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / **Container / Client Sample ID(s)**	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times*		*Eval*	*Analysis Date*	*Holding Times*		*Eval*
				Rec	*Actual*			*Rec*	*Actual*	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIP BLANK 04	E611D	13-May-2025	14-May-2025	14 days	1 days	✓	14-May-2025	14 days	1 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIP BLANK 04	E611E	13-May-2025	14-May-2025	14 days	1 days	✓	14-May-2025	14 days	1 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1996255	1	9	11.1	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1996256	1	1	100.0	5.0	✓
Laboratory Control Samples (LCS)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1996255	1	9	11.1	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1996256	1	1	100.0	5.0	✓
Method Blanks (MB)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1996255	1	9	11.1	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1996256	1	1	100.0	5.0	✓
Matrix Spikes (MS)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	1996255	1	9	11.1	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	1996256	1	1	100.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Prairies List) by Headspace GC-MS	E611E ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

QUALITY CONTROL REPORT

Work Order	: **WT2511347**	Page	: 1 of 10
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC	Date Samples Received	: 13-May-2025 14:30
PO	: 333568.002	Date Analysis Commenced	: 14-May-2025
C-O-C number	: 23-1119759	Issue Date	: 15-May-2025 08:07
Sampler	: ML/DH		
Site	: ----		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1996255)											
WT2511347-001	TRIP BLANK 04	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 1996255) - continued											
WT2511347-001	TRIP BLANK 04	Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 1996256)											
WT2511347-001	TRIP BLANK 04	Trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1996255)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 1996255) - continued						
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----
Volatile Organic Compounds (QCLot: 1996256)						
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1996255)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	119	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	94.4	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	72.3	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	89.2	70.0	130	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	81.0	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	94.1	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	94.4	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	92.2	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	99.7	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	98.3	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	91.3	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	94.6	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	86.3	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	88.4	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	101	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	95.5	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	96.0	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	95.8	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	97.7	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	95.6	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	94.8	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	97.2	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	97.8	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	96.1	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	87.3	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	95.7	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	100	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	106	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	105	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	99.9	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	89.3	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1996255) - continued									
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	87.8	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	86.5	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	93.7	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	80.9	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	95.3	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	90.8	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	85.0	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	92.4	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	88.2	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	93.4	70.0	130	----
Volatile Organic Compounds (QCLot: 1996256)									
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	72.7	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1996255)										
WT2511347-001	TRIP BLANK 04	Acetone	67-64-1	E611D	118 µg/L	100 µg/L	118	60.0	140	----
		Benzene	71-43-2	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Bromoform	75-25-2	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Bromomethane	74-83-9	E611D	69.8 µg/L	100 µg/L	69.8	60.0	140	----
		Carbon disulfide	75-15-0	E611D	88.3 µg/L	100 µg/L	88.3	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	81.0 µg/L	100 µg/L	81.0	60.0	140	----
		Chlorobenzene	108-90-7	E611D	96.2 µg/L	100 µg/L	96.2	60.0	140	----
		Chloroethane	75-00-3	E611D	92.5 µg/L	100 µg/L	92.5	60.0	140	----
		Chloroform	67-66-3	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Chloromethane	74-87-3	E611D	97.7 µg/L	100 µg/L	97.7	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	91.6 µg/L	100 µg/L	91.6	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	89.0 µg/L	100 µg/L	89.0	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	91.4 µg/L	100 µg/L	91.4	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	95.3 µg/L	100 µg/L	95.3	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	97.6 µg/L	100 µg/L	97.6	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	94.8 µg/L	100 µg/L	94.8	60.0	140	----
		Dichloromethane	75-09-2	E611D	94.1 µg/L	100 µg/L	94.1	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	96.5 µg/L	100 µg/L	96.5	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	91.4 µg/L	100 µg/L	91.4	60.0	140	----
		Ethylbenzene	100-41-4	E611D	88.9 µg/L	100 µg/L	88.9	60.0	140	----
		Hexane, n-	110-54-3	E611D	94.9 µg/L	100 µg/L	94.9	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Styrene	100-42-5	E611D	90.9 µg/L	100 µg/L	90.9	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	89.4 µg/L	100 µg/L	89.4	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	115 µg/L	100 µg/L	115	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	88.1 µg/L	100 µg/L	88.1	60.0	140	----
		Toluene	108-88-3	E611D	96.1 µg/L	100 µg/L	96.1	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	81.0 µg/L	100 µg/L	81.0	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	96.1 µg/L	100 µg/L	96.1	60.0	140	----
		Trichloroethylene	79-01-6	E611D	90.1 µg/L	100 µg/L	90.1	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 1996255) - continued										
WT2511347-001	TRIP BLANK 04	Trichlorofluoromethane	75-69-4	E611D	83.3 µg/L	100 µg/L	83.3	60.0	140	----
		Vinyl chloride	75-01-4	E611D	90.3 µg/L	100 µg/L	90.3	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	182 µg/L	200 µg/L	90.8	60.0	140	----
		Xylene, o-	95-47-6	E611D	95.8 µg/L	100 µg/L	95.8	60.0	140	----
Volatile Organic Compounds (QCLot: 1996256)										
WT2511347-001	TRIP BLANK 04	Trichlorobenzene, 1,2,4-	120-82-1	E611E	76.4 µg/L	100 µg/L	76.4	60.0	140	----

VH-174

Chain of Custody (COC) / Analytical Request Form

COC Number: 23 - 1119759 GP

Page 1 of 1

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division
Waterloo
Work Order Reference
WT2511347

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Pinchin Ltd.	Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)	☒ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Deana Bettencourt	Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	226-338-0989	☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	205 Labrador Dr. Unit 1	Email 1 or Fax dbettencourt@pinchin.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	Waterloo, ON	Email 2	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.
Postal Code:	N2K 4M7	Email 3	Additional fees may apply to rush requests on weekends
Invoice To	Same as Report To ☐ YES ☒ NO	Invoice Recipients	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☒ YES ☐ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please c
Company:	Pinchin Ltd.	Email 1 or Fax dbettencourt@pinchin.com	Analysis Req
Contact:	Deana Bettencourt	Email 2 ap@pinchin.com	

Project Information		Oil and Gas Required Fields (client use)	
ALS Client Code / QUOTE #:	PINC 10 West Perth	AFE/Cost Center:	PO#
Job / Project #:	West Perth Mitchell Domestic	Major/Minor Code:	Routing Code:
PO / AFE:	333565.002	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only): WT2511347 FH

ALS Contact: | Sampler: ML/DH

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	TRIP BLANK DH.	13/05/25	9:00	GW	2	R			

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	GEL Planned Event.
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Cooler Custody Seals Intact: ☑ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
3.2	4.6						

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by: ML/DH	Date: 13/05/25	Time: 2:15	Received by:	Date:	Time:	Received by: GP	Date: 2025-05-13	Time: 14:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JAN 2023 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2527385**			
Amendment	:	**1**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC GW	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	26-Sep-2025 17:00
C-O-C number	:	----	Date Analysis Commenced	:	29-Sep-2025
Sampler	:	Client	Issue Date	:	06-Nov-2025 15:48
Site	:	----			
Quote number	:	West Perth Landfill			
No. of samples received	:	19			
No. of samples analysed	:	19			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Centralized Prep, Waterloo, Ontario
Jon Fisher	Laboratory Manager - Environmental	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Workorder Comments

Amendment (06/11/2025): This report has been amended following changes to the analytical data reported. The quality system is being utilised to resolve this issue. The specific data affected includes Metals.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLVH	Detection Limit Raised: Chromatographic interference from Volatile Hydrocarbons prevents determination of whether VOC analyte is present or absent (at regular DLs).
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
SFPR	Suspected False Positive Result, based on detection in Lab Blanks and/or Field Blanks, or other known issues.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW2 ----	MW3S ----	MW3D ----	MW4 ----	MW5S ----
					Client sampling date / time	26-Sep-2025 09:30	26-Sep-2025 10:15	26-Sep-2025 10:20	26-Sep-2025 11:40	26-Sep-2025 12:10
						WT2527385-001	WT2527385-002	WT2527385-003	WT2527385-004	WT2527385-005
						Result	Result	Result	Result	Result
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		field	field	field	field	field
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		279	859	169	434	565
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<5.0 DLM	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<5.0 DLM	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<5.0 DLM	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		279	859	169	434	565
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		277	806	147	417	489
pH	----	E108/WT	0.10	pH units		8.09	7.28	7.74	7.40	7.40
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		288 DLDS	990 DLDS	195 DLDS	492 DLDS	592 DLDS
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.0110	23.0	0.144	0.0136	0.0173
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		<0.10	<0.50 DLDS	<0.10	<0.10	<0.10
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		1.82	78.1 DLDS	1.55	29.3	3.64
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		1.48	0.183 DLDS	1.20	0.200	0.334
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	0.165 DLDS	0.034	<0.010	<0.010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0048	0.0011	0.0149	0.0024	0.0035
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		15.8	52.4 DLDS	3.08	9.13	20.6
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		<0.020	1.49 DLDS	0.101	0.035	0.254
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		<0.0224	1.66	0.135	0.0350	0.254

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW2 ----	MW3S ----	MW3D ----	MW4 ----	MW5S ----
					Client sampling date / time	26-Sep-2025 09:30	26-Sep-2025 10:15	26-Sep-2025 10:20	26-Sep-2025 11:40	26-Sep-2025 12:10
						WT2527385-001	WT2527385-002	WT2527385-003	WT2527385-004	WT2527385-005
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		<0.50	14.8	1.01	1.90	1.55
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.0015	0.0117	0.0011	0.0127	0.0032
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00386	0.00310	0.0134	0.00016	0.00023
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.188	0.324	0.0614	0.0412	0.102
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		0.090	1.46	0.077	0.013	0.018
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		<0.0000050	0.0000164	<0.0000050	<0.0000050	0.0000052
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		53.3	211	30.2	132	136
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		0.00038	0.00067	<0.00020	0.00065	0.00104
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		<0.010	5.10	<0.010	<0.010	<0.010
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		35.0	67.7	17.4	21.2	36.4
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.00750	0.261	0.0219	0.00076	0.00026
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		1.51	35.6	0.837	0.516	1.50
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		0.000086	0.000518	<0.000050	0.000089	0.000344
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		7.52	7.10	5.74	4.31	5.55
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		22.5	101	22.9	11.2	6.37
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		0.0015	0.0039	<0.0010	0.0010	0.0016
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	Field	Field	Field

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW2 ----	MW3S ----	MW3D ----	MW4 ----	MW5S ----
					Client sampling date / time	26-Sep-2025 09:30	26-Sep-2025 10:15	26-Sep-2025 10:20	26-Sep-2025 11:40	26-Sep-2025 12:10
						WT2527385-001	WT2527385-002	WT2527385-003	WT2527385-004	WT2527385-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW2 ----	MW3S ----	MW3D ----	MW4 ----	MW5S ----
					Client sampling date / time	26-Sep-2025 09:30	26-Sep-2025 10:15	26-Sep-2025 10:20	26-Sep-2025 11:40	26-Sep-2025 12:10
						WT2527385-001	WT2527385-002	WT2527385-003	WT2527385-004	WT2527385-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW2 ----	MW3S ----	MW3D ----	MW4 ----	MW5S ----
					Client sampling date / time	26-Sep-2025 09:30	26-Sep-2025 10:15	26-Sep-2025 10:20	26-Sep-2025 11:40	26-Sep-2025 12:10
						WT2527385-001	WT2527385-002	WT2527385-003	WT2527385-004	WT2527385-005
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		92.1	90.7	91.2	90.7	90.6
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		92.1	90.7	91.2	90.7	90.6
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		97.0	97.3	97.8	97.9	97.3
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.0	97.3	97.8	97.9	97.3

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW6S ----	MW6D ----	MW7S ----	MW7D ----	MW8-B ----
					Client sampling date / time	26-Sep-2025 12:20	26-Sep-2025 12:25	26-Sep-2025 12:35	26-Sep-2025 12:40	26-Sep-2025 11:45
						WT2527385-007	WT2527385-008	WT2527385-009	WT2527385-010	WT2527385-011
						Result	Result	Result	Result	Result
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		field	field	field	field	field
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		648	262	473	255	420
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW6S ----	MW6D ----	MW7S ----	MW7D ----	MW8-B ----
					Client sampling date / time	26-Sep-2025 12:20	26-Sep-2025 12:25	26-Sep-2025 12:35	26-Sep-2025 12:40	26-Sep-2025 11:45
						WT2527385-007	WT2527385-008	WT2527385-009	WT2527385-010	WT2527385-011
						Result	Result	Result	Result	Result
Physical Tests										
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		648	262	473	255	420
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		411	259	378	201	292
pH	----	E108/WT	0.10	pH units		7.42	8.03	7.48	8.22	8.03
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		505 DLDS	369 DLDS	528 DLDS	284 DLDS	498 DLDS
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.0221	<0.0050	0.0148	0.0167	2.84
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		<0.10	<0.10	<0.10	<0.10	<0.10
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		5.25	8.44	2.08	2.09	51.8
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		0.604	1.18	0.402	1.46	0.950
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	0.218
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0025	0.0102	0.0037	0.0083	0.0162
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		30.5	60.5	11.1	12.5	40.6
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		<0.020	<0.020	0.035	0.040	0.653
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		<0.0224	<0.0224	0.0350	0.0400	0.871
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		1.28	0.93	1.85	0.88	14.7
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		<0.0010	0.0016	0.0059	0.0021	0.0101
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00025	0.00190	0.00019	0.00450	0.00532
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.0730	0.0770	0.0920	0.0646	0.104
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		0.013	0.030	<0.010	0.088	0.286

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW6S ----	MW6D ----	MW7S ----	MW7D ----	MW8-B ----
					Client sampling date / time	26-Sep-2025 12:20	26-Sep-2025 12:25	26-Sep-2025 12:35	26-Sep-2025 12:40	26-Sep-2025 11:45
						WT2527385-007	WT2527385-008	WT2527385-009	WT2527385-010	WT2527385-011
						Result	Result	Result	Result	Result
Dissolved Metals										
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		<0.0000050	0.0000064	0.0000062	<0.0000050	0.0000083
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		116	59.0	111	38.0	60.9
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	0.00104
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		0.00033	0.00128	0.00084	0.00068	0.00158
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	0.021
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	0.000130
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		29.5	27.1	24.4	25.8	34.0
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.00736	0.00140	0.00090	0.00128	0.299
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		0.697	1.53	0.660	1.25	14.7
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		0.000060	<0.000050	0.000209	<0.000050	0.000082
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		5.29	7.64	4.80	6.99	7.71
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		5.24	48.5	4.77	40.7	77.1
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		<0.0010	0.0014	<0.0010	0.0026	0.0080
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	Field	Field	Field
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW6S ----	MW6D ----	MW7S ----	MW7D ----	MW8-B ----
					Client sampling date / time	26-Sep-2025 12:20	26-Sep-2025 12:25	26-Sep-2025 12:35	26-Sep-2025 12:40	26-Sep-2025 11:45
						WT2527385-007	WT2527385-008	WT2527385-009	WT2527385-010	WT2527385-011
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW6S ----	MW6D ----	MW7S ----	MW7D ----	MW8-B ----
					Client sampling date / time	26-Sep-2025 12:20	26-Sep-2025 12:25	26-Sep-2025 12:35	26-Sep-2025 12:40	26-Sep-2025 11:45
						WT2527385-007	WT2527385-008	WT2527385-009	WT2527385-010	WT2527385-011
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		0.75 OWP	<0.50	0.65 OWP	<0.50	<0.50
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		91.7	91.5	92.1	90.7	91.1

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW6S ----	MW6D ----	MW7S ----	MW7D ----	MW8-B ----
					Client sampling date / time	26-Sep-2025 12:20	26-Sep-2025 12:25	26-Sep-2025 12:35	26-Sep-2025 12:40	26-Sep-2025 11:45
						WT2527385-007	WT2527385-008	WT2527385-009	WT2527385-010	WT2527385-011
						Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		91.7	91.5	92.1	90.7	91.1
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		97.2	97.6	97.3	96.9	97.1
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.2	97.6	97.3	96.9	97.1

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW9S ----	MW9D ----	MW10S ----	MW10D ----	MW11S ----
					Client sampling date / time	26-Sep-2025 10:35	26-Sep-2025 10:40	26-Sep-2025 09:45	26-Sep-2025 10:00	26-Sep-2025 10:50
						WT2527385-012	WT2527385-013	WT2527385-014	WT2527385-015	WT2527385-016
						Result	Result	Result	Result	Result
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		field	field	lab	field	field
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		1300	688	455	446	355
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	<1.0	<1.0	<1.0	<1.0
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	<1.0	<1.0	<1.0	<1.0
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	<1.0	<1.0	<1.0	<1.0
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		1300	688	455	446	355
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		940	786	685	155	480
pH	----	E108/WT	0.10	pH units		7.25	7.39	7.52	7.83	7.75
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		1130 DLDS	934 DLDS	562 DLDS	426 DLDS	520 DLDS
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		51.8	10.1	0.0067	0.0386	0.0238

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW9S ----	MW9D ----	MW10S ----	MW10D ----	MW11S ----
					Client sampling date / time	26-Sep-2025 10:35	26-Sep-2025 10:40	26-Sep-2025 09:45	26-Sep-2025 10:00	26-Sep-2025 10:50
						WT2527385-012	WT2527385-013	WT2527385-014	WT2527385-015	WT2527385-016
						Result	Result	Result	Result	Result
Anions and Nutrients										
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		<0.50 DLDS	<0.50 DLDS	<0.10	<0.10	<0.10
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		76.5 DLDS	147 DLDS	4.53	3.43	1.06
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		0.802 DLDS	0.872 DLDS	0.720	1.54	1.32
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.050 DLDS	<0.050 DLDS	<0.010	<0.010	<0.010
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0015	0.0012	0.0030	0.0059	0.0037
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		7.80 DLDS	16.0 DLDS	113	24.6	129
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		<0.100 DLDS	<0.100 DLDS	0.030	<0.020	<0.020
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		<0.112	<0.112	0.0300	<0.0224	<0.0224
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		20.0	19.8	0.82	0.54	0.96
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E423A/WT	0.0030	mg/L		----	----	6.51	----	----
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.0140 DLHC	0.0030	----	0.156	0.0032
Arsenic, dissolved	7440-38-2	E423A/WT	0.00010	mg/L		----	----	0.00302	----	----
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00359 DLHC	0.00284	----	0.00259	0.00091
Barium, dissolved	7440-39-3	E423A/WT	0.00010	mg/L		----	----	0.186	----	----
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.583 DLHC	0.540	----	0.0469	0.0723
Boron, dissolved	7440-42-8	E423A/WT	0.010	mg/L		----	----	0.057	----	----
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		0.957 DLHC	0.488	----	0.266	0.133
Cadmium, dissolved	7440-43-9	E423A/WT	0.0000050	mg/L		----	----	0.0000780	----	----
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		<0.0000500 DLHC	<0.0000050	----	0.0000056	0.0000055

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW9S ----	MW9D ----	MW10S ----	MW10D ----	MW11S ----
					Client sampling date / time	26-Sep-2025 10:35	26-Sep-2025 10:40	26-Sep-2025 09:45	26-Sep-2025 10:00	26-Sep-2025 10:50
						WT2527385-012	WT2527385-013	WT2527385-014	WT2527385-015	WT2527385-016
						Result	Result	Result	Result	Result
Dissolved Metals										
Calcium, dissolved	7440-70-2	E423A/WT	0.050	mg/L		----	----	171	----	----
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		195 DLHC	162	----	31.3	94.3
Chromium, dissolved	7440-47-3	E423A/WT	0.00010	mg/L		----	----	0.0103	----	----
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00500 DLHC	<0.00050	----	<0.00050	<0.00050
Copper, dissolved	7440-50-8	E423A/WT	0.00050	mg/L		----	----	0.0291	----	----
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		<0.00200 DLHC	<0.00020	----	0.00108	0.00022
Iron, dissolved	7439-89-6	E423A/WT	0.010	mg/L		----	----	8.49	----	----
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		3.62 DLHC	0.561	----	0.176	<0.010
Lead, dissolved	7439-92-1	E423A/WT	0.000050	mg/L		----	----	0.0104	----	----
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		<0.000500 DLHC	<0.000050	----	0.000114	<0.000050
Magnesium, dissolved	7439-95-4	E423A/WT	0.0050	mg/L		----	----	62.7	----	----
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		110 DLHC	92.7	----	18.7	59.4
Manganese, dissolved	7439-96-5	E423A/WT	0.00010	mg/L		----	----	0.244	----	----
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.755 DLHC	0.153	----	0.0109	0.00157
Molybdenum, dissolved	7439-98-7	E423A/WT	0.000050	mg/L		----	----	0.00119	----	----
Potassium, dissolved	7440-09-7	E423A/WT	0.050	mg/L		----	----	3.45	----	----
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		67.9 DLHC	24.7	----	1.34	2.30
Selenium, dissolved	7782-49-2	E423A/WT	0.000050	mg/L		----	----	0.000136	----	----
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		<0.000500 DLHC	0.000223	----	<0.000050	0.00463
Silicon, dissolved	7440-21-3	E423A/WT	0.10	mg/L		----	----	16.5	----	----
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		9.62 DLHC	8.73	----	5.33	8.38

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW9S ----	MW9D ----	MW10S ----	MW10D ----	MW11S ----
					Client sampling date / time	26-Sep-2025 10:35	26-Sep-2025 10:40	26-Sep-2025 09:45	26-Sep-2025 10:00	26-Sep-2025 10:50
						WT2527385-012	WT2527385-013	WT2527385-014	WT2527385-015	WT2527385-016
						Result	Result	Result	Result	Result
Dissolved Metals										
Sodium, dissolved	7440-23-5	E423A/WT	0.050	mg/L		----	----	12.8	----	----
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		104 DLHC	87.5	----	39.5	32.8
Zinc, dissolved	7440-66-6	E423A/WT	0.0030	mg/L		----	----	0.0279	----	----
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		<0.0100 DLHC	0.0027	----	0.0026	<0.0010
Dissolved metals filtration location	----	EP423/WT	-	-		----	----	Field	----	----
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	----	Field	Field
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	175	<20	<20	<20
Benzene	71-43-2	E611D/WT	0.50	µg/L		1.53 OWP	24.0	<0.50	<0.50	<0.50
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		50.9 OWP	40.6	<0.50	<0.50	<0.50
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<7.50 DLVH	<0.50	<0.50	<0.50
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	<2.0
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	<0.20
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW9S ----	MW9D ----	MW10S ----	MW10D ----	MW11S ----
					Client sampling date / time	26-Sep-2025 10:35	26-Sep-2025 10:40	26-Sep-2025 09:45	26-Sep-2025 10:00	26-Sep-2025 10:50
						WT2527385-012	WT2527385-013	WT2527385-014	WT2527385-015	WT2527385-016
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		72.6 OWP	27900 OWP	<0.50	<0.50	<0.50
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	23.5	<0.50	<0.50	<0.50
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		1.56 OWP	800 OWP	<0.50	<0.50	<0.50
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	3.60	<0.50	<0.50	<0.50
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	0.76	<0.50	<0.50	<0.50
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	<2.0 DLVH	<1.0	<1.0	<1.0
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<1.00 DLVH	<0.50	<0.50	<0.50
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	660 OWP	<0.50	<0.50	<0.50
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<17.0 DLVH	<0.50	<0.50	<0.50
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	<20
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	689	<20	<20	<20
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	10.2	<0.50	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	1.82	<0.50	<0.50	<0.50

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW9S ----	MW9D ----	MW10S ----	MW10D ----	MW11S ----
					Client sampling date / time	26-Sep-2025 10:35	26-Sep-2025 10:40	26-Sep-2025 09:45	26-Sep-2025 10:00	26-Sep-2025 10:50
						WT2527385-012	WT2527385-013	WT2527385-014	WT2527385-015	WT2527385-016
						Result	Result	Result	Result	Result
Volatile Organic Compounds										
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	1180 OWP	<0.50	<0.50	<0.50
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	5420 OWP	<0.50	<0.50	<0.50
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		42.1 OWP	326000 OWP	<0.50	<0.50	<0.50
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	460 OWP	<0.50	<0.50	<0.50
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	2700 OWP	<0.50	<0.50	<0.50
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		0.36 OWP	4.52	<0.20	<0.20	<0.20
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	2260 OWP	<0.40	<0.40	<0.40
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	660 OWP	<0.30	<0.30	<0.30
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	2920	<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		91.0	94.7	92.0	92.0	91.8
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		91.0	94.7	92.0	92.0	91.8
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		97.1	97.9	97.2	97.2	96.8
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.1	97.9	97.2	97.2	96.8

