February 21, 2019 Reference No. 038443

Ms. Leslie Patterson
Remedial Project Manager
United States Environmental Protection Agency
Region V
77 West Jackson Boulevard
Mail Code SR-6J
Chicago, IL 60604

Ms. Tamara McPeek
Environmental Response and Revitalization
Ohio Environmental Protection Agency
Southwest District Office
401 East Fifth Street
Dayton, OH 45402

Dear Ms. Patterson and Ms. McPeek:

**Re: 2018 Groundwater Sampling Results**
**South Dayton Dump and Landfill Site, Moraine, Ohio (Site)**

This letter provides the results of the groundwater sampling conducted at the South Dayton Dump and Landfill Site (Site) and vicinity in March and October 2018. GHD has prepared this letter on behalf of the Respondents to the Administrative Settlement Agreement and Order on Consent (ASAOC) for Remedial Investigation / Feasibility Study (RI/FS) of the Site, Docket No. V-W-16-C-011 (Respondents).

The sampling event involved collection of groundwater samples from select monitoring wells on- and off-Site as described in the Remedial Investigation/Feasibility Study (RI/FS) Work Plan for Operable Units 1 and 2 (RI/FS Work Plan).

Groundwater samples were collected and analyzed as outlined below:

- GHD collected groundwater samples from 13 monitoring wells as follows:
  - One monitoring well (MW-214), which was previously inaccessible, was sampled on March 23, 2018
  - Three monitoring wells (MW-224A, MW-224B, MW-234) were sampled on October 16, 2018
  - Five monitoring wells (MW-209, MW-209A, MW-212, MW-217, MW-230) were sampled on October 17, 2018
  - Two monitoring wells (MW-233, MW-235) were sampled on October 18, 2018
  - One monitoring well (MW-223B) was sampled on October 24, 2018
  - One monitoring well (MW-223A) was sampled on October 25, 2018

- GHD measured groundwater elevation levels at all accessible monitoring wells in March and October 2018 prior to collecting groundwater samples, as well as in June and December 2018. Water level data are included in Attachment 1. Monitoring well locations are shown on Figure 1.
- Four of the monitoring wells listed above (MW-230, MW-233, MW-234, and MW-235) were installed in 2018 and two existing monitoring wells, (MW-217 located on Valley Asphalt and MW-223B located on Dayton Power & Light (DP&L)) were repaired on May 31, 2018 and September 6, 2018, respectively.
- Well development was completed on two repaired and four newly installed monitoring wells listed below. Well development and purging records and field logs are provided in Attachment 2.
  - MW-230 and MW-233 on August 9, 2018
  - MW-217, MW-234, and MW-235 from September 28 to 29, 2018
  - MW-223B on October 15, 2018.
- Low-flow purging was completed at rates between 200-500 milliliters per minute (mL/min) using a bladder pump with dedicated Teflon tubing, and with the pump intake set at the middle of each well screen interval. Field parameters were recorded to determine stabilization before sampling. The field parameters included dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, temperature, specific conductance, and turbidity. Monitoring well records for low-flow purging are provided in Attachment 3.
- GHD submitted 15 groundwater samples (including two field duplicates) to TestAmerica Laboratories in North Canton, Ohio for analysis of volatile organic compounds (VOCs) - Target Compound List (TCL) and Method SW-846 8011; semi-volatile organic compounds (SVOCs); pesticides; poly-chlorinated biphenyls (PCBs); Target Analyte List (TAL) metals including mercury (total and dissolved); major anions (chloride, nitrate, nitrite, sulfate); and cyanide. In addition, 13 of 15 samples were submitted for laboratory analysis of herbicides. Laboratory reports are available upon request.
- Sampling and analysis activities were conducted consistent with the project-specific Field Sampling Plan and Quality Assurance Project Plan.
- Purge water was containerized for management as investigation-derived waste (IDW) and is temporarily stored at the Site pending off-Site disposal.

The validated analytical results are summarized in Table 1 (full set of results) and Table 2 (summary of detected results), Tables 1 and 2 also present chemical-specific criteria as identified in the RI/FS Work Plan, for comparison. GHD validated the data and determined that the analytical results are acceptable for use with the qualifications. TestAmerica laboratory analytical reports and GHD data validation reports are available upon request.

The monitoring results are generally consistent with other groundwater sampling data (previous results and/or results from nearby locations) and do not suggest any changes are needed to the groundwater investigation approach described in the RI/FS Work Plan. The data will be incorporated into the project database for inclusion in the RI reporting deliverables.

Should you have any questions on the above, please do not hesitate to contact us.

Sincerely,

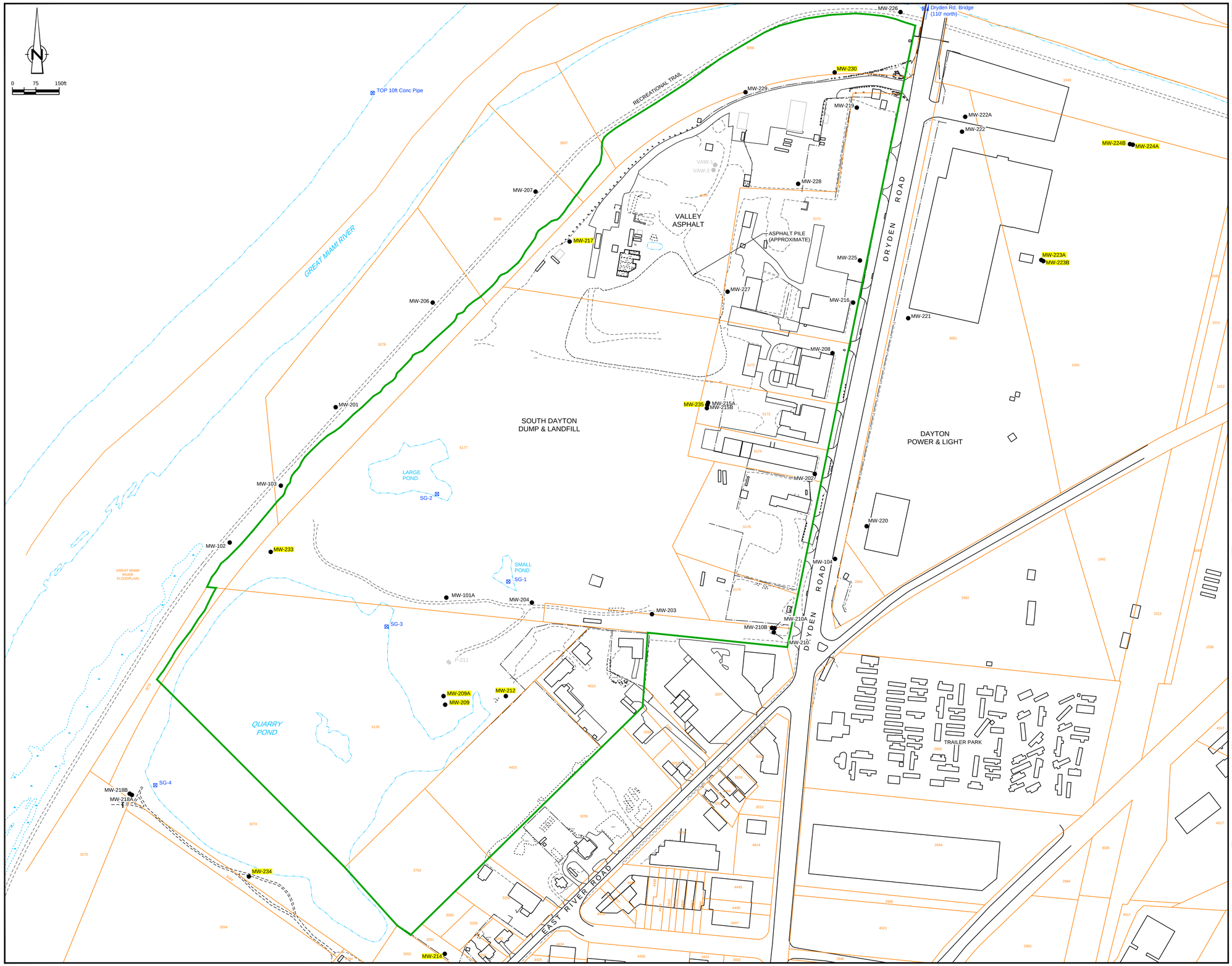
GHD

Julian Hayward

BR/kf/6

Encl.

cc: (all by pdf) Ken Brown, ITW
Bryan Heath, NCR
Wendell Barner, Barner Consulting
Jim Campbell, EMI
Andrew Dorn, ITW
Brett Fishwild, CH2M Hill
Valerie Chan, GHD




| Nº | Revision | Date | Initial |
|---|---|---|---|
| | | | |

## LEGEND

- EDGE OF WATER
- PARCEL BOUNDARY
- 3224 PARCEL NUMBER
- OPERABLE UNIT ONE (OU1) BOUNDARY (APPROXIMATE)
- MW-206 MONITORING WELL LOCATION
- MW-101 ABANDONED WELL LOCATION
- P-211 PIEZOMETER LOCATION
- SG-1 STAFF GAUGING LOCATION (SURVEYED)
- MONITORING WELL SAMPLED IN 2018

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

| Status | Date | Initial |
|---|---|---|
| | | |

# SOUTH DAYTON DUMP AND LANDFILL SITE
Moraine, Ohio

## 2018 MONITORING WELL SAMPLE LOCATIONS

GHD

Source Reference:

| Project Manager: | Reviewed By: | Date: DATE | |
|---|---|---|---|
| Scale: 1:150 | Project Nº: 38443-360 | Report Nº: PATT006 | Drawing Nº: figure 1 |

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**Table 1**

**Summary of Analytical Results**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| Sample Location: | | | | | | MW-209 | MW-209 | MW-209A | MW-212 | MW-214 | MW-214 | MW-217 | MW-223A | MW-223B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | | | | GW-38443-101718-AS-218 | GW-38443-101718-AS-219 | GW-38443-101718-AS-220 | GW-38443-101718-AS-222 | GW-38443-032318-GL-001 | GW-38443-032318-GL-002 | GW-38443-101718-JC-217 | GW-38443-102518-JC-227 | GW-38443-102418-JC-226 |
| Sample Date: | | | | USEPA VISLs [2] | | 10/17/2018 | 10/17/2018 | 10/17/2018 | 10/17/2018 | 3/23/2018 | 3/23/2018 | 10/17/2018 | 10/25/2018 | 10/24/2018 |
| | | USEPA MCL/Tapwater Source | USEPA MCL / Tapwater [1] | Protection of Indoor Air | | | Duplicate | | | | Duplicate | | | |
| Parameters | Units | | | Residential b | Commercial c | | | | | | | | | |
| | | | a | | | | | | | | | | | |
| **Volatiles** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | ug/L | MCL | 200 | 742 | 3110 | 0.24 U | 0.24 U | 0.24 U | 0.24 U | 0.23 U | 0.23 U | 0.24 U | 0.24 U | 1.2 U |
| 1,1,2,2-Tetrachloroethane | ug/L | Tap | 0.076 | 3.23 | 14.1 | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.32 U | 0.32 U | 0.13 U | 0.13 U | 0.65 U |
| 1,1,2-Trichloroethane | ug/L | MCL | 5 | 0.619 | 2.6 | 0.090 U | 0.090 U | 0.090 U | 0.090 U | 0.34 U | 0.34 U | 0.090 U | 0.090 U | 0.45 U |
| 1,1-Dichloroethane | ug/L | Tap | 2.8 | 7.64 | 33.4 | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.25 U | 0.25 U | 0.17 U | 0.38 J | 0.85 U |
| 1,1-Dichloroethene | ug/L | MCL | 7 | 19.5 | 82.1 | 0.19 U | 0.19 U | 0.19 U | 0.19 U | 0.27 U | 0.27 U | 0.19 U | 0.19 U | 0.95 U |
| 1,2,4-Trichlorobenzene | ug/L | MCL | 70 | 3.59 | 15.1 | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.27 U | 0.27 U | 0.26 U | 0.26 U | 1.3 U |
| 1,2-Dibromo-3-chloropropane (DBCP) | ug/L | MCL | 0.2 | 0.0281 | 0.34 | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U |
| 1,2-Dibromoethane (Ethylene dibromide) | ug/L | MCL | 0.05 | 0.176 | 0.769 | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U |
| 1,2-Dichlorobenzene | ug/L | MCL | 600 | 266 | 1120 | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.26 U | 0.26 U | 0.15 U | 0.15 U | 0.75 U |
| 1,2-Dichloroethane | ug/L | MCL | 5 | 2.24 | 9.78 | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.30 U | 0.30 U | 0.21 U | 0.21 U | 1.1 U |
| 1,2-Dichloropropane | ug/L | MCL | 5 | 3.62 | 15.2 | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.30 U | 0.30 U | 0.15 U | 0.15 U | 0.75 U |
| 1,3-Dichlorobenzene | ug/L | - | - | - | - | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.32 U | 0.32 U | 0.15 U | 0.15 U | 0.75 U |
| 1,4-Dichlorobenzene | ug/L | MCL | 75 | 2.59 | 11.3 | 0.16 U | 0.16 U | 0.16 U | 0.16 U | 0.23 U | 0.23 U | 0.16 U | 0.16 U | 0.80 U |
| 2-Butanone (Methyl ethyl ketone) (MEK) | ug/L | Tap | 560 | 224000 | 941000 | 1.2 U | 1.2 U | 1.2 U | 1.2 U | R | 1.0 U | 1.2 U | 1.2 U | 5.8 U |
| 2-Hexanone | ug/L | Tap | 3.8 | 821 | 3450 | 0.54 U | 0.54 U | 0.54 U | 0.54 U | 1.2 U | 1.2 U | 0.54 U | 0.54 U | 2.7 U |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK) | ug/L | Tap | 630 | 55500 | 233000 | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 0.71 U | 0.71 U | 0.42 U | 0.42 U | 2.1 U |
| Acetone | ug/L | Tap | 1400 | 2250000 | 9450000 | 5.4 U | 5.4 U | 5.4 U | 5.4 U | 1.8 U | 1.8 U | 5.4 U | 5.4 U | 27 U |
| Benzene | ug/L | MCL | 5 | 1.59 | 6.93 | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.28 U | 0.28 U | 0.13 U | 0.13 U | 0.65 U |
| Bromodichloromethane | ug/L | MCL | 80 | 0.876 | 3.82 | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.30 U | 0.30 U | 0.17 U | 0.17 U | 0.85 U |
| Bromoform | ug/L | MCL | 80 | 117 | 510 | 0.76 U | 0.76 U | 0.76 U | 0.76 U | 0.43 U | 0.43 U | 0.76 U | 0.76 U | 3.8 U |
| Bromomethane (Methyl bromide) | ug/L | Tap | 0.75 | 1.74 | 7.3 | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 2.1 U |
| Carbon disulfide | ug/L | Tap | 81 | 124 | 521 | 0.28 U | 0.28 U | 0.28 U | 0.28 U | 0.34 U | 0.34 U | 0.28 U | 0.28 U | 1.4 U |
| Carbon tetrachloride | ug/L | MCL | 5 | 0.415 | 1.81 | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.35 U | 0.35 U | 0.26 U | 0.26 U | 1.3 U |
| Chlorobenzene | ug/L | MCL | 100 | 41 | 172 | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 0.32 U | 0.32 U | 0.14 U | 0.14 U | 0.70 U |
| Chloroethane | ug/L | Tap | 2100 | 2300 | 9650 | 0.83 U | 0.83 U | 0.83 U | 0.83 U | 0.41 U | 0.41 U | 0.83 U | 0.83 U | 4.2 U |
| Chloroform (Trichloromethane) | ug/L | MCL | 80 | 0.814 | 3.55 | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.31 U | 0.31 U | 0.13 U | 0.13 U | 0.65 U |
| Chloromethane (Methyl chloride) | ug/L | Tap | 19 | 26 | 109 | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.43 U | 0.43 U | 0.20 U | 0.20 U | 1.0 U |
| cis-1,2-Dichloroethene | ug/L | MCL | 70 | - | - | 0.16 U | 0.16 U | 2.6 U | 0.16 U | 0.30 U | 0.30 U | 0.16 U | 1.1 | **130[a]** |
| cis-1,3-Dichloropropene | ug/L | - | - | - | - | 0.61 U | 0.61 U | 0.61 U | 0.61 U | 0.26 U | 0.26 U | 0.61 U | 0.61 U | 3.1 U |
| Cyclohexane | ug/L | Tap | 1300 | 102 | 429 | 0.24 U | 0.24 U | 0.24 U | 0.24 U | 0.44 U | 0.44 U | 0.24 U | 0.24 U | 1.2 U |
| Dibromochloromethane | ug/L | MCL | 80 | - | - | 0.39 U | 0.39 U | 0.39 U | 0.39 U | 0.25 U | 0.25 U | 0.39 U | 0.39 U | 2.0 U |
| Dichlorodifluoromethane (CFC-12) | ug/L | Tap | 20 | 0.744 | 3.12 | 0.35 U | 0.35 U | 0.35 U | 0.35 U | 0.50 U | 0.50 U | 0.35 U | 0.35 U | 1.8 U |
| Ethylbenzene | ug/L | MCL | 700 | 3.49 | 15.2 | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.26 U | 0.26 U | 0.11 U | 0.11 U | 0.55 U |
| Isopropyl benzene | ug/L | Tap | 45 | 88.7 | 373 | 0.090 U | 0.090 U | 0.090 U | 0.090 U | 0.21 U | 0.21 U | 0.090 U | 0.090 U | 0.45 U |
| m&p-Xylenes | ug/L | - | - | - | - | 0.080 U | 0.080 U | 0.080 U | 0.080 U | 0.24 U | 0.24 U | 0.080 U | 0.080 U | 0.40 U |
| Methyl acetate | ug/L | Tap | 2000 | - | - | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.4 UJ | 1.4 U | 1.7 U | 1.7 U | 8.6 U |
| Methyl cyclohexane | ug/L | - | - | - | - | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 0.45 U | 0.45 U | 0.33 U | 0.33 U | 1.7 U |
| Methyl tert butyl ether (MTBE) | ug/L | Tap | 14 | 450 | 1970 | 0.070 U | 0.070 U | 0.070 U | 0.070 U | 0.27 U | 0.27 U | 0.070 U | 0.070 U | 0.35 U |
| Methylene chloride | ug/L | MCL | 5 | 471 | 1980 | 2.6 U | 2.6 U | 2.6 U | 2.6 U | 0.53 U | 0.53 U | 2.6 U | 2.6 U | 13 U |
| o-Xylene | ug/L | Tap | 19 | 49.2 | 207 | 0.090 U | 0.090 U | 0.090 U | 0.090 U | 0.28 U | 0.28 U | 0.090 U | 0.090 U | 0.45 U |
| Styrene | ug/L | MCL | 100 | 928 | 3900 | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.23 U | 0.23 U | 0.10 U | 0.10 U | 0.50 U |
| Tetrachloroethene | ug/L | MCL | 5 | 5.76 | 24.2 | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.30 U | 0.30 U | 0.15 U | 0.15 U | 0.75 U |
| Toluene | ug/L | MCL | 1000 | 1920 | 8070 | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 0.23 U | 0.23 U | 0.14 U | 0.14 U | 0.70 U |
| trans-1,2-Dichloroethene | ug/L | MCL | 100 | - | - | 0.19 U | 0.19 U | 0.19 U | 0.19 U | 0.29 U | 0.29 U | 0.19 U | 0.19 U | 0.95 U |
| trans-1,3-Dichloropropene | ug/L | - | - | - | - | 0.67 U | 0.67 U | 0.67 U | 0.67 U | 0.31 U | 0.31 U | 0.67 U | 0.67 U | 3.4 U |
| Trichloroethene | ug/L | MCL | 5 | 0.518 | 2.18 | 3.7 U | 0.10 U | 0.10 U | 0.10 U | 0.33 U | 0.33 U | 0.10 U | **0.55 J[b]** | 0.50 U |
| Trichlorofluoromethane (CFC-11) | ug/L | Tap | 520 | - | - | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.50 U | 0.50 U | 0.45 U | 0.45 U | 2.3 U |
| Trifluorotrichloroethane (CFC-113) | ug/L | Tap | 1000 | 24.2 | 102 | 0.41 U | 0.41 U | 0.41 U | 0.41 U | 0.41 U | 0.41 U | 0.41 U | 0.41 U | 2.1 U |
| Vinyl chloride | ug/L | MCL | 2 | 0.147 | 2.45 | 0.20 U | 0.20 U | **3.8[abc]** | 0.20 U | **1.2[b]** | **1.1[b]** | 0.20 U | 0.20 U | **85[abc]** |
| Xylenes (total) | ug/L | MCL | 10000 | 38.5 | 162 | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.24 U | 0.24 U | 0.15 U | 0.15 U | 0.75 U |
| **Semi-Volatiles** | | | | | | | | | | | | | | |
| 2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether) | ug/L | Tap | 71 | - | - | 0.55 U | 0.52 U | 0.55 U | 0.52 U | 0.44 U | 0.40 U | 0.54 U | 0.55 U | 0.54 U |
| 2,4,5-Trichlorophenol | ug/L | Tap | 120 | - | - | 2.0 U | 1.9 U | 2.0 U | 1.9 U | 0.33 U | 0.30 U | 1.9 U | 2.0 U | 1.9 U |
| 2,4,6-Trichlorophenol | ug/L | Tap | 1.2 | - | - | 1.8 U | 1.7 U | 1.8 U | 1.7 U | 0.26 U | 0.24 U | 1.8 U | 1.8 U | 1.8 U |
| 2,4-Dichlorophenol | ug/L | Tap | 4.6 | - | - | 0.26 U | 0.25 U | 0.26 U | 0.25 U | 0.21 U | 0.19 U | 0.26 U | 0.26 U | 0.26 U |
| 2,4-Dimethylphenol | ug/L | Tap | 36 | - | - | 0.52 U | 0.49 U | 0.51 U | 0.49 U | 0.27 U | 0.25 U | 0.51 U | 0.51 U | 0.51 U |
| 2,4-Dinitrophenol | ug/L | Tap | 3.9 | - | - | 6.2 U | 5.9 U | 6.1 U | 5.9 U | 0.35 U | 0.32 U | 6.1 U | 6.1 U | 6.1 U |
| 2,4-Dinitrotoluene | ug/L | Tap | 0.24 | - | - | 2.1 U | 2.0 U | 2.0 U | 2.0 U | 0.27 U | 0.25 U | 2.0 U | 2.0 U | 2.0 U |
| 2,6-Dinitrotoluene | ug/L | Tap | 0.049 | - | - | 2.1 U | 2.0 U | 2.1 U | 2.0 U | 0.88 U | 0.80 U | 2.1 U | 2.1 U | 2.1 U |