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW11D ----	DUP-103 ----	DUP-104 ----	MW5D ----	----
					Client sampling date / time	26-Sep-2025 11:10	26-Sep-2025 11:40	26-Sep-2025 12:20	26-Sep-2025 12:15	----
						WT2527385-017	WT2527385-018	WT2527385-019	WT2527385-020	----
						Result	Result	Result	Result	----
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		field	field	field	field	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		241	384	574	227	----
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		241	384	574	227	----
Hardness (as CaCO3), dissolved	----	EC100/WT	0.50	mg/L		217	412	407	214	----
pH	----	E108/WT	0.10	pH units		8.16	7.64	7.54	8.24	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		282 DLDS	483 DLDS	507 DLDS	382 DLDS	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.0181	<0.0050	0.0107	<0.0050	----
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		<0.10	<0.10	<0.10	0.21	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		1.10	29.5	5.32	16.3	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		1.88	0.222	0.654	1.21	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0123	0.0020	0.0026	0.0075	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		27.2	9.34	30.6	90.2	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		0.068	0.035	<0.020	0.083	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		0.0680	0.0350	<0.0224	0.0830	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW11D ----	DUP-103 ----	DUP-104 ----	MW5D ----	----
					Client sampling date / time	26-Sep-2025 11:10	26-Sep-2025 11:40	26-Sep-2025 12:20	26-Sep-2025 12:15	----
						WT2527385-017	WT2527385-018	WT2527385-019	WT2527385-020	----
						Result	Result	Result	Result	----
Organic / Inorganic Carbon										
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L		0.96	2.36	1.65	1.14	----
Dissolved Metals										
Aluminum, dissolved	7429-90-5	E421/WT	0.0010	mg/L		0.0063	0.0192	0.0012	0.0017	----
Arsenic, dissolved	7440-38-2	E421/WT	0.00010	mg/L		0.00862	0.00015	0.00024	0.00097	----
Barium, dissolved	7440-39-3	E421/WT	0.00010	mg/L		0.0733	0.0409	0.0730	0.0656	----
Boron, dissolved	7440-42-8	E421/WT	0.010	mg/L		0.164	0.013	0.013	0.145	----
Cadmium, dissolved	7440-43-9	E421/WT	0.0000050	mg/L		0.0000073	<0.0000050	<0.0000050	0.0000075	----
Calcium, dissolved	7440-70-2	E421/WT	0.050	mg/L		39.1	130	115	40.4	----
Chromium, dissolved	7440-47-3	E421/WT	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	----
Copper, dissolved	7440-50-8	E421/WT	0.00020	mg/L		0.00051	0.00064	0.00030	0.00174	----
Iron, dissolved	7439-89-6	E421/WT	0.010	mg/L		0.012	0.015	<0.010	<0.010	----
Lead, dissolved	7439-92-1	E421/WT	0.000050	mg/L		<0.000050	0.000052	<0.000050	<0.000050	----
Magnesium, dissolved	7439-95-4	E421/WT	0.0050	mg/L		28.9	21.3	29.2	27.4	----
Manganese, dissolved	7439-96-5	E421/WT	0.00010	mg/L		0.00235	0.00101	0.00740	0.00032	----
Potassium, dissolved	7440-09-7	E421/WT	0.050	mg/L		1.37	0.519	0.704	1.65	----
Selenium, dissolved	7782-49-2	E421/WT	0.000050	mg/L		0.000052	0.000052	<0.000050	0.000120	----
Silicon, dissolved	7440-21-3	E421/WT	0.050	mg/L		7.09	4.26	5.23	4.35	----
Sodium, dissolved	7440-23-5	E421/WT	0.050	mg/L		40.2	11.1	5.20	49.0	----
Zinc, dissolved	7440-66-6	E421/WT	0.0010	mg/L		0.0022	0.0014	<0.0010	0.0014	----
Dissolved metals filtration location	----	EP421/WT	-	-		Field	Field	Field	Field	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

					Client sample ID	MW11D ----	DUP-103 ----	DUP-104 ----	MW5D ----	----
					Client sampling date / time	26-Sep-2025 11:10	26-Sep-2025 11:40	26-Sep-2025 12:20	26-Sep-2025 12:15	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2527385-017	WT2527385-018	WT2527385-019	WT2527385-020	----
						Result	Result	Result	Result	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	<20	<20	<20	----
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	<2.0	<2.0	<2.0	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW11D ----	DUP-103 ----	DUP-104 ----	MW5D ----	----
					Client sampling date / time	26-Sep-2025 11:10	26-Sep-2025 11:40	26-Sep-2025 12:20	26-Sep-2025 12:15	----
						WT2527385-017	WT2527385-018	WT2527385-019	WT2527385-020	----
						Result	Result	Result	Result	----
Volatile Organic Compounds										
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.5 SFPR	<1.5 SFPR	<1.5 SFPR	<1.5 SFPR	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	<0.50	0.73 OWP	<0.50	----
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	<20	<20	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	<20	<20	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	<20	<20	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	<1.0	<1.0	<1.0	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	MW11D ----	DUP-103 ----	DUP-104 ----	MW5D ----	----
					Client sampling date / time	26-Sep-2025 11:10	26-Sep-2025 11:40	26-Sep-2025 12:20	26-Sep-2025 12:15	----
						WT2527385-017	WT2527385-018	WT2527385-019	WT2527385-020	----
						Result	Result	Result	Result	----
Volatile Organic Compounds										
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	<0.20	<0.20	<0.20	----
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	<0.40	<0.40	<0.40	----
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	<0.30	<0.30	<0.30	----
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	<0.50	<0.50	<0.50	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		91.6	91.0	90.8	91.3	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		91.6	91.0	90.8	91.3	----
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		97.0	96.9	97.0	96.8	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.0	96.9	97.0	96.8	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

Quality Control Interpretive Report

Work Order	: **WT2527385**			
Amendment	: **1**			
Client	: Pinchin Ltd.	Laboratory	:	ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: ----	Telephone	:	1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC GW	Date Samples Received	:	26-Sep-2025 17:00
PO	: 333568.002	Issue Date	:	06-Nov-2025 15:48
C-O-C number	: ----			
Sampler	: Client			
Site	: ----			
Quote number	: West Perth Landfill			
No. of samples received	: 19			
No. of samples analysed	: 19			

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Laboratory Control Sample Duplicate (LCSD) outliers occur
- No Matrix Spike outliers occur.
- No Matrix Spike Duplicate (MSD) outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and/or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence												
Amber glass total (sulfuric acid)												
MW2	001	2249836	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
MW3S	002	2249836	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
MW3D	003	2249836	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
MW4	004	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW5S	005	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW6S	007	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW6D	008	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW7S	009	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW7D	010	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW8-B	011	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW9S	012	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW9D	013	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW10S	014	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence												
Amber glass total (sulfuric acid)												
MW10D	015	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW11S	016	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW11D	017	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
MW5D	020	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
Anions and Nutrients : Ammonia by Fluorescence												
Amber glass total (sulfuric acid) [ON MECP]												
DUP-103	018	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-104	019	2250053	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC												
HDPE [ON MECP]												
MW2	001	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3S	002	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3D	003	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW4	004	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW5S	005	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW6S	007	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW6D	008	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW7S	009	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW7D	010	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC												
HDPE [ON MECP]												
MW8-B	011	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW9S	012	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW9D	013	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10S	014	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10D	015	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW11S	016	2247168	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW11D	017	2248093	E235.Br	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-103	018	2248093	E235.Br	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-104	019	2248093	E235.Br	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
MW5D	020	2250130	E235.Br	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC												
HDPE [ON MECP]												
MW2	001	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3S	002	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3D	003	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW4	004	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW5S	005	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW6S	007	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC												
HDPE [ON MECP]												
MW6D	008	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW7S	009	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW7D	010	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW8-B	011	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW9S	012	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW9D	013	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10S	014	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10D	015	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW11S	016	2247162	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW11D	017	2248088	E235.Cl	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-103	018	2248088	E235.Cl	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-104	019	2248088	E235.Cl	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
MW5D	020	2250128	E235.Cl	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)												
HDPE [ON MECP]												
MW2	001	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW3S	002	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW3D	003	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)												
HDPE [ON MECP]												
MW4	004	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW5S	005	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW6S	007	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW6D	008	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW7S	009	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW7D	010	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW8-B	011	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW9S	012	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW9D	013	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW10S	014	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW10D	015	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW11S	016	2247169	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW11D	017	2248095	E378-U	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
DUP-103	018	2248095	E378-U	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
DUP-104	019	2248095	E378-U	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW5D	020	2250134	E378-U	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	01-Oct-2025	7 days	5 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC												
HDPE [ON MECP]												
MW2	001	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3S	002	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3D	003	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW4	004	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW5S	005	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW6S	007	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW6D	008	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW7S	009	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW7D	010	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW8-B	011	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW9S	012	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW9D	013	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10S	014	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10D	015	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW11S	016	2247165	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW11D	017	2248090	E235.F	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-103	018	2248090	E235.F	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-104	019	2248090	E235.F	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC												
HDPE [ON MECP]												
MW5D	020	2250125	E235.F	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
Anions and Nutrients : Nitrate in Water by IC												
HDPE [ON MECP]												
MW2	001	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW3S	002	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW3D	003	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW4	004	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW5S	005	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW6S	007	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW6D	008	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW7S	009	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW7D	010	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW8-B	011	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW9S	012	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW9D	013	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW10S	014	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW10D	015	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW11S	016	2247166	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC												
HDPE [ON MECP]												
MW11D	017	2248091	E235.NO3	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	02-Oct-2025	7 days	6 days	✓
DUP-103	018	2248091	E235.NO3	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	02-Oct-2025	7 days	6 days	✓
DUP-104	019	2248091	E235.NO3	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	02-Oct-2025	7 days	6 days	✓
MW5D	020	2250126	E235.NO3	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	6 days	✓
Anions and Nutrients : Nitrite in Water by IC												
HDPE [ON MECP]												
MW2	001	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW3S	002	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW3D	003	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW4	004	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW5S	005	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW6S	007	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW6D	008	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW7S	009	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW7D	010	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW8-B	011	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	2 days	✓	30-Sep-2025	7 days	4 days	✓
MW9S	012	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW9D	013	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC												
HDPE [ON MECP]												
MW10S	014	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW10D	015	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW11S	016	2247167	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	4 days	✓
MW11D	017	2248092	E235.NO2	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	02-Oct-2025	7 days	6 days	✓
DUP-103	018	2248092	E235.NO2	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	02-Oct-2025	7 days	6 days	✓
DUP-104	019	2248092	E235.NO2	26-Sep-2025	30-Sep-2025	7 days	3 days	✓	02-Oct-2025	7 days	6 days	✓
MW5D	020	2250127	E235.NO2	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC												
HDPE [ON MECP]												
MW2	001	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3S	002	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3D	003	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW4	004	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW5S	005	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW6S	007	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW6D	008	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW7S	009	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW7D	010	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC												
HDPE [ON MECP]												
MW8-B	011	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	2 days	✓	30-Sep-2025	28 days	4 days	✓
MW9S	012	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW9D	013	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10S	014	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10D	015	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW11S	016	2247164	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW11D	017	2248089	E235.SO4	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-103	018	2248089	E235.SO4	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
DUP-104	019	2248089	E235.SO4	26-Sep-2025	30-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	6 days	✓
MW5D	020	2250129	E235.SO4	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	6 days	✓
Dissolved Metals : Digested Dissolved Metals by CRC ICPMS												
HDPE dissolved (nitric acid)												
MW10S	014	2248484	E423A	26-Sep-2025	30-Sep-2025	180 days	3 days	✓	30-Sep-2025	180 days	4 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid)												
MW2	001	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW3S	002	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW3D	003	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW4	004	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid)												
MW5S	005	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW6S	007	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW6D	008	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW7S	009	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW7D	010	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW8-B	011	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW9S	012	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW9D	013	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW10D	015	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW11S	016	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW11D	017	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
DUP-103	018	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
DUP-104	019	2247853	E421	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
MW5D	020	2248756	E421	26-Sep-2025	30-Sep-2025	180 days	3 days	✓	30-Sep-2025	180 days	3 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)												
Amber glass - dissolved (field filtered/sulfuric acid)												
MW2	001	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW3S	002	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)												
Amber glass - dissolved (field filtered/sulfuric acid)												
MW3D	003	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW4	004	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW5S	005	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW6S	007	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW6D	008	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW7S	009	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW7D	010	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW8-B	011	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW9S	012	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW9D	013	2248061	E358-L	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	30-Sep-2025	28 days	4 days	✓
MW10S	014	2250120	E358-L	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
MW10D	015	2250120	E358-L	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
MW11S	016	2250120	E358-L	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
MW11D	017	2250120	E358-L	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
DUP-103	018	2250120	E358-L	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
DUP-104	019	2250120	E358-L	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓
MW5D	020	2250120	E358-L	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	5 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration												
HDPE [ON MECP]												
MW2	001	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW3S	002	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW3D	003	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW4	004	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW5S	005	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW6S	007	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW6D	008	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW7S	009	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW7D	010	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW8-B	011	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW9S	012	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW9D	013	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW10S	014	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW10D	015	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW11S	016	2247159	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW11D	017	2248085	E290	26-Sep-2025	30-Sep-2025	14 days	3 days	✓	02-Oct-2025	14 days	6 days	✓
DUP-103	018	2248085	E290	26-Sep-2025	30-Sep-2025	14 days	3 days	✓	02-Oct-2025	14 days	6 days	✓
DUP-104	019	2248085	E290	26-Sep-2025	30-Sep-2025	14 days	3 days	✓	02-Oct-2025	14 days	6 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration												
HDPE [ON MECP]												
MW5D	020	2250132	E290	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	5 days	✓
Physical Tests : pH by Meter												
HDPE [ON MECP]												
MW2	001	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW3S	002	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW3D	003	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW4	004	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW5S	005	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW6S	007	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW6D	008	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW7S	009	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW7D	010	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW8-B	011	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	2 days	✓	30-Sep-2025	14 days	4 days	✓
MW9S	012	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW9D	013	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW10S	014	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW10D	015	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓
MW11S	016	2247161	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	30-Sep-2025	14 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter												
HDPE [ON MECP]												
MW11D	017	2248086	E108	26-Sep-2025	30-Sep-2025	14 days	3 days	✓	02-Oct-2025	14 days	6 days	✓
DUP-103	018	2248086	E108	26-Sep-2025	30-Sep-2025	14 days	3 days	✓	02-Oct-2025	14 days	6 days	✓
DUP-104	019	2248086	E108	26-Sep-2025	30-Sep-2025	14 days	3 days	✓	02-Oct-2025	14 days	6 days	✓
MW5D	020	2250133	E108	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	5 days	✓
Physical Tests : TDS by Gravimetry												
HDPE [ON MECP]												
MW2	001	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
MW3S	002	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW3D	003	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW4	004	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW5S	005	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW6S	007	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW6D	008	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW7S	009	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW7D	010	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW8-B	011	2255384	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	6 days	✓
MW9S	012	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
MW9D	013	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry												
HDPE [ON MECP]												
MW10S	014	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
MW10D	015	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
MW11S	016	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
MW11D	017	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
DUP-103	018	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
DUP-104	019	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
MW5D	020	2256921	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS												
Glass vial (sodium bisulfate)												
MW2	001	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW3S	002	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW3D	003	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW4	004	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW5S	005	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW6S	007	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW6D	008	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW7S	009	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW7D	010	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method					Extraction / Preparation				Analysis			
Container						Holding Times				Holding Times		
Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Preparation Date	Rec	Actual	Eval	Analysis Date	Rec	Actual	Eval
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS												
Glass vial (sodium bisulfate)												
MW7D	010	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW8-B	011	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW8-B	011	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW9S	012	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW9S	012	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW9D	013	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW9D	013	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW10S	014	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW10S	014	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW10D	015	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW10D	015	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW11S	016	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW11S	016	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW11D	017	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW11D	017	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
DUP-103	018	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
DUP-103	018	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
DUP-104	019	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS												
Glass vial (sodium bisulfate)												
DUP-104	019	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW5D	020	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW5D	020	2249996	E611D	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS												
Glass vial (sodium bisulfate)												
MW2	001	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW3S	002	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW3D	003	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW4	004	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW5S	005	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
MW6S	007	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW6D	008	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW7S	009	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW7D	010	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW8-B	011	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW9S	012	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW9D	013	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW10S	014	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓

Matrix: Water

Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client sample ID	ALS Sample ID	QC Lot	Method	Sampling Date	Extraction / Preparation				Analysis			
					Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
						Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS												
Glass vial (sodium bisulfate)												
MW10D	015	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW11S	016	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW11D	017	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
DUP-103	018	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
DUP-104	019	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
MW5D	020	2249995	E611E	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: Water

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
pH by Meter	E108	2247161	3	45	6.7	5.0	✓
TDS by Gravimetry	E162	2255384	2	40	5.0	5.0	✓
Bromide in Water by IC	E235.Br	2247168	3	20	15.0	5.0	✓
Chloride in Water by IC	E235.Cl	2247162	3	51	5.9	5.0	✓
Fluoride in Water by IC	E235.F	2247165	3	34	8.8	5.0	✓
Nitrite in Water by IC	E235.NO2	2247167	3	32	9.4	5.0	✓
Nitrate in Water by IC	E235.NO3	2247166	3	34	8.8	5.0	✓
Sulfate in Water by IC	E235.SO4	2247164	3	47	6.4	5.0	✓
Alkalinity Species by Titration	E290	2247159	3	45	6.7	5.0	✓
Ammonia by Fluorescence	E298	2249836	2	40	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2248061	2	40	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2247169	3	30	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2247853	2	40	5.0	5.0	✓
Digested Dissolved Metals by CRC ICPMS	E423A	2248484	1	1	100.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2249996	2	21	9.5	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2249995	1	19	5.3	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	2247161	3	45	6.7	5.0	✓
TDS by Gravimetry	E162	2255384	2	40	5.0	5.0	✓
Bromide in Water by IC	E235.Br	2247168	3	20	15.0	5.0	✓
Chloride in Water by IC	E235.Cl	2247162	3	51	5.9	5.0	✓
Fluoride in Water by IC	E235.F	2247165	3	34	8.8	5.0	✓
Nitrite in Water by IC	E235.NO2	2247167	3	32	9.4	5.0	✓
Nitrate in Water by IC	E235.NO3	2247166	3	34	8.8	5.0	✓
Sulfate in Water by IC	E235.SO4	2247164	3	47	6.4	5.0	✓
Alkalinity Species by Titration	E290	2247159	3	45	6.7	5.0	✓
Ammonia by Fluorescence	E298	2249836	2	40	5.0	5.0	✓

Matrix: Water

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Control Samples (LCS)							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2248061	2	40	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2247169	3	30	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2247853	2	40	5.0	5.0	✓
Digested Dissolved Metals by CRC ICPMS	E423A	2248484	1	1	100.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2249996	2	21	9.5	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2249995	1	19	5.3	5.0	✓
Method Blanks (MB)							
TDS by Gravimetry	E162	2255384	2	40	5.0	5.0	✓
Bromide in Water by IC	E235.Br	2247168	3	20	15.0	5.0	✓
Chloride in Water by IC	E235.Cl	2247162	3	51	5.9	5.0	✓
Fluoride in Water by IC	E235.F	2247165	3	34	8.8	5.0	✓
Nitrite in Water by IC	E235.NO2	2247167	3	32	9.4	5.0	✓
Nitrate in Water by IC	E235.NO3	2247166	3	34	8.8	5.0	✓
Sulfate in Water by IC	E235.SO4	2247164	3	47	6.4	5.0	✓
Alkalinity Species by Titration	E290	2247159	3	45	6.7	5.0	✓
Ammonia by Fluorescence	E298	2249836	2	40	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2248061	2	40	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2247169	3	30	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2247853	2	40	5.0	5.0	✓
Digested Dissolved Metals by CRC ICPMS	E423A	2248484	1	1	100.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2249996	2	21	9.5	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2249995	1	19	5.3	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC	E235.Br	2247168	3	20	15.0	5.0	✓
Chloride in Water by IC	E235.Cl	2247162	3	51	5.9	5.0	✓
Fluoride in Water by IC	E235.F	2247165	3	34	8.8	5.0	✓
Nitrite in Water by IC	E235.NO2	2247167	3	32	9.4	5.0	✓
Nitrate in Water by IC	E235.NO3	2247166	3	34	8.8	5.0	✓
Sulfate in Water by IC	E235.SO4	2247164	3	47	6.4	5.0	✓
Ammonia by Fluorescence	E298	2249836	2	40	5.0	5.0	✓

Matrix: Water

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Matrix Spikes (MS)							
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2248061	2	40	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2247169	3	30	10.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	2247853	2	40	5.0	5.0	✓
Digested Dissolved Metals by CRC ICPMS	E423A	2248484	1	1	100.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2249996	2	21	9.5	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2249995	1	19	5.3	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
Bromide in Water by IC	E235.Br ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Conductivity Screen (Internal Use Only)	ES100 ALS Environmental - Waterloo	Water	APHA 2510 (mod)	Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.
Digested Dissolved Metals by CRC ICPMS	E423A ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45um), digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.
Dissolved Hardness (Calculated)	EC100 ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Dissolved Metals in Water by CRC ICPMS	E421 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Fluoride in Water by IC	E235.F ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Prairies List) by Headspace GC-MS	E611E ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Preparation Methods	***Method / Lab***	***Matrix***	***Method Reference***	***Method Descriptions***
Dissolved Metals Water Digestion and Filtration	EP423 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um) and digested with nitric and hydrochloric acids.
Dissolved Metals Water Filtration	EP421 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Preparation for Autotitrator	EP108-TITR ALS Environmental - Waterloo	Water		Sample preparation for parameters analysed by Autotitrator
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Preparation for Ion Chromatography	EP235-IC ALS Environmental - Waterloo	Water		Sample preparation for ion chromatography
Preparation for Orthophosphate	EP378-PO4 ALS Environmental - Waterloo	Water	APHA 4500-P E (mod)	Sample preparation for orthophosphate analysis
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

QUALITY CONTROL REPORT

Work Order	: **WT2527385**	Page	: 1 of 29
Amendment	: **1**		
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC GW	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Date Analysis Commenced	: 29-Sep-2025
C-O-C number	: ----	Issue Date	: 06-Nov-2025 15:46
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 19		
No. of samples analysed	: 19		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Centralized Prep, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario
Jon Fisher	Laboratory Manager - Environmental	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2247159)											
WT2527318-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	5.0	mg/L	24.0	23.0	1.0	Diff <2x LOR	----
Physical Tests (QC Lot: 2247161)											
WT2527318-001	Anonymous	pH	----	E108	0.10	pH units	6.57	6.62	0.758%	4%	----
Physical Tests (QC Lot: 2248085)											
WT2527251-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	42.9	42.3	1.36%	20%	----
Physical Tests (QC Lot: 2248086)											
WT2527251-001	Anonymous	pH	----	E108	0.10	pH units	7.93	7.84	1.14%	4%	----
Physical Tests (QC Lot: 2250132)											
HA2504060-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	6.6	6.3	0.4	Diff <2x LOR	----
Physical Tests (QC Lot: 2250133)											
HA2504060-001	Anonymous	pH	----	E108	0.10	pH units	6.45	6.50	0.772%	4%	----
Physical Tests (QC Lot: 2255384)											
WT2527385-001	MW2	Solids, total dissolved [TDS]	----	E162	20	mg/L	288	292	1.55%	20%	----
Physical Tests (QC Lot: 2256921)											
WT2527385-012	MW9S	Solids, total dissolved [TDS]	----	E162	20	mg/L	1130	1130	0.0442%	20%	----
Anions and Nutrients (QC Lot: 2247162)											
WT2527385-001	MW2	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.82	1.77	0.05	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2247164)											
WT2527385-001	MW2	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	15.8	15.8	0.207%	20%	----
Anions and Nutrients (QC Lot: 2247165)											
WT2527385-001	MW2	Fluoride	16984-48-8	E235.F	0.020	mg/L	1.48	1.40	5.61%	20%	----
Anions and Nutrients (QC Lot: 2247166)											
WT2527385-001	MW2	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2247167)											
WT2527385-001	MW2	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2247168)											
WT2527385-001	MW2	Bromide	24959-67-9	E235.Br	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2247169)											
WT2527318-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0046	0.0046	0.00002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248088)											

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 2248088) - continued											
WT2527385-017	MW11D	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.10	0.87	0.24	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248089)											
WT2527385-017	MW11D	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	27.2	27.2	0.0196%	20%	----
Anions and Nutrients (QC Lot: 2248090)											
WT2527385-017	MW11D	Fluoride	16984-48-8	E235.F	0.020	mg/L	1.88	1.89	0.510%	20%	----
Anions and Nutrients (QC Lot: 2248091)											
WT2527385-017	MW11D	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.068	0.068	0.0008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248092)											
WT2527385-017	MW11D	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248093)											
WT2527385-017	MW11D	Bromide	24959-67-9	E235.Br	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248095)											
WT2527360-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0013	<0.0010	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2249836)											
WT2527308-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.128	0.128	0.313%	20%	----
Anions and Nutrients (QC Lot: 2250053)											
WT2527385-004	MW4	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0136	0.0137	0.0001	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2250125)											
WT2527385-020	MW5D	Fluoride	16984-48-8	E235.F	0.020	mg/L	1.21	1.22	0.761%	20%	----
Anions and Nutrients (QC Lot: 2250126)											
WT2527385-020	MW5D	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.083	0.081	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2250127)											
WT2527385-020	MW5D	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2250128)											
WT2527385-020	MW5D	Chloride	16887-00-6	E235.Cl	0.50	mg/L	16.3	16.2	0.687%	20%	----
Anions and Nutrients (QC Lot: 2250129)											
WT2527385-020	MW5D	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	90.2	90.3	0.0806%	20%	----
Anions and Nutrients (QC Lot: 2250130)											
WT2527385-020	MW5D	Bromide	24959-67-9	E235.Br	0.10	mg/L	0.21	0.19	0.03	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2250134)											
HA2504060-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2248061)											
WT2527207-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	3.02	2.97	0.05	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Organic / Inorganic Carbon (QC Lot: 2250120)											
HA2504060-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	16.4	16.2	1.04%	20%	----
Dissolved Metals (QC Lot: 2247853)											
WT2527021-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0070	0.0078	0.0007	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00020	0.00018	0.00002	Diff <2x LOR	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.161	0.161	0.362%	20%	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	0.338	0.347	2.44%	20%	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	67.3	67.6	0.446%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00200	0.00200	0.000005	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00029	0.00030	0.00001	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	23.5	23.7	0.758%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0610	0.0612	0.409%	20%	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	16.2	16.4	0.915%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000207	0.000184	0.000023	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.96	6.06	1.61%	20%	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	92.7	93.1	0.407%	20%	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0010	0.0010	0.00005	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2248484)											
WT2527385-014	MW10S	Aluminum, dissolved	7429-90-5	E423A	0.0030	mg/L	6.51	6.77	3.80%	20%	----
		Arsenic, dissolved	7440-38-2	E423A	0.00010	mg/L	0.00302	0.00308	2.00%	20%	----
		Barium, dissolved	7440-39-3	E423A	0.00010	mg/L	0.186	0.183	1.20%	20%	----
		Boron, dissolved	7440-42-8	E423A	0.010	mg/L	0.057	0.059	0.001	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E423A	0.0000050	mg/L	0.0000780	0.0000838	7.17%	20%	----
		Calcium, dissolved	7440-70-2	E423A	0.050	mg/L	171	175	2.22%	20%	----
		Chromium, dissolved	7440-47-3	E423A	0.00010	mg/L	0.0103	0.0105	1.43%	20%	----
		Copper, dissolved	7440-50-8	E423A	0.00050	mg/L	0.0291	0.0290	0.153%	20%	----
		Iron, dissolved	7439-89-6	E423A	0.010	mg/L	8.49	8.38	1.32%	20%	----
		Lead, dissolved	7439-92-1	E423A	0.000050	mg/L	0.0104	0.0102	1.66%	20%	----
		Magnesium, dissolved	7439-95-4	E423A	0.0050	mg/L	62.7	63.0	0.500%	20%	----
		Manganese, dissolved	7439-96-5	E423A	0.00010	mg/L	0.244	0.242	0.801%	20%	----
		Molybdenum, dissolved	7439-98-7	E423A	0.000050	mg/L	0.00119	0.00118	1.23%	20%	----
		Potassium, dissolved	7440-09-7	E423A	0.050	mg/L	3.45	3.43	0.517%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 2248484) - continued											
WT2527385-014	MW10S	Selenium, dissolved	7782-49-2	E423A	0.000050	mg/L	0.000136	0.000139	0.000003	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E423A	0.10	mg/L	16.5	15.8	4.25%	20%	----
		Sodium, dissolved	7440-23-5	E423A	0.050	mg/L	12.8	12.7	0.802%	20%	----
		Zinc, dissolved	7440-66-6	E423A	0.0030	mg/L	0.0279	0.0276	0.0003	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2248756)											
HA2504121-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	6.2 µg/L	0.0062	0.00003	Diff <2x LOR	----
		Arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	68.6 µg/L	0.0685	0.218%	20%	----
		Barium, dissolved	7440-39-3	E421	0.00010	mg/L	11.0 µg/L	0.0110	0.348%	20%	----
		Boron, dissolved	7440-42-8	E421	0.010	mg/L	17 µg/L	0.017	0.00002	Diff <2x LOR	----
		Cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0139 µg/L	0.0000113	0.0000026	Diff <2x LOR	----
		Calcium, dissolved	7440-70-2	E421	0.050	mg/L	107000 µg/L	106	0.188%	20%	----
		Chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		Copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		Iron, dissolved	7439-89-6	E421	0.010	mg/L	<10 µg/L	<0.010	0	Diff <2x LOR	----
		Lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		Magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	17300 µg/L	17.1	1.43%	20%	----
		Manganese, dissolved	7439-96-5	E421	0.00010	mg/L	6.87 µg/L	0.00725	5.43%	20%	----
		Potassium, dissolved	7440-09-7	E421	0.050	mg/L	4830 µg/L	4.81	0.489%	20%	----
		Selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.190 µg/L	0.000159	0.000031	Diff <2x LOR	----
		Silicon, dissolved	7440-21-3	E421	0.050	mg/L	1820 µg/L	1.82	0.154%	20%	----
		Sodium, dissolved	7440-23-5	E421	0.050	mg/L	8650 µg/L	8.58	0.871%	20%	----
		Zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2249995)											
WT2527385-001	MW2	Trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2249996)											
WT2527385-001	MW2	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 2249996) - continued											
WT2527385-001	MW2	Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 2249996) - continued											
WT2527385-001	MW2	Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2251612)											
WT2527210-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	2.42	2.42	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 2251612) - continued											
WT2527210-001	Anonymous	Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	1.20	1.16	0.04	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2247159)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2248085)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2250132)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	1.1	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.1	----
Physical Tests (QCLot: 2255384)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Physical Tests (QCLot: 2256921)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 2247162)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2247164)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2247165)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2247166)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2247167)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2247168)						

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 2247168) - continued						
Bromide	24959-67-9	E235.Br	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 2247169)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2248088)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2248089)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2248090)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2248091)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2248092)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2248093)						
Bromide	24959-67-9	E235.Br	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 2248095)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2249836)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2250053)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2250125)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2250126)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2250127)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2250128)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2250129)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2250130)						
Bromide	24959-67-9	E235.Br	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 2250134)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 2248061)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 2250120)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Dissolved Metals (QCLot: 2247853)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Dissolved Metals (QCLot: 2248484)						
Aluminum, dissolved	7429-90-5	E423A	0.003	mg/L	<0.0030	----
Arsenic, dissolved	7440-38-2	E423A	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E423A	0.0001	mg/L	<0.00010	----
Boron, dissolved	7440-42-8	E423A	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E423A	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E423A	0.05	mg/L	<0.050	----
Chromium, dissolved	7440-47-3	E423A	0.0001	mg/L	<0.00010	----
Copper, dissolved	7440-50-8	E423A	0.0005	mg/L	<0.00050	----
Iron, dissolved	7439-89-6	E423A	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E423A	0.00005	mg/L	<0.000050	----
Magnesium, dissolved	7439-95-4	E423A	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E423A	0.0001	mg/L	<0.00010	----
Molybdenum, dissolved	7439-98-7	E423A	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 2248484) - continued						
Potassium, dissolved	7440-09-7	E423A	0.05	mg/L	<0.050	----
Selenium, dissolved	7782-49-2	E423A	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E423A	0.1	mg/L	<0.10	----
Sodium, dissolved	7440-23-5	E423A	0.05	mg/L	<0.050	----
Zinc, dissolved	7440-66-6	E423A	0.003	mg/L	<0.0030	----
Dissolved Metals (QCLot: 2248756)						
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
Volatile Organic Compounds (QCLot: 2249995)						
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----
Volatile Organic Compounds (QCLot: 2249996)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 2249996) - continued						
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 2251612)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 2251612) - continued						
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2247159)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	102	85.0	115	----
Physical Tests (QCLot: 2247161)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 2248085)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	99.5	85.0	115	----
Physical Tests (QCLot: 2248086)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 2250132)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	98.5	85.0	115	----
Physical Tests (QCLot: 2250133)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 2255384)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Physical Tests (QCLot: 2256921)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	94.3	85.0	115	----
Anions and Nutrients (QCLot: 2247162)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2247164)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2247165)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.9	90.0	110	----
Anions and Nutrients (QCLot: 2247166)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 2247167)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2247168)									
Bromide	24959-67-9	E235.Br	0.1	mg/L	0.5 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 2247169)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	102	80.0	120	----
Anions and Nutrients (QCLot: 2248088)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2248089)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2248090)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 2248091)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2248092)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2248093)									
Bromide	24959-67-9	E235.Br	0.1	mg/L	0.5 mg/L	99.7	85.0	115	----
Anions and Nutrients (QCLot: 2248095)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	101	80.0	120	----
Anions and Nutrients (QCLot: 2249836)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.6	85.0	115	----
Anions and Nutrients (QCLot: 2250053)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 2250125)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2250126)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 2250127)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	99.7	90.0	110	----
Anions and Nutrients (QCLot: 2250128)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2250129)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2250130)									
Bromide	24959-67-9	E235.Br	0.1	mg/L	0.5 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 2250134)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	110	80.0	120	----
Organic / Inorganic Carbon (QCLot: 2248061)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	94.1	80.0	120	----
Organic / Inorganic Carbon (QCLot: 2250120)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.3	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2247853)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	110	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	109	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.012 mg/L	106	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	93.8	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	104	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	99.9	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.012 mg/L	106	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.012 mg/L	102	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	101	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	103	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	115	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.012 mg/L	104	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	102	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	100	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	104	60.0	140	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	106	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	103	80.0	120	----
Dissolved Metals (QCLot: 2248484)									
Aluminum, dissolved	7429-90-5	E423A	0.003	mg/L	0.1 mg/L	95.9	80.0	120	----
Arsenic, dissolved	7440-38-2	E423A	0.0001	mg/L	0.05 mg/L	94.2	80.0	120	----
Barium, dissolved	7440-39-3	E423A	0.0001	mg/L	0.012 mg/L	90.9	80.0	120	----
Boron, dissolved	7440-42-8	E423A	0.01	mg/L	0.05 mg/L	90.1	80.0	120	----
Cadmium, dissolved	7440-43-9	E423A	0.000005	mg/L	0.005 mg/L	91.2	80.0	120	----
Calcium, dissolved	7440-70-2	E423A	0.05	mg/L	2.5 mg/L	87.6	80.0	120	----
Chromium, dissolved	7440-47-3	E423A	0.0001	mg/L	0.012 mg/L	91.5	80.0	120	----
Copper, dissolved	7440-50-8	E423A	0.0005	mg/L	0.012 mg/L	90.7	80.0	120	----
Iron, dissolved	7439-89-6	E423A	0.01	mg/L	0.05 mg/L	89.2	80.0	120	----
Lead, dissolved	7439-92-1	E423A	0.00005	mg/L	0.025 mg/L	92.4	80.0	120	----
Magnesium, dissolved	7439-95-4	E423A	0.005	mg/L	2.5 mg/L	98.9	80.0	120	----
Manganese, dissolved	7439-96-5	E423A	0.0001	mg/L	0.012 mg/L	89.2	80.0	120	----
Molybdenum, dissolved	7439-98-7	E423A	0.00005	mg/L	0.012 mg/L	94.2	80.0	120	----
Potassium, dissolved	7440-09-7	E423A	0.05	mg/L	2.5 mg/L	88.4	80.0	120	----
Selenium, dissolved	7782-49-2	E423A	0.00005	mg/L	0.05 mg/L	91.2	80.0	120	----
Silicon, dissolved	7440-21-3	E423A	0.1	mg/L	0.5 mg/L	91.4	80.0	120	----
Sodium, dissolved	7440-23-5	E423A	0.05	mg/L	2.5 mg/L	95.9	80.0	120	----
Zinc, dissolved	7440-66-6	E423A	0.003	mg/L	0.025 mg/L	93.1	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 2248756)									
Aluminum, dissolved	7429-90-5	E421	0.001	mg/L	0.1 mg/L	105	80.0	120	----
Arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	0.05 mg/L	103	80.0	120	----
Barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.012 mg/L	104	80.0	120	----
Boron, dissolved	7440-42-8	E421	0.01	mg/L	0.05 mg/L	94.2	80.0	120	----
Cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.005 mg/L	99.7	80.0	120	----
Calcium, dissolved	7440-70-2	E421	0.05	mg/L	2.5 mg/L	96.3	80.0	120	----
Chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.012 mg/L	98.4	80.0	120	----
Copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.012 mg/L	96.0	80.0	120	----
Iron, dissolved	7439-89-6	E421	0.01	mg/L	0.05 mg/L	95.5	80.0	120	----
Lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.025 mg/L	102	80.0	120	----
Magnesium, dissolved	7439-95-4	E421	0.005	mg/L	2.5 mg/L	98.8	80.0	120	----
Manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.012 mg/L	101	80.0	120	----
Potassium, dissolved	7440-09-7	E421	0.05	mg/L	2.5 mg/L	101	80.0	120	----
Selenium, dissolved	7782-49-2	E421	0.00005	mg/L	0.05 mg/L	94.3	80.0	120	----
Silicon, dissolved	7440-21-3	E421	0.05	mg/L	0.5 mg/L	99.6	60.0	140	----
Sodium, dissolved	7440-23-5	E421	0.05	mg/L	2.5 mg/L	97.6	80.0	120	----
Zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.025 mg/L	96.4	80.0	120	----
Volatile Organic Compounds (QCLot: 2249995)									
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	94.4	70.0	130	----
Volatile Organic Compounds (QCLot: 2249996)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	127	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	90.9	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	75.4	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	92.8	70.0	130	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	86.5	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	102	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	103	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	98.9	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	104	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	107	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2249996) - continued									
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	84.8	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	102	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	113	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	108	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	115	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	99.4	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	98.5	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	97.7	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	105	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	113	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	112	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	92.9	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	122	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	85.2	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	92.9	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	93.5	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	86.4	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	98.5	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	102	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	107	70.0	130	----
Volatile Organic Compounds (QCLot: 2251612)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	118	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	113	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	114	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	85.6	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	104	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2251612) - continued									
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	107	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	110	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	117	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	96.6	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	122	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	112	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	105	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	99.7	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	94.8	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	118	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	113	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	110	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	112	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	111	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	98.9	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	101	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	112	60.0	140	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2251612) - continued									
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	116	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	109	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2247162)										
WT2527385-001	MW2	Chloride	16887-00-6	E235.Cl	101 mg/L	100 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 2247164)										
WT2527385-001	MW2	Sulfate (as SO4)	14808-79-8	E235.SO4	99.8 mg/L	100 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 2247165)										
WT2527385-001	MW2	Fluoride	16984-48-8	E235.F	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2247166)										
WT2527385-001	MW2	Nitrate (as N)	14797-55-8	E235.NO3	2.45 mg/L	2.5 mg/L	98.1	75.0	125	----
Anions and Nutrients (QCLot: 2247167)										
WT2527385-001	MW2	Nitrite (as N)	14797-65-0	E235.NO2	0.509 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2247168)										
WT2527385-001	MW2	Bromide	24959-67-9	E235.Br	0.51 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2247169)										
WT2527318-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0156 mg/L	0.02 mg/L	79.5	70.0	130	----
Anions and Nutrients (QCLot: 2248088)										
WT2527385-017	MW11D	Chloride	16887-00-6	E235.Cl	99.3 mg/L	100 mg/L	99.3	75.0	125	----
Anions and Nutrients (QCLot: 2248089)										
WT2527385-017	MW11D	Sulfate (as SO4)	14808-79-8	E235.SO4	98.3 mg/L	100 mg/L	98.3	75.0	125	----
Anions and Nutrients (QCLot: 2248090)										
WT2527385-017	MW11D	Fluoride	16984-48-8	E235.F	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2248091)										
WT2527385-017	MW11D	Nitrate (as N)	14797-55-8	E235.NO3	2.43 mg/L	2.5 mg/L	97.3	75.0	125	----
Anions and Nutrients (QCLot: 2248092)										
WT2527385-017	MW11D	Nitrite (as N)	14797-65-0	E235.NO2	0.499 mg/L	0.5 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 2248093)										
WT2527385-017	MW11D	Bromide	24959-67-9	E235.Br	0.49 mg/L	0.5 mg/L	98.1	75.0	125	----
Anions and Nutrients (QCLot: 2248095)										
WT2527360-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0203 mg/L	0.02 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 2249836)										
WT2527308-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2250053)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2250053) - continued										
WT2527385-004	MW4	Ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 2250125)										
WT2527385-020	MW5D	Fluoride	16984-48-8	E235.F	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2250126)										
WT2527385-020	MW5D	Nitrate (as N)	14797-55-8	E235.NO3	2.52 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 2250127)										
WT2527385-020	MW5D	Nitrite (as N)	14797-65-0	E235.NO2	0.477 mg/L	0.5 mg/L	95.5	75.0	125	----
Anions and Nutrients (QCLot: 2250128)										
WT2527385-020	MW5D	Chloride	16887-00-6	E235.Cl	99.0 mg/L	100 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 2250129)										
WT2527385-020	MW5D	Sulfate (as SO4)	14808-79-8	E235.SO4	97.2 mg/L	100 mg/L	97.2	75.0	125	----
Anions and Nutrients (QCLot: 2250130)										
WT2527385-020	MW5D	Bromide	24959-67-9	E235.Br	0.50 mg/L	0.5 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 2250134)										
HA2504060-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0217 mg/L	0.02 mg/L	111	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2248061)										
WT2527207-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	4.74 mg/L	5 mg/L	94.8	70.0	130	----
Organic / Inorganic Carbon (QCLot: 2250120)										
HA2504060-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Dissolved Metals (QCLot: 2247853)										
WT2527380-001	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.921 mg/L	1 mg/L	92.1	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	0.480 mg/L	0.5 mg/L	96.0	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.419 mg/L	0.5 mg/L	83.7	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.0445 mg/L	0.05 mg/L	89.1	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.113 mg/L	0.125 mg/L	90.6	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.107 mg/L	0.125 mg/L	85.3	70.0	130	----
		Iron, dissolved	7439-89-6	E421	0.414 mg/L	0.5 mg/L	82.9	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.222 mg/L	0.25 mg/L	88.6	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	26.3 mg/L	25 mg/L	105	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	0.104 mg/L	0.125 mg/L	83.5	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	22.0 mg/L	25 mg/L	88.2	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	4.24 mg/L	5 mg/L	84.9	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	----	ND	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.224 mg/L	0.25 mg/L	89.7	70.0	130	----
Dissolved Metals (QCLot: 2248484)										