**Table 1**

**Summary of Analytical Results**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| Sample Location: | | | | | | MW-209 | MW-209 | MW-209A | MW-212 | MW-214 | MW-214 | MW-217 | MW-223A | MW-223B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | | | | GW-38443-101718-AS-218 | GW-38443-101718-AS-219 | GW-38443-101718-AS-220 | GW-38443-101718-AS-222 | GW-38443-032318-GL-001 | GW-38443-032318-GL-002 | GW-38443-101718-JC-217 | GW-38443-102518-JC-227 | GW-38443-102418-JC-226 |
| Sample Date: | | | | USEPA VISLs [2] | | 10/17/2018 | 10/17/2018 | 10/17/2018 | 10/17/2018 | 3/23/2018 | 3/23/2018 | 10/17/2018 | 10/25/2018 | 10/24/2018 |
| | | USEPA MCL/Tapwater Source | USEPA MCL / Tapwater [1] | Protection of Indoor Air | | | Duplicate | | | | Duplicate | | | |
| Parameters | Units | | | Residential | Commercial | | | | | | | | | |
| | | | a | b | c | | | | | | | | | |
| 2-Chloronaphthalene | ug/L | Tap | 75 | - | - | 0.48 U | 0.46 U | 0.48 U | 0.46 U | 0.11 U | 0.10 U | 0.47 U | 0.48 U | 0.47 U |
| 2-Chlorophenol | ug/L | Tap | 9.1 | - | - | 0.27 U | 0.26 U | 0.27 U | 0.26 U | 0.32 U | 0.29 U | 0.27 U | 0.27 U | 0.27 U |
| 2-Methylnaphthalene | ug/L | Tap | 3.6 | - | - | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.099 U | 0.090 U | 0.11 U | 0.11 U | 0.11 U |
| 2-Methylphenol | ug/L | Tap | 93 | - | - | 0.21 U | 0.20 U | 0.21 U | 0.20 U | 0.19 U | 0.17 U | 0.20 U | 0.21 U | 0.20 U |
| 2-Nitroaniline | ug/L | Tap | 19 | - | - | 0.51 U | 0.49 U | 0.50 U | 0.49 U | 0.23 U | 0.21 U | 0.50 U | 0.50 U | 0.50 U |
| 2-Nitrophenol | ug/L | - | - | - | - | 0.56 U | 0.54 U | 0.56 U | 0.54 U | 0.31 U | 0.28 U | 0.55 U | 0.56 U | 0.55 U |
| 3&4-Methylphenol | ug/L | - | - | - | - | 0.19 U | 0.18 U | 0.19 U | 0.18 U | 0.88 U | 0.80 U | 0.19 U | 0.19 U | 0.19 U |
| 3,3'-Dichlorobenzidine | ug/L | Tap | 0.13 | - | - | 1.2 U | 1.1 U | 1.1 U | 1.1 U | 0.41 U | 0.37 U | R | 1.1 U | 1.1 U |
| 3-Nitroaniline | ug/L | - | - | - | - | 0.57 U | 0.54 U | 0.56 U | 0.54 U | 0.31 U | 0.28 U | 0.55 U | 0.56 U | 0.55 U |
| 4,6-Dinitro-2-methylphenol | ug/L | Tap | 0.15 | - | - | 2.8 U | 2.7 U | 2.8 U | 2.7 U | 2.6 U | 2.4 U | 2.8 U | 2.8 U | 2.8 U |
| 4-Bromophenyl phenyl ether | ug/L | - | - | - | - | 0.50 U | 0.48 U | 0.49 U | 0.48 U | 0.24 U | 0.22 U | 0.49 U | 0.49 U | 0.49 U |
| 4-Chloro-3-methylphenol | ug/L | Tap | 140 | - | - | 0.30 U | 0.28 U | 0.29 U | 0.28 U | 0.23 U | 0.21 U | 0.29 U | 0.29 U | 0.29 U |
| 4-Chloroaniline | ug/L | Tap | 0.37 | - | - | 0.32 U | 0.30 U | 0.31 U | 0.30 U | R | 0.21 U | 0.31 U | 0.31 U | 0.31 U |
| 4-Chlorophenyl phenyl ether | ug/L | - | - | - | - | 0.55 U | 0.52 U | 0.55 U | 0.52 U | 0.33 U | 0.30 U | 0.54 U | 0.55 U | 0.54 U |
| 4-Nitroaniline | ug/L | Tap | 3.8 | - | - | 0.92 U | 0.87 U | 0.91 U | 0.87 U | 0.24 U | 0.22 U | 0.90 U | 0.91 U | 0.90 U |
| 4-Nitrophenol | ug/L | - | - | - | - | 2.2 U | 2.1 U | 2.2 U | 2.1 U | 0.32 U | 0.29 U | 2.1 U | 2.2 U | 2.1 U |
| Acenaphthene | ug/L | Tap | 53 | - | - | 0.17 U | 0.16 U | 0.17 U | 0.16 U | 0.049 U | 0.044 U | 0.17 U | 0.17 U | 0.17 U |
| Acenaphthylene | ug/L | - | - | - | - | 0.13 U | 0.12 U | 0.12 U | 0.12 U | 0.053 U | 0.048 U | 0.12 U | 0.12 U | 0.12 U |
| Acetophenone | ug/L | Tap | 190 | - | - | 0.37 U | 0.35 U | 0.36 U | 0.35 U | 0.37 U | 0.34 U | 0.36 U | 0.36 U | 0.36 U |
| Anthracene | ug/L | Tap | 180 | - | - | 0.14 U | 0.13 U | 0.13 U | 0.13 U | 0.097 U | 0.088 U | 0.13 U | 0.13 U | 0.13 U |
| Atrazine | ug/L | MCL | 3 | - | - | 0.95 U | 0.91 U | 0.94 U | 0.91 U | 0.37 U | 0.34 U | 0.93 U | 0.94 U | 0.93 U |
| Benzaldehyde | ug/L | Tap | 19 | - | - | 0.76 U | 0.72 U | 0.75 U | 0.72 U | 0.43 U | 0.39 U | 0.74 U | 0.75 U | 0.74 U |
| Benzo(a)anthracene | ug/L | Tap | 0.03 | 34.4 | 417 | 0.17 U | 0.16 U | 0.17 U | 0.16 U | 0.032 U | 0.030 U | 0.17 U | 0.17 U | 0.17 U |
| Benzo(a)pyrene | ug/L | MCL | 0.2 | - | - | 0.17 U | 0.16 U | 0.17 U | 0.16 U | 0.056 U | 0.051 U | 0.17 U | 0.17 U | 0.17 U |
| Benzo(b)fluoranthene | ug/L | Tap | 0.25 | - | - | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.043 U | 0.039 U | 0.15 U | 0.15 U | 0.15 U |
| Benzo(g,h,i)perylene | ug/L | - | - | - | - | 0.18 U | 0.17 U | 0.18 U | 0.17 U | 0.051 U | 0.046 U | 0.17 U | 0.18 U | 0.17 U |
| Benzo(k)fluoranthene | ug/L | Tap | 2.5 | - | - | 0.14 U | 0.13 U | 0.14 U | 0.13 U | 0.049 U | 0.045 U | 0.14 U | 0.14 U | 0.14 U |
| Biphenyl (1,1-Biphenyl) | ug/L | Tap | 0.083 | 3.31 | 13.9 | 0.49 U | 0.47 U | 0.49 U | 0.47 U | 0.14 U | 0.13 U | 0.48 U | 0.49 U | 0.48 U |
| bis(2-Chloroethoxy)methane | ug/L | Tap | 5.9 | - | - | 0.46 U | 0.43 U | 0.45 U | 0.43 U | 0.35 U | 0.32 U | 0.45 U | 0.45 U | 0.45 U |
| bis(2-Chloroethyl)ether | ug/L | Tap | 0.014 | 12.2 | 53.5 | 0.40 U | 0.38 U | 0.40 U | 0.38 U | 0.11 U | 0.10 U | 0.39 U | 0.40 U | 0.39 U |
| bis(2-Ethylhexyl)phthalate (DEHP) | ug/L | MCL | 6 | - | - | 2.2 U | 2.1 U | 2.2 U | 2.1 U | 1.9 U | 1.7 U | **28 J[a]** | 2.2 U | 2.2 U |
| Butyl benzylphthalate (BBP) | ug/L | Tap | 16 | - | - | 0.67 U | 0.63 U | 0.66 U | 0.63 U | 0.29 U | 0.26 U | 0.65 U | 0.66 U | 0.65 U |
| Caprolactam | ug/L | Tap | 990 | - | - | 0.93 U | 0.89 U | 0.92 U | 0.89 U | 0.22 U | 0.20 U | 0.92 U | 0.92 U | 0.92 U |
| Carbazole | ug/L | - | - | - | - | 0.49 U | 0.47 U | 0.49 U | 0.47 U | 0.31 U | 0.28 U | 0.48 U | 0.49 U | 0.48 U |
| Chrysene | ug/L | Tap | 25 | - | - | 0.19 U | 0.18 U | 0.18 U | 0.18 U | 0.055 U | 0.050 U | 0.18 U | 0.18 U | 0.18 U |
| Dibenz(a,h)anthracene | ug/L | Tap | 0.025 | - | - | 0.15 U | 0.14 U | 0.15 U | 0.14 U | 0.049 U | 0.045 U | 0.15 U | 0.15 U | 0.15 U |
| Dibenzofuran | ug/L | Tap | 0.79 | - | - | 0.56 U | 0.53 U | 0.56 U | 0.53 U | 0.022 U | 0.020 U | 0.55 U | 0.56 U | 0.55 U |
| Diethyl phthalate | ug/L | Tap | 1500 | - | - | 3.8 U | 3.6 U | 3.8 U | 3.6 U | 0.66 U | 0.66 J | 3.7 U | 3.8 U | 3.7 U |
| Dimethyl phthalate | ug/L | - | - | - | - | 0.52 U | 0.49 U | 0.51 U | 0.49 U | 0.32 U | 0.29 U | 0.50 U | 0.51 U | 0.50 U |
| Di-n-butylphthalate (DBP) | ug/L | Tap | 90 | - | - | 1.8 U | 1.7 U | 1.8 U | 1.7 U | 1.9 U | 1.7 U | 1.8 U | 1.8 U | 1.8 U |
| Di-n-octyl phthalate (DnOP) | ug/L | Tap | 20 | - | - | 0.82 U | 0.78 U | 0.81 U | 0.78 U | 0.25 U | 0.23 U | 0.80 U | 0.81 U | 0.80 U |
| Fluoranthene | ug/L | Tap | 80 | - | - | 0.16 U | 0.15 U | 0.16 U | 0.15 U | 0.049 U | 0.045 U | 0.16 U | 0.16 U | 0.16 U |
| Fluorene | ug/L | Tap | 29 | - | - | 0.17 U | 0.16 U | 0.17 U | 0.16 U | 0.045 U | 0.041 U | 0.17 U | 0.17 U | 0.17 U |
| Hexachlorobenzene | ug/L | MCL | 1 | 0.0878 | 0.384 | 0.16 U | 0.15 U | 0.16 U | 0.15 U | 0.094 U | 0.085 U | 0.16 U | 0.16 U | 0.16 U |
| Hexachlorobutadiene | ug/L | Tap | 0.14 | 0.303 | 1.32 | 0.54 U | 0.52 U | 0.54 U | 0.52 U | 0.30 U | 0.27 U | 0.53 U | 0.54 U | 0.53 U |
| Hexachlorocyclopentadiene | ug/L | MCL | 50 | 0.0189 | 0.0794 | 1.8 U | 1.7 U | 1.7 U | 1.7 U | 0.26 U | 0.24 U | 1.7 U | 1.7 U | 1.7 U |
| Hexachloroethane | ug/L | Tap | 0.33 | 1.6 | 7.01 | 0.40 U | 0.38 U | 0.39 U | 0.38 U | 0.21 U | 0.19 U | 0.39 U | 0.39 U | 0.39 U |
| Indeno(1,2,3-cd)pyrene | ug/L | Tap | 0.25 | - | - | 0.14 U | 0.13 U | 0.13 U | 0.13 U | 0.048 U | 0.043 U | 0.13 U | 0.13 U | 0.13 U |
| Isophorone | ug/L | Tap | 78 | - | - | 0.32 U | 0.31 U | 0.32 U | 0.31 U | 0.30 U | 0.27 U | 0.32 U | 0.32 U | 0.32 U |
| Naphthalene | ug/L | Tap | 0.17 | 4.59 | 20.1 | 0.11 U | 0.10 U | 0.11 U | 0.10 U | 0.069 U | 0.063 U | 0.11 U | 0.11 U | 0.11 U |
| Nitrobenzene | ug/L | Tap | 0.14 | 71.5 | 312 | 0.51 U | 0.49 U | 0.51 U | 0.49 U | 0.044 U | 0.040 U | 0.50 U | 0.51 U | 0.50 U |
| N-Nitrosodi-n-propylamine | ug/L | Tap | 0.011 | - | - | 0.25 U | 0.24 U | 0.25 U | 0.24 U | 0.26 U | 0.24 U | 0.25 U | 0.25 U | 0.25 U |
| N-Nitrosodiphenylamine | ug/L | Tap | 12 | - | - | 0.44 U | 0.42 U | 0.44 U | 0.42 U | 0.34 U | 0.31 U | 0.43 U | 0.44 U | 0.43 U |
| Pentachlorophenol | ug/L | MCL | 1 | - | - | 3.1 U | 3.0 U | 3.1 U | 3.0 U | 0.30 U | 0.27 U | 3.0 U | 3.1 U | 3.0 U |
| Phenanthrene | ug/L | - | - | - | - | 0.17 U | 0.16 U | 0.17 U | 0.16 U | 0.068 U | 0.062 U | 0.16 U | 0.17 U | 0.16 U |
| Phenol | ug/L | Tap | 580 | - | - | 0.13 U | 0.12 U | 0.13 U | 0.12 U | 0.66 U | 0.60 U | 0.13 U | 0.13 U | 0.13 U |
| Pyrene | ug/L | Tap | 12 | - | - | 0.18 U | 0.17 U | 0.17 U | 0.17 U | 0.046 U | 0.042 U | 0.17 U | 0.17 U | 0.17 U |

**Table 1**

**Summary of Analytical Results**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| Sample Location: | | | | | | MW-209 | MW-209 | MW-209A | MW-212 | MW-214 | MW-214 | MW-217 | MW-223A | MW-223B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | | | | GW-38443-101718-AS-218 | GW-38443-101718-AS-219 | GW-38443-101718-AS-220 | GW-38443-101718-AS-222 | GW-38443-032318-GL-001 | GW-38443-032318-GL-002 | GW-38443-101718-JC-217 | GW-38443-102518-JC-227 | GW-38443-102418-JC-226 |
| Sample Date: | | | | USEPA VISLs [2] | | 10/17/2018 | 10/17/2018 | 10/17/2018 | 10/17/2018 | 3/23/2018 | 3/23/2018 | 10/17/2018 | 10/25/2018 | 10/24/2018 |
| | | USEPA MCL/Tapwater Source | USEPA MCL / Tapwater [1] | Protection of Indoor Air | | | Duplicate | | | | Duplicate | | | |
| Parameters | Units | | a | Residential b | Commercial c | | | | | | | | | |
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | ug/L | Tap | 2000 | - | - | 820 J | 320 J | 51 | 150 | 35 J | 34 U | 34 U | 34 U | 85 |
| Aluminum (dissolved) | ug/L | Tap | 2000 | - | - | 72 | 72 | 34 U | 34 U | 34 U | 34 U | 34 U | 34 U | 34 U |
| Antimony | ug/L | MCL | 6 | - | - | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U |
| Antimony (dissolved) | ug/L | MCL | 6 | - | - | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U |
| Arsenic | ug/L | MCL | 10 | - | - | 3.2 J | 2.6 J | 3.7 J | 1.1 J | 9.3 | 8.3 | 0.87 J | 0.75 U | 5.3 |
| Arsenic (dissolved) | ug/L | MCL | 10 | - | - | 2.7 J | 2.5 J | 4.3 J | 1.0 J | 8.2 | 8.1 | 0.75 U | 0.75 U | 5.4 |
| Barium | ug/L | MCL | 2000 | - | - | 290 | 280 | 360 | 370 | 150 | 150 | 97 | 180 | 140 |
| Barium (dissolved) | ug/L | MCL | 2000 | - | - | 290 | 270 | 370 | 400 | 150 | 150 | 89 | 170 | 130 |
| Beryllium | ug/L | MCL | 4 | - | - | 0.31 U | 0.31 U | 0.31 U | 0.31 U | 0.31 U | 0.31 U | 0.31 J | 0.31 U | 0.31 U |
| Beryllium (dissolved) | ug/L | MCL | 4 | - | - | 0.31 U | 0.31 U | 0.31 U | 0.31 U | 0.32 J | 0.31 U | 0.55 J | 0.31 U | 0.43 J |
| Cadmium | ug/L | MCL | 5 | - | - | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 1.3 | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| Cadmium (dissolved) | ug/L | MCL | 5 | - | - | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| Calcium | ug/L | - | - | - | - | 49000 | 46000 | 74000 | 22000 | 120000 | 120000 | 120000 | 150000 | 83000 |
| Calcium (dissolved) | ug/L | - | - | - | - | 48000 | 48000 | 76000 | 23000 | 120000 | 120000 | 110000 | 140000 | 83000 |
| Chromium | ug/L | MCL | 100 | - | - | 1.3 J | 0.98 U | 0.98 U | 2.1 | 1.5 J | 0.98 U | 0.98 U | 0.98 U | 0.98 U |
| Chromium (dissolved) | ug/L | MCL | 100 | - | - | 0.98 U | 0.98 U | 0.98 U | 0.98 U | 0.98 U | 0.98 U | 0.98 U | 0.98 U | 0.98 U |
| Cobalt | ug/L | Tap | 0.6 | - | - | **0.89 J[a]** | **0.69 J[a]** | **0.61 J[a]** | 0.33 J | **1.3[a]** | 0.19 U | **1.1[a]** | 0.19 U | 0.19 U |
| Cobalt (dissolved) | ug/L | Tap | 0.6 | - | - | **0.64 J[a]** | **0.64 J[a]** | **0.61 J[a]** | 0.25 J | 0.19 U | 0.19 U | **1.1[a]** | 0.19 U | 0.19 U |
| Copper | ug/L | MCL | 1300 | - | - | 1.8 J | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U |
| Copper (dissolved) | ug/L | MCL | 1300 | - | - | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U |
| Iron | ug/L | Tap | 1400 | - | - | **2000[a]** | 1200 | **2000[a]** | 640 | **3300[a]** | **3200[a]** | 200 | 47 U | **2900[a]** |
| Iron (dissolved) | ug/L | Tap | 1400 | - | - | 1000 | 1000 | **2000[a]** | 450 | **3200[a]** | **3100[a]** | 120 | 47 U | **2700[a]** |
| Lead | ug/L | MCL | 15 | - | - | 1.3 | 0.62 J | 0.45 U | 0.45 U | 1.9 | 0.45 U | 0.45 U | 0.45 U | 0.46 J |
| Lead (dissolved) | ug/L | MCL | 15 | - | - | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.45 U |
| Magnesium | ug/L | - | - | - | - | 20000 | 18000 | 48000 | 5800 | 48000 | 49000 | 110000 | 44000 | 33000 |
| Magnesium (dissolved) | ug/L | - | - | - | - | 19000 | 19000 | 48000 | 5900 | 48000 | 48000 | 100000 | 41000 | 33000 |
| Manganese | ug/L | Tap | 43 | - | - | **220[a]** | **210[a]** | **280[a]** | 36 | **230[a]** | **240[a]** | **710[a]** | 11 | **100[a]** |
| Manganese (dissolved) | ug/L | Tap | 43 | - | - | **220[a]** | **220[a]** | **290[a]** | 34 | **230[a]** | **230[a]** | **670[a]** | 11 | **100[a]** |
| Mercury | ug/L | MCL | 2 | 0.0889 | 0.373 | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U |
| Mercury (dissolved) | ug/L | MCL | 2 | 0.0889 | 0.373 | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U |
| Nickel | ug/L | Tap | 39 | - | - | 3.2 | 2.6 | 1.9 J | 2.3 | 2.2 | 1.5 U | 4.4 | 1.5 J | 1.5 U |
| Nickel (dissolved) | ug/L | Tap | 39 | - | - | 2.2 | 2.2 | 1.8 J | 1.5 J | 1.5 U | 1.5 U | 4.0 | 1.5 U | 1.5 U |
| Potassium | ug/L | - | - | - | - | 7200 | 6800 | 22000 | 21000 | 9700 | 9900 | 22000 | 8800 | 9500 |
| Potassium (dissolved) | ug/L | - | - | - | - | 7200 | 6800 | 22000 | 22000 | 9700 | 9700 | 21000 | 8300 | 9600 |
| Selenium | ug/L | MCL | 50 | - | - | 0.89 U | 0.89 U | 0.89 U | 0.89 U | 1.0 J | 0.89 U | 1.3 J | 13 | 0.89 U |
| Selenium (dissolved) | ug/L | MCL | 50 | - | - | 0.89 U | 0.89 U | 0.89 U | 0.89 U | 0.89 U | 0.89 U | 1.5 J | 12 | 0.89 U |
| Silver | ug/L | Tap | 9.4 | - | - | 0.51 J | 0.20 J | 0.88 J | 1.6 | 0.14 U | 0.053 U | 0.46 J | 2.0 | 2.9 |
| Silver (dissolved) | ug/L | Tap | 9.4 | - | - | 0.064 J | 0.072 J | 0.053 U | 0.053 U | 0.053 U | 0.053 U | 0.053 U | 0.44 J | 0.053 U |
| Sodium | ug/L | - | - | - | - | 66000 | 64000 | 71000 | 69000 | 78000 | 78000 | 78000 | 69000 | 31000 |
| Sodium (dissolved) | ug/L | - | - | - | - | 69000 | 67000 | 72000 | 72000 | 78000 | 78000 | 75000 | 66000 | 31000 |
| Thallium | ug/L | MCL | 2 | - | - | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.64 J | 0.20 U | 0.21 J | 0.32 J | 0.20 U |
| Thallium (dissolved) | ug/L | MCL | 2 | - | - | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.28 J | 0.20 U | 0.25 J | 0.30 J | 0.20 J |
| Vanadium | ug/L | Tap | 8.6 | - | - | 1.8 J | 0.82 U | 0.82 U | 0.82 U | 1.3 J | 0.82 U | 0.82 U | 0.82 U | 0.82 U |
| Vanadium (dissolved) | ug/L | Tap | 8.6 | - | - | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U |
| Zinc | ug/L | Tap | 600 | - | - | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U |
| Zinc (dissolved) | ug/L | Tap | 600 | - | - | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U |
| **PCBs** | | | | | | | | | | | | | | |
| Aroclor-1016 (PCB-1016) | ug/L | Tap | 0.14 | 17.2 | 75 | 0.054 U | 0.054 U | 0.055 U | 0.055 U | 0.056 U | 0.048 U | 0.054 U | 0.058 U | 0.054 U |
| Aroclor-1221 (PCB-1221) | ug/L | Tap | 0.0047 | 0.527 | 2.3 | 0.055 U | 0.055 U | 0.056 U | 0.056 U | 0.10 U | 0.086 U | 0.055 U | 0.059 U | 0.055 U |
| Aroclor-1232 (PCB-1232) | ug/L | Tap | 0.0047 | 0.163 | 0.713 | 0.071 U | 0.072 U | 0.073 U | 0.073 U | 0.078 U | 0.067 U | 0.071 U | 0.077 U | 0.071 U |
| Aroclor-1242 (PCB-1242) | ug/L | Tap | 0.0078 | 0.35 | 1.53 | 0.073 U | 0.074 U | 0.075 U | 0.075 U | 0.067 U | 0.057 U | 0.073 U | 0.079 U | 0.073 U |
| Aroclor-1248 (PCB-1248) | ug/L | Tap | 0.0078 | 0.273 | 1.19 | 0.048 U | 0.049 U | 0.050 U | 0.049 U | 0.056 U | 0.048 U | 0.048 U | 0.052 U | 0.048 U |
| Aroclor-1254 (PCB-1254) | ug/L | Tap | 0.0078 | 0.425 | 1.85 | 0.038 U | 0.039 U | 0.040 U | 0.039 U | 0.033 U | 0.029 U | 0.038 U | 0.042 U | 0.038 U |
| Aroclor-1260 (PCB-1260) | ug/L | Tap | 0.0078 | 0.358 | 1.56 | 0.044 U | 0.045 U | 0.046 U | 0.045 U | 0.044 U | 0.038 U | 0.044 U | 0.048 U | 0.044 U |

**Table 1**

**Summary of Analytical Results**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| Sample Location: | | | | | | MW-209 | MW-209 | MW-209A | MW-212 | MW-214 | MW-214 | MW-217 | MW-223A | MW-223B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | | | | GW-38443-101718-AS-218 | GW-38443-101718-AS-219 | GW-38443-101718-AS-220 | GW-38443-101718-AS-222 | GW-38443-032318-GL-001 | GW-38443-032318-GL-002 | GW-38443-101718-JC-217 | GW-38443-102518-JC-227 | GW-38443-102418-JC-226 |
| Sample Date: | | | | USEPA VISLs (2) | | 10/17/2018 | 10/17/2018 | 10/17/2018 | 10/17/2018 | 3/23/2018 | 3/23/2018 | 10/17/2018 | 10/25/2018 | 10/24/2018 |
| | | USEPA MCL/Tapwater Source | USEPA MCL / Tapwater (1) | Protection of Indoor Air | | | Duplicate | | | | Duplicate | | | |
| Parameters | Units | | a | Residential b | Commercial c | | | | | | | | | |
| **Herbicides** | | | | | | | | | | | | | | |
| 2,4,5-T | ug/L | Tap | 16 | - | - | 0.57 U | 0.57 U | 0.57 U | 0.57 U | - | - | 0.57 U | 0.57 U | 0.57 U |
| 2,4,5-TP (Silvex) | ug/L | MCL | 50 | - | - | 0.43 U | 0.43 U | 0.43 U | 0.43 U | - | - | 0.43 U | 0.43 U | 0.43 U |
| 2,4-Dichlorophenoxyacetic acid (2,4-D) | ug/L | MCL | 70 | - | - | 2.2 U | 2.2 U | 2.2 U | 2.2 U | - | - | 2.2 U | 2.2 U | 2.2 U |
| **Pesticides** | | | | | | | | | | | | | | |
| 4,4'-DDD | ug/L | Tap | 0.0063 | - | - | 0.0051 U | 0.0051 U | 0.0052 U | 0.10 U | 0.019 U | 0.017 U | 0.0051 U | 0.055 U | 0.0051 U |
| 4,4'-DDE | ug/L | Tap | 0.046 | 17 | 74.3 | 0.0041 U | 0.0042 U | 0.0043 U | 0.0042 U | 0.013 U | 0.012 U | 0.0041 U | 0.045 U | 0.0041 U |
| 4,4'-DDT | ug/L | Tap | 0.23 | - | - | 0.0046 U | 0.0047 U | 0.0048 U | 0.094 U | 0.018 U | 0.017 U | 0.0046 U | 0.050 U | 0.0046 U |
| Aldrin | ug/L | Tap | 0.00092 | 0.319 | 1.39 | 0.0023 U | 0.0023 U | 0.0024 U | 0.0024 U | 0.014 U | 0.013 U | 0.0023 U | 0.025 U | 0.0023 U |
| alpha-BHC | ug/L | Tap | 0.0072 | - | - | 0.0019 U | 0.0019 U | 0.0020 U | 0.039 U | 0.015 U | 0.014 U | 0.0019 U | 0.021 U | 0.0019 U |
| alpha-Chlordane | ug/L | - | - | - | - | 0.0031 U | 0.0031 U | 0.0032 U | 0.0031 U | 0.013 U | 0.012 U | 0.0031 U | 0.033 U | 0.0031 U |
| beta-BHC | ug/L | Tap | 0.025 | - | - | 0.0044 U | 0.0045 U | 0.0046 U | 0.0045 U | 0.019 U | 0.017 U | 0.0044 U | 0.048 U | 0.0044 U |
| delta-BHC | ug/L | - | - | - | - | 0.0041 U | 0.0042 U | 0.0043 U | 0.084 U | 0.030 U | 0.028 U | 0.0041 U | 0.045 U | 0.0041 U |
| Dieldrin | ug/L | Tap | 0.0018 | - | - | 0.0022 U | 0.0022 U | 0.0023 U | 0.0023 U | 0.014 U | 0.013 U | 0.0022 U | 0.024 U | 0.0022 U |
| Endosulfan I | ug/L | - | - | - | - | 0.0036 U | 0.0036 U | 0.0037 U | 0.0036 U | 0.017 U | 0.016 U | 0.0036 U | 0.039 U | 0.0036 U |
| Endosulfan II | ug/L | - | - | - | - | 0.0022 U | 0.0022 U | 0.0023 U | 0.0023 U | 0.016 U | 0.015 U | 0.0022 U | 0.024 U | 0.0022 U |
| Endosulfan sulfate | ug/L | - | - | - | - | 0.0036 U | 0.0036 U | 0.0037 U | 0.073 U | 0.016 U | 0.015 U | 0.0036 U | 0.039 U | 0.0036 U |
| Endrin | ug/L | MCL | 2 | - | - | 0.0024 U | 0.0024 U | 0.0025 U | 0.0025 U | 0.014 U | 0.013 U | 0.0024 U | 0.026 U | 0.0024 U |
| Endrin aldehyde | ug/L | - | - | - | - | 0.0044 U | 0.0045 U | 0.0046 U | 0.090 U | 0.019 U | 0.017 U | 0.0044 U | 0.048 U | 0.0044 U |
| Endrin ketone | ug/L | - | - | - | - | 0.0038 U | 0.0039 U | 0.0040 U | 0.0039 U | 0.017 U | 0.016 U | 0.0038 U | 0.042 U | 0.0038 U |
| gamma-BHC (lindane) | ug/L | MCL | 0.2 | - | - | 0.0024 U | 0.0024 U | 0.0025 U | 0.049 U | 0.014 U | 0.013 U | 0.0024 U | 0.026 U | 0.0024 U |
| gamma-Chlordane | ug/L | - | - | - | - | 0.0048 U | 0.0049 U | 0.0050 U | 0.0049 U | 0.014 U | 0.013 U | 0.0048 U | 0.052 U | 0.0048 U |
| Heptachlor | ug/L | MCL | 0.4 | 0.18 | 0.785 | 0.0032 U | 0.0032 U | 0.0033 U | 0.0032 U | 0.015 U | 0.014 U | 0.0032 U | 0.034 U | 0.0032 U |
| Heptachlor epoxide | ug/L | MCL | 0.2 | 1.26 | 5.49 | 0.0025 U | 0.0025 U | 0.0026 U | 0.0025 U | 0.016 U | 0.015 U | 0.0025 U | 0.027 U | 0.0025 U |
| Methoxychlor | ug/L | MCL | 40 | - | - | 0.0045 U | 0.0046 U | 0.0047 U | 0.0046 U | 0.014 U | 0.013 U | 0.0045 U | 0.049 U | 0.0045 U |
| Toxaphene | ug/L | MCL | 3 | - | - | 0.056 U | 0.056 U | 0.058 U | 0.057 U | 0.20 U | 0.19 U | 0.056 U | 0.61 U | 0.056 U |
| **General Chemistry** | | | | | | | | | | | | | | |
| Chloride | ug/L | - | - | - | - | 47000 | 47000 | 94000 | 33000 | 120000 | 140000 | 110000 | 110000 | 67000 |
| Cyanide (total) | mg/L | MCL | 0.2 | 0.0201 | 0.0844 | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U |
| Nitrate (as N) | ug/L | MCL | 10000 | - | - | 33 J | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U |
| Nitrite (as N) | ug/L | MCL | 1000 | - | - | 14 U | 14 U | 14 U | 14 U | 14 UJ | 14 UJ | 14 U | 14 U | 14 U |
| Sulfate | ug/L | - | - | - | - | 21000 | 21000 | 14000 | 37000 | 64000 | 64000 | 150000 | 90000 | 75000 |

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.

(1) USEPA, Regional Screening Levels (RSLs), November 2018. Target Cancer Risk (TR) of 1E-06, and Target Hazard Quotient (THQ) of 0.1

(2) OSWER Vapor Intrusion Assessment. Vapor Intrusion Screening Level (VISL) Calculator, Version 3.5, November 2018 RSLs. TR of 1E-06 and THQ of 0.1

**Table 1**

**Summary of Analytical Results**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| **Sample Location:** | | **MW-224A** | **MW-224B** | **MW-230** | **MW-233** | **MW-234** | **MW-235** |
|---|---|---|---|---|---|---|---|
| **Sample ID:** | | **GW-38443-101618-AS-215** | **GW-38443-101618-AS-214** | **GW-38443-101718-JC-221** | **GW-38443-101818-AS-225** | **GW-38443-101618-AS-216** | **GW-38443-101818-AS-224** |
| **Sample Date:** | | **10/16/2018** | **10/16/2018** | **10/17/2018** | **10/18/2018** | **10/16/2018** | **10/18/2018** |
| **Parameters** | **Units** | | | | | | |
| **Volatiles** | | | | | | | |
| 1,1,1-Trichloroethane | ug/L | 0.25 J | 0.24 U | 0.24 U | 0.24 U | 0.24 U | 16 U |
| 1,1,2,2-Tetrachloroethane | ug/L | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 8.7 U |
| 1,1,2-Trichloroethane | ug/L | 0.090 U | 0.090 U | 0.090 U | 0.090 U | 0.090 U | 6.0 U |
| 1,1-Dichloroethane | ug/L | 0.17 U | 0.49 J | 0.17 U | 0.17 U | 1.0 | 11 U |
| 1,1-Dichloroethene | ug/L | 0.19 U | 0.19 U | 0.19 U | 0.19 U | 0.19 U | 13 U |
| 1,2,4-Trichlorobenzene | ug/L | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 17 U |
| 1,2-Dibromo-3-chloropropane (DBCP) | ug/L | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U | 0.0086 U |
| 1,2-Dibromoethane (Ethylene dibromide) | ug/L | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U | 0.0087 U |
| 1,2-Dichlorobenzene | ug/L | 0.15 U | 0.15 U | 0.27 J | 0.15 U | 0.15 U | 10 U |
| 1,2-Dichloroethane | ug/L | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 14 U |
| 1,2-Dichloropropane | ug/L | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 10 U |
| 1,3-Dichlorobenzene | ug/L | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 10 U |
| 1,4-Dichlorobenzene | ug/L | 0.16 U | 0.16 U | 0.16 J | 0.16 U | 0.16 U | 11 U |
| 2-Butanone (Methyl ethyl ketone) (MEK) | ug/L | 1.2 U | 1.2 U | 1.2 U | 1.2 U | 1.2 U | 77 U |
| 2-Hexanone | ug/L | 0.54 U | 0.54 U | 0.54 U | 0.54 U | 0.54 U | 36 U |
| 4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK) | ug/L | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 28 U |
| Acetone | ug/L | 5.4 U | 5.4 U | 5.4 U | 5.4 U | 5.4 U | 360 U |
| Benzene | ug/L | 0.13 U | 0.13 U | **4.4[b]** | 0.13 U | 0.13 U | 8.7 U |
| Bromodichloromethane | ug/L | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 11 U |
| Bromoform | ug/L | 0.76 U | 0.76 U | 0.76 U | 0.76 U | 0.76 U | 51 U |
| Bromomethane (Methyl bromide) | ug/L | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 0.42 U | 28 U |
| Carbon disulfide | ug/L | 0.28 U | 0.28 U | 0.28 U | 0.28 U | 0.28 U | 19 U |
| Carbon tetrachloride | ug/L | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 17 U |
| Chlorobenzene | ug/L | 0.14 U | 0.14 U | 2.2 | 0.14 U | 0.14 U | 9.3 U |
| Chloroethane | ug/L | 0.83 UJ | 0.83 UJ | 0.83 U | 0.83 U | 0.83 UJ | 55 U |
| Chloroform (Trichloromethane) | ug/L | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 8.7 U |
| Chloromethane (Methyl chloride) | ug/L | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 13 U |
| cis-1,2-Dichloroethene | ug/L | 0.16 U | 0.74 J | 2.0 U | 0.36 J | 0.16 U | **1100[a]** |
| cis-1,3-Dichloropropene | ug/L | 0.61 U | 0.61 U | 0.61 U | 0.61 U | 0.61 U | 41 U |
| Cyclohexane | ug/L | 0.24 U | 0.24 U | 0.24 U | 0.24 U | 0.24 U | 16 U |
| Dibromochloromethane | ug/L | 0.39 U | 0.39 U | 0.39 U | 0.39 U | 0.39 U | 26 U |
| Dichlorodifluoromethane (CFC-12) | ug/L | 0.35 U | 0.35 U | 0.35 U | 0.35 U | 0.35 U | 23 U |
| Ethylbenzene | ug/L | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 7.3 U |
| Isopropyl benzene | ug/L | 0.090 U | 0.090 U | 0.090 U | 0.090 U | 0.090 U | 6.0 U |
| m&p-Xylenes | ug/L | 0.080 U | 0.080 U | 0.15 J | 0.080 U | 0.080 U | 5.3 U |
| Methyl acetate | ug/L | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 110 U |
| Methyl cyclohexane | ug/L | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 22 U |
| Methyl tert butyl ether (MTBE) | ug/L | 0.070 U | 0.070 U | 0.070 U | 0.070 U | 0.070 U | 4.7 U |
| Methylene chloride | ug/L | 2.6 U | 2.6 U | 2.6 U | 2.6 U | 2.6 U | 170 U |
| o-Xylene | ug/L | 0.090 U | 0.090 U | 0.25 J | 0.090 U | 0.090 U | 6.0 U |
| Styrene | ug/L | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 0.10 U | 6.7 U |
| Tetrachloroethene | ug/L | 0.15 U | 0.15 U | 0.15 U | 0.31 J | 0.15 U | 10 U |
| Toluene | ug/L | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 9.3 U |
| trans-1,2-Dichloroethene | ug/L | 0.19 U | 0.19 U | 0.19 U | 0.19 U | 0.19 U | 13 U |
| trans-1,3-Dichloropropene | ug/L | 0.67 U | 0.67 U | 0.67 U | 0.67 U | 0.67 U | 45 U |
| Trichloroethene | ug/L | 0.10 U | 0.10 U | 0.10 U | **1.9[b]** | 0.10 U | 6.7 U |
| Trichlorofluoromethane (CFC-11) | ug/L | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 30 U |
| Trifluorotrichloroethane (CFC-113) | ug/L | 0.41 UJ | 0.41 UJ | 0.41 U | 0.41 U | 0.41 UJ | 27 U |
| Vinyl chloride | ug/L | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | **620[abc]** |
| Xylenes (total) | ug/L | 0.15 U | 0.15 U | 0.40 J | 0.15 U | 0.15 U | 10 U |
| **Semi-Volatiles** | | | | | | | |
| 2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether) | ug/L | 0.53 U | 0.52 U | 0.55 U | 0.52 U | 0.52 U | 0.52 U |
| 2,4,5-Trichlorophenol | ug/L | 1.9 U | 1.9 U | 2.0 U | 1.9 U | 1.9 U | 1.9 U |
| 2,4,6-Trichlorophenol | ug/L | 1.7 U | 1.7 U | 1.8 U | 1.7 U | 1.7 U | 1.7 U |
| 2,4-Dichlorophenol | ug/L | 0.25 U | 0.25 U | 0.26 U | 0.25 U | 0.25 U | 0.25 U |
| 2,4-Dimethylphenol | ug/L | 0.50 U | 0.49 U | 0.51 U | 0.49 U | 0.49 U | 0.49 U |
| 2,4-Dinitrophenol | ug/L | 6.0 U | 5.9 U | 6.1 U | 5.9 U | 5.9 U | 5.9 U |
| 2,4-Dinitrotoluene | ug/L | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 2.0 U | 2.0 U |
| 2,6-Dinitrotoluene | ug/L | 2.1 U | 2.0 U | 2.1 U | 2.0 U | 2.0 U | 2.0 U |