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 2248484) - continued										
WT2527385-014	MW10S	Aluminum, dissolved	7429-90-5	E423A	ND mg/L	----	ND	70.0	130	----
		Arsenic, dissolved	7440-38-2	E423A	0.0473 mg/L	0.05 mg/L	94.7	70.0	130	----
		Barium, dissolved	7440-39-3	E423A	ND mg/L	----	ND	70.0	130	----
		Boron, dissolved	7440-42-8	E423A	ND mg/L	----	ND	70.0	130	----
		Cadmium, dissolved	7440-43-9	E423A	0.00436 mg/L	0.005 mg/L	87.3	70.0	130	----
		Calcium, dissolved	7440-70-2	E423A	ND mg/L	----	ND	70.0	130	----
		Chromium, dissolved	7440-47-3	E423A	0.0120 mg/L	0.012 mg/L	95.7	70.0	130	----
		Copper, dissolved	7440-50-8	E423A	ND mg/L	----	ND	70.0	130	----
		Iron, dissolved	7439-89-6	E423A	ND mg/L	----	ND	70.0	130	----
		Lead, dissolved	7439-92-1	E423A	0.0208 mg/L	0.025 mg/L	83.4	70.0	130	----
		Magnesium, dissolved	7439-95-4	E423A	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E423A	ND mg/L	----	ND	70.0	130	----
		Molybdenum, dissolved	7439-98-7	E423A	0.0120 mg/L	0.012 mg/L	95.6	70.0	130	----
		Potassium, dissolved	7440-09-7	E423A	ND mg/L	----	ND	70.0	130	----
		Selenium, dissolved	7782-49-2	E423A	0.0425 mg/L	0.05 mg/L	85.1	70.0	130	----
		Silicon, dissolved	7440-21-3	E423A	ND mg/L	----	ND	70.0	130	----
		Sodium, dissolved	7440-23-5	E423A	ND mg/L	----	ND	70.0	130	----
		Zinc, dissolved	7440-66-6	E423A	ND mg/L	----	ND	70.0	130	----
Dissolved Metals (QCLot: 2248756)										
HA2504121-002	Anonymous	Aluminum, dissolved	7429-90-5	E421	0.0848 mg/L	0.1 mg/L	84.8	70.0	130	----
		Arsenic, dissolved	7440-38-2	E421	ND mg/L	----	ND	70.0	130	----
		Barium, dissolved	7440-39-3	E421	ND mg/L	----	ND	70.0	130	----
		Boron, dissolved	7440-42-8	E421	0.039 mg/L	0.05 mg/L	78.9	70.0	130	----
		Cadmium, dissolved	7440-43-9	E421	0.00443 mg/L	0.005 mg/L	88.6	70.0	130	----
		Calcium, dissolved	7440-70-2	E421	ND mg/L	----	ND	70.0	130	----
		Chromium, dissolved	7440-47-3	E421	0.0106 mg/L	0.012 mg/L	84.6	70.0	130	----
		Copper, dissolved	7440-50-8	E421	0.0100 mg/L	0.012 mg/L	80.2	70.0	130	----
		Iron, dissolved	7439-89-6	E421	0.042 mg/L	0.05 mg/L	84.7	70.0	130	----
		Lead, dissolved	7439-92-1	E421	0.0220 mg/L	0.025 mg/L	87.8	70.0	130	----
		Magnesium, dissolved	7439-95-4	E421	ND mg/L	----	ND	70.0	130	----
		Manganese, dissolved	7439-96-5	E421	ND mg/L	----	ND	70.0	130	----
		Potassium, dissolved	7440-09-7	E421	ND mg/L	----	ND	70.0	130	----
		Selenium, dissolved	7782-49-2	E421	0.0492 mg/L	0.05 mg/L	98.3	70.0	130	----
		Silicon, dissolved	7440-21-3	E421	ND mg/L	----	ND	70.0	130	----
		Sodium, dissolved	7440-23-5	E421	ND mg/L	----	ND	70.0	130	----
		Zinc, dissolved	7440-66-6	E421	0.0213 mg/L	0.025 mg/L	85.1	70.0	130	----
Volatile Organic Compounds (QCLot: 2249995)										
WT2527385-001	MW2	Trichlorobenzene, 1,2,4-	120-82-1	E611E	90.0 µg/L	100 µg/L	90.0	60.0	140	----
Volatile Organic Compounds (QCLot: 2249996)										
WT2527385-001	MW2	Acetone	67-64-1	E611D	117 µg/L	100 µg/L	117	60.0	140	----
		Benzene	71-43-2	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Bromoform	75-25-2	E611D	85.0 µg/L	100 µg/L	85.0	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2249996) - continued										
WT2527385-001	MW2	Bromomethane	74-83-9	E611D	70.8 µg/L	100 µg/L	70.8	60.0	140	----
		Carbon disulfide	75-15-0	E611D	87.9 µg/L	100 µg/L	87.9	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	83.4 µg/L	100 µg/L	83.4	60.0	140	----
		Chlorobenzene	108-90-7	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Chloroethane	75-00-3	E611D	95.9 µg/L	100 µg/L	95.9	60.0	140	----
		Chloroform	67-66-3	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Chloromethane	74-87-3	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	93.6 µg/L	100 µg/L	93.6	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	97.0 µg/L	100 µg/L	97.0	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	75.1 µg/L	100 µg/L	75.1	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	115 µg/L	100 µg/L	115	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloromethane	75-09-2	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	110 µg/L	100 µg/L	110	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	94.4 µg/L	100 µg/L	94.4	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	92.7 µg/L	100 µg/L	92.7	60.0	140	----
		Ethylbenzene	100-41-4	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Hexane, n-	110-54-3	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	93 µg/L	100 µg/L	93.2	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Styrene	100-42-5	E611D	96.9 µg/L	100 µg/L	96.9	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	88.8 µg/L	100 µg/L	88.8	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	114 µg/L	100 µg/L	114	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	82.0 µg/L	100 µg/L	82.0	60.0	140	----
		Toluene	108-88-3	E611D	99.0 µg/L	100 µg/L	99.0	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	89.4 µg/L	100 µg/L	89.4	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Trichloroethylene	79-01-6	E611D	90.4 µg/L	100 µg/L	90.4	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	83.4 µg/L	100 µg/L	83.4	60.0	140	----
		Vinyl chloride	75-01-4	E611D	91.4 µg/L	100 µg/L	91.4	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	198 µg/L	200 µg/L	99.0	60.0	140	----
		Xylene, o-	95-47-6	E611D	103 µg/L	100 µg/L	103	60.0	140	----
Volatile Organic Compounds (QCLot: 2251612)										
WT2527210-001	Anonymous	Acetone	67-64-1	E611D	112 µg/L	100 µg/L	112	60.0	140	----
		Benzene	71-43-2	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	106 µg/L	100 µg/L	106	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2251612) - continued										
WT2527210-001	Anonymous	Bromoform	75-25-2	E611D	108 µg/L	100 µg/L	108	60.0	140	----
		Bromomethane	74-83-9	E611D	77.5 µg/L	100 µg/L	77.5	60.0	140	----
		Carbon disulfide	75-15-0	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	99.4 µg/L	100 µg/L	99.4	60.0	140	----
		Chlorobenzene	108-90-7	E611D	98.7 µg/L	100 µg/L	98.7	60.0	140	----
		Chloroethane	75-00-3	E611D	99.8 µg/L	100 µg/L	99.8	60.0	140	----
		Chloroform	67-66-3	E611D	103 µg/L	100 µg/L	103	60.0	140	----
		Chloromethane	74-87-3	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	96.7 µg/L	100 µg/L	96.7	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	89.7 µg/L	100 µg/L	89.7	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	106 µg/L	100 µg/L	106	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	105 µg/L	100 µg/L	105	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichloromethane	75-09-2	E611D	98.3 µg/L	100 µg/L	98.3	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	90.2 µg/L	100 µg/L	90.2	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	87.8 µg/L	100 µg/L	87.8	60.0	140	----
		Ethylbenzene	100-41-4	E611D	97.7 µg/L	100 µg/L	97.7	60.0	140	----
		Hexane, n-	110-54-3	E611D	104 µg/L	100 µg/L	104	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	99 µg/L	100 µg/L	98.9	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	98.4 µg/L	100 µg/L	98.4	60.0	140	----
		Styrene	100-42-5	E611D	92.1 µg/L	100 µg/L	92.1	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	93.7 µg/L	100 µg/L	93.7	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	109 µg/L	100 µg/L	109	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	100 µg/L	100 µg/L	100	60.0	140	----
		Toluene	108-88-3	E611D	99.1 µg/L	100 µg/L	99.1	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	99.1 µg/L	100 µg/L	99.1	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	92.0 µg/L	100 µg/L	92.0	60.0	140	----
		Trichloroethylene	79-01-6	E611D	98.5 µg/L	100 µg/L	98.5	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	99.0 µg/L	100 µg/L	99.0	60.0	140	----
		Vinyl chloride	75-01-4	E611D	99.5 µg/L	100 µg/L	99.5	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	214 µg/L	200 µg/L	107	60.0	140	----
		Xylene, o-	95-47-6	E611D	98.2 µg/L	100 µg/L	98.2	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 20 Page 1 of 4

Environmental Division Waterloo
Work Order Reference
WT2527385

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:	PINC100 / West Perth
Job #:	West Perth Mitchell Domestic GW
PO / AFE:	333568.002
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): WT2527385 AH.

ALS Contact: Amanda Overholster Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	F/P	West Perth Mitchell Domestic Groundwater (includes Dissolved Metals and DOC)	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	~~MW1~~				6	R				
	MW2	26-SEP-25	9:30	GW		R				
	MW3S		10:15			R				
	MW3D		10:20			R				
	MW4		11:40			R				
	MW5S		12:10			R				
	MW5D		12:15			R				
	MW6S		12:20			R				
	MW6D		12:25			R				
	MW7S		12:35			R				
	MW7D		12:40			R				
	MW8-B		11:45			R				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human consumption/ use? YES NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: YES NO
Cooler Custody Seals Intact: ~~YES~~ N/A Sample Custody Seals Intact: YES N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				8.3			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: Sep 26-2025	Time: 14:00	Received by:	Date:	Time:	Received by: AG	Date: 26-9-25	Time: 17:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

GC-893 VW-95
N-261
MM-515

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL MAIL ☐ FAX

Email 1 or Fax dbettencourt@Pinchin.com

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL MAIL ☐ FAX

Email 1 or Fax dbettencourt@Pinchin.com

Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum

☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Additional fees may apply to rush requests on weekends, statutory holidays and non-routine tests

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:	PINC100 / West Perth
Job #:	West Perth Mitchell Domestic GW
PO / AFE:	333568.002
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact: Amanda Overholster **Sampler:**

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS: West Perth Mitchell Domestic Groundwater (includes Dissolved Metals & DOC) F/P	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRE	SUSPECTED HAZARD (see notes
	MW9S	26-Sep-25	10:35	GW	R			
	MW9D		10:40		R			
	MW10S		9:45		R			
	MW10D		10:00		R			
	MW11S		10:50		R			
	MW11D		11:10		R			
	DUP-103		10:40		R			
	DUP-104		12:20		R			
					R			
					R			
					R			
					R			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? YES NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: YES NO

Cooler Custody Seals Intact: ☑ YES N/A Sample Custody Seals Intact: YES N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				8.3			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
[signature]	26-Sep-2025	14:00

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
AG	26.9.25	17:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

GC-900 UW-102
N-273
MM-520

Chain of Custody (COC) / Analytical Request Form

COC Number: 23 - 1120386

Page of

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Environmental Division Waterloo

Work Order Reference WT2527385

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Pinchin	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☐ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Dana Bettencourt	Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimu
Phone:	226 338 0952	☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minim
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minim
Street:	235 Labrador Dr	Email 1 or Fax dbettencourt@pinchin.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minim
City/Province:	Waterloo Ontario	Email 2 mladd@pinchin.com	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge
Postal Code:	N2L 6M8	Email 3	Additional fees may apply to rush requests on weeke
Invoice To	Same as Report To ☐ YES ☑ NO	**Invoice Recipients**	Date and Time Required for all E&P TATs:
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	For all tests with rush TATs requested, please
Company:	Pinchin	Email 1 or Fax apap@pinchin.com	Analysis R
Contact:	apap@pinchin.com	Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Client Code / QUOTE #:	PINC100 / WESTPATH	AFE/Cost Center:	PO#
Job / Project #:	333568.002	Major/Minor Code:	Routing Code:
PO / AFE:	333568.002	Requisitioner:	
LSD:		Location: Domestic	

ALS Lab Work Order # (ALS use only):	ALS Contact:	Sampler:

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	MW50	29-Sep-25	15:15	GW	1	R			

Next Path Domestic 6hr Turnaround Time (TAT) Requested (Excluding weekends and statutory holidays)

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	To use in conjunction with COC WT2527385
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Cooler Custody Seals Intact: ☑ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
1.0							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: 29-Sep-25	Time: 15:30	Received by:	Date:	Time:	Received by: CS	Date: 09/29	Time: 15:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JAN 2023 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2527392**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC LEACHATE PUMPING	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	26-Sep-2025 17:00
C-O-C number	:	----	Date Analysis Commenced	:	27-Sep-2025
Sampler	:	Client	Issue Date	:	03-Oct-2025 20:24
Site	:	----			
Quote number	:	West Perth Landfill			
No. of samples received	:	1			
No. of samples analysed	:	1			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario
John Tang	Lab Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Nik Perkio	Senior Analyst	Centralized Prep, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
OWP	Organic water sample contained visible sediment (must be included as part of analysis). Measured concentrations of organic substances in water can be biased high due to presence of sediment.
SP	Sample was preserved at the laboratory.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time	25-Sep-2025 13:50	----	----	----	----
						WT2527392-001	----	----	----	----
						Result	----	----	----	----
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		lab	----	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		2400	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<5.0 DLM	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		2400	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WT	0.50	mg/L		900	----	----	----	----
pH	----	E108/WT	0.10	pH units		8.07	----	----	----	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		3340 DLM	----	----	----	----
Solids, total suspended [TSS]	----	E160/WT	3.0	mg/L		974	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		208	----	----	----	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		690 DLDS	----	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318/WT	0.050	mg/L		284	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.200 DLDS	----	----	----	----
Nitrogen, total organic	----	EC363/WT	0.050	mg/L		76.0	----	----	----	----
Phosphorus, total	7723-14-0	E372-U/WT	0.0020	mg/L		3.63	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		81.7 DLDS	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		0.473 DLDS	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		0.473	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

				Client sample ID	LEACHATE P.S. ----	----	----	----	----
				Client sampling date / time	25-Sep-2025 13:50	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	WT2527392-001	----	----	----	----
					Result	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L	207	----	----	----	----
Total Metals									
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L	0.0263 DLHC	----	----	----	----
Barium, total	7440-39-3	E420/WT	0.00010	mg/L	0.179 DLHC	----	----	----	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L	5.39 DLHC	----	----	----	----
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L	<0.0000500 DLHC	----	----	----	----
Calcium, total	7440-70-2	E420/WT	0.050	mg/L	225 DLHC	----	----	----	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L	0.0640 DLHC	----	----	----	----
Cobalt, total	7440-48-4	E420/WT	0.00010	mg/L	0.0136 DLHC	----	----	----	----
Copper, total	7440-50-8	E420/WT	0.00050	mg/L	0.00951 DLHC	----	----	----	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L	5.54 DLHC	----	----	----	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L	0.00175 DLHC	----	----	----	----
Manganese, total	7439-96-5	E420/WT	0.00010	mg/L	0.662 DLHC	----	----	----	----
Molybdenum, total	7439-98-7	E420/WT	0.000050	mg/L	0.00239 DLHC	----	----	----	----
Nickel, total	7440-02-0	E420/WT	0.00050	mg/L	0.0443 DLHC	----	----	----	----
Selenium, total	7782-49-2	E420/WT	0.000050	mg/L	0.000834 DLHC	----	----	----	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L	<0.0300 DLHC	----	----	----	----
Dissolved Metals									
Mercury, dissolved	7439-97-6	E509/WT	0.0000050	mg/L	<0.0000500 DLM	----	----	----	----
Dissolved mercury filtration location	----	EP509/WT	-	-	Laboratory	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time	25-Sep-2025 13:50	----	----	----	----
						WT2527392-001	----	----	----	----
						Result	----	----	----	----
Aggregate Organics										
Chemical oxygen demand [COD]	----	E559-L/WT	10	mg/L		870	----	----	----	----
Phenols, total (4AAP)	----	E562/WT	0.0010	mg/L		0.0189 SP	----	----	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	----	----	----	----
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

					Client sample ID	LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time	25-Sep-2025 13:50	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2527392-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	LEACHATE P.S. ----	----	----	----	----
					Client sampling date / time	25-Sep-2025 13:50	----	----	----	----
						WT2527392-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		0.41 OWP	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		101	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		101	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		99.8	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		99.8	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2527392**	Page	: 1 of 10
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC LEACHATE PUMPING STATION	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Issue Date	: 03-Oct-2025 20:22
C-O-C number	: ----		
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass - dissolved (lab preserved) [ON MECP] LEACHATE P.S.	E559-L	25-Sep-2025	----	----	----		01-Oct-2025	3 days	5 days	× EHT
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) LEACHATE P.S.	E562	25-Sep-2025	30-Sep-2025	28 days	5 days	✓	01-Oct-2025	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) LEACHATE P.S.	E298	25-Sep-2025	30-Sep-2025	28 days	5 days	✓	01-Oct-2025	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] LEACHATE P.S.	E235.Cl	25-Sep-2025	29-Sep-2025	28 days	4 days	✓	30-Sep-2025	28 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] LEACHATE P.S.	E235.NO3	25-Sep-2025	29-Sep-2025	7 days	4 days	✓	30-Sep-2025	7 days	4 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP] LEACHATE P.S.	E235.NO2	25-Sep-2025	29-Sep-2025	7 days	4 days	✓	30-Sep-2025	7 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] LEACHATE P.S.	E235.SO4	25-Sep-2025	29-Sep-2025	28 days	4 days	✓	30-Sep-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) LEACHATE P.S.	E318	25-Sep-2025	01-Oct-2025	28 days	6 days	✓	01-Oct-2025	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) LEACHATE P.S.	E372-U	25-Sep-2025	30-Sep-2025	28 days	5 days	✓	01-Oct-2025	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab filtered) LEACHATE P.S.	E509	25-Sep-2025	29-Sep-2025	0 hrs	90 hrs	× UCP	30-Sep-2025	0 hrs	90 hrs	× UCP
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (lab preserved) [ON MECP] LEACHATE P.S.	E358-L	25-Sep-2025	27-Sep-2025	3 days	2 days	✓	29-Sep-2025	28 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] LEACHATE P.S.	E290	25-Sep-2025	29-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] LEACHATE P.S.	E108	25-Sep-2025	29-Sep-2025	14 days	4 days	✓	30-Sep-2025	14 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] LEACHATE P.S.	E162	25-Sep-2025	----	----	----		01-Oct-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] LEACHATE P.S.	E160	25-Sep-2025	----	----	----		01-Oct-2025	7 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) LEACHATE P.S.	E420	25-Sep-2025	30-Sep-2025	180 days	5 days	✓	30-Sep-2025	180 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) LEACHATE P.S.	E611D	25-Sep-2025	01-Oct-2025	14 days	6 days	✓	01-Oct-2025	14 days	6 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) LEACHATE P.S.	E611E	25-Sep-2025	01-Oct-2025	14 days	6 days	✓	01-Oct-2025	14 days	6 days	✓

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter	E108	2248056	1	1	100.0	5.0	✓
TSS by Gravimetry	E160	2251602	1	19	5.2	4.7	✓
TDS by Gravimetry	E162	2251607	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	2248048	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	2248052	1	19	5.2	5.0	✓
Nitrate in Water by IC	E235.NO3	2248051	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2248049	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2248053	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2249836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2249834	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2245525	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	2249835	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2248850	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2246473	1	18	5.5	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2251435	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	2249837	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	2248056	1	1	100.0	5.0	✓
TSS by Gravimetry	E160	2251602	1	19	5.2	4.7	✓
TDS by Gravimetry	E162	2251607	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	2248048	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	2248052	1	19	5.2	5.0	✓
Nitrate in Water by IC	E235.NO3	2248051	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2248049	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2248053	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2249836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2249834	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2245525	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	2249835	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2248850	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2246473	1	18	5.5	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2251435	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	2249837	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	20	5.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Method Blanks (MB)							
TSS by Gravimetry	E160	2251602	1	19	5.2	4.7	✓
TDS by Gravimetry	E162	2251607	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.Cl	2248048	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	2248052	1	19	5.2	5.0	✓
Nitrate in Water by IC	E235.NO3	2248051	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2248049	1	20	5.0	5.0	✓
Alkalinity Species by Titration	E290	2248053	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2249836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2249834	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2245525	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	2249835	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2248850	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2246473	1	18	5.5	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2251435	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	2249837	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	2248048	1	20	5.0	5.0	✓
Nitrite in Water by IC	E235.NO2	2248052	1	19	5.2	5.0	✓
Nitrate in Water by IC	E235.NO3	2248051	1	19	5.2	5.0	✓
Sulfate in Water by IC	E235.SO4	2248049	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	2249836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2249834	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2245525	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	2249835	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2248850	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2246473	1	18	5.5	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2251435	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	2249837	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Waterloo	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L ALS Environmental - Waterloo	Water	APHA 5220 D (mod)	Samples are analyzed using the closed reflux colourimetric method.
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Waterloo	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide (K3Fe(CN)6) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Prairies List) by Headspace GC-MS	E611E ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as $CaCO_3$ equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).
Total Organic Nitrogen (Calculation)	EC363 ALS Environmental - Waterloo	Water	APHA 4500-NORG (TKN)/NH3-NITROGEN (NH3)	Total Organic Nitrogen is a calculated parameter. Total Organic Nitrogen = Total Kjeldahl Nitrogen - Ammonia.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Waterloo	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

QUALITY CONTROL REPORT

Work Order	: **WT2527392**	Page	: 1 of 14
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC LEACHATE PUMPING STATION	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Date Analysis Commenced	: 27-Sep-2025
C-O-C number	: ----	Issue Date	: 03-Oct-2025 20:22
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
John Tang	Lab Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Centralized Prep, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2248053)											
HA2504091-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	1.0	<1.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 2248056)											
WT2527392-001	LEACHATE P.S.	pH	----	E108	0.10	pH units	8.07	8.11	0.494%	4%	----
Physical Tests (QC Lot: 2251602)											
WT2527072-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 2251607)											
WT2527072-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	849	841	0.888%	20%	----
Anions and Nutrients (QC Lot: 2248048)											
HA2504091-001	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	6.56	6.52	0.534%	20%	----
Anions and Nutrients (QC Lot: 2248049)											
HA2504091-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.42	2.39	0.03	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248051)											
HA2504091-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248052)											
HA2504091-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2249834)											
WT2527047-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.50	mg/L	90.0	88.9	1.19%	20%	----
Anions and Nutrients (QC Lot: 2249835)											
WT2526993-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.200	mg/L	33.0	32.2	2.27%	20%	----
Anions and Nutrients (QC Lot: 2249836)											
WT2527308-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.128	0.128	0.313%	20%	----
Organic / Inorganic Carbon (QC Lot: 2245525)											
HA2504115-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	5.33	5.38	0.822%	20%	----
Total Metals (QC Lot: 2248850)											
WT2527318-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00025	0.00024	0.000010	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0169	0.0169	0.241%	20%	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	7.55	7.58	0.419%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2248850) - continued											
WT2527318-001	Anonymous	Cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00013	0.00013	0.000005	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	1.44	1.44	0.576%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000181	0.000163	0.000018	Diff <2x LOR	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0270	0.0272	0.619%	20%	----
		Molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000081	0.000072	0.000009	Diff <2x LOR	----
		Nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2246473)											
HA2504114-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 2249837)											
WP2516575-001	Anonymous	Phenols, total (4AAP)	----	E562	0.100	mg/L	2.38	2.40	1.12%	20%	----
Aggregate Organics (QC Lot: 2251435)											
WT2526792-003	Anonymous	Chemical oxygen demand [COD]	----	E559-L	10	mg/L	16	16	0.1	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2252132)											
WT2527390-001	Anonymous	Trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2252133)											
WT2527390-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 2252133) - continued											
WT2527390-001	Anonymous	Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2248053)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2251602)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2251607)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 2248048)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2248049)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2248051)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2248052)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2249834)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2249835)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 2249836)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 2245525)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 2248850)						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2248850) - continued						
Cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Dissolved Metals (QCLot: 2246473)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 2249837)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Aggregate Organics (QCLot: 2251435)						
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	----
Volatile Organic Compounds (QCLot: 2252132)						
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----
Volatile Organic Compounds (QCLot: 2252133)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued						
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2248053)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	104	85.0	115	----
Physical Tests (QCLot: 2248056)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 2251602)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	101	85.0	115	----
Physical Tests (QCLot: 2251607)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 2248048)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	99.4	90.0	110	----
Anions and Nutrients (QCLot: 2248049)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2248051)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	99.1	90.0	110	----
Anions and Nutrients (QCLot: 2248052)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	97.6	90.0	110	----
Anions and Nutrients (QCLot: 2249834)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 2249835)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.333 mg/L	89.0	80.0	120	----
Anions and Nutrients (QCLot: 2249836)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.6	85.0	115	----
Organic / Inorganic Carbon (QCLot: 2245525)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	93.8	80.0	120	----
Total Metals (QCLot: 2248850)									
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	95.5	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.012 mg/L	92.2	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	87.0	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	91.3	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	2.5 mg/L	90.0	80.0	120	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike: Target Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Total Metals (QCLot: 2248850) - continued									
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.012 mg/L	89.7	80.0	120	----
Cobalt, total	7440-48-4	E420	0.0001	mg/L	0.012 mg/L	90.2	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.012 mg/L	90.3	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	88.9	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	90.8	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.012 mg/L	88.6	80.0	120	----
Molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.012 mg/L	91.4	80.0	120	----
Nickel, total	7440-02-0	E420	0.0005	mg/L	0.025 mg/L	89.6	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	91.1	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	91.1	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	100	80.0	120	----
Aggregate Organics (QCLot: 2249837)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	104	85.0	115	----
Aggregate Organics (QCLot: 2251435)									
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	100 mg/L	105	85.0	115	----
Volatile Organic Compounds (QCLot: 2252132)									
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	103	70.0	130	----
Volatile Organic Compounds (QCLot: 2252133)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	105	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	87.8	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	105	70.0	130	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	106	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	104	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	112	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	99.5	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	98.6	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued									
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	128	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	98.2	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	104	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	102	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	86.9	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	91.6	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	91.1	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	98.7	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	96.4	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	111	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	108	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	106	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	105	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2248048)										
HA2504091-001	Anonymous	Chloride	16887-00-6	E235.Cl	98.6 mg/L	100 mg/L	98.6	75.0	125	----
Anions and Nutrients (QCLot: 2248049)										
HA2504091-001	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	100 mg/L	100 mg/L	100	75.0	125	----
Anions and Nutrients (QCLot: 2248051)										
HA2504091-001	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.46 mg/L	2.5 mg/L	98.4	75.0	125	----
Anions and Nutrients (QCLot: 2248052)										
HA2504091-001	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.484 mg/L	0.5 mg/L	96.8	75.0	125	----
Anions and Nutrients (QCLot: 2249834)										
WT2527047-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 2249835)										
WT2526993-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 2249836)										
WT2527308-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2245525)										
HA2504115-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Metals (QCLot: 2248850)										
WT2527318-002	Anonymous	Arsenic, total	7440-38-2	E420	0.0482 mg/L	0.05 mg/L	96.4	70.0	130	----
		Barium, total	7440-39-3	E420	0.0109 mg/L	0.012 mg/L	87.3	70.0	130	----
		Boron, total	7440-42-8	E420	0.044 mg/L	0.05 mg/L	88.9	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00462 mg/L	0.005 mg/L	92.3	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0116 mg/L	0.012 mg/L	92.8	70.0	130	----
		Cobalt, total	7440-48-4	E420	0.0115 mg/L	0.012 mg/L	91.8	70.0	130	----
		Copper, total	7440-50-8	E420	0.0115 mg/L	0.012 mg/L	92.2	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0228 mg/L	0.025 mg/L	91.2	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Molybdenum, total	7439-98-7	E420	0.0116 mg/L	0.012 mg/L	92.6	70.0	130	----
		Nickel, total	7440-02-0	E420	0.0226 mg/L	0.025 mg/L	90.3	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0470 mg/L	0.05 mg/L	93.9	70.0	130	----
		Zinc, total	7440-66-6	E420	0.0224 mg/L	0.025 mg/L	89.8	70.0	130	----
Dissolved Metals (QCLot: 2246473)										
HA2504114-004	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000926 mg/L	0 mg/L	92.6	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Aggregate Organics (QCLot: 2249837)										
WP2516575-001	Anonymous	Phenols, total (4AAP)	----	E562	ND mg/L	----	ND	75.0	125	----
Aggregate Organics (QCLot: 2251435)										
WT2526792-003	Anonymous	Chemical oxygen demand [COD]	----	E559-L	103 mg/L	100 mg/L	103	75.0	125	----
Volatile Organic Compounds (QCLot: 2252132)										
WT2527390-001	Anonymous	Trichlorobenzene, 1,2,4-	120-82-1	E611E	97.5 µg/L	100 µg/L	97.5	60.0	140	----
Volatile Organic Compounds (QCLot: 2252133)										
WT2527390-001	Anonymous	Acetone	67-64-1	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Benzene	71-43-2	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	97.6 µg/L	100 µg/L	97.6	60.0	140	----
		Bromoform	75-25-2	E611D	95.1 µg/L	100 µg/L	95.1	60.0	140	----
		Bromomethane	74-83-9	E611D	69.6 µg/L	100 µg/L	69.6	60.0	140	----
		Carbon disulfide	75-15-0	E611D	84.6 µg/L	100 µg/L	84.6	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	79.7 µg/L	100 µg/L	79.7	60.0	140	----
		Chlorobenzene	108-90-7	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Chloroethane	75-00-3	E611D	82.4 µg/L	100 µg/L	82.4	60.0	140	----
		Chloroform	67-66-3	E611D	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Chloromethane	74-87-3	E611D	83.8 µg/L	100 µg/L	83.8	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	95.0 µg/L	100 µg/L	95.0	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	96.1 µg/L	100 µg/L	96.1	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	89.0 µg/L	100 µg/L	89.0	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	88.6 µg/L	100 µg/L	88.6	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	93.3 µg/L	100 µg/L	93.3	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	89.8 µg/L	100 µg/L	89.8	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Dichloromethane	75-09-2	E611D	85.8 µg/L	100 µg/L	85.8	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	98.7 µg/L	100 µg/L	98.7	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	98.8 µg/L	100 µg/L	98.8	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Ethylbenzene	100-41-4	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Hexane, n-	110-54-3	E611D	87.1 µg/L	100 µg/L	87.1	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	93 µg/L	100 µg/L	93.2	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	95 µg/L	100 µg/L	95.2	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	98 µg/L	100 µg/L	98.2	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	94.2 µg/L	100 µg/L	94.2	60.0	140	----
		Styrene	100-42-5	E611D	92.2 µg/L	100 µg/L	92.2	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	91.3 µg/L	100 µg/L	91.3	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	94.5 µg/L	100 µg/L	94.5	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----
		Toluene	108-88-3	E611D	94.8 µg/L	100 µg/L	94.8	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued										
WT2527390-001	Anonymous	Trichloroethane, 1,1,1-	71-55-6	E611D	92.7 µg/L	100 µg/L	92.7	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	94.5 µg/L	100 µg/L	94.5	60.0	140	----
		Trichloroethylene	79-01-6	E611D	96.5 µg/L	100 µg/L	96.5	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	87.0 µg/L	100 µg/L	87.0	60.0	140	----
		Vinyl chloride	75-01-4	E611D	81.5 µg/L	100 µg/L	81.5	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	189 µg/L	200 µg/L	94.6	60.0	140	----
		Xylene, o-	95-47-6	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----