**Table 1**

**Summary of Analytical Results**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| **Sample Location:** | | **MW-224A** | **MW-224B** | **MW-230** | **MW-233** | **MW-234** | **MW-235** |
|---|---|---|---|---|---|---|---|
| **Sample ID:** | | **GW-38443-101618-AS-215** | **GW-38443-101618-AS-214** | **GW-38443-101718-JC-221** | **GW-38443-101818-AS-225** | **GW-38443-101618-AS-216** | **GW-38443-101818-AS-224** |
| **Sample Date:** | | **10/16/2018** | **10/16/2018** | **10/17/2018** | **10/18/2018** | **10/16/2018** | **10/18/2018** |
| **Parameters** | **Units** | | | | | | |
| 2-Chloronaphthalene | ug/L | 0.47 U | 0.46 U | 0.48 U | 0.46 U | 0.46 U | 0.46 U |
| 2-Chlorophenol | ug/L | 0.27 U | 0.26 U | 0.27 U | 0.26 U | 0.26 U | 0.26 U |
| 2-Methylnaphthalene | ug/L | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U |
| 2-Methylphenol | ug/L | 0.20 U | 0.20 U | 0.21 U | 0.20 U | 0.20 U | 0.20 U |
| 2-Nitroaniline | ug/L | 0.50 U | 0.49 U | 0.50 U | 0.49 U | 0.49 U | 0.49 U |
| 2-Nitrophenol | ug/L | 0.55 U | 0.54 U | 0.56 U | 0.54 U | 0.54 U | 0.54 U |
| 3&4-Methylphenol | ug/L | 0.19 U | 0.18 U | 0.19 U | 0.18 U | 0.18 U | 0.18 U |
| 3,3'-Dichlorobenzidine | ug/L | 1.1 U | 1.1 U | 1.1 U | 1.1 U | 1.1 U | 1.1 U |
| 3-Nitroaniline | ug/L | 0.55 U | 0.54 U | 0.56 U | 0.54 U | 0.54 U | 0.54 U |
| 4,6-Dinitro-2-methylphenol | ug/L | 2.7 U | 2.7 U | 2.8 U | 2.7 U | 2.7 U | 2.7 U |
| 4-Bromophenyl phenyl ether | ug/L | 0.48 U | 0.48 U | 0.49 U | 0.48 U | 0.48 U | 0.48 U |
| 4-Chloro-3-methylphenol | ug/L | 0.29 U | 0.28 U | 0.29 U | 0.28 U | 0.28 U | 0.28 U |
| 4-Chloroaniline | ug/L | 0.31 U | 0.30 U | 0.31 U | 0.30 U | 0.30 U | 0.30 U |
| 4-Chlorophenyl phenyl ether | ug/L | 0.53 U | 0.52 U | 0.55 U | 0.52 U | 0.52 U | 0.52 U |
| 4-Nitroaniline | ug/L | 0.89 U | 0.87 U | 0.91 U | 0.87 U | 0.87 U | 0.87 U |
| 4-Nitrophenol | ug/L | 2.1 U | 2.1 U | 2.2 U | 2.1 U | 2.1 U | 2.1 U |
| Acenaphthene | ug/L | 0.17 U | 0.16 U | 0.17 U | 0.16 U | 0.16 U | 0.16 U |
| Acenaphthylene | ug/L | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U |
| Acetophenone | ug/L | 0.36 U | 0.35 U | 0.36 U | 0.35 U | 0.35 U | 0.35 U |
| Anthracene | ug/L | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U |
| Atrazine | ug/L | 0.92 U | 0.91 U | 0.94 U | 0.91 U | 0.91 U | 0.91 U |
| Benzaldehyde | ug/L | 0.74 U | 0.72 U | 0.75 U | 0.72 U | 0.72 U | 0.72 U |
| Benzo(a)anthracene | ug/L | 0.17 U | 0.16 U | 0.17 U | 0.16 U | 0.16 U | 0.16 U |
| Benzo(a)pyrene | ug/L | 0.17 U | 0.16 U | 0.17 U | 0.16 U | 0.16 U | 0.16 U |
| Benzo(b)fluoranthene | ug/L | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.15 U |
| Benzo(g,h,i)perylene | ug/L | 0.17 U | 0.17 U | 0.18 U | 0.17 U | 0.17 U | 0.17 U |
| Benzo(k)fluoranthene | ug/L | 0.14 U | 0.13 U | 0.14 U | 0.13 U | 0.13 U | 0.13 U |
| Biphenyl (1,1-Biphenyl) | ug/L | 0.48 U | 0.47 U | 0.49 U | 0.47 U | 0.47 U | 0.47 U |
| bis(2-Chloroethoxy)methane | ug/L | 0.44 U | 0.43 U | 0.45 U | 0.43 U | 0.43 U | 0.43 U |
| bis(2-Chloroethyl)ether | ug/L | 0.39 U | 0.38 U | 0.40 U | 0.38 U | 0.38 U | 0.38 U |
| bis(2-Ethylhexyl)phthalate (DEHP) | ug/L | 2.2 U | 2.1 U | 2.2 U | 2.1 U | 2.1 U | 2.1 U |
| Butyl benzylphthalate (BBP) | ug/L | 0.65 U | 0.63 U | 0.66 U | 0.63 U | 0.63 U | 0.63 U |
| Caprolactam | ug/L | 0.91 U | 0.89 U | 0.92 U | 0.89 U | 0.89 U | 0.89 U |
| Carbazole | ug/L | 0.48 U | 0.47 U | 0.49 U | 0.47 U | 0.47 U | 0.47 U |
| Chrysene | ug/L | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U |
| Dibenz(a,h)anthracene | ug/L | 0.15 U | 0.14 U | 0.15 U | 0.14 U | 0.14 U | 0.14 U |
| Dibenzofuran | ug/L | 0.54 U | 0.53 U | 0.56 U | 0.53 U | 0.53 U | 0.53 U |
| Diethyl phthalate | ug/L | 3.7 U | 3.6 U | 3.8 U | 3.6 U | 3.6 U | 3.6 U |
| Dimethyl phthalate | ug/L | 0.50 U | 0.49 U | 0.51 U | 0.49 U | 0.49 U | 0.49 U |
| Di-n-butylphthalate (DBP) | ug/L | 1.8 U | 1.7 U | 1.8 U | 1.7 U | 1.7 U | 1.7 U |
| Di-n-octyl phthalate (DnOP) | ug/L | 0.80 U | 0.78 U | 0.81 U | 0.78 U | 0.78 U | 0.78 U |
| Fluoranthene | ug/L | 0.16 U | 0.19 | 0.16 U | 0.15 U | 0.15 U | 0.15 U |
| Fluorene | ug/L | 0.16 U | 0.16 U | 0.17 U | 0.16 U | 0.16 U | 0.16 U |
| Hexachlorobenzene | ug/L | 0.16 U | 0.15 U | 0.16 U | 0.15 U | 0.15 U | 0.15 U |
| Hexachlorobutadiene | ug/L | 0.53 U | 0.52 U | 0.54 U | 0.52 U | 0.52 U | 0.52 U |
| Hexachlorocyclopentadiene | ug/L | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U |
| Hexachloroethane | ug/L | 0.38 U | 0.38 U | 0.39 U | 0.38 U | 0.38 U | 0.38 U |
| Indeno(1,2,3-cd)pyrene | ug/L | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U |
| Isophorone | ug/L | 0.31 U | 0.31 U | 0.32 U | 0.31 U | 0.31 U | 0.31 U |
| Naphthalene | ug/L | 0.11 U | 0.10 U | 0.11 U | 0.10 U | 0.10 U | 0.10 U |
| Nitrobenzene | ug/L | 0.50 U | 0.49 U | 0.51 U | 0.49 U | 0.49 U | 0.49 U |
| N-Nitrosodi-n-propylamine | ug/L | 0.25 U | 0.24 U | 0.25 U | 0.24 U | 0.24 U | 0.24 U |
| N-Nitrosodiphenylamine | ug/L | 0.43 U | 0.42 U | 0.44 U | 0.42 U | 0.42 U | 0.42 U |
| Pentachlorophenol | ug/L | 3.0 U | 3.0 U | 3.1 U | 3.0 U | 3.0 U | 3.0 U |
| Phenanthrene | ug/L | 0.16 U | 0.16 U | 0.17 U | 0.16 U | 0.16 U | 0.16 U |
| Phenol | ug/L | 0.12 U | 0.12 U | 0.13 U | 0.12 U | 0.12 U | 0.12 U |
| Pyrene | ug/L | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.17 U |

**Table 1**

**Summary of Analytical Results**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| **Sample Location:** | | **MW-224A** | **MW-224B** | **MW-230** | **MW-233** | **MW-234** | **MW-235** |
|---|---|---|---|---|---|---|---|
| **Sample ID:** | | **GW-38443-101618-AS-215** | **GW-38443-101618-AS-214** | **GW-38443-101718-JC-221** | **GW-38443-101818-AS-225** | **GW-38443-101618-AS-216** | **GW-38443-101818-AS-224** |
| **Sample Date:** | | **10/16/2018** | **10/16/2018** | **10/17/2018** | **10/18/2018** | **10/16/2018** | **10/18/2018** |
| **Parameters** | **Units** | | | | | | |
| **Metals** | | | | | | | |
| Aluminum | ug/L | 34 U | 260 | **2100[a]** | 34 U | 240 | 46 J |
| Aluminum (dissolved) | ug/L | 34 U | 34 U | 78 | 34 U | 34 U | 34 U |
| Antimony | ug/L | 1.4 J | 0.57 U | 0.57 U | 3.0 | 0.57 U | 0.57 U |
| Antimony (dissolved) | ug/L | 1.3 J | 0.57 U | 0.57 U | 3.1 | 0.57 U | 0.57 U |
| Arsenic | ug/L | 2.2 J | 7.5 | 4.2 J | 0.75 U | 1.1 J | 3.2 J |
| Arsenic (dissolved) | ug/L | 2.9 J | 6.9 | 2.1 J | 0.75 U | 0.75 U | 3.0 J |
| Barium | ug/L | 180 | 160 | 2000 | 200 | 120 | 190 |
| Barium (dissolved) | ug/L | 170 | 150 | 1900 | 200 | 120 | 180 |
| Beryllium | ug/L | 0.33 J | 0.59 J | 0.31 U | 0.31 U | 0.31 U | 0.63 J |
| Beryllium (dissolved) | ug/L | 0.31 U | 0.41 J | 0.31 U | 0.31 U | 0.31 U | 0.86 J |
| Cadmium | ug/L | 0.21 U | 0.21 J | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| Cadmium (dissolved) | ug/L | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| Calcium | ug/L | 170000 | 97000 | 170000 | 97000 | 59000 | 130000 |
| Calcium (dissolved) | ug/L | 160000 | 94000 | 150000 | 98000 | 57000 | 130000 |
| Chromium | ug/L | 0.98 U | 1.2 J | 4.3 | 0.98 U | 0.98 U | 1.8 J |
| Chromium (dissolved) | ug/L | 0.98 U | 0.98 U | 0.98 U | 0.98 U | 0.98 U | 0.98 U |
| Cobalt | ug/L | 0.19 U | 0.25 J | **8.4[a]** | 0.30 J | 0.39 J | **1.0[a]** |
| Cobalt (dissolved) | ug/L | 0.19 U | 0.19 U | **7.0[a]** | 0.29 J | 0.23 J | **0.92 J[a]** |
| Copper | ug/L | 1.7 U | 1.8 J | 17 | 1.8 J | 1.9 J | 1.7 U |
| Copper (dissolved) | ug/L | 1.7 U | 1.7 U | 1.8 J | 4.5 J | 1.7 U | 1.7 U |
| Iron | ug/L | 47 U | **2500[a]** | **3700[a]** | 56 J | 540 | **6900[a]** |
| Iron (dissolved) | ug/L | 47 U | **1900[a]** | 820 | 47 U | 47 U | **6700[a]** |
| Lead | ug/L | 0.45 U | 1.4 | 3.4 | 0.45 U | 0.50 J | 0.45 U |
| Lead (dissolved) | ug/L | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.45 U | 0.45 U |
| Magnesium | ug/L | 41000 | 34000 | 53000 | 37000 | 25000 | 55000 |
| Magnesium (dissolved) | ug/L | 39000 | 33000 | 48000 | 37000 | 24000 | 54000 |
| Manganese | ug/L | 2.1 U | **120[a]** | **2600[a]** | 2.5 J | **53[a]** | **100[a]** |
| Manganese (dissolved) | ug/L | 2.1 U | **100[a]** | **2400[a]** | 2.1 U | **46[a]** | **100[a]** |
| Mercury | ug/L | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U |
| Mercury (dissolved) | ug/L | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U |
| Nickel | ug/L | 1.5 U | 3.2 | 26 | 1.5 U | 1.5 J | 2.1 |
| Nickel (dissolved) | ug/L | 1.5 U | 1.5 U | 22 | 1.5 U | 1.5 U | 1.5 U |
| Potassium | ug/L | 12000 | 3000 | 12000 | 8300 | 6300 | 15000 |
| Potassium (dissolved) | ug/L | 11000 | 3000 | 11000 | 8300 | 6200 | 15000 |
| Selenium | ug/L | **60[a]** | 0.97 J | 0.89 U | 1.8 J | 0.89 U | 0.89 U |
| Selenium (dissolved) | ug/L | **60[a]** | 0.89 U | 0.89 U | 1.9 J | 0.89 U | 0.89 U |
| Silver | ug/L | 0.24 J | **23[a]** | 0.053 U | 0.053 U | 0.053 U | 0.053 U |
| Silver (dissolved) | ug/L | 0.053 U | 3.2 | 0.053 U | 0.053 U | 0.053 U | 0.053 U |
| Sodium | ug/L | 160000 | 33000 | 68000 | 28000 | 25000 | 78000 |
| Sodium (dissolved) | ug/L | 160000 | 33000 | 65000 | 28000 | 24000 | 76000 |
| Thallium | ug/L | 0.49 J | 0.21 J | 0.70 J | 0.20 U | 0.20 U | 0.20 U |
| Thallium (dissolved) | ug/L | 0.48 J | 0.20 U | 0.57 J | 0.20 U | 0.20 U | 0.20 U |
| Vanadium | ug/L | 3.2 J | 0.82 U | 5.3 | 0.82 U | 0.82 U | 0.82 U |
| Vanadium (dissolved) | ug/L | 3.2 J | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U |
| Zinc | ug/L | 15 U | 15 U | 26 | 15 U | 15 U | 15 U |
| Zinc (dissolved) | ug/L | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U |
| **PCBs** | | | | | | | |
| Aroclor-1016 (PCB-1016) | ug/L | 0.053 U | 0.053 U | 0.055 U | 0.057 U | 0.053 U | 0.054 U |
| Aroclor-1221 (PCB-1221) | ug/L | 0.054 U | 0.054 U | 0.056 U | 0.058 U | 0.054 U | 0.055 U |
| Aroclor-1232 (PCB-1232) | ug/L | 0.070 U | 0.070 U | 0.073 U | 0.076 U | 0.070 U | 0.072 U |
| Aroclor-1242 (PCB-1242) | ug/L | 0.072 U | 0.072 U | 0.075 U | 0.078 U | 0.072 U | 0.074 U |
| Aroclor-1248 (PCB-1248) | ug/L | 0.048 U | 0.048 U | 0.050 U | 0.051 U | 0.048 U | 0.049 U |
| Aroclor-1254 (PCB-1254) | ug/L | 0.038 U | 0.038 U | 0.040 U | 0.041 U | 0.038 U | 0.039 U |
| Aroclor-1260 (PCB-1260) | ug/L | 0.044 U | 0.044 U | 0.046 U | 0.047 U | 0.044 U | 0.045 U |

**Table 1**

**Summary of Analytical Results**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| **Sample Location:** | | **MW-224A** | **MW-224B** | **MW-230** | **MW-233** | **MW-234** | **MW-235** |
|---|---|---|---|---|---|---|---|
| **Sample ID:** | | **GW-38443-101618-AS-215** | **GW-38443-101618-AS-214** | **GW-38443-101718-JC-221** | **GW-38443-101818-AS-225** | **GW-38443-101618-AS-216** | **GW-38443-101818-AS-224** |
| **Sample Date:** | | **10/16/2018** | **10/16/2018** | **10/17/2018** | **10/18/2018** | **10/16/2018** | **10/18/2018** |
| **Parameters** | **Units** | | | | | | |
| **Herbicides** | | | | | | | |
| 2,4,5-T | ug/L | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U |
| 2,4,5-TP (Silvex) | ug/L | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U | 0.43 U |
| 2,4-Dichlorophenoxyacetic acid (2,4-D) | ug/L | 2.2 U | 2.2 U | 2.2 U | 2.2 U | 2.2 U | 2.2 U |
| **Pesticides** | | | | | | | |
| 4,4'-DDD | ug/L | 0.0051 U | 0.025 U | 0.0052 U | 0.0054 U | 0.0051 U | 0.0051 U |
| 4,4'-DDE | ug/L | 0.0041 U | 0.020 U | 0.0043 U | 0.0044 U | 0.0041 U | 0.0042 U |
| 4,4'-DDT | ug/L | 0.0046 U | 0.023 U | 0.0048 U | 0.0049 U | 0.0046 U | 0.0047 U |
| Aldrin | ug/L | 0.0023 U | 0.011 U | 0.0024 U | 0.0024 U | 0.0023 U | 0.0023 U |
| alpha-BHC | ug/L | 0.0019 U | 0.0095 U | 0.0020 U | 0.0020 U | 0.0019 U | 0.0019 U |
| alpha-Chlordane | ug/L | 0.0031 U | 0.015 U | 0.0032 U | 0.0033 U | 0.0031 U | 0.0031 U |
| beta-BHC | ug/L | 0.0044 U | 0.022 U | 0.0046 U | 0.0047 U | 0.0044 U | 0.0045 U |
| delta-BHC | ug/L | 0.0041 U | 0.020 U | 0.0043 U | 0.0044 U | 0.0041 U | 0.0042 U |
| Dieldrin | ug/L | 0.0022 U | 0.011 U | 0.0023 U | 0.0023 U | 0.0022 U | 0.0022 U |
| Endosulfan I | ug/L | 0.0036 U | 0.018 U | 0.0037 U | 0.0038 U | 0.0036 U | 0.0036 U |
| Endosulfan II | ug/L | 0.0022 U | 0.011 U | 0.0023 U | 0.0023 U | 0.0022 U | 0.0022 U |
| Endosulfan sulfate | ug/L | 0.0036 U | 0.018 U | 0.0037 U | 0.0038 U | 0.0036 U | 0.0036 U |
| Endrin | ug/L | 0.0024 U | 0.012 U | 0.0025 U | 0.0026 U | 0.0024 U | 0.0024 U |
| Endrin aldehyde | ug/L | 0.0044 U | 0.022 U | 0.0046 U | 0.0047 U | 0.0044 U | 0.0045 U |
| Endrin ketone | ug/L | 0.0038 U | 0.019 U | 0.0040 U | 0.0041 U | 0.0038 U | 0.0039 U |
| gamma-BHC (lindane) | ug/L | 0.0024 U | 0.012 U | 0.0025 U | 0.0026 U | 0.0024 U | 0.0024 U |
| gamma-Chlordane | ug/L | 0.0048 U | 0.024 U | 0.0050 U | 0.0051 U | 0.0048 U | 0.0049 U |
| Heptachlor | ug/L | 0.0032 U | 0.016 U | 0.0033 U | 0.0034 U | 0.0032 U | 0.0032 U |
| Heptachlor epoxide | ug/L | 0.0025 U | 0.012 U | 0.0026 U | 0.0027 U | 0.0025 U | 0.0025 U |
| Methoxychlor | ug/L | 0.0045 U | 0.022 U | 0.0047 U | 0.0048 U | 0.0045 U | 0.0046 U |
| Toxaphene | ug/L | 0.056 U | 0.28 U | 0.058 U | 0.059 U | 0.056 U | 0.056 U |
| **General Chemistry** | | | | | | | |
| Chloride | ug/L | 310000 | 63000 | 120000 | 36000 | 33000 | 100000 |
| Cyanide (total) | mg/L | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | **0.028**[b] |
| Nitrate (as N) | ug/L | 2600 | 14 U | 14 U | 1300 | 14 U | 14 U |
| Nitrite (as N) | ug/L | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U |
| Sulfate | ug/L | 140000 | 62000 | 15000 | 46000 | 26000 | 76000 |

Notes:

J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.

(1) USEPA, Regional Screening Levels (RSLs), November 2018. Target Cancer Risk (TR) of 1E-06, and Target Hazard Quotient (THQ) of 0.1

(2) OSWER Vapor Intrusion Assessment. Vapor Intrusion Screening Level (VISL) Calculator, Version 3.5, November 2018 RSLs. TR of 1E-06 and THQ of 0.1

**Table 2**

**Summary of Detected Parameters**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| Sample Location: | | | | | | MW-209 | MW-209 | MW-209A | MW-212 | MW-214 | MW-214 | MW-217 | MW-223A | MW-223B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID: | | | | | | GW-38443-101718-AS-218 | GW-38443-101718-AS-219 | GW-38443-101718-AS-220 | GW-38443-101718-AS-222 | GW-38443-032318-GL-001 | GW-38443-032318-GL-002 | GW-38443-101718-JC-217 | GW-38443-102518-JC-227 | GW-38443-102418-JC-226 |
| Sample Date: | | | | USEPA VISLs [2] | | 10/17/2018 | 10/17/2018 | 10/17/2018 | 10/17/2018 | 3/23/2018 | 3/23/2018 | 10/17/2018 | 10/25/2018 | 10/24/2018 |
| | | USEPA MCL/Tapwater Source | USEPA MCL / Tapwater [1] | Protection of Indoor Air | | | Duplicate | | | | Duplicate | | | |
| Parameters | Units | | a | Residential b | Commercial c | | | | | | | | | |
| **Volatiles** | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | ug/L | MCL | 200 | 742 | 3110 | 0.24 U | 0.24 U | 0.24 U | 0.24 U | 0.23 U | 0.23 U | 0.24 U | 0.24 U | 1.2 U |
| 1,1-Dichloroethane | ug/L | Tap | 2.8 | 7.64 | 33.4 | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.25 U | 0.25 U | 0.17 U | **0.38 J** | 0.85 U |
| 1,2-Dichlorobenzene | ug/L | MCL | 600 | 266 | 1120 | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.26 U | 0.26 U | 0.15 U | 0.15 U | 0.75 U |
| 1,4-Dichlorobenzene | ug/L | MCL | 75 | 2.59 | 11.3 | 0.16 U | 0.16 U | 0.16 U | 0.16 U | 0.23 U | 0.23 U | 0.16 U | 0.16 U | 0.80 U |
| Benzene | ug/L | MCL | 5 | 1.59 | 6.93 | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.28 U | 0.28 U | 0.13 U | 0.13 U | 0.65 U |
| Chlorobenzene | ug/L | MCL | 100 | 41 | 172 | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 0.32 U | 0.32 U | 0.14 U | 0.14 U | 0.70 U |
| cis-1,2-Dichloroethene | ug/L | MCL | 70 | - | - | 0.16 U | 0.16 U | 2.6 U | 0.16 U | 0.30 U | 0.30 U | 0.16 U | **1.1** | **130[a]** |
| m&p-Xylenes | ug/L | - | - | - | - | 0.080 U | 0.080 U | 0.080 U | 0.080 U | 0.24 U | 0.24 U | 0.080 U | 0.080 U | 0.40 U |
| o-Xylene | ug/L | Tap | 19 | 49.2 | 207 | 0.090 U | 0.090 U | 0.090 U | 0.090 U | 0.28 U | 0.28 U | 0.090 U | 0.090 U | 0.45 U |
| Tetrachloroethene | ug/L | MCL | 5 | 5.76 | 24.2 | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.30 U | 0.30 U | 0.15 U | 0.15 U | 0.75 U |
| Trichloroethene | ug/L | MCL | 5 | 0.518 | 2.18 | 3.7 U | 0.10 U | 0.10 U | 0.10 U | 0.33 U | 0.33 U | 0.10 U | **0.55 J[b]** | 0.50 U |
| Vinyl chloride | ug/L | MCL | 2 | 0.147 | 2.45 | 0.20 U | 0.20 U | **3.8[abc]** | 0.20 U | **1.2[b]** | **1.1[b]** | 0.20 U | 0.20 U | **85[abc]** |
| Xylenes (total) | ug/L | MCL | 10000 | 38.5 | 162 | 0.15 U | 0.15 U | 0.15 U | 0.15 U | 0.24 U | 0.24 U | 0.15 U | 0.15 U | 0.75 U |
| **Semi-Volatiles** | | | | | | | | | | | | | | |
| bis(2-Ethylhexyl)phthalate (DEHP) | ug/L | MCL | 6 | - | - | 2.2 U | 2.1 U | 2.2 U | 2.1 U | 1.9 U | 1.7 U | **28 J[a]** | 2.2 U | 2.2 U |
| Diethyl phthalate | ug/L | Tap | 1500 | - | - | 3.8 U | 3.6 U | 3.8 U | 3.6 U | 0.66 U | **0.66 J** | 3.7 U | 3.8 U | 3.7 U |
| Fluoranthene | ug/L | Tap | 80 | - | - | 0.16 U | 0.15 U | 0.16 U | 0.15 U | 0.049 U | 0.045 U | 0.16 U | 0.16 U | 0.16 U |
| **Metals** | | | | | | | | | | | | | | |
| Aluminum | ug/L | Tap | 2000 | - | - | **820 J** | **320 J** | **51** | **150** | **35 J** | 34 U | 34 U | 34 U | **85** |
| Aluminum (dissolved) | ug/L | Tap | 2000 | - | - | **72** | **72** | 34 U | 34 U | 34 U | 34 U | 34 U | 34 U | 34 U |
| Antimony | ug/L | MCL | 6 | - | - | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U |
| Antimony (dissolved) | ug/L | MCL | 6 | - | - | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U | 0.57 U |
| Arsenic | ug/L | MCL | 10 | - | - | **3.2 J** | **2.6 J** | **3.7 J** | **1.1 J** | **9.3** | **8.3** | **0.87 J** | 0.75 U | **5.3** |
| Arsenic (dissolved) | ug/L | MCL | 10 | - | - | **2.7 J** | **2.5 J** | **4.3 J** | **1.0 J** | **8.2** | **8.1** | 0.75 U | 0.75 U | **5.4** |
| Barium | ug/L | MCL | 2000 | - | - | **290** | **280** | **360** | **370** | **150** | **150** | **97** | **180** | **140** |
| Barium (dissolved) | ug/L | MCL | 2000 | - | - | **290** | **270** | **370** | **400** | **150** | **150** | **89** | **170** | **130** |
| Beryllium | ug/L | MCL | 4 | - | - | 0.31 U | 0.31 U | 0.31 U | 0.31 U | 0.31 U | 0.31 U | **0.31 J** | 0.31 U | 0.31 U |
| Beryllium (dissolved) | ug/L | MCL | 4 | - | - | 0.31 U | 0.31 U | 0.31 U | 0.31 U | **0.32 J** | 0.31 U | **0.55 J** | 0.31 U | **0.43 J** |
| Cadmium | ug/L | MCL | 5 | - | - | 0.21 U | 0.21 U | 0.21 U | 0.21 U | **1.3** | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| Calcium | ug/L | - | - | - | - | **49000** | **46000** | **74000** | **22000** | **120000** | **120000** | **120000** | **150000** | **83000** |
| Calcium (dissolved) | ug/L | - | - | - | - | **48000** | **48000** | **76000** | **23000** | **120000** | **120000** | **110000** | **140000** | **83000** |
| Chromium | ug/L | MCL | 100 | - | - | **1.3 J** | 0.98 U | 0.98 U | **2.1** | **1.5 J** | 0.98 U | 0.98 U | 0.98 U | 0.98 U |
| Cobalt | ug/L | Tap | 0.6 | - | - | **0.89 J[a]** | **0.69 J[a]** | **0.61 J[a]** | **0.33 J** | **1.3[a]** | 0.19 U | **1.1[a]** | 0.19 U | 0.19 U |
| Cobalt (dissolved) | ug/L | Tap | 0.6 | - | - | **0.64 J[a]** | **0.64 J[a]** | **0.61 J[a]** | **0.25 J** | 0.19 U | 0.19 U | **1.1[a]** | 0.19 U | 0.19 U |
| Copper | ug/L | MCL | 1300 | - | - | **1.8 J** | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U |
| Copper (dissolved) | ug/L | MCL | 1300 | - | - | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U | 1.7 U |
| Iron | ug/L | Tap | 1400 | - | - | **2000[a]** | **1200** | **2000[a]** | **640** | **3300[a]** | **3200[a]** | **200** | 47 U | **2900[a]** |
| Iron (dissolved) | ug/L | Tap | 1400 | - | - | **1000** | **1000** | **2000[a]** | **450** | **3200[a]** | **3100[a]** | **120** | 47 U | **2700[a]** |
| Lead | ug/L | MCL | 15 | - | - | **1.3** | **0.62 J** | 0.45 U | 0.45 U | **1.9** | 0.45 U | 0.45 U | 0.45 U | **0.46 J** |
| Magnesium | ug/L | - | - | - | - | **20000** | **18000** | **48000** | **5800** | **48000** | **49000** | **110000** | **44000** | **33000** |
| Magnesium (dissolved) | ug/L | - | - | - | - | **19000** | **19000** | **48000** | **5900** | **48000** | **48000** | **100000** | **41000** | **33000** |
| Manganese | ug/L | Tap | 43 | - | - | **220[a]** | **210[a]** | **280[a]** | **36** | **230[a]** | **240[a]** | **710[a]** | **11** | **100[a]** |
| Manganese (dissolved) | ug/L | Tap | 43 | - | - | **220[a]** | **220[a]** | **290[a]** | **34** | **230[a]** | **230[a]** | **670[a]** | **11** | **100[a]** |
| Nickel | ug/L | Tap | 39 | - | - | **3.2** | **2.6** | **1.9 J** | **2.3** | **2.2** | 1.5 U | **4.4** | **1.5 J** | 1.5 U |
| Nickel (dissolved) | ug/L | Tap | 39 | - | - | **2.2** | **2.2** | **1.8 J** | **1.5 J** | 1.5 U | 1.5 U | **4.0** | 1.5 U | 1.5 U |
| Potassium | ug/L | - | - | - | - | **7200** | **6800** | **22000** | **21000** | **9700** | **9900** | **22000** | **8800** | **9500** |
| Potassium (dissolved) | ug/L | - | - | - | - | **7200** | **6800** | **22000** | **22000** | **9700** | **9700** | **21000** | **8300** | **9600** |
| Selenium | ug/L | MCL | 50 | - | - | 0.89 U | 0.89 U | 0.89 U | 0.89 U | **1.0 J** | 0.89 U | **1.3 J** | **13** | 0.89 U |
| Selenium (dissolved) | ug/L | MCL | 50 | - | - | 0.89 U | 0.89 U | 0.89 U | 0.89 U | 0.89 U | 0.89 U | **1.5 J** | **12** | 0.89 U |
| Silver | ug/L | Tap | 9.4 | - | - | **0.51 J** | **0.20 J** | **0.88 J** | **1.6** | 0.14 U | 0.053 U | **0.46 J** | **2.0** | **2.9** |
| Silver (dissolved) | ug/L | Tap | 9.4 | - | - | **0.064 J** | **0.072 J** | 0.053 U | 0.053 U | 0.053 U | 0.053 U | 0.053 U | **0.44 J** | 0.053 U |
| Sodium | ug/L | - | - | - | - | **66000** | **64000** | **71000** | **69000** | **78000** | **78000** | **78000** | **69000** | **31000** |
| Sodium (dissolved) | ug/L | - | - | - | - | **69000** | **67000** | **72000** | **72000** | **78000** | **78000** | **75000** | **66000** | **31000** |
| Thallium | ug/L | MCL | 2 | - | - | 0.20 U | 0.20 U | 0.20 U | 0.20 U | **0.64 J** | 0.20 U | **0.21 J** | **0.32 J** | 0.20 U |
| Thallium (dissolved) | ug/L | MCL | 2 | - | - | 0.20 U | 0.20 U | 0.20 U | 0.20 U | **0.28 J** | 0.20 U | **0.25 J** | **0.30 J** | **0.20 J** |
| Vanadium | ug/L | Tap | 8.6 | - | - | **1.8 J** | 0.82 U | 0.82 U | 0.82 U | **1.3 J** | 0.82 U | 0.82 U | 0.82 U | 0.82 U |
| Vanadium (dissolved) | ug/L | Tap | 8.6 | - | - | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U |
| Zinc | ug/L | Tap | 600 | - | - | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U | 15 U |

**Table 2**

**Summary of Detected Parameters**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| **Sample Location:** | | | | | | **MW-209** | **MW-209** | **MW-209A** | **MW-212** | **MW-214** | **MW-214** | **MW-217** | **MW-223A** | **MW-223B** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample ID:** | | | | | | **GW-38443-101718-AS-218** | **GW-38443-101718-AS-219** | **GW-38443-101718-AS-220** | **GW-38443-101718-AS-222** | **GW-38443-032318-GL-001** | **GW-38443-032318-GL-002** | **GW-38443-101718-JC-217** | **GW-38443-102518-JC-227** | **GW-38443-102418-JC-226** |
| **Sample Date:** | | | | **USEPA VISLs (2)** | | **10/17/2018** | **10/17/2018** | **10/17/2018** | **10/17/2018** | **3/23/2018** | **3/23/2018** | **10/17/2018** | **10/25/2018** | **10/24/2018** |
| | | **USEPA MCL/Tapwater Source** | **USEPA MCL / Tapwater (1)** | **Protection of Indoor Air** | | | **Duplicate** | | | | **Duplicate** | | | |
| **Parameters** | **Units** | | **a** | **Residential b** | **Commercial c** | | | | | | | | | |
| **General Chemistry** | | | | | | | | | | | | | | |
| Chloride | ug/L | - | - | - | - | **47000** | **47000** | **94000** | **33000** | **120000** | **140000** | **110000** | **110000** | **67000** |
| Cyanide (total) | mg/L | MCL | 0.2 | 0.0201 | 0.0844 | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U |
| Nitrate (as N) | ug/L | MCL | 10000 | - | - | **33 J** | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U | 14 U |
| Sulfate | ug/L | - | - | - | - | **21000** | **21000** | **14000** | **37000** | **64000** | **64000** | **150000** | **90000** | **75000** |

Notes:
J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.

(1) USEPA, Regional Screening Levels (RSLs), November 2018. Target Cancer Risk (TR) of 1E-06, and Target Hazard Quotient (THQ) of 0.1

(2) OSWER Vapor Intrusion Assessment. Vapor Intrusion Screening Level (VISL) Calculator, Version 3.5, November 2018 RSLs. TR of 1E-06 and THQ of 0.1

**Table 2**

**Summary of Detected Parameters**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| **Sample Location:** | | **MW-224A** | **MW-224B** | **MW-230** | **MW-233** | **MW-234** | **MW-235** |
|---|---|---|---|---|---|---|---|
| **Sample ID:** | | **GW-38443-101618-AS-215** | **GW-38443-101618-AS-214** | **GW-38443-101718-JC-221** | **GW-38443-101818-AS-225** | **GW-38443-101618-AS-216** | **GW-38443-101818-AS-224** |
| **Sample Date:** | | **10/16/2018** | **10/16/2018** | **10/17/2018** | **10/18/2018** | **10/16/2018** | **10/18/2018** |
| **Parameters** | **Units** | | | | | | |
| **Volatiles** | | | | | | | |
| 1,1,1-Trichloroethane | ug/L | **0.25 J** | 0.24 U | 0.24 U | 0.24 U | 0.24 U | 16 U |
| 1,1-Dichloroethane | ug/L | 0.17 U | **0.49 J** | 0.17 U | 0.17 U | **1.0** | 11 U |
| 1,2-Dichlorobenzene | ug/L | 0.15 U | 0.15 U | **0.27 J** | 0.15 U | 0.15 U | 10 U |
| 1,4-Dichlorobenzene | ug/L | 0.16 U | 0.16 U | **0.16 J** | 0.16 U | 0.16 U | 11 U |
| Benzene | ug/L | 0.13 U | 0.13 U | **4.4[b]** | 0.13 U | 0.13 U | 8.7 U |
| Chlorobenzene | ug/L | 0.14 U | 0.14 U | **2.2** | 0.14 U | 0.14 U | 9.3 U |
| cis-1,2-Dichloroethene | ug/L | 0.16 U | **0.74 J** | 2.0 U | **0.36 J** | 0.16 U | **1100[a]** |
| m&p-Xylenes | ug/L | 0.080 U | 0.080 U | **0.15 J** | 0.080 U | 0.080 U | 5.3 U |
| o-Xylene | ug/L | 0.090 U | 0.090 U | **0.25 J** | 0.090 U | 0.090 U | 6.0 U |
| Tetrachloroethene | ug/L | 0.15 U | 0.15 U | 0.15 U | **0.31 J** | 0.15 U | 10 U |
| Trichloroethene | ug/L | 0.10 U | 0.10 U | 0.10 U | **1.9[b]** | 0.10 U | 6.7 U |
| Vinyl chloride | ug/L | 0.20 U | 0.20 U | 0.20 U | 0.20 U | 0.20 U | **620[abc]** |
| Xylenes (total) | ug/L | 0.15 U | 0.15 U | **0.40 J** | 0.15 U | 0.15 U | 10 U |
| **Semi-Volatiles** | | | | | | | |
| bis(2-Ethylhexyl)phthalate (DEHP) | ug/L | 2.2 U | 2.1 U | 2.2 U | 2.1 U | 2.1 U | 2.1 U |
| Diethyl phthalate | ug/L | 3.7 U | 3.6 U | 3.8 U | 3.6 U | 3.6 U | 3.6 U |
| Fluoranthene | ug/L | 0.16 U | **0.19** | 0.16 U | 0.15 U | 0.15 U | 0.15 U |
| **Metals** | | | | | | | |
| Aluminum | ug/L | 34 U | **260** | **2100[a]** | 34 U | **240** | **46 J** |
| Aluminum (dissolved) | ug/L | 34 U | 34 U | **78** | 34 U | 34 U | 34 U |
| Antimony | ug/L | **1.4 J** | 0.57 U | 0.57 U | **3.0** | 0.57 U | 0.57 U |
| Antimony (dissolved) | ug/L | **1.3 J** | 0.57 U | 0.57 U | **3.1** | 0.57 U | 0.57 U |
| Arsenic | ug/L | **2.2 J** | **7.5** | **4.2 J** | 0.75 U | **1.1 J** | **3.2 J** |
| Arsenic (dissolved) | ug/L | **2.9 J** | **6.9** | **2.1 J** | 0.75 U | 0.75 U | **3.0 J** |
| Barium | ug/L | **180** | **160** | **2000** | **200** | **120** | **190** |
| Barium (dissolved) | ug/L | **170** | **150** | **1900** | **200** | **120** | **180** |
| Beryllium | ug/L | **0.33 J** | **0.59 J** | 0.31 U | 0.31 U | 0.31 U | **0.63 J** |
| Beryllium (dissolved) | ug/L | 0.31 U | **0.41 J** | 0.31 U | 0.31 U | 0.31 U | **0.86 J** |
| Cadmium | ug/L | 0.21 U | **0.21 J** | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| Calcium | ug/L | **170000** | **97000** | **170000** | **97000** | **59000** | **130000** |
| Calcium (dissolved) | ug/L | **160000** | **94000** | **150000** | **98000** | **57000** | **130000** |
| Chromium | ug/L | 0.98 U | **1.2 J** | **4.3** | 0.98 U | 0.98 U | **1.8 J** |
| Cobalt | ug/L | 0.19 U | **0.25 J** | **8.4[a]** | **0.30 J** | **0.39 J** | **1.0[a]** |
| Cobalt (dissolved) | ug/L | 0.19 U | 0.19 U | **7.0[a]** | **0.29 J** | **0.23 J** | **0.92 J[a]** |
| Copper | ug/L | 1.7 U | **1.8 J** | **17** | **1.8 J** | **1.9 J** | 1.7 U |
| Copper (dissolved) | ug/L | 1.7 U | 1.7 U | **1.8 J** | **4.5 J** | 1.7 U | 1.7 U |
| Iron | ug/L | 47 U | **2500[a]** | **3700[a]** | **56 J** | **540** | **6900[a]** |
| Iron (dissolved) | ug/L | 47 U | **1900[a]** | **820** | 47 U | 47 U | **6700[a]** |
| Lead | ug/L | 0.45 U | **1.4** | **3.4** | 0.45 U | **0.50 J** | 0.45 U |
| Magnesium | ug/L | **41000** | **34000** | **53000** | **37000** | **25000** | **55000** |
| Magnesium (dissolved) | ug/L | **39000** | **33000** | **48000** | **37000** | **24000** | **54000** |
| Manganese | ug/L | 2.1 U | **120[a]** | **2600[a]** | **2.5 J** | **53[a]** | **100[a]** |
| Manganese (dissolved) | ug/L | 2.1 U | **100[a]** | **2400[a]** | 2.1 U | **46[a]** | **100[a]** |
| Nickel | ug/L | 1.5 U | **3.2** | **26** | 1.5 U | **1.5 J** | **2.1** |
| Nickel (dissolved) | ug/L | 1.5 U | 1.5 U | **22** | 1.5 U | 1.5 U | 1.5 U |
| Potassium | ug/L | **12000** | **3000** | **12000** | **8300** | **6300** | **15000** |
| Potassium (dissolved) | ug/L | **11000** | **3000** | **11000** | **8300** | **6200** | **15000** |
| Selenium | ug/L | **60[a]** | **0.97 J** | 0.89 U | **1.8 J** | 0.89 U | 0.89 U |
| Selenium (dissolved) | ug/L | **60[a]** | 0.89 U | 0.89 U | **1.9 J** | 0.89 U | 0.89 U |
| Silver | ug/L | **0.24 J** | **23[a]** | 0.053 U | 0.053 U | 0.053 U | 0.053 U |
| Silver (dissolved) | ug/L | 0.053 U | **3.2** | 0.053 U | 0.053 U | 0.053 U | 0.053 U |
| Sodium | ug/L | **160000** | **33000** | **68000** | **28000** | **25000** | **78000** |
| Sodium (dissolved) | ug/L | **160000** | **33000** | **65000** | **28000** | **24000** | **76000** |
| Thallium | ug/L | **0.49 J** | **0.21 J** | **0.70 J** | 0.20 U | 0.20 U | 0.20 U |
| Thallium (dissolved) | ug/L | **0.48 J** | 0.20 U | **0.57 J** | 0.20 U | 0.20 U | 0.20 U |
| Vanadium | ug/L | **3.2 J** | 0.82 U | **5.3** | 0.82 U | 0.82 U | 0.82 U |
| Vanadium (dissolved) | ug/L | **3.2 J** | 0.82 U | 0.82 U | 0.82 U | 0.82 U | 0.82 U |
| Zinc | ug/L | 15 U | 15 U | **26** | 15 U | 15 U | 15 U |

**Table 2**

**Summary of Detected Parameters**
**March and October 2018 Groundwater Sampling**
**South Dayton Dump and Landfill Site**
**Moraine, Ohio**

| **Sample Location:** | | **MW-224A** | **MW-224B** | **MW-230** | **MW-233** | **MW-234** | **MW-235** |
|---|---|---|---|---|---|---|---|
| **Sample ID:** | | **GW-38443-101618-AS-215** | **GW-38443-101618-AS-214** | **GW-38443-101718-JC-221** | **GW-38443-101818-AS-225** | **GW-38443-101618-AS-216** | **GW-38443-101818-AS-224** |
| **Sample Date:** | | **10/16/2018** | **10/16/2018** | **10/17/2018** | **10/18/2018** | **10/16/2018** | **10/18/2018** |
| **Parameters** | **Units** | | | | | | |
| **General Chemistry** | | | | | | | |
| Chloride | ug/L | **310000** | **63000** | **120000** | **36000** | **33000** | **100000** |
| Cyanide (total) | mg/L | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | 0.0060 U | **0.028**[b] |
| Nitrate (as N) | ug/L | **2600** | 14 U | 14 U | **1300** | 14 U | 14 U |
| Sulfate | ug/L | **140000** | **62000** | **15000** | **46000** | **26000** | **76000** |

Notes:
J - Estimated concentration.
R - Rejected.
U - Not detected at the associated reporting limit.
UJ - Not detected; associated reporting limit is estimated.