MM-SCS GC-894 N-261 MW-97

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 | Page

Environmental Division Waterloo

Work Order Reference WT2527392

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☑ EMAIL | MAIL ☐ FAX

Email 1 or Fax dbettencourt@Pinchin.com

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL | MAIL ☐ FAX

Email 1 or Fax dbettencourt@Pinchin.com

Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minir

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minir

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minir

☐ Same day [E2] if received by 10am M-S - 200% rush surcharg

☐ fees may apply to rush requests on weekends, statutory holiday routine tests

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #: PINC100 / West Perth

Job #: West Perth Mitchell Domestic Leachate Pumping Station

PO / AFE: 333568.002

LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#

Major/Minor Code: Routing Code:

Requisitioner:

Location:

ALS Lab Work Order # (ALS use only): WT2527392 FH

ALS Contact: Amanda Overholster Sampler:

Analysis Request

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	West Perth Mitchell Domestic Leachate Pumping Station	Dissolved Hg - Lab Filter	DOC - Lab Filter	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	Leachate P.S.	25-Sep-25	13:50	Leachate	4	R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			
						R	R	R			

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? | YES | NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: | YES | NO

Cooler Custody Seals Intact: ☑ YES | N/A Sample Custody Seals Intact: | YES | N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				9.8			

SHIPMENT RELEASE (client use)

Released by: Date: 26-Sep-25 Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: DG Date: 26.9.25 Time: 17:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

If drinking water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2527390**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC RW	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	26-Sep-2025 17:00
C-O-C number	:	----	Date Analysis Commenced	:	27-Sep-2025
Sampler	:	Client	Issue Date	:	04-Oct-2025 16:58
Site	:	----			
Quote number	:	West Perth Landfill			
No. of samples received	:	1			
No. of samples analysed	:	1			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Metals, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Centralized Prep, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

					Client sample ID	Torrence Mechanical ----	----	----	----	----
					Client sampling date / time	26-Sep-2025 15:00	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2527390-001	----	----	----	----
						Result	----	----	----	----
Sample Preparation										
Dissolved carbon filtration location	----	EP358/WT	-	-		lab	----	----	----	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		208	----	----	----	----
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	----	----	----	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		208	----	----	----	----
Hardness (as CaCO3), from total Ca/Mg	----	EC100A/WT	0.50	mg/L		226	----	----	----	----
pH	----	E108/WT	0.10	pH units		7.81	----	----	----	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		306 DLDS	----	----	----	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.291	----	----	----	----
Bromide	24959-67-9	E235.Br/WT	0.10	mg/L		<0.10	----	----	----	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		1.96	----	----	----	----
Fluoride	16984-48-8	E235.F/WT	0.020	mg/L		1.50	----	----	----	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.010	----	----	----	----
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U/WT	0.0010	mg/L		0.0104	----	----	----	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		68.7	----	----	----	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		<0.020	----	----	----	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		<0.0224	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID: Torrence Mechanical ----	----	----	----	----
					Client sampling date / time: 26-Sep-2025 15:00	----	----	----	----
					WT2527390-001	----	----	----	----
					Result	----	----	----	----
Organic / Inorganic Carbon									
Carbon, dissolved organic [DOC]	----	E358-L/WT	0.50	mg/L	0.83	----	----	----	----
Total Metals									
Aluminum, total	7429-90-5	E420/WT	0.0030	mg/L	0.0030	----	----	----	----
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L	0.00091	----	----	----	----
Barium, total	7440-39-3	E420/WT	0.00010	mg/L	0.0859	----	----	----	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L	0.123	----	----	----	----
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L	0.0000103	----	----	----	----
Calcium, total	7440-70-2	E420/WT	0.050	mg/L	53.5	----	----	----	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L	<0.00050	----	----	----	----
Copper, total	7440-50-8	E420/WT	0.00050	mg/L	0.0881	----	----	----	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L	1.35	----	----	----	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L	0.00346	----	----	----	----
Magnesium, total	7439-95-4	E420/WT	0.0050	mg/L	22.4	----	----	----	----
Manganese, total	7439-96-5	E420/WT	0.00010	mg/L	0.0127	----	----	----	----
Potassium, total	7440-09-7	E420/WT	0.050	mg/L	1.07	----	----	----	----
Selenium, total	7782-49-2	E420/WT	0.000050	mg/L	<0.000050	----	----	----	----
Silicon, total	7440-21-3	E420/WT	0.10	mg/L	5.33	----	----	----	----
Sodium, total	7440-23-5	E420/WT	0.050	mg/L	31.7	----	----	----	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L	0.232	----	----	----	----
Volatile Organic Compounds									
Acetone	67-64-1	E611D/WT	20	µg/L	<20	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Torrence Mechanical ----	----	----	----	----
					Client sampling date / time	26-Sep-2025 15:00	----	----	----	----
						WT2527390-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Torrence Mechanical ----	----	----	----	----
					Client sampling date / time	26-Sep-2025 15:00	----	----	----	----
						WT2527390-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	Torrence Mechanical ----	----	----	----	----
					Client sampling date / time	26-Sep-2025 15:00	----	----	----	----
						WT2527390-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		94.4	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		94.4	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		97.1	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.1	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2527390**	Page	: 1 of 10
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC RW	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Issue Date	: 04-Oct-2025 16:57
C-O-C number	: ----		
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Water**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Total Metals	Anonymous	Anonymous	Aluminum, total	7429-90-5	E420	20.5 % DUP-H	20%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) Torrence Mechanical	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.Br	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.Cl	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)										
HDPE [ON MECP] Torrence Mechanical	E378-U	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	30-Sep-2025	7 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.F	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.NO3	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	02-Oct-2025	7 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.NO2	26-Sep-2025	29-Sep-2025	7 days	3 days	✓	02-Oct-2025	7 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP] Torrence Mechanical	E235.SO4	26-Sep-2025	29-Sep-2025	28 days	3 days	✓	02-Oct-2025	28 days	3 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass - dissolved (lab preserved) [ON MECP] Torrence Mechanical	E358-L	26-Sep-2025	27-Sep-2025	3 days	1 days	✓	29-Sep-2025	28 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP] Torrence Mechanical	E290	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	02-Oct-2025	14 days	3 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP] Torrence Mechanical	E108	26-Sep-2025	29-Sep-2025	14 days	3 days	✓	02-Oct-2025	14 days	3 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] Torrence Mechanical	E162	26-Sep-2025	----	----	----		03-Oct-2025	7 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) Torrence Mechanical	E420	26-Sep-2025	30-Sep-2025	180 days	4 days	✓	30-Sep-2025	180 days	4 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) Torrence Mechanical	E611D	26-Sep-2025	01-Oct-2025	14 days	5 days	✓	01-Oct-2025	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) Torrence Mechanical	E611E	26-Sep-2025	01-Oct-2025	14 days	5 days	✓	01-Oct-2025	14 days	5 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter	E108	2248086	1	9	11.1	5.0	✓
TDS by Gravimetry	E162	2256936	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	2248093	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	2248088	1	17	5.8	5.0	✓
Fluoride in Water by IC	E235.F	2248090	1	6	16.6	5.0	✓
Nitrite in Water by IC	E235.NO2	2248092	1	8	12.5	5.0	✓
Nitrate in Water by IC	E235.NO3	2248091	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2248089	1	16	6.2	5.0	✓
Alkalinity Species by Titration	E290	2248085	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2250053	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2245525	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2248095	1	6	16.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2248850	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	2248086	1	9	11.1	5.0	✓
TDS by Gravimetry	E162	2256936	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	2248093	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	2248088	1	17	5.8	5.0	✓
Fluoride in Water by IC	E235.F	2248090	1	6	16.6	5.0	✓
Nitrite in Water by IC	E235.NO2	2248092	1	8	12.5	5.0	✓
Nitrate in Water by IC	E235.NO3	2248091	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2248089	1	16	6.2	5.0	✓
Alkalinity Species by Titration	E290	2248085	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2250053	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2245525	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2248095	1	6	16.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2248850	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Method Blanks (MB)							
TDS by Gravimetry	E162	2256936	1	20	5.0	5.0	✓
Bromide in Water by IC	E235.Br	2248093	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	2248088	1	17	5.8	5.0	✓

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Fluoride in Water by IC	E235.F	2248090	1	6	16.6	5.0	✓
Nitrite in Water by IC	E235.NO2	2248092	1	8	12.5	5.0	✓
Nitrate in Water by IC	E235.NO3	2248091	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2248089	1	16	6.2	5.0	✓
Alkalinity Species by Titration	E290	2248085	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2250053	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2245525	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2248095	1	6	16.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2248850	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
Bromide in Water by IC	E235.Br	2248093	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.Cl	2248088	1	17	5.8	5.0	✓
Fluoride in Water by IC	E235.F	2248090	1	6	16.6	5.0	✓
Nitrite in Water by IC	E235.NO2	2248092	1	8	12.5	5.0	✓
Nitrate in Water by IC	E235.NO3	2248091	1	10	10.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2248089	1	16	6.2	5.0	✓
Ammonia by Fluorescence	E298	2250053	1	20	5.0	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	2245525	1	20	5.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U	2248095	1	6	16.6	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2248850	1	20	5.0	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	20	5.0	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Bromide in Water by IC	E235.Br ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Organic Carbon by Combustion (Low Level)	E358-L ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level 0.001 mg/L)	E378-U ALS Environmental - Waterloo	Water	APHA 4500-P F (mod)	Dissolved Orthophosphate is determined colourimetrically on a sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Prairies List) by Headspace GC-MS	E611E ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
Hardness (Calculated) from Total Ca/Mg	EC100A ALS Environmental - Waterloo	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed as CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because hardness is a property of water due to dissolved divalent cations. In non-turbid waters, Hardness from total Ca/Mg is normally comparable to Dissolved Hardness, but may be biased high if particulate forms of Ca or Mg are present.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Dissolved Organic Carbon for Combustion	EP358 ALS Environmental - Waterloo	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

QUALITY CONTROL REPORT

Work Order	: **WT2527390**	Page	: 1 of 14
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC RW	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Date Analysis Commenced	: 27-Sep-2025
C-O-C number	: ----	Issue Date	: 04-Oct-2025 16:57
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Centralized Prep, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Inorganics, Waterloo, Ontario
Greg Pokocky	Manager - Inorganics	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2248085)											
WT2527251-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	2.0	mg/L	42.9	42.3	1.36%	20%	----
Physical Tests (QC Lot: 2248086)											
WT2527251-001	Anonymous	pH	----	E108	0.10	pH units	7.93	7.84	1.14%	4%	----
Physical Tests (QC Lot: 2256936)											
WT2527390-001	Torrence Mechanical	Solids, total dissolved [TDS]	----	E162	20	mg/L	306	310	1.30%	20%	----
Anions and Nutrients (QC Lot: 2248088)											
WT2527385-017	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	1.10	0.87	0.24	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248089)											
WT2527385-017	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	27.2	27.2	0.0196%	20%	----
Anions and Nutrients (QC Lot: 2248090)											
WT2527385-017	Anonymous	Fluoride	16984-48-8	E235.F	0.020	mg/L	1.88	1.89	0.510%	20%	----
Anions and Nutrients (QC Lot: 2248091)											
WT2527385-017	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.068	0.068	0.0008	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248092)											
WT2527385-017	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248093)											
WT2527385-017	Anonymous	Bromide	24959-67-9	E235.Br	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2248095)											
WT2527360-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0013	<0.0010	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2250053)											
WT2527385-004	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0136	0.0137	0.0001	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 2245525)											
HA2504115-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	5.33	5.38	0.822%	20%	----
Total Metals (QC Lot: 2248850)											
WT2527318-001	Anonymous	Aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0445	0.0546	20.5%	20%	DUP-H
		Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00025	0.00024	0.000010	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0169	0.0169	0.241%	20%	----
		Boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	7.55	7.58	0.419%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2248850) - continued											
WT2527318-001	Anonymous	Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	1.44	1.44	0.576%	20%	----
		Lead, total	7439-92-1	E420	0.000050	mg/L	0.000181	0.000163	0.000018	Diff <2x LOR	----
		Magnesium, total	7439-95-4	E420	0.0050	mg/L	2.91	2.92	0.203%	20%	----
		Manganese, total	7439-96-5	E420	0.00010	mg/L	0.0270	0.0272	0.619%	20%	----
		Potassium, total	7440-09-7	E420	0.050	mg/L	0.963	0.973	1.06%	20%	----
		Selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		Silicon, total	7440-21-3	E420	0.10	mg/L	5.95	5.93	0.406%	20%	----
		Sodium, total	7440-23-5	E420	0.050	mg/L	11.4	11.4	0.328%	20%	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2252132)											
WT2527390-001	Torrence Mechanical	Trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2252133)											
WT2527390-001	Torrence Mechanical	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 2252133) - continued											
WT2527390-001	Torrence Mechanical	Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2248085)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 2256936)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 2248088)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2248089)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 2248090)						
Fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2248091)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2248092)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2248093)						
Bromide	24959-67-9	E235.Br	0.1	mg/L	<0.10	----
Anions and Nutrients (QCLot: 2248095)						
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 2250053)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Organic / Inorganic Carbon (QCLot: 2245525)						
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 2248850)						
Aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2248850) - continued						
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
Potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
Silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
Sodium, total	7440-23-5	E420	0.05	mg/L	<0.050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Volatile Organic Compounds (QCLot: 2252132)						
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----
Volatile Organic Compounds (QCLot: 2252133)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued						
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2248085)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	99.5	85.0	115	----
Physical Tests (QCLot: 2248086)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 2256936)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	102	85.0	115	----
Anions and Nutrients (QCLot: 2248088)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2248089)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2248090)									
Fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 2248091)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2248092)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 2248093)									
Bromide	24959-67-9	E235.Br	0.1	mg/L	0.5 mg/L	99.7	85.0	115	----
Anions and Nutrients (QCLot: 2248095)									
Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.05 mg/L	101	80.0	120	----
Anions and Nutrients (QCLot: 2250053)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	102	85.0	115	----
Organic / Inorganic Carbon (QCLot: 2245525)									
Carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	93.8	80.0	120	----
Total Metals (QCLot: 2248850)									
Aluminum, total	7429-90-5	E420	0.003	mg/L	0.1 mg/L	92.8	80.0	120	----
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	95.5	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.012 mg/L	92.2	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	87.0	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	91.3	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2248850) - continued									
Calcium, total	7440-70-2	E420	0.05	mg/L	2.5 mg/L	90.0	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.012 mg/L	89.7	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.012 mg/L	90.3	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	88.9	80.0	120	----
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	90.8	80.0	120	----
Magnesium, total	7439-95-4	E420	0.005	mg/L	2.5 mg/L	89.9	80.0	120	----
Manganese, total	7439-96-5	E420	0.0001	mg/L	0.012 mg/L	88.6	80.0	120	----
Potassium, total	7440-09-7	E420	0.05	mg/L	2.5 mg/L	91.6	80.0	120	----
Selenium, total	7782-49-2	E420	0.00005	mg/L	0.05 mg/L	91.1	80.0	120	----
Silicon, total	7440-21-3	E420	0.1	mg/L	0.5 mg/L	92.8	80.0	120	----
Sodium, total	7440-23-5	E420	0.05	mg/L	2.5 mg/L	89.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	91.1	80.0	120	----
Volatile Organic Compounds (QCLot: 2252132)									
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	103	70.0	130	----
Volatile Organic Compounds (QCLot: 2252133)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	105	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	87.8	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	105	70.0	130	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	106	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	104	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	112	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	99.5	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	98.6	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	128	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued									
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	98.2	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	104	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	102	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	86.9	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	91.6	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	91.1	70.0	130	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	98.7	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	96.4	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	111	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	108	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	106	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	105	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2248088)										
WT2527385-017	Anonymous	Chloride	16887-00-6	E235.Cl	99.3 mg/L	100 mg/L	99.3	75.0	125	----
Anions and Nutrients (QCLot: 2248089)										
WT2527385-017	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	98.3 mg/L	100 mg/L	98.3	75.0	125	----
Anions and Nutrients (QCLot: 2248090)										
WT2527385-017	Anonymous	Fluoride	16984-48-8	E235.F	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2248091)										
WT2527385-017	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.43 mg/L	2.5 mg/L	97.3	75.0	125	----
Anions and Nutrients (QCLot: 2248092)										
WT2527385-017	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.499 mg/L	0.5 mg/L	99.8	75.0	125	----
Anions and Nutrients (QCLot: 2248093)										
WT2527385-017	Anonymous	Bromide	24959-67-9	E235.Br	0.49 mg/L	0.5 mg/L	98.1	75.0	125	----
Anions and Nutrients (QCLot: 2248095)										
WT2527360-001	Anonymous	Phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0203 mg/L	0.02 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 2250053)										
WT2527385-004	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	----
Organic / Inorganic Carbon (QCLot: 2245525)										
HA2504115-001	Anonymous	Carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	----	ND	70.0	130	----
Total Metals (QCLot: 2248850)										
WT2527318-002	Anonymous	Aluminum, total	7429-90-5	E420	0.0888 mg/L	0.1 mg/L	88.8	70.0	130	----
		Arsenic, total	7440-38-2	E420	0.0482 mg/L	0.05 mg/L	96.4	70.0	130	----
		Barium, total	7440-39-3	E420	0.0109 mg/L	0.012 mg/L	87.3	70.0	130	----
		Boron, total	7440-42-8	E420	0.044 mg/L	0.05 mg/L	88.9	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00462 mg/L	0.005 mg/L	92.3	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0116 mg/L	0.012 mg/L	92.8	70.0	130	----
		Copper, total	7440-50-8	E420	0.0115 mg/L	0.012 mg/L	92.2	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0228 mg/L	0.025 mg/L	91.2	70.0	130	----
		Magnesium, total	7439-95-4	E420	2.10 mg/L	2.5 mg/L	84.2	70.0	130	----
		Manganese, total	7439-96-5	E420	ND mg/L	----	ND	70.0	130	----
		Potassium, total	7440-09-7	E420	2.28 mg/L	2.5 mg/L	91.2	70.0	130	----
		Selenium, total	7782-49-2	E420	0.0470 mg/L	0.05 mg/L	93.9	70.0	130	----
		Silicon, total	7440-21-3	E420	ND mg/L	----	ND	70.0	130	----
		Sodium, total	7440-23-5	E420	2.16 mg/L	2.5 mg/L	86.5	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 2248850) - continued										
WT2527318-002	Anonymous	Zinc, total	7440-66-6	E420	0.0224 mg/L	0.025 mg/L	89.8	70.0	130	----
Volatile Organic Compounds (QCLot: 2252132)										
WT2527390-001	Torrence Mechanical	Trichlorobenzene, 1,2,4-	120-82-1	E611E	97.5 µg/L	100 µg/L	97.5	60.0	140	----
Volatile Organic Compounds (QCLot: 2252133)										
WT2527390-001	Torrence Mechanical	Acetone	67-64-1	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Benzene	71-43-2	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	97.6 µg/L	100 µg/L	97.6	60.0	140	----
		Bromoform	75-25-2	E611D	95.1 µg/L	100 µg/L	95.1	60.0	140	----
		Bromomethane	74-83-9	E611D	69.6 µg/L	100 µg/L	69.6	60.0	140	----
		Carbon disulfide	75-15-0	E611D	84.6 µg/L	100 µg/L	84.6	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	79.7 µg/L	100 µg/L	79.7	60.0	140	----
		Chlorobenzene	108-90-7	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Chloroethane	75-00-3	E611D	82.4 µg/L	100 µg/L	82.4	60.0	140	----
		Chloroform	67-66-3	E611D	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Chloromethane	74-87-3	E611D	83.8 µg/L	100 µg/L	83.8	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	95.0 µg/L	100 µg/L	95.0	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	96.1 µg/L	100 µg/L	96.1	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	89.0 µg/L	100 µg/L	89.0	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	88.6 µg/L	100 µg/L	88.6	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	93.3 µg/L	100 µg/L	93.3	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	89.8 µg/L	100 µg/L	89.8	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Dichloromethane	75-09-2	E611D	85.8 µg/L	100 µg/L	85.8	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	98.7 µg/L	100 µg/L	98.7	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	98.8 µg/L	100 µg/L	98.8	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Ethylbenzene	100-41-4	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Hexane, n-	110-54-3	E611D	87.1 µg/L	100 µg/L	87.1	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	93 µg/L	100 µg/L	93.2	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	95 µg/L	100 µg/L	95.2	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	98 µg/L	100 µg/L	98.2	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	94.2 µg/L	100 µg/L	94.2	60.0	140	----
		Styrene	100-42-5	E611D	92.2 µg/L	100 µg/L	92.2	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	91.3 µg/L	100 µg/L	91.3	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	94.5 µg/L	100 µg/L	94.5	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----
		Toluene	108-88-3	E611D	94.8 µg/L	100 µg/L	94.8	60.0	140	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	92.7 µg/L	100 µg/L	92.7	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	94.5 µg/L	100 µg/L	94.5	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued										
WT2527390-001	Torrence Mechanical	Trichloroethylene	79-01-6	E611D	96.5 µg/L	100 µg/L	96.5	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	87.0 µg/L	100 µg/L	87.0	60.0	140	----
		Vinyl chloride	75-01-4	E611D	81.5 µg/L	100 µg/L	81.5	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	189 µg/L	200 µg/L	94.6	60.0	140	----
		Xylene, o-	95-47-6	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----

MM-SCS
GC-894
N-24

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Page

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division
Waterloo
Work Order Reference
WT2527390

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL | MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2
Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL | MAIL ☐ FAX
Email 1 or Fax dbettencourt@Pinchin.com
Email 2 ap@pinchin.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimu
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimu
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimu
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimu
Same day [E2] if received by 10am M-S - 200% rush surcharge.
☐ fees may apply to rush requests on weekends, statutory holidays a routine tests

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please con

Project Information

ALS Account # / Quote #:	PINC100 / West Perth
Job #:	West Perth Mitchell Domestic RW
PO / AFE:	333568.002
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only): WT2527390 FH

ALS Contact: Amanda Overholster

Sampler:

Analysis Requ...