(1) USEPA, Regional Screening Levels (RSLs), November 2018. Target Cancer Risk (TR) of 1E-06, and Target Hazard Quotient (THQ) of 0.1

(2) OSWER Vapor Intrusion Assessment. Vapor Intrusion Screening Level (VISL) Calculator, Version 3.5, November 2018 RSLs. TR of 1E-06 and THQ of 0.1

# Attachment 1

**Table 1**

**2018 Quarterly Groundwater Elevations**
**South Dayton Dump Landfill**
**Moraine, Ohio**

| Location | Coordinates[1] | | Reference | March 2018 | | June 2018 | | October 2018 | | December 2018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Easting | Northing | Top of Riser ft AMSL | Depth to Water ft BREF* | Groundwater Elevation ft AMSL | Depth to Water ft BREF* | Groundwater Elevation ft AMSL | Depth to Water ft BREF* | Groundwater Elevation ft AMSL | Depth to Water ft BREF | Groundwater Elevation ft AMSL |
| GW-1 | 1485691.87 | 633281.09 | 735.23 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| GW-2 | 1485705.16 | 633197.13 | 735.36 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| GW-3 | 1485870.44 | 633265.99 | 735.58 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| GW-5 | 1485681.66 | 633137.26 | 735.55 | n/a | n/a | 23.61 | 711.94 | 24.77 | 710.78 | n/a | n/a |
| GW-6 | 1485626.42 | 633192.35 | 734.42 | n/a | n/a | 23.51 | 710.91 | 24.16 | 710.26 | n/a | n/a |
| GW-7 | 1485607.50 | 633109.42 | 735.07 | n/a | n/a | 24.09 | 710.98 | 25.3 | 709.77 | n/a | n/a |
| GW-8 | 1485654.66 | 633152.28 | 734.92 | n/a | n/a | 24.03 | 710.89 | 25.25 | 709.67 | n/a | n/a |
| MW-101A | 1484347.13 | 633062.05 | 725.00 | 13.96 | 711.04 | 14.80 | 710.20 | 15.61 | 709.39 | 13.68 | 711.32 |
| MW-102 | 1483652.72 | 633238.74 | 717.63 | 7.09 | 710.54 | 7.51 | 710.12 | 8.31 | 709.32 | 6.10 | 711.53 |
| MW-103 | 1483816.63 | 633420.79 | 716.50 | 5.88 | 710.62 | 6.28 | 710.22 | 7.15 | 709.35 | 4.83 | 711.67 |
| MW-104 | 1485593.26 | 633186.27 | n/a | n/a | n/a | 17.33 | n/a | 18.57 | 709.73 | n/a | n/a |
| MW-201 | 1483992.29 | 633672.43 | 715.25 | 4.87 | 710.38 | 5.16 | 710.09 | 6.13 | 709.12 | 3.74 | 711.51 |
| MW-202 | 1485528.31 | 633458.42 | 733.08 | 21.64 | 711.44 | 22.26 | 710.82 | 23.49 | 709.59 | 21.55 | 711.53 |
| MW-203 | 1485006.23 | 633009.04 | 730.11 | 18.68 | 711.43 | 19.34 | 710.77 | 20.56 | 709.55 | 18.75 | 711.36 |
| MW-204 | 1484621.37 | 633046.28 | 722.69 | 11.34 | 711.35 | 12.06 | 710.63 | 13.16 | 709.53 | 11.36 | 711.33 |
| MW-206 | 1484303.39 | 634007.63 | 716.08 | 5.14 | 710.94 | 5.41 | 710.67 | 6.43 | 709.65 | 4.04 | 712.04 |
| MW-207 | 1484633.10 | 634363.27 | 716.33 | 5.21 | 711.12 | 5.42 | 710.91 | 6.64 | 709.69 | 4.20 | 712.13 |
| MW-208 | 1485584.91 | 633845.40 | 733.87 | 22.39 | 711.48 | 22.88 | 710.99 | 24.12 | 709.75 | 22.02 | 711.85 |
| MW-209 | 1484343.34 | 632718.83 | 714.26 | 3.38 | 710.88 | 4.03 | 710.23 | 5.16 | 709.10 | 3.21 | 711.05 |
| MW-209A | 1484337.98 | 632746.34 | 714.64 | 3.79 | 710.85 | 4.40 | 710.24 | 5.56 | 709.08 | 3.67 | 710.97 |
| MW-210 | 1485396.75 | 632951.11 | 732.50 | 20.97 | 711.53 | 21.64 | 710.86 | 22.86 | 709.64 | 21.00 | 711.50 |
| MW-210A | 1485399.45 | 632964.36 | 733.54 | 22.47 | 711.07 | 23.15 | 710.39 | 24.32 | 709.22 | 22.50 | 711.04 |
| MW-210B | 1485390.92 | 632965.07 | 733.65 | 22.52 | 711.13 | 23.21 | 710.44 | 24.39 | 709.26 | 22.52 | 711.13 |
| MW-212 | 1484537.84 | 632746.38 | 728.83 | 17.95 | 710.88 | 18.58 | 710.25 | 19.67 | 709.16 | 17.88 | 710.95 |
| MW-214 | 1484342.04 | 631920.50 | 723.96 | 13.23 | 710.73 | 13.80 | 710.16 | 14.70 | 709.26 | 13.17 | 710.79 |
| MW-215A | 1485186.15 | 633686.53 | 734.63 | 23.16 | 711.47 | 23.71 | 710.92 | n/a | n/a | 22.96 | 711.67 |
| MW-215B | 1485183.69 | 633679.69 | 734.69 | 23.37 | 711.32 | 24.07 | 710.62 | 25.47 | 709.22 | 23.28 | 711.41 |
| MW-216 | 1485650.98 | 634007.80 | 732.08 | 20.79 | 711.29 | 21.56 | 710.52 | 22.86 | 709.22 | 20.88 | 711.20 |
| MW-217 | 1484742.27 | 634203.23 | 736.65 | n/a | n/a | 25.77 | 710.88 | 27.00 | 709.65 | 24.66 | n/a |
| MW-218A | 1483339.09 | 632429.81 | 722.70 | 12.46 | 710.24 | 12.79 | 709.91 | 13.57 | 709.13 | 11.42 | 711.28 |
| MW-218B | 1483331.81 | 632433.77 | 722.97 | 12.61 | 710.36 | 13.14 | 709.83 | 14.09 | 708.88 | 12.38 | 710.59 |
| MW-219 | 1485662.99 | 634632.62 | 735.34 | 24.04 | 711.30 | 24.27 | 711.07 | 25.57 | 709.77 | 23.28 | 712.06 |
| MW-220 | 1485694.49 | 633290.82 | 735.40 | 24.04 | 711.36 | n/a | n/a | 25.57 | 709.83 | n/a | n/a |
| MW-221 | 1485827.65 | 633957.63 | 735.84 | 24.04 | 711.80 | 25.39 | 710.45 | 26.78 | 709.06 | 24.77 | 711.07 |
| MW-222 | 1486000.22 | 634555.40 | 736.26 | 24.04 | 712.22 | 25.85 | 710.41 | 27.41 | 708.85 | 23.28 | 712.98 |
| MW-222A | 1486010.55 | 634603.03 | 735.42 | 24.04 | 711.38 | 24.22 | 711.20 | 25.71 | 709.71 | 25.09 | 710.33 |
| MW-223A | 1486254.37 | 634144.16 | 735.38 | 24.04 | 711.34 | 24.18 | 711.20 | 25.56 | 709.82 | 23.49 | 711.89 |
| MW-223B | 1486261.00 | 634140.45 | 735.04 | 24.04 | 711.00 | n/a | n/a | 25.96 | 709.08 | 23.87 | 711.17 |
| MW-224A | 1486547.57 | 634513.42 | 735.60 | 24.04 | 711.56 | 24.39 | 711.21 | 25.94 | 709.66 | 24.36 | 711.24 |
| MW-224B | 1486538.41 | 634515.45 | 735.48 | 24.04 | 711.44 | 25.00 | 710.48 | 26.58 | 708.90 | 24.25 | 711.23 |
| MW-225 | 1485672.90 | 634142.60 | 731.14 | 19.68 | 711.46 | 20.03 | 711.11 | 21.31 | 709.83 | 19.27 | 711.87 |
| MW-226 | 1485803.06 | 634938.64 | 721.09 | 10.09 | 711.00 | 10.10 | 710.99 | 11.6 | 709.49 | 9.05 | 712.04 |
| MW-227 | 1485248.78 | 634042.62 | 739.10 | 27.67 | 711.43 | 28.13 | 710.97 | 29.31 | 709.79 | 27.09 | 712.01 |
| MW-228 | 1485475.11 | 634388.19 | 738.57 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| MW-229 | 1485306.20 | 634681.80 | 736.68 | 25.61 | 711.07 | 25.73 | 710.95 | 27.32 | 709.36 | 24.66 | 712.02 |
| MW-230 | 1485592.00 | 634745.30 | 737.22 | 26.08 | 711.14 | 26.17 | 711.05 | 27.57 | 709.65 | 25.15 | 712.07 |
| MW-233 | 1483784.00 | 633208.70 | 730.08 | 19.37 | 710.71 | 19.9 | 710.18 | 20.8 | 709.28 | 18.50 | 711.58 |
| MW-234 | 1483714.22 | 632168.22 | 724.07 | n/a | n/a | n/a | n/a | 14.65 | 709.42 | 12.75 | 711.32 |
| MW-235 | 1485182.31 | 633669.45 | 734.25 | n/a | n/a | n/a | n/a | 24.39 | 709.86 | 22.23 | 712.02 |
| P-211 | 1484355.17 | 632855.28 | 715.72 | 3.75 | 711.97 | 4.96 | 710.76 | 5.38 | 710.34 | 3.89 | 711.83 |
| SG-1 (Small Pond) | n/a | n/a | 709.36 | 2.75 | 712.113 | 1.08 | 710.44 | n/a | n/a | 2.35 | 711.71 |
| SG-2 (Large Pond) | n/a | n/a | 708.72 | <3.380 | n/a | 15" below 3.380 | n/a | n/a | n/a | 3.20 | 711.92 |
| SG-3 (Quarry Pond North) | n/a | n/a | 705.46 | 5.48 | 710.94 | 4.68 | 710.14 | n/a | n/a | 6.08 | 711.54 |
| SG-4 (Quarry Pond SW) | n/a | n/a | 708.59 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| MW-1 | 1485842.09 | 633258.84 | 735.13 | n/a | n/a | 24.00 | 711.13 | 25.26 | 709.87 | n/a | n/a |
| MW-2 | 1485670.65 | 633228.08 | 735.15 | n/a | n/a | 24.07 | 711.08 | 25.16 | 709.99 | n/a | n/a |
| MW-3 | 1485707.04 | 633409.40 | 736.03 | n/a | n/a | 24.16 | 711.87 | 25.37 | 710.66 | n/a | n/a |
| MW-4 | 1485692.08 | 633281.02 | 735.37 | n/a | n/a | 24.34 | 711.03 | 25.57 | 709.80 | n/a | n/a |
| MW-5 | n/a | n/a | n/a | n/a | n/a | 24.51 | n/a | 25.67 | n/a | n/a | n/a |
| MW-A | 1485673.56 | 633284.93 | 735.12 | n/a | n/a | 24.07 | 711.05 | 25.21 | 709.91 | n/a | n/a |
| MW-B | 1485677.26 | 633252.64 | 735.43 | n/a | n/a | 24.49 | 710.94 | 25.65 | 709.78 | n/a | n/a |
| Dryden Road Bridge** | 1485899.34 | 635057.85 | 747.80 | n/a | n/a | n/a | n/a | n/a | n/a | 36.50 | 711.30 |
| Culvert** | 1484110.84 | 634679.71 | 724.60 | n/a | n/a | n/a | n/a | n/a | n/a | 12.55 | 712.05 |

Notes:

[1] - North American Datum of 1983 (NAD83), U.S. Survey feet
ft BREF - feet below reference
ft AMSL - feet above mean sea level
* Reference point is Top Of Riser at each monitoring well
* Reference point is Top of Staff Gauge at the Large, Small and Quarry Pond
** Completion Depth

# Attachment 2

**Well Development, Purging, and Sampling Form**
**(Form SP-06)**


PROJECT #: 038443 PROJECT NAME: SOUTH DAYTON DUMP DATE: 09/27/18

WELL ID: MW-234 FIELD PERSONNEL: S. TEDRICK, C. McLAUGHLIN

WELL DIAMETER 2 in
WELL DEPTH 37.29 m/ft
STATIC DEPTH TO WATER 14.61 m/ft
WATER COLUMN HEIGHT 22.68 m/ft
CASING VOLUME 3.62 L/gal
MEASURING REFERENCE POINT TOC

| Well Diameter (in) | Casing Volume (L/m) | Casing Volume (US gallon/foot) |
|---|---|---|
| 1.5 | 1.14 | 0.09 |
| 2 | 2.02 | 1.09 |
| 4 | 8.11 | 2.09 |
| 6 | 18.24 | 3.09 |

**PURGING AND SAMPLING EQUIPMENT**

SCT
Date 9/28/18
Project No. 038443-360

DEDICATED PURGING EQUIPMENT? YES NO DEDICATED SAMPLING EQUIPMENT? YES NO N/A

| | | | | | | |
|---|---|---|---|---|---|---|
| PURGING DEVICE | ✓ | A - INERTIAL PUMP (WATERRA®) | B - BAILER | C - PERISTALTIC PUMP | D - SUBMERSIBLE PUMP | X - OTHER (SPECIFY) |
| SAMPLING DEVICE | | E - BLADDER PUMP | F - PURGE PUMP | G - DIPPER BOTTLE | H - GAS LIFT PUMP | |
| PURGING MATERIAL | ✓ | A - POLYETHYLENE | B - TEFLON | C - PVC | D - POLYPROPYLENE | X - OTHER (SPECIFY) |
| SAMPLING MATERIAL | | E - STAINLESS STEEL | | | | |
| TUBING PURGING | ✓ | A - POLYETHYLENE | B - TEFLON | C - TYGON | D - POLYPROPYLENE | X - OTHER (SPECIFY) |
| TUBING SAMPLING | | E - SILICONE | F - ROPE | G - COMBINATION TEFLON/POLYPROPYLENE | | |
| FILTERING DEVICES | | A - IN-LINE DISPOSABLE | B - PRESSURE | C - VACUUM | PORE SIZE : | |

**DEVELOPMENT/PURGING FIELD MEASUREMENTS ARE RECORDED ON PAGE 2.**

**SAMPLING INFORMATION**

SAMPLE DATE/TIME: N/A
WEATHER CONDITIONS AT TIME OF SAMPLING: N/A
SAMPLE ID: N/A
SAMPLE WAS FILTERED FOR (ANALYSIS): N/A
SAMPLE APPEARANCE: N/A

## FIELD MEASUREMENTS

| DATE | TIME | VOLUME | TEMPERATURE | CONDUCTIVITY | pH | TURBIDITY | COLOUR | ODOUR | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | Units: | (L) (US gal) | (°C) (°F) | ~~(mS/cm)~~ (µS/cm) | - | (NTU) | - | - | - |
| | Stabilization: | - | ±10% | ±10% | ±0.1 units | <5 | - | - | - |
| 9/27/18 | 1215 | 0 | 22.1 | 542.2 | 7.48 | >1000 | BROWN | N/A | |
| | 1233 | 1 | 21.7 | 515.4 | 7.94 | >1000 | | N/A | |
| | 1239 | 2 | 21.0 | 555.2 | 7.97 | >1000 | | N/A | |
| | 1248 | 3 | 20.2 | 565.8 | 7.98 | >1000 | | N/A | |
| | 1253 | 4 | 19.9 | 590.6 | 8.04 | >1000 | | SLIGHT EARTHY | |
| | 1259 | 5 | 19.5 | 598.3 | 7.97 | >1000 | | SLIGHT EARTHY | |
| | 1303 | 6 | 19.2 | 606.8 | 8.06 | >1000 | | N/A | |
| | 1309 | 7 | 19.0 | 614.4 | 8.00 | 944 | LIGHT BROWN | N/A | |
| | 1312 | 8 | 19.1 | 607.1 | 8.07 | >1000 | MED. BROWN | N/A | |
| | 1314 | 9 | 19.3 | 589.8 | 8.06 | >1000 | MED BROWN | N/A | |
| | 1335 | 10 | 18.5 | 625.6 | 8.08 | 633 | LIGHT BROWN | N/A | |
| | 1342 | 11 | 18.4 | 620.7 | 8.09 | 228 | | N/A | |
| | 1350 | 12 | 18.3 | 619.1 | 8.08 | 170 | | N/A | |
| | 1355 | 13 | 18.3 | 617.0 | 8.09 | 128 | | | |

Date 9/28/18 SCT
Project No. 0384443-360

PROJECT #: 38443 PROJECT NAME: SOUTH DAYTON DUMP DATE: 09/28/18

WELL ID: MW-235 FIELD PERSONNEL: S. TEDRICK C. McLAUGHLIN

WELL DIAMETER 2 in
WELL DEPTH 36.45 m/ft
STATIC DEPTH TO WATER 24.36 m/ft
WATER COLUMN HEIGHT 12.09 m/ft
CASING VOLUME 1.93 L/gal
MEASURING REFERENCE POINT TOC

| Well Diameter (in) | Casing Volume (L/m) | Casing Volume (US gallon/foot) |
|---|---|---|
| 1.5 | 1.14 | 0.09 |
| 2 | 2.02 | 1.09 |
| 4 | 8.11 | 2.09 |
| 6 | 18.24 | 3.09 |

SCT
Date 9/28/18
Project No. 038443-360

**PURGING AND SAMPLING EQUIPMENT**

DEDICATED PURGING EQUIPMENT? YES NO DEDICATED SAMPLING EQUIPMENT? YES NO

| | | | | | | |
|---|---|---|---|---|---|---|
| PURGING DEVICE | ✓ | A - INERTIAL PUMP (WATERRA®) | B - BAILER | C - PERISTALTIC PUMP | D - SUBMERSIBLE PUMP | X - |
| SAMPLING DEVICE | | E - BLADDER PUMP | F - PURGE PUMP | G - DIPPER BOTTLE | H - GAS LIFT PUMP | OTHER (SPECIFY) |
| PURGING MATERIAL | ✓ | A - POLYETHYLENE | B - TEFLON | C - PVC | D - POLYPROPYLENE | X - |
| SAMPLING MATERIAL | | E - STAINLESS STEEL | | | | OTHER (SPECIFY) |
| TUBING PURGING | ✓ | A - POLYETHYLENE | B - TEFLON | C - TYGON | D - POLYPROPYLENE | X - |
| TUBING SAMPLING | | E - SILICONE | F - ROPE | G - COMBINATION TEFLON/POLYPROPYLENE | | OTHER (SPECIFY) |
| FILTERING DEVICES | N/A | A - IN-LINE DISPOSABLE | B - PRESSURE | C - VACUUM | PORE SIZE : | |

**DEVELOPMENT/PURGING FIELD MEASUREMENTS ARE RECORDED ON PAGE 2.**

**SAMPLING INFORMATION**

SAMPLE DATE/TIME: N/A
WEATHER CONDITIONS AT TIME OF SAMPLING: N/A
SAMPLE ID: N/A
SAMPLE WAS FILTERED FOR (ANALYSIS): N/A
SAMPLE APPEARANCE: N/A

Date 9/28/18
Project No. 038443-360

**Well Development, Purging, and Sampling Form**
**(Form SP-06)**


## FIELD MEASUREMENTS

| DATE | TIME | VOLUME | TEMPERATURE | CONDUCTIVITY | pH | TURBIDITY | COLOUR | ODOUR | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | Units: | ~~(L)~~ ~~(US gal)~~ | (°C) (°F) | (mS/cm) (µS/cm) | - | (NTU) | - | - | - |
| | Stabilization: | WELL VOLUMES | ±10% | ±10% | ±0.1 units | <5 | - | - | - |
| 9/28/18 | 0900 | 0 | 14.2 | 1467 | 8.12 | 925 | GREY | STRONG ~~PETROL~~ | PETROLEUM |
| | 0905 | 1 | 14.8 | 1364 | 7.81 | >1000 | BLACK | STRONG | PETROLEUM |
| | 0912 | 2 | 15.1 | 1325 | 7.75 | >1000 | BLACK | STRONG | PETROLEUM |
| | 0918 | 3 | 15.1 | 1344 | 7.81 | >1000 | BLACK | STRONG | PETROLEUM |
| | 0923 | 4 | 15.3 | 1289 | 7.57 | >1000 | BLACK | STRONG | PETROLEUM |
| | 0930 | 5 | 15.5 | 1371 | 7.62 | >1000 | BLACK | STRONG | PETROLEUM |
| | 0938 | 6 | 15.3 | 1403 | 7.69 | >1000 | BLACK | STRONG | PETROLEUM |
| | 0947 | 7 | 15.7 | 1366 | 7.60 | >1000 | BLACK | STRONG | PETROLEUM |
| | 0954 | 8 | 15.5 | 1396 | 7.56 | >1000 | BLACK | STRONG | PETROLEUM |
| | 1000 | 9 | 15.7 | 1403 | 7.67 | >1000 | BLACK | STRONG | PETROLEUM |
| | 1010 | 10 | 15.8 | 1409 | 7.62 | >1000 | BLACK | STRONG | PETROLEUM |
| | 1021 | 11 | 15.9 | 1414 | 7.66 | >1000 | BLACK | STRONG | PETROLEUM |
| | 1030 | 12 | 15.8 | 1406 | 7.65 | >1000 | BLACK | STRONG | PETROLEUM |