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS: West Perth Mitchell Domestic RW	DOC - Lab Filter	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes
	TORRENCE MECHANICAL	26-Sep-25	1500	PW	6	R	R			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO
Are samples for human consumption/ use?
| YES NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: | YES | NO
Cooler Custody Seals Intact: ☑ YES | N/A Sample Custody Seals Intact: | YES | N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				11.3			

SHIPMENT RELEASE (client use)

Released by: Date: 26-Sep-25 Time: 1500

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by: Date: Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by: AG Date: 26-9-25 Time: 17:00

AUG 2020 FRONT

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2527387**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC SURFACE WATER	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	26-Sep-2025 17:00
C-O-C number	:	----	Date Analysis Commenced	:	27-Sep-2025
Sampler	:	Client	Issue Date	:	03-Oct-2025 20:24
Site	:	----			
Quote number	:	West Perth Landfill			
No. of samples received	:	4			
No. of samples analysed	:	4			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hannah Lewis	Inorganics Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre
pH units	pH units

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	Description
BODL	Limit of Reporting for BOD was increased to account for the largest volume of sample tested.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1 ----	SW2 ----	SW3 ----	DUP-SW ----	----
					Client sampling date / time	26-Sep-2025 14:00	26-Sep-2025 09:50	26-Sep-2025 10:05	26-Sep-2025 09:50	----
						WT2527387-001	WT2527387-002	WT2527387-003	WT2527387-004	----
						Result	Result	Result	Result	----
Physical Tests										
Alkalinity, bicarbonate (as CaCO3)	----	E290/WT	1.0	mg/L		332	262	266	262	----
Alkalinity, carbonate (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	5.0	<1.0	5.2	----
Alkalinity, hydroxide (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	<1.0	<1.0	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290/WT	1.0	mg/L		<1.0	2.5	<1.0	2.6	----
Alkalinity, total (as CaCO3)	----	E290/WT	1.0	mg/L		332	267	266	267	----
pH	----	E108/WT	0.10	pH units		8.13	8.35	8.24	8.35	----
Solids, total dissolved [TDS]	----	E162/WT	10	mg/L		982 DLDS	526 DLDS	546 DLDS	548 DLDS	----
Solids, total suspended [TSS]	----	E160/WT	3.0	mg/L		229	44.0	9.4	32.8	----
Anions and Nutrients										
Ammonia, total (as N)	7664-41-7	E298/WT	0.0050	mg/L		0.0433	0.225	0.244	0.220	----
Chloride	16887-00-6	E235.Cl/WT	0.50	mg/L		343 DLDS	106	106	105	----
Kjeldahl nitrogen, total [TKN]	----	E318/WT	0.050	mg/L		0.426	0.902	0.558	0.726	----
Nitrite (as N)	14797-65-0	E235.NO2/WT	0.010	mg/L		<0.050 DLDS	<0.010	<0.010	<0.010	----
Phosphorus, total	7723-14-0	E372-U/WT	0.0020	mg/L		0.0502	0.179	0.0794	0.136	----
Sulfate (as SO4)	14808-79-8	E235.SO4/WT	0.30	mg/L		18.9 DLDS	68.3	69.5	67.8	----
Nitrate (as N)	14797-55-8	E235.NO3/WT	0.020	mg/L		1.64 DLDS	0.180	0.170	0.176	----
Nitrate + Nitrite (as N)	----	EC235.N+N/WT	0.0200	mg/L		1.64	0.180	0.170	0.176	----
Total Metals										
Arsenic, total	7440-38-2	E420/WT	0.00010	mg/L		0.00032	0.00124	0.00106	0.00132	----
Barium, total	7440-39-3	E420/WT	0.00010	mg/L		0.114	0.0923	0.0783	0.0938	----
Boron, total	7440-42-8	E420/WT	0.010	mg/L		0.030	0.129	0.129	0.128	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	SW1 ----	SW2 ----	SW3 ----	DUP-SW ----	----
					Client sampling date / time	26-Sep-2025 14:00	26-Sep-2025 09:50	26-Sep-2025 10:05	26-Sep-2025 09:50	----
						WT2527387-001	WT2527387-002	WT2527387-003	WT2527387-004	----
						Result	Result	Result	Result	----
Total Metals										
Cadmium, total	7440-43-9	E420/WT	0.0000050	mg/L		0.0000326	0.0000158	0.0000058	0.0000200	----
Calcium, total	7440-70-2	E420/WT	0.050	mg/L		163	114	106	114	----
Chromium, total	7440-47-3	E420/WT	0.00050	mg/L		<0.00050	0.00124	<0.00050	0.00141	----
Copper, total	7440-50-8	E420/WT	0.00050	mg/L		0.00091	0.00149	0.00054	0.00162	----
Iron, total	7439-89-6	E420/WT	0.010	mg/L		0.303	1.22	0.417	1.31	----
Lead, total	7439-92-1	E420/WT	0.000050	mg/L		0.000205	0.000627	0.000115	0.000674	----
Zinc, total	7440-66-6	E420/WT	0.0030	mg/L		<0.0030	0.0065	<0.0030	0.0069	----
Dissolved Metals										
Mercury, dissolved	7439-97-6	E509/WT	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	----
Dissolved mercury filtration location	----	EP509/WT	-	-		Laboratory	Laboratory	Laboratory	Laboratory	----
Aggregate Organics										
Biochemical oxygen demand [BOD]	----	E550/WT	2.0	mg/L		3.8	<3.0 BODL	<3.0 BODL	<3.0 BODL	----
Chemical oxygen demand [COD]	----	E559-L/WT	10	mg/L		<10	16	<10	12	----
Phenols, total (4AAP)	----	E562/WT	0.0010	mg/L		0.0010	0.0033	0.0024	0.0045	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2527387**	Page	: 1 of 15
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC SURFACE WATER	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Issue Date	: 03-Oct-2025 20:21
C-O-C number	: ----		
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d] SW1	E550	26-Sep-2025	----	----	----		27-Sep-2025	4 days	0 days	✓
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d] DUP-SW	E550	26-Sep-2025	----	----	----		27-Sep-2025	4 days	1 days	✓
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d] SW2	E550	26-Sep-2025	----	----	----		27-Sep-2025	4 days	1 days	✓
Aggregate Organics : Biochemical Oxygen Demand - 5 day										
HDPE [BOD HT-4d] SW3	E550	26-Sep-2025	----	----	----		27-Sep-2025	4 days	1 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) [ON MECP] DUP-SW	E559-L	26-Sep-2025	----	----	----		01-Oct-2025	28 days	5 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) SW1	E559-L	26-Sep-2025	----	----	----		01-Oct-2025	28 days	5 days	✓
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid) SW2	E559-L	26-Sep-2025	----	----	----		01-Oct-2025	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Aggregate Organics : Chemical Oxygen Demand by Colourimetry (Low Level)										
Amber glass total (sulfuric acid)										
SW3	E559-L	26-Sep-2025	----	----	----		01-Oct-2025	28 days	5 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid) [ON MECP]										
DUP-SW	E562	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid)										
SW1	E562	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid)										
SW2	E562	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Aggregate Organics : Phenols (4AAP) in Water by Colorimetry										
Amber glass total (sulfuric acid)										
SW3	E562	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) [ON MECP]										
DUP-SW	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SW1	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SW2	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SW3	E298	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] DUP-SW	E235.Cl	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] SW1	E235.Cl	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] SW2	E235.Cl	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE [ON MECP] SW3	E235.Cl	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] DUP-SW	E235.NO3	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] SW1	E235.NO3	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] SW2	E235.NO3	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC										
HDPE [ON MECP] SW3	E235.NO3	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	4 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP] DUP-SW	E235.NO2	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
SW1	E235.NO2	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	4 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
SW2	E235.NO2	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	4 days	✓
Anions and Nutrients : Nitrite in Water by IC										
HDPE [ON MECP]										
SW3	E235.NO2	26-Sep-2025	30-Sep-2025	7 days	4 days	✓	02-Oct-2025	7 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP]										
DUP-SW	E235.SO4	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP]										
SW1	E235.SO4	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP]										
SW2	E235.SO4	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE [ON MECP]										
SW3	E235.SO4	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	02-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) [ON MECP]										
DUP-SW	E318	26-Sep-2025	01-Oct-2025	28 days	5 days	✓	01-Oct-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
SW1	E318	26-Sep-2025	01-Oct-2025	28 days	5 days	✓	01-Oct-2025	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
SW2	E318	26-Sep-2025	01-Oct-2025	28 days	5 days	✓	01-Oct-2025	28 days	5 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
SW3	E318	26-Sep-2025	01-Oct-2025	28 days	5 days	✓	01-Oct-2025	28 days	5 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid) [ON MECP]										
DUP-SW	E372-U	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SW1	E372-U	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SW2	E372-U	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (0.002 mg/L)										
Amber glass total (sulfuric acid)										
SW3	E372-U	26-Sep-2025	30-Sep-2025	28 days	4 days	✓	01-Oct-2025	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab filtered)										
SW1	E509	26-Sep-2025	29-Sep-2025	0 hrs	66 hrs	× UCP	30-Sep-2025	0 hrs	66 hrs	× UCP
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab filtered)										
DUP-SW	E509	26-Sep-2025	29-Sep-2025	0 hrs	70 hrs	× UCP	30-Sep-2025	0 hrs	70 hrs	× UCP
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab filtered)										
SW2	E509	26-Sep-2025	29-Sep-2025	0 hrs	70 hrs	× UCP	30-Sep-2025	0 hrs	70 hrs	× UCP

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial - dissolved (lab filtered)										
SW3	E509	26-Sep-2025	29-Sep-2025	0 hrs	70 hrs	× UCP	30-Sep-2025	0 hrs	70 hrs	× UCP
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
DUP-SW	E290	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
SW1	E290	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
SW2	E290	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE [ON MECP]										
SW3	E290	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
DUP-SW	E108	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
SW1	E108	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
SW2	E108	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓
Physical Tests : pH by Meter										
HDPE [ON MECP]										
SW3	E108	26-Sep-2025	30-Sep-2025	14 days	4 days	✓	01-Oct-2025	14 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] DUP-SW	E162	26-Sep-2025	----	----	----		02-Oct-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] SW1	E162	26-Sep-2025	----	----	----		02-Oct-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] SW2	E162	26-Sep-2025	----	----	----		02-Oct-2025	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE [ON MECP] SW3	E162	26-Sep-2025	----	----	----		02-Oct-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] DUP-SW	E160	26-Sep-2025	----	----	----		02-Oct-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] SW1	E160	26-Sep-2025	----	----	----		02-Oct-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] SW2	E160	26-Sep-2025	----	----	----		02-Oct-2025	7 days	6 days	✓
Physical Tests : TSS by Gravimetry										
HDPE [ON MECP] SW3	E160	26-Sep-2025	----	----	----		02-Oct-2025	7 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) DUP-SW	E420	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SW1	E420	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SW2	E420	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SW3	E420	26-Sep-2025	29-Sep-2025	180 days	3 days	✓	29-Sep-2025	180 days	3 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

UCP: Unsuitable Container and/or Preservative used (invalidates standard hold time). Maximum hold time of zero applied. Test results may be biased low / unreliable, and may not meet regulatory requirements.

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
pH by Meter	E108	2250133	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	2254491	1	20	5.0	4.7	✓
TDS by Gravimetry	E162	2254496	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2250128	1	14	7.1	5.0	✓
Nitrite in Water by IC	E235.NO2	2250127	1	5	20.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2250126	1	5	20.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2250129	1	11	9.0	5.0	✓
Alkalinity Species by Titration	E290	2250132	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	2249836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2249834	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	2249835	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2247101	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2246473	1	18	5.5	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	2245923	1	20	5.0	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2251435	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	2249837	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
pH by Meter	E108	2250133	1	17	5.8	5.0	✓
TSS by Gravimetry	E160	2254491	1	20	5.0	4.7	✓
TDS by Gravimetry	E162	2254496	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2250128	1	14	7.1	5.0	✓
Nitrite in Water by IC	E235.NO2	2250127	1	5	20.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2250126	1	5	20.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2250129	1	11	9.0	5.0	✓
Alkalinity Species by Titration	E290	2250132	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	2249836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2249834	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	2249835	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2247101	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2246473	1	18	5.5	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	2245923	1	20	5.0	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2251435	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	2249837	1	20	5.0	5.0	✓
Method Blanks (MB)							
TSS by Gravimetry	E160	2254491	1	20	5.0	4.7	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
TDS by Gravimetry	E162	2254496	1	20	5.0	5.0	✓
Chloride in Water by IC	E235.Cl	2250128	1	14	7.1	5.0	✓
Nitrite in Water by IC	E235.NO2	2250127	1	5	20.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2250126	1	5	20.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2250129	1	11	9.0	5.0	✓
Alkalinity Species by Titration	E290	2250132	1	9	11.1	5.0	✓
Ammonia by Fluorescence	E298	2249836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2249834	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	2249835	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2247101	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2246473	1	18	5.5	5.0	✓
Biochemical Oxygen Demand - 5 day	E550	2245923	1	20	5.0	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2251435	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	2249837	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Chloride in Water by IC	E235.Cl	2250128	1	14	7.1	5.0	✓
Nitrite in Water by IC	E235.NO2	2250127	1	5	20.0	5.0	✓
Nitrate in Water by IC	E235.NO3	2250126	1	5	20.0	5.0	✓
Sulfate in Water by IC	E235.SO4	2250129	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	2249836	1	20	5.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	2249834	1	20	5.0	5.0	✓
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U	2249835	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	2247101	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	2246473	1	18	5.5	5.0	✓
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L	2251435	1	20	5.0	5.0	✓
Phenols (4AAP) in Water by Colorimetry	E562	2249837	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
pH by Meter	E108 ALS Environmental - Waterloo	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry	E160 ALS Environmental - Waterloo	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
TDS by Gravimetry	E162 ALS Environmental - Waterloo	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
Chloride in Water by IC	E235.Cl ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC	E235.NO2 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC	E235.NO3 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 ALS Environmental - Waterloo	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 ALS Environmental - Waterloo	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 ALS Environmental - Waterloo	Water	Method Fialab 100, 2018	TKN in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021).
Total Phosphorus by Colourimetry (0.002 mg/L)	E372-U ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Metals in Water by CRC ICPMS	E420 ALS Environmental - Waterloo	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Mercury in Water by CVAAS	E509 ALS Environmental - Waterloo	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Biochemical Oxygen Demand - 5 day	E550 ALS Environmental - Waterloo	Water	APHA 5210 B (mod)	Samples are diluted and incubated for a specified time period, after which the oxygen depletion is measured using a dissolved oxygen meter. Free chlorine is a negative interference in the BOD method; please advise ALS when free chlorine is present in samples.
Chemical Oxygen Demand by Colourimetry (Low Level)	E559-L ALS Environmental - Waterloo	Water	APHA 5220 D (mod)	Samples are analyzed using the closed reflux colourimetric method.
Phenols (4AAP) in Water by Colorimetry	E562 ALS Environmental - Waterloo	Water	EPA 9066	This automated method is based on the distillation of phenol and subsequent reaction of the distillate with alkaline ferricyanide (K3Fe(CN)6) and 4-amino-antipyrine (4-AAP) to form a red complex which is measured colorimetrically.
Nitrate and Nitrite (as N) (Calculation)	EC235.N+N ALS Environmental - Waterloo	Water	EPA 300.0	Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N).

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 ALS Environmental - Waterloo	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 ALS Environmental - Waterloo	Water	APHA 4500-Norg D (mod)	Samples are digested at high temperature using Sulfuric Acid with Copper catalyst, which converts organic nitrogen sources to Ammonia, which is then quantified by the analytical method as TKN. This method is unsuitable for samples containing high levels of nitrate. If nitrate exceeds TKN concentration by ten times or more, results may be biased low.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Total Phosphorus in water	EP372 ALS Environmental - Waterloo	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Dissolved Mercury Water Filtration	EP509 ALS Environmental - Waterloo	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **WT2527387**	Page	: 1 of 10
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC SURFACE WATER	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Date Analysis Commenced	: 27-Sep-2025
C-O-C number	: ----	Issue Date	: 03-Oct-2025 20:21
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hannah Lewis	Inorganics Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Inorganics, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Metals, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 2250132)											
HA2504060-001	Anonymous	Alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	6.6	6.3	0.4	Diff <2x LOR	----
Physical Tests (QC Lot: 2250133)											
HA2504060-001	Anonymous	pH	----	E108	0.10	pH units	6.45	6.50	0.772%	4%	----
Physical Tests (QC Lot: 2254491)											
WT2527454-001	Anonymous	Solids, total suspended [TSS]	----	E160	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 2254496)											
WT2527454-001	Anonymous	Solids, total dissolved [TDS]	----	E162	20	mg/L	1250	1270	1.31%	20%	----
Anions and Nutrients (QC Lot: 2249834)											
WT2527047-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	2.50	mg/L	90.0	88.9	1.19%	20%	----
Anions and Nutrients (QC Lot: 2249835)											
WT2526993-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	0.200	mg/L	33.0	32.2	2.27%	20%	----
Anions and Nutrients (QC Lot: 2249836)											
WT2527308-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.128	0.128	0.313%	20%	----
Anions and Nutrients (QC Lot: 2250126)											
WT2527385-020	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	0.020	mg/L	0.083	0.081	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2250127)											
WT2527385-020	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 2250128)											
WT2527385-020	Anonymous	Chloride	16887-00-6	E235.Cl	0.50	mg/L	16.3	16.2	0.687%	20%	----
Anions and Nutrients (QC Lot: 2250129)											
WT2527385-020	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	90.2	90.3	0.0806%	20%	----
Total Metals (QC Lot: 2247101)											
WT2527346-001	Anonymous	Arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00068	0.00070	0.00002	Diff <2x LOR	----
		Barium, total	7440-39-3	E420	0.00010	mg/L	0.0767	0.0788	2.75%	20%	----
		Boron, total	7440-42-8	E420	0.010	mg/L	0.020	0.020	0.0002	Diff <2x LOR	----
		Cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000073	0.0000067	0.0000006	Diff <2x LOR	----
		Calcium, total	7440-70-2	E420	0.050	mg/L	80.5	81.1	0.652%	20%	----
		Chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		Copper, total	7440-50-8	E420	0.00050	mg/L	0.00178	0.00179	0.000010	Diff <2x LOR	----
		Iron, total	7439-89-6	E420	0.010	mg/L	0.300	0.306	2.14%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 2247101) - continued											
WT2527346-001	Anonymous	Lead, total	7439-92-1	E420	0.000050	mg/L	0.000213	0.000215	0.000002	Diff <2x LOR	----
		Zinc, total	7440-66-6	E420	0.0030	mg/L	0.0034	0.0035	0.00007	Diff <2x LOR	----
Dissolved Metals (QC Lot: 2246473)											
HA2504114-003	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Aggregate Organics (QC Lot: 2245923)											
WT2527146-001	Anonymous	Biochemical oxygen demand [BOD]	----	E550	3.0	mg/L	<3.0	<3.0	0.0%	30%	----
Aggregate Organics (QC Lot: 2249837)											
WP2516575-001	Anonymous	Phenols, total (4AAP)	----	E562	0.100	mg/L	2.38	2.40	1.12%	20%	----
Aggregate Organics (QC Lot: 2251435)											
WT2526792-003	Anonymous	Chemical oxygen demand [COD]	----	E559-L	10	mg/L	16	16	0.1	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 2250132)						
Alkalinity, bicarbonate (as CaCO3)	----	E290	1	mg/L	1.1	----
Alkalinity, carbonate (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, hydroxide (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, phenolphthalein (as CaCO3)	----	E290	1	mg/L	<1.0	----
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.1	----
Physical Tests (QCLot: 2254491)						
Solids, total suspended [TSS]	----	E160	3	mg/L	<3.0	----
Physical Tests (QCLot: 2254496)						
Solids, total dissolved [TDS]	----	E162	10	mg/L	<10	----
Anions and Nutrients (QCLot: 2249834)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 2249835)						
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 2249836)						
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 2250126)						
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 2250127)						
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	<0.010	----
Anions and Nutrients (QCLot: 2250128)						
Chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 2250129)						
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Total Metals (QCLot: 2247101)						
Arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
Barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
Boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
Calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
Copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
Iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 2247101) - continued						
Lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
Zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
Dissolved Metals (QCLot: 2246473)						
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Aggregate Organics (QCLot: 2245923)						
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	<2.0	----
Aggregate Organics (QCLot: 2249837)						
Phenols, total (4AAP)	----	E562	0.001	mg/L	<0.0010	----
Aggregate Organics (QCLot: 2251435)						
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	<10	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 2250132)									
Alkalinity, total (as CaCO3)	----	E290	1	mg/L	150 mg/L	98.5	85.0	115	----
Physical Tests (QCLot: 2250133)									
pH	----	E108	----	pH units	7 pH units	101	98.0	102	----
Physical Tests (QCLot: 2254491)									
Solids, total suspended [TSS]	----	E160	3	mg/L	150 mg/L	103	85.0	115	----
Physical Tests (QCLot: 2254496)									
Solids, total dissolved [TDS]	----	E162	10	mg/L	1000 mg/L	97.8	85.0	115	----
Anions and Nutrients (QCLot: 2249834)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 2249835)									
Phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.333 mg/L	89.0	80.0	120	----
Anions and Nutrients (QCLot: 2249836)									
Ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	98.6	85.0	115	----
Anions and Nutrients (QCLot: 2250126)									
Nitrate (as N)	14797-55-8	E235.NO3	0.02	mg/L	2.5 mg/L	100	90.0	110	----
Anions and Nutrients (QCLot: 2250127)									
Nitrite (as N)	14797-65-0	E235.NO2	0.01	mg/L	0.5 mg/L	99.7	90.0	110	----
Anions and Nutrients (QCLot: 2250128)									
Chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 2250129)									
Sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	102	90.0	110	----
Total Metals (QCLot: 2247101)									
Arsenic, total	7440-38-2	E420	0.0001	mg/L	0.05 mg/L	99.2	80.0	120	----
Barium, total	7440-39-3	E420	0.0001	mg/L	0.012 mg/L	94.4	80.0	120	----
Boron, total	7440-42-8	E420	0.01	mg/L	0.05 mg/L	91.3	80.0	120	----
Cadmium, total	7440-43-9	E420	0.000005	mg/L	0.005 mg/L	93.8	80.0	120	----
Calcium, total	7440-70-2	E420	0.05	mg/L	2.5 mg/L	91.7	80.0	120	----
Chromium, total	7440-47-3	E420	0.0005	mg/L	0.012 mg/L	96.4	80.0	120	----
Copper, total	7440-50-8	E420	0.0005	mg/L	0.012 mg/L	93.0	80.0	120	----
Iron, total	7439-89-6	E420	0.01	mg/L	0.05 mg/L	93.8	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 2247101) - continued									
Lead, total	7439-92-1	E420	0.00005	mg/L	0.025 mg/L	92.0	80.0	120	----
Zinc, total	7440-66-6	E420	0.003	mg/L	0.025 mg/L	92.0	80.0	120	----
Mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0 mg/L	100	80.0	120	----
Aggregate Organics (QCLot: 2245923)									
Biochemical oxygen demand [BOD]	----	E550	2	mg/L	198 mg/L	99.7	85.0	115	----
Aggregate Organics (QCLot: 2249837)									
Phenols, total (4AAP)	----	E562	0.001	mg/L	0.02 mg/L	104	85.0	115	----
Aggregate Organics (QCLot: 2251435)									
Chemical oxygen demand [COD]	----	E559-L	10	mg/L	100 mg/L	105	85.0	115	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 2249834)										
WT2527047-001	Anonymous	Kjeldahl nitrogen, total [TKN]	----	E318	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 2249835)										
WT2526993-001	Anonymous	Phosphorus, total	7723-14-0	E372-U	ND mg/L	----	ND	70.0	130	----
Anions and Nutrients (QCLot: 2249836)										
WT2527308-001	Anonymous	Ammonia, total (as N)	7664-41-7	E298	ND mg/L	----	ND	75.0	125	----
Anions and Nutrients (QCLot: 2250126)										
WT2527385-020	Anonymous	Nitrate (as N)	14797-55-8	E235.NO3	2.52 mg/L	2.5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 2250127)										
WT2527385-020	Anonymous	Nitrite (as N)	14797-65-0	E235.NO2	0.477 mg/L	0.5 mg/L	95.5	75.0	125	----
Anions and Nutrients (QCLot: 2250128)										
WT2527385-020	Anonymous	Chloride	16887-00-6	E235.Cl	99.0 mg/L	100 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 2250129)										
WT2527385-020	Anonymous	Sulfate (as SO4)	14808-79-8	E235.SO4	97.2 mg/L	100 mg/L	97.2	75.0	125	----
Total Metals (QCLot: 2247101)										
WT2527346-002	Anonymous	Arsenic, total	7440-38-2	E420	0.0513 mg/L	0.05 mg/L	103	70.0	130	----
		Barium, total	7440-39-3	E420	ND mg/L	----	ND	70.0	130	----
		Boron, total	7440-42-8	E420	0.047 mg/L	0.05 mg/L	93.8	70.0	130	----
		Cadmium, total	7440-43-9	E420	0.00467 mg/L	0.005 mg/L	93.4	70.0	130	----
		Calcium, total	7440-70-2	E420	ND mg/L	----	ND	70.0	130	----
		Chromium, total	7440-47-3	E420	0.0123 mg/L	0.012 mg/L	98.6	70.0	130	----
		Copper, total	7440-50-8	E420	0.0113 mg/L	0.012 mg/L	90.2	70.0	130	----
		Iron, total	7439-89-6	E420	ND mg/L	----	ND	70.0	130	----
		Lead, total	7439-92-1	E420	0.0219 mg/L	0.025 mg/L	87.7	70.0	130	----
		Zinc, total	7440-66-6	E420	0.0220 mg/L	0.025 mg/L	88.0	70.0	130	----
Dissolved Metals (QCLot: 2246473)										
HA2504114-004	Anonymous	Mercury, dissolved	7439-97-6	E509	0.0000926 mg/L	0 mg/L	92.6	70.0	130	----
Aggregate Organics (QCLot: 2249837)										
WP2516575-001	Anonymous	Phenols, total (4AAP)	----	E562	ND mg/L	----	ND	75.0	125	----
Aggregate Organics (QCLot: 2251435)										
WT2526792-003	Anonymous	Chemical oxygen demand [COD]	----	E559-L	103 mg/L	100 mg/L	103	75.0	125	----