PROJECT #: 038443 PROJECT NAME: SOUTH DAYTON DUMP DATE: 09/27/18

WELL ID: MW-217 FIELD PERSONNEL: S. TEDRICK, C. McLAUGHLIN

WELL DIAMETER 2 in
WELL DEPTH 48.15 m/ft
STATIC DEPTH TO WATER 26.79 m/ft
WATER COLUMN HEIGHT 21.36 m/ft
CASING VOLUME 3.42 L/gal
MEASURING REFERENCE POINT TOC

| Well Diameter (in) | Casing Volume (L/m) | Casing Volume (US gallon/foot) |
|---|---|---|
| 1.5 | 1.14 | 0.09 |
| 2 | 2.02 | 1.09 |
| 4 | 8.11 | 2.09 |
| 6 | 18.24 | 3.09 |

SCT
Date 9/28/18
Project No. 038443-360

**PURGING AND SAMPLING EQUIPMENT**

DEDICATED PURGING EQUIPMENT? YES NO DEDICATED SAMPLING EQUIPMENT? YES NO

| | | | | | | |
|---|---|---|---|---|---|---|
| PURGING DEVICE | ✓ | A - INERTIAL PUMP (WATERRA®) | B - BAILER | C - PERISTALTIC PUMP | D - SUBMERSIBLE PUMP | X - |
| SAMPLING DEVICE | | E - BLADDER PUMP | F - PURGE PUMP | G - DIPPER BOTTLE | H - GAS LIFT PUMP | OTHER (SPECIFY) |
| PURGING MATERIAL | ✓ | A - POLYETHYLENE | B - TEFLON | C - PVC | D - POLYPROPYLENE | X - |
| SAMPLING MATERIAL | | E - STAINLESS STEEL | | | | OTHER (SPECIFY) |
| TUBING PURGING | ✓ | A - POLYETHYLENE | B - TEFLON | C - TYGON | D - POLYPROPYLENE | X - |
| TUBING SAMPLING | | E - SILICONE | F - ROPE | G - COMBINATION TEFLON/POLYPROPYLENE | | OTHER (SPECIFY) |
| FILTERING DEVICES | N/A | A - IN-LINE DISPOSABLE | B - PRESSURE | C - VACUUM | PORE SIZE : | |

**DEVELOPMENT/PURGING FIELD MEASUREMENTS ARE RECORDED ON PAGE 2.**

**SAMPLING INFORMATION**

SAMPLE DATE/TIME: N/A
WEATHER CONDITIONS AT TIME OF SAMPLING: N/A
SAMPLE ID: N/A
SAMPLE WAS FILTERED FOR (ANALYSIS): N/A
SAMPLE APPEARANCE: N/A

## FIELD MEASUREMENTS

| DATE | TIME | VOLUME | TEMPERATURE | CONDUCTIVITY | pH | TURBIDITY | COLOUR | ODOUR | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|
| | Units: | ~~(L)~~ ~~(US gal)~~ | (°C) (°F) | (mS/cm) (µS/cm) | - | (NTU) | - | - | - |
| | Stabilization: | WELL VOLUMES | ±10% | ±10% | ±0.1 units | <5 | - | - | - |
| 09/27/18 | INITIAL 1505 | 0 | 15.3 | 1355 | 7.82 | >1000 | DARK BROWN | SLIGHT | SULFUR |
| | 1512 | 1 | 15.5 | 1533 | 7.88 | 71000 | DARK BROWN | N/A | |
| | 1518 | 2 | 14.7 | 1537 | 7.87 | >1000 | light BRN | N/A | |
| | 1528 | 3 | 14.8 | 1561 | 7.93 | 194 | light BRN | N/A | |
| | 1535 | 4 | 14.7 | 1562 | 7.87 | 837 | light tan | N/A | |
| | 1544 | 5 | 14.7 | 1570 | 7.89 | 376 | light tan | N/A | |
| | 1550 | 6 | 14.6 | 1579 | 7.88 | 78.1 | cloudy | N/A | |
| | 1559 | 7 | 14.5 | 1576 | 7.80 | 40.6 | CLEAR | N/A | |
| | 1606 | 8 | 14.6 | 1573 | 7.99 | 25.9 | CLEAR | N/A | |
| | 1612 | 9 | 14.6 | 1574 | 7.98 | 17.6 | CLEAR | N/A | |
| | | 10 | 14.6 | 1580 | 7.97 | 15.0 | clear | N/A | |
| | | | | | | | | | |
| | | | | | | | | | |

Set
Date 9/28/18
Project No. 038443-360

1103 SS-174

| Depth | Sample ID | Time |
|---|---|---|
| 0-6" | S-38443-080818-JC-145 | 1110 |
| 6-24" | S-38443-080818-JC-146 | 1120 |
| 6-24" | S-38443-080818-JC-147 (dup of -146) | 1125 |

1135 SS-175

| DEPTH | SAMPLE ID | TIME |
|---|---|---|
| 0-6" | S-38443-080818-JC-148 | 1135 |
| 6-24" | S-38443-080818-JC-149 | 1145 |
| 6-24" | S-38443-080818-JC-149 MS | 1145 |
| 6-24" | S-38443-0808-18-JC-149 MSD | 1145 |

lunch

Pour rinse blank of SS bowl

RB-38443-080818-JC-150 (1345)
TB-38443-080818-005

1500 Offsite

[signature]



38443-360

Personel: J. Close / C. McLaughlin
Weather: sunny 70's-80's
Activities: well development.

0830 Onsite
0830 TGSM

0855 setup @ MW-230

0945 start development @ MW-230 using air lifting pump.

DTB: 38.17
SWL: 27.98
10.19 ⇒ 1.6 gals/vol

| Vol | pH | Cond | Temp |
|---|---|---|---|
| 1 | 6.22 | 1.255 mS/cm | 20.5°C |
| 2 | 7.17 | 1.300 | 21.9°C |
| 3 | 7.42 | 1.296 | 21.8°C |
| 4 | 7.49 | 1.310 | 20.5°C |
| 5 | 7.43 | 1.319 | 20.7°C |
| 6 | 7.44 | 1.268 | 18.7°C |
| 7 | 7.46 | 1.265 | 20.3°C |
| 8 | 7.35 | 1.259 | 18.9°C |
| 9 | 7.38 | 1.245 | 18.0°C |
| 10 | 7.31 | 1.275 | 18.5°C |

(54) 8/9/18

38443-360

0930 Calibration of YSI Pro 1030
(Premier # 5384)

| | STD | RDG |
|---|---|---|
| pH (#8011575) | 7.0 | 7.0 |
| (#708493) | 4.0 | 4.0 |
| Cond (#8032173) | 1.413 mS/cm | 1.413 mS/cm |

1230 Purged 16 gallons from MW-230

1245 lunch

1315 Decon pump

1325 Setup on MW-233

1350 START MW-233

DTB: 35.26
SWL: 21.45
13.81 => Vol => 22 gals

8/9/18 (55)

38443-360

| Vol | pH | Cond | Temp |
|---|---|---|---|
| 1 | 6.63 | 1.050 mS/cm | 24.8°C |
| 2 | 7.08 | 0.934 | 19.9°C |
| 3 | 7.18 | 0.926 | 19.3°C |
| 4 | 7.31 | 0.927 | 18.4°C |
| 5 | 7.30 | 0.924 | 18.7°C |
| 6 | 7.27 | 0.899 | 17.2°C |
| 7 | 7.30 | 0.923 | 17.4°C |
| 8 | 7.34 | 0.919 | 18.6°C |
| 9 | 7.34 | 0.906 | 17.6°C |
| 10 | 7.43 | 0.979 | 18.4°C |
| 11 | 7.43 | 0.943 | 18.5°C |
| 12 | 7.35 | 0.970 | 20.1°C |

1455 Purged a total of 26.8 gals.

1515 empty tank of purge water into Frac Tank

1545 Offsite

# Attachment 3

# MONITORING WELL RECORD FOR LOW-FLOW PURGING

(1235) GW-38443-032318-GL-001 MS/MSD
(1300) GW-38443-032318-GL-002 (DUPLICATE)

*Project Data:*

Project Name: SOUTH DAYTON DUMP
Ref. No.: 038443

Date: 3/23/18
Personnel: G. LEWIS

*Monitoring Well Data:*

Well No.: MW-214
Vapour PID (ppm): 0.0 ppm
Measurement Point: TOR
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in): 2" PVC
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 13.23

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[5] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1045 | BEGIN PURGING @ 300 mL/MIN | | | | | | | | | | |
| 1055 | 300 mL/min | 13.25 | | 13.12 | 0.855 | 33.4 | 0.52 | 7.08 | -155.1 | 3000mL | |
| 1105 | 300 mL/min | 13.25 | | 13.23 | 0.846 | 24.2 | 0.65 | 7.06 | -112.4 | 6000mL | |
| 1115 | 300 mL/min | 13.24 | | 13.29 | 0.844 | 15.1 | 0.91 | 7.05 | -77.6 | 9000mL | |
| 1125 | 300 mL/min | 13.25 | | 13.46 | 0.847 | 11.0 | 1.09 | 7.02 | -66.8 | 12000mL | |
| 1135 | 300 mL/min | 13.24 | | 13.54 ✓ | 0.850 ✓ | 8.11 | 1.15 × | 7.05 ✓ | -61.7 × | 15000mL | |
| 1145 | 300 mL/min | 13.25 | | 13.58 ✓ | 0.852 ✓ | 5.88 | 1.17 × | 7.05 ✓ | -56.3 ✓ | 18000mL | |
| 1155 | 300 mL/min | 13.24 | | 13.63 ✓ | 0.855 ✓ | 5.17 | 1.18 ✓ | 7.04 ✓ | -54.5 ✓ | 21000mL | |
| 1205 | 300 mL/min | 13.25 | | 13.54 ✓ | 0.857 ✓ | 4.88 ✓ | 1.19 ✓ | 7.04 | -53.6 ✓ | 24000mL | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

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**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 038443-360

Date: 10/16/18
Personnel: A. Stewart

Monitoring Well Data:

Well No.: MW-224B
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 27.05

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1015 Begin Purge @ 300 ml/min | | | | | | | | | | | |
| 1020 | 300 | 27.05 | -0- | 14.46 | 0.560 | 43.7 | 2.25 | 6.54 | 84.0 | 1,500 ml | |
| 1025 | 300 | 27.05 | -0- | 14.38 | 0.787 | 68.2 | 0.89 | 6.94 | 25.0 | 3,000 ml | |
| 1030 | 300 | 27.05 | -0- | 14.33 | 0.897 | 53.9 | 0.52 | 7.22 | -59.7 | 4,500 ml | |
| 1035 | 300 | 27.05 | -0- | 14.31 ✓ | 0.930 | 35.7 | 0.43 | 7.35 | -86.8 | 6,000 ml | |
| 1040 | 300 | 27.05 | -0- | 14.32 ✓ | 0.935 | 20.9 | 0.39 | 7.41 | -90.2 | 7,500 | |
| 1045 | 300 | 27.05 | -0- | 14.31 ✓ | 0.938 | 19.2 | 0.36 | 7.49 | -96.8 | 9,000 ml | |
| 1050 | 300 | 27.05 | -0- | 14.35 ✓ | 0.942 | 15.8 | 0.33 | 7.53 | -101.5 | 10,500 ml | |
| 1055 | 300 | 27.05 | -0- | 14.28 ✓ | 0.943 | 12.8 | 0.31 | 7.56 | -102.4 | 11,500 ml | |
| 1100 | 300 | 27.05 | -0- | 14.25 ✓ | 0.944 ✓ | 11.0 | 0.30 ✓ | 7.58 ✓ | -103.9 ✓ | 13,000 ml | |
| 1105 | 300 | 27.05 | -0- | 14.26 ✓ | 0.946 ✓ | 8.48 | 0.29 ✓ | 7.59 ✓ | -105.5 | 14,500 ml | |
| 1110 | 300 | 27.05 | -0- | 14.26 ✓ | 0.947 ✓ | 7.97 | 0.29 ✓ | 7.60 ✓ | -105.4 | 16,000 ml | |
| 1115 | 300 | 27.05 | -0- | 14.25 ✓ | 0.946 ✓ | 9.43 ✓ | 0.29 ✓ | 7.59 ✓ | -107.0 | 17,500 ml | |
| 1120 | | | | | | | | | | | |

Sample Time: 1120

Sample ID: GW-38443-101618-AS-214

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

.941 .946 15.9 13.2

215

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump

Ref. No.: ~~00~~ 03843-300 10/16/18

Date: 10/16/18

Personnel: A. Schwab

Monitoring Well Data:

Well No.: MW-224 A (1 of 2)

Vapour PID (ppm):

Measurement Point:

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)[1]:

Well Diameter, D (cm/in):

Well Screen Volume, $V_s$ (L)[2]:

Initial Depth to Water (m/ft): 26.47

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1210 - Begin Purge 300 mL/min | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1215 | 300 | 26.47 | 0 | 14.37 | 2.321 | 59.8 | 8.73 | 7.48 | 69.3 | 1,500 mL | |
| 1220 | 300 | 26.47 | 0 | 14.99 | 2.046 | 34.9 | 5.66 | 7.43 | 65.5 | 3,000 mL | |
| 1225 | 300 | 26.47 | 0 | 14.99 | 2.101 | 27.5 | 5.25 | 7.37 | 62.4 | 4,500 mL | |
| 1230 | 300 | 26.47 | 0 | 15.00 | 2.131 | 19.5 | 4.82 | 7.36 | 60.3 | 6,000 mL | |
| 1235 | 300 | 26.47 | 0 | 15.00 | 2.158 | 13.1 | 4.10 | 7.35 | 58.3 | 7,500 mL | |
| 1240 | 300 | 26.47 | 0 | 15.00 | 2.184 | 10.0 | 3.34 | 7.35 | 55.9 | 9,000 mL | |
| 1245 | 300 | 26.47 | 0 | 14.99 ✓ | 2.193 | 8.39 | 3.07 ✓ | 7.35 ✓ | 55.9 ✓ | 10,500 | |
| 1250 | 300 | 26.47 | 0 | 14.99 | 2.199 | 7.54 | 2.56 | 7.35 | 54.1 | 12,000 mL | |
| 1255 | 300 | 26.47 | 0 | 15.00 | 2.203 | 7.01 | 2.17 | 7.35 | 52.0 | 13,500 | |
| 1300 | 300 | 26.47 | 0 | 15.00 | 2.208 | 6.63 | 1.94 | 7.34 | 50.7 | 15,000 mL | |
| 1305 | 300 | 26.47 | 0 | 14.98 ✓ | 2.203 ✓ | 4.39 ✓ | 1.73 ✓ | 7.34 ✓ | 49.6 ✓ | 16,500 mL | |
| 1310 | 300 | 26.47 | 0 | 14.99 | 2.207 ✓ | 4.00 ✓ | 1.48 | 7.32 | 48.2 | 18,000 mL | |
| 1315 | 300 | 26.47 | 0 | 14.97 ✓ | 2.208 ✓ | 2.83 | 1.33 | 7.33 | 47.5 | 19,500 mL | |

Sample ID:

Sample Time:

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 038443

Date: 10/16/18
Personnel: A. Schwab

Monitoring Well Data:

Well No.: MW-224-A (2 of 2)
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 26.47

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1320 | 300 | 26.47 | 0 | 14.97 | 2.214 | 2.73 | 1.16 | 7.32 | 46.5 | 21,000mL | |
| 1325 | 300 | 26.47 | 0 | 14.96 | 2.210 | 3.20 ✓ | 1.05 | 7.32 | 45.7 | 22,500mL | |
| 1330 | 300 | 26.47 | 0 | 14.96 ✓ | 2.208 ✓ | 3.41 ✓ | 0.95 | 7.32 | 44.8 | 24,000mL | |
| 1335 | 300 | 26.47 | 0 | 14.98 ✓ | 2.211 ✓ | 1.96 ✓ | 0.85 | 7.32 ✓ | 44.3 ✓ | 25,500mL | |
| 1340 | 300 | 26.47 | 0 | 15.00 | 2.212 ✓ | 2.26 ✓ | 0.75 | 7.32 ✓ | 43.1 | 27,000mL | |
| 1345 | 300 | 26.47 | 0 | 14.98 ✓ | 2.212 ✓ | 2.75 ✓ | 0.70 | 7.33 ✓ | 42.8 ✓ | 28,500mL | |
| 1350 | 300 | 26.47 | 0 | 14.99 ✓ | 2.211 ✓ | 2.61 | 0.68 ✓ | 7.33 ✓ | 41.2 ✓ | 30,000mL | |
| 1355 | 300 | 26.47 | 0 | 14.99 | 2.212 ✓ | 2.53 | 0.64 ✓ | 7.33 | 41.5 ✓ | 31,500mL | |
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Sample ID: GW-38443-10/16/18-AS-215

Sample Time: 1400

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 38443-360

Date: 10/16/18
Personnel: J. Cook

Monitoring Well Data:

Well No.: MW-234
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft): 2
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): 10'
Depth to Pump Intake (m/ft)[1]: ~30'
Well Diameter, D (cm/in): 2"
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 15.37

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1435 | 400 | 15.37 | — | 20.72 | 0.380 | 541 | 2.36 | 6.72 | 85.0 | | |
| 1440 | 400 | 15.37 | — | 20.67 | 0.382 | 387 | 2.05 | 6.75 | 81.6 | | |
| 1445 | 400 | 15.37 | — | 20.37 | 0.394 | 237 | 1.29 | 6.82 | 72.8 | | |
| 1450 | 400 | 15.37 | — | 20.12 | 0.404 | 140 | 0.75 | 6.90 | 65.2 | | |
| 1455 | 400 | 15.37 | — | 20.05 | 0.409 | 104 | 0.61 | 6.93 | 61.1 | | |
| 1500 | 400 | 15.37 | — | 19.97 | 0.411 | 85.4 | 0.51 | 6.96 | 58.0 | | |
| 1505 | 400 | 15.37 | — | 19.96 | 0.411 | 76.9 | 0.47 | 6.97 | 56.5 | | |
| 1510 | 400 | 15.37 | — | 19.98 | 0.413 | 62.4 | 0.43 | 6.99 | 53.7 | | |
| 1515 | 400 | 15.37 | — | 19.94 | 0.413 | 60.3 | 0.42 | 7.01 | 51.1 | | |
| 1520 | 400 | 15.37 | — | 19.89 | 0.413 | 58.3 | 0.43 | 7.02 | 49.5 | | |
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Sample ID: GW-38443-101618-JC-216

Sample Time: 1530

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:
Project Name: South Dayton Dump
Ref. No.: 038443

Date: 10/12/18
Personnel: A. Schaar

Monitoring Well Data:
Well No.: MW-209 (1 of 2)
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 5.42

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 0845 Begin Purge @ 300 | | | | | | | | | | | |
| 0850 | 300 | 6.32 | 0.90 | 15.16 | 0.826 | 243 | 1.03 | 6.85 | -61.8 | 1,500 mL | |
| 0855 | 200 | 6.10 | 0.68 | 15.08 | 0.828 | 216 | 0.53 | 7.00 | -95.8 | 2,500 mL | |
| 0900 | 200 | 6.10 | 0.68 | 15.18 | 0.830 | 204 | 0.45 | 7.13 | -114.9 | 3,500 mL | |
| 0905 | 200 | 6.10 | 0.68 | 14.93 ✓ | 0.828 ✓ | 163 | 0.38 | 7.23 | -120.3 | 4,500 mL | |
| 0910 | 200 | 6.10 | 0.68 | 15.05 ✓ | 0.829 ✓ | 148 | 0.33 | 7.26 | -123.0 | 5,500 mL | |
| 0915 | 200 | 6.10 | 0.68 | 15.01 ✓ | 0.830 ✓ | 144 | 0.30 | 7.26 | -115.2 | 6,500 mL | |
| 0920 | 200 | 6.10 | 0.68 | 14.97 ✓ | 0.831 ✓ | 116 | 0.27 | 7.26 | -112.3 | 7,500 mL | |
| 0925 | 200 | 6.10 | 0.68 | 14.88 | 0.831 | 98.1 | 0.27 | 7.28 ✓ | -108.8 ✓ | 8,500 mL | |
| 0930 | 200 | 6.10 | 0.68 | 15.01 ✓ | 0.830 ✓ | 82.4 ✓ | 0.26 ✓ | 7.29 ✓ | -109.2 ✓ | 9,500 mL | |
| 0935 | 200 | 6.10 | 0.68 | 15.02 ✓ | 0.831 ✓ | 71.9 | 0.26 ✓ | 7.32 ✓ | -106.5 ✓ | 10,500 mL | |
| 0940 | 200 | 6.10 | 0.68 | 15.04 ✓ | 0.833 ✓ | 62.8 | 0.26 ✓ | 7.34 | -104.4 | 11,500 mL | |
| 0945 | 200 | 6.10 | 0.68 | 15.06 ✓ | 0.831 ✓ | 55.0 | 0.26 ✓ | 7.35 ✓ | -102.6 ✓ | 12,500 mL | |
| 0950 | 200 | 6.10 | 0.68 | 15.11 ✓ | 0.831 | 51.1 | 0.26 | 7.36 | -101.4 | 13,500 mL | |

Sample ID:

Sample Time:

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 038443

Date: 10/17/18
Personnel: A. Schuck

Monitoring Well Data:

Well No.: MW-209 (2 of 2)
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 5.42

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 0955 | 200 | 6.10 | ~~0.10~~ 0.68 | 15.06 ✓ | 0.828 ✓ | 48.1 ✓ | 0.26 ✓ | 7.37 ✓ | -97.1 | 14,500 mL | |
| 1000 | 200 | 6.10 | 0.68 | 15.07 ✓ | 0.830 ✓ | 47.0 | 0.26 | 7.37 ✓ | -95.3 | 15,500 mL | |
| 1005 | 200 | 6.10 | 0.68 | 15.09 ✓ | 0.831 ✓ | 39.0 | 0.26 | 7.38 ✓ | -95.4 ✓ | 16,500 mL | |
| 1010 | 200 | 6.10 | 0.68 | 15.09 ✓ | 0.832 ✓ | 40.6 | 0.26 | 7.38 | -98.9 | 17,500 | |
| 1015 | 200 | 6.10 | 0.68 | 15.08 ✓ | 0.831 ✓ | 42.9 ✓ | 0.26 ✓ | 7.38 ✓ | -98.1 ✓ | 18,500 mL | |
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Sample ID: GW-38443-101718-AS-218
Sample Time: 1025
1035