QC-896 MM-517
N-261 SM
B-723

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

Page

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Environmental Division
Waterloo
Work Order Reference
WT2527387

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt
Phone:	226-338-0989
	Company address below will appear on the final report
Street:	225 Labrador Drive, Unit #1
City/Province:	Waterloo, Ontario
Postal Code:	N2K 4M8
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	Pinchin Ltd.
Contact:	Deana Bettencourt

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL | MAIL ☐ FAX
Email 1 or Fax: dbettencourt@Pinchin.com
Email 2:
Email 3:

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL | MAIL ☐ FAX
Email 1 or Fax: dbettencourt@Pinchin.com
Email 2: ap@pinchin.com

Turnaround Time (TAT) Requested

☐ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimun
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimur
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimun
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimun
Same day [E2] if received by 10am M-S - 200% rush surcharge. A
☐ fees may apply to rush requests on weekends, statutory holidays an
routine tests

Date and Time Required for all E&P TATs:

For all tests with rush TATs requested, please conta

Analysis Reque

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	PINC100 / West Perth	AFE/Cost Center:	PO#:
Job #:	West Perth Mitchell Domestic Surface Water	Major/Minor Code:	Routing Code:
PO / AFE:	333568.002	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only): WT2527387 FH

ALS Contact: Amanda Overholster

Sampler:

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS: West Perth Mitchell Domestic Surface Water	Dissolved Hg - Lab Filter	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes
	SW1	26-Sep-25	14:00	SW	R	R				
	SW2	26-Sep-25	9:50		R	R				
	SW3	26-Sep-25	10:05		R	R				
	DUP-SW	26-Sep-25	9:50		R	R				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO

Are samples for human consumption/ use?
| YES NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

GEL Planned Event

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED
Submission Comments identified on Sample Receipt Notification: | YES | NO
Cooler Custody Seals Intact: ☑ YES | N/A Sample Custody Seals Intact: | YES | N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				4.4	5.8		

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	25-Sep-25	14:05

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
AG	26-Sep-25	17:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

CERTIFICATE OF ANALYSIS

Work Order	:	**WT2527391**			
Client	:	**Pinchin Ltd.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Deana Bettencourt	Account Manager	:	Amanda Overholster
Address	:	225 Labrador Drive Unit #1 Waterloo Ontario Canada N2K 4M8	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	----	E-mail	:	Amanda.Overholster@ALSGlobal.com
Project	:	WEST PERTH MITCHELL DOMESTIC GROUNDWATER TRIP BLANK	Telephone	:	1 416 817 2944
PO	:	333568.002	Date Samples Received	:	26-Sep-2025 17:00
C-O-C number	:	----	Date Analysis Commenced	:	01-Oct-2025
Sampler	:	Client	Issue Date	:	02-Oct-2025 12:14
Site	:	----			
Quote number	:	West Perth Landfill			
No. of samples received	:	1			
No. of samples analysed	:	1			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key: CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
LOR: Limit of Reporting (detection limit).

Unit	*Description*
µg/L	micrograms per litre

<: less than.
>: greater than.
Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TRIPBLANK-102 ----	----	----	----	----
					Client sampling date / time	26-Sep-2025 15:05	----	----	----	----
						WT2527391-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Acetone	67-64-1	E611D/WT	20	µg/L		<20	----	----	----	----
Benzene	71-43-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromoform	75-25-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Bromomethane	74-83-9	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Carbon disulfide	75-15-0	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroethane	75-00-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloroform	67-66-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Chloromethane	74-87-3	E611D/WT	2.0	µg/L		<2.0	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water
(Matrix: Water)

Analyte	CAS Number	Method/Lab	LOR	Unit	Client sample ID	TRIPBLANK-102 ----	----	----	----	----
					Client sampling date / time	26-Sep-2025 15:05	----	----	----	----
						WT2527391-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	1.0	µg/L		<1.0	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Ethylbenzene	100-41-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexane, n-	110-54-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Hexanone, 2-	591-78-6	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	20	µg/L		<20	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Styrene	100-42-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Toluene	108-88-3	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorobenzene, 1,2,4-	120-82-1	E611E/WT	1.0	µg/L		<1.0	----	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	0.50	µg/L		<0.50	----	----	----	----

Analytical Results

Sub-Matrix: Water (Matrix: Water)					Client sample ID	TRIPBLANK-102 ----	----	----	----	----
					Client sampling date / time	26-Sep-2025 15:05	----	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit		WT2527391-001	----	----	----	----
						Result	----	----	----	----
Volatile Organic Compounds										
Vinyl chloride	75-01-4	E611D/WT	0.20	µg/L		<0.20	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	0.40	µg/L		<0.40	----	----	----	----
Xylene, o-	95-47-6	E611D/WT	0.30	µg/L		<0.30	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	0.50	µg/L		<0.50	----	----	----	----
Volatile Organic Compounds Surrogates										
Bromofluorobenzene, 4-	460-00-4	E611E/WT	1.0	%		98.5	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611D/WT	1.0	%		98.5	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611E/WT	1.0	%		97.1	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	1.0	%		97.1	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

ALS Canada Ltd.

right solutions.
right partner.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2527391**	Page	: 1 of 5
Client	: **Pinchin Ltd.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC GROUNDWATER TRIP BLANK	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Issue Date	: 02-Oct-2025 12:13
C-O-C number	: ----		
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIPBLANK-102	E611D	26-Sep-2025	01-Oct-2025	14 days	5 days	✓	01-Oct-2025	14 days	5 days	✓
Volatile Organic Compounds : VOCs (Prairies List) by Headspace GC-MS										
Glass vial (sodium bisulfate) TRIPBLANK-102	E611E	26-Sep-2025	01-Oct-2025	14 days	5 days	✓	01-Oct-2025	14 days	5 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	19	5.2	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Laboratory Control Samples (LCS)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	19	5.2	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Method Blanks (MB)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	19	5.2	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓
Matrix Spikes (MS)							
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2252133	1	19	5.2	5.0	✓
VOCs (Prairies List) by Headspace GC-MS	E611E	2252132	1	4	25.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
VOCs (Prairies List) by Headspace GC-MS	E611E ALS Environmental - Waterloo	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis	EP581 ALS Environmental - Waterloo	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into a GC-MS-FID.

QUALITY CONTROL REPORT

Work Order	: **WT2527391**	Page	: 1 of 10
Client	: Pinchin Ltd.	Laboratory	: ALS Environmental - Waterloo
Contact	: Deana Bettencourt	Account Manager	: Amanda Overholster
Address	: 225 Labrador Drive Unit #1 Waterloo ON Canada N2K 4M8	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: ----	Telephone	: 1 416 817 2944
Project	: WEST PERTH MITCHELL DOMESTIC GROUNDWATER TRIP BLANK	Date Samples Received	: 26-Sep-2025 17:00
PO	: 333568.002	Date Analysis Commenced	: 01-Oct-2025
C-O-C number	: ----	Issue Date	: 02-Oct-2025 12:13
Sampler	: Client		
Site	:		
Quote number	: West Perth Landfill		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Compounds (QC Lot: 2252132)											
WT2527390-001	Anonymous	Trichlorobenzene, 1,2,4-	120-82-1	E611E	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
Volatile Organic Compounds (QC Lot: 2252133)											
WT2527390-001	Anonymous	Acetone	67-64-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Benzene	71-43-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromodichloromethane	75-27-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromoform	75-25-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Bromomethane	74-83-9	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Carbon disulfide	75-15-0	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Carbon tetrachloride	56-23-5	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Chlorobenzene	108-90-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroethane	75-00-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloroform	67-66-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Chloromethane	74-87-3	E611D	2.0	µg/L	<2.0	<2.0	0	Diff <2x LOR	----
		Dibromochloromethane	124-48-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dibromoethane, 1,2-	106-93-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichlorodifluoromethane	75-71-8	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,1-	75-34-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethane, 1,2-	107-06-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, 1,1-	75-35-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloromethane	75-09-2	E611D	1.0	µg/L	<1.0	<1.0	0	Diff <2x LOR	----
		Dichloropropane, 1,2-	78-87-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----
		Ethylbenzene	100-41-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Hexane, n-	110-54-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Volatile Organic Compounds (QC Lot: 2252133) - continued											
WT2527390-001	Anonymous	Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	<20	0	Diff <2x LOR	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Styrene	100-42-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Tetrachloroethylene	127-18-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Toluene	108-88-3	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichloroethylene	79-01-6	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Trichlorofluoromethane	75-69-4	E611D	0.50	µg/L	<0.50	<0.50	0	Diff <2x LOR	----
		Vinyl chloride	75-01-4	E611D	0.20	µg/L	<0.20	<0.20	0	Diff <2x LOR	----
		Xylene, m+p-	179601-23-1	E611D	0.40	µg/L	<0.40	<0.40	0	Diff <2x LOR	----
		Xylene, o-	95-47-6	E611D	0.30	µg/L	<0.30	<0.30	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 2252132)						
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	<1.0	----
Volatile Organic Compounds (QCLot: 2252133)						
Acetone	67-64-1	E611D	20	µg/L	<20	----
Benzene	71-43-2	E611D	0.5	µg/L	<0.50	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	<0.50	----
Bromoform	75-25-2	E611D	0.5	µg/L	<0.50	----
Bromomethane	74-83-9	E611D	0.5	µg/L	<0.50	----
Carbon disulfide	75-15-0	E611D	1	µg/L	<1.0	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	<0.20	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	<0.50	----
Chloroethane	75-00-3	E611D	0.5	µg/L	<0.50	----
Chloroform	67-66-3	E611D	0.5	µg/L	<0.50	----
Chloromethane	74-87-3	E611D	2	µg/L	<2.0	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	<0.50	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	<0.20	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	<0.50	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	<0.50	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	<0.50	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	<0.50	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	<0.50	----
Dichloromethane	75-09-2	E611D	1	µg/L	<1.0	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	<0.50	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	<0.30	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	<0.30	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	<0.50	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	<0.50	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	<20	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	<20	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued						
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	<20	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	<0.50	----
Styrene	100-42-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	<0.50	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	<0.50	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	<0.50	----
Toluene	108-88-3	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	<0.50	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	<0.50	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	<0.50	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	<0.50	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	<0.20	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	<0.40	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	<0.30	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2252132)									
Trichlorobenzene, 1,2,4-	120-82-1	E611E	1	µg/L	100 µg/L	103	70.0	130	----
Volatile Organic Compounds (QCLot: 2252133)									
Acetone	67-64-1	E611D	20	µg/L	100 µg/L	105	70.0	130	----
Benzene	71-43-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Bromoform	75-25-2	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Bromomethane	74-83-9	E611D	0.5	µg/L	100 µg/L	87.8	60.0	140	----
Carbon disulfide	75-15-0	E611D	1	µg/L	100 µg/L	105	70.0	130	----
Carbon tetrachloride	56-23-5	E611D	0.2	µg/L	100 µg/L	106	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Chloroethane	75-00-3	E611D	0.5	µg/L	100 µg/L	104	60.0	140	----
Chloroform	67-66-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Chloromethane	74-87-3	E611D	2	µg/L	100 µg/L	112	60.0	140	----
Dibromochloromethane	124-48-1	E611D	0.5	µg/L	100 µg/L	99.5	70.0	130	----
Dibromoethane, 1,2-	106-93-4	E611D	0.2	µg/L	100 µg/L	98.6	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.5	µg/L	100 µg/L	128	60.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.5	µg/L	100 µg/L	100	70.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.5	µg/L	100 µg/L	109	70.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.5	µg/L	100 µg/L	108	70.0	130	----
Dichloromethane	75-09-2	E611D	1	µg/L	100 µg/L	98.2	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.5	µg/L	100 µg/L	104	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.3	µg/L	100 µg/L	104	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.3	µg/L	100 µg/L	102	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Hexane, n-	110-54-3	E611D	0.5	µg/L	100 µg/L	110	70.0	130	----
Hexanone, 2-	591-78-6	E611D	20	µg/L	100 µg/L	86.9	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	20	µg/L	100 µg/L	91.6	70.0	130	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	20	µg/L	100 µg/L	91.1	70.0	130	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued									
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.5	µg/L	100 µg/L	103	70.0	130	----
Styrene	100-42-5	E611D	0.5	µg/L	100 µg/L	101	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.5	µg/L	100 µg/L	98.7	70.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.5	µg/L	100 µg/L	96.4	70.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Toluene	108-88-3	E611D	0.5	µg/L	100 µg/L	105	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.5	µg/L	100 µg/L	98.4	70.0	130	----
Trichloroethylene	79-01-6	E611D	0.5	µg/L	100 µg/L	106	70.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.5	µg/L	100 µg/L	111	60.0	140	----
Vinyl chloride	75-01-4	E611D	0.2	µg/L	100 µg/L	108	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.4	µg/L	200 µg/L	106	70.0	130	----
Xylene, o-	95-47-6	E611D	0.3	µg/L	100 µg/L	105	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2252132)										
WT2527390-001	Anonymous	Trichlorobenzene, 1,2,4-	120-82-1	E611E	97.5 µg/L	100 µg/L	97.5	60.0	140	----
Volatile Organic Compounds (QCLot: 2252133)										
WT2527390-001	Anonymous	Acetone	67-64-1	E611D	102 µg/L	100 µg/L	102	60.0	140	----
		Benzene	71-43-2	E611D	92.4 µg/L	100 µg/L	92.4	60.0	140	----
		Bromodichloromethane	75-27-4	E611D	97.6 µg/L	100 µg/L	97.6	60.0	140	----
		Bromoform	75-25-2	E611D	95.1 µg/L	100 µg/L	95.1	60.0	140	----
		Bromomethane	74-83-9	E611D	69.6 µg/L	100 µg/L	69.6	60.0	140	----
		Carbon disulfide	75-15-0	E611D	84.6 µg/L	100 µg/L	84.6	60.0	140	----
		Carbon tetrachloride	56-23-5	E611D	79.7 µg/L	100 µg/L	79.7	60.0	140	----
		Chlorobenzene	108-90-7	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Chloroethane	75-00-3	E611D	82.4 µg/L	100 µg/L	82.4	60.0	140	----
		Chloroform	67-66-3	E611D	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Chloromethane	74-87-3	E611D	83.8 µg/L	100 µg/L	83.8	60.0	140	----
		Dibromochloromethane	124-48-1	E611D	95.0 µg/L	100 µg/L	95.0	60.0	140	----
		Dibromoethane, 1,2-	106-93-4	E611D	95.2 µg/L	100 µg/L	95.2	60.0	140	----
		Dichlorobenzene, 1,2-	95-50-1	E611D	101 µg/L	100 µg/L	101	60.0	140	----
		Dichlorobenzene, 1,3-	541-73-1	E611D	96.1 µg/L	100 µg/L	96.1	60.0	140	----
		Dichlorobenzene, 1,4-	106-46-7	E611D	97.2 µg/L	100 µg/L	97.2	60.0	140	----
		Dichlorodifluoromethane	75-71-8	E611D	89.0 µg/L	100 µg/L	89.0	60.0	140	----
		Dichloroethane, 1,1-	75-34-3	E611D	88.6 µg/L	100 µg/L	88.6	60.0	140	----
		Dichloroethane, 1,2-	107-06-2	E611D	93.3 µg/L	100 µg/L	93.3	60.0	140	----
		Dichloroethylene, 1,1-	75-35-4	E611D	89.8 µg/L	100 µg/L	89.8	60.0	140	----
		Dichloroethylene, cis-1,2-	156-59-2	E611D	92.6 µg/L	100 µg/L	92.6	60.0	140	----
		Dichloroethylene, trans-1,2-	156-60-5	E611D	87.6 µg/L	100 µg/L	87.6	60.0	140	----
		Dichloromethane	75-09-2	E611D	85.8 µg/L	100 µg/L	85.8	60.0	140	----
		Dichloropropane, 1,2-	78-87-5	E611D	98.7 µg/L	100 µg/L	98.7	60.0	140	----
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	98.8 µg/L	100 µg/L	98.8	60.0	140	----
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	95.4 µg/L	100 µg/L	95.4	60.0	140	----
		Ethylbenzene	100-41-4	E611D	94.7 µg/L	100 µg/L	94.7	60.0	140	----
		Hexane, n-	110-54-3	E611D	87.1 µg/L	100 µg/L	87.1	60.0	140	----
		Hexanone, 2-	591-78-6	E611D	93 µg/L	100 µg/L	93.2	60.0	140	----
		Methyl ethyl ketone [MEK]	78-93-3	E611D	95 µg/L	100 µg/L	95.2	60.0	140	----
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	98 µg/L	100 µg/L	98.2	60.0	140	----
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	94.2 µg/L	100 µg/L	94.2	60.0	140	----
		Styrene	100-42-5	E611D	92.2 µg/L	100 µg/L	92.2	60.0	140	----
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	91.3 µg/L	100 µg/L	91.3	60.0	140	----
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	94.5 µg/L	100 µg/L	94.5	60.0	140	----
		Tetrachloroethylene	127-18-4	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----
		Toluene	108-88-3	E611D	94.8 µg/L	100 µg/L	94.8	60.0	140	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 2252133) - continued										
WT2527390-001	Anonymous	Trichloroethane, 1,1,1-	71-55-6	E611D	92.7 µg/L	100 µg/L	92.7	60.0	140	----
		Trichloroethane, 1,1,2-	79-00-5	E611D	94.5 µg/L	100 µg/L	94.5	60.0	140	----
		Trichloroethylene	79-01-6	E611D	96.5 µg/L	100 µg/L	96.5	60.0	140	----
		Trichlorofluoromethane	75-69-4	E611D	87.0 µg/L	100 µg/L	87.0	60.0	140	----
		Vinyl chloride	75-01-4	E611D	81.5 µg/L	100 µg/L	81.5	60.0	140	----
		Xylene, m+p-	179601-23-1	E611D	189 µg/L	200 µg/L	94.6	60.0	140	----
		Xylene, o-	95-47-6	E611D	94.0 µg/L	100 µg/L	94.0	60.0	140	----

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Page

Environmental Division
Waterloo
Work Order Reference
WT2527391

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	Pinchin Ltd.	Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)	☐ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	Deana Bettencourt	Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minim
Phone:	226-338-0989	☐ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minim
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minim
Street:	225 Labrador Drive, Unit #1	Email 1 or Fax dbettencourt@Pinchin.com	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minim
City/Province:	Waterloo, Ontario	Email 2	Same day [E2] if received by 10am M-S - 200% rush surcharge
Postal Code:	N2K 4M8	Email 3	fees may apply to rush requests on weekends, statutory holidays
Invoice To	Same as Report To ☐ YES ☑ NO	Invoice Recipients	routine tests
	Copy of Invoice with Report ☑ YES ☐ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Company:	Pinchin Ltd.	Email 1 or Fax dbettencourt@Pinchin.com	For all tests with rush TATs requested, please
Contact:	Deana Bettencourt	Email 2 ap@pinchin.com	Analysis Re

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	PINC100 / West Perth	AFE/Cost Center:	PO#:
Job #:	West Perth Mitchell Domestic Groundwater Trip blank	Major/Minor Code:	Routing Code:
PO / AFE:	333568.002	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (ALS use only): WT2527391 AH

ALS Contact: Amanda Overholster

Sampler:

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS: VOC	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRI	SUSPECTED HAZARD (see not
	TRIPBLANK-102	26-Sep-25	15:05	Water	R				

Drinking Water (DW) Samples[1] (client use)	Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	GEL Planned Event
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☑ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☑ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				6.1			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date: 26-Sep-25	Time: 15:00	Received by:	Date:	Time:	Received by: AG	Date: 26-9-25	Time: 17:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

VW-97

APPENDIX F

Mitchell Domestic Landfill
Municipality of West Perth

Well	Top of Screen (masl)	Parameter	Monitoring Date																																			
			Dec-05	May-06	Oct-06	May-07	Sep-07	Jul-08	Oct-08	May-09	Sep-09	Feb-10	May-10	Sep-10	May-11	Sep-11	May-12	Sep-12	Apr-13	Sep-13	May-14	Sep-14	May-15	Sep-15	May-16	Sep-16	May-17	Sep-17	May-18	Sep-18	May-19	Sep-19	May-20	Sep-20	May-21	Sep-21	May-22	Sep-22	May-23	Sep-23	May-24	Sep-24	May-25	Sep-25
MW1	349.14	Liquid Elevation	**348.05**	**347.54**	**347.39**	**347.64**	**348.07**	**348.54**	**348.17**	**348.78**	**348.19**	**348.01**	**348.13**	**348.08**	**348.79**	**348.23**	351.98	349.78	**348.41**	349.29	350.49	**348.5**	**348.24**	**348.14**	**348.97**	**348.06**	**348.88**	**346.26**	**348.89**	**348.13**	**348.89**				**347.85**						**348.09**	**348.79**	
		CH4 (%)	**3.5**	**3**	**3.1**	**3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**	**3.1**	**3.3**	**3.3**	**0.2**	**3.2**	3.07	2.96	**3.3**	3.15	3.23	**5**	>5.0	>5.0	>5.0	>5.0	>5.0	>5.0	**5**	>5.0	**85**	64	>100	80	>100	65.5	75.5	69	>100	>100	87	>100	62.5	>100
MW2	344.65	Liquid Elevation	345.68	346.41	345.07	346.56	344.65		346.73	346.76	345.61	346.63	346.7	345.34	346.93	345.2	346.45	**344.55**	346.91	346.07	346.42	346.85	346.44	345.73	346.78	345.36	346.94	345.8	346.84	345.1	346.81	345.29	346.66	345.4	346.61	345.16	346.77	345.08	346.78	346.33	346.73	345.73	346.63	**345.19**
		CH4 (%)	0.01	0	0.01	0	0	0	0	0	0	0	0.01	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0.03	0	0	0	0	1.5	1	0	0	0	0.5	0	0	0	0	0	0
MW3S	342.23	Liquid Elevation	342.24	**341.53**	342.3	**341.51**	**340.97**	**341.55**	**341.71**	**341.72**	**341.39**	**341.69**	**341.97**	**341.42**	342.23	**341.55**	**341.62**	**341.46**	342.36	**341.68**	**341.59**	**342.06**	**341.71**	**341.55**	**341.81**	341.42	342.61	**341.6**	**341.96**	**341.48**	**342.05**	**341.46**	**341.77**	**341.50**	**341.74**	**341.59**	**341.99**	**341.42**	**341.95**	**341.68**	**341.99**	**341.49**	**341.79**	**341.6**
		CH4 (%)	0.01	**0**	0.005	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.005**	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	**0**
MW3D	324.95	Liquid Elevation	338.12	330.1	329.27	330.99	329.88	331.53	331.4	331.6			331.29	330.45	331.77	330.54	331.43	330.36	332.13	331.53	331.49	331.27	331.03	332.03	331.73	330.51	331.56	330.98	331	329.88	331.16	329.82	330.69	329.44	330.32	330	330.59	329.41	331.35	330.01	329.96	330.09	329.81	**328.92**
		CH4 (%)	0.01	0	0.005	0	0	0	0	0	0	0	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	**0**
MW4	346.69	Liquid Elevation	347.39	346.85	346.94	**346.67**	**346.11**	**346.67**	346.79	346.82	**346.06**	347.13	347.19	**346.28**	347.01	**346.13**	**346.52**	**345.7**	347.41	**346.46**	**346.57**	347.22	346.82	**346.28**	346.9	**345.8**	347.8	**346.22**	347.44	**345.84**	347.36	**345.79**	346.91	**346.01**	346.83	**345.88**	347.39	**345.64**	347.23	**346.47**	347.13	**346.09**	347.00	**345.66**
		CH4 (%)	0.005	0	0	**0**	**0**	**0**	0	0	**0**	0	0	**0**	0	**0**	**0**	**0**	0.01	**0**	**0**	0	**0**	**0**	0	**0**	0	**0**	0	**0**	1	**0.5**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
MW5S	342.73	Liquid Elevation				342.93	343.18	343.02	**342.54**		343.25		343.25	**342.59**	343.31	**342.51**	342.75	**342.02**	343.41	342.78	342.78	343.28	342.76	**342.45**	343.02	341.46	343.85	**342.84**	343.23	**340.65**	343.22	**341**	343.02	**341.93**	343.07	**341.13**	343.27	**340.73**	343.23	342.84	343.11	**342.42**	343.07	**342.23**
		CH4 (%)				0	0	0	**0**		0		0.005	**0**	0	**0.005**	0	**0**	0	**0**	0	0	0	**0**	0	**0**	0	0	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
MW5D	337.43	Liquid Elevation				337.45	340.38	340.15	339.85		339.99	339.65	340.25	339.61	339.99	339.01	340.29	340.1	339.97	340.4	339.98	339.67	340.27	339.21	340.28	339.93	340.2	338.58	340.19	338.83	339.93	339.22	339.9	339.94	340.01	338.6	340.06	339.92	339.86	339.72	**339.9**	**339.34**	
		CH4 (%)				0	0	0	0		0		0.005	0	0	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MW6S	346.09	Liquid Elevation				346.52	346.88	346.7	**345.61**		346.64		347.04	**345.76**	347.3	**345.5**	**345.65**	**344.8**	347	**345.5**	**345.73**	346.55	**345.53**	**344.76**	**345.75**	**344.13**	346.92	**345**	346.46	**344.34**	346.42	**344.13**	**345.8**	**344.04**	**345.71**	**344.51**	346.58	**343.84**	346.23	**345.18**	**346.04**	**344.52**	**345.49**	**344.33**
		CH4 (%)				0	0	0	**0**		0		0.005	**0**	0	**0.005**	0	**0**	0	**0**	0	0	**0**	0	**0**	0	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
MW6D	340.40	Liquid Elevation				345.93	346.42	346.11	345.11		346.27		346.27	345.17	346.5	344.95	345.04	344.3	346.14	344.95	345.08	345.71	344.86	344.3	345.09	343.8	345.7	344.57	345.62	343.99	345.49	343.77	345.02	343.66	345.03	344.068	345.53	343.57	345.28	344.57	345.21	344.08	344.88	**343.88**
		CH4 (%)				0	0	0	0		0		0.005	0	0	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MW7S	347.58	Liquid Elevation				348.65	349.14	349	**347.35**		349.47	348.56	349.7	**347.32**	347.58	**346.59**	349.57	**347.56**	347.67	349.28	347.68	**346.77**	348	**345.57**	349.63	**346.72**	349.31	**345.82**	349.26	**345.77**	348.38	**345.56**	348.24	**346.74**	349.42	**345.71**	349.25	348.69	347.59	**346.94**	348.26	**345.91**	
		CH4 (%)				0	0	0	**0**		0.005	0	0	**0.005**	0	**0**	0	**0**	0	0	0	**0**	0	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
MW7D	342.10	Liquid Elevation				347.39	348.23	347.95	346.76		348.11	347.56	348.55	346.68	346.79	346.02	348.4	346.89	347.11	347.7	346.81	346.04	347.19	345.38	348	346.21	348.08	345.64	348	345.48	347.06	345.52	347.1	346.18	347.84	345.39	347.71	346.85	348.92	346.21	**347.1**	**345.71**	
		CH4 (%)				0	0	0	0		0.005	0	0	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MW8/MW8-B	336.22	Liquid Elevation				342.87		343.04	342.37		342.97	342.2	343.11	343.41	343.69	342.76	344.06	343.68	343.77	Damaged	341.59	341.89	342.82	341.98	342.95	342.34	342.86	341.73	342.73	341.7	342.51	341.87	342.46	341.64	342.71	341.59	342.72	342.35	342.55	342.04	**342.55**	**341.57**	
		CH4 (%)				0	0	0	0		0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	1	0.5	0	0	0	0	0	0	0	0	0	0	**0.5**	0	
MW9S	347.36	Liquid Elevation				348.43	348.63	348.65	347.98	348.66	348.7	348.17	348.74	348.29	348.55	347.9	348.74	348.38	348.67	348.64	348.6	348.36	348.66	347.9	348.8	348.33	348.71	347.79	348.69	347.96	348.65	347.91	348.63	348.04	348.73	347.62	348.67	348.59	348.69	348.08	**348.58**	**347.71**	
		CH4 (%)				0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.5	0	0	0	1.5	0	0	0	0	0	0	25	0	
MW9D	341.19	Liquid Elevation				347.3	347.47	347.43	346.69	347.33	347.31	346.55	347.56	346.56	347.16	345.81	347.51	347.06	347.25	347.5	347.24	346.94	347.52	346.46	347.51	347.23	347.49	346.14	347.42	346.48	347.4	346.68	347.38	346.36	347.42	346.09	347.4	348.21	347.38	346.82	**347.25**	**346.18**	
		CH4 (%)				0	0	0	0		0.005	0	0	0	0	0	0	0	0	0	0	0.007	0	0	0	0	0.007	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0.5	0	
MW10S	343.19	Liquid Elevation				343.21	343.84	343.56	342.57		344.45	**342.07**	344.3	**341.52**	343.32	**340.93**	344.55	**342.57**	**342.77**	344.1	343.3	**342.3**	343.38	**341.04**	344.72	**341.86**	344.11	**340.75**	343.97	**341.03**	343.43	**340.82**	**342.47**	**340.91**	343.9	**340.76**	343.76	**342.58**	343.55	**341.71**	343.49	**341.03**	
		CH4 (%)				0	0	0	0		0.005	0	0	**0**	0	**0**	0	**0**	0	0	0	**0**	0	0	**0**	0	**0**	0	0	**0**	1	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**	0	**0**
MW10D	337.31	Liquid Elevation				341.6	341.83	341.49	340.56		341.74	340.27	341.8	340.16	341.09	339.34	341.99	340.9	341.36	341.82	341.16	340.56	341.41	339.74	340.89	340.61	340.69	339.65	341.61	340.61	341.26	339.77	341.29	339.95	341.56	339.55	341.53	341.15	341.41	340.46	**341.28**	339.92	
		CH4 (%)				0	0	0	0		0.005	0	0	0	0	0	0.005	0	0	0	0	0	0	0	0	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MW11S	346.72	Liquid Elevation				347.95	346.79	348.05	**346.59**	348.18	**346.28**	347.76	**345.54**	348.15	347.49	347.78	348.07	347.69	**346.71**	347.79	**346.35**	348.15	347.42	348.01	**345.70**	348.1	**346.45**	347.94	347.32	347.98	**345.23**	348.15	**346.21**	348.03	347.74	348	347.52	**347.88**	**346.98**	
		CH4 (%)				0	0	0.005	**0**	0	**0**	0	**0**	0.01	0	0	0	0	**0**	0	**0**	0	0	**0**	0	0	**0.5**	0	0	0	**0**	0	0	**0**	0	**0**	0	0	0	**0**	0	
MW11D	340.73	Liquid Elevation				346.9	345.77	346.91	345.52	347.04	345.34	346.65	344.33	346.97	346.21	346.87	346.98	346.68	345.81	346.91	345.18	346.96	346	346.88	344.75	346.86	345.12	346.77	345.52	346.77	345.11	346.87	344.71	346.85	346.5	346.83	345.8	**346.7**	**344.74**	
		CH4 (%)				0	0	0.005	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	2.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
GP1S	355.06	Liquid Elevation											0.005	**354.81**		355.14		355.29				**352.48**	355.34	355.15	355.32	355.14	**352.48**	355.43	355.08				355.35	355.09	355.53	355.43				355.28	**355.13**	**352.34**	
		CH4 (%)											0.005	**0.05**	0	0.04	0	0.02	0.05	0.06	0	0.4	0.005	> 5.0	0	0.4	> 5.0	0.0	0.0	85	11.5	6.0	7.5	35	18	0.0	0.0	65.0	85.0	30.0	2.0	27.5	**37.0**	
GP1D	352.01	Liquid Elevation												352.3		352.33		352.27					352.31	352.39	352.51	352.39		352.47	352.55						352.55	352.5				352.43		352.49	
		CH4 (%)											0.06	0.16	0	0.11	0.09	0.1	0.1	0.06	0.04	0	> 5.0	0	1.7	> 5.0	1.7	0	5	0.9	75					2.5	0	>100	>100				5.0	0.0	
GP2	345.56	Liquid Elevation																					**343.68**	**345.11**	345.61	**344.88**	346.41		346.32	**344.92**					346.09	**344.82**	345.75	345.62				**344.84**	**345.47**	**345.22**	
		CH4 (%)																					**0**	**0**	0	**0**	0	0.1	**0**	0	0	0	0.5	0	0	0	**0**	0	0	0	**0**	**0**	**0**	
GP3	344.45	Liquid Elevation																					**342.49**	**Dry**	**344.23**	**343.07**	344.54		**344.27**	Dry						**344.24**	Dry	**343.9**	**343.82**				**343.05**	**343.31**	**343.06**	
		CH4 (%)																					**0**	**0**	**0**	**0**	0.007	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	**0**	**0**	
GP4	349.96	Liquid Elevation																					**347.73**	**348.65**	**349.9**	**Dry**	350.48		350.17	**348.73**						350.23	Dry	350.22	Dry				**348.78**	**349.75**	**349.49**	
		CH4 (%)																					**0**	**0**	**0**	**0**	0.007	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**	

Notes: 1. mASL denotes metres above sea level.
2. CH_4 denotes methane gas.
3. Methane gas readings are expressed as percent volume in air until with the exception of 2019 to 2023, by which methane gas readings are expressed as percent of lower explosion limit from 2019 to 2023.
4. Gas readings are more representative of subsurface conditions when liquid level is within the screened interval.
5. **Bold** and shaded denotes that the liquid level is within the screened interval.
6. Blank denotes data not available.
7. Methane values were 0.1% volume in ambient air in 2013. Methane detections of 0.1% in 2013 are interpreted to be er

APPENDIX G

Landfill Site Inspection Form

Site: Domestic

Project Number: 333568.000

Client: West Perth

Date: May 13, 2025

Type of Inspection: Semi-Annual

Time: 9:00

Weather Conditions: Sunny.

Inspector(s): DH/ML.

Inspection Item	Y	N	Comments:
Signage at the Site entrance is present, in good condition, and visible from the roadway in front of the Site.	☒	☐	
Entrance gate for the Site is functional, and, when appropriate, closed and locked.	☒	☐	
Fencing and other control measures, where appropriate, are competent.	☒	☐	
Cover material on the waste mound, where applicable, is adequate.	☒	☐	
No general settlement areas or depressions on or adjacent to the waste mound.	☒	☐	
No presence of ponded water on or adjacent to the waste mount.	☒	☐	
No evidence of erosion, shear and tension cracks, or other compromises in the waste mound cover.	☒	☐	
No evidence of leachate seepage on or adjacent to the waste mound.	☒	☐	
No evidence of vegetative stress on or adjacent to the waste mound.	☒	☐	
No vermin, rodents, or scavenging animals observed at the Site.	☒	☐	
No evidence of vermin, etc. (e.g., burrows, tracks) observed on or adjacent to the waste mound.	☒	☐	
Surface water drainage works and SWM Ponds, where applicable, are competent.	☒	☐	
Monitoring installations for the Site are competent and, where applicable, locked.	☒	☐	
Site is generally clear of litter.	☒	☐	Some litter present in drain by SW2/SW3, MW2 and SWD.

Additional Comments

© 2019 Pinchin Ltd

THE PINCHIN GROUP

PINCHIN

Landfill Site Inspection Form

Site: Domestic

Client: Municipality of Wellington

Type of Inspection: Semi - annual

Weather Conditions: Rainy/Overcast

Project Number: 333568.000

Date: Sept. 24, 2005

Time: 9:00AM

Inspector(s): ML/DR.

Inspection Item	Y	N	Comments:
Signage at the Site entrance is present, in good condition, and visible from the roadway in front of the Site.	☒	☐	
Entrance gate for the Site is functional, and, when appropriate, closed and locked.	☒	☐	
Fencing and other control measures, where appropriate, are competent.	☒	☐	
Cover material on the waste mound, where applicable, is adequate.	☒	☐	
No general settlement areas or depressions on or adjacent to the waste mound.	☒	☐	
No presence of ponded water on or adjacent to the waste mount.	☒	☐	
No evidence of erosion, shear and tension cracks, or other compromises in the waste mound cover.	☒	☐	
No evidence of leachate seepage on or adjacent to the waste mound.	☒	☐	
No evidence of vegetative stress on or adjacent to the waste mound.	☒	☐	
No vermin, rodents, or scavenging animals observed at the Site.	☒	☐	
No evidence of vermin, etc. (e.g., burrows, tracks) observed on or adjacent to the waste mound.	☒	☐	
Surface water drainage works and SWM Ponds, where applicable, are competent.	☒	☐	
Monitoring installations for the Site are competent and, where applicable, locked.	☒	☐	
Site is generally clear of litter.	☐	☒	Litter present along N boundary + MW2

Additional Comments

Upturned trees located in vicinity of SW2 location. Municipality notified.

© 2019 Pinchin Ltd.

PG THE PINCHIN GROUP

APPENDIX H

Appendix D-Monitoring and Screening Checklist
General Information and Instructions

General Information: The checklist is to be completed, and submitted with the Monitoring Report.
Instructions: A complete checklist consists of:
(a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
(b) completed contact information for the Competent Environmental Practitioner (CEP)
(c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

Definition of Groundwater CEP:
For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:
(a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
(b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..
Definition of Surface water CEP:
A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

Monitoring Report and Site Information	
Waste Disposal Site Name	Mitchell Domestic Landfill
Location (e.g. street address, lot, concession)	Lot 19, Concession 1,in the former town of Mitchell, Ontario
GPS Location (taken within the property boundary at front gate/ front entry)	UTM Zone 17, Easting 482977 m, Northing 4814068 m
Municipality	Municipality of West Perth
Client and/or Site Owner	Corporation of the Municipality of West Perth
Monitoring Period (Year)	2025
This Monitoring Report is being submitted under the following:	
Certificate of Approval No.:	Waste ECA:A150401; Sewage ECA: 9685-88HQCC
Director's Order No.:	
Provincial Officer's Order No.:	
Other:	

Report Submission Frequency	◉ **Annual** ○ **Other**	Specify (Type Here):
The site is:	◉ **Active** ○ **Inactive** ○ **Closed**	
If closed, specify C of A, control or authorizing document closure date:		
Has the nature of the operations at the site changed during this monitoring period?	○ **Yes** ◉ **No**	
If yes, provide details:		
Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i. e. exceeded the LEL for methane)	○ Yes ◉ No	

Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:	(●) **Yes** ( ) **No**	
2) All groundwater, leachate and WDS gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by Certificate(s) of Approval or other relevant authorizing/control document(s):	( ) **Yes** (●) **No** ( ) **Not Applicable**	If no, list exceptions below or attach information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
MW1	Sampling of MW1 was not conducted as a result of high methane readings during venting at MW1	26-Sep-2025

3) a) Some or all groundwater, leachate and WDS gas sampling and monitoring requirements have been established or defined outside of a ministry C of A, authorizing, or control document.	◯ **Yes** ◉ **No** ◯ **Not Applicable**	
b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:	◯ **Yes** ◯ **No** ◉ **Not Applicable**	If no, list exceptions below or attach additional information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**

4) All field work for groundwater investigations was done in accordance with standard operating procedures as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ◯ **No**	

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.	(●) **Yes** ( ) **No**		
6) The site meets compliance and assessment criteria.	(●) **Yes** ( ) **No**	Monitoring well MW6S, MW10S and MW10D had trigger mechanism exceedances in September 2025 not indicative of a distinct landfill influence. Refer to Section 10.2.3 of the 2025 Annual Monitoring Report.	
7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.	(●) **Yes** ( ) **No**		
1) Is one or more of the following risk reduction practices in place at the site: ***(a)*** **There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/treatment; or** ***(b)*** **There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or** ***(c)*** **The site meets the following two conditions (typically achieved after 15 years or longer of site operation):** ***i.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/concentrations; and** ***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.**	(●) **Yes** ( ) **No**	**Note which practice(s):**	☐ **(a)** ☐ **(b)** ☒ **(c)**
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	( ) **Yes** (●) **No** ( ) **Not Applicable**	Calculated trigger concentrations were exceeded for select groundwater quality parameters in 2025 at compliance monitoring wells MW5S/D, MW6S, MW10S and MW11S/D. Continued monitoring should be completed to verify that these concentrations are not exhibiting an increasing trend of concern in the long term. No remedial actions are warranted based on the 2025 groundwater quality at the compliance monitoring wells.	

Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

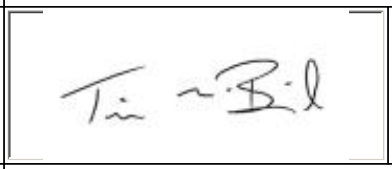
If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

25-Nov-2025

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

◉ **No changes to the monitoring program are recommended** ○ **The following change(s) to the monitoring program is/are recommended:**	
◉ **No Changes to site design and operation are recommended** ○ **The following change(s) to the site design and operation is/ are recommended:**	

Name:	Tim McBride		
Seal:	Add Image		
Signature:		**Date:**	25-Nov-2025
CEP Contact Information:	Tim McBride		
Company:	Pinchin		
Address:	662 Falconbridge Road, Suite #3 Sudbury, ON P3A 4S4		
Telephone No.:	705.521.0560	Fax No. :	
E-mail Address:	tmcbride@pinchin.com		
Co-signers for additional expertise provided:			
Signature:		**Date:**	Select Date
Signature:		**Date:**	Select Date

Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

Name (s)	McDougall Drain North Thames River
Distance(s)	McDougall Drain flows through the Site in a northeasterly direction toward North Thames River. North Thames River is located approximately 800m east of the Site.

Based on all available information and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	◉ Yes ○ No	
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the Certificate(s) of Approval or relevant authorizing/control document(s) (if applicable):	◉ Yes ○ No ○ **Not applicable (No C of A, authorizing / control document applies)**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date

3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry C of A or authorizing/control document.	◯ **Yes** ◉ **No** ◯ **Not Applicable**	
b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:	◯ **Yes** ◯ **No** ◉ **Not Applicable**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**

4) All field work for surface water investigations was done in accordance with standard operating procedures, including internal/external QA/QC requirements, as established/ outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ◯ **No**	

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):	○ **Yes** ◉ **No**

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table below or provide details in an attachment:

Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance or Assessment Criteria or Background Exceeded
e.g. Nickel	e.g. C of A limit, PWQO, background	e.g. X% above PWQO
SW1, SW2 and SW3: Refer to Table D-5 , Appendix D of 2025 Annual Monitoring Report, exceedances of the PWQO are bolded and shaded.	Refer to Table D-5 of Appendix D	Refer to Table D-5 of Appendix D
6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?	◉ **Yes** ○ **No**	For parameters that exceeded assessment or compliance criteria at the surface water monitoring stations in 2025 the historical analytical results have generally fluctuated with no apparent increasing or decreasing trend. As such, it appears that the surface water quality downstream of the Site is stable and not degrading as a result of a landfill leachate influence.

7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.	◉ **Yes** ○ **No**	For parameters that exceeded assessment or compliance criteria at the surface water monitoring stations in 2025, the historical analytical results have generally fluctuated with no apparent increasing or decreasing trend. As such, it appears that the surface water quality downstream of the Site is stable and not degrading as a result of a landfill leachate influence.
8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g. , PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):	◉ Yes ○ No ○ Not Known ○ Not Applicable	Groundwater quality naturally exceeds select PWQOs. Please refer to Section 10.2 of the 2025 Pinchin Annual Monitoring Report.
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	○ **Yes** ○ **No** ◉ **Not Applicable**	

Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Certificate of Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

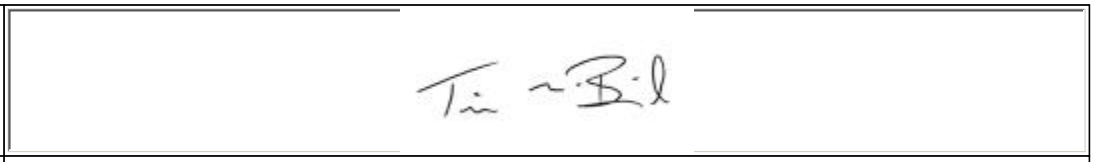
If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

25-Nov-2025

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

○ **No Changes to the monitoring program are recommended**	If the outlet valve of the South SWM Pond is to be re-opened, re-opening should not occur until sampling of the water within the South SWM Pond, for three (3) consecutive sampling events have confirmed acceptable water quality, pending approval of proposed modifications to the monitoring and evaluation requirements for stormwater quality within the South SWM Pond at the Site by RWDI as part of the 2018 RWDI Annual Monitoring Report. To prevent off-Site discharge of water over the emergency spillway of the South SWM Pond, the stormwater in the South SWM Pond should continue to be treated at the Mitchell Wastewater Treatment Facility.
◉ **The following change(s) to the monitoring program is/are recommended:**	It is recommended that surface water SW2 be sampled in duplicate during the 2025 semi-annual monitoring events, as part of the ongoing quality assurance and quality control component of the program, but also to confirm the trigger level exceedances quantified at these locations
◉ **No changes to the site design and operation are recommended**	
○ **The following change(s) to the site design and operation is/are recommended:**	

CEP Signature	
Relevant Discipline	Hydrogeologist
Date:	25-Nov-2025
CEP Contact Information:	Tim McBride
Company:	Pinchin
Address:	662 Falconbridge Road, Suite #3 Sudbury, Ontario, P3A 454
Telephone No.:	705.521.0560
Fax No. :	
E-mail Address:	tmcbride@pinchin.com

Save As **Print Form**