Notes: GW-38443-101718-AS-219

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

~~43.86~~ 26.92
37.98

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 038443

Date: 10/17/18
Personnel: A. Schwartz

Monitoring Well Data:

Well No.: MW-209A
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 5.81

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1205 Begin Purge @ 300mL | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1210 | 300 | 5.81 | 0 | 17.71 | 0.994 | 156 | 1.01 | 7.79 | -58.9 | 1,500mL | |
| 1215 | 300 | 5.81 | 0 | 15.06 | 0.999 | 28.2 | 0.38 | 7.55 | -95.8 | 3,000mL | |
| 1220 | 300 | 5.81 | 0 | 14.88 | 1.221 | 26.1 | 0.35 | 7.50 | -98.1 | 4,500mL | |
| 1225 | 300 | 5.81 | 0 | 14.94 | 1.247 | 16.0 | 0.30 | 7.46 | -97.4 | 6,000mL | |
| 1230 | 300 | 5.81 | 0 | 14.95✓ | 1.250 | 11.9 | 0.29 | 7.47 | -96.0 | 7,500mL | |
| 1235 | 300 | 5.81 | 0 | 14.92✓ | 1.252 | 6.84 | 0.26 | 7.47✓ | -95.5 | 9,000mL | |
| 1240 | 300 | 5.81 | 0 | 14.88✓ | 1.251✓ | 5.87 | 0.27✓ | 7.46✓ | -95.4✓ | 10,500mL | |
| 1245 | 300 | 5.81 | 0 | 14.92✓ | 1.252✓ | 3.74✓ | 0.26✓ | 7.49✓ | -94.0✓ | 12,000mL | |
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Sample ID: GW-38443-101718-AS-220

Sample Time: 1255

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

14.91
15.35
14.46

~~1.259~~
1.241
1.261

.27
.38
.24

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 038443

Date: 10/12/18
Personnel: A Schoenk

Monitoring Well Data:

Well No.: MW-212
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 20.01

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BSS Begin Purge @ 300 mL/min | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1400 | 300 | 20.01 | 0 | 14.40 | 0.650 | 75.0 | 1.75 | 9.27 | -80.8 | 1,500 mL | |
| 1405 | 300 | 20.01 | 0 | 14.39 | 0.669 | 60.6 | 0.63 | 9.08 | -120.1 | 3,000 mL | |
| 1410 | 300 | 20.01 | 0 | 14.35 | 0.669 | 56.5 | 0.54 | 8.88 | -127.1 | 4,500 mL | |
| 1415 | 300 | 20.01 | 0 | 14.30 ✓ | 0.669 ✓ | 54.6 | 0.50 | 8.75 | -125.9 | 6,000 mL | |
| 1420 | 300 | 20.01 | 0 | 14.29 ✓ | 0.668 ✓ | 54.5 | 0.63 | 8.65 | -132.4 | 7,500 | |
| 1425 | 300 | 20.01 | 0 | 14.27 ✓ | 0.668 ✓ | 57.2 | 0.58 | 8.56 | -135.8 | 9,000 mL | |
| 1430 | 300 | 20.01 | 0 | 14.29 ✓ | 0.669 ✓ | 48.9 ✗ | 0.54 ✓ | 8.51 ✗ | -138.7 ✓ | 10,500 mL | |
| 1435 | 300 | 20.01 | 0 | 14.29 | 0.670 ✓ | 41.6 | 0.52 ✓ | 8.45 ✗ | -140.1 | 12,000 | |
| 1440 | 300 | 20.01 | 0 | 14.30 ✓ | 0.671 ✓ | 33.6 | 0.50 | 8.42 | -140.0 | 13,500 | |
| 1445 | 300 | 20.01 | 0 | 14.30 | 0.672 ✓ | 26.6 | 0.49 | 8.38 | -144.6 | 15,000 mL | |
| 1450 | 300 | 20.01 | 0 | 14.31 ✓ | 0.672 ✓ | 23.9 | 0.49 ✓ | 8.36 ✓ | -143.2 ✓ | 16,500 mL | |
| 1455 | 300 | 20.01 | 0 | 14.32 ✓ | 0.673 ✓ | 22.6 | 0.49 ✓ | 8.34 ✓ | -144.5 | 18,000 mL | |
| 1500 | 300 | 20.01 | 0 | 14.33 ✓ | 0.673 ✓ | 21.9 ✓ | 0.49 ✓ | 8.32 ✓ | -140.3 | 19,500 mL | |

Sample ID: GW-38443-101718-AS-222

Sample Time: 1510

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

21.75 53.5 55.4 48.1 60.9 49.86 .57 .58 .42 .51 .52 8.65 8.57 8.55 8.47

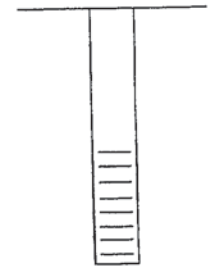
**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:
Project Name: South Dayton Dump
Ref. No.: 38443-360

Date: 10/17/18
Personnel: J. Cook

Monitoring Well Data:
Well No.: MW-217
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): 10'
Depth to Pump Intake (m/ft)[1]: ~
Well Diameter, D (cm/in): 2"
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 27.78



| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 0930 | 400 | 27.78 | — | 14.93 | 0.795 | 453 | 5.00 | 6.48 | 149.3 | | |
| 0935 | 400 | 27.78 | — | 14.48 | 0.947 | 228 | 3.35 | 6.57 | 131.1 | | |
| 0940 | 400 | 27.78 | — | 14.39 | 0.990 | 69.0 | 1.54 | 6.62 | 123.7 | | |
| 0945 | 400 | 27.78 | — | 14.31 | 1.005 | 31.5 | 0.82 | 6.67 | 116.4 | | |
| 0950 | 400 | 27.78 | — | 14.31 | 1.010 | 11.6 | 0.77 | 6.69 | 112.1 | | |
| 0955 | 400 | 27.78 | — | 14.28 | 1.011 | 7.97 | 0.73 | 6.71 | 107.6 | | |
| 1000 | 400 | 27.78 | — | 14.35 | 1.012 | 5.36 | 0.64 | 6.72 | 103.4 | | |
| 1005 | 400 | 27.78 | — | 14.47 | 1.017 | 5.45 | 0.73 | 6.73 | 96.9 | | |
| 1010 | 400 | 27.78 | — | 14.51 | 1.017 | 4.11 | 0.75 | 6.74 | 94.0 | | |
| 1015 | 400 | 27.78 | — | 14.59 | 1.019 | 4.74 | 0.79 | 6.74 | 90.7 | | |
| | | | | | | | | | | | |
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Sample ID: GW-38443-101718-JC-217 (ms/msD)  Sample Time: 1030

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 38443-3620

Date: 10/7/18
Personnel: J. Cook

Monitoring Well Data:

Well No.: MW-230
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): 10'
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 28.35

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Precision Required[5]: | | | | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1355 | 450 | 28.35 | — | 14.53 | 0.867 | >1000 | 4.72 | 6.88 | 79.0 | | |
| 1400 | 450 | 28.35 | — | 14.56 | 0.872 | >1000 | 2.44 | 6.71 | 65.1 | | |
| 1405 | 450 | 28.35 | — | 14.61 | 0.873 | 316 | 0.55 | 6.65 | 56.0 | | |
| 1410 | 450 | 28.35 | — | 14.66 | 0.873 | 145 | 0.33 | 6.63 | 47.1 | | |
| 1415 | 450 | 28.35 | — | 14.64 | 0.872 | 125 | 0.30 | 6.62 | 44.2 | | |
| 1420 | 450 | 28.35 | — | 14.63 | 0.872 | 125 | 0.29 | 6.63 | 43.3 | | |
| 1425 | 450 | 28.35 | — | 14.69 | 0.872 | 128 | 0.25 | 6.62 | 39.5 | | |
| 1430 | 450 | | | | | | | | | | |
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Sample ID: GW-38443-101718-JC-221

Sample Time: 1440

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 038443

Date: 10/18/18
Personnel: A. Schuetz

Monitoring Well Data:

Well No.: MW-235 (1 of 2)
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 25.10

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 0910 - Begin Purge @ 200mL/min | | | | | | | | | | | |
| 0915 | 200 | 25.10 | 0 | 14.21 | 1.484 | 71000 | 3.09 | 6.94 | -17.3 | 1,000mL | |
| 0920 | 200 | 25.10 | 0 | 14.59 | 1.505 | 71000 | 0.69 | 6.56 | -55.9 | 2,000mL | |
| 0925 | 200 | 25.10 | 0 | 14.72 | 1.511 | 71000 | 0.51 | 6.58 | -65.8 | 3,000mL | |
| 0930 | 200 | 25.10 | 0 | 14.77 | 1.515 | 71000 | 0.48 | 6.60 | -61.2 | 4,000mL | |
| 0935 | 200 | 25.10 | 0 | 14.73✓ | 1.515✓ | 71000 | 0.37✓ | 6.59 | -68.3 | 5,000mL | |
| 0940 | 200 | 25.10 | 0 | 14.80 | 1.516✓ | 71000 | 0.31 | 6.60 | -72.7 | 6,000mL | |
| 0945 | 400 | 25.10 | 0 | 14.99 | 1.522✓ | 71000 | 0.22 | 6.60 | -76.4 | 8,000mL | |
| 0950 | 400 | 25.11 | -.01 | 15.02✓ | 1.522✓ | 930 | 0.21 | 6.60 | -77.6 | 10,000mL | |
| 0955 | 400 | 25.11 | -.01 | 15.07✓ | 1.523✓ | 558 | 0.19 | 6.60 | -78.9 | 12,000mL | |
| 1000 | 400 | 25.11 | -.01 | 15.08✓ | 1.522✓ | 342 | 0.19 | 6.60 | -79.5 | 14,000mL | |
| 1005 | 400 | 25.11 | -.01 | 15.08✓ | 1.523 | 209 | 0.21 | 6.61 | -69.5 | 16,000mL | |
| 1010 | 400 | 25.11 | -.01 | 15.12✓ | 1.524✓ | 116 | 0.21 | 6.61 | -76.2 | 18,000mL | |
| 1015 | 400 | 25.11 | -.01 | 15.07 | 1.521✓ | 70.1 | 0.22 | 6.61 | -77.6 | 20,000mL | |

Closed on stabilization

Sample ID:

Sample Time:

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

**Project Data:**

Project Name: South Drayton Dump
Ref. No.: 038443

Date: 10/18/18
Personnel: A. Schaale

**Monitoring Well Data:**

Well No.: MW-235 (2 of 2)
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 25.10

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1020 | 400 | 25.11 | .01 | 15.12 ✓ | 1.523 ✓ | 51.9 | 0.21 | 6.60 | -78.9 | 22,000 mL | |
| 1025 | 400 | 25.11 | .01 | 15.14 ✓ | 1.523 ✓ | 31.9 | 0.16 | 6.61 | -79.5 | 24,000 mL | |
| 1030 | 400 | 25.11 | .01 | 15.13 ✓ | 1.523 ✓ | 25.2 | 0.19 | 6.61 ✓ | -79.7 ✓ | 26,000 mL | |
| 1035 | 400 | 25.11 | .01 | 15.11 ✓ | 1.522 ✓ | 22.3 | 0.19 | 6.61 ✓ | -80.0 | 28,000 mL | |
| 1040 | 400 | 25.11 | .01 | 15.13 ✓ | 1.521 | 15.5 | 0.20 ✓ | 6.61 | -80.0 | 30,000 mL | |
| 1045 | 400 | 25.11 | .01 | 15.15 ✓ | 1.523 ✓ | 13.1 | 0.19 ✓ | 6.61 | -80.2 | 32,000 mL | |
| 1050 | 400 | 25.11 | .01 | 15.17 ✓ | 1.523 ✓ | 10.9 | 0.20 ✓ | 6.63 | -80.1 | 34,000 mL | |
| 1055 | 400 | 25.11 | .01 | 15.18 ✓ | 1.523 ✓ | 9.59 | 0.21 ✓ | 6.64 | -79.9 | 36,000 mL | |
| 1100 | 400 | 25.11 | .01 | 15.20 ✓ | 1.522 ✓ | 8.60 | 0.22 ✓ | 6.64 | -79.8 | 38,000 mL | |
| 1105 | 400 | 25.11 | .01 | 15.19 | 1.520 ✓ | 7.24 | 0.22 ✓ | 6.64 | -79.4 | 40,000 mL | |
| 1110 | 400 | 25.11 | .01 | 15.20 ✓ | 1.521 | 5.44 | 0.22 ✓ | 6.64 | -78.9 | 42,000 mL | |
| 1115 | 400 | 25.11 | .01 | 15.21 ✓ | 1.522 ✓ | 5.42 | 0.23 ✓ | 6.64 ✓ | -69.6 ✓ | 44,000 mL | |
| 1120 | 400 | 25.11 | .01 | 15.25 | 1.522 ✓ | 4.98 ✓ | 0.22 ✓ | 6.65 ✓ | -73.1 | 46,000 mL | |

Sample ID: GW-38443-101818-AS-224

Sample Time: 1130

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

**Project Data:**

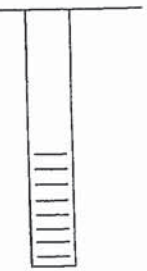
Project Name: South Dayton Dump
Ref. No.: 038443

Date: 10/18/18
Personnel: A. Schwartz

**Monitoring Well Data:**

Well No.: MW-233 (1 of 2)
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 21.54



| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1215 - Begin Purge @ 400 mL/min | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1220 | 400 | 21.54 | 0 | 13.89 | 0.758 | 102 | 2.25 | 7.82 | 17.1 | 2,000 mL | |
| 1225 | 400 | 21.54 | 0 | 13.82 | 0.776 | 127 | 1.15 | 7.23 | 19.5 | 4,000 mL | |
| 1230 | 400 | 21.54 | 0 | 13.78 | 0.804 | 87.1 | 0.80 | 7.11 | 21.4 | 6,000 mL | |
| 1235 | 400 | 21.54 | 0 | 13.78 | 0.820 | 53.2 | 0.71 | 7.04 | 22.9 | 8,000 mL | |
| 1240 | 400 | 21.54 | 0 | 13.77 | 0.830 | 38.4 | 0.61 | 7.01 | 23.9 | 10,000 mL | |
| 1245 | 400 | 21.54 | 0 | 13.78 | 0.838 | 30.6 | 0.55 | 7.00 | 24.5 | 12,000 mL | |
| 1250 | 400 | 21.54 | 0 | 13.77 ✓ | 0.842 | 24.6 | 0.49 | 6.99 | 25.0 | 14,000 | |
| 1255 | 400 | 21.54 | 0 | 13.79 ✓ | 0.845 | 24.0 | 0.47 | 6.98 | 25.4 | 16,000 mL | |
| 1300 | 400 | 21.54 | 0 | 13.78 ✓ | 0.846 ✓ | 24.4 | 0.46 | 6.98 | 26.0 ✓ | 18,000 mL | |
| 1305 | 400 | 21.54 | 0 | 13.78 ✓ | 0.849 ✓ | 19.9 ✓ | 0.42 ✓ | 6.97 ✓ | 26.4 ✓ | 20,000 mL | |
| 1310 | 400 | 21.54 | 0 | 13.76 ✓ | 0.854 | 16.2 | 0.40 | 6.97 ✓ | 26.7 | 22,000 mL | |
| 1315 | 400 | 21.54 | 0 | 13.76 ✓ | 0.856 | 14.2 | 0.40 | 6.97 | 21.1 | 24,000 mL | |
| 1320 | 400 | 21.54 | 0 | 13.75 ✓ | 0.858 ✓ | 11.9 | 0.38 | 6.97 | 27.5 | 28,000 mL | |

Sample ID:

Sample Time:

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

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839
849

24.3
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**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

**Project Data:**

Project Name: South Dayton Pump
Ref. No.: 038443

Date: 10/18/18
Personnel: A. Schwab

**Monitoring Well Data:**

Well No.: MW-233 (2 of 2)
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 21.54

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Precision Required[5]: | | | | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1325 | 400 | 21.54 | 0 | 13.75 | 0.860 | 8.87 | 0.37 | 6.97 | 27.8 | 30,000 mL | |
| 1330 | 400 | 21.54 | 0 | 13.74 | 0.861 | 7.16 | 0.37 | 6.97 | 28.1 | 32,000 mL | |
| 1335 | 400 | 21.54 | 0 | 13.77 ✓ | 0.862 ✓ | 6.74 | 0.37 ✓ | 6.96 ✓ | 28.3 ✓ | 34,000 mL | |
| 1340 | 400 | 21.54 | 0 | 13.78 ✓ | 0.864 ✓ | 5.37 | 0.37 ✓ | 6.97 ✓ | 28.5 | 36,000 mL | |
| 1345 | 400 | 21.54 | 0 | 13.76 ✓ | 0.865 ✓ | 4.91 ✓ | 0.37 ✓ | 6.97 | 28.9 | 38,000 mL | |
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**Sample ID:** GW-38443-101818-AS-225

**Sample Time:** 1355

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm. For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:

Project Name: South Dayton Dump
Ref. No.: 38443-360

Date: 10/24/18
Personnel: J. Cook

Monitoring Well Data:

Well No.: MW-223B
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): 10'
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 26.63

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Precision Required[5]: | | | | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 1335 | 350 | 26.63 | — | 16.49 | 0.500 | 52.0 | 5.51 | 6.79 | 83.7 | | |
| 1340 | 350 | 26.63 | — | 15.92 | 0.488 | 52.5 | 4.00 | 6.75 | 50.2 | | |
| 1345 | 350 | 26.63 | — | 15.65 | 0.485 | 58.8 | 2.22 | 6.81 | 3.0 | | |
| 1350 | 350 | 26.63 | — | 15.48 | 0.481 | 79.4 | 1.32 | 6.91 | -48.2 | | |
| 1355 | 350 | 26.63 | — | 15.41 | 0.481 | 77.2 | 1.24 | 6.92 | -53.9 | | |
| 1400 | 350 | 26.63 | — | 15.29 | 0.480 | 88.3 | 1.15 | 6.96 | -71.4 | | |
| 1405 | 350 | 26.63 | — | 15.50 | 0.484 | 90.4 | 0.95 | 6.99 | -80.0 | | |
| 1410 | 350 | 26.63 | — | 15.24 | 0.483 | 80.5 | 0.92 | 7.03 | -86.6 | | |
| 1415 | 350 | 26.63 | — | 15.14 | 0.481 | 66.6 | 0.94 | 7.05 | -93.6 | | |
| 1420 | 350 | 26.63 | — | 15.12 | 0.481 | 58.6 | 0.93 | 7.06 | -96.7 | | |
| 1425 | 350 | 26.63 | — | 15.12 | 0.481 | 60.2 | 0.88 | 7.08 | -99.8 | | |

Sample ID: GW-38443-102418-JC-226

Sample Time: 1430

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.

**Monitoring Well Record for Low-Flow Purging**
**(Form SP-09)**

Project Data:
Project Name: South Dayton Dump
Ref. No.: 38440-360

Date: 10/25/18
Personnel: J. Cox

Monitoring Well Data:
Well No.: MW-223A
Vapour PID (ppm):
Measurement Point:
Constructed Well Depth (m/ft):
Measured Well Depth (m/ft):
Depth of Sediment (m/ft):

Saturated Screen Length (m/ft): 10
Depth to Pump Intake (m/ft)[1]:
Well Diameter, D (cm/in):
Well Screen Volume, $V_s$ (L)[2]:
Initial Depth to Water (m/ft): 26.39

| Time | Pumping Rate (mL/min) | Depth to Water (m/ft) | Drawdown from Initial Water Level[3] (m/ft) | Temperature °C | Conductivity (mS/cm) | Turbidity NTU | DO (mg/L) | pH | ORP (mV) | Volume Purged, Vp (L) | No. of Well Screen Volumes Purged[4] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Precision Required[5]: | ±3 % | ±0.005 or 0.01[6] | ±10 % | ±10 % | ±0.1 Units | ±10 mV | | |
| 0930 | 500 | 26.39 | — | 14.90 | 0.633 | 252 | 4.80 | 5.95 | 144.1 | | |
| 0935 | 500 | 26.39 | — | 15.32 | 0.677 | 16.7 | 0.90 | 6.32 | 120.0 | | |
| 0940 | 500 | 26.39 | — | 15.46 | 0.691 | 4.39 | 0.65 | 6.58 | 104.7 | | |
| 0945 | 500 | 26.39 | — | 15.47 | 0.695 | 3.49 | 0.66 | 6.68 | 99.7 | | |
| 0950 | 500 | 26.39 | — | 15.47 | 0.696 | 1.92 | 0.61 | 6.77 | 94.8 | | |
| 0955 | 500 | 26.39 | — | 15.49 | 0.696 | 1.42 | 0.58 | 6.78 | 94.3 | | |
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Sample ID: GW-38443-102518-JC-227

Sample Time: 1000

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s=\pi*(r^2)*L$ in mL, where r (r=D/2) and L are in cm.
For Imperial units, $V_s=\pi*(r^2)*L*(2.54)^3$, where r and L are in inches

(3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

(5) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